



Web Belt Repair and Replacement

Tools required



Figure 1 - Tools required

Item	Description	Quantity
1	Battery drill with 4 mm, 5 mm & 6 mm drill bits, 1/4" UNC and M6 taps*	1
2	Joiner pins**	2 for standard-width belts
		3 for extra-wide belts with three bands
3	Heavy-duty utility knife	1
4	Tape measure	1
5	Ratchet tie-down straps	As required
6	Spare clip joiner kits (may be able to re-use old joiners)	2 for standard-width belts
		3 for extra-wide belts
7	Steel set square	1
8	Loctite 243 medium-strength	1
9	Heavy side-cutters	1
10	2.5 mm Allen key for locking collars	1
11	5/32" (4 mm) Allen key for joiner screws	1
12	10 mm and 11 mm (7/16") spanners	2
13	Pin punch	1
14	Clip joiner from the old belt	1
15	Hammer	1
	Heavy-duty cable ties	As required
	65 mm x 6 mm x 100 mm long flat bars	2

* 1/4" UNC and M6 taps are only required if elevator cleats need to be relocated when shortening belts. Older belts have 1/4" UNC fasteners, current belts have M6 fasteners.

**If a temporary joiner pin has not been supplied, prepare temporary steel joiner pins from a 10 mm round bar or M10 x 100 bolts with the heads cut off. Grind a lead-in chamfer on each end (Figure 2).



Figure 2 - Chamfered bolt



IMPORTANT! PLEASE READ

Joiner clips

Before replacing and after shortening the belt, check the bottom edge of the joiner clip is flush with the bottom of the traction belt (Figure 3).

Check the bottom edge of the joiner clip is flush with the bottom of the traction belt.

Grind the joiner and nuts (attached later) down flat to prevent them from catching on the elevator/floor conveyor bed and causing belt damage (Figure 3).

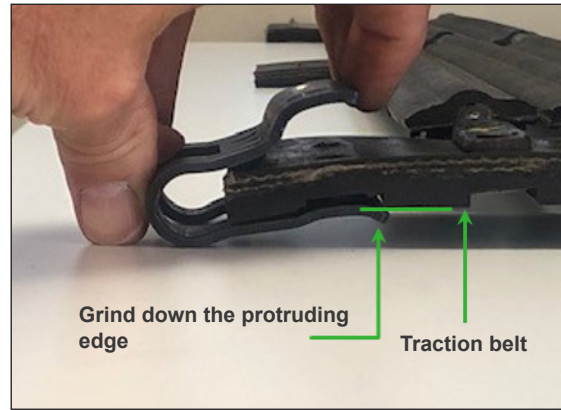


Figure 2 - Joiner clip

IMPORTANT! Do not trim the belt back too far. Leave enough belt material for the joiner teeth to bite into (Figure 4).

IMPORTANT! Trim the belt down with a utility knife to allow the clip to be fitted (Figure 5).

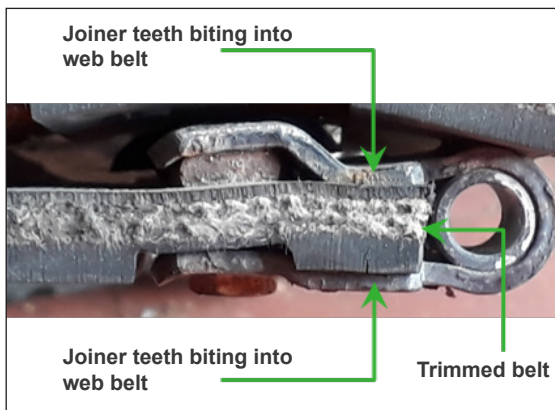


Figure 4 - Joiner teeth

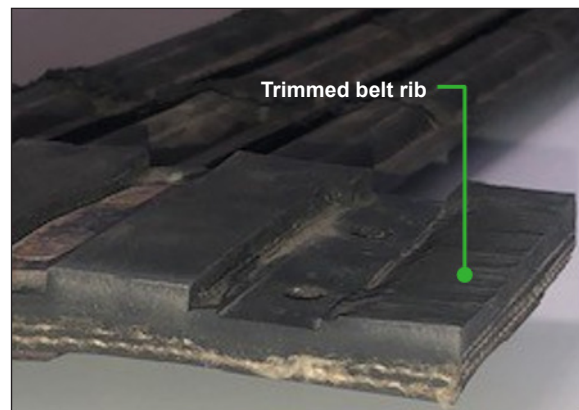


Figure 5 - Trimmed belt rib

Web belt repair

Re-joining broken belt, broken at clip-joiner:

i If the belt has broken at a different location an extra set of clip joiners will be required (kit 760009).


See *Floor conveyor web belt replacement* and *Elevator web belt replacement* for further information.

1. Prepare your tools (Figure 1).
2. Disconnect power to the equipment and lock out.
3. Manually rotate the belt so the joiner bar is accessible and can be removed.
4. Slacken the tensioners to release the belt tension.
5. Use ratchet webbing straps passed around bars approximately 10 bars away from the join (both sides) to pull the two ends of the belt together.
6. Loosen the locking collar grub screws (Figure 7) and remove the joiner rod, collars and rubber sleeve (Figure 9).
7. Unbolt the clip joiners from the broken end of the belt.
8. Trim both sides of the broken belt to the same length. See *Web belt shortening procedure*.
9. Replace the clip joiners onto the trimmed end.



10. Connect the belt using the temporary joiner pins.
11. Use the joiner rod to drive through the first joiner pin, then slide the locking collars and rubber sleeve over the joiner rod. Repeat this procedure with the second joiner pin, and third joiner for extra-wide belts.
12. Check that the rod is flush on both sides of the belt and tighten the collars. Fasten the grub screws on the locking collars using Loctite 243 on the grub screw thread.
13. Tension the belt.
14. Power up the drive and run the conveyor to check the belt is running correctly.

Floor conveyor web belt replacement

 The belt is preferably replaced with the floor conveyor in place. If the floor conveyor needs to be removed for belt replacement, contact Wyma for assistance.

1. Prepare your tools (Figure 1).
2. Disconnect power to the equipment and lock out.
3. Open the dump valves to drain any water from the tank.
4. Wash down the machine.
5. Remove any equipment mounted on top of the tank if access to the conveyor belt is restricted.
6. Remove hungry boards (Figure 6) on either side of the floor conveyor tail and the drive side of the floor conveyor head.
7. Remove the floor conveyor tail shroud (Figure 6).
8. Power up the drive and rotate the belt so the joiner bar is easily accessible through the rear access hatches and will allow the joiner rod to be pulled out.

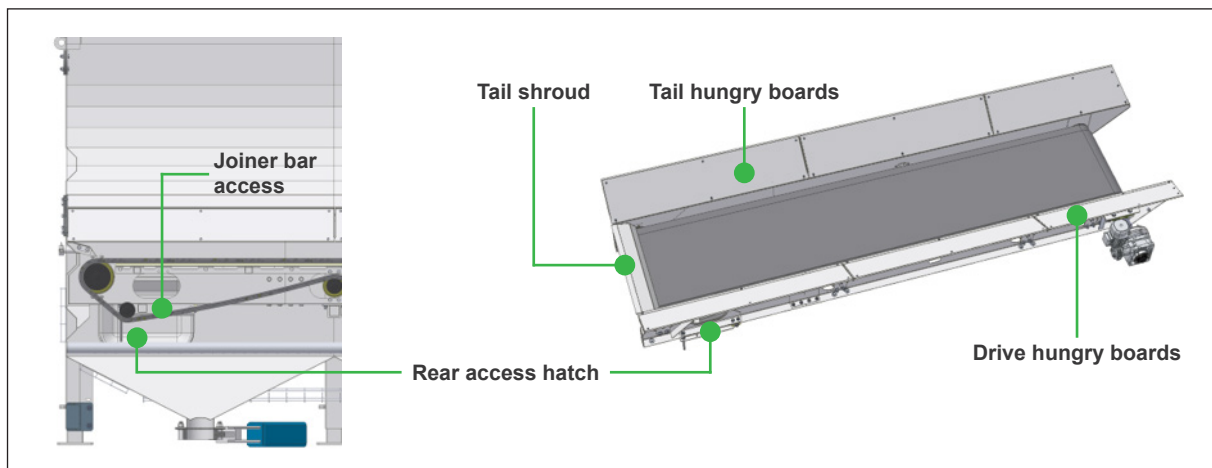


Figure 6 - Joiner bar access

9. Disconnect power to the equipment and lock out.
10. Slacken the tensioners to release the belt tension.
11. Loosen the grub screws on the joiner bar locking collars (Figure 7).
12. Use the joiner pins (two required for standard-width belts, three for extra-wide belts) as a pin punch to push one end of the joiner rod out of the joiner clip (Figure 8).



Figure 7 - Locking collar



Figure 8 - Pushing joiner rod out

13. Carefully bend the joiner rod down enough to allow the first locking collar and rubber sleeve to be pulled off (Figure 9).
14. Continue driving the joiner rod out and use the second pin (and third pin for extra-wide belts) to drive the rod all the way out, removing the remaining locking collars and rubber sleeve on the way.
15. Re-tighten the tensioners.
16. Power up the drive and feed the belt around the drive until the joiner is on the top at approximately one meter from the head of the conveyor.
17. Undo the coupling grub screws on the drive shaft and separate the coupling (Figure 10).
18. Slacken the tensioners to release the belt tension.
19. Use webbing straps to secure both ends of the belt to the floor conveyor frame and drive the joiner pins out. Ensure the end of the belt is under controlled release to prevent the end from 'running away'.
20. Roll up the tail of the old belt as far as possible to provide working room on top of the conveyor. If possible, lift the tail end out using an overhead crane or forklift jib.



Figure 9 - Removing rubber sleeve

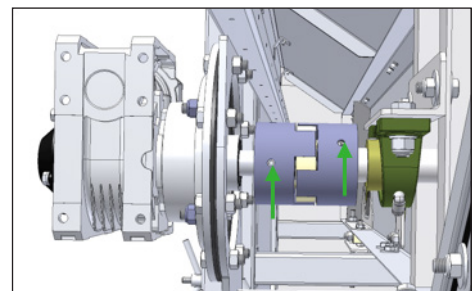
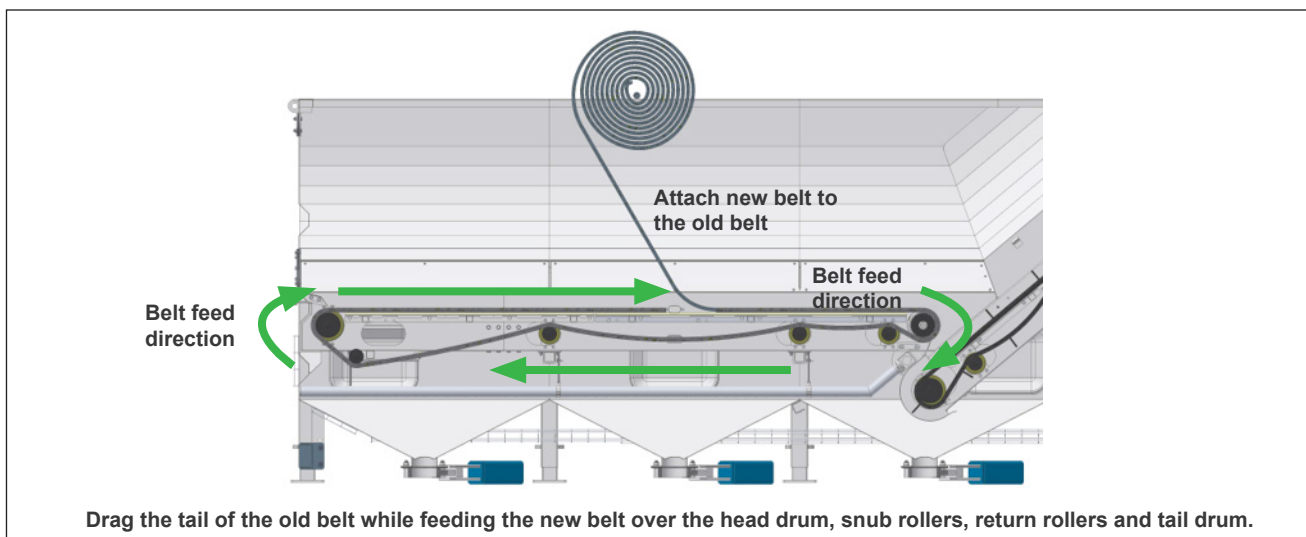


Figure 10 - Coupling grub screws



Drag the tail of the old belt while feeding the new belt over the head drum, snub rollers, return rollers and tail drum.

Figure 11 - Floor conveyor belt replacement



21. Use the joiner pins to attach the end of the new belt to the head end of the old belt.



IMPORTANT! If the joiner clips are orientated the wrong way, use heavy cable ties to connect the old belt to the new one.

22. Drag the tail of the old belt out while feeding the new belt over the head drum, snub rollers and return rollers, then finally around the tail drum. When the head of the new belt emerges at the tail, secure the head and the tail together using webbing straps, allowing the head and tail to overlap (Figure 11).

23. Drive out the joiner pins and remove the old belt.

24. Measure and cut the belt to length as follows:

- a. Ensure that the tensioner is in a fully raised position (slack position).
- b. Adjust the tension of the belt using the webbing straps to adjust the sag of the belt to approximately 60 mm in between the return rollers and the bottom of the conveyor (Figure 12).
- c. Shorten the belt if excess sag is present. See *Web belt shortening procedure*.

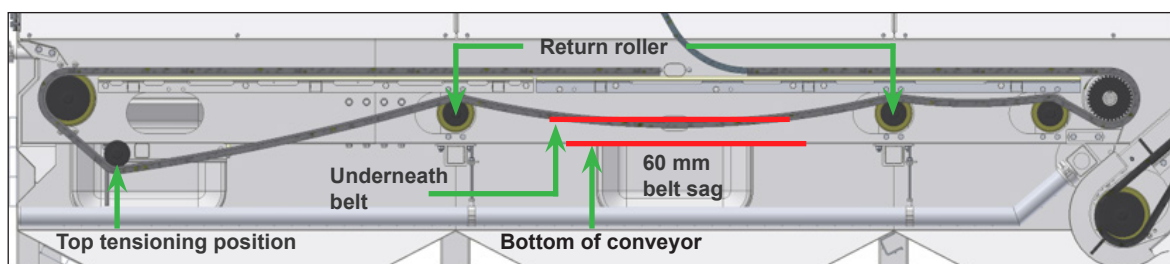


Figure 12 - Checking floor conveyor belt sag

25. Use the pins to join both ends of the new belt.

26. Reconnect the drive shaft coupling.

27. Tension the belt using the tensioners.

28. Power up the drive and rotate the belt around so the pins are located at the rear access hatches.

29. Disconnect power to the equipment and lock out.

30. Slacken the tensioners to release the belt tension.

31. Use the joiner rod to drive through the first joiner then slide the locking collars and rubber sleeve over the joiner rod. Repeat this process with the second joiner and third joiner for extra-wide belts.

32. Check that the rod is flush on both sides of the belt and tighten the collars. Fasten the grub screws on the locking collars using Loctite 243 on the grub screw thread.

33. Tension the belt.

34. Refit the equipment conveyor tail shroud, hungry boards and equipment on top of the tank.

35. Power up the drive and run the conveyor to check the belt is running correctly.

36. Monitor tension daily for one week and make adjustments as required.



Elevator web belt replacement

The belt is usually replaced with the elevator in place. If the elevator needs to be removed for belt replacement, contact Wyma for assistance.



DANGER: Replacing the elevator belt is a potentially dangerous task. The belt can weigh up to a ton and extreme care must be taken to ensure that the belt does not fall on staff members.

Sufficient personnel must be available for lifting and fitting the belt in position, with a minimum of three people recommended for the shorter belts. An additional two people need to look through the inspection hatches to make sure that the belt is being correctly threaded over the return rollers.

Use suitable lifting gear to lift the new belt roll.

Access to the belt depends on the installation and the following machine in the line. The following points must be noted when replacing the elevator web belt:

- The old belt should be used to pull the new belt through the elevator. This aids in feeding the belt correctly over the return and tail rollers. If the old belt has broken and is pulled out from beneath the elevator then extra care must be taken to ensure that the new belt is correctly threaded. Extra personnel may be required.
- At all stages of removal and replacement, care must be taken to ensure that the ends of the new belt do not get released and be allowed to 'run away' out of control. This is potentially dangerous and would require difficult and time-consuming rethreading of the belt.
- To lift the belt roll, feed a 40 mm shaft through the center of the rolled-up belt (protruding approximately 300 mm from each side). Attach lifting strops over the shaft and then lift the belt roll from a crane hook.
- When feeding the new belt out from ground level, a 40 mm shaft can be threaded through the center of the rolled-up belt (protruding approximately 300 mm from each side) and the shaft supported by two sturdy trestles to allow the belt to be fed out.

Use the following procedure to replace the elevator belt:

1. Prepare your tools (Figure 1).
2. Open the dump valves and drain the water from the tank.
3. Wash down the machine.
4. Remove any equipment mounted on the elevator. This includes spray bars, drip-tray and outfeed chute if fitted
5. Remove all hungry boards and hungry board mountings (Figure 13).
6. Remove take away conveyor (if fitted) beneath the head drum to provide access to the belt.
7. Check the new belt is rolled up with the face of the cleats facing towards the end joiner at the outfeed end (Figure 14). If it is not in the correct direction, re-roll the belt correctly before continuing.
8. Position the belt clip-join just behind the lower kink in the gooseneck assembly (Figure 15).

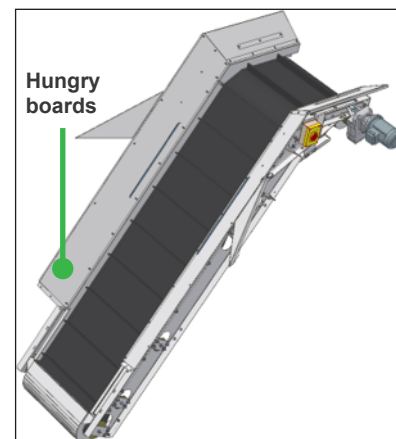


Figure 13 - Hungry boards

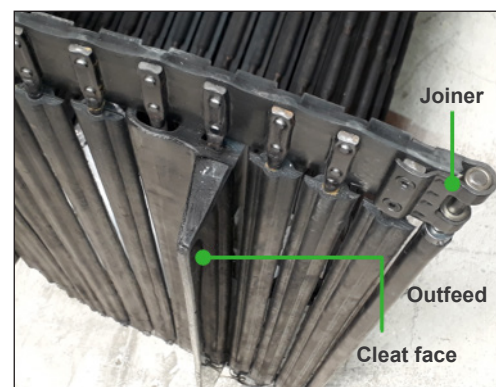
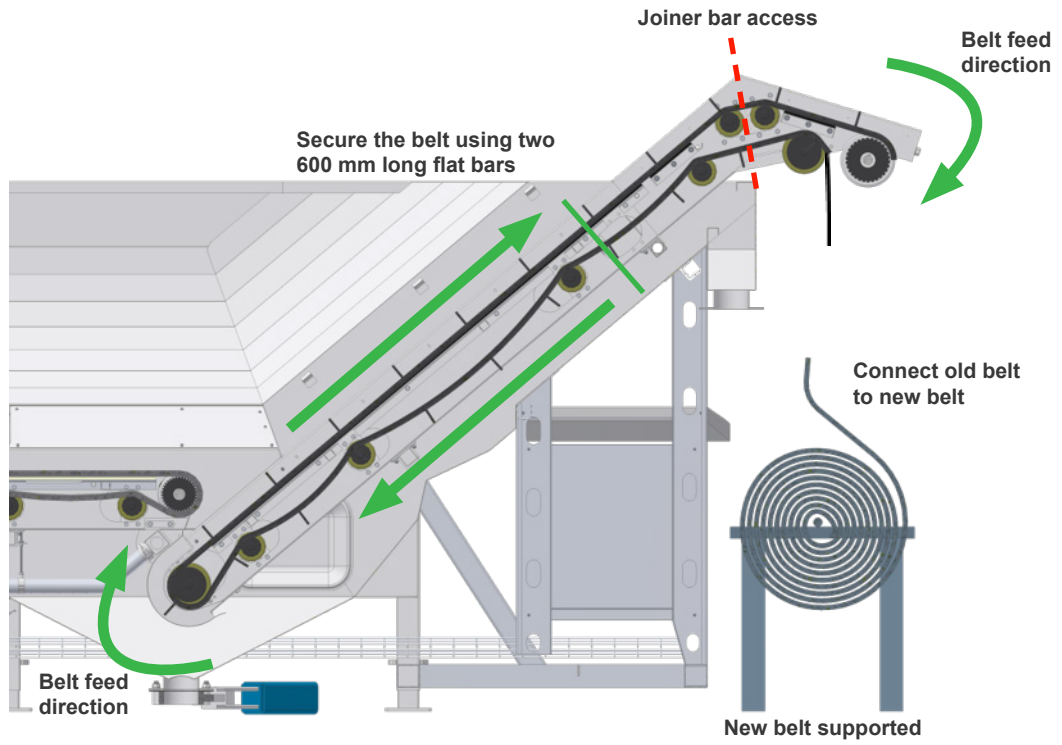


Figure 14 - Cleat position outfeed end



SHORT ELEVATORS



EXTENDED ELEVATORS

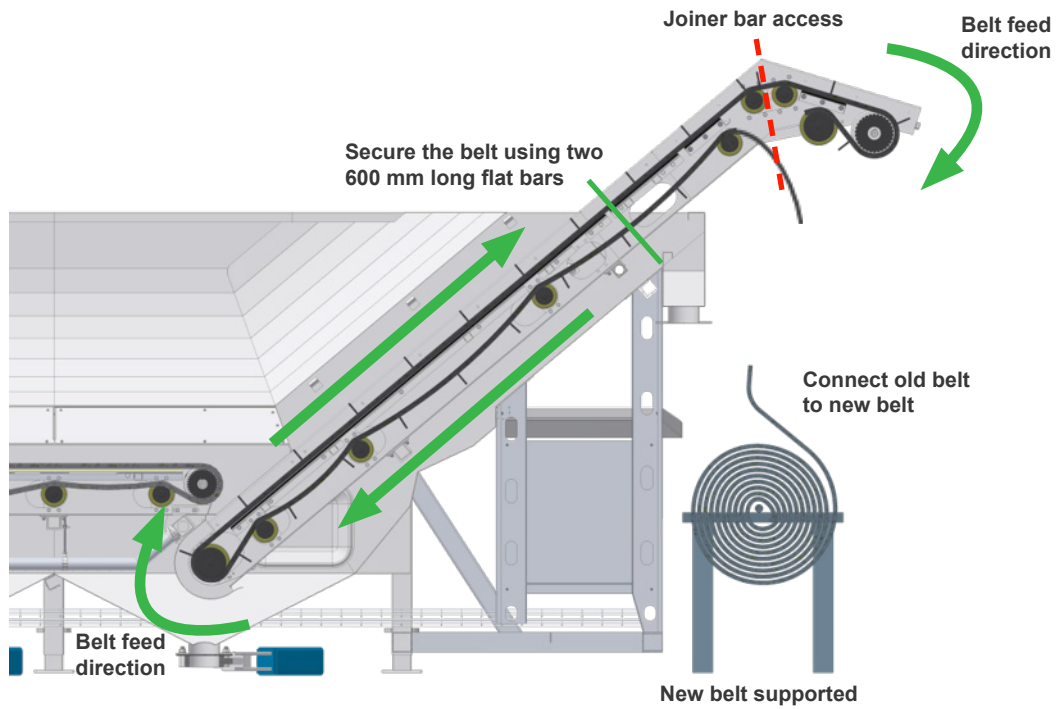


Figure 15 - Web belt replacement



9. Disconnect power to the equipment and lock out.
10. Remove the elevator geared motor:
 - a. Remove the gearbox protection cover.
 - b. Remove the external retaining circlip or bolt and washer.
 - c. Pull the geared motor off the shaft and support safely.
 - d. Take note of key location so you can replace it correctly.
11. Slacken the tensioners to release the belt tension.
12. Lift the old belt off the bed to allow a steel bar or sturdy wooden plank to be placed beneath the belt and over the elevator side foldings so the joiner rod can be removed (Figure 18).
13. Secure the belt from both above the elevator frame and below to stop it from 'running away'. This can be done by using two 65 x 6 mm flat bars placed through the belt near the outer bands, above one of the elevator cross members, behind the clip-join (Figure 15).
14. Loosen the grub screws on the joiner bar locking collars (Figure 16).
15. Use the joiner pins (two required for standard-width belts, three for extra-wide belts) as a pin punch to push one end of the joiner rod out of the joiner clip.
16. Carefully bend the joiner rod up enough to allow the first locking collar and rubber sleeve to be pulled off (Figure 17).
17. Continue driving the joiner rod out (Figure 18) and use the second pin (and third pin for extra-wide belts) to drive the rod all the way out removing remaining locking collars and rubber sleeves on the way.
18. Leave the lower section of the belt in place above and below the elevator, and feed the top end out over the head drum until it is hanging down from the snub or return rollers (Figure 15).
19. Place the new belt roll beneath the elevator supported off a shaft and trestles.
20. Attach the end of the new belt to the lower end of the old belt using the short joiner pins.



Figure 16 - Locking collar



Figure 17 - Removing rubber sleeve



Figure 18 - Pushing joiner rod out



IMPORTANT! If the joiner clips are orientated the wrong way, use heavy cable ties to connect the old belt to the new one.



IMPORTANT! Ensure two personnel are looking through the inspection hatches to make sure the belt is being correctly threaded over the return rollers.

21. Use the snub or return rollers as a guide to feed the new belt through the elevator.



IMPORTANT! It is very easy to lose control of the belt. Connect long strops to the tail end of the new belt with the opposite end of the strops secured on the ground to prevent the newly threaded belt from running away into the bottom of the hopper.



22. To drag the new belt through, remove the securing flat bars and pull the old belt up over the gooseneck and then downwards over the head drum.
23. When the leading end of the new belt is positioned just behind the first kink in the gooseneck, re-insert the restraining flat bars before disconnecting and removing the old belt.
24. Feed the opposite end of the new belt over the gooseneck.
25. With the lower end of the belt secured in place, pull the opposite end of the belt down over the lower belt end, creating an overlap.
26. Feed webbing straps with a ratchet through each end of the belt approximately ten bars away from each end to allow the belt to be pulled tight while keeping the ends overlapped.
27. Adjust the tension until the correct sag is achieved (Figure 19). This should be approximately 140 mm between the two faces on the inside of the belt. Push a steel ruler down between two crossbars until it hits the lower belt to measure the sag. Shorten the belt if excess sag is present. See *Web belt shortening procedure*.

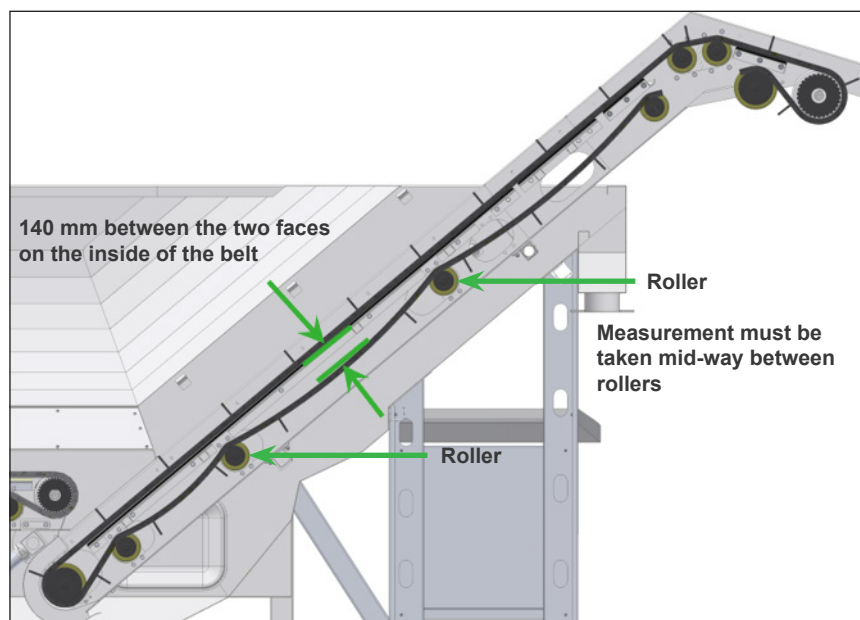


Figure 19 - Checking elevator belt sag

28. Connect the two ends of the belt using the joiner pins.
29. Use the joiner rod to drive through the first joiner pin then slide the locking collars and rubber sleeve over the joiner rod. Repeat this process with the second joiner and third joiner for extra-wide belts.
30. Check that the rod is flush on both sides of the belt and tighten the collars. Fasten the grub screws on the locking collars using Loctite 243 on the grub screw thread.
31. Tension the belt.
32. Reconnect the elevator geared motor:
 - a. Using support, slide the geared motor on the shaft.
 - b. Attach the external retaining circlip or bolt and washer.
 - c. Reattach the gearbox protection cover.
33. Power up the drive and run the elevator to check the belt tracks correctly and cleats do not interfere with the rollers.
34. Refit hungry boards and hungry board mountings, equipment mounted on the elevator and the takeaway conveyor (if fitted).
35. Monitor tension daily for one week and make adjustments as required.



Web belt shortening procedure

1. Prepare your tools
2. Measure out the trim web ready for the new joiner clip (25 mm) according to the new belt measurement. When cutting the elevator belt, allow for off-center web pitch (the pitch of the center strip is not aligned with the pitch on the outer strips).

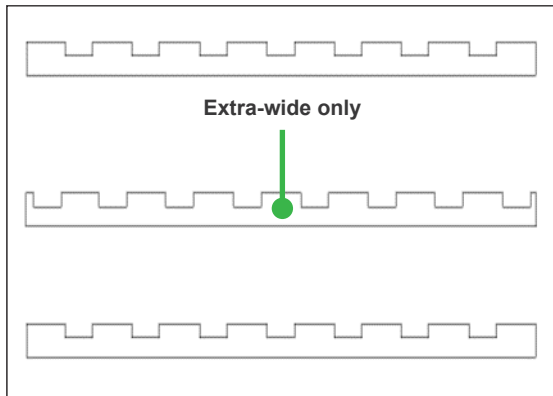


Figure 20 - Web pitch off-center

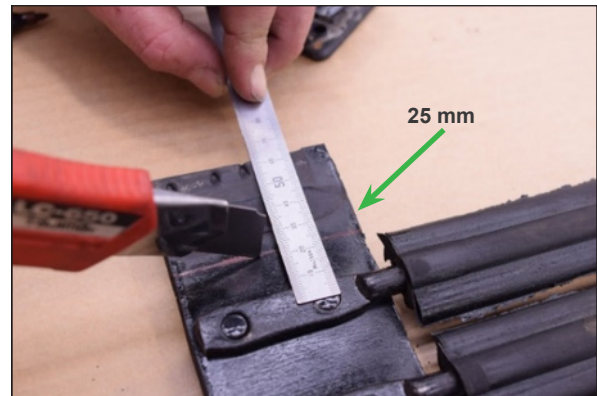


Figure 21 - Measuring trim web

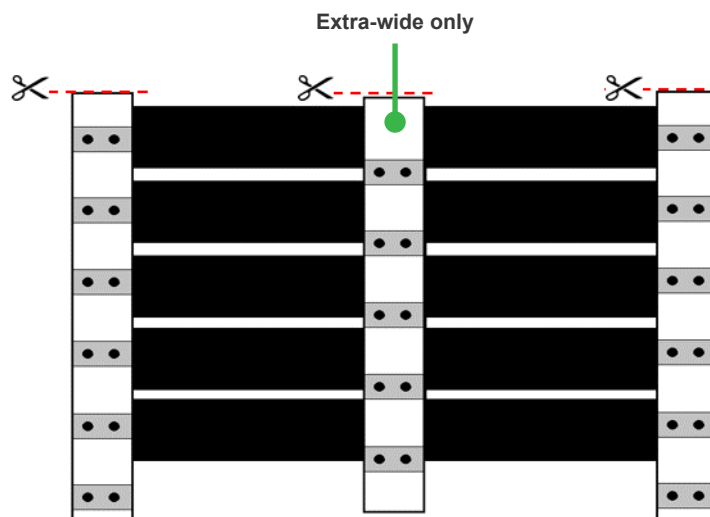


Figure 22 - Cutting the belt

3. Drill out the rivets of the first bar.

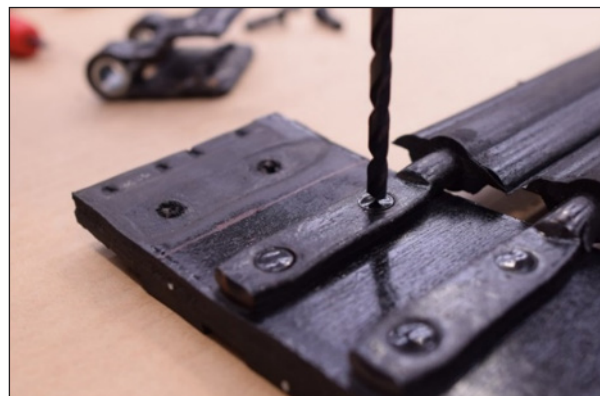


Figure 23



- Slide on the new joiner and drill through the web for the joiner bolts. Repeat the process on the opposite side.



Figure 24



IMPORTANT! Extra-wide belts only: Make sure the center P-clip tab is facing the outfeed of the hopper.

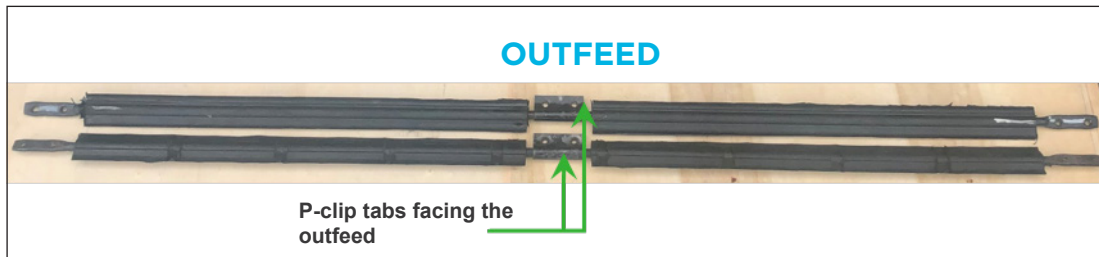


Figure 25

- Refit the bar into the joiner clips using Loctite 243 and tighten to compress the joiner.



Figure 26

- Check the fasteners are flush to the nuts (which are flush to the joiner) and the bottom edge of the joiner clip is flush with the bottom of the traction belt. Grind the joiner and nuts down flat to prevent them from catching on the elevator/floor conveyor bed and causing belt damage (Figure 28).



IMPORTANT! Trim the belt down (as required) with a utility knife to allow the clip to be fitted (Figure 27).



IMPORTANT! Do not trim the belt back too far. Leave enough belt material for the joiner teeth to bite into (Figure 29).

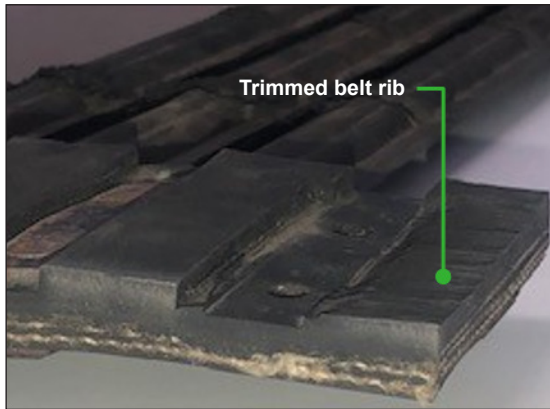


Figure 27 - Trimmed belt rib

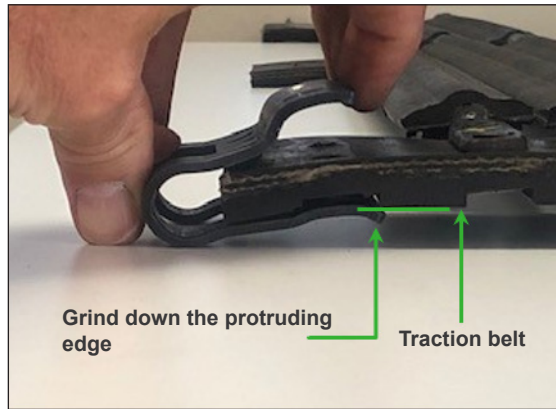


Figure 28 - Joiner clip

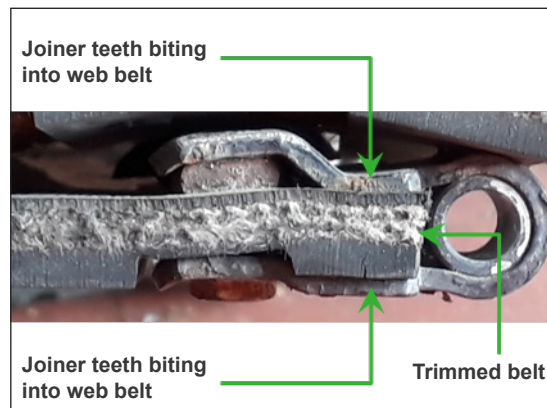


Figure 29 - Joiner teeth

7. Pull together with tie-downs.

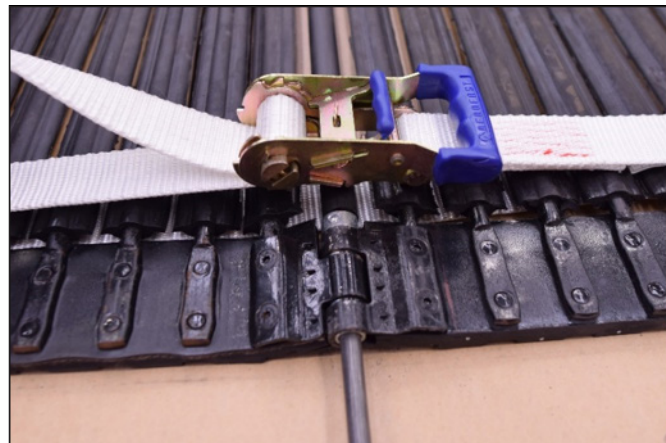
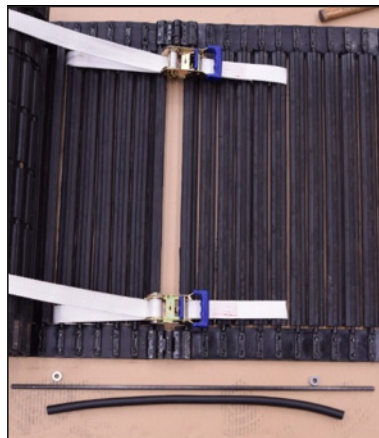


Figure 30 - Using tie-downs

8. Use all the joiner pins to fix belt joiners together.
9. Ensure the joiner bar is central and not protruding from either side.
10. Fasten the grub screws on the locking collars using Loctite 243 on the grub screw thread.
11. Remove the tie-downs.
12. Re-tension the belt.