

CORNING

Ribbon Splitting Tool (RST-000)

P/N 004-098

Issue 12

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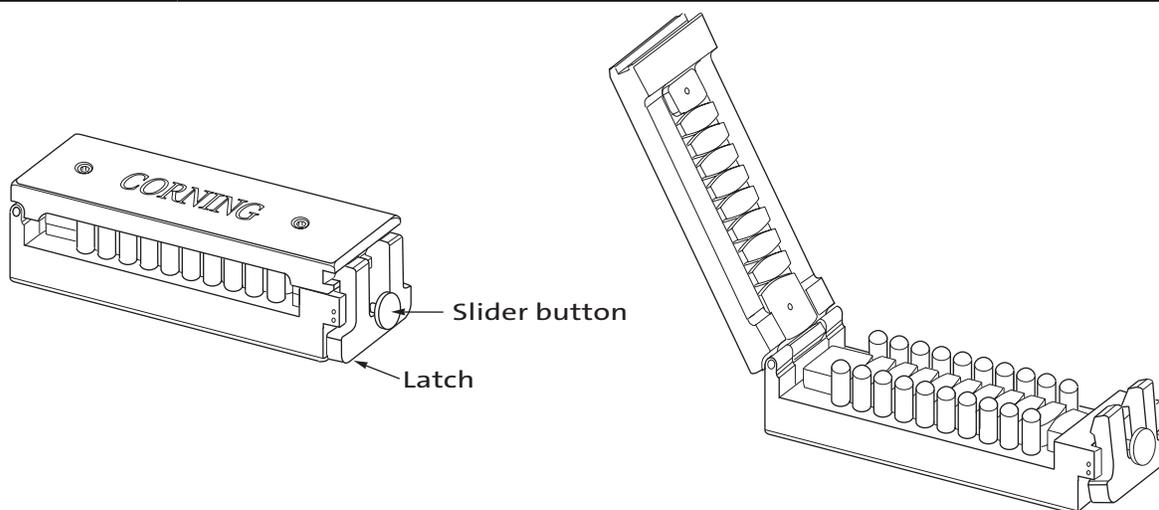


Figure 1

1. General

1.1 This procedure describes how to divide fiber optic ribbons with the Corning Optical Communications Ribbon Splitting Tool (p/n RST-000) (Figure 1). Both mid-span and end-of-ribbon applications are covered in this procedure.

1.2 The RST-000 can split a ribbon up to a length of 0.5 meter (20 in) before the tool needs cleaning. For longer lengths, the splitting process is resumed after cleaning the ribbon matrix material from the tool's channels.

1.3 The RST-000 has nine positions which accommodate ribbons from 4 to 36 fibers, as indicated by the sum of the stacked numbers on the tool (e.g., 2/2 = 4-f, 12/24 = 36-f). A high-precision slider mechanism splits the ribbon matrix to create two smaller ribbons. The tool is bi-directional (i.e., ribbons can be pulled through its channels in either direction).

2. Precautions

	CAUTION: Recommend the use of safety glasses (spectacles) conforming to ANSI Z87, for eye protection from accidental injury when handling chemicals, cables or fiber. Pieces of glass fiber are very sharp and have the potential to damage the eye.
	CAUTION: Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.



CAUTION: The RST-000 is a high-precision tool. Store the tool in the box provided, and use care to avoid dropping the tool. Failure to do so may result in misalignment which must be factory-corrected. Do not attempt to adjust a damaged tool yourself.



WARNING: Isopropyl alcohol is flammable with a flashpoint at 54°F. It can cause irritation to eyes on contact. In case of contact, flush eyes with water for at least 15 minutes. Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness, and possibly death.

3. Tools and Materials

The following tools and materials are required to complete this procedure:

- Cleaning brush (provided with tool)
- Aerosol duster or source of clean, filtered air
- Permanent marker pen
- Tape measure
- Vinyl tape
- Spatula
- Lint free tissues or cloth
- Isopropyl alcohol

If the tool has not been properly maintained, you may need the following items:

- Ultrasonic cleaner with approved cleaning solution
- A piece of card stock (e.g., a business card or index card)

4. General Information on Using the Ribbon Splitting Tool

4.1 The Ribbon splitting tool produces nine configurations of ribbons ([Table 1](#)):

Original Ribbon Fiber Count	Ribbon Configurations after splitting
36	12 / 24
24	12 / 12
12	6 / 6 4 / 8 2 / 10
8	4 / 4 6 / 2
6	2 / 4
4	2 / 2

Table 1: Ribbon Configurations

4.2 It is critical to be aware of the orientation of the ribbon and identity of the fibers being split into new, smaller ribbons.

For example:

If you wish to separate fibers 1 and 2 (the blue and orange fibers) in a 6-fiber ribbon from the other four fibers (#'s 3-6, green, brown, slate, white), the original 6-fiber ribbon **MUST** be placed in the 2/4 slot of the tool with its white #6 fiber at the bottom of the channel ([Figure 2](#)).

Improper loading of the tool would result in fibers 6 and 5 in the 2-fiber ribbon and fibers 1 through 4 in the other.

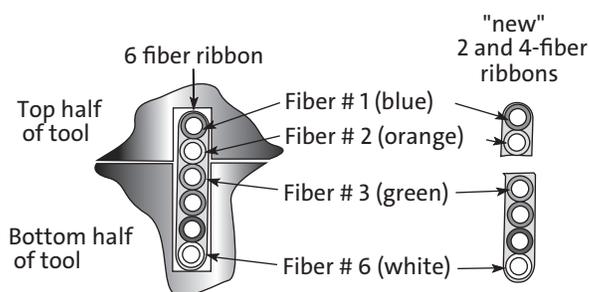


Figure 2

4.3 For end-of-ribbon uses of the tool, the ribbons may either be fed into the appropriate channel with the lid closed or placed into the channel with the lid open. The length of the ribbon to be split will determine which method is more convenient.

For mid-span applications, the lid must always be opened to accept the ribbon.



CAUTION: Failure to clean the channels before each use of the tool may result in the wrong fibers being separated. Refer to Section 9, Maintenance, for cleaning instructions.

5. Cable and Ribbon Preparation

Step 1: Remove the sheath and access the ribbons according to the appropriate procedure for the cable you are installing. For mid-span accessing, it is critical that you refer to your system plan to determine access length, the proper end of the accessed ribbon/fibers to be cut, etc.

IMPORTANT: *Make sure that the original ribbon is clean and dry before placing it in the tool to prevent build up of matrix debris, filling compound remover, and dirt in the tool's channels.*

Step 2: Determine the configuration (both fiber count and fiber position) and mark the required length of the new ribbons with a permanent marker (Figure 3).

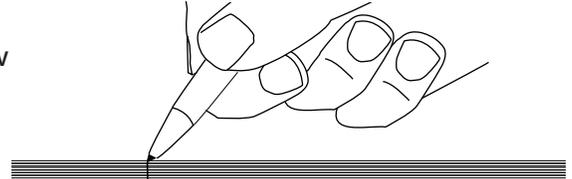


Figure 3

NOTE: *If your application requires a split length of more than 0.5 meter (20 in), use a different color marker to indicate the half meter point(s) where the tool will need to be removed and cleaned (Figure 4).*

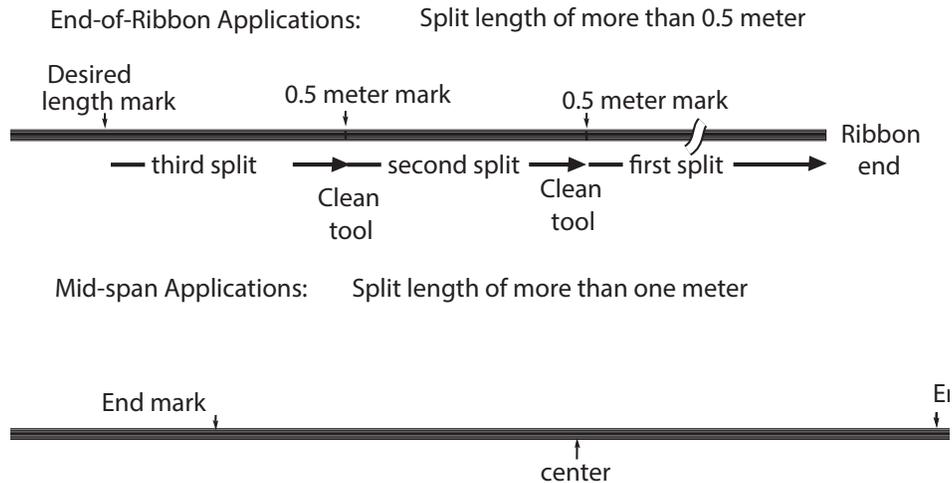


Figure 4

Step 3: Proceed to the section appropriate for your use —

6. Splitting into 12-Fiber Ribbons
7. End-of-Ribbon Applications or
8. Mid-Span Applications.

6. Splitting into 12-Fiber Ribbons

Step 1: Open and clean the tool as described in [Section 10, “Maintenance”](#)

Step 2: To load an open tool, position the ribbon approximately 2-in from its end in the appropriate channel, either the 12/12 split or the 12/24 split ([Figure 5](#)).

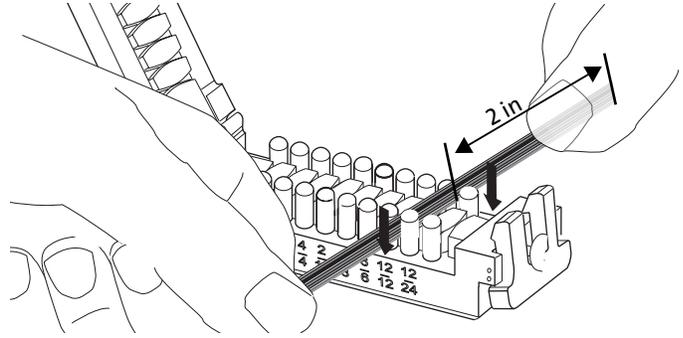


Figure 5

Step 3: Push in and hold the slider button on the end of the tool and pull the ribbon so that the last 2 inches are split using the tool ([Figure 6](#)).

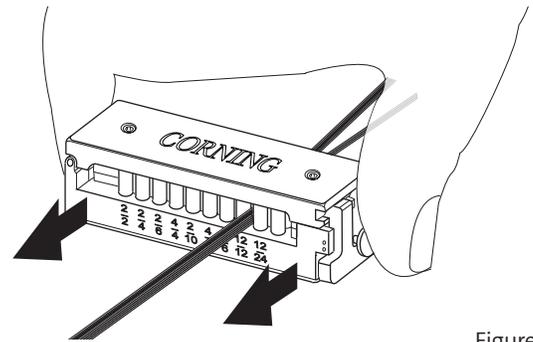


Figure 6

Step 4: Press the latch release to open the lid and clean the tool as needed with the brush provided as described in [Section 10, “Maintenance”](#)

Step 5: Verify that the ribbons have split correctly between the blue and aqua fibers.

Step 6: Take one ribbon in each hand, pulling one upwards and one downwards ([Figure 7](#)).

Step 7: Switch pulling directions every 12 inches, alternating back and forth.

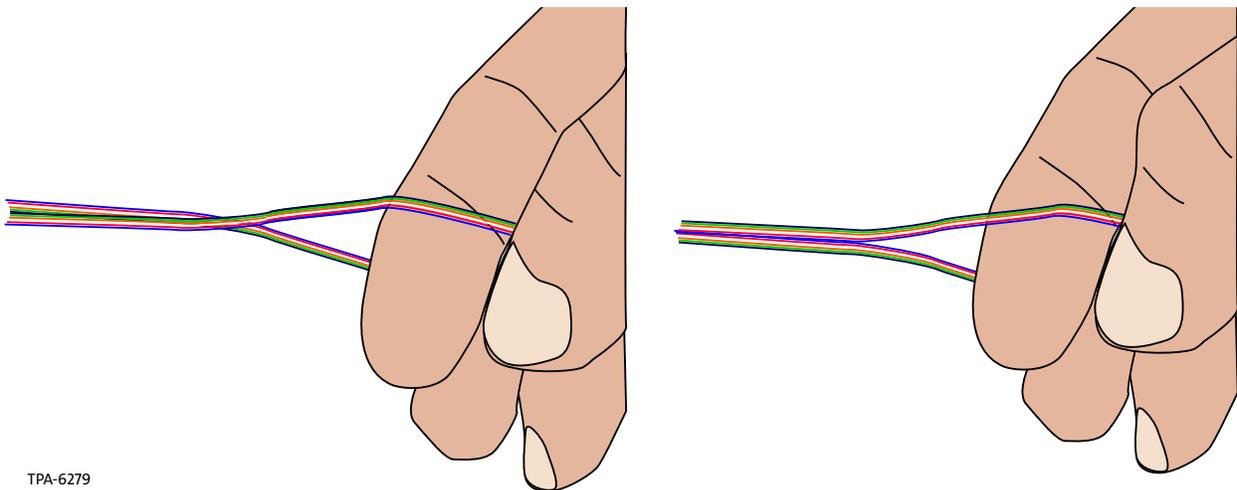


Figure 7

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7. End-of-Ribbon Access for all other Applications

Step 1: Open and clean the tool as described in [Section 10, “Maintenance”](#)

Step 2: To load an open tool, position the ribbon in the appropriate channel at its marked separation point or a 0.5-meter mark, whichever is closest to the end of the ribbon ([Figure 8](#)). Close the lid. Skip to step 4.

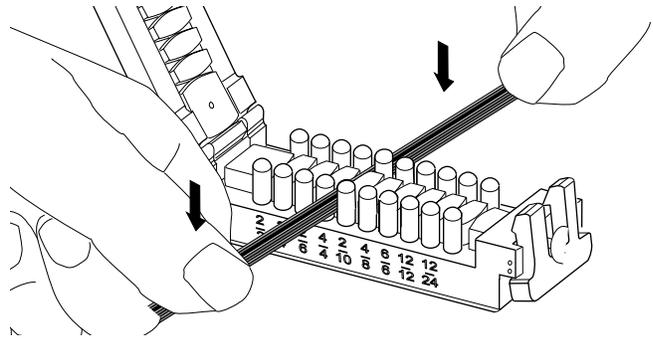


Figure 8

Step 3: To feed the ribbon into a closed tool:

a. Hold the ribbon 2.5 cm (1 in) from its end ([Figure 9](#)).

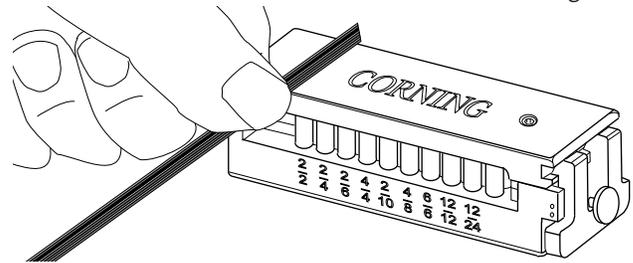


Figure 9

b. Insert the ribbon into the proper channel. Push the end of the ribbon through the tool ([Figure 10](#)).

c. Pull the ribbon through the tool until you reach the marked separation length or the first mark on the ribbon, whichever is closest to the end of the ribbon ([Figure 11](#)).

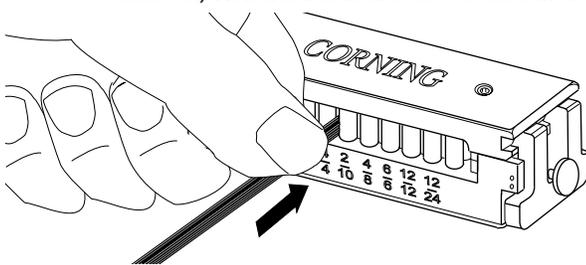


Figure 10

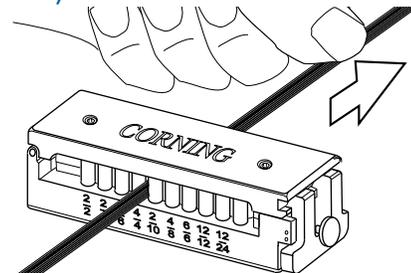


Figure 11

Step 4: Push in and hold the slider button on the end of the tool as you smoothly pull the 0.5-meter length of ribbon through the channel to the end of the ribbon ([Figure 12](#)).

Step 5: Press the latch release to open the lid. Clean the tool with the brush provided with the tool as described in [Section 10, “Maintenance”](#)

Step 6: If you still have an additional length of ribbon to split, open the tool and insert the original ribbon in the proper channel of the tool at the marked separation length or next 0.5-meter mark.

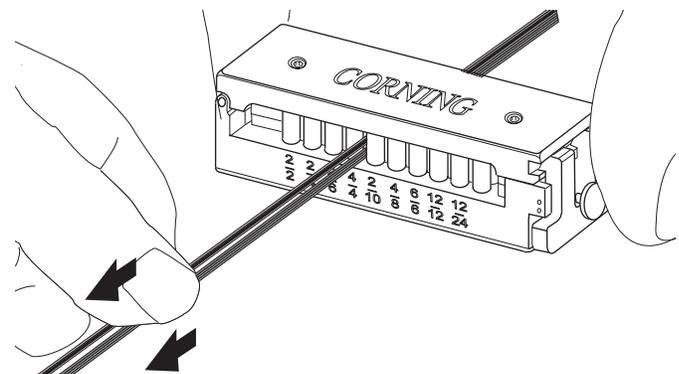


Figure 12

Step 7: Push in and hold the slider button on the end of the tool as you smoothly pull the next 0.5-meter length (or remaining required length) of ribbon through the channel to the split made in step 4.

Step 8: Repeat steps 5 and 6 as necessary to complete the end-of-ribbon splitting.

Step 9: Prepare the ribbons for splicing or termination according to your system plan.

8. Mid-Span Applications

- Step 1:** Open and clean the tool as described in [Section 10, “Maintenance”](#)
- Step 2:** Position the ribbon in the appropriate channel at one of its marked end points (see [Figure 8](#)). Close the lid.
- Step 3:** Push in and hold the slider button on the end of the tool as you move the tool along the ribbon from the end mark to either the other end mark (splits less than 0.5 meter), or to the 0.5-meter mark, as appropriate ([Figure 13](#)).
- Step 4:** Press the latch release to open the lid ([Figure 14](#)). Clean the tool with the brush provided with the tool as described in [Section 10, “Maintenance”](#)
- Step 5:** If you still have an additional length of ribbon to split, open the tool and insert the original ribbon in correct channel of the tool at the other end mark or next 0.5-meter mark, as appropriate.

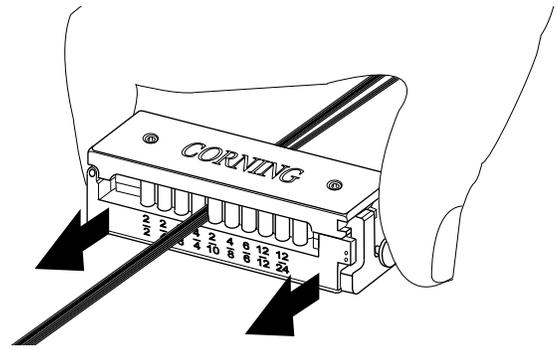


Figure 13

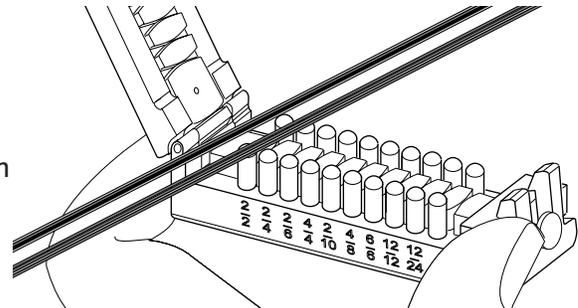


Figure 14

- Step 6:** Push in and hold the slider button on the end of the tool as you smoothly move the tool from this mark to the split made in step 3 ([Figure 15](#)).
- Step 7:** Repeat steps 4 and 5 as necessary to complete the mid-span ribbon splitting.
- Step 8:** Prepare the ribbons for splicing or termination according to your system plan.

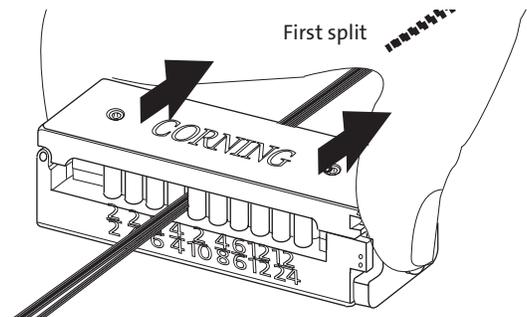


Figure 15

9. Accessing Individual Fibers

For end-of-ribbon applications, determine the length of fiber needed and identify the appropriate fibers in the ribbon that need to be broken out into individual fibers as specified in the system plan. For mid-span applications, skip to Mid-Span Applications.

End-of-Ribbon Applications

- Step 1:** Measure the required distance on the ribbon with a tape measure and mark this point with a permanent marking pen ([Figure 16](#)).
- Step 2:** Wrap the ribbon at the mark with vinyl tape to prevent excessive breakout of the ribbon ([Figure 17](#)).

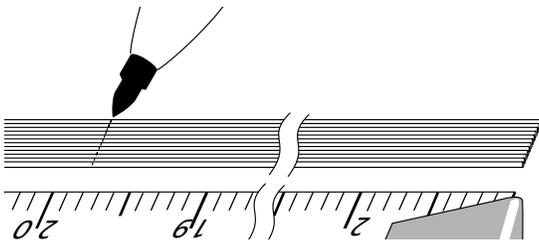


Figure 16



Figure 17

Step 3: Use the RST-000 as described in [Section 7, “End-of-Ribbon Access for all other Applications”](#), for the first split to start isolating the fibers to be accessed individually.

For example:

If you wish to access fibers 1 through 4 (the blue, orange, green, and brown fibers) in a 12-fiber ribbon, place the ribbon in the 4/8 slot of the tool with the blue fiber at the top of the tool. The result is a 4-fiber ribbon and an 8-fiber ribbon.

Step 4: At the free end of the ribbon with the fibers to be accessed individually, use scissors to cut the end at a 45-degree angle ([Figure 18](#)).

Step 5: Using a spatula or finger nail, start to separate the longest fiber away from the rest of the ribbon ([Figure 19](#)).

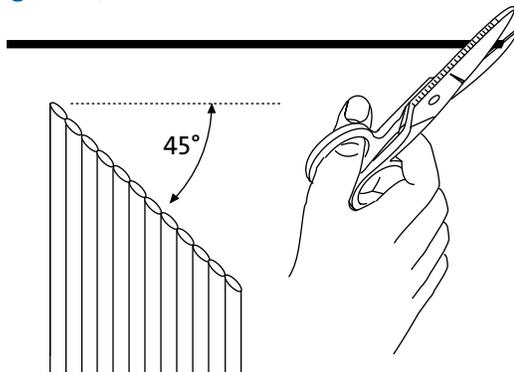


Figure 18

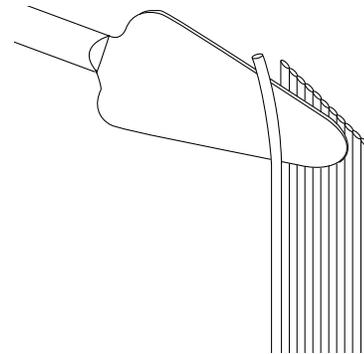


Figure 19

Step 6: Pull this fiber until it is separated down to the wrap made in step 2 ([Figure 20](#)).

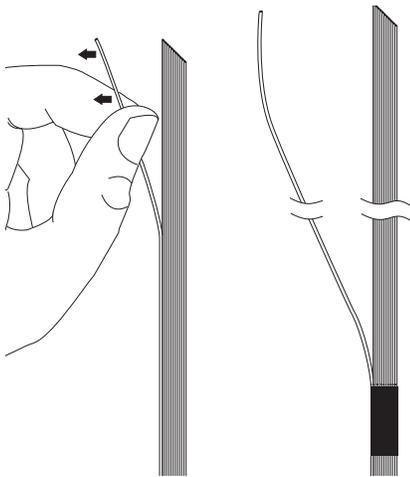


Figure 20

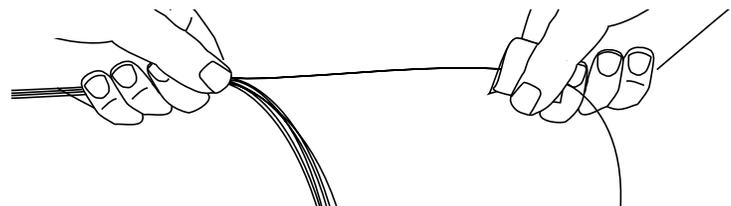


Figure 21

Step 7: Repeat steps 5 and 6 for the remaining fibers in the ribbon.

NOTE: *If a fiber breaks near its free end while trying to separate it out, cut this fiber and the remaining unseparated fibers in the ribbon at a “new” 45-degree angle. Restart the separation process with the longest unseparated fiber.*

Step 8: Remove the ribbon matrix from the separated fibers by wiping the fibers with a lint-free tissue or cloth soaked in isopropyl alcohol. Wipe the fibers individually until all of the matrix material has been removed ([Figure 21](#)).

Step 9: Verify that all the matrix material has been removed by running your fingers along the fibers. The fibers should feel and appear very uniform in dimension and texture.

NOTE: *Some small amount of fiber color may have been removed – this is normal.*

Step 10: Wipe the fibers with a clean and dry lint-free tissue or cloth. The individual fibers are now ready for splicing or fan-out procedures.

Mid-Span Applications

Step 1: For mid-span applications, identify the ribbon to be accessed, and identify the appropriate fibers in that ribbon that need to be broken out into individual fibers as specified in the system plan. Move the loop of ribbon to a work surface, if possible.

Step 2: Use a tape measure and permanent marker to mark the desired breakout length on the ribbon.

Step 3: Wrap the ribbon at the marks with vinyl tape to prevent excessive breakout of the ribbon (Figure 22).

Step 4: Use the RST-000 as described in Section 7, “End-of-Ribbon Access for all other Applications”, for the first split to start isolating the fibers to be accessed individually.

For example:

If you wish to access fibers 1 through 4 (the blue, orange, green, and brown fibers) in a 12-fiber ribbon, place the ribbon in the 4/8 slot of the tool with the blue fiber at the top of the tool. The result is a 4-fiber ribbon and an 8-fiber ribbon.

Step 5: The RST-000 can be used to initiate additional splits to help gain access to individual fibers. The RST-000 is used in the same manner as step 4, except that the tool is only used for the first 2.5 cm (1 in) of the split.

- The remainder of the split is completed by pulling the smaller ribbons by hand to the tape mark. These additional splits will result in two or more 2-fiber ribbons.
- In the example above, the RST-000 can be used to initiate the split of the 4-fiber ribbon into two 2-fiber ribbons.

Step 6: Grasping the 2-fiber ribbon with your thumb and forefinger of each hands about 7.5 cm (3 in) apart, gently rotate the ribbon while simulating the motion of bicycle pedals with your hands. Repeat this motion until the fibers begin to fall out of the matrix material (Figure 23).

Step 7: Repeat step 6 as necessary until all required fibers from the ribbon have been separated from the matrix material.

Step 8: Route the remaining fibers and/or ribbon(s) from step 5, which will not be accessed, into a splice tray.

Step 9: Remove the ribbon matrix from the separated fibers by wiping the fibers with a lint-free tissue or cloth soaked in isopropyl alcohol. Wipe the fibers until all of the matrix material has been removed (Figure 24).

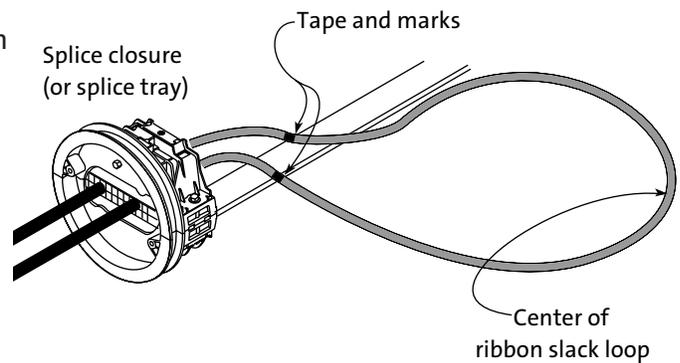


Figure 22

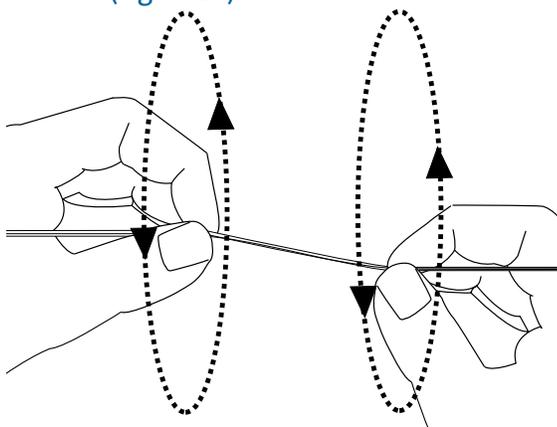


Figure 23

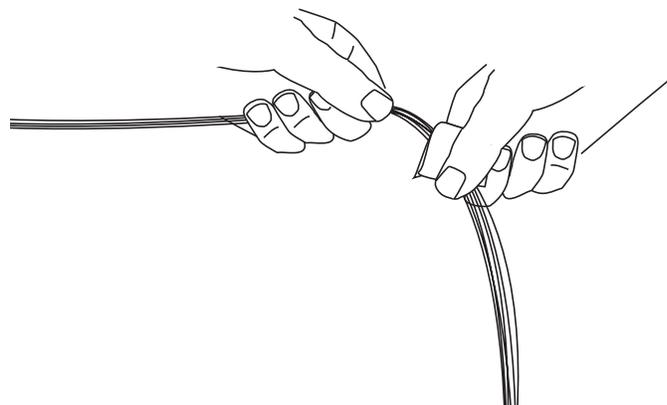


Figure 24

Step 10: Verify that all the matrix material has been removed by running your fingers along the fibers. The fibers should feel and appear very uniform in dimension and texture.

NOTE: *Some small amount of fiber color may have been removed – this is normal.*

Step 11: Wipe the fibers to be accessed with a clean and dry lint-free tissue or cloth. The individual fibers are now ready for splicing.

10. Maintenance

Step 1: Press the latch release to open the lid. Swing the lid to its open position.

Step 2: To clean the tool:

- Use the brush provided with the tool to remove dust or fragments of ribbon matrix from the top and bottom halves of the tool (Figure 25).
- Blow the channels out with compressed air (Figure 26).

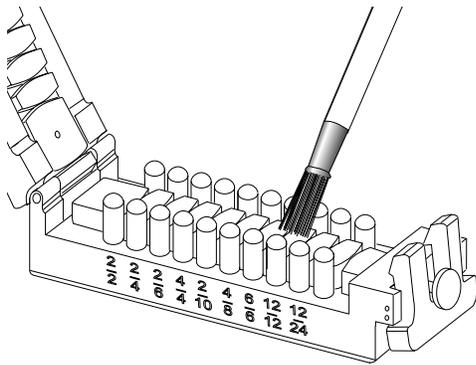


Figure 25

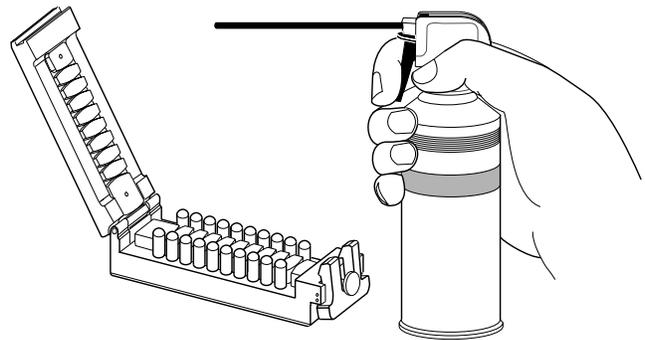


Figure 26

Step 3: If the tool has become adversely affected by built-up matrix debris, filling compound remover, and dirt, use an ultrasonic cleaner with approved cleaning solution to thoroughly clean the tool.

For field cleaning, use a piece of card stock (e.g., a business card or index card), soaked in alcohol to clean the channels (Figure 27).

For service or repair of the RST-000, contact your Corning Optical Communications customer care representative.

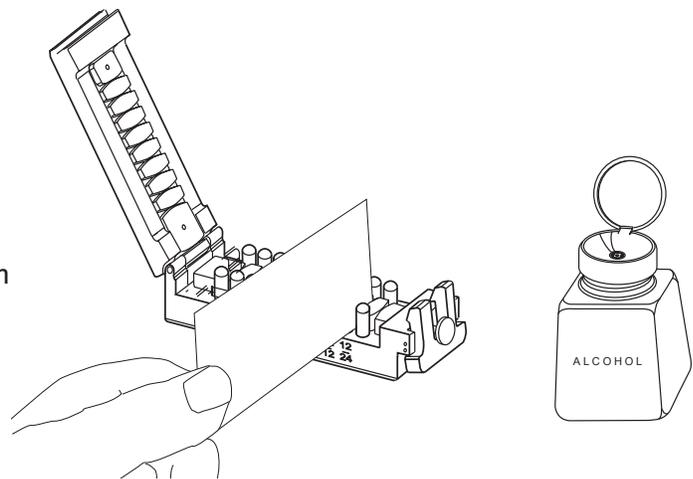


Figure 27