

UniChain Cross Transfer - Maintenance & Service

This section will describe service procedures for major mechanical elements of a chain cross transfer.

⚠ WARNING ⚠

- Only qualified and trained personnel should perform the disassembly and assembly of electrical and mechanical components.
- Before attempting any maintenance on this equipment all involved personnel should follow plant internal regulations along with any state, federal, or province regulations. Do not begin any repair procedure until the proper shutdown procedures and the appropriate power lockout procedures have been applied.

Chain Belt Tension Check

Remove all skids from the Cross-Transfer.

- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



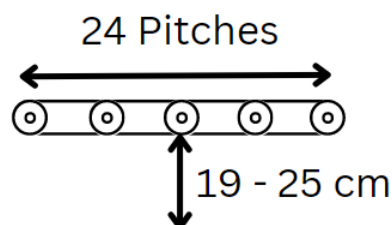
- 2 Before making any adjustments, inspect the chains and return tracks of the Cross Transfer for signs of wear, damage, or tracking issues. Replace any damaged links or components to avoid future issues.



Support the Uni-Chain belt on the slide base at two points 24 pitches apart (1.52m / 5 ft.)

- 3
 - Supports must raise the bottom of the belt between 19-25mm (0.75-1 in.) above the wear strip and each support should not lift more than 1 pitch.

Supports should be square with the slide base.



i NOTICE *i*

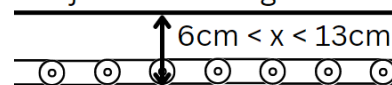
The belt must be free-hanging and unobstructed between the supports.

- 4 Place a straight edge along the length and on top of the belt across the two supported pitches.



- 5 Verify that the belt sag does not exceed 13mm (0.5") or is less than 6mm (0.25") as measured from the bottom of the straight edge to the top of the chain at the center of the belt between the two supports.

Adjustment Range



- 6 Repeat steps 3-5 for the other belt in the Cross-Transfer.



- 7 Perform the **Chain Belt Tension Adjustment** procedure if the belt sag is outside these parameters.



- 8 After both chains have been checked and adjusted to the appropriate tension on both sides, restore power to the system and test for proper operation.



UniChain Belt Tension Adjustment

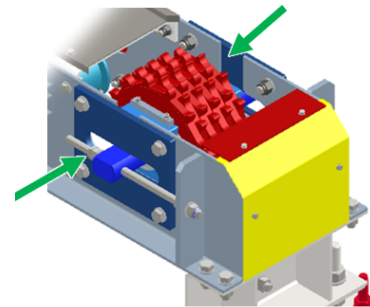
- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



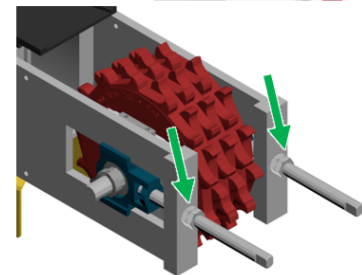
- 2 Before making any adjustments, inspect the chains and chain guide tracks of the Cross Transfer for signs of wear, damage, or tracking issues. Replace any damaged links or components to avoid future issues.



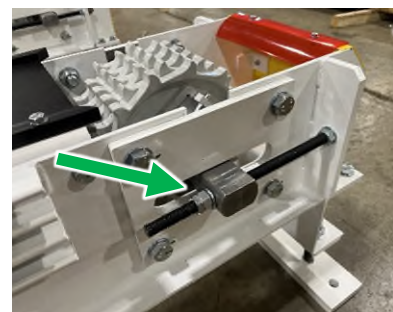
- 3 Each Take-Up assembly has 2 sides for adjusting the tension of the chain on the track. This is found at the tail end of the conveyor and consists of adjustable tensioning screws.



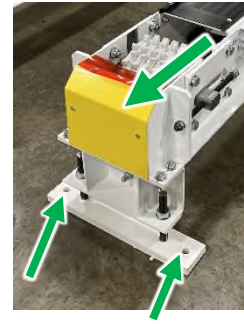
- 4 Locate the 2 nuts on the end of one side of a Take-Up. These can be adjusted in or out as necessary to tighten or loosen the tension of the chain on the sprocket and **must be synced to the same dimensions on the other side of the shaft to avoid wear on the sprocket or chain.**



- 5 The same 2 nuts on the opposite side of the Take-Up should be adjusted in or out as necessary to tighten or loosen the tension of the chain on the sprocket and **must be synced to the same dimensions on the other side of the shaft to avoid wear on the sprocket or chain.**



- 6 Make sure all floor anchors on the unit are secured before powering up, and all safety covers are back in place.



- 7 Once the chain has been adjusted to the appropriate tension on both sides, restore power to the system and test for proper operation.

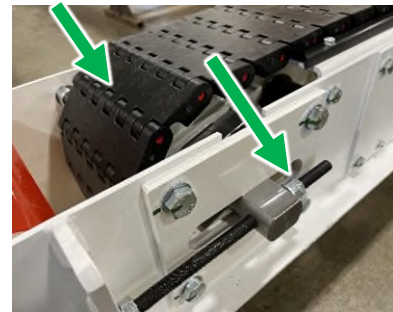


Replacing/Repairing the UniChain

- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



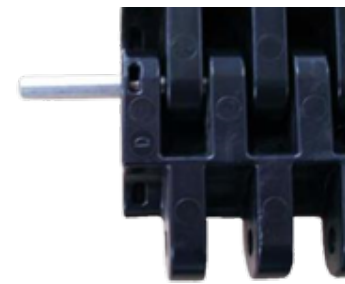
- 2 Loosen chain tension by adjusting the 2 nuts located on each side of the Take-Up assembly (4 total).



- 3 Locate the section of Uni-Chain to be replaced and pull out the locking pin.



- 4 Pull out the radial insert bearing housing from the shaft and open the connecting link of the Uni-Chain.



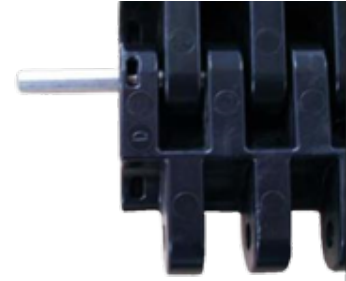
Replace the Uni-Chain section.

- 5 Verify the number of chain links needed before installation.



Refit the connecting link to join the Uni-Chain and Install the radial insert bearing housing on the shaft.

- 6



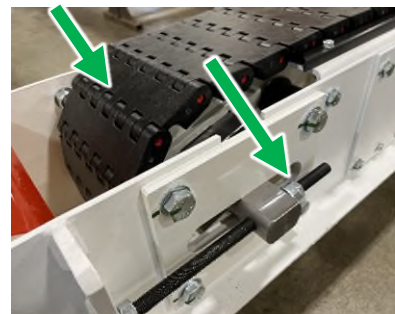
Return the locking pin to secure the joined Uni-Chain sections.

- 7



Tighten the tension of the chain by adjusting the 2 nuts on each side of the Take-Up assembly sprocket (4 total). It is **imperative** that both be tightened either simultaneously, or if individually, the amount of incremental travel should be small to prevent excessive misalignment of one relative to the other.

- 8



Once the chain tension has been adjusted to the appropriate tension on both sides, restore power to the system and test for proper operation.

- 9

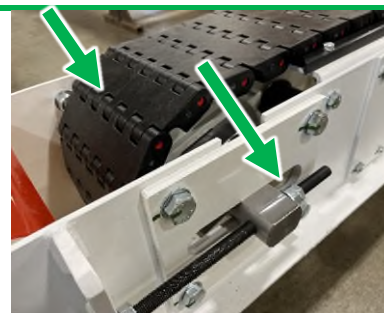


Replacing the Drive Sprocket – Center Mount

- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



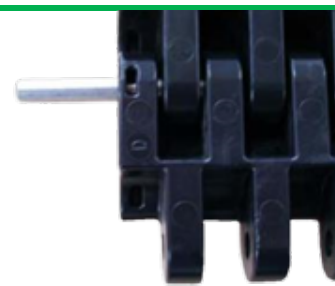
- 2 Loosen chain tension by adjusting the 2 nuts located on each side of the Take-Up assembly (4 total)



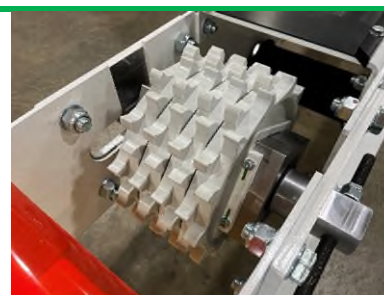
- 3 Pull out the locking pin of an easy-to-access link of the Uni-Chain.



- 4 Pull out the radial insert bearing housing from the shaft and open the connecting link of the Uni-Chain.



- 5 Move the broken chain out of the way of the sprocket to be replaced.

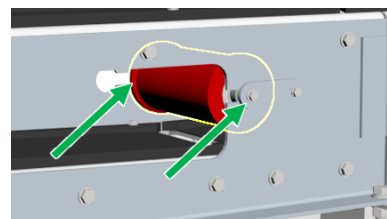


- 6 Remove the cover guard over the target drive assembly.

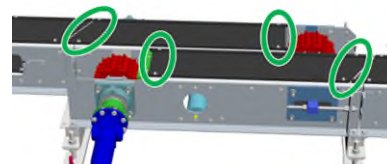


It may be necessary to remove the internal chain roller to provide more room for tools & your hands/arms.

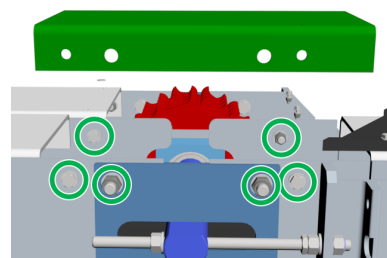
To remove the roller, remove the two bolts securing it to the frame, then remove the piece through the access window.



Using the access windows, unbolt the roller slide(s) from the frame and remove them.

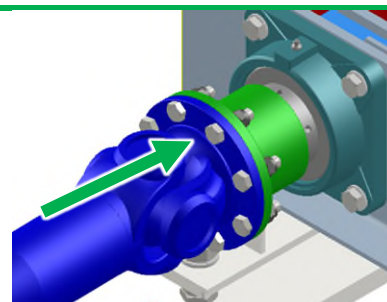


Remove the short frame section above the shaft by removing the 6 bolts holding it to the frame.



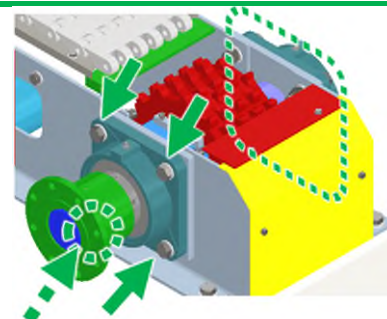
- 7 Remove the bolts securing the cardan shaft to the companion flange on the sprocket shaft assembly.

Swing the loose end of the cardan shaft out of the way.

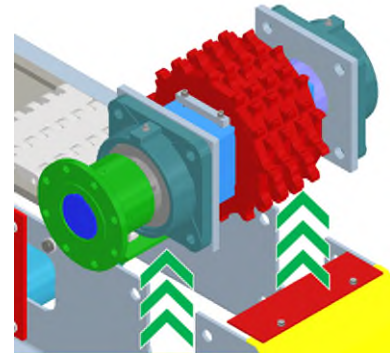


- 8 Remove the 4 bolts securing the pillow block bearing and reinforcement plate to the frame.

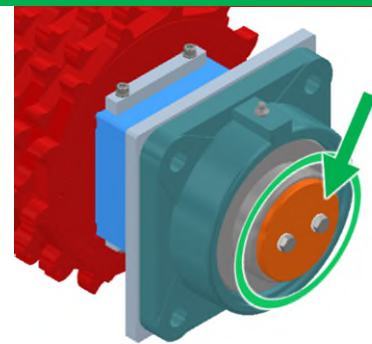
Repeat for the opposite pillow block and plate.



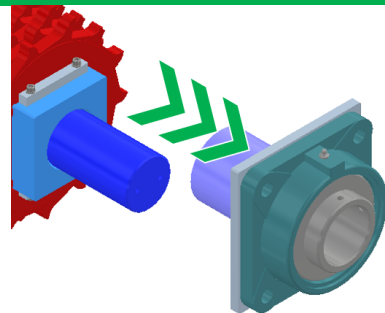
- 9 Carefully remove the shaft assembly from the frame.



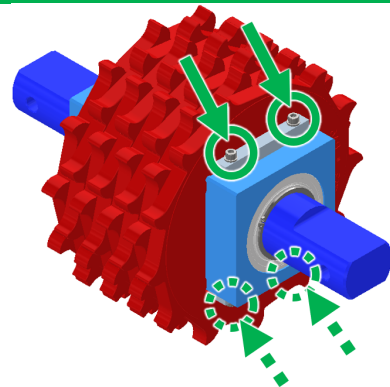
- 10 On the “outside” pillow block, remove the two bolts and small plate from the end of the shaft.



- 11 Remove the pillow block, reinforcement plate, and spacer from the drive shaft.

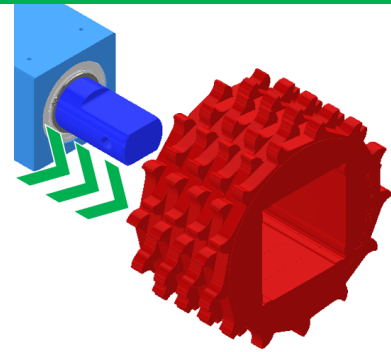


- 12 Remove the 4 small hex screws and the 2 braces on the open end of the shaft assembly.

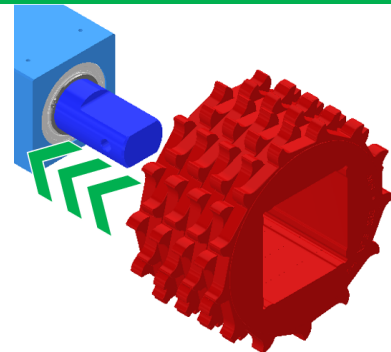


13

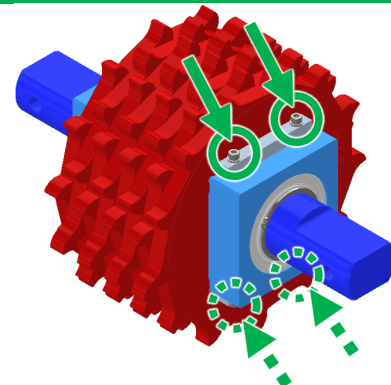
The 4 sprockets can now be removed.
 Replace any pieces as necessary.


14

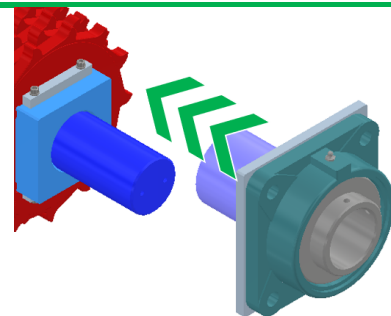
Place the 4 sprockets back onto the shaft assembly.


15

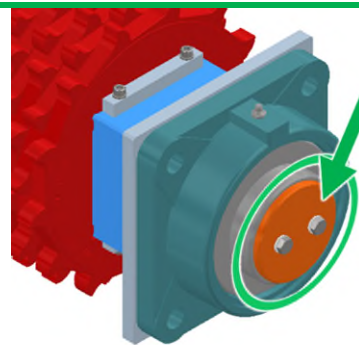
Re-install the 4 small hex screws and the 2 braces previously removed from the shaft assembly.


16

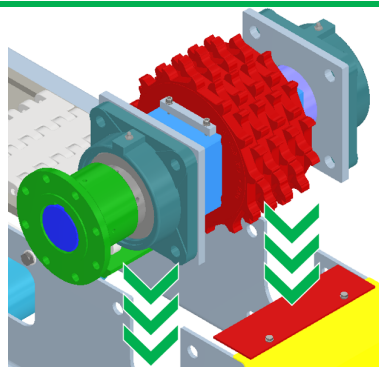
Place the spacer, reinforcement plate, and pillow block back onto the shaft.



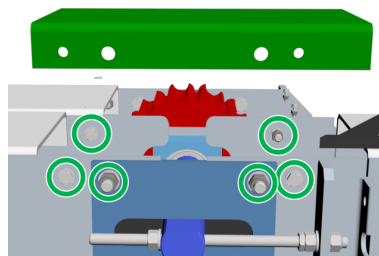
- 17** Re-install the two bolts and small plate on the end of the shaft.



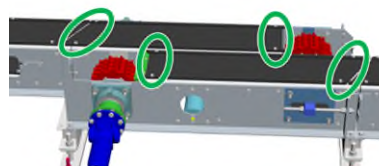
- 18** Place the reassembled shaft assembly back into the frame.



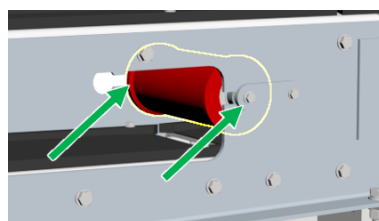
- 19** **Nested Assembly Only**
 Reinstall the short frame section above the shaft.



- 20** **Nested Assembly Only**
 Reinstall the roller slide(s) onto the frame.



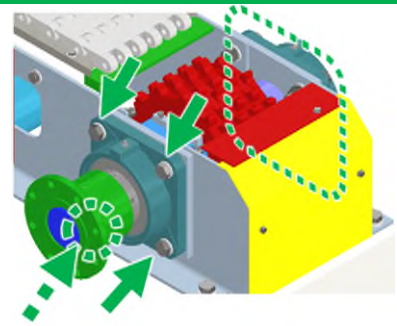
- 21** **Nested Assembly Only**
 If removed, reinstall the internal guide roller.



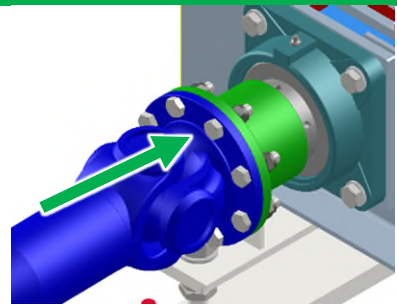
22

Align the reinforcement plates and pillow blocks, then re-install the 4 bolts securing the pillow block bearing and reinforcement plate to the frame.

Repeat for the opposite pillow block and plate.


23

Re-install the bolts securing the cardan shaft to the companion flange on the shaft assembly.


24

Place chain back through the Drive Assembly sprocket.


25

Refit the connecting link to join the Uni-Chain and install the radial insert bearing housing on the shaft.

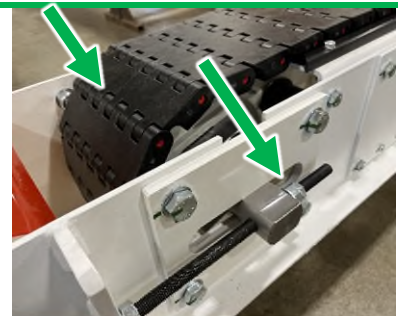

26

Return the locking pin to secure the joined Uni-Chain sections.



27

Tighten the tension of the chain by adjusting the 2 nuts on each side of the Take-Up assembly sprocket (4 total). It is **imperative** that both be tightened either simultaneously, or if individually, the amount of incremental travel should be small to prevent excessive misalignment of one relative to the other.


28

Before powering up the unit ensure all safety covers are back in place.


29

Restore power to the system and test for proper operation.

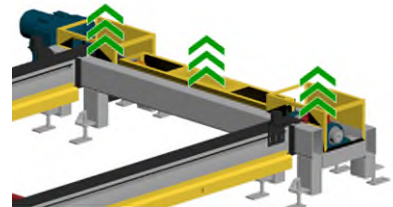


Replacing the Drive Sprocket – Side Mount

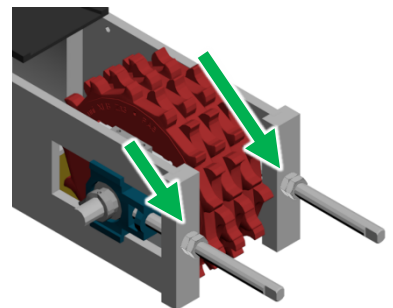
- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



- 2 Remove safety covers.



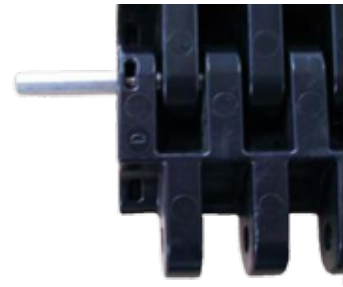
- 3 Loosen chain tension by adjusting the 2 nuts located on each rod of the Take-Up assembly (4 total) .



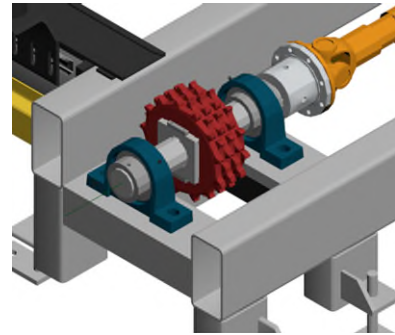
- 4 Pull out the locking pin of an easy-to-access link of the Uni-Chain.



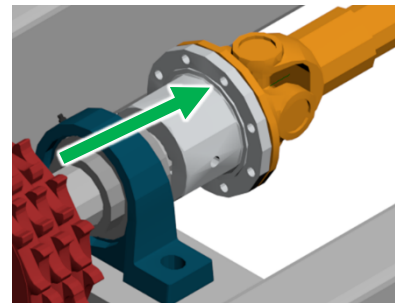
- 5 Pull out the radial insert bearing housing from the shaft and open the connecting link of the Uni-Chain.



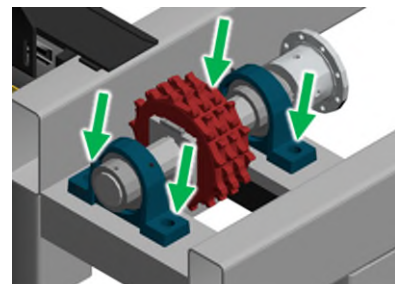
- 6 Move the broken chain out of the way of the sprocket to be replaced.



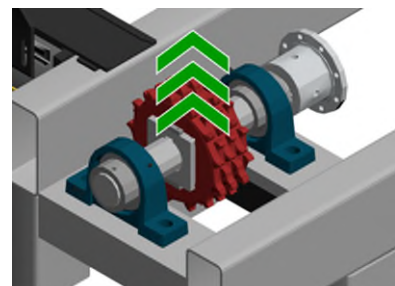
- 7 Remove the bolts securing the cardan shaft to the companion flange on the sprocket shaft assembly.
Swing the loose cardan shaft out of the way.



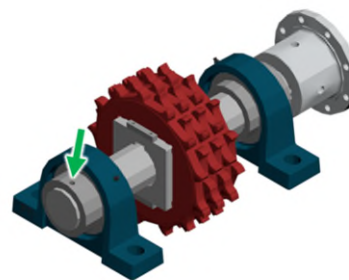
- 8 Remove the 4 bolts securing the pillow block bearings to the frame.



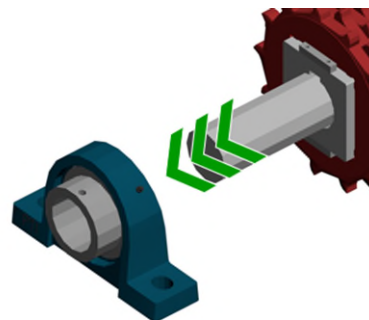
- 9 Carefully remove the shaft assembly from the frame.



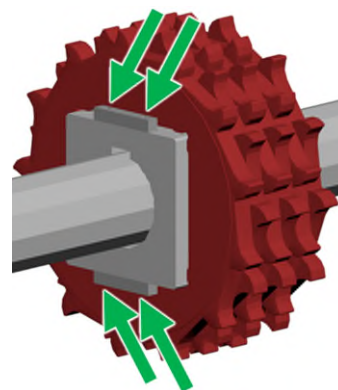
- 10** On the “outside” pillow block, loosen the set screw on the bearing to release the shaft.



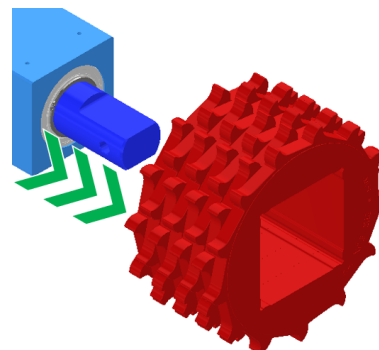
- 11** Remove the pillow block bearing from the drive shaft.



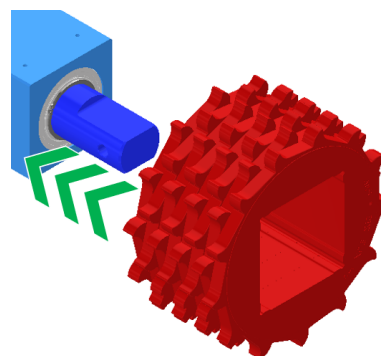
- 12** Remove the 4 small hex screws and the 2 braces on the open end of the shaft assembly.



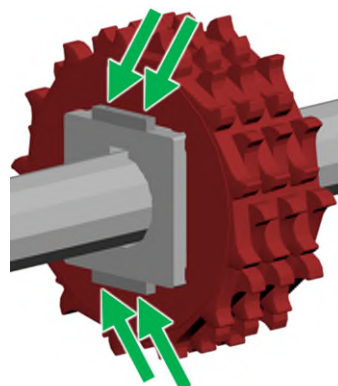
- 13** The sprockets can now be removed.
Replace any pieces as necessary.



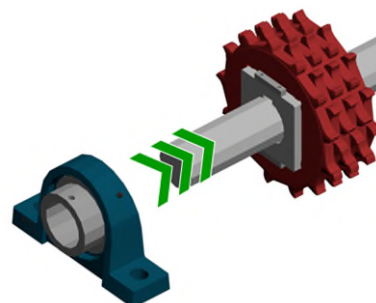
- 14** Place the sprockets back onto the shaft assembly.



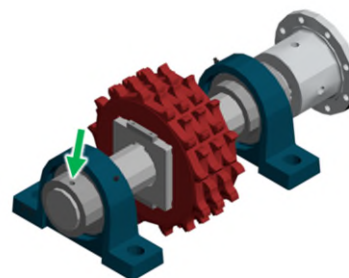
- 15** Re-install the 4 small hex screws and the 2 braces previously removed from the shaft assembly.



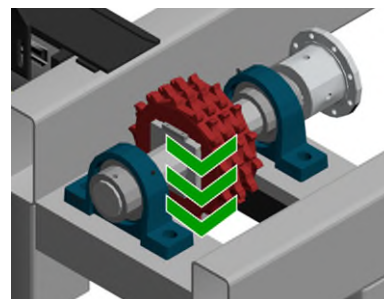
- 16** Place the pillow block bearing back onto the shaft.



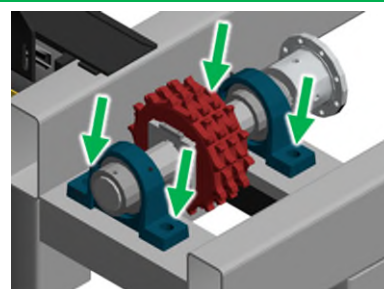
- 17** Re-tighten the set screw on the bearing.



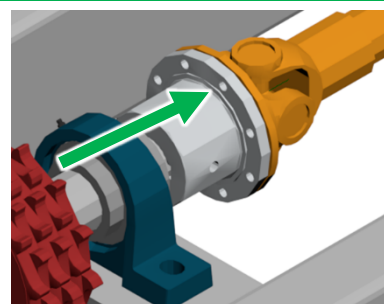
- 18** Place the reassembled shaft assembly back into the frame.



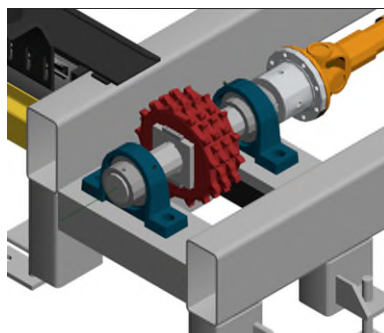
- 19** Align the pillow blocks, then re-install the 4 bolts securing them to the frame.



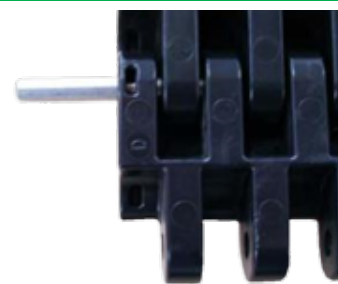
- 20** Re-install the bolts securing the cardan shaft to the companion flange on the shaft assembly.



- 21** Place chain back through the Drive Assembly sprocket.



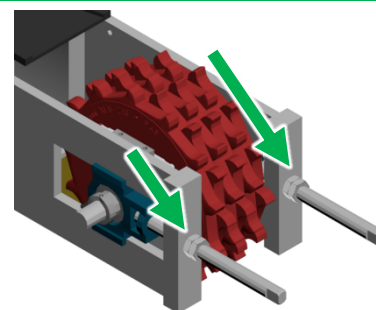
- 22** Refit the connecting link to join the Uni-Chain and install the radial insert bearing housing on the shaft.



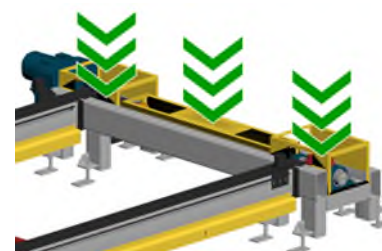
- 23** Return the locking pin to secure the joined Uni-Chain sections.



- 24** Tighten the tension of the chain by adjusting the 2 nuts on each rod of the Take-Up assembly (4 total). It is **imperative** that both rods be tightened either simultaneously, or if individually, the amount of incremental travel should be small to prevent excessive misalignment of one relative to the other.



- 25** Before powering up the unit ensure all safety covers are back in place.



- 26** Restore power to the system and test for proper operation.



Replacing the Take-Up Sprocket – Center Mount

- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



- 2 Loosen chain tension by adjusting the 2 nuts located on each side of the Take-Up assembly (4 total).



- 3 Pull out the locking pin of an easy-to-access link of the Uni-Chain.



- 4 Pull out the radial insert bearing housing from the shaft and open the connecting link of the Uni-Chain.

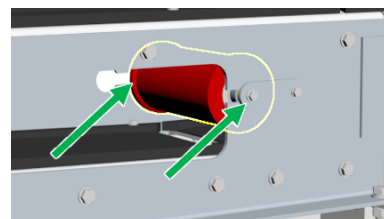


- 5 Move the broken chain out of the way of the sprocket to be replaced.



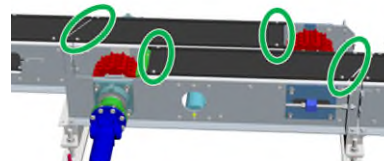
Nested Assembly Only

- 6 It may be necessary to remove the internal chain roller to provide more room for tools & your hands/arms.
- To remove the roller, remove the two bolts securing it to the frame, then remove the piece through the access window.



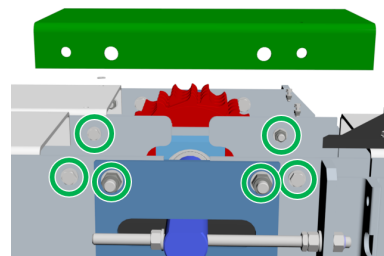
Nested Assembly Only

- 7 Using the access windows, unbolt the roller slide(s) from the frame and remove them.

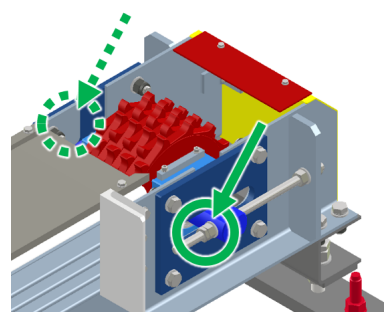


Nested Assembly Only

- 8 Remove the short frame section above the shaft by removing the 6 bolts holding it to the frame.

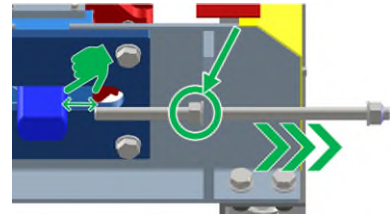


- 9 Remove the nuts and washers from both belt tensioners

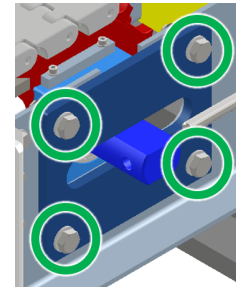


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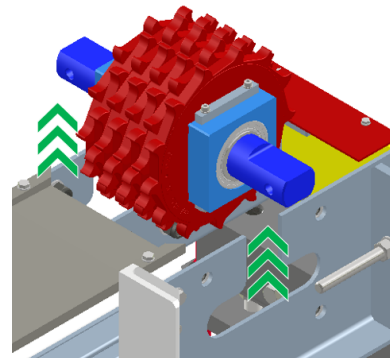
Loosen the bolt securing the tensioner to the frame and slide the tension rod out until it is clear of the take up shaft. Repeat for the opposite side.


11

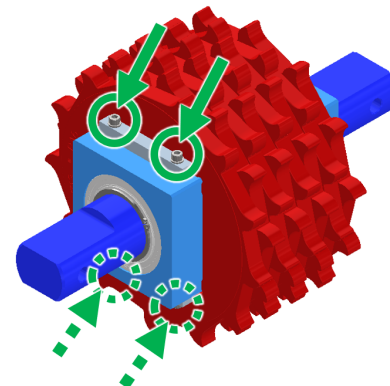
Remove the 4 bolts securing the small plate to the frame, then remove the small plate. Repeat on the opposite side.


12

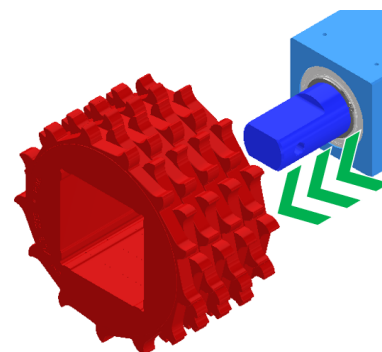
Remove the sprocket assembly from the frame


13

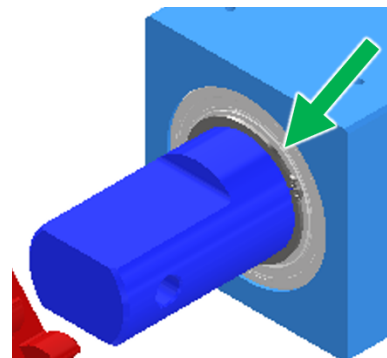
Remove the 4 small hex screws and the 2 braces on one end of the shaft assembly.



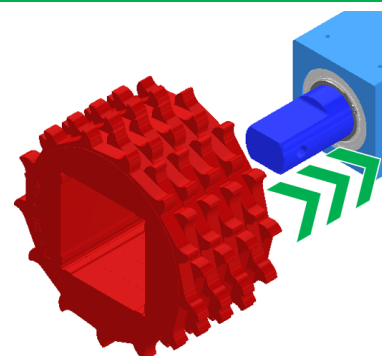
- 14** The 4 sprockets can now be removed. Replace any pieces as necessary.



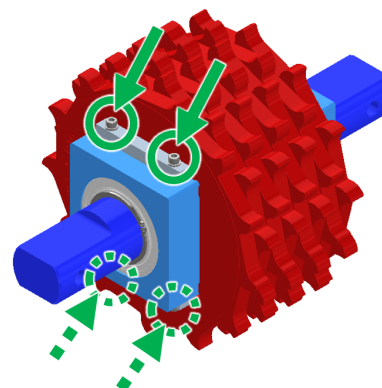
- 15** Inspect the retainer ring on both ends of the shaft. Replace as needed.



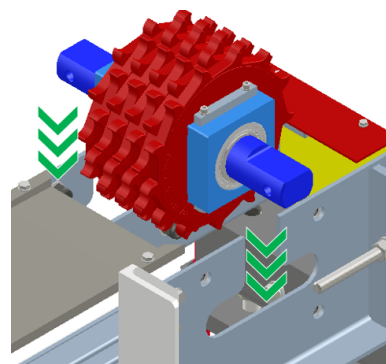
- 16** Place the 4 sprockets back onto the shaft assembly.



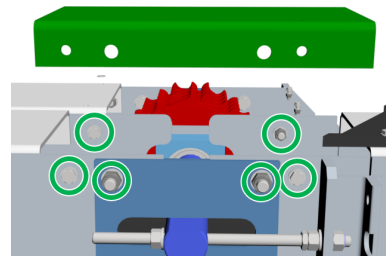
- 17** Re-install the 4 small hex screws and the 2 braces previously removed from the shaft assembly.



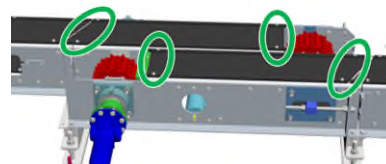
- 18** Place the reassembled shaft assembly back into the take-up frame.



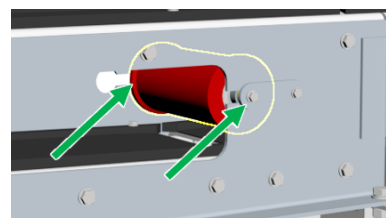
- 19** **Nested Assembly Only**
 Reinstall the short frame section above the shaft.



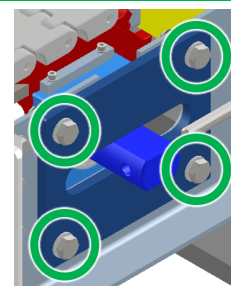
- 20** **Nested Assembly Only**
 Reinstall the roller slide(s) onto the frame.



- 21** **Nested Assembly Only**
 If removed, reinstall the internal guide roller.

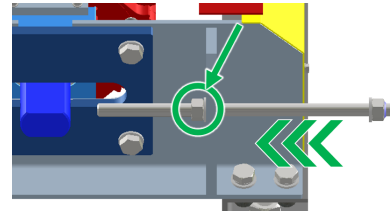


- 22** Reinstall the small plate and 4 bolts on both side of the frame



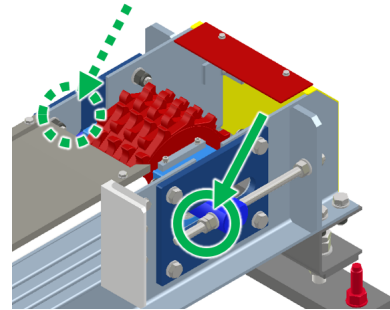
23

Tighten the bolt securing the tension rod to the frame and slide the tension rod in until it is flush to the take up shaft. Repeat for the opposite side.


24

Re-install the nuts and washers onto both belt tensioners.

***Note:** Make sure there is enough space to re-install the chain with some slack


25

Place chain back through the Drive Assembly sprocket.


26

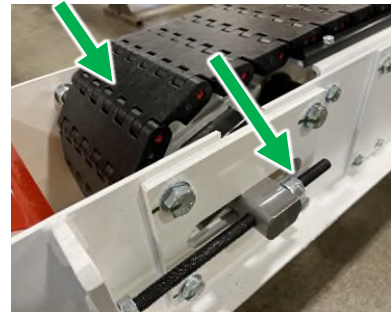
Refit the connecting link to join the Uni-Chain and install the radial insert bearing housing on the shaft.


27

Return the locking pin to secure the joined Uni-Chain sections.



- 28 Tighten the tension of the chain by adjusting the 2 nuts on each side of the Take-Up assembly sprocket (4 total). It is **imperative** that both be tightened either simultaneously, or if individually, the amount of incremental travel should be small to prevent excessive misalignment of one relative to the other.



- 29 Restore power to the system and test for proper operation.

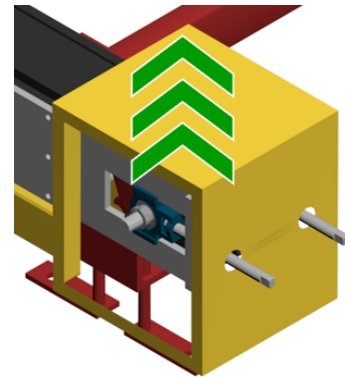


Replacing the Take-Up Sprocket – Side Mount

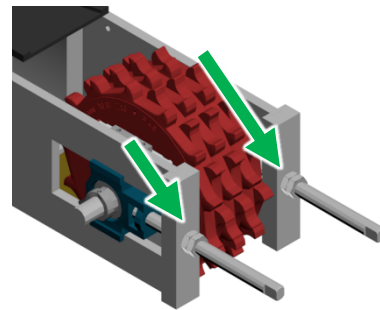
- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



- 2 Remove safety covers.



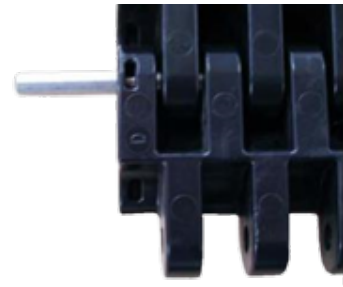
- 3 Loosen chain tension by adjusting the 2 nuts located on each rod of the Take-Up assembly (4 total) .



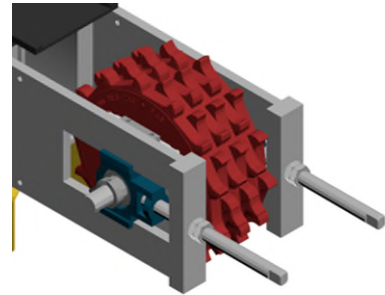
- 4 Pull out the locking pin of an easy-to-access link of the Uni-Chain.



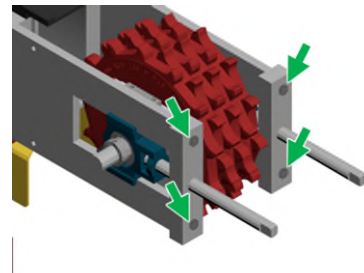
- 5 Pull out the radial insert bearing housing from the shaft and open the connecting link of the Uni-Chain.



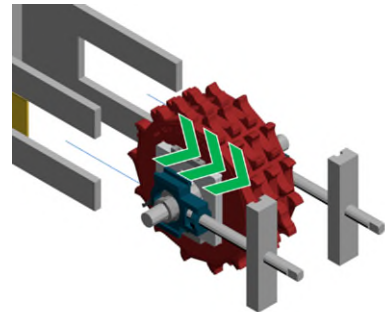
- 6 Move the broken chain out of the way of the sprocket to be replaced.



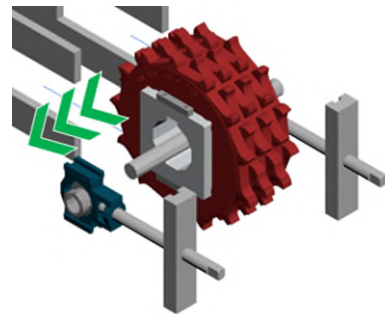
- 7 Remove the 4 bolts securing the shaft assembly to the take up frame.



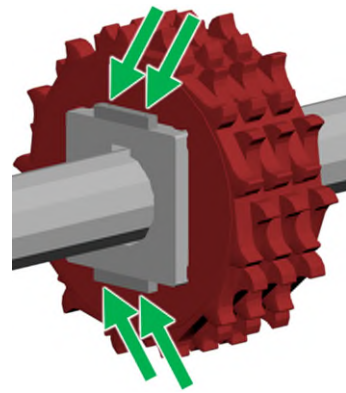
- 8 Slide the shaft assembly away from the take up frame.



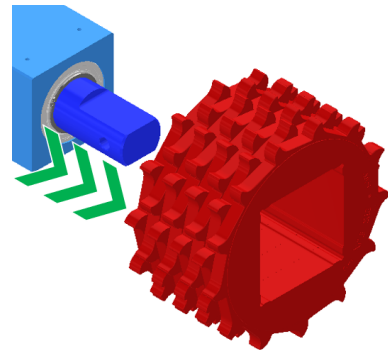
- 9 Loosen the set screw on ONE of the bearings and remove it from the shaft assembly.



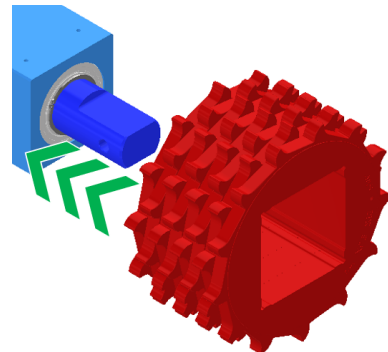
- 10** Remove the 4 small hex screws and the 2 braces on the open end of the shaft assembly.



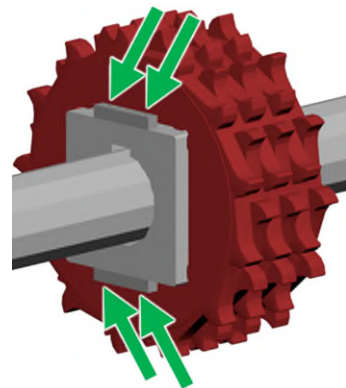
- 11** The sprockets can now be removed.
Replace any pieces as necessary.



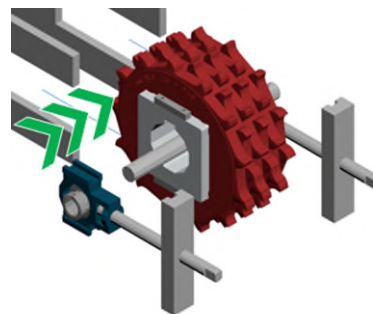
- 12** Place the sprockets back onto the shaft assembly.



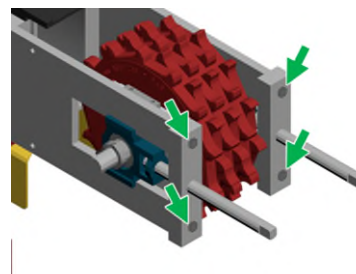
- 13** Re-install the 4 small hex screws and the 2 braces previously removed from the shaft assembly.



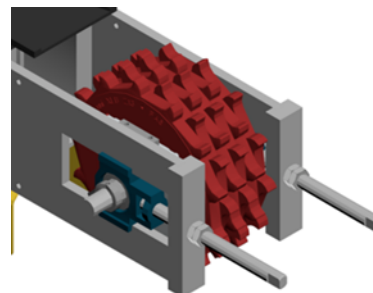
- 14** Slide the removed bearing and tensioner pieces back onto the shaft.



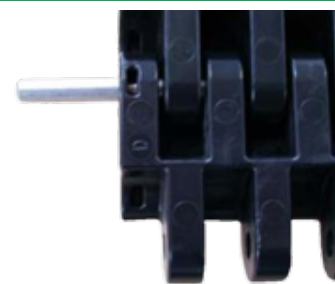
- 15** Slide the shaft assembly back into position and tighten the 4 bolts securing it to the take up frame.
 Once in position, tighten down the set screw on the loose bearing.



- 16** Place chain back through the Take Up Assembly sprocket.



- 17** Refit the connecting link to join the Uni-Chain and install the radial insert bearing housing on the shaft.

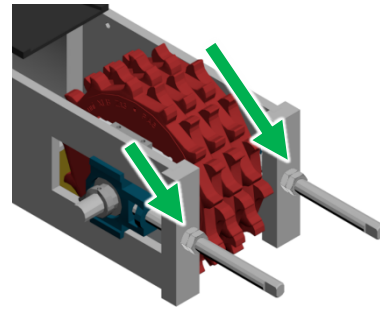


- 18** Return the locking pin to secure the joined Uni-Chain sections.



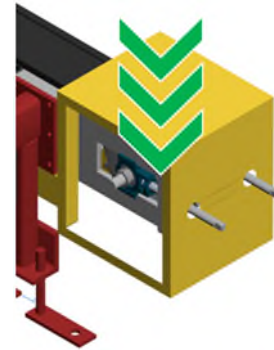
19

Tighten the tension of the chain by adjusting the 2 nuts on each rod of the Take-Up assembly (4 total). It is **imperative** that both rods be tightened either simultaneously, or if individually, the amount of incremental travel should be small to prevent excessive misalignment of one relative to the other.



20

Before powering up the unit ensure all safety covers are back in place.



21

Restore power to the system and test for proper operation.



Replacing a Cardan Shaft

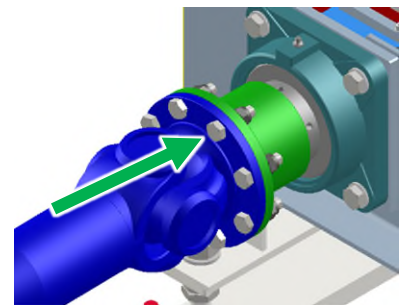
- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



- 2 Remove the cover guard over the target cardan shaft and drive assembly.



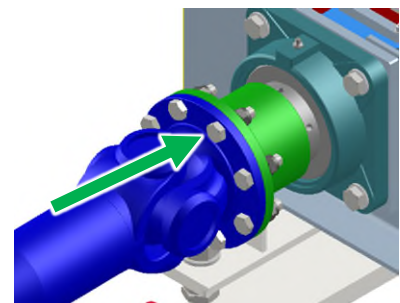
- 3 Remove the bolts securing the cardan shaft to the companion flanges on both ends.



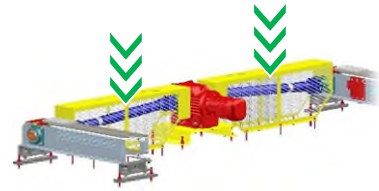
- 4 Remove and replace the cardan shaft.



- 5 Return and tighten the bolts, securing the cardan shaft to the companion flanges on both ends, torqued to specifications.



- 6 Return the cover guard over the cardan shaft and drive assembly.



- 7 Restore power to the system and test for proper operation.



Replacing the Gearmotor

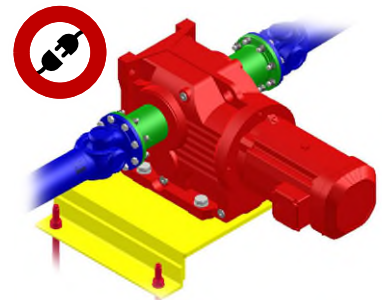
- 1 Remove and lock out power to the Cross Transfer using your plant's procedures.



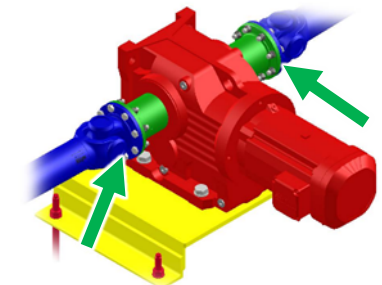
- 2 Remove the cover guards over gearmotor and cardan shafts.



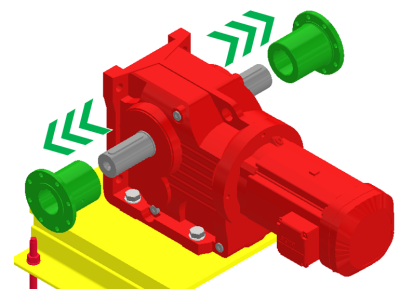
- 3 Disconnect the gearmotor cabling.



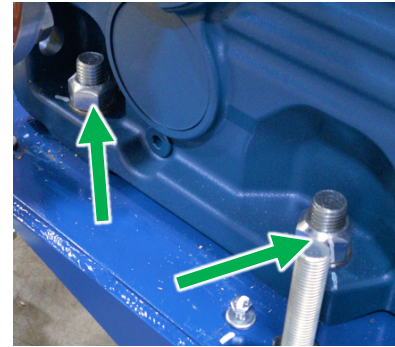
- 4 Remove the bolts securing the cardan shaft to the companion flanges on both ends. Place the cardan shafts out of the way.



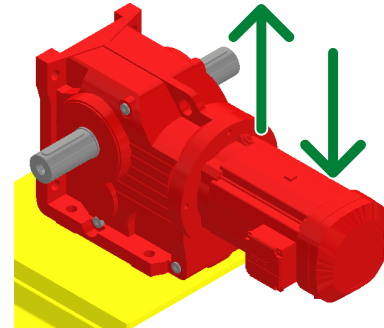
- 5 Loosen the set screws on the shaft flanges and remove them from the shaft.
Inspect both keys on the shaft, replace as needed.



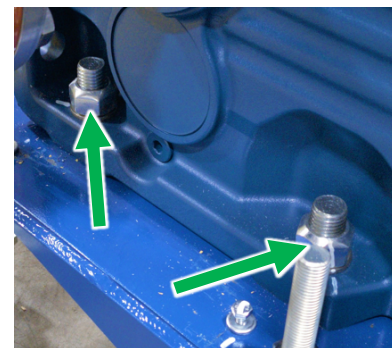
- 6 Remove the M24 bolts (4) securing the gearmotor to the base plate.



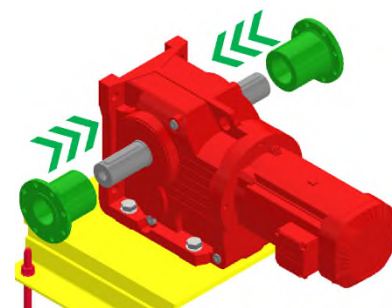
- 7 Using a jib crane, replace the old gearmotor with the new unit.



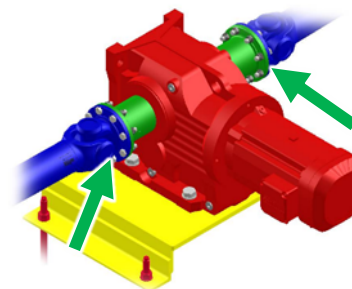
- 8 Torque the M24 bolts (4) securing the gearmotor to the base plate.



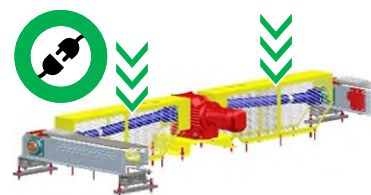
- 9 Return the flanges and tighten down their set screws.



- 10** Realign the cardan shafts to the companion flanges on both ends.
Torque the bolts according to specifications.



- 11** Reconnect wiring to gearmotor and return the cover guards over gearmotor and the cardan shaft.



- 12** Restore power to the system and test for proper operation.

