RLC™25

BELT SPLICING INSTRUCTIONS

Belt Replacement / Repair

INDEX

PREPARING RLC 25 BELT FOR SPLICE

Replacing the RLC 25 Belt from Bulk Supply
RLC 25 Belt Splicing Kit #E0009025 is required when making a complete belt for replacement or only a section of belt for repair purposes from a bulk endless belt supply.

Note

If the belt was received already cut to length and the ends prepared to be joined, go to "Splicing the RLC 25 Belt" – Step 3 Install the Belt.

Step 1 **Determine belt length needed**.

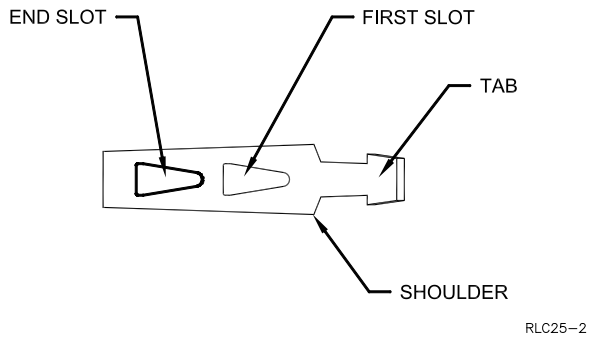
- A sticker designing the proper quantity of links should be affixed to a corresponding bed of your RLC 25 conveyor. If a sticker is not available contact TGW Systems or calculate the free length needed from Chart A and the total link tabs needed from Chart B, included at the end of this section.
- Measure the proper belt length starting with the first complete link. Mark the last link to be used and cut the belt past this link.

Step 2 **Preparing the Belt Ends for connection.**

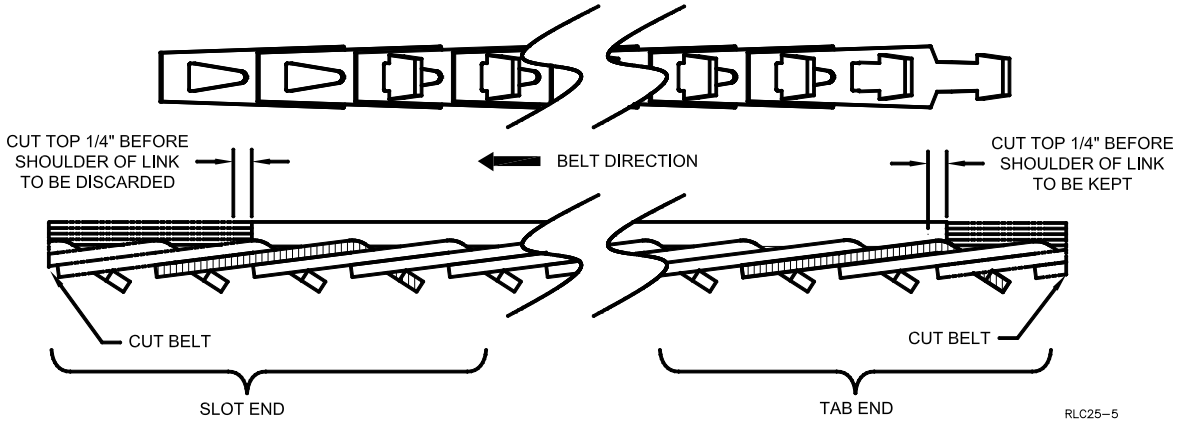
- One end must be prepared for the tab end (Picture 1) and the other for the slot end.
- To cut the top cushion for the slot end, go to the first link tab to the removed and find the triangular opening above the narrowing shoulder of this link. Cut as shown in the illustration, 1/4" from the shoulder of this first discarded link.
- Cut the top cushion for the tab end 1/4" from the corner above the tab to be kept.

Step 3 **Prepare the belt ends to receive the cushion splice rivet.**

- Go to Step 3 in "Splicing the RLC 25 Belt." Do not install the rivets till the belt is installed and connected together.
- Note: A small needle nose pliers will help with both removal and insertion of the tabs.



Single Link



REPLACING A SECTION OF RLC 25 BELT

The replacement of a section of RLC 25 belting may be done on or off the RLC 25 conveyor and requires two new connections. The basic steps include:

Step 1 **Remove the section to be replaced.**

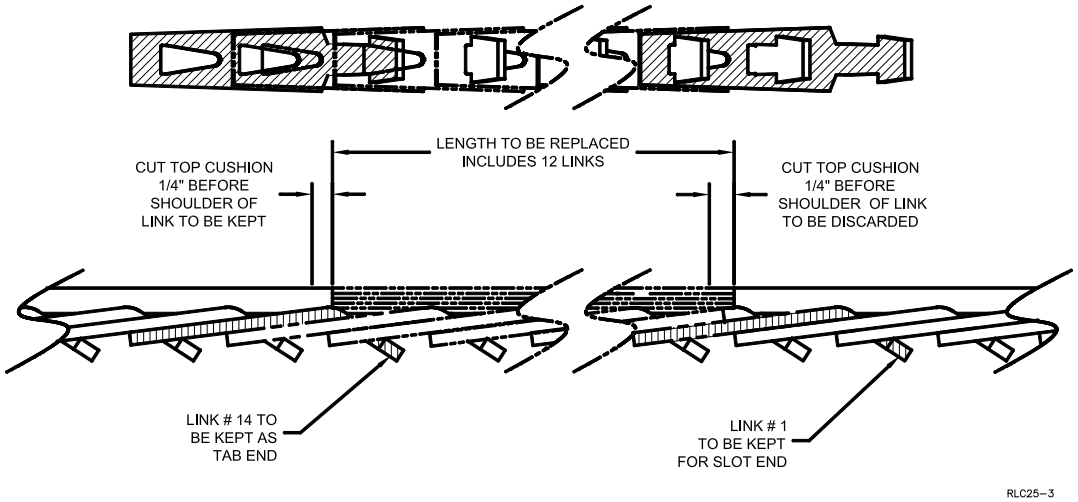
- Take the tension off the belt.
- See illustration below, “Removing Section of Belt”.
- It is recommended to replace a minimum of twelve links.
- Mark the links to be kept (#1 and #14). There must be twelve link tabs between the marked links. (See Pictures #1 and #2)
- Cut completely through the belt between the marked links (to be kept).
- Do not cut any part of a link to be kept.

Step 2 **Preparing the ends to receive a replacement section**

- Prepare one end for the slot end and the other the tab end.
- To cut the top cushion for the slot end, go to the first link tab to be discarded and find the triangular opening above the narrowing shoulder of this link. Cut as shown in the illustration, 1/4” from the shoulder of this first discarded link.
- Cut the top cushion for the tab end 1/4” before the shoulder of link to be kept.
- All links connected to the top cushion between the top division cuts are discarded.
- Note: Needle nose pliers will help with both removal of the tabs.

Mark last link to be kept (14th from first) as tab end – Picture #1

Mark first link to be kept as slot end – Picture #2

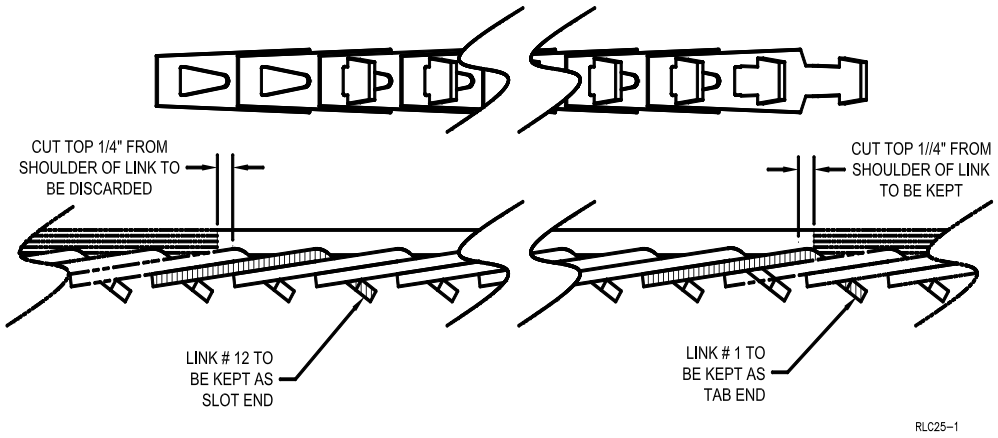


Removing a Section of Belt

REPLACING A SECTION OF RLC 25 BELT

Step 3 **Preparing a replacement belt section.**

- See the illustration below to prepare a belt replacement section.
- The replacement section must have the same number of links as removed in step #1. (The illustration is twelve links.)
- Count the first twelve full links in the belting to be used and mark links #1 and #12 to incorporate the replacement section.
- Cut off this section beyond these marked links.
- Cut the top cushion on the replacement section the same as the removed section, except for reversing the slot and tab ends.
- Note: A small needle nose pliers will help with in insertion of the tabs.



Step 4 **Install the replacement section.**

- Install the replacement section by placing its tab end through two links in the first slot, of the original main belt, and twist 90° to secure. Insert the second tab through the end slot of this same link.
- Repeat on the opposite end – except now the slot end is on the replacement section.
-

Step 5 **Splice the belt.**

- Go to “Splicing the RLC 25 Belt” section.
- If this repair is being done on the conveyor, install the rivets in both ends of the replacement section. Then tension the belt. If it is being done off the conveyor, rivet only one end until after the best is installed.

Finished Replacement Section of Twelve Links – Picture #3

SPLICING THE RLC 25 BELT

Overview
The final step in the installation of the RLC 25 belt is securing the top cushion at the splice before tensioning with special urethane rivets.

Tips:

- If replacing the complete RLC 25 belt, the belt should be prepared for receiving the splicing rivets before installing the belt.
- When drilling the rivet hole from the bottom of the belt, the drilling burr cutter must be held square to the belt in both directions. This is to ensure that the hole comes through in the center of the top cushion. (Ref. Step 1 Drilling the Pilot Hole)
- Do not rush the drilling or countersinking or the cordless rotary tool will stop. If the rotary tool stops, turn the switch to zero and then back up to the #8 setting speed. (Ref. Step 2 Countersink the Pilot Hole)
- The keys to a good splice are: high grinder speed, going slow and drilling square to the belt.
- The best compromise between speed and torque on the cordless Rotary Tool provided in the TGW Systems belt splicing kit is approximately at speed setting #8.

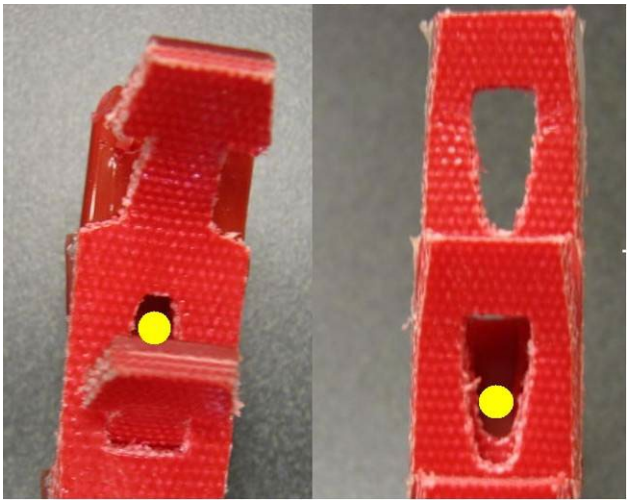
Belt Splicing Rivet – Picture #4

SPLICING THE RLC 25 BELT

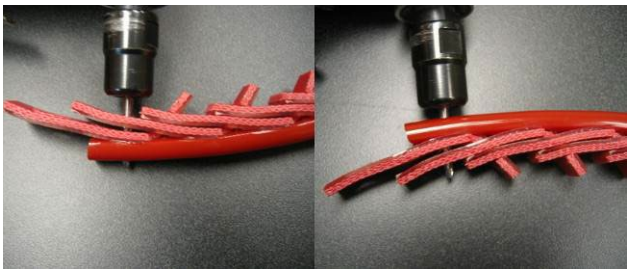
Step 1 **Drilling the Pilot Hole.**

- Use the small straight carbide cutting burr to create a pilot hole through the cushion top only. Start the hole from the link (bottom) side of the belt, keeping the burr 90° to the belt, to make sure the hole is centered in the cushion top when it exits.
- CAUTION: DO NOT DRILL THROUGH ANY LINK MATERIAL.
- Clean out the hole from the cushion topside using the same cutting burr.
- CAUTION: DO NOT ENLARGE THE HOLE GREATER THAN THE DRILL BURR SIZE.

Tab End – Picture #5



Slot End – Picture #6



Hold Drill Square – Picture #7

SPLICING THE RLC 25 BELT

Step 2 **Countersink the Pilot Hole.**

- Use the countersink burr to form the countersink in the cushion top. When the stop bottoms, the countersink has been properly formed.
- TIPS:
  a. Go slow when close to cushion.
  b. Retract the countersink and shut off the Rotary Tool.
  c. Insert the countersink (not turning) and check remaining gap between the stop and cushion top. If less than 1/32" – DO NOT GO DEEPER. It is better to be slightly short than too deep.
  d. Carefully finish the countersink if gap is greater than 1/32".
- CAUTION: DO NOT LET THE STOP BURN INTO THE CUSHION TOP OR THE HOLE WILL BE ENLARGED AND THE RIVET HEAD MAY PULL THROUGH.

Start square and centered in the pilot hole – Picture #8

Check gap remaining before finishing countersink – Picture #9

If the belt was received already cut to length and the ends ready to be joined, the rivets are bagged and tied to one end of the belt. – Picture #10

Step 3 **Install the Belt.**

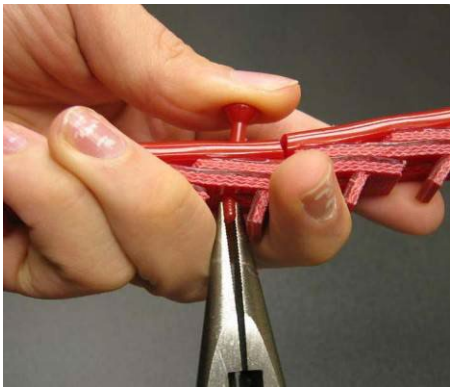
- Install the belt through all beds of the conveyor, noting the tab directions shown in Step 6 Tensioning the Belt. The tab end follows the rest of the link. The belt direction under the rollers is opposite from product travel on top of the rollers.
- Link the belt ends together. A small needle-nose pliers will help with insertion of the tabs.

SPLICING THE RLC 25 BELT

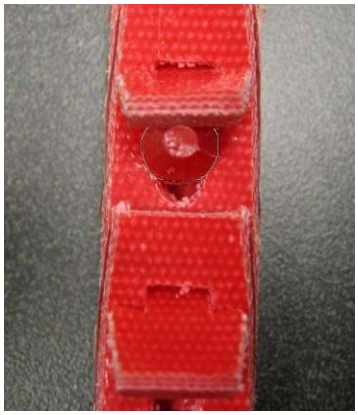
Step 4 **Install the Rivets.**

- Insert the pull tab of the rivet through the hole from the top. Grasp the tab with the needle-nose pliers and pull the nose all the way through the bottom
- Clip the pull tab off the rivet so that it doesn't protrude past the lowest part of the belt link tab.
- Make sure the rivet nose is completely through the bottom link on both sides of the slot.

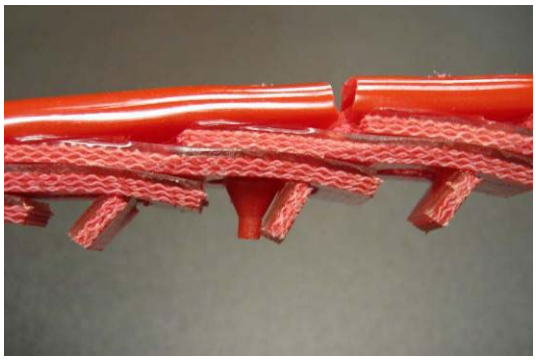
Connected belt ready for rivets – Picture #11



When first grasping the tab, a better hold may be from the side till it is through as shown. – Picture #12



Make sure the rivet nose is completely through all the way around – Picture #13



Cut off pull tab above bottom of link tab – Picture #14

SPLICING THE RLC 25 BELT

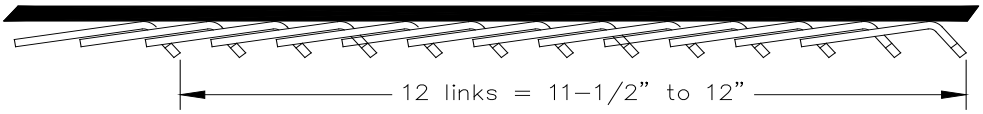
Step 5 **Check Completed Splice.**

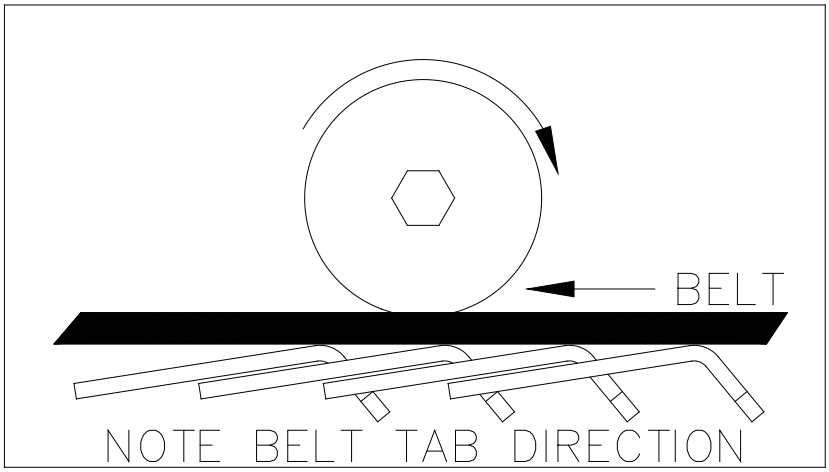
- The rivet heads should be centered and nearly flush with the top of the cushion. A slight protrusion will wear off.
- The rivet nose must be completely through, hooked over both sides of the slot in the lower link.
- In the "completed splice" picture the following rivet in direction of belt travel, is on the left side of the cut. If this side of the splice is higher than the leading side, it is alright to countersink the following side of the top cushion.

Completed Splice – Picture #15

Step 6 **Tensioning the Belt.**

- The tension is correct when (12) links measure 11½" to 12" (see example below). This may seem to be very tight, but the belt must run under high tension to perform properly. If the correct belt tension cannot be achieved, remove two or three links and check again.
- Tighten all take-ups.





FREE LENGTH OF BELT
CHART A

Bed Description	Free Length of Belt	Take-up Provided
Intermediate Straight Beds (Includes Accumulating Beds)	2X Length	0”
90 degree Style 1 & 2 curves	121.6”	20.9”
90 degree Style 3 curves	131”	16.6”
90 degree Style 1 & 2 Accumulating curves	133.5”	16.3”
90 degree Style 3 Accumulating curves	131.4”	16.6”
60 degree curves	81.3”	4.5”
45 degree curves	59.7”	2.3”
30 degree curves	39.2”	.7”
3’ Drive Bed (Dual)	66.1” Long side 24.1” Short side	0”
3’ Drive Bed	66.1”	0”
2’ Jump Bed	42.1” Long side 24.1” Short side	0”
10’ End Bed	235.3”	8.5”
9’ End Bed	211.3”	8.5”
8’ End Bed	187.3”	8.5”
7’ End Bed	163.3”	8.5”
6’ End Bed	139.3”	8.5”
5’ End Bed	115.3”	8.5”
4’ End Bed	91.3”	8.5”
3’ End Bed	67.3”	8.5”
2’ End Bed	43.3”	8.5”
24 Wide 30 degree Spur	79.3”	8.7”
18 Wide 45 degree Spur	61.3”	7.9”
24 Wide 45 degree Spur	61.3”	7.9”
2’ Accumulating End Bed	49.8”	0”
2’3” Accumulating End Bed	55.8”	0”
Vertical Takeup	10.4”	10.4”
NBA® Slave Drive	16.6”	0”
CRUZ™belt Slave Drive	55.8”	0”
NOTE: For odd length intermediate or end beds that are not listed, add 2X the extra length to the lowest, closest bed. Example: 7’6” end bed – Add 6” x 2 = 12” to 163.3” (7’0” end bed) = 175.3”		

DETERMINING TOTAL LINK TABS NEEDED VIA FREE LENGTH CHART B

Step 1)	Determine Free Lengths (from Chart A) of beds involved and add together.
Step 2)	Determine Tensioned Length; Free Length / 1.042 = Tensioned Length
Step 3)	Determine Total Take-up Length required; Free Length - Tensioned Length = XXX + 1.5 = Total Take-up Length required
Step 4)	Do you have enough take-up? Refer to Chart A for individual take-up lengths. If yes, then proceed to step 5. If not, a Vertical Take-up is needed. Return to step 1 to refigure the Free Length which will now include a Vertical Take-up.
Step 5)	Determine Total Link Tabs required; Tensioned Length / .93 = XXX + 1 = Total Link Tabs required
Example where the beds involved have enough take-up. An 8' End Bed + a 90 deg S3 curve + a 3' Drive bed.	
Step 1)	Free Length = 187.3" + 131" + 66.1" = 384.4"
Step 2)	384.4" / 1.042 = 368.9" (Tensioned Length)
Step 3)	384.4" – 368.9" = 15.5" + 1.5" = 17" of Total Take-up Length required.
Step 4)	Chart A shows an 8' End Bed with 8.5" of take-up, a 90 deg S3 curve with 16.6" of take-up and the 3' Drive bed has none. 8.5" + 16.6" = 25.1" of Total Take-up (which is greater than 17").
Step 5)	368.9" / .93 = 396.7" + 1 = 398 Link Tabs required.
Example where the beds involved do not have enough take-up. An NBA® Slave Drive + a 5' Straight Bed + a 45 deg curve + a 45 deg Spur.	
Step 1)	Free Length = 16.6" + 120" + 59.7" + 61.3" = 257.6"
Step 2)	257.6" / 1.042 = 247.2" (Tensioned Length).
Step 3)	257.6" – 247.2" = 10.4" + 1.5" = 11.9" of Total Take-up Length required.
Step 4)	Chart A shows an NBA Slave Drive with 0" of take-up, a 5' Straight Bed with 0" of take-p, a 45 deg curve with 2.3" of take-up and the 45 deg spur with 7.9" of take-up. 2.3" + 7.9" = 10.2" of Total Take-up (which is less than 11.9"). Add a Vertical Take-up which adds 10.4 inches to your Free Length and gives 10.4 inches of take-up.
Step 1)	Free Length = 16.6" + 120" + 59.7" + 61.3" **+ 10.4"** = 268"
Step 2)	268" / 1.042 = 257.2" (Tensioned Length).
Step 3)	268" – 257.2" = 10.8" + 1.5" = 12.3" of Total Take-up Length required.
Step 4)	2.3" + 7.9" **+ 10.4"** = 20.6" of Total Take-up. (which is more than 12.3").
Step 5)	257.2" / .93 = 276.6" + 1 = 278 Link Tabs required.

About MHS Conveyor

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MHS Conveyor, located in Norton Shores, Michigan, is a leading deliverer of “smart” material handling systems, technologies, products, and services, creating solutions for material flow applications. As a global supplier of conveyor systems and equipment since 1964, MHS Conveyor provides sorters, conveyors, and accessories to satisfy a broad spectrum of accumulation, transportation, and sortation applications.

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