the uninsured
RELATIVE WORKSHOP inc
Engineering Department

THREE-RING RISER CONSTRUCTION MANUAL

AUGUST 1998 SPECIFICATIONS

RELATIVE WORKSHOP

"Through advanced innovation and design, the Relative Workshop is the industry leader in providing skydiving equipment of the highest safety, quality and durability standards. Skydiving is our passion, excellence is our goal."

1645 Lexington Avenue DeLand, FL 32724-2106 USA ◆ Telephone 386 736 7589 ◆ Fax 386 734 7537 ◆ www.relativeworkshop.com
Engineering ◆ engineering@relativeworkshop.com

RELATIVE WORKSHOP

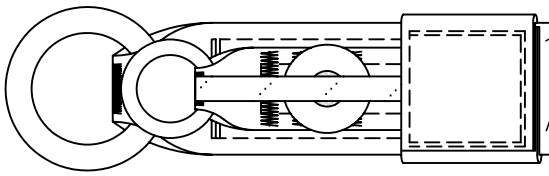
3-RING RISER CONSTRUCTION MANUAL

AUGUST, 1998 SPECIFICATION

TABLE OF CONTENTS

SECTION 1

TYPE-17 MINI 3-RING RISER



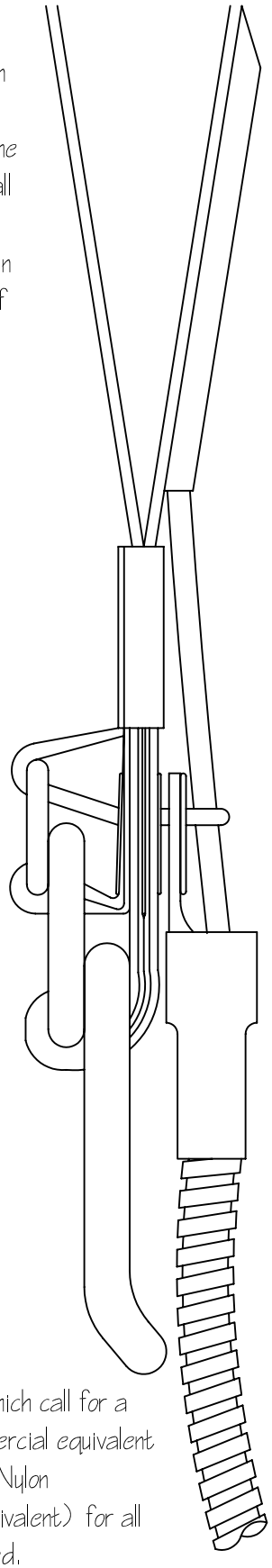
Type-17 Mini 3-ring Riser Construction
August, 1998

Between January and May of 1998, Relative Workshop's engineering staff performed an extensive study of the mechanics, function, and limitations of the 3-ring system. All types of 3-ring risers, both mini and standard, were studied. The results of these tests culminated into the revision of our 3-ring construction drawings.

The major change to the construction of the Type-17 Mini 3-ring Risers is in the installation of the Type-3 Tape reinforcement. In 1993, Type-3 Tape reinforcement was added to increase the overall breaking strength of the riser. While the reinforcement did increase the breaking strength of the 3-ring section of the riser, it did not prevent the riser from occasionally breaking at the grommet. In order to significantly decrease the chances of this happening, this revision calls for an extra layer of reinforcement in the grommet area (Page 2).

When finished, installed, and under load, the rings of the Type-17 Mini 3-ring Riser should be parallel as shown in the figure at the right. To achieve this, the riser must be made to the exact measurements given. The small ring's low mounting on the riser may create a tight fit during installation of the finished riser to the main harness ring, but this allows the riser to stretch into correct alignment as high loads are applied, rather than out of it.

These directions cover the construction of the critical section of the riser which attaches to the main harness ring. The top section, with toggle attachments and link loops is left to the specific design of the manufacturer. All construction drawings are to scale, so you can use them during the manufacture to check for accuracy. If you have any questions, please call Relative Workshop. Remember, accuracy is critical with riser construction.

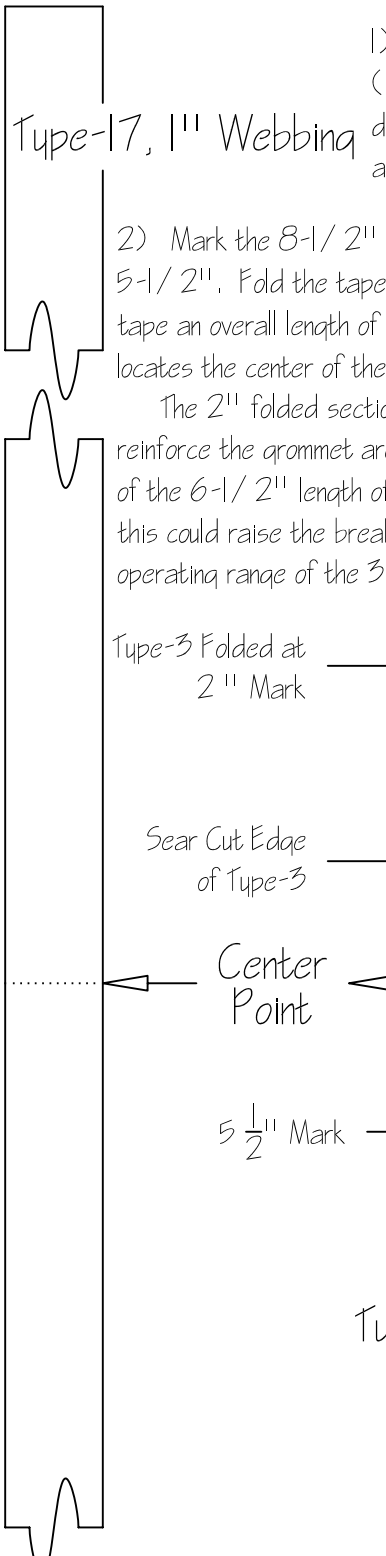


Materials

For Each Set of Risers

- Type-17, 1" Webbing (Mil-W-27265) - Two pieces, each approximately 60" long (length varies with desired finished length of the risers)
- Type-4, 1" Square Weave Tape (Mil-T-5038) - Two pieces, each 3-1/4" long (for confluence wrap)
- Type-4, 5/8" Square Weave Tape (Mil-T-5038) - Two pieces, each 5" long
- Type-3, 1" Binding Tape (Mil-T-5038) - Two pieces, each 8-1/2" long
- Type-3, 3/4" Binding Tape (Mil-T-5038) - Two pieces, each 7-1/2" long
- Type2A, 550 lb. Sheathing (Mil-C-5040G(2)) - Two pieces, each 5" long
- RW-3(S) - Two (Note: (S) denotes that the stainless steel RW-3S may be used)
- RW-4(S) - Two (Note: (S) denotes that the stainless steel RW-4S may be used)
- #0 Stainless Rolled Rim Grommet, Long Shank (G-RW0-SS-RRG) - Two
- #0 Stainless Spur Washer (G-0-SS-SW) - Two
- E-Thread Nylon (Mil-T-7807)
- S-Cord Nylon (Mil-T-7807)

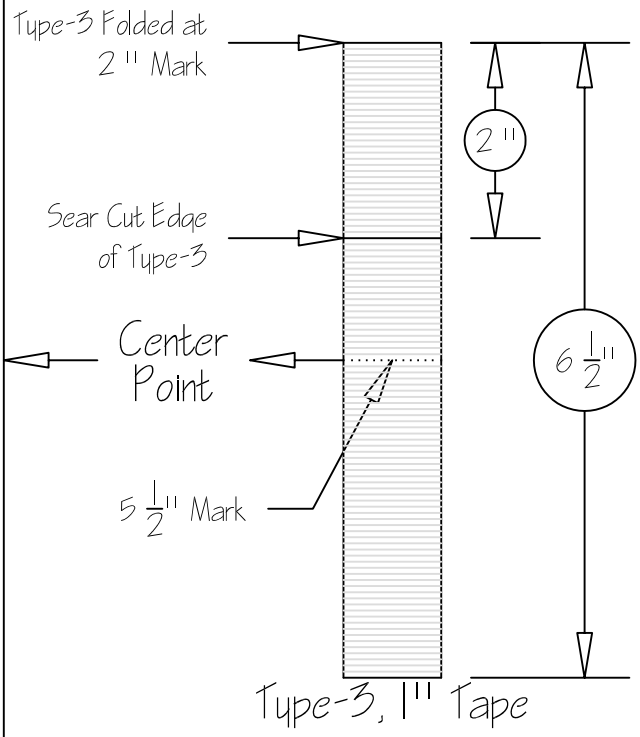
Note: For the materials above which call for a Military Specification, their commercial equivalent may be used. Use only E-thread Nylon (Mil-T-7807 or commercial equivalent) for all stitching unless otherwise specified.



1) Start with a 60" piece of Type-17 (this measurement is not set, but is at descretion of manufacturer). Measure and mark the center point.

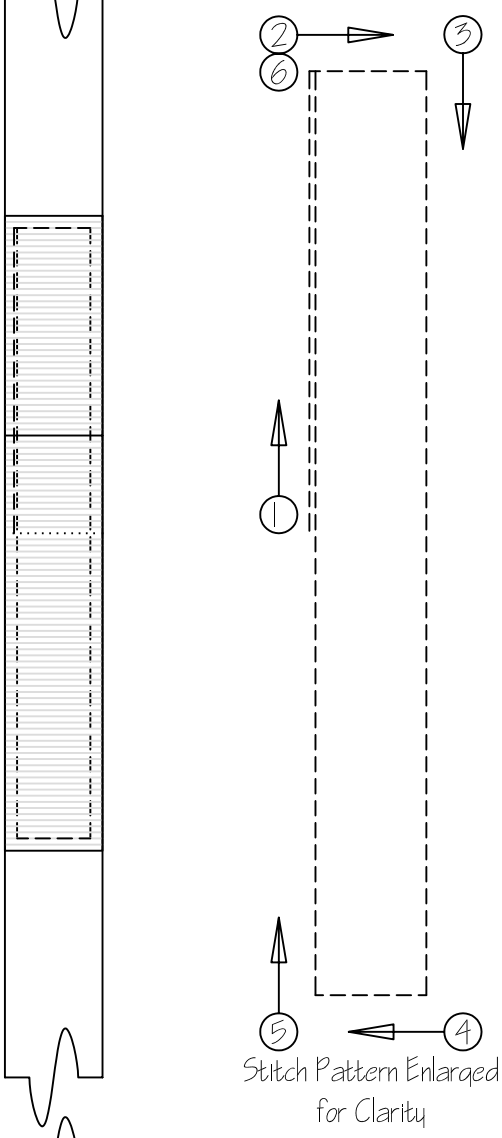
2) Mark the 8-1/2" piece of Type-3, 1" Tape at 2" and 5-1/2". Fold the tape at the 2" mark, giving the folded tape an overall length of 6-1/2". The 5-1/2" mark locates the center of the 6-1/2" length.

The 2" folded section of Type-3 tape acts only to reinforce the grommet area of the 3-ring. No other portion of the 6-1/2" length of Type-3 tape should be doubled as this could raise the breaking strength of the riser above the operating range of the 3-ring.



3) Place the 6-1/2" length of folded Type-3 over the Type-17 so that the 5-1/2" mark of the Type-3 is on top of the Type-17's center mark. The folded portion of the Type-3 should face away from the Type-17.

4) Sew the Type-3 onto the Type-17 using the stitch pattern shown below.



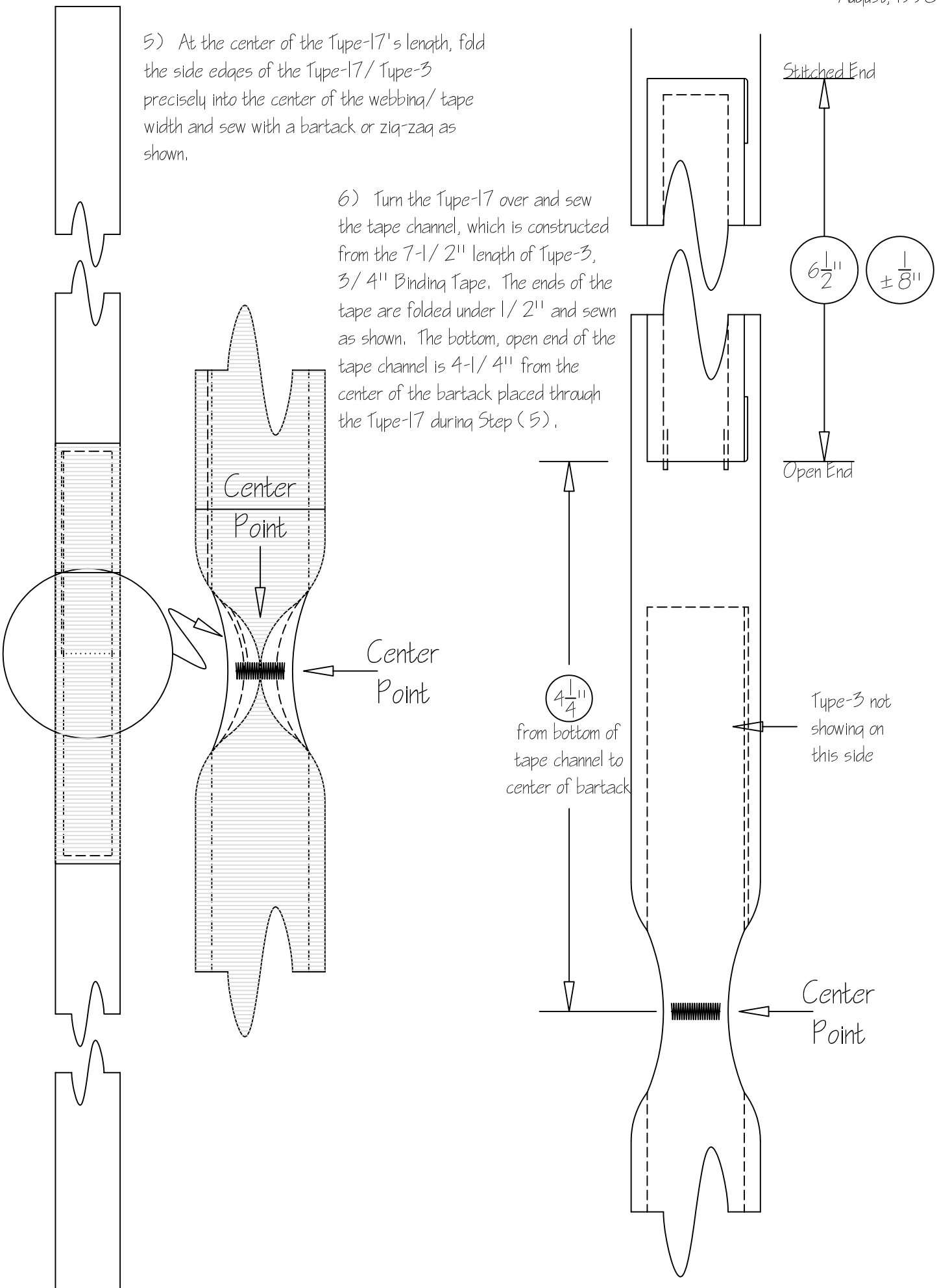
Stitch Pattern Enlarged for Clarity

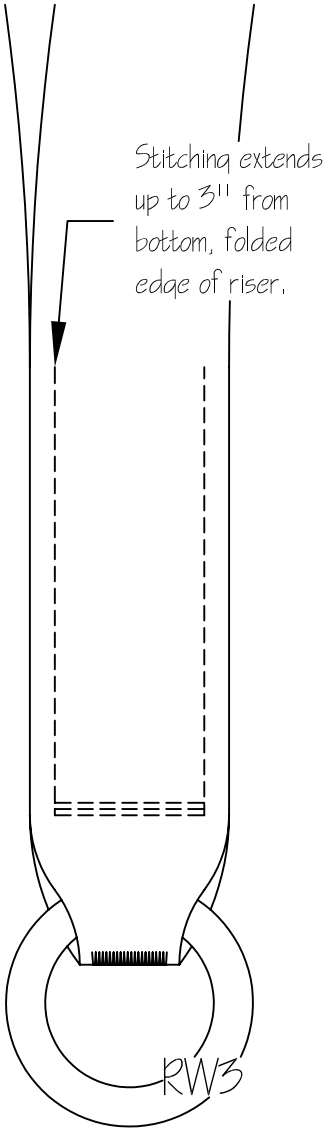
Tolerances:

In the following construction drawings, all tolerances are ±1/16" unless otherwise specified.

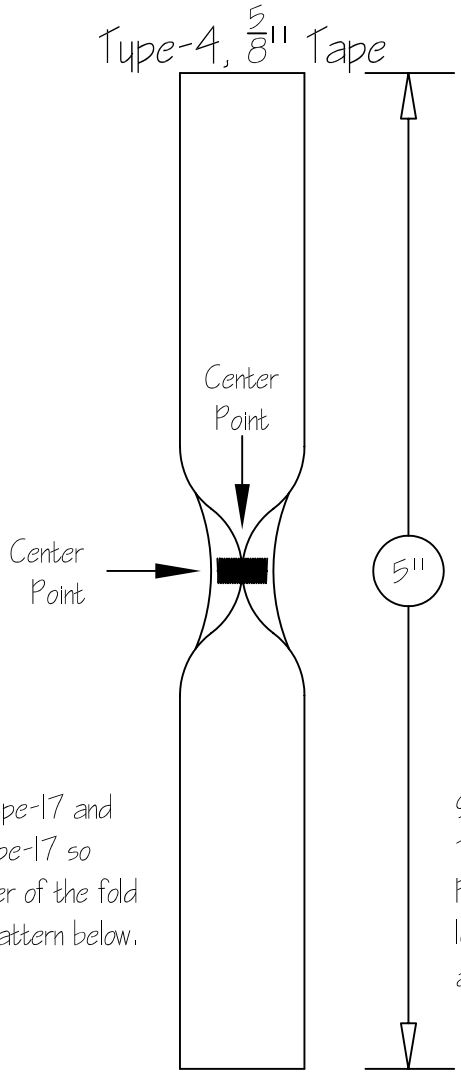
5) At the center of the Type-17's length, fold the side edges of the Type-17/ Type-3 precisely into the center of the webbing/ tape width and sew with a bartack or zig-zag as shown.

6) Turn the Type-17 over and sew the tape channel, which is constructed from the 7-1/ 2" length of Type-3, 3/ 4" Binding Tape. The ends of the tape are folded under 1/ 2" and sewn as shown. The bottom, open end of the tape channel is 4-1/ 4" from the center of the bartack placed through the Type-17 during Step (5).

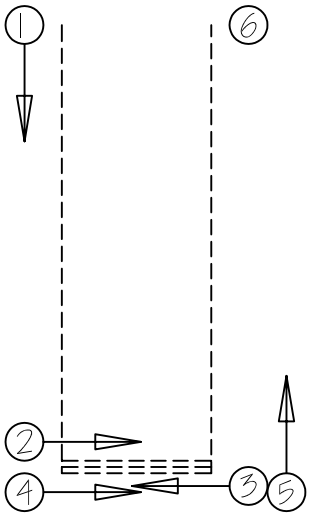


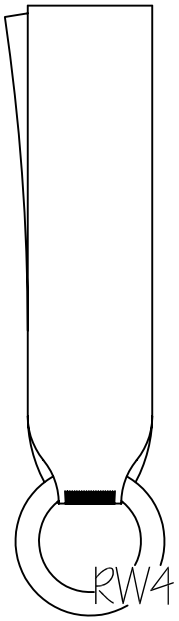


7) Slip the RW-3(S) ring onto the Type-17 and slide it to the center point. Fold the Type-17 so that the bartack is located at the center of the fold as shown above. Sew using the stitch pattern below.



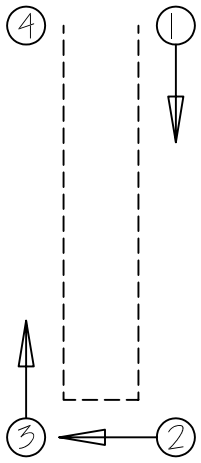
8) Find and mark the centerpoint of the 5" length of the Type-4, 5/8" Square Weave Tape. At the centerpoint, fold the side edges of the tape precisely into the center of the tape width and sew with a short bartack or zig-zag as shown.





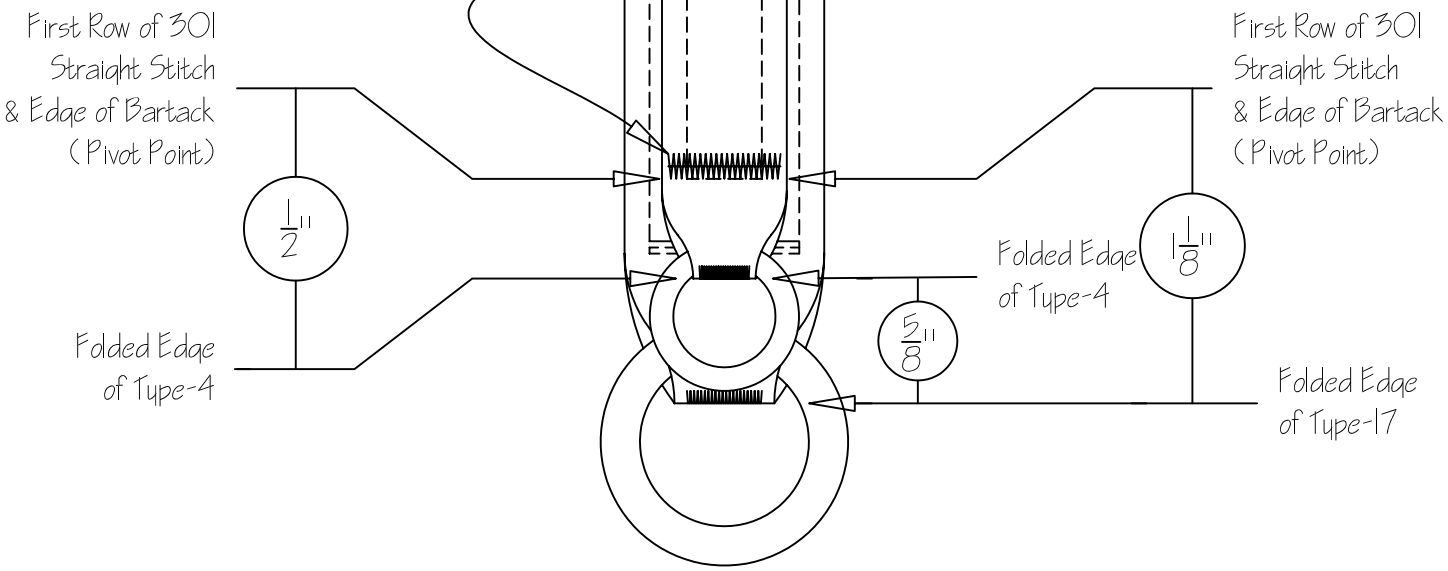
9) Slip the RW-4(S) ring onto the Type-4 and slide it to the center point. Fold the Type-4 so that the bartack is located at the center of the fold as shown above.

10) Sew the Type-4 with the RW-4(S) ring onto the riser as shown, measuring carefully. Use the stitch pattern shown at the upper right.

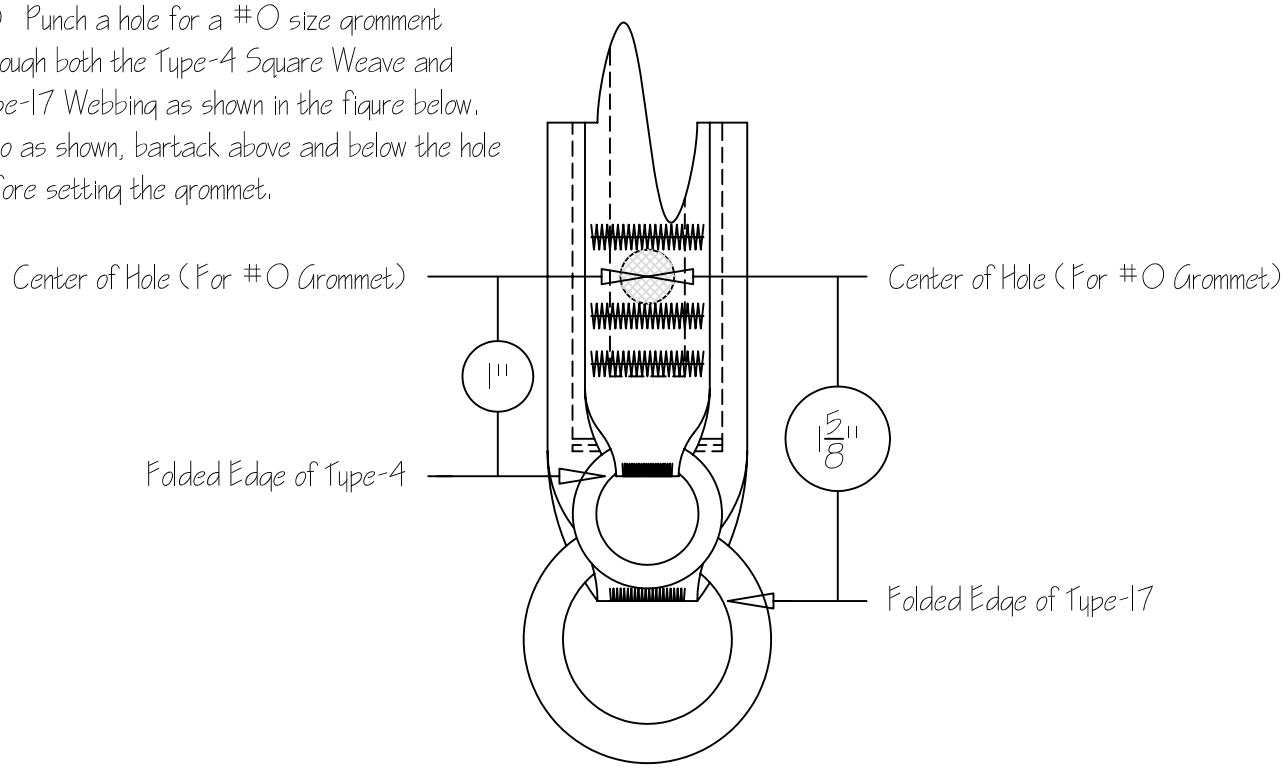


Stitching extends up to 3" from bottom, folded edge of riser

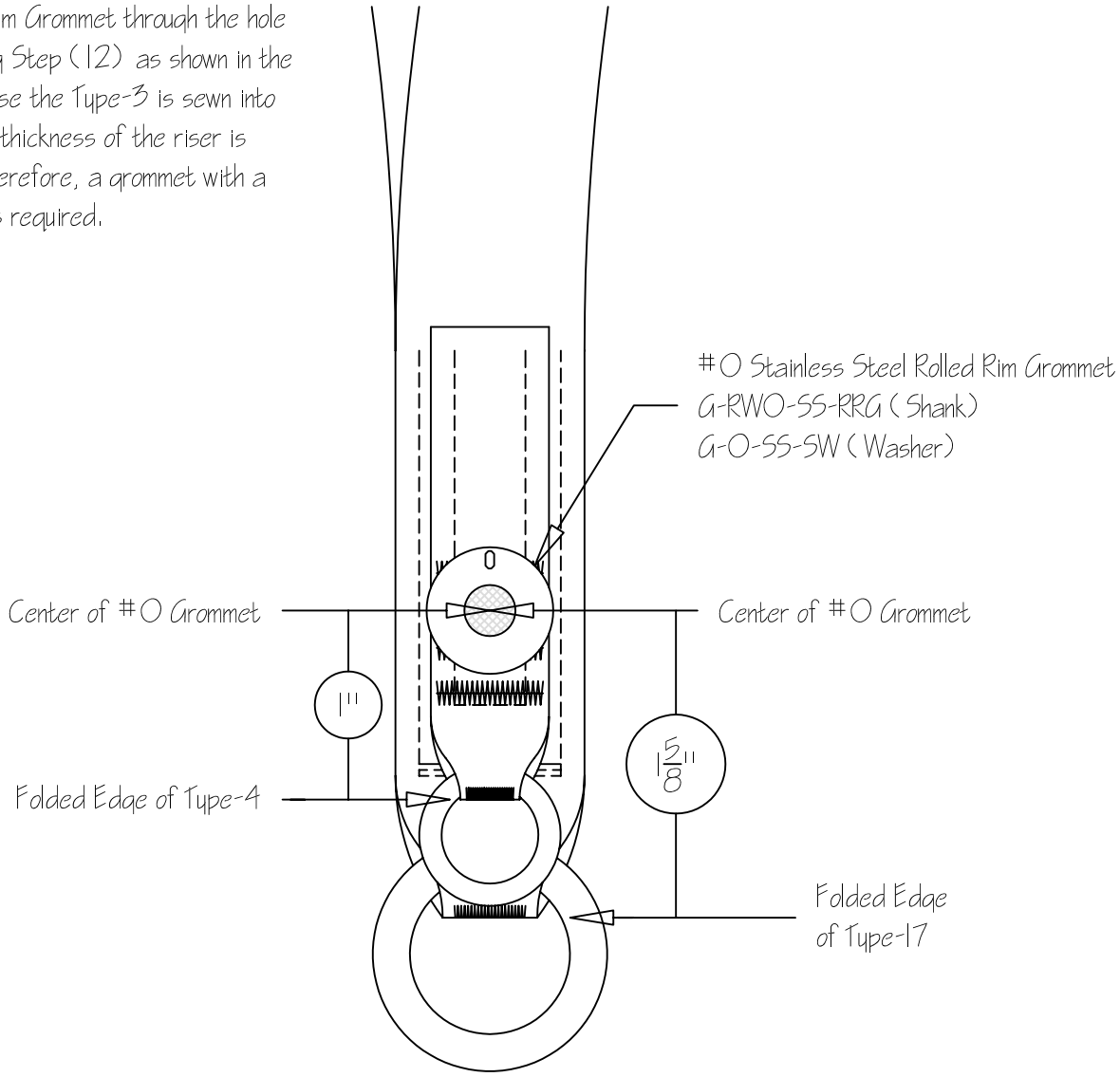
11) Place a single bartack (or zig-zag stitch) with a minimum of 42 stitches per inch just behind the row of straight stitching across the width of Type-4. (i.e. the stitches of the bartack closest to the RW-4(S) ring should be even with, but not step over, the straight needle stitching)



12) Punch a hole for a #0 size grommet through both the Type-4 Square Weave and Type-17 Webbing as shown in the figure below. Also as shown, bartack above and below the hole before setting the grommet.

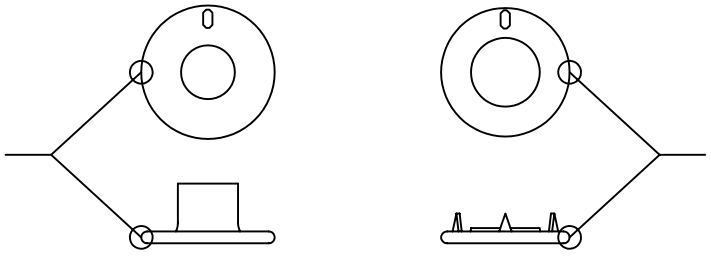


13) Set the long shank, #0 Stainless Steel Rolled Rim Grommet through the hole punched during Step (12) as shown in the figure. Because the Type-3 is sewn into the riser, the thickness of the riser is increased. Therefore, a grommet with a longer shank is required.

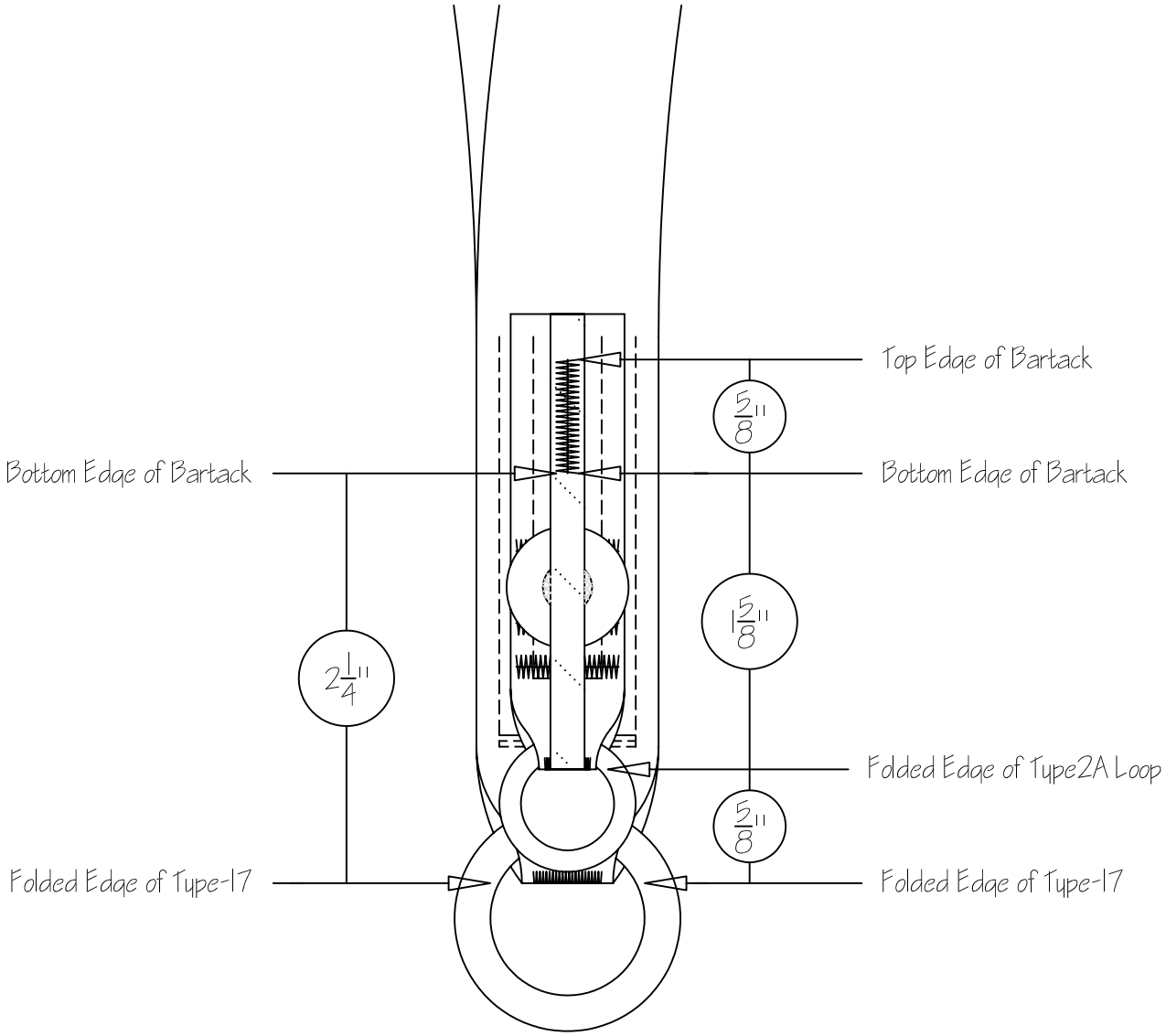


Important:

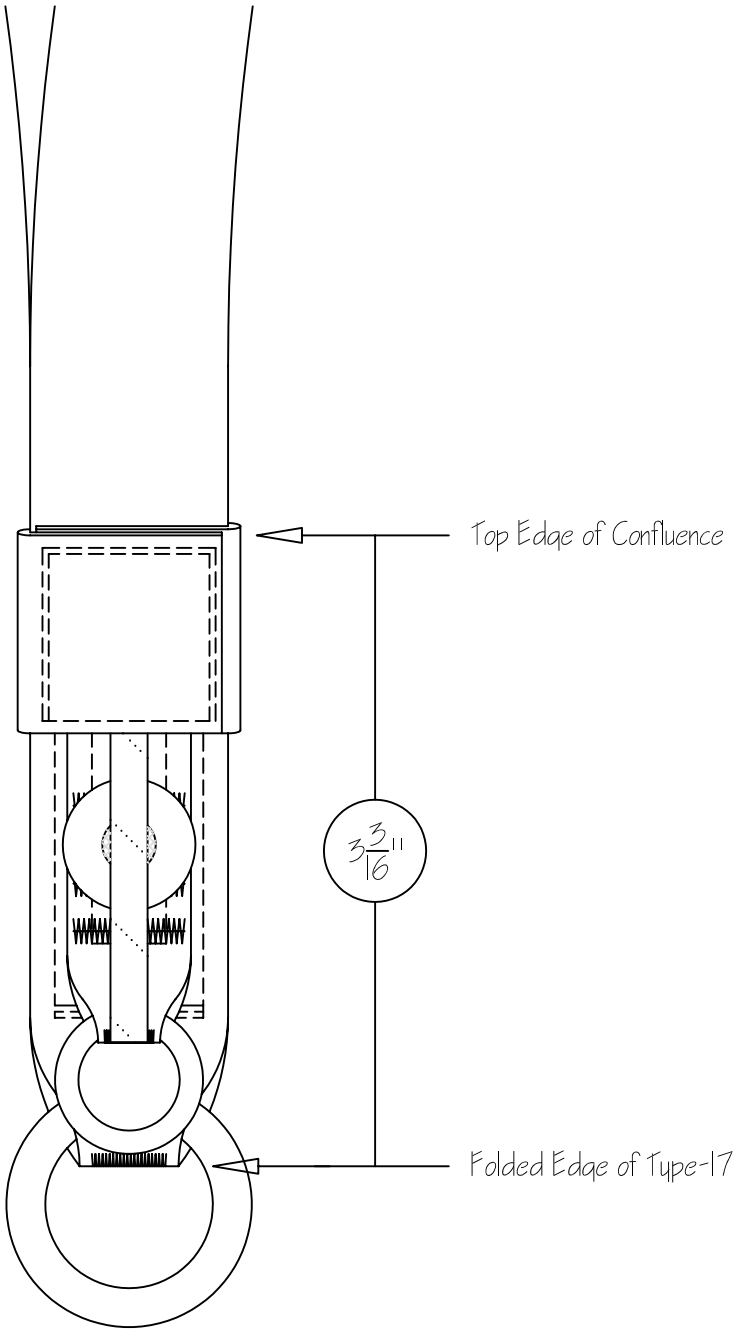
Use Only LONG SHANK #0 Stainless Steel Rolled Rim Grommet for Type-17 Risers with Type-3 tape reinforcement

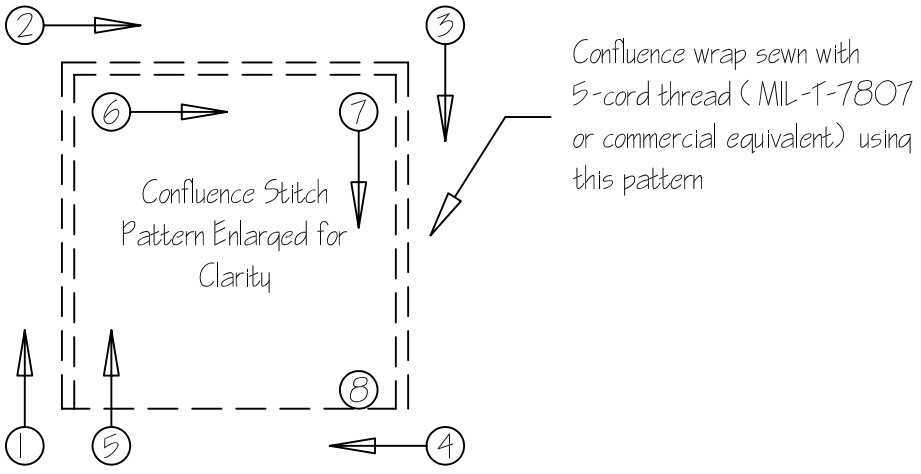


14) Fold the 5" length of Type2A, 550 lb. Sheathing in half. Place the folded sheathing on the riser as shown so that it is centered exactly over the center of the riser and grommet. The folded edge of the sheathing should be 5/8" from the folded edge of the Type-17 (i.e. even with folded edge of Type-4). Bartack (or zig-zag) the sheathing in place as shown using a minimum of 42 stitches per inch.



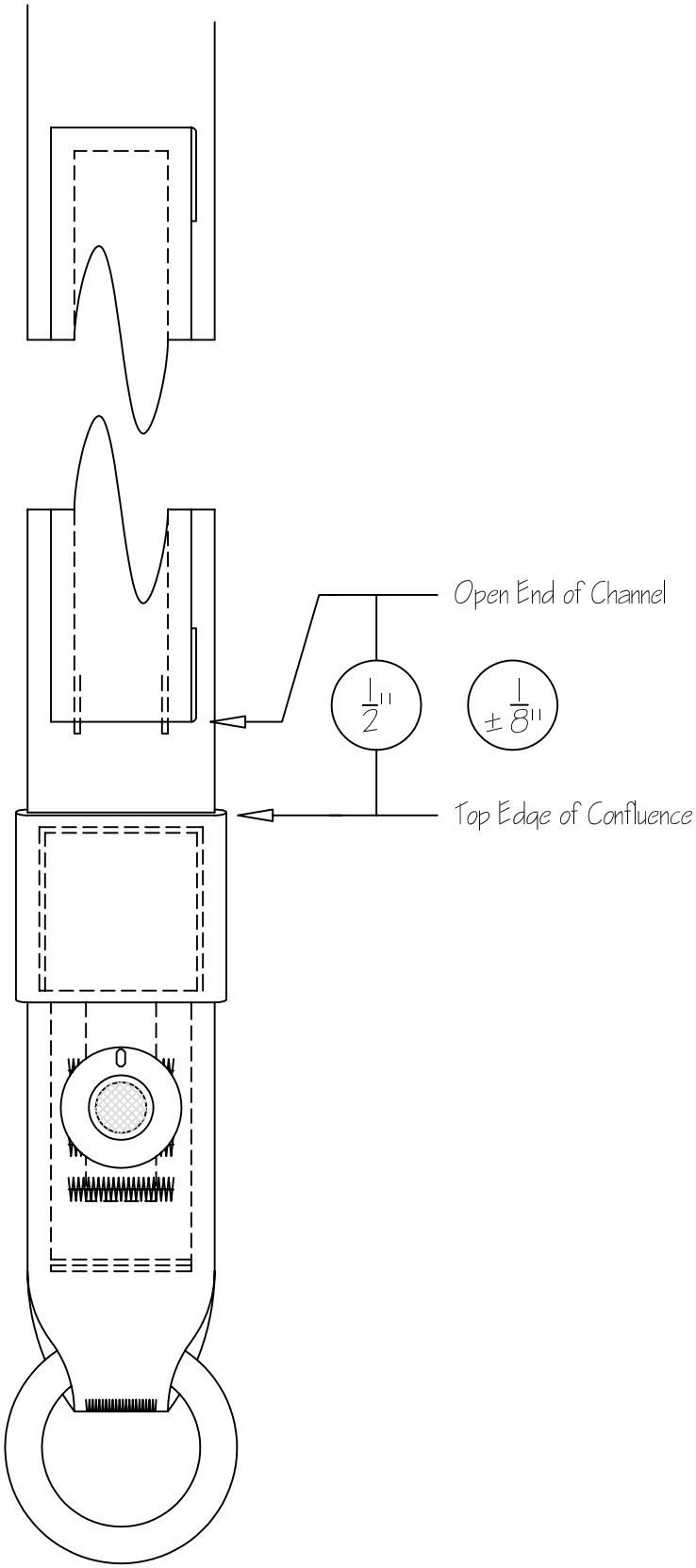
15) Using the 3-1/ 4" length of Type-4, 1" Square Weave Tape, install the confluence wrap around the riser and sew with 5-cord as shown. Use the stitch pattern shown in the lower figure.





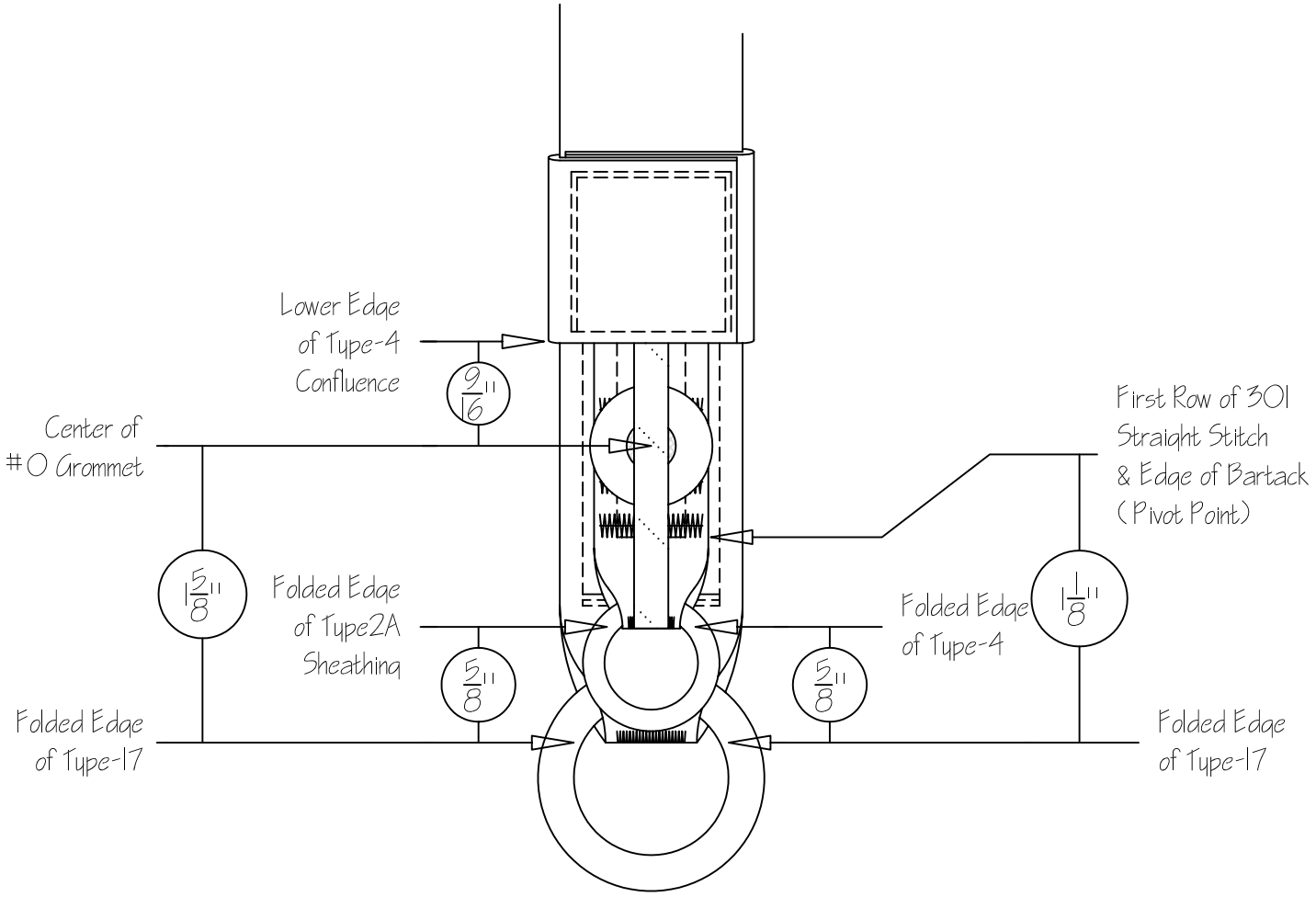
15) When the riser is finished, it should look like this from the back, with the channel for the cable close to the edge of the confluence (between 3/8" and 5/8").

Because the channel is installed prior to the construction of the 3-ring, shrinking due to sewing in the 3-ring section (below the confluence) may cause the open end of the channel to be too close or too far away from the top edge of the confluence. If this distance does not fall within the tolerance given, it may be neccessary to vary the placement dimension of the channel (see "Type-17 Mini 3-ring Riser Construction - Page 3").



Type-17 Mini 3-ring Risr Specification

All Tolerances $\pm\frac{1}{16}$"



Hardware Compatibility

Type-17 Mini 3-ring Risers should be constructed using the following rings:

- RW3 or Stainless RW3S
- RW4 or Stainless RW4S

In order to work properly, Type-17 Mini 3-ring Risers, constructed using the above rings, should only be used in conjunction with the following main rings:

- RW8 or Stainless RW8S
- RW1
- RW5010

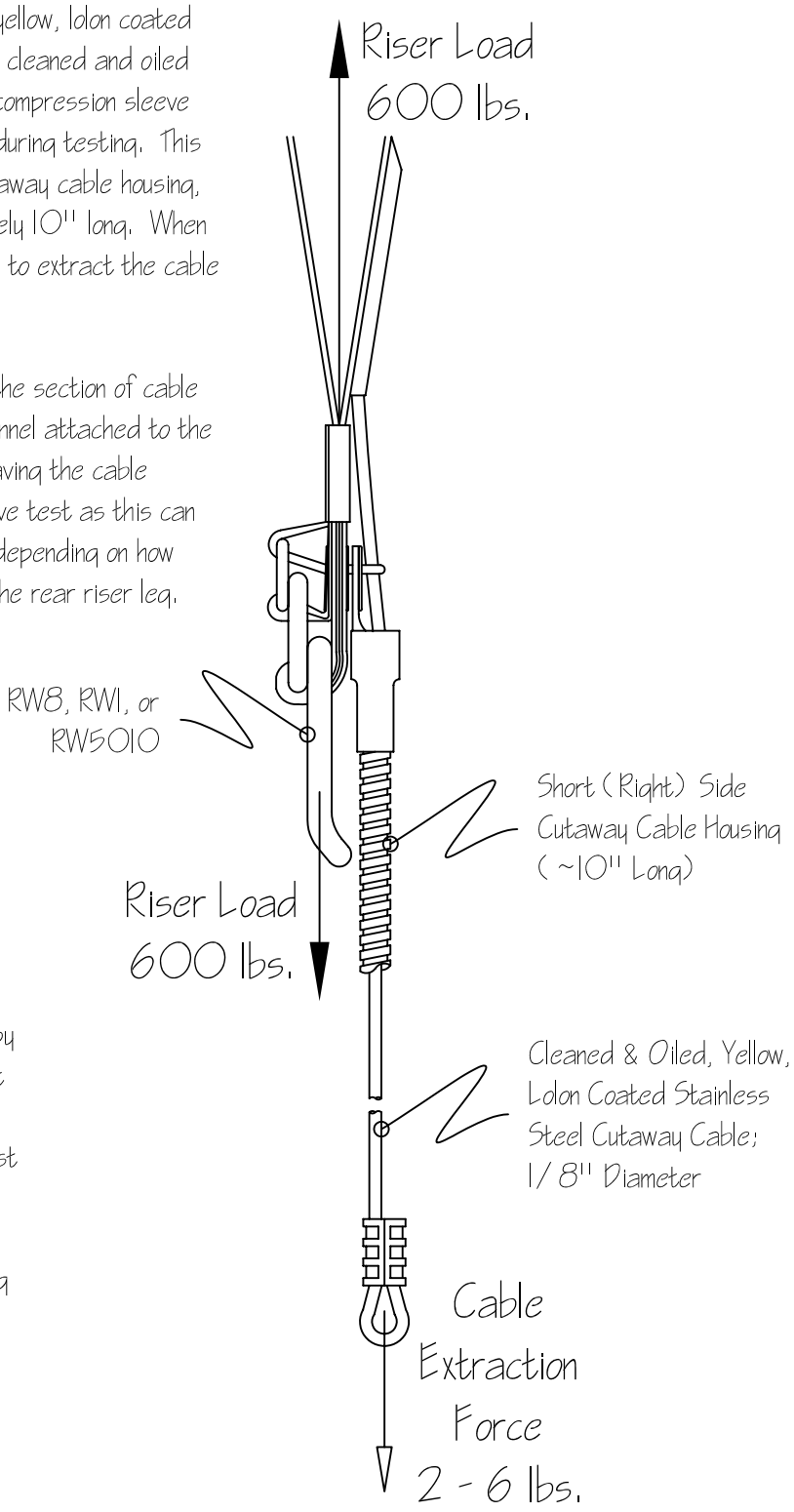
Reinforcement

Unlike previous versions of the Type-17 Mini 3-ring Riser, the '98 version calls for a triple layer of Type-3 tape reinforcement in the grommet area. This triple layer area should be contained between the confluence and 1" (±1/8") from the folded edge of Type-17. Between the folded edge of Type-17 and 1" (±1/8") above this folded edge, only two layers of Type-3 tape should be seen.

Type-17 Mini 3-ring Performance Specification

To test the performance of the Type-17 Mini 3-ring Riser, it must first be installed through a compatible main ring (see "Type-17 Mini 3-ring Riser Construction - Specification" for a list of compatible main rings). The 3-ring system should be closed using piece of yellow, Iolon coated cutaway cable approximately 16-20" long which is cleaned and oiled prior to testing. The cable should have a loop and compression sleeve at one end which will be used to extract the cable during testing. This cable should pass through a short (right) side cutaway cable housing, complete with amp fitting and grommet, approximately 10" long. When the riser is loaded to 600 lbs., the force needed to extract the cable should be between 2 and 6 lbs.

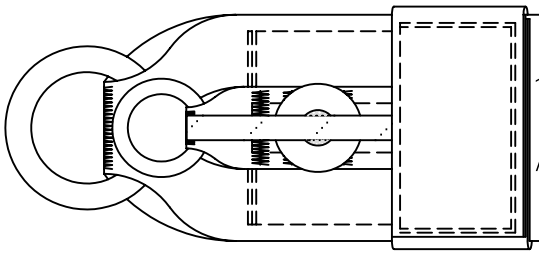
The test above can be done either with or without the section of cable above the 3-ring being placed inside the cable channel attached to the rear riser leg. It should be noted, however, that having the cable inserted into the cable channel is a more conservative test as this can increase the measurement of pull force by 1-2 lbs. depending on how much of the 600 lb. riser load is being taken by the rear riser leg.



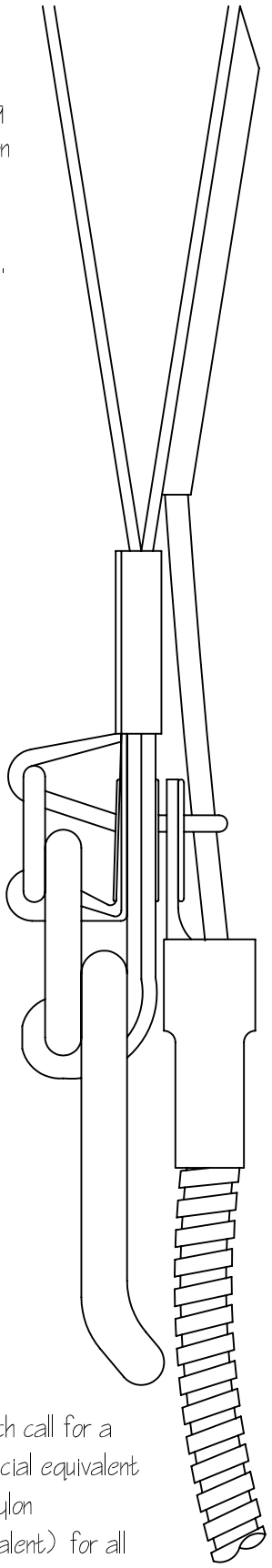
Notice to Harness and Container Manufacturers:
While this test is an acceptable method for proving the performance of a single riser, it does not in any way prove the performance of the entire main canopy release system which consists of both right and left 3-ring systems, cables, and cable housings. Manufacturers are strongly urged to periodically test their main canopy release systems while in a suspended harness according to SAE Aerospace Standard 8015, Revision B. The method of testing and performance standard can be found in Section 4.3.2.5, "Main Canopy Release, Actuation Force Tests".

SECTION 2

TYPE-8 MINI 3-RING RISER



Type-8 Mini 3-ring Riser Construction
August, 1998



Between January and May of 1998, Relative Workshop's engineering staff performed an extensive study of the mechanics, function, and limitations of the 3-ring system. All types of 3-ring risers, both mini and standard, were studied. The results of these tests culminated into the revision of our 3-ring construction drawings.

Accuracy is critical for all 3-ring systems, but those built using small rings, such as Type-8 & Type-17 Mini 3-ring Risers, are more sensitive to webbing stretch than those built using large rings. This makes the accuracy of manufacture for Type-8 & Type-17 Mini 3-ring Risers very critical in order to prevent the 3-ring section from stretching too far past its maximum mechanical advantage and over stressing the system.

When finished, installed, and under load, the rings of the Type-8 Mini 3-ring Riser should be parallel as shown in the figure at the right. To achieve this, the riser must be made to the exact measurements given. The small ring's low mounting on the riser may create a tight fit during installation of the finished riser to the main harness ring, but this allows the riser to stretch into correct alignment as high loads are applied, rather than out of it.

These directions cover the construction of the critical section of the riser which attaches to the main harness ring. The top section, with toggle attachments and link loops is left to the specific design of the manufacturer. All construction drawings are to scale, so you can use them during the manufacture to check for accuracy. If you have any questions, please call Relative Workshop. Remember, accuracy is critical with riser construction.

Materials

For Each Set of Risers

- Type-8, 1-23/32" Webbing (Mil-W-27265) - Two pieces, each approximately 60" long (length varies with desired finished length of the risers)
- Type-4, 1" Square Weave Tape (Mil-T-5038) - Two pieces, each 5-1/2" long (for confluence wrap)
- Type-4, 5/8" Square Weave Tape (Mil-T-5038) - Two pieces, each 5" long
- Type-3, 3/4" Binding Tape (Mil-T-5038) - Two pieces, each 7-1/2" long
- Type2A, 550 lb. Sheathing (Mil-C-5040G(2)) - Two pieces, each 5" long
- RW-3(S) Rings - Two (Note: (S) denotes that the stainless steel RW-3S may be used)
- RW-4(S) Rings - Two (Note: (S) denotes that the stainless steel RW-4S may be used)
- #0 Stainless Rolled Rim Grommet, Long Shank (G-RW0-SS-RRG), or Standard Shank (G-0-SS-RRG) - Two
- #0 Stainless Spur Washer (G-0-SS-SW) - Two
- E-Thread Nylon (Mil-T-7807)
- S-Cord Nylon (Mil-T-7807)

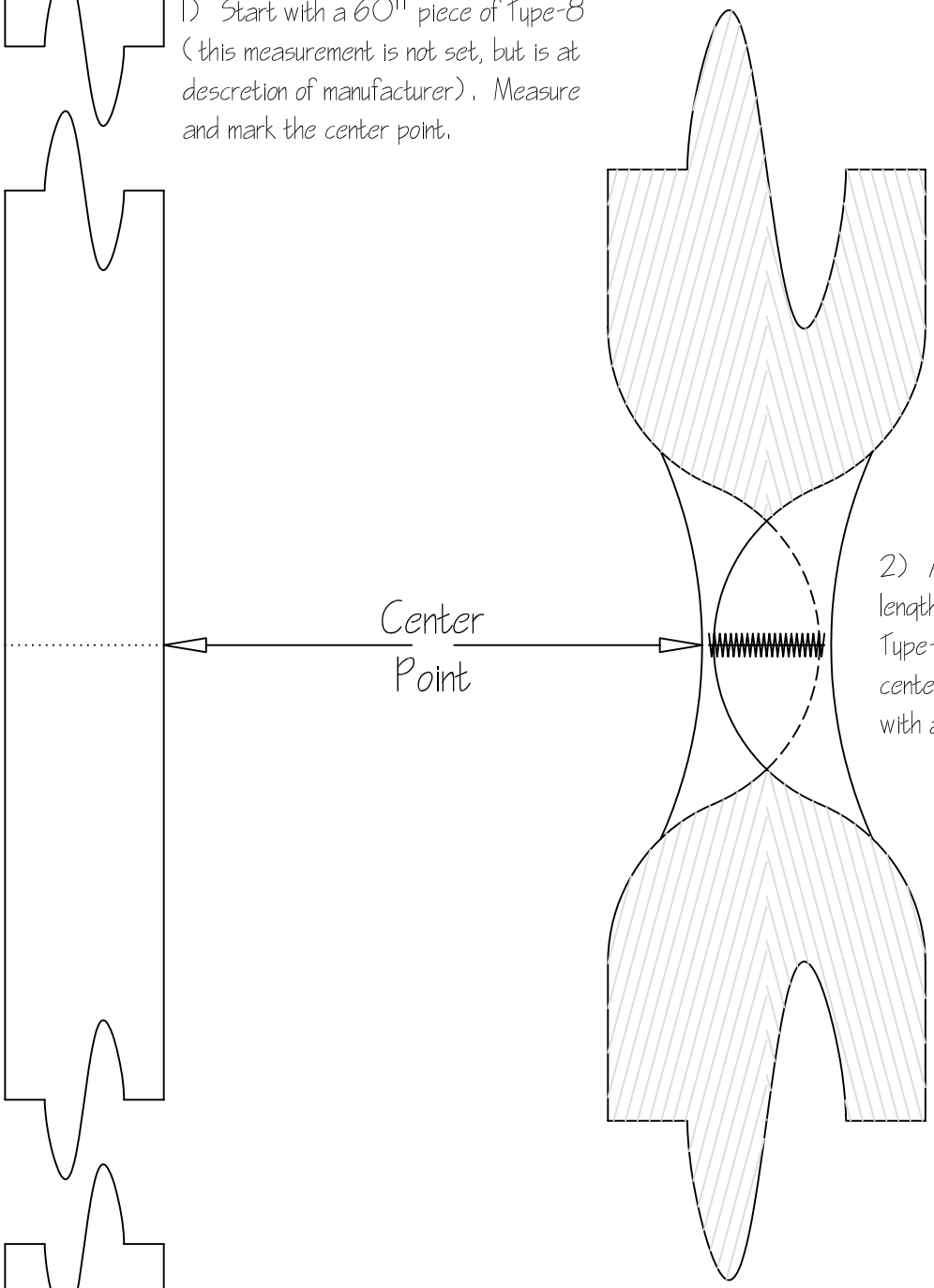
Note: For the materials above which call for a Military Specification, their commercial equivalent may be used. Use only E-thread Nylon (Mil-T-7807 or commercial equivalent) for all stitching unless otherwise specified.

Type-8, $1\frac{23}{32}$" Webbing

Tolerances:

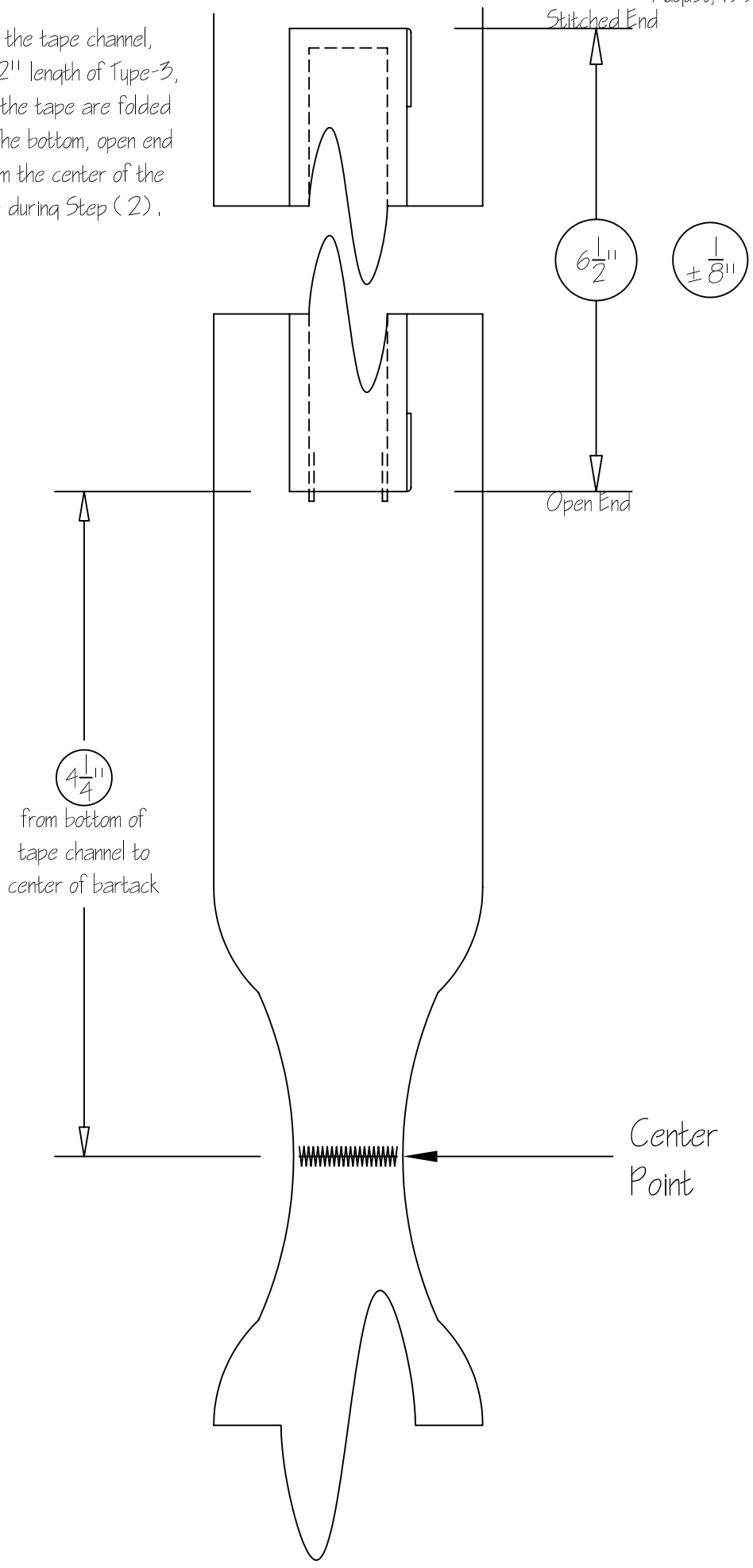
In the following construction drawings, all tolerances are ±1/16" unless otherwise specified.

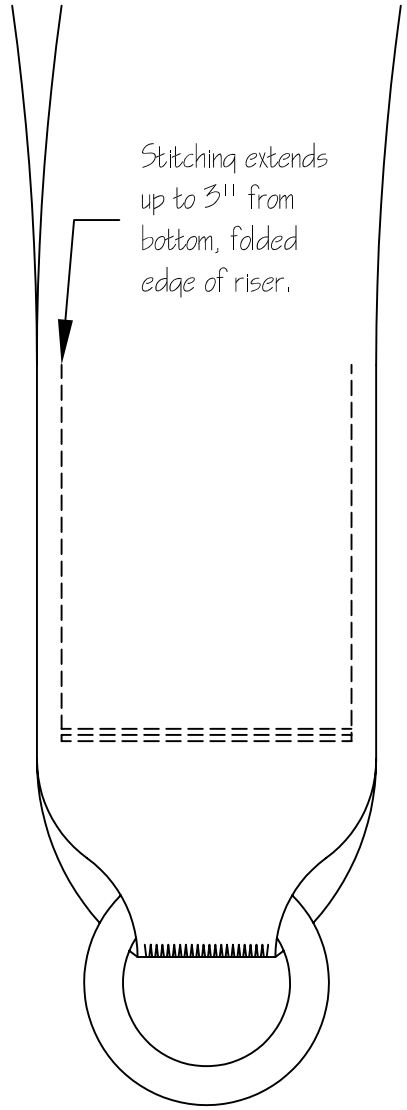
1) Start with a 60" piece of Type-8 (this measurement is not set, but is at descretion of manufacturer). Measure and mark the center point.



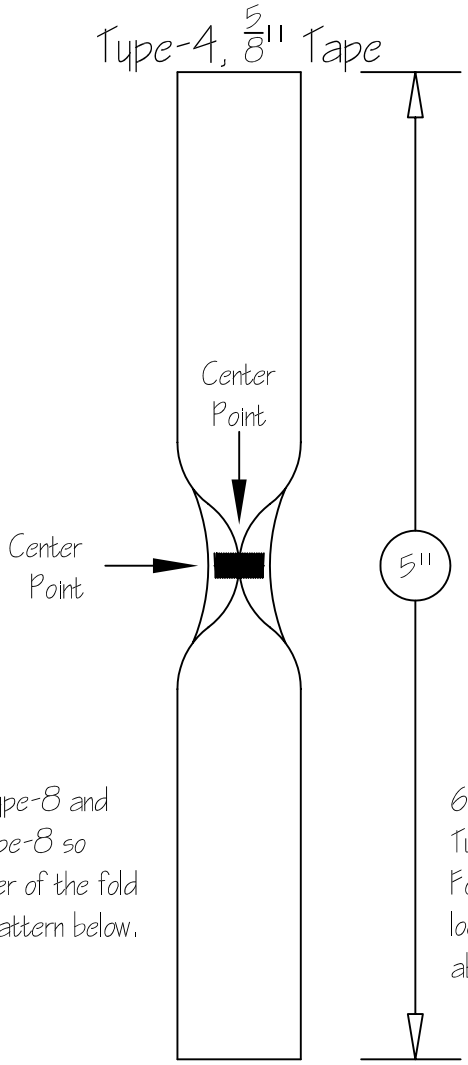
2) At the center of the Type-8's length, fold the side edges of the Type-8 precisely into thirds over the center of the webbing width and sew with a bartack or zig-zag as shown.

3) Turn the Type-8 over and sew the tape channel, which is contructed from the 7-1/2" length of Type-3, 3/4" Binding Tape. The ends of the tape are folded under 1/2" and sewn as shown. The bottom, open end of the tape channel is 4-1/4" from the center of the bartack placed through the Type-8 during Step (2).

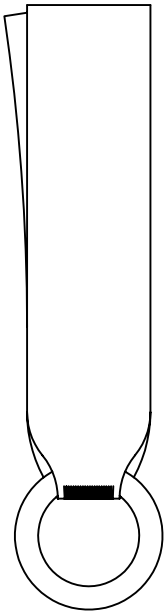


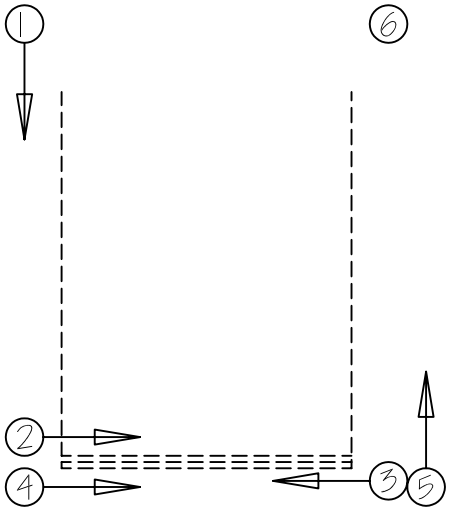


4) Slip the RW-3(S) ring onto the Type-8 and slide it to the center point. Fold the Type-8 so that the bartack is located at the center of the fold as shown above. Sew using the stitch pattern below.



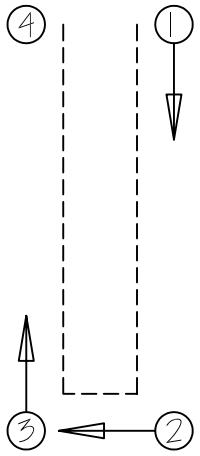
6) Slip the RW-4(S) ring onto the Type-4 and slide it to the center point. Fold the Type-4 so that the bartack is located at the center of the fold as shown above.





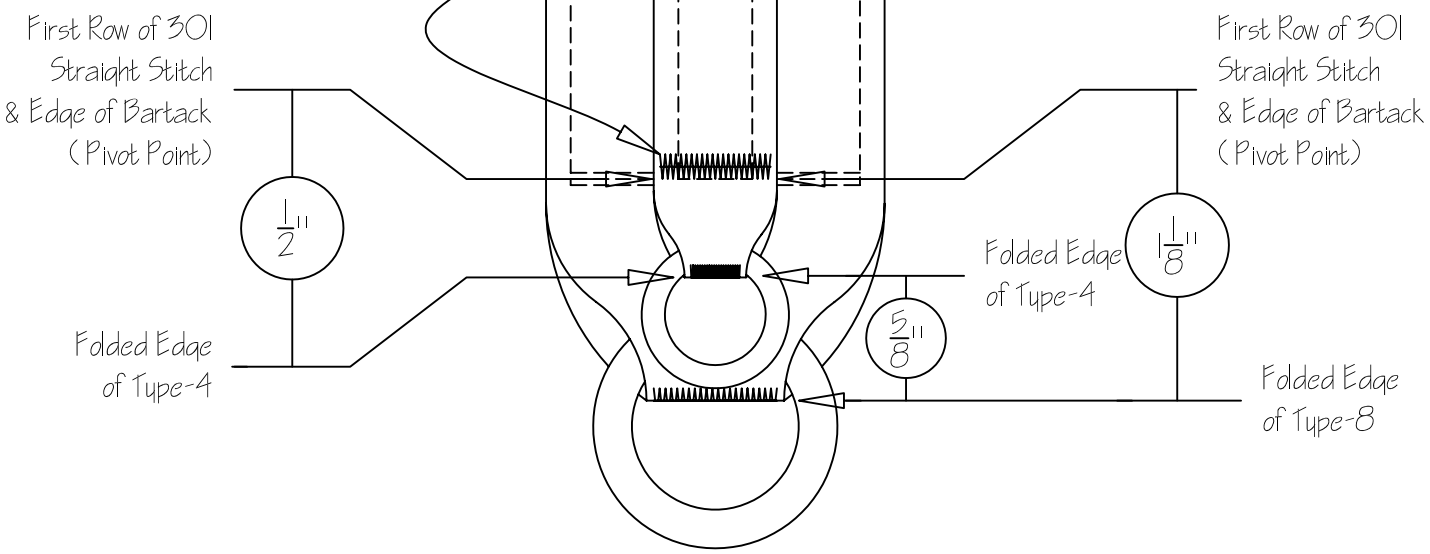
5) Find and mark the centerpoint of the 5" length of the Type-4, 5/8" Square Weave Tape. At the centerpoint, fold the side edges of the tape precisely into the center of the tape width and sew with a short bartack or zig-zag as shown.

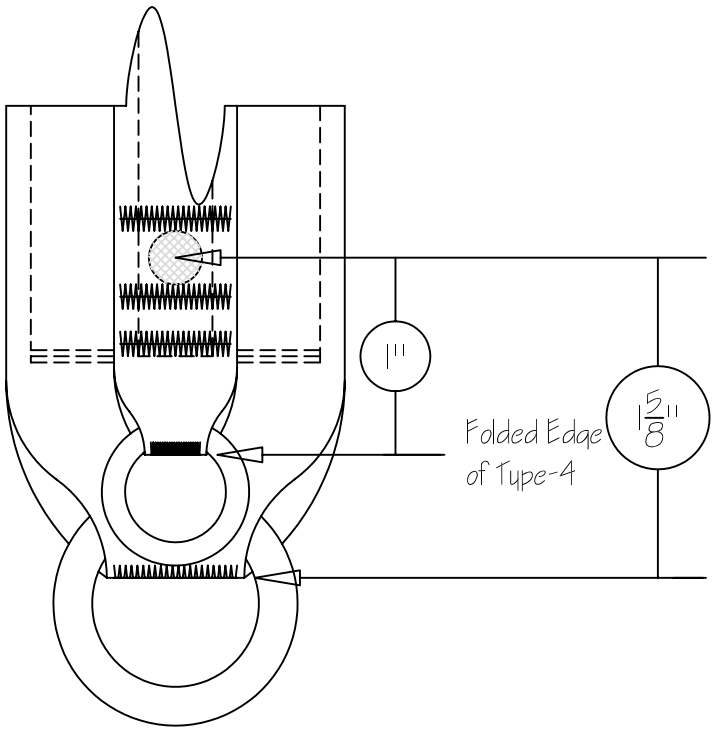
7) Sew the Type-4 with the RW-4 ring onto the riser as shown, measuring carefully. Use the stitch pattern shown at the upper right.



Stitching extends up to 3" from bottom, folded edge of riser

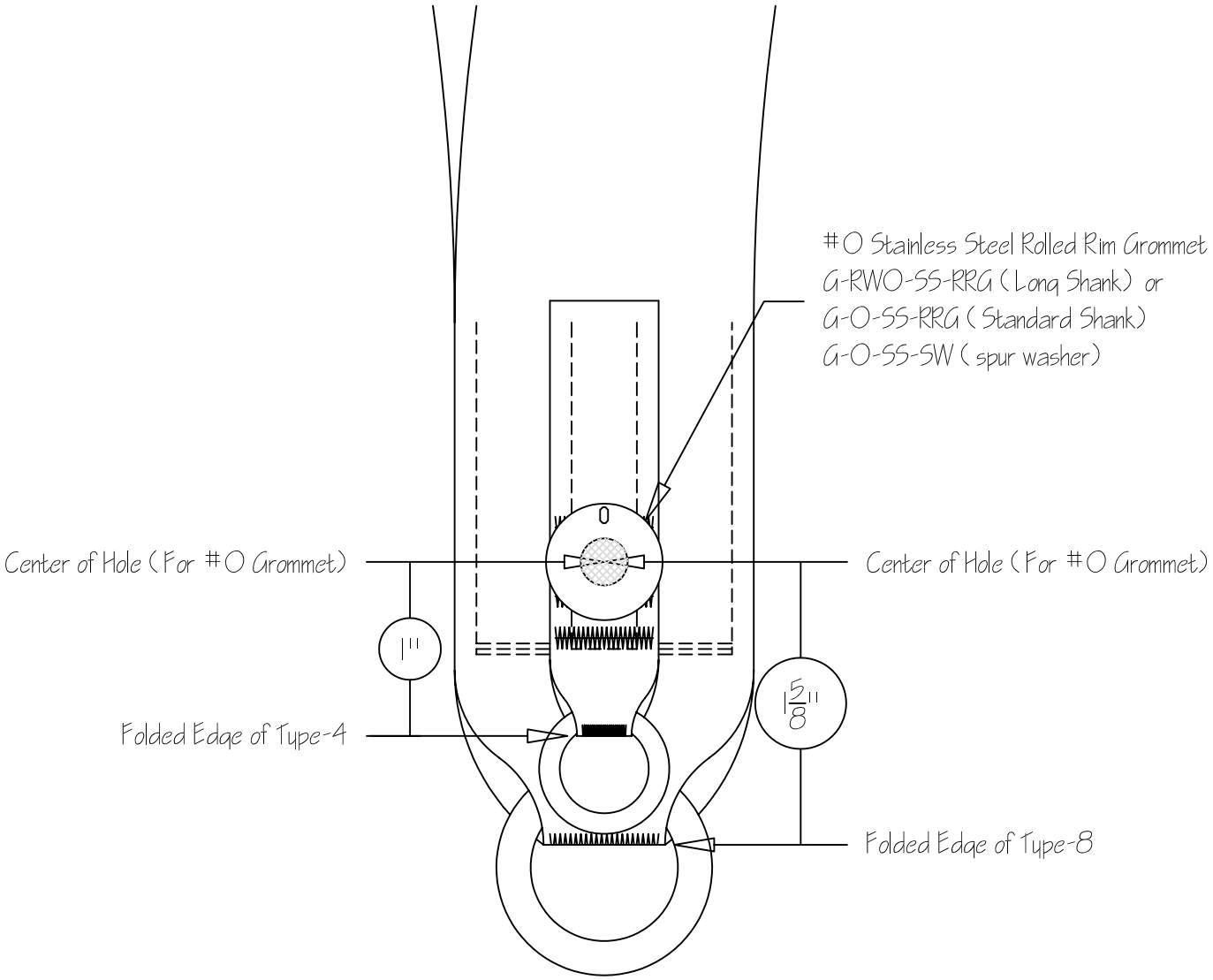
8) Place a single bartack (or zig-zag stitch) with a minimum of 42 stitches per inch just behind the row of straight stitching across the width of Type-4. (i.e. the stitches of the bartack closest to the RW-4 ring should be even with, but not step over, the straight needle stitching)

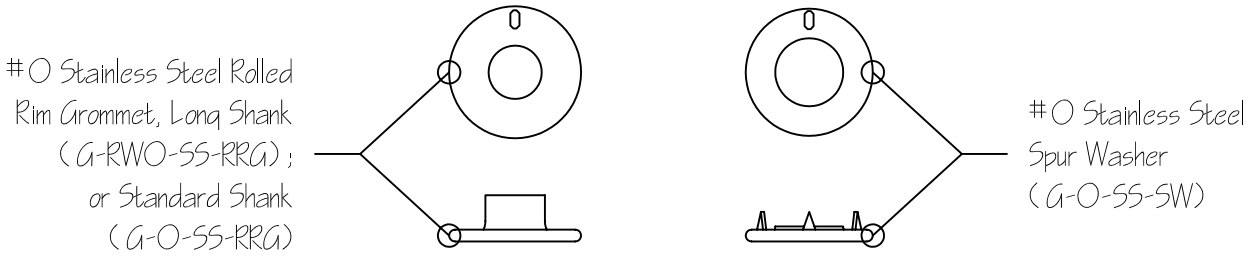




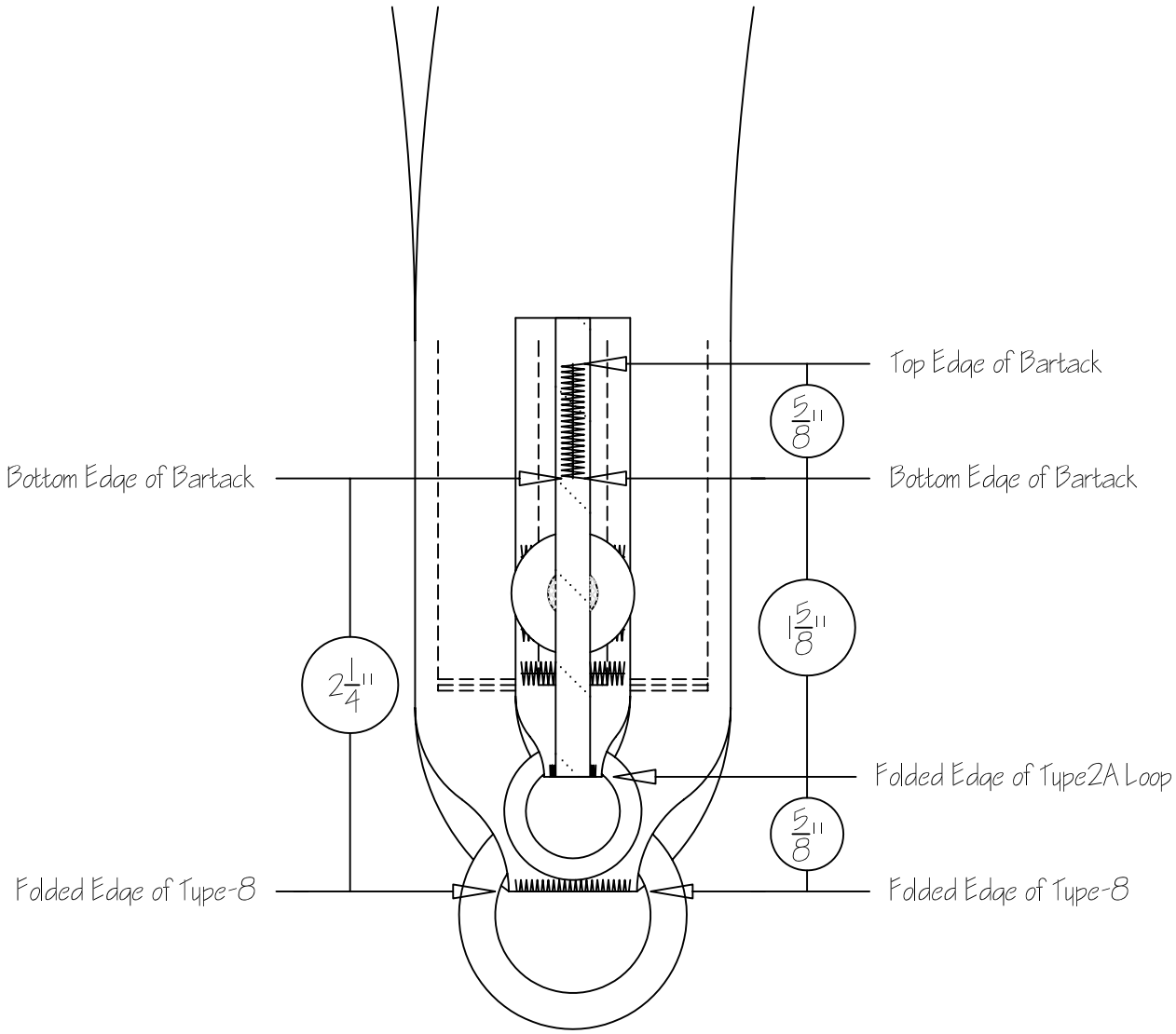
9) Punch a hole for a #0 size grommet through both the Type-4 Square Weave and Type-8 Webbing as shown in the figure at the left. Also as shown, bartack above and below the hole before setting the grommet.

10) Set the #0 Stainless Steel Rolled Rim Grommet through the hole punched during Step (9) as shown in the figure.

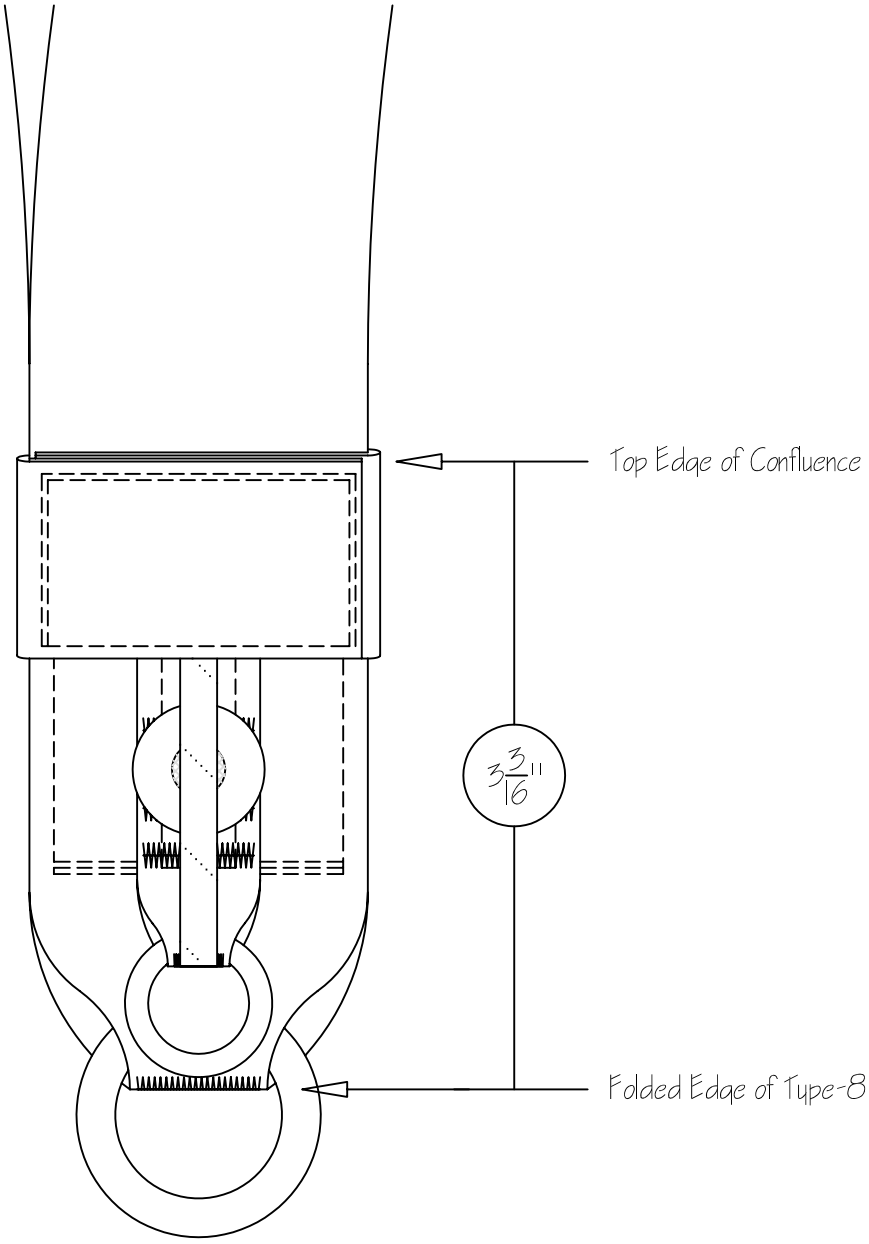


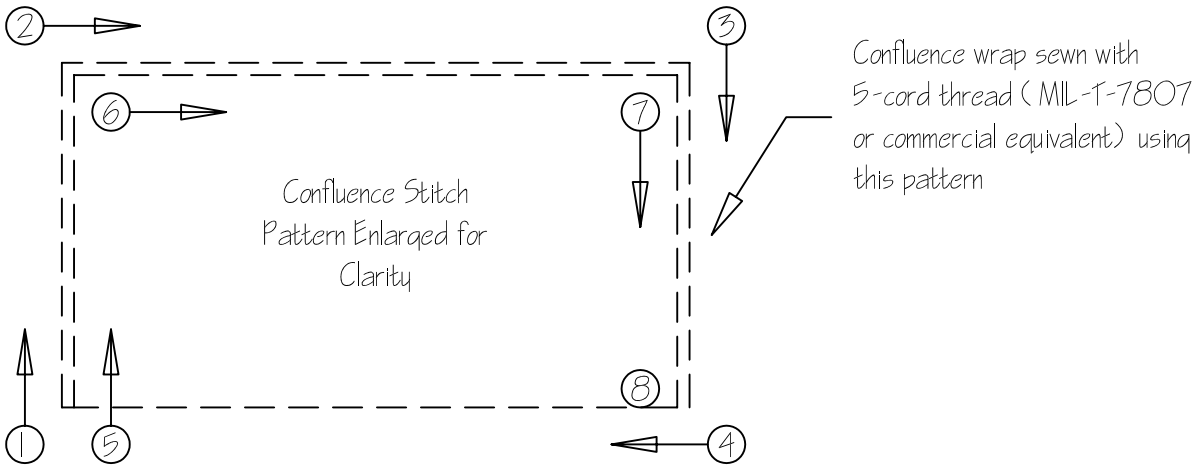


11) Fold the 5'11 length of Type2A, 550 lb. Sheathing in half. Place the folded sheathing on the riser as shown so that it is centered exactly over the center of the riser and grommet. The folded edge of the sheathing should be 5/8" from the folded edge of the Type-8 (i.e. even with the folded edge of Type-4). Bartack (or zig-zag) the sheathing in place as shown using a minimum of 42 stitches per inch.



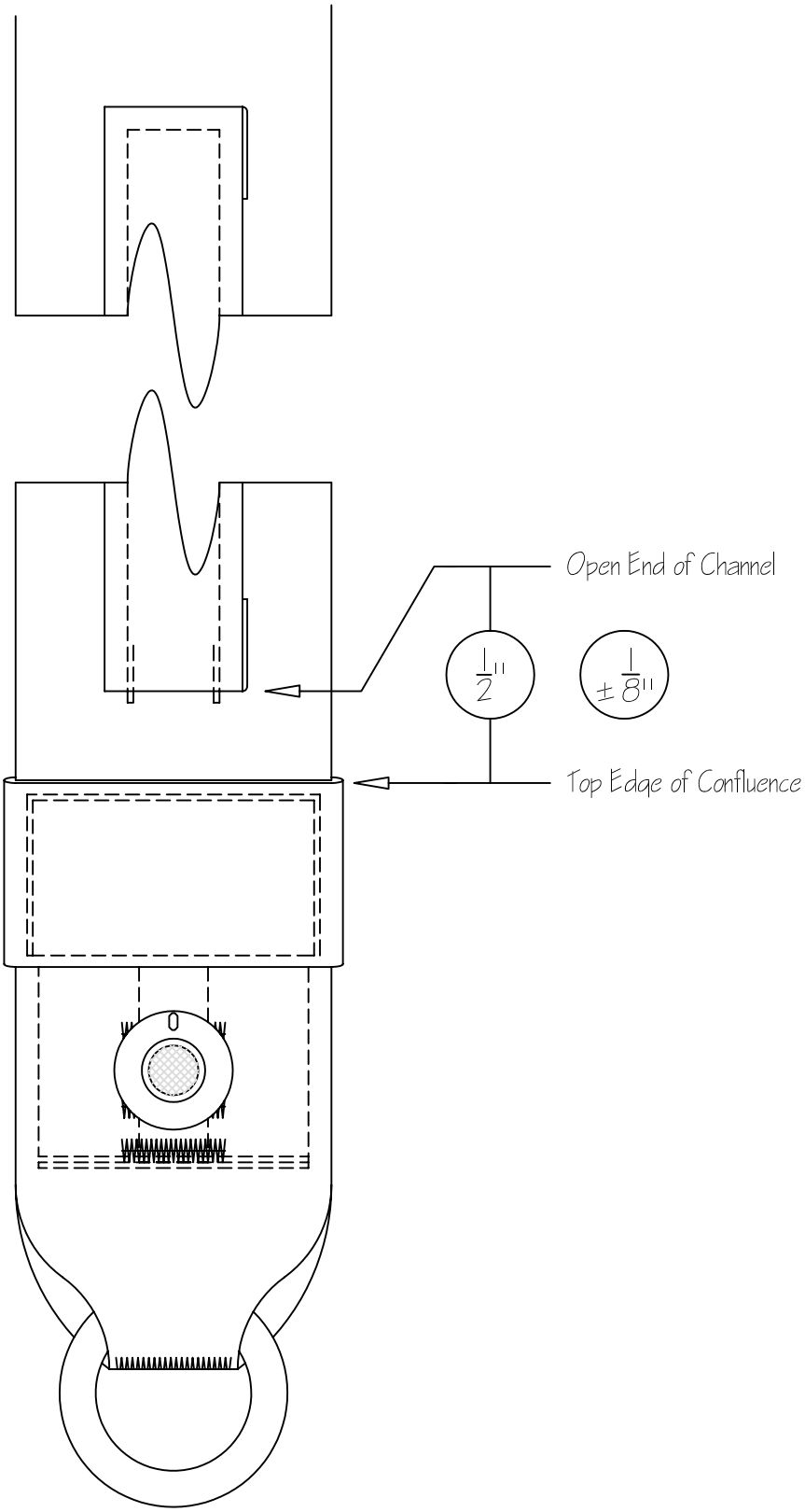
12) Using the 5-1/ 2" length of Type-4, 1" Square Weave Tape, install the confluence wrap around the riser and sew with 5-cord as shown. Use the stitch pattern shown in the lower figure.





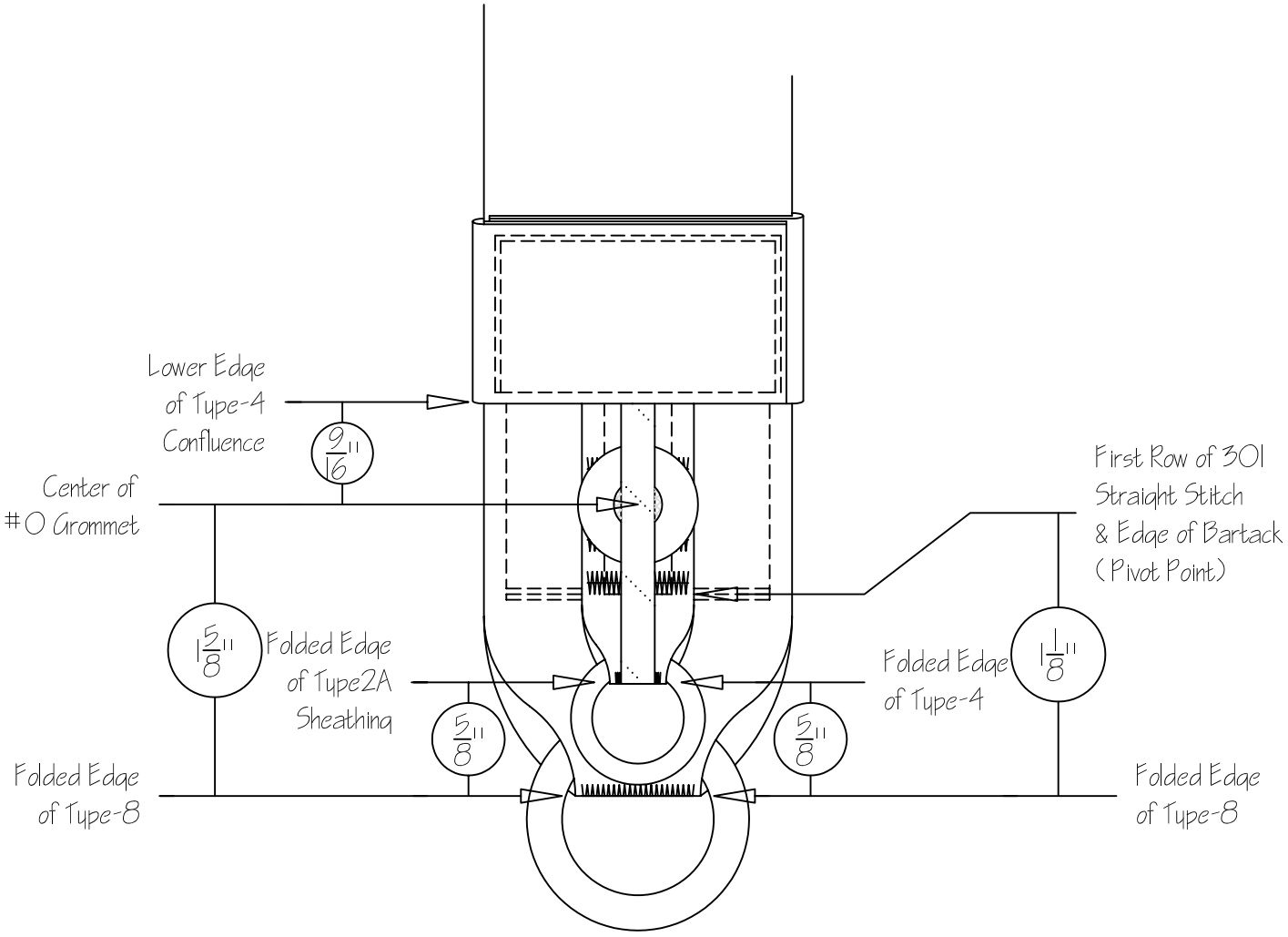
15) When the riser is finished, it should look like this from the back, with the channel for the cable close to the edge of the confluence (between 3/8" and 5/8").

Because the channel is installed prior to the construction of the 3-ring, shrinking due to sewing in the 3-ring section (below the confluence) may cause the open end of the channel to be too close or too far away from the top edge of the confluence. If this distance does not fall within the tolerance given, it may be neccessary to vary the placement dimension of the channel (see "Type-17 Mini 3-ring Riser Construction - Page 3").



Type-8 Mini 3-ring Riser Specification

All Tolerances $\pm\frac{1}{16}$"



Hardware Compatibility

Type-8 Mini 3-ring Risers should be constructed using the following rings:

- RW3 or Stainless RW3S
- RW4 or Stainless RW4S

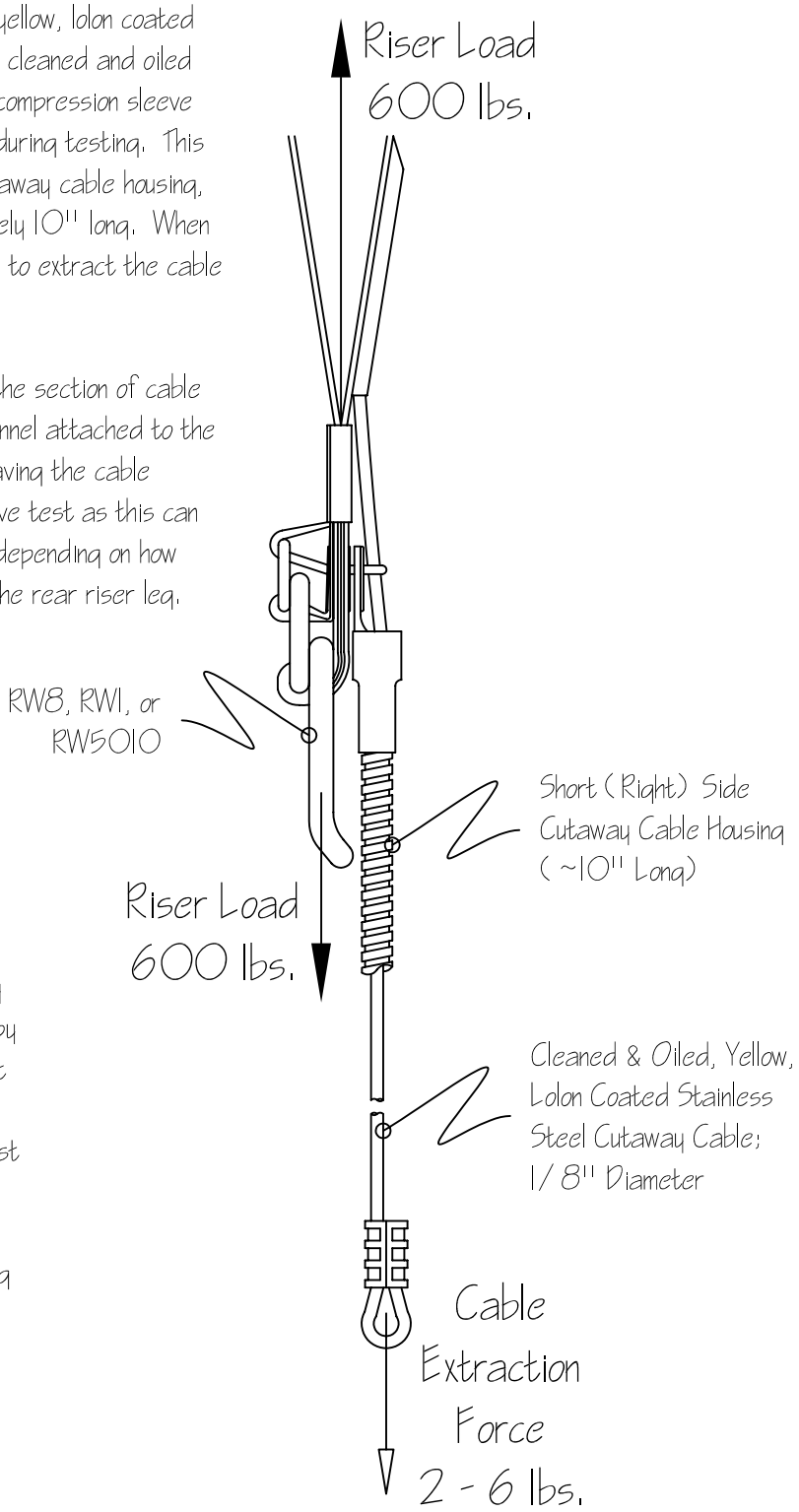
In order to work properly, the Type-8 Mini 3-ring Riser, constructed using the above rings, should only be used in conjunction with the following main rings:

- RW8 or Stainless RW8S
- RW1
- RW5010

Type-8 Mini 3-ring Riser Performance Specification

To test the performance of the Type-8 Mini 3-ring Riser, it must first be installed through a compatible main ring (see "Type-8 Mini 3-ring Riser Construction - Specification" for a list of compatible main rings). The 3-ring system should be closed using piece of yellow, lolon coated cutaway cable approximately 16-20" long which is cleaned and oiled prior to testing. The cable should have a loop and compression sleeve at one end which will be used to extract the cable during testing. This cable should pass through a short (right) side cutaway cable housing, complete with amp fitting and grommet, approximately 10" long. When the riser is loaded to 600 lbs., the force needed to extract the cable should be between 2 and 6 lbs.

The test above can be done either with or without the section of cable above the 3-ring being placed inside the cable channel attached to the rear riser leg. It should be noted, however, that having the cable inserted into the cable channel is a more conservative test as this can increase the measurement of pull force by 1-2 lbs. depending on how much of the 600 lb. riser load is being taken by the rear riser leg.

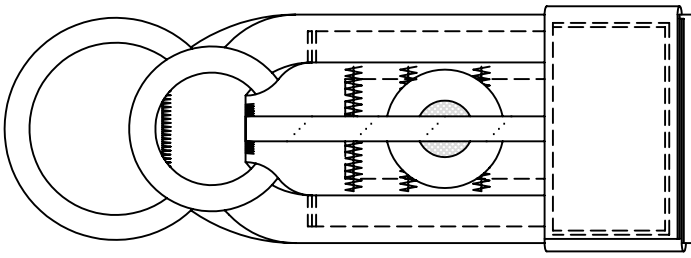


Notice to Harness and Container Manufacturers:

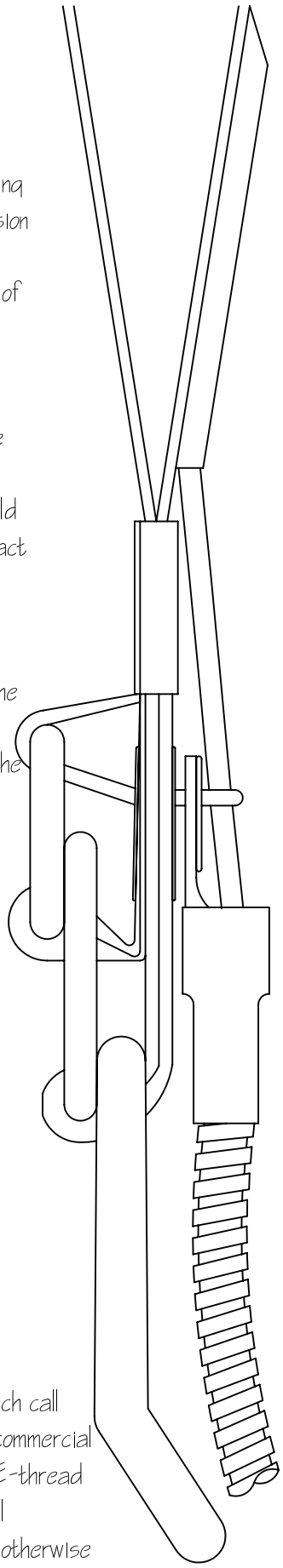
While this test is an acceptable method for proving the performance of a single riser, it does not in any way prove the performance of the entire main canopy release system which consists of both right and left 3-ring systems, cables, and cable housings. Manufacturers are strongly urged to periodically test their main canopy release systems while in a suspended harness according to SAE Aerospace Standard 8015, Revision B. The method of testing and performance standard can be found in Section 4.3.2.5, "Main Canopy Release, Actuation Force Tests".

SECTION 3

TYPE-8 STANDARD 3-RING RISER



Type-8 Standard 3-ring Riser Construction
August, 1998



Between January and May of 1998, Relative Workshop's engineering staff performed an extensive study of the mechanics, function, and limitations of the 3-ring system. All types of 3-ring risers, both mini and standard, were studied. The results of these tests culminated into the revision of our 3-ring construction drawings.

The major change in the construction of the Type-8 Standard 3-ring Riser is in the placement of the small ring assembly. This revision calls for the small ring assembly to be mounted lower on the riser. This placement gives the rings room to move as the 3-ring stretches during loading without reaching the maximum mechanical advantage too early in the loading process. If the maximum mechanical advantage is reached to early, further loading will negatively affect the function of the 3-ring system.

When finished, installed, and under load, the rings of the Type-8 Standard 3-ring Riser should be parallel as shown in the figure at the right. To achieve this, the riser must be made to the exact measurements given. The small ring's low mounting on the riser may create a tight fit during installation of the finished riser to the main harness ring, but it allows the riser to stretch into correct alignment as high loads are applied, rather than out of it.

These directions cover the construction of the critical section of the riser which attaches to the main harness ring. The top section, with toggle attachments and link loops is left to the specific design of the manufacturer. All construction drawings are to scale, so you can use them during the manufacture to check for accuracy. If you have any questions, please call Relative Workshop. Remember, accuracy is critical with riser construction.

Materials

For Each Set of Risers

- Type-8, 1-23/32" Webbing (Mil-W-27265) - Two pieces, each approximately 60" long (length varies with desired finished length of the risers)
- Type-4, 1" Square Weave Tape (Mil-T-5038) - Two pieces, each 5-1/2" long (for confluence wrap)
- Type-4, 1" Square Weave Tape (Mil-T-5038) - Two pieces, each 6-1/4" long
- Type-3, 3/4" Binding Tape (Mil-T-5038) - Two pieces, each 7-1/2" long
- Type2A, 550 lb. Sheathing (Mil-C-5040G(2)) - Two pieces, each 6-1/4" long
- RW-2 rings - Two
- RW-3(S) rings - Two (Note: (S) denotes that the stainless steel RW-3S may be used)
- #2 Stainless Rolled Rim Grommet, Standard Shank (G-2-SS-RRG) - Two
- #2 Stainless Spur Washer (G-2-SS-SW) - Two
- E-Thread Nylon (Mil-T-7807)
- S-Cord Nylon (Mil-T-7807)

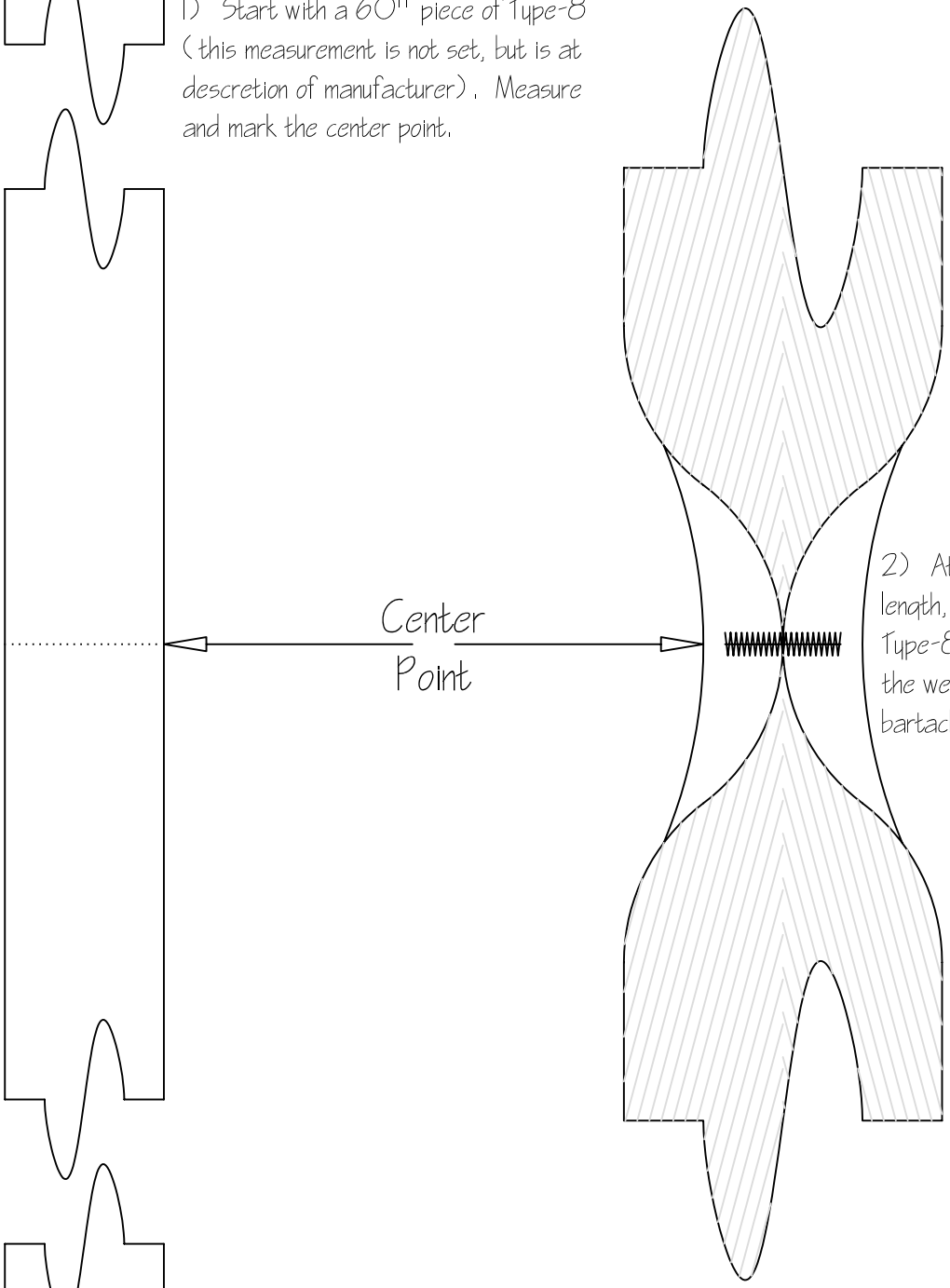
Note: For the materials above which call for a Military Specification, their commercial equivalent may be used. Use only E-thread Nylon (Mil-T-7807 or commercial equivalent) for all stitching unless otherwise specified.

Type-8, $1\frac{23}{32}$" Webbing

Tolerances:

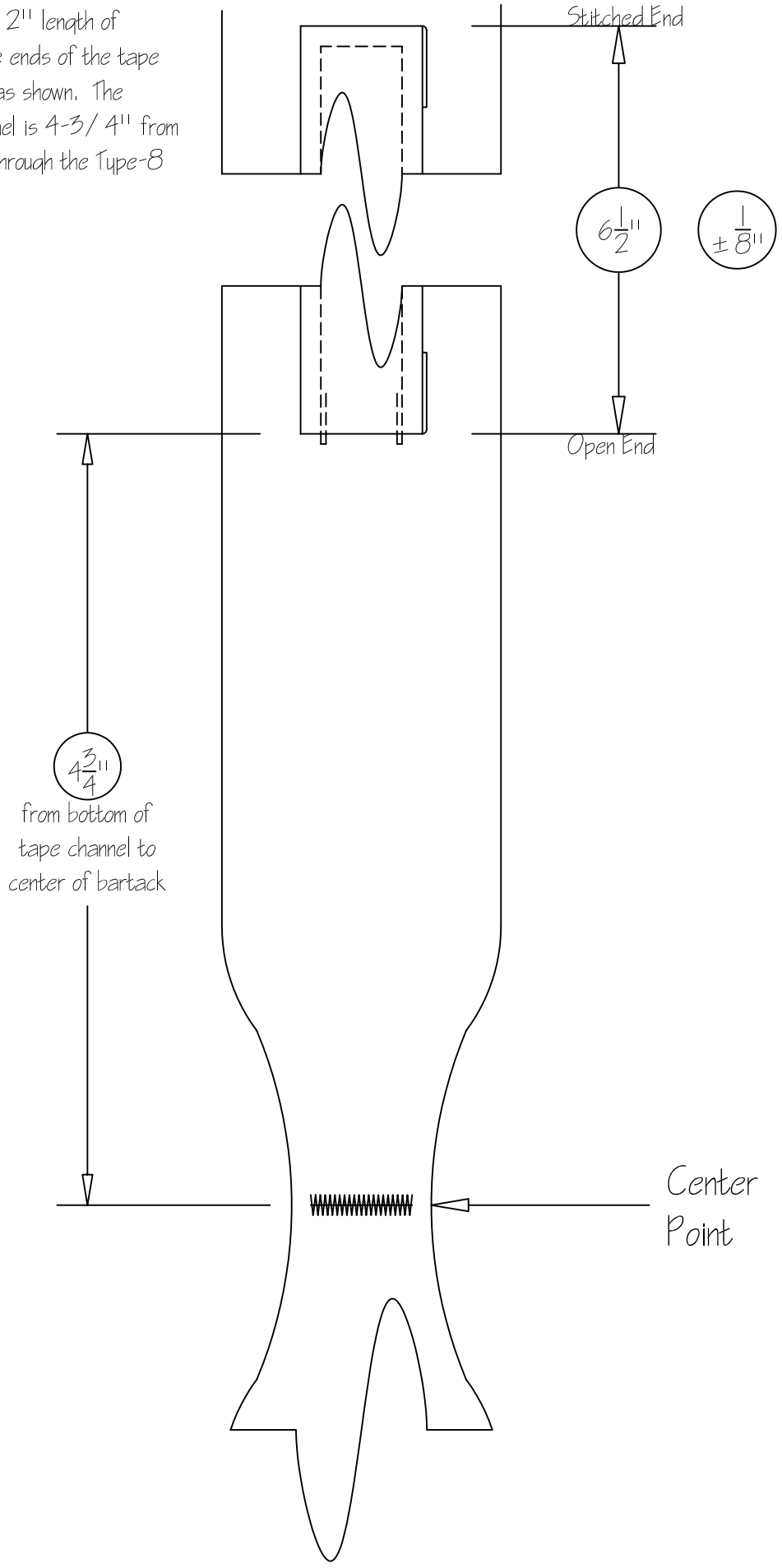
In the following construction drawings, all tolerances are ±1/16" unless otherwise specified.

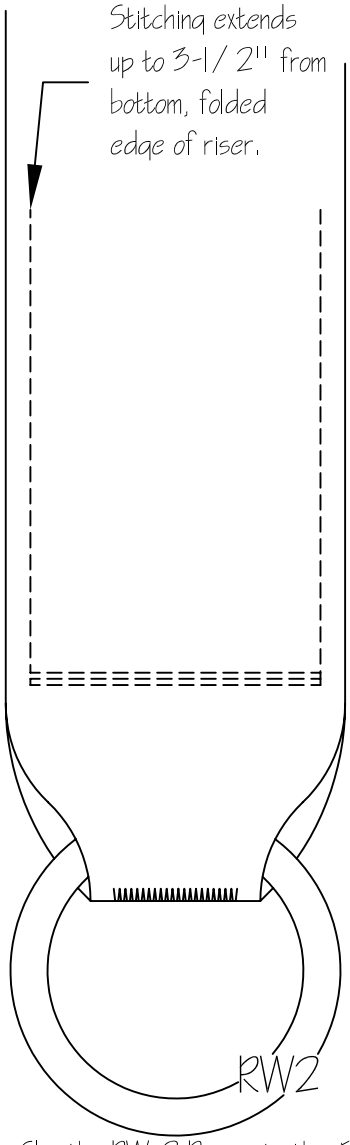
1) Start with a 60" piece of Type-8 (this measurement is not set, but is at descretion of manufacturer). Measure and mark the center point.



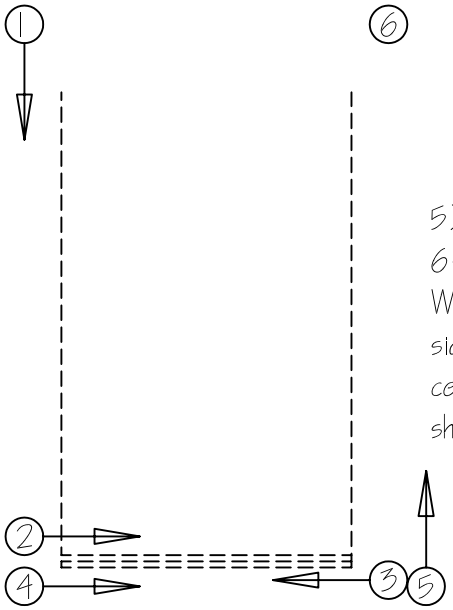
2) At the center of the Type-8's length, fold the side edges of the Type-8 precisely into the center of the webbing width and sew with a bartack or zig-zag as shown.

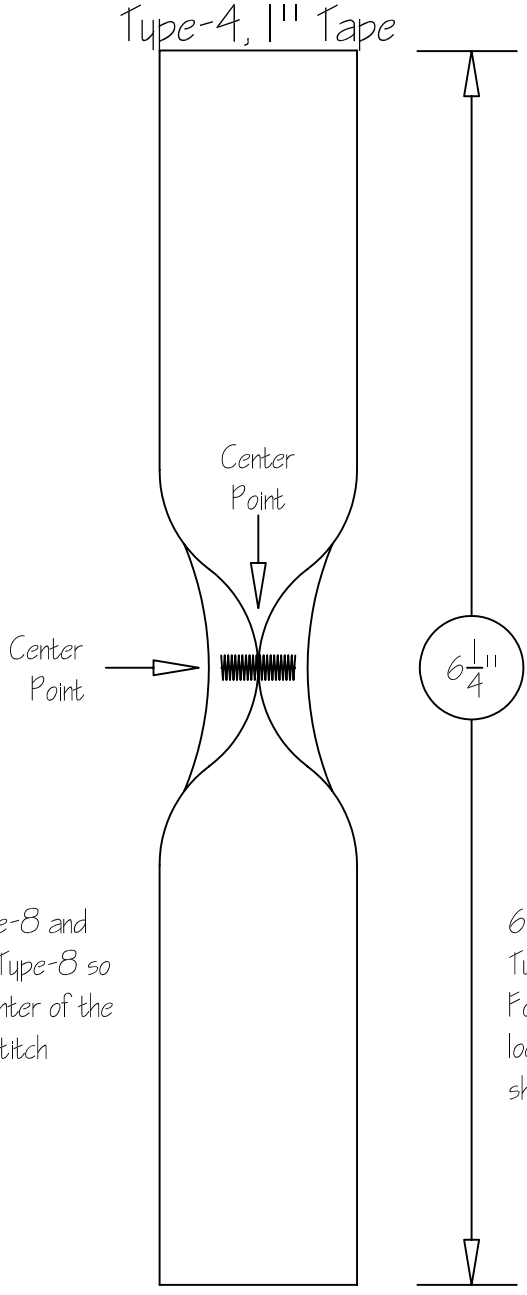
3) Turn the Type-8 over and sew the tape channel, which is constructed from the 7-1/ 2" length of Type-3, 3/ 4" Binding Tape. The ends of the tape are folded under 1/ 2" and sewn as shown. The bottom, open end of the tape channel is 4-3/ 4" from the center of the bartack placed through the Type-8 during Step (2).



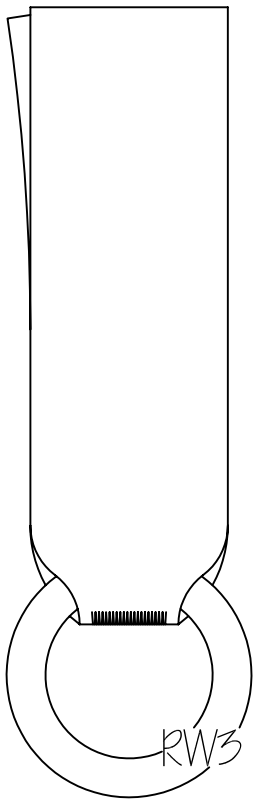


4) Slip the RW-2 Ring onto the Type-8 and slide it to the center point. Fold the Type-8 so that the bartack is located at the center of the fold as shown above. Sew using the stitch pattern below.



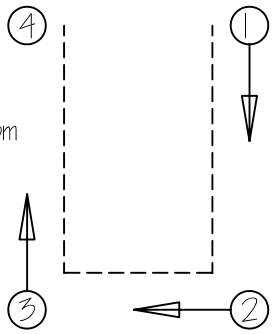


5) Find and mark the centerpoint of the 6-1/ 4" length of Type-4, 1" Square Weave Tape. At the centerpoint, fold the side edges of the tape precisely into the center of the tape width and sew with a short bartack or zig-zag as shown.



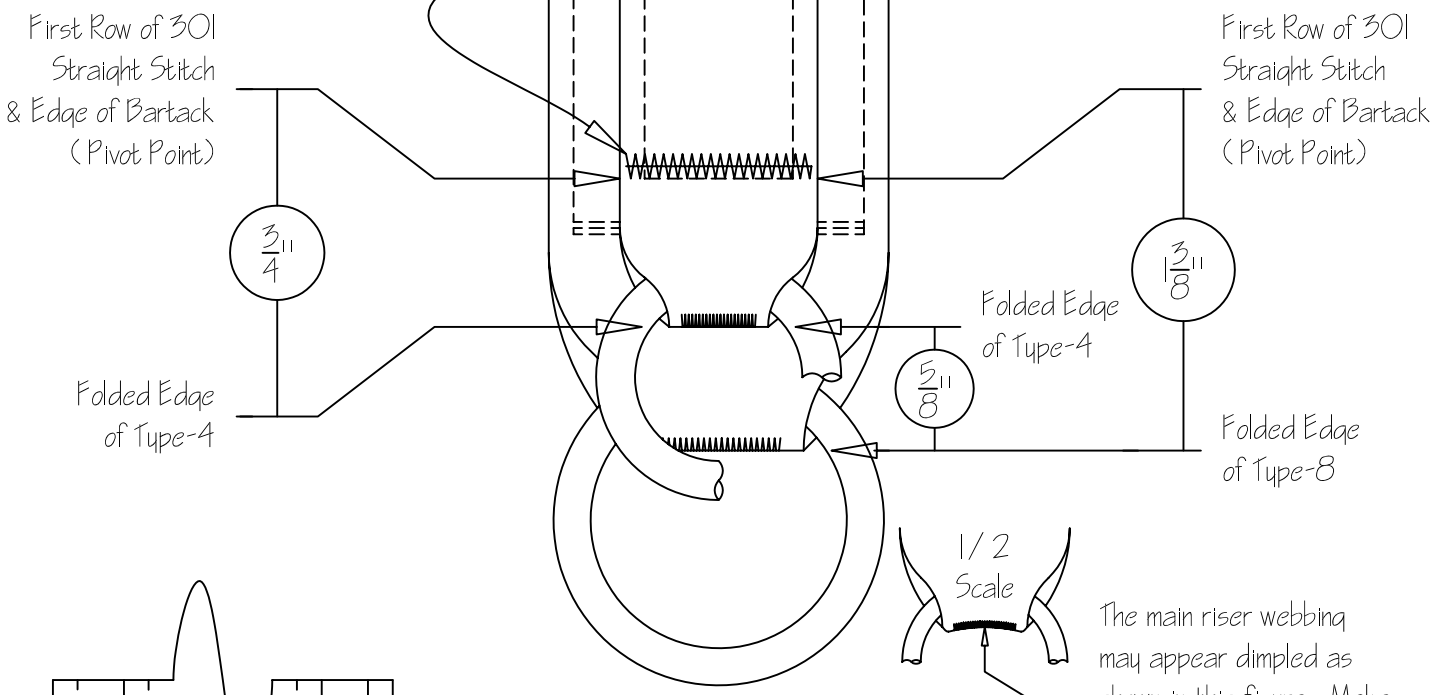
6) Slip the RW-3 Ring onto the Type-4 and slide it to the center point. Fold the Type-4 so that the bartack is located at the center of the fold as shown above.

7) Sew the Type-4 with the RW-3 ring onto the riser as shown, measuring carefully. Use the stitch pattern shown at the upper right.

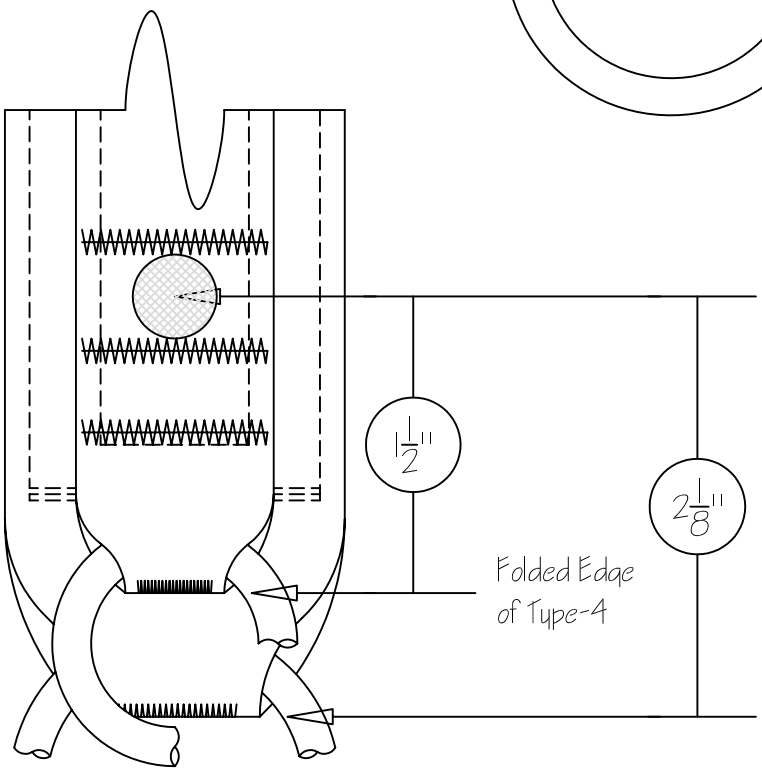


Stitching extends up to 3-1/2" from bottom, folded edge of riser

8) Place a single bartack (or zig-zag stitch) with a minimum of 42 stitches per inch just behind the row of straight stitching across the width of Type-4. (i.e. the stitches of the bartack closest to the RW-3 ring should be even with, but not step over, the straight needle stitching)

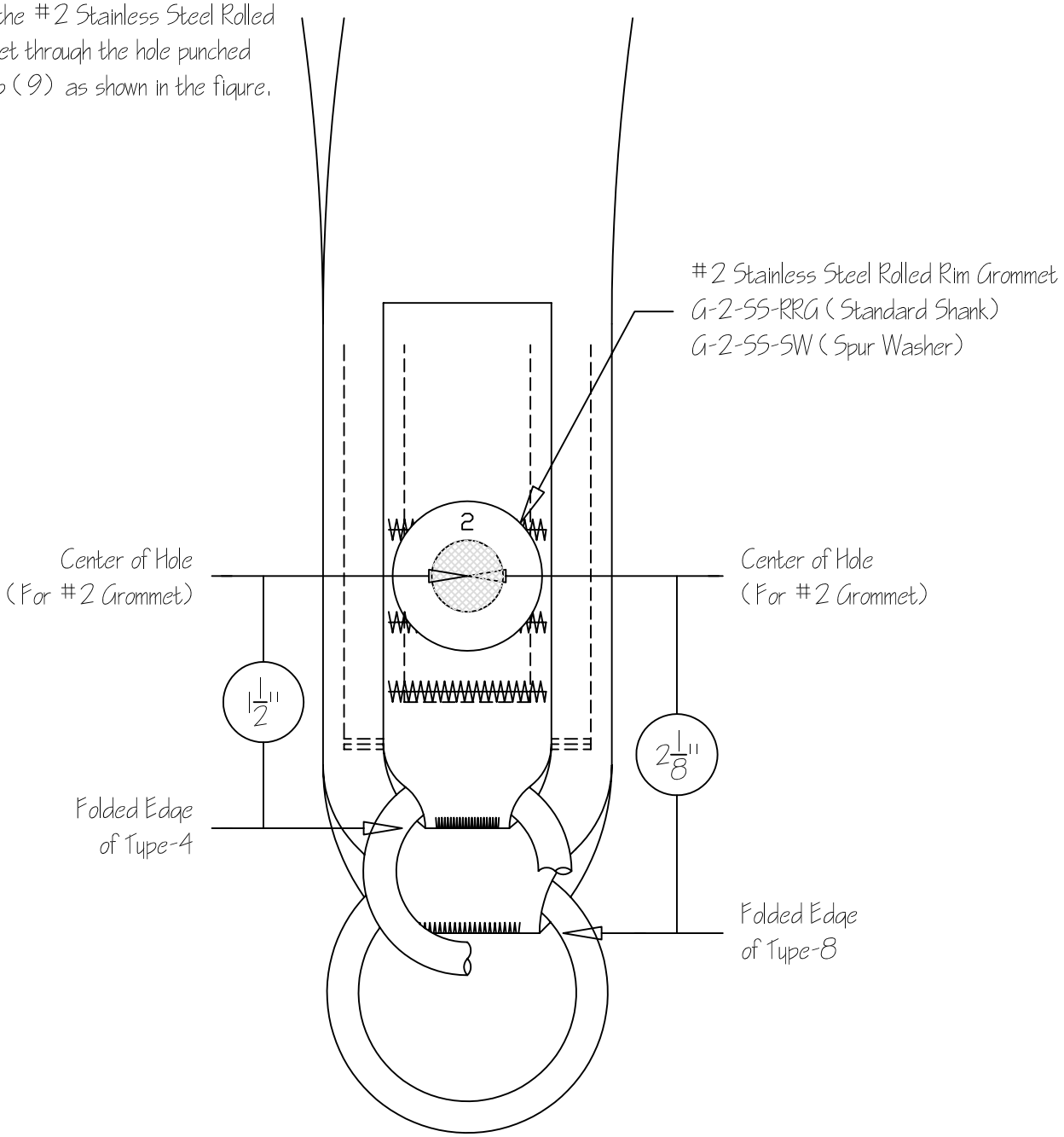


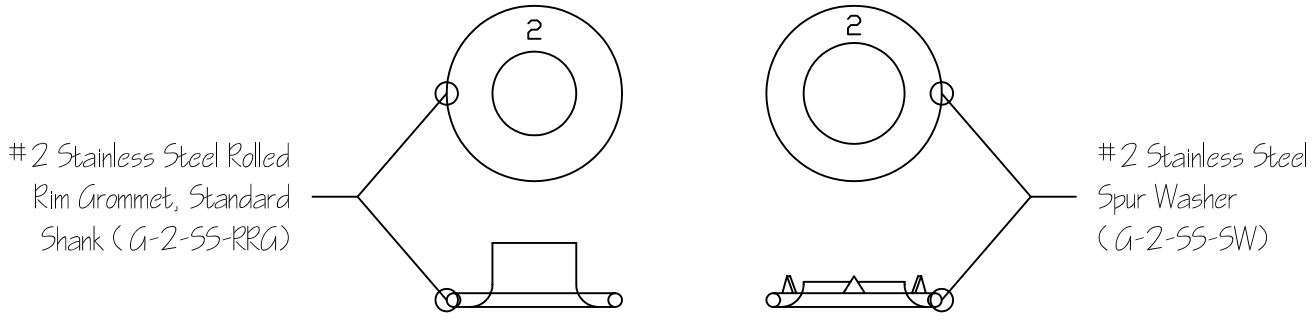
The main riser webbing may appear dimpled as shown in this figure. Make measurements from the center of the webbing; not the edge!



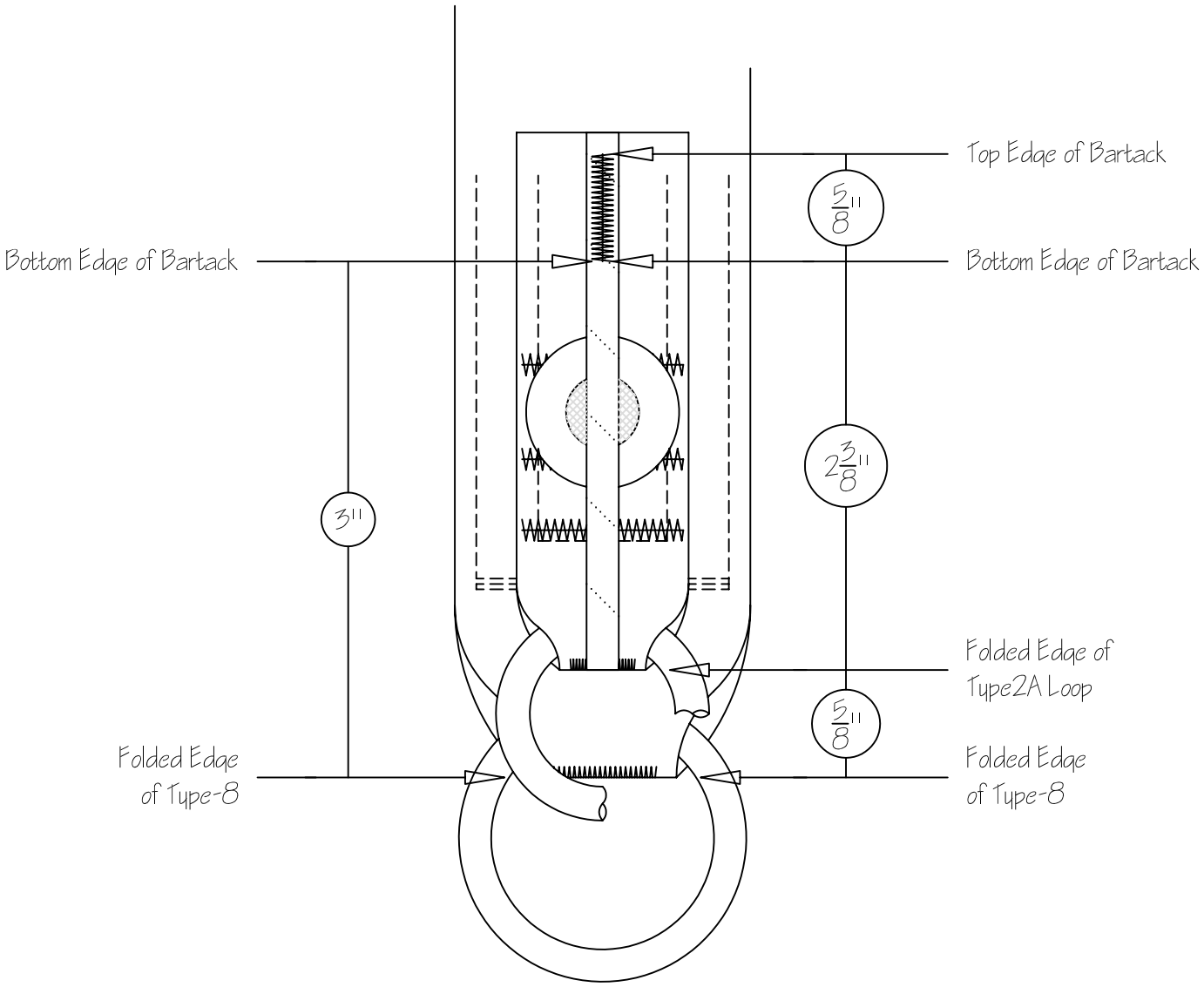
9) Punch a hole for a #2 size grommet through both the Type-4 Square Weave and Type-8 Webbing as shown in the figure at the left. Also as shown, bartack above and below the hole before setting the grommet.

10) Set the #2 Stainless Steel Rolled Rim Grommet through the hole punched during Step (9) as shown in the figure.

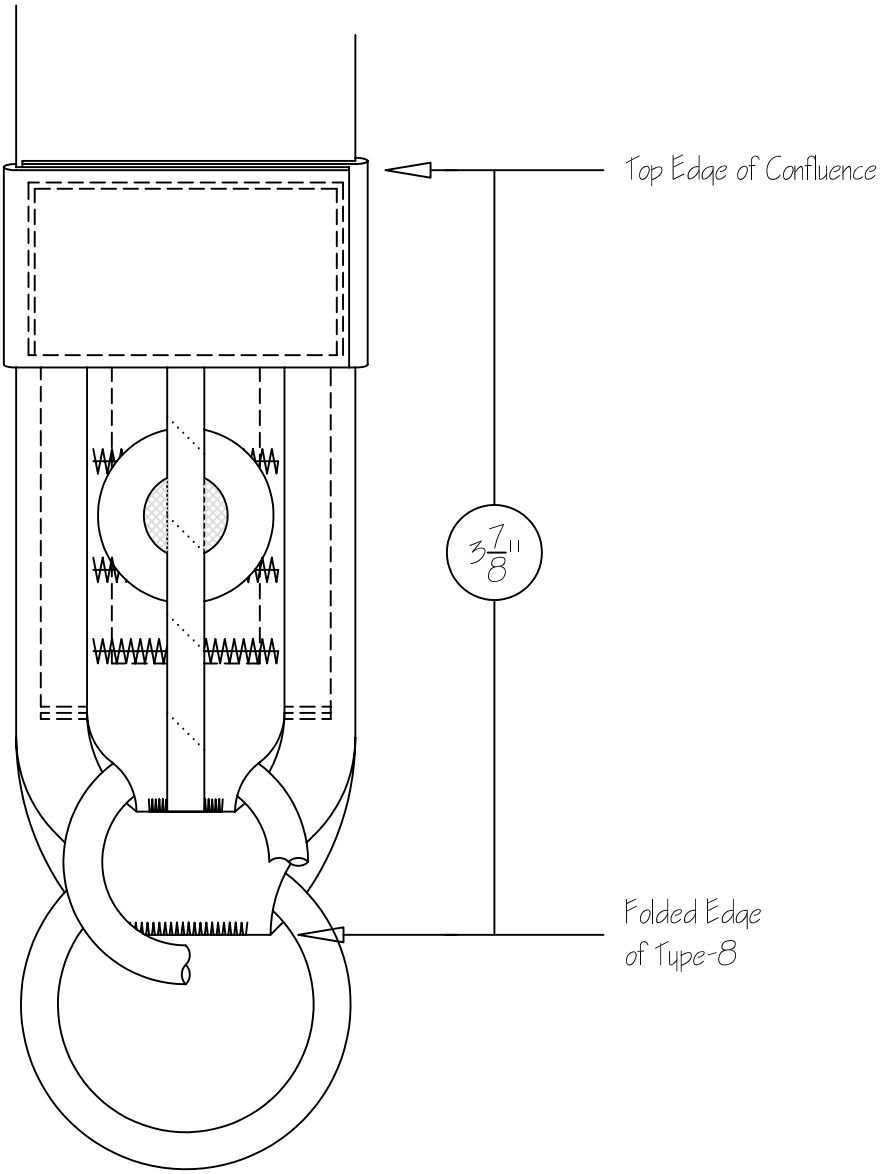


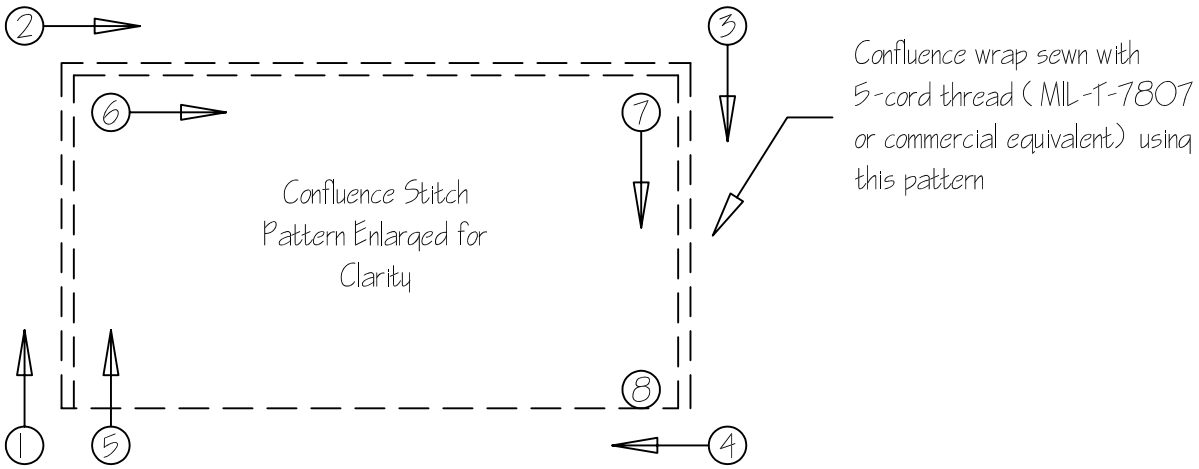


11) Fold the 6-1/4" length of Type2A, 550 lb. Sheathing in half. Place the folded sheathing on the riser as shown so that it is centered exactly over the center of the riser and grommet. The folded edge of the sheathing should be 5/8" from the folded edge of the Type-8 (i.e. even with the folded edge of Type-4). Bartack (or zig-zag) the sheathing in place as shown using a minimum of 42 stitches per inch.



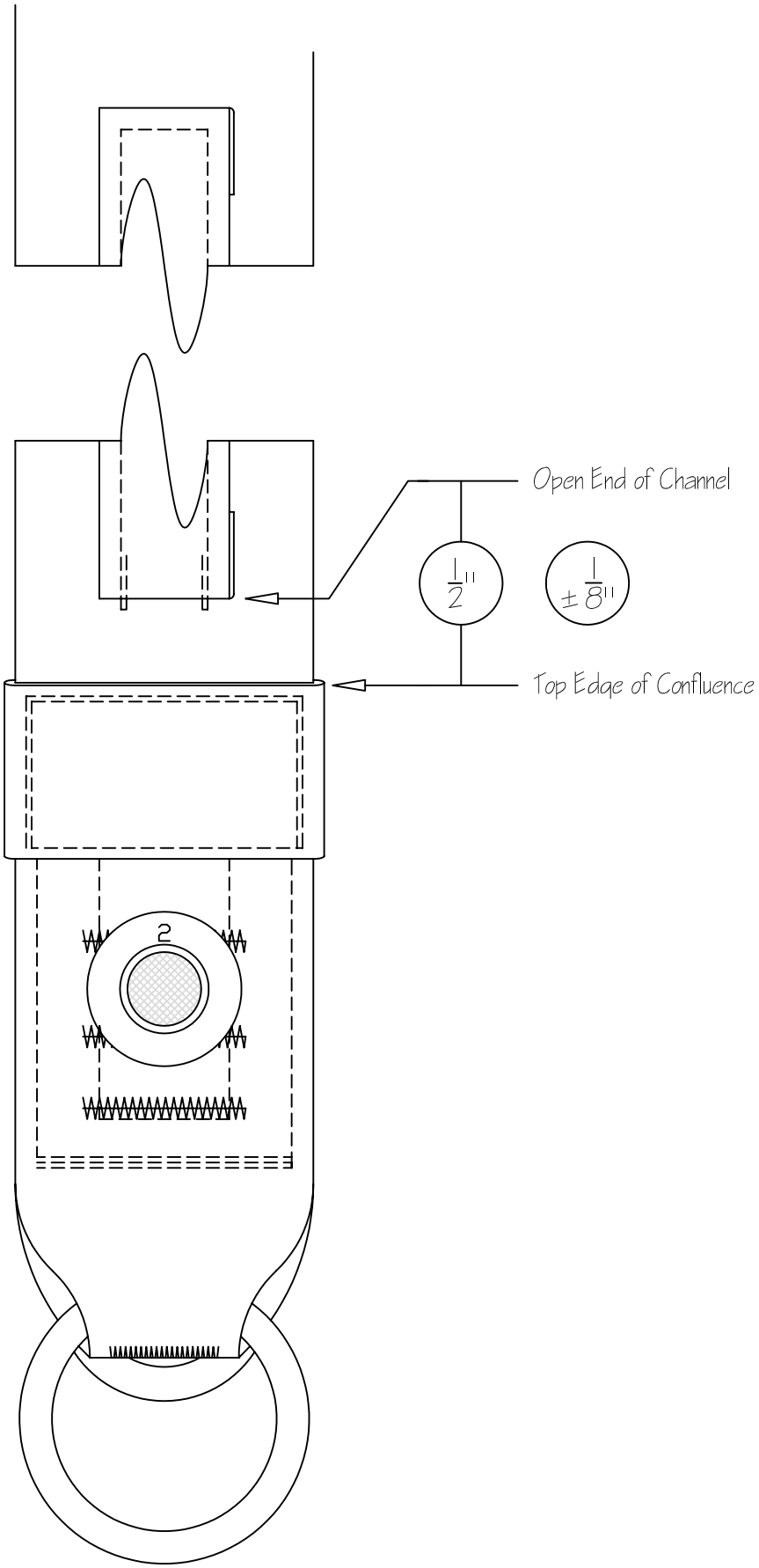
12) Using the 5-1/ 2" length of Type-4, 1" Square Weave Tape, install the confluence wrap around the riser and sew with 5-cord as shown. Use the stitch pattern shown in the lower figure.





13) When the riser is finished, it should look like this from the back, with the channel for the cable close to the edge of the confluence (between 3/8" and 5/8").

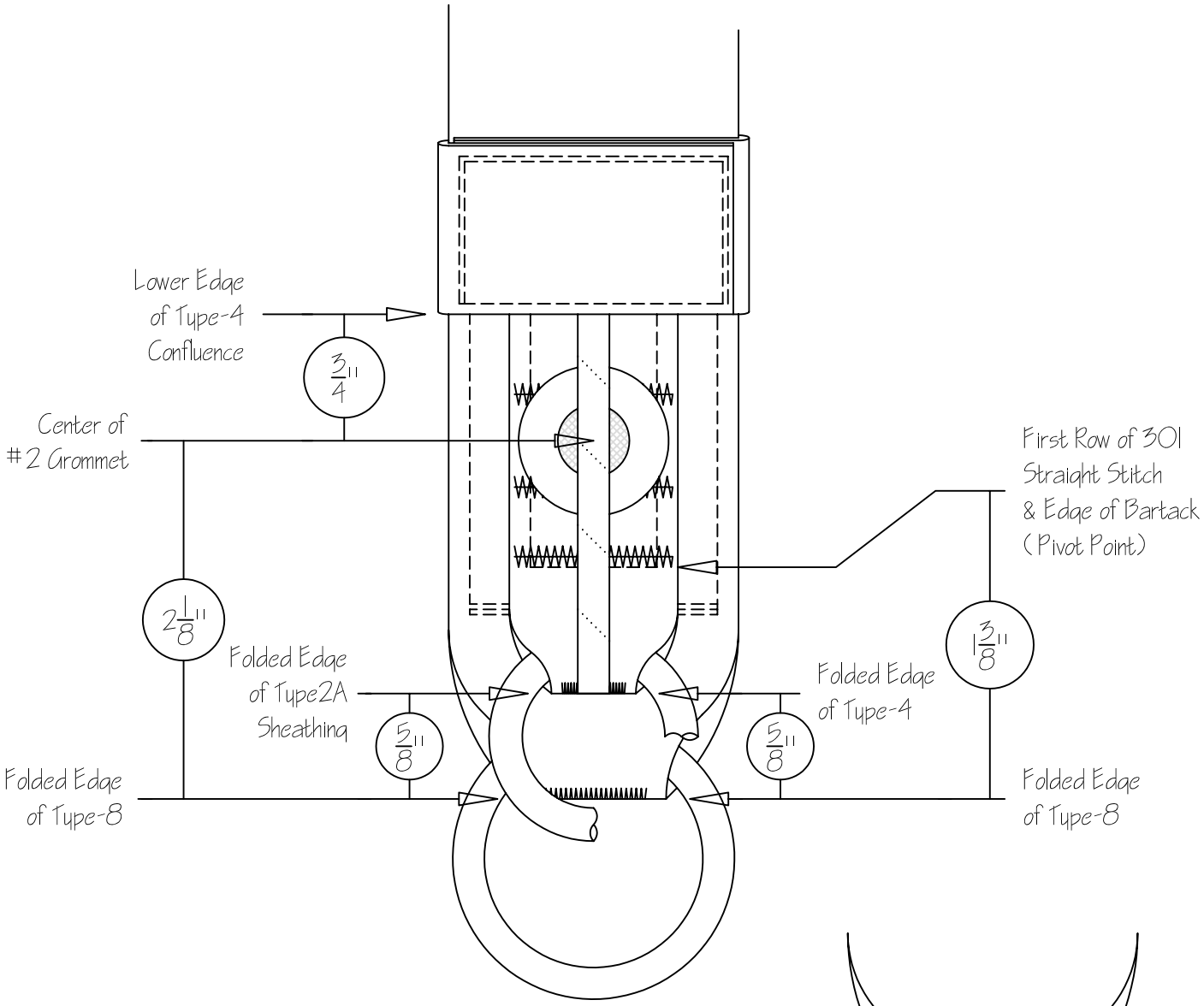
Because the channel is installed prior to the construction of the 3-ring, shrinking due to sewing in the 3-ring section (below the confluence) may cause the open end of the channel to be too close or too far away from the top edge of the confluence. If this distance does not fall within the tolerance given, it may be neccessary to vary the placement dimension of the channel (see "Type-8 Standard 3-ring Riser Construction - Page 3").

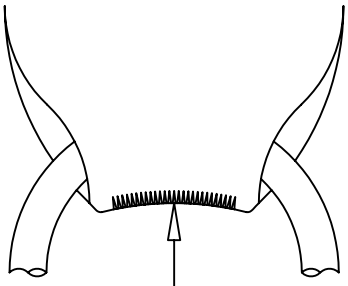


August, 1998

Type-8 Standard 3-ring Riser Specification

All Tolerances $\pm\frac{1}{16}$"





The main riser webbing may appear dimpled as shown in this figure. Make measurements from the center of the webbing; not the edge!

Hardware Compatibility

Type-8 Standard 3-ring Risers should be constructed using the following rings:

- RW2
- RW3 or Stainless RW3S

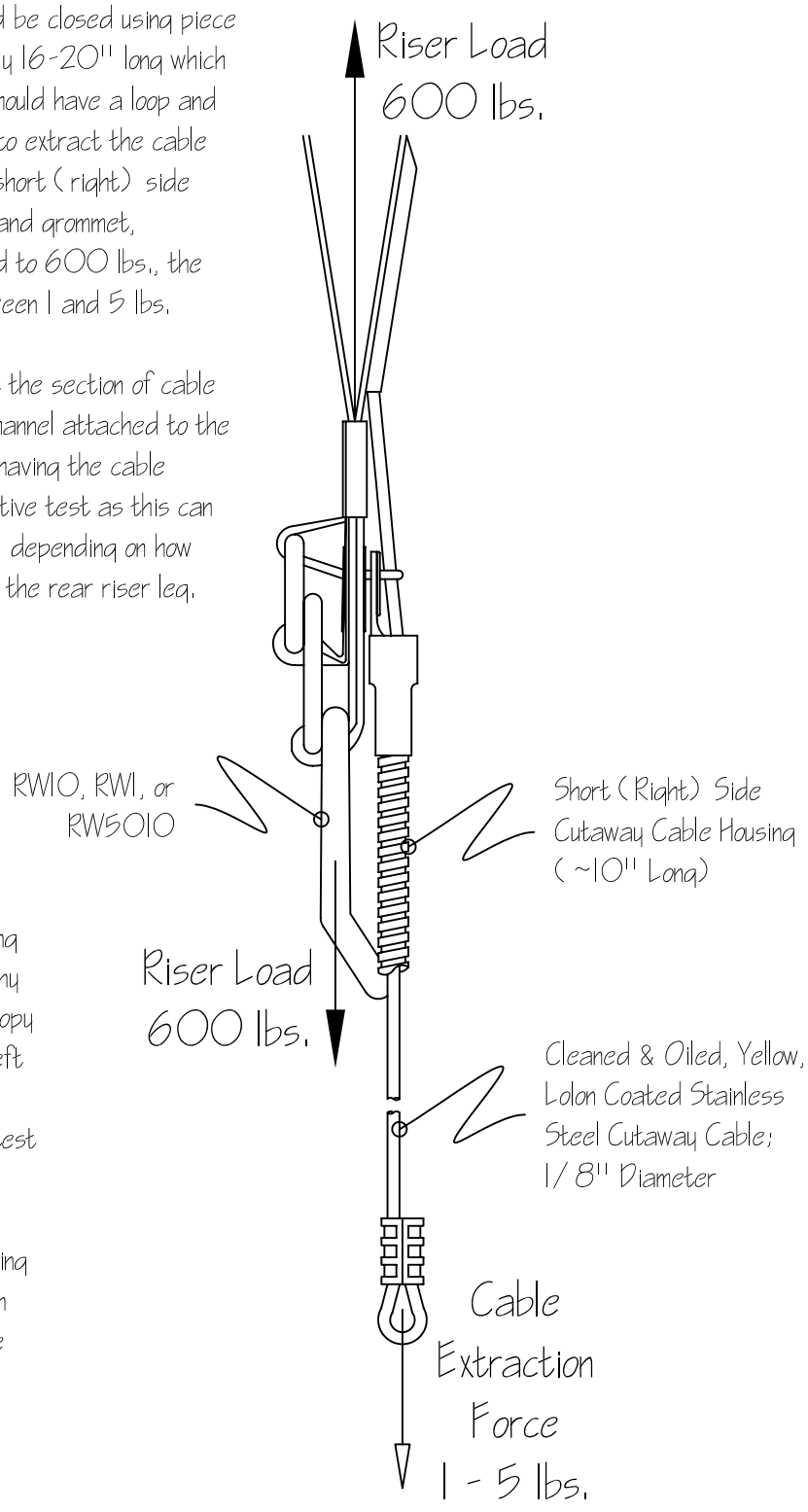
In order to work properly, the Type-8 Standard 3-ring Riser, constructed using the above rings, should only be used in conjunction with the following main rings:

- RW1
- RW10
- RW5010

Type-8 Standard 3-ring Riser Performance Specification

To test the performance of the Type-8 Standard 3-ring Riser, it must first be installed through a compatible main ring (see "Type-8 Standard 3-ring Riser Construction - Specification" for a list of compatible main rings). The 3-ring system should be closed using piece of yellow, lolon coated cutaway cable approximately 16-20" long which is cleaned and oiled prior to testing. The cable should have a loop and compression sleeve at one end which will be used to extract the cable during testing. This cable should pass through a short (right) side cutaway cable housing, complete with amp fitting and grommet, approximately 10" long. When the riser is loaded to 600 lbs., the force needed to extract the cable should be between 1 and 5 lbs.

The test above can be done either with or without the section of cable above the 3-ring being placed inside the cable channel attached to the rear riser leg. It should be noted, however, that having the cable inserted into the cable channel is a more conservative test as this can increase the measurement of pull force by 1-2 lbs. depending on how much of the 600 lb. riser load is being taken by the rear riser leg.



Notice to Harness and Container Manufacturers:

While this test is an acceptable method for proving the performance of a single riser, it does not in any way prove the performance of the entire main canopy release system which consists of both right and left 3-ring systems, cables, and cable housings. Manufacturers are strongly urged to periodically test their main canopy release systems while in a suspended harness according to SAE Aerospace Standard 8015, Revision B. The method of testing and performance standard can be found in Section 4.3.2.5, "Main Canopy Release, Actuation Force Tests".