Shuttle Table Maintenance & Service

This section will describe service procedures for major mechanical elements of the Shuttle Table.

⚠ 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.

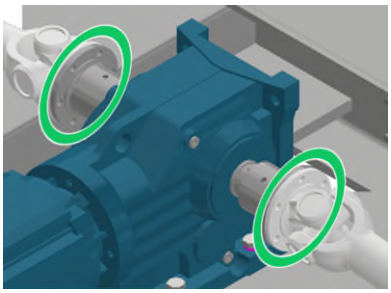
How to Replace the Table Gearmotor

1 Remove and lock out power to the Shuttle using your plant's procedures.

2 Disconnect the cables from the gearmotor.

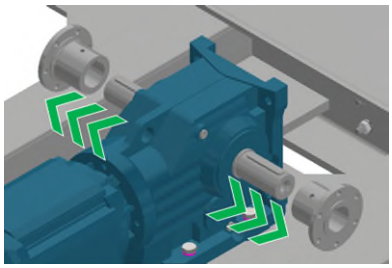
3 Remove the bolts securing the cardan shafts to the gearmotor flanges.

Once free, swing the cardan shafts out of the way.

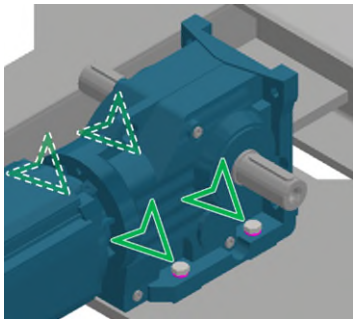


4 Loosen the set screws from the flanges and remove the flanges from the gearmotor shaft.

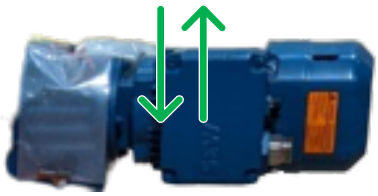
Inspect the shaft keys and replace if necessary.



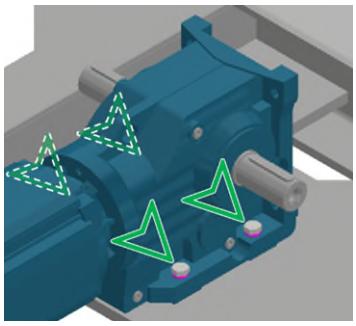
5 Remove the 4 bolts securing the gearmotor to the table.



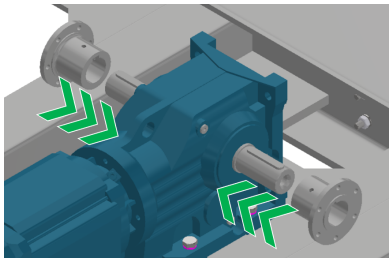
6 Using a jib crane, lift the old gearmotor out of the frame and lower in the replacement unit.



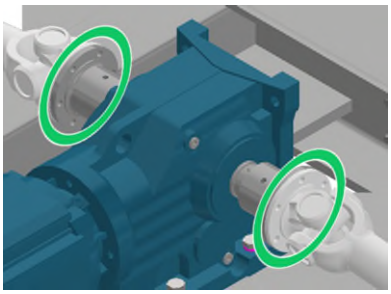
7 Position the new gearmotor and reinstall the 4 bolts with to secure it to the table.



8 Place the flanges back onto the gearmotor shaft and retighten their set screws



9 Swing the cardan shafts back into position and reinstall the bolts using a crossing pattern to **30 Nm.**



10 Reconnect the cables to the gearmotor.

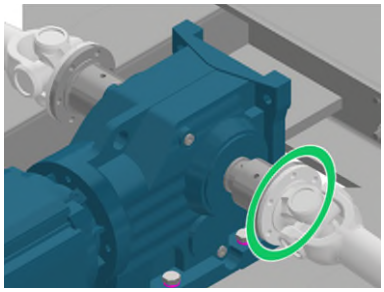
11 Restore power to the Shuttle and observe it traveling to verify proper function. Correct if necessary.

12 Complete restore procedure and return Shuttle to service.

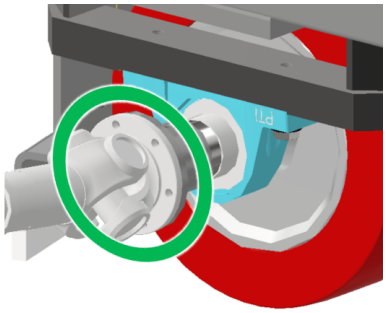
How to Replace a Cardan Shaft

1 Remove and lock out power to the shuttle using your plant's procedures.

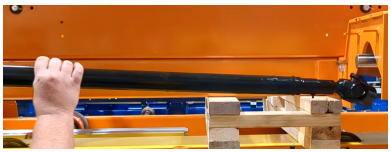
2 Remove the bolts securing the target cardan shaft to the gearmotor flange.



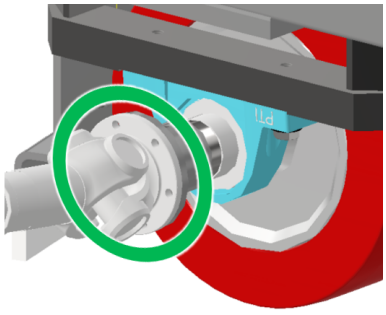
3 Remove the bolts securing the target cardan shaft to the driven roller's flange.



4 Remove and replace old cardan shaft with the new unit.

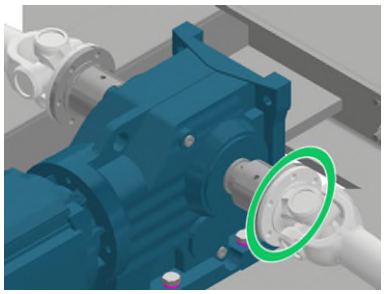


5 Reinstall the bolts on the wheel assembly flange using a crossing pattern to **30 Nm.**



6 Reinstall the bolts securing the target cardan shaft to the gearmotor flange to **30 Nm.**

Repeat previous steps for the other cardan shaft if replacing both.



7 Restore power to the Shuttle and observe it traveling to verify proper function. Correct if necessary.

8 Complete restore procedure and return Shuttle to service.

How to Replace a Guide Wheel

1 Remove the retaining ring.

2 Remove the old roller.

3 Press the new roller on with caution; *do not beat and press against the outer ring.*

4 Mount the retaining ring.

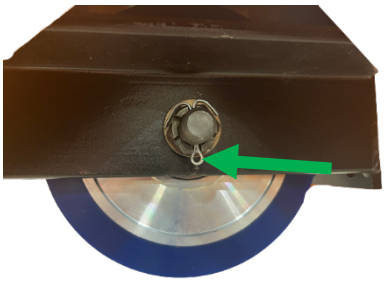
How to Replace an Idle Wheel

1 Remove and lock out power to the shuttle using your plant's procedures.

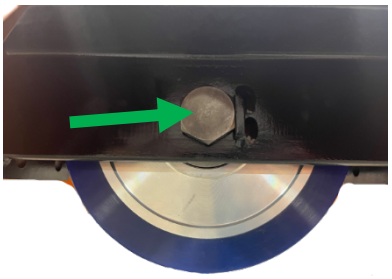
2 Raise the shuttle using a hoisting device (chain hoist or jack) until the idle wheel block has enough clearance to be removed.

3 Loosen and remove the four screws that hold the idle wheel block to the trolley.

4 Remove the cotter pin. Loosen and remove the nut.

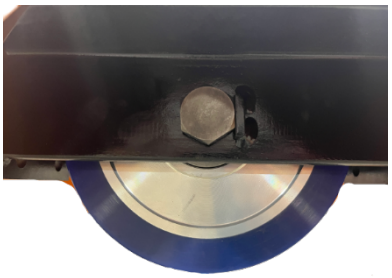


5 Remove the M40 shoulder screw that serves as the axle for the idle wheel.

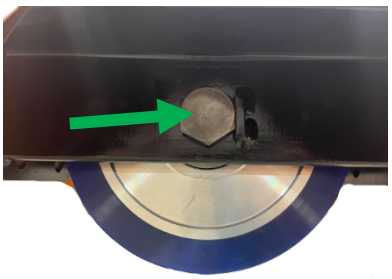


Remove and replace the idle wheel.

6 ***Note:*** *Be aware that there are two spacers – not shown in the figure – that fit in between the wheel and the block that you will need to re-use.*

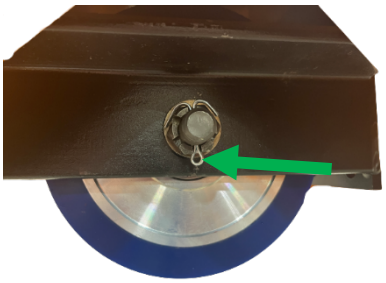


7 Insert the M40 shoulder screw.



8 Screw on and snug up the hex nut. Insert the cotter pin to lock the hex nut in place.

Note: *If you are using a new M40 shoulder screw, drill a new hole for the cotter pin.*



9 Return the idle wheel block onto the shuttle and tighten the four screws that hold the idle wheel block to the trolley. Torque the screws to 330 Nm.

10 Lower the shuttle so that the idle wheel is back on the rail.

11 Complete restore power procedure and verify proper function.

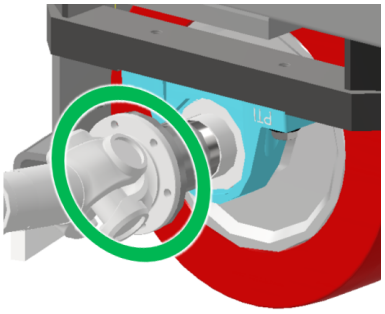
How to Replace a Drive Wheel

1 Remove and lock out power to the shuttle using your plant's procedures.

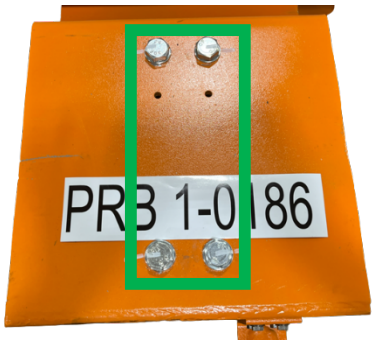
2 Raise the shuttle using a hoisting device (chain hoist or jack) until the drive wheel block has enough clearance to be removed.

3 Remove any necessary safety covers.

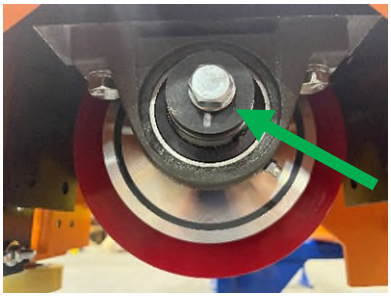
4 Remove the bolts securing the target cardan shaft to the driven roller's flange, then swing the cardan shaft out of the way.



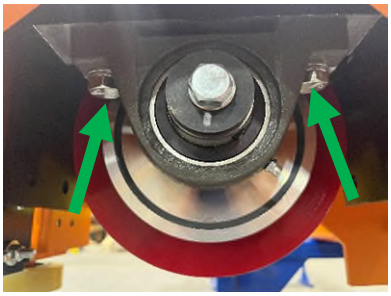
6 Loosen and remove the four screws that hold the drive wheel block to the trolley.



7 Loosen and remove the screw, washer, and retainer that goes into the drive wheel shaft.

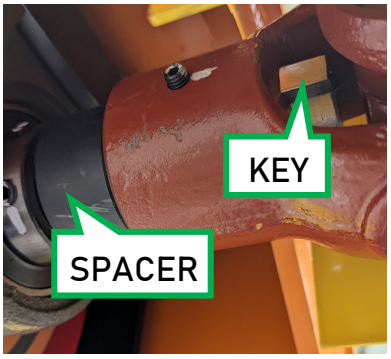


8 Remove the pillow block bearing that is on the same side of the drive wheel as the above screw.

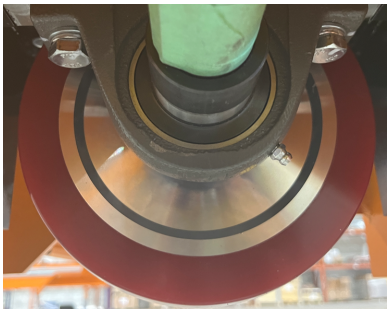


9 Pull the drive wheel shaft out of the drive wheel without removing it completely from the drive wheel block.

Note: *Retain the spacers and the drive wheel shaft key for the new wheel.*

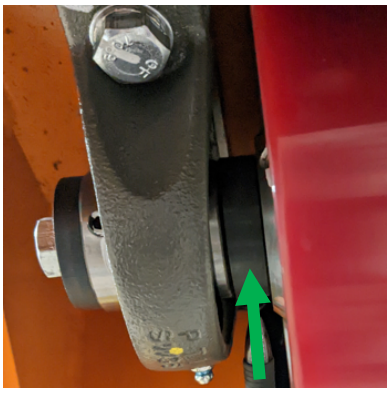


10 Remove the old drive wheel from the drive wheel block.



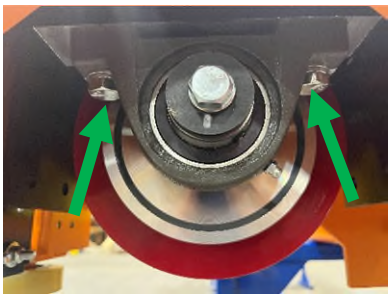
11 Align the keyway of the new drive wheel and the drive shaft then insert the new wheel onto the shaft.

Ensure that a spacer is between new drive wheel and the pillow block bearing that is still attached to drive wheel block.

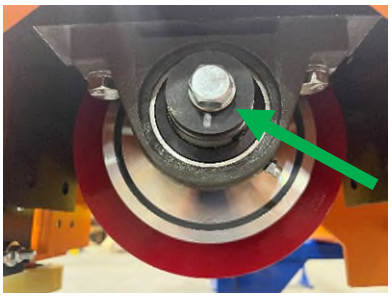


12 Place the spacer onto the other end of the drive shaft and insert the drive shaft through the pillow block bearing.

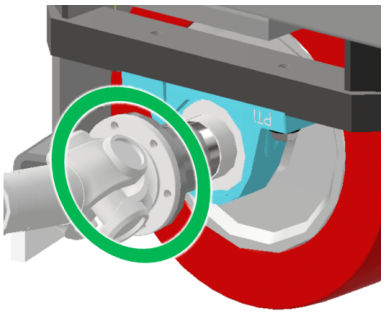
13 Apply removable Loctite to the end of the pillow block bearing bolts and mount the pillow block bearing with washer and lock washer to the drive wheel block.



14 Apply removable Loctite to the drive shaft end screw, washer, and retainer. Insert and tighten to complete the assembly.



15 Align the cardan shaft and reinstall the bolts on the wheel assembly flange using a crossing pattern to **30 Nm.**



16 Lower the shuttle so that the idle wheel is back on the rail.

17 Complete restore power procedure and verify proper function.

Skillet Power Roll Bed Maintenance & Service

This section will describe service procedures for major mechanical elements of a Power Roll Bed NA.

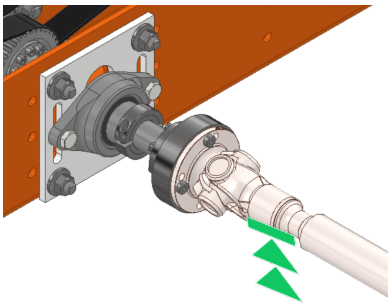
⚠ WARNING ⚠

- 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.

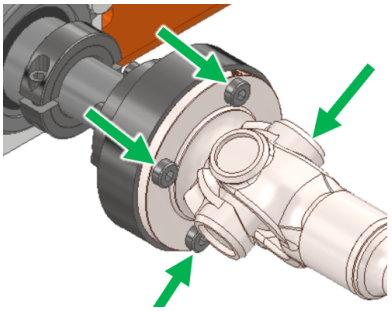
Skillet Power Roll Bed – How to Replace the Cardan Shaft

1 Place the Shuttle into the maintenance position.

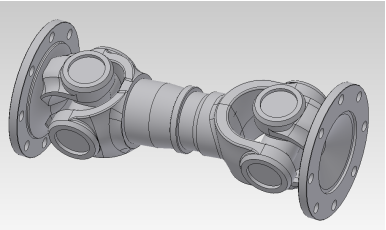
2 Support the cardan shaft.



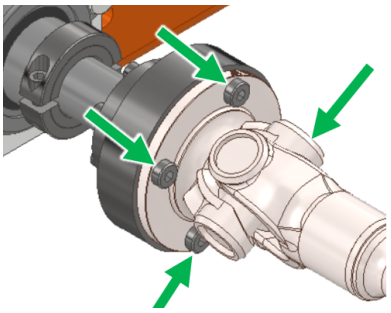
3 Remove the bolts on the companion flanges on both ends of the cardan shaft



4 Replace the cardan shaft.



5 Apply Locktight before returning and tightening the M8 bolts on both companion flanges.



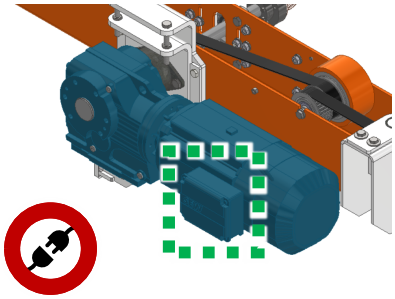
6 Run the Power Roll Bed and observe for proper function. Correct if necessary.

7 Remove all tools and equipment from the area and return the conveyor to service.

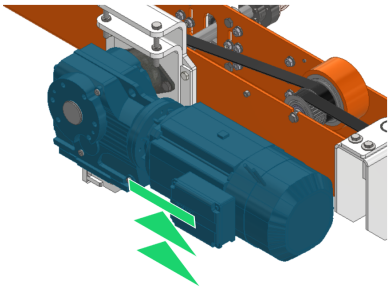
Skillet Power Roll Bed – How to Replace the Drive Motor

1 Place the Shuttle into the maintenance position.

2 Disconnect the cables from the drive motor.

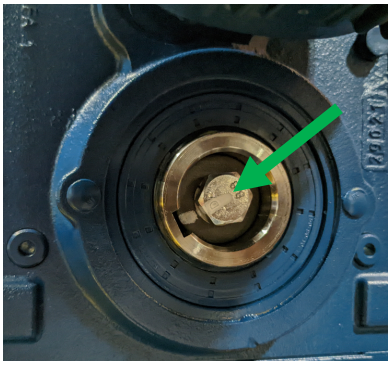


3 Support the gearmotor's weight.

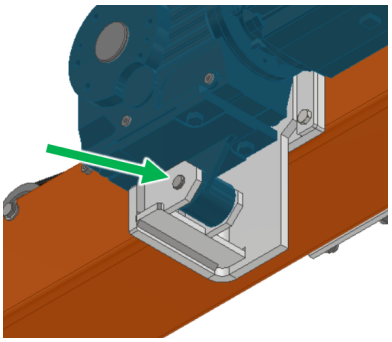


4 Remove the gearmotor's shaft cover.

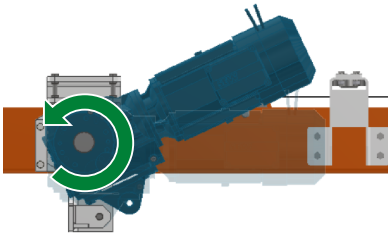
5 Loosen and remove the screw that connects the gearmotor to the drive shaft.



6 Remove the pin on the underside of the motor mount.

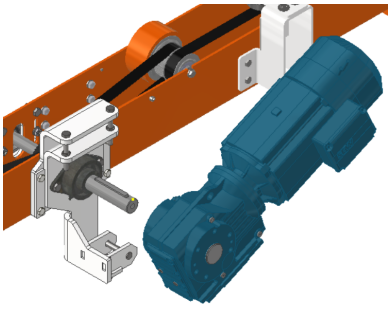


7 Rotate the gearmotor around the drive shaft until it is clear of the mounting plate.

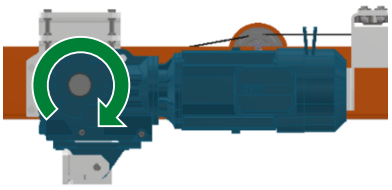


8 Remove and replace the old gearmotor with new unit.

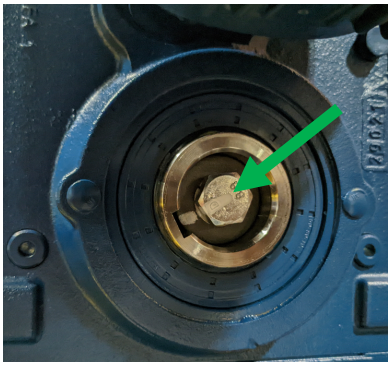
***Note**: Retain the shaft key for reuse if in good condition.*



9 Rotate the gearmotor around the driveshaft until it is back into position

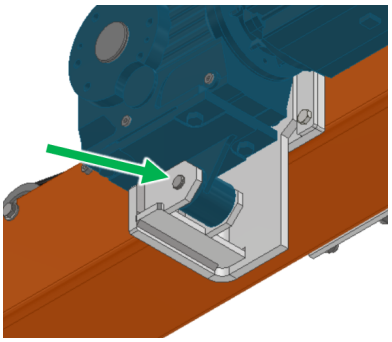


10 Insert and tighten the screw that connects the gearmotor to the drive shaft.

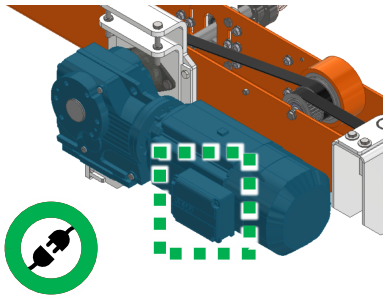


11 Replace the gearmotor's shaft cover.

12 Replace the mount pin.



13 Reconnect the cables to the drive motor



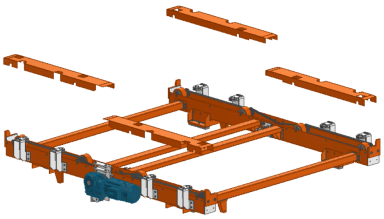
14 Run the Power Roll Bed and observe for proper function. Correct if necessary.

15 Remove all tools and equipment from the area and return the conveyor to service.

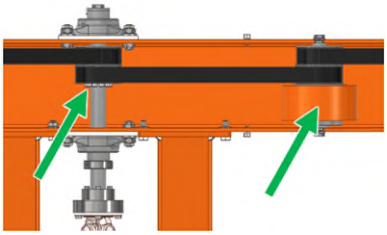
Skillet Power Roll Bed – How to Replace a Drive Belt Motor Side

1 Place the Shuttle into the maintenance position.

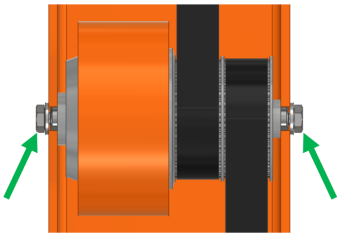
2 Remove safety covers.



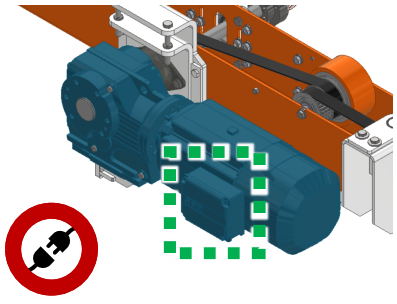
3 Both the drive shaft and the roller of the damaged belt will need to be loosened from the frame to release the belt.



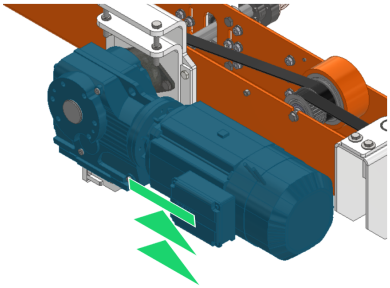
4 Loosen the bolts holding the belt-sharing roller shaft on both ends of the roller.



5 Disconnect the cables from the drive motor.

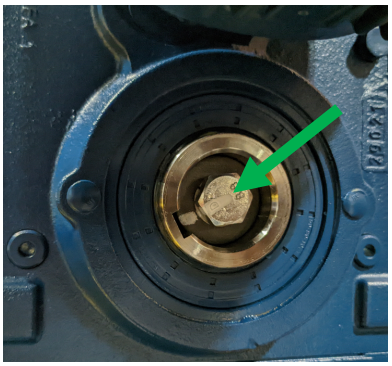


6 Support the gearmotor's weight.

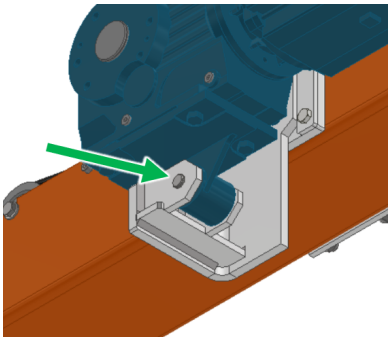


7 Remove the gearmotor's shaft cover.

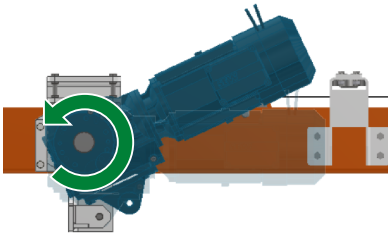
8 Loosen and remove the screw that connects the gearmotor to the drive shaft.



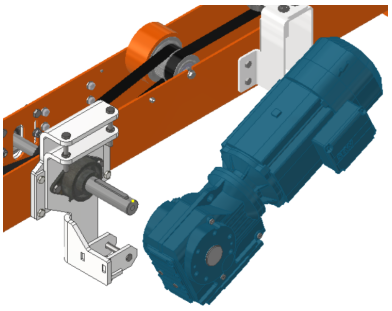
9 Remove the pin on the underside of the motor mount.



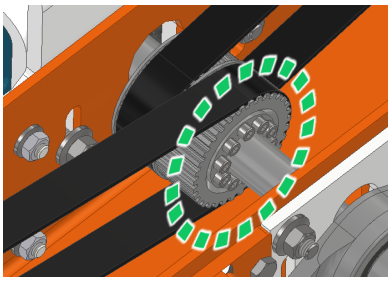
10 Rotate the gearmotor around the drive shaft until it is clear of the mounting plate.



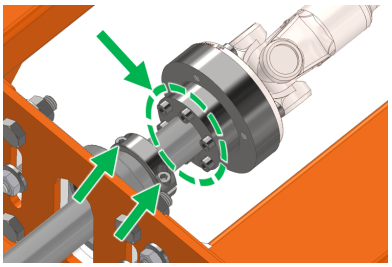
11 Remove the gearmotor from drive shaft.



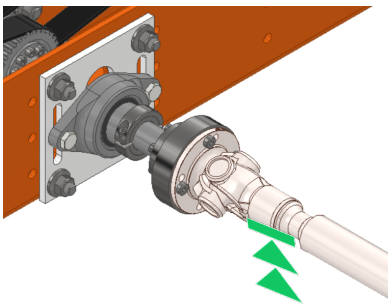
12 Loosen the coupling on the drive sprocket using a crossing pattern.



13 Loosen the hex bolts on the coupling and the shaft collar using a crossing pattern.

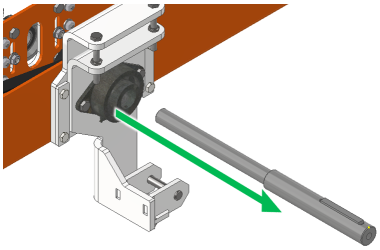


14 Support the cardan shaft.

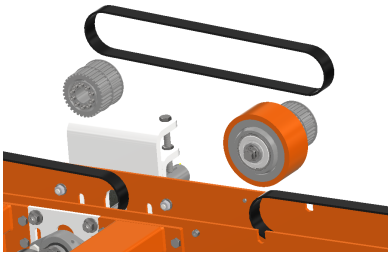


15 Slide the drive shaft out of the bearings from the outside edge.

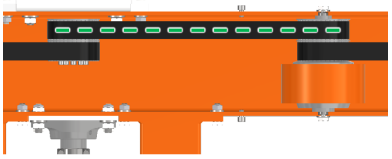
***Note**: Retain the shaft key for reuse if in good condition.*



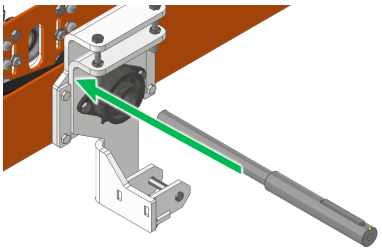
16 Remove the roller and drive sprocket from the frame and remove the belt.



17 Replace the damaged belt with the new unit. Thread the roller and drive sprocket through the toothed belt so that it is on the appropriate track.

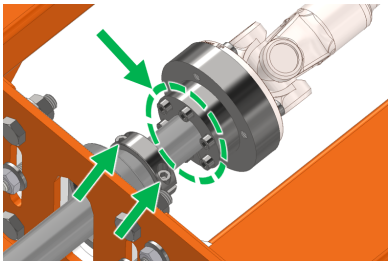


18 Re-position the drive sprocket, clamp, and coupler/cardan shaft, then re-install the drive shaft.



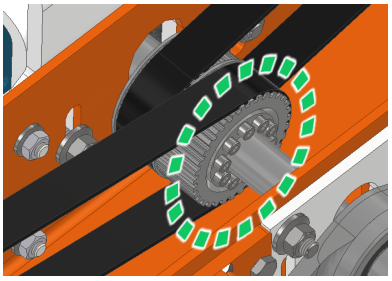
19 Tighten the bolts on the coupling and clamp.

Coupling should be torqued in stops in crossing pattern to **17 Nm.**

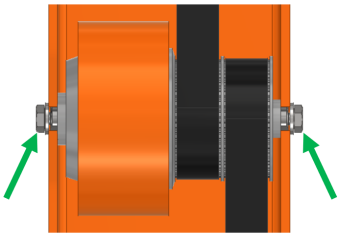


20 Tighten the coupling on the drive sprocket.

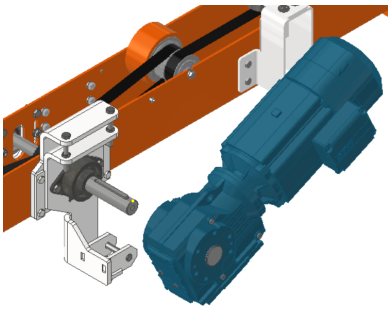
Coupling should be torqued in stops in crossing pattern to **17 Nm.**



21 Tighten the bolts holding the roller shafts on both ends of the roller.

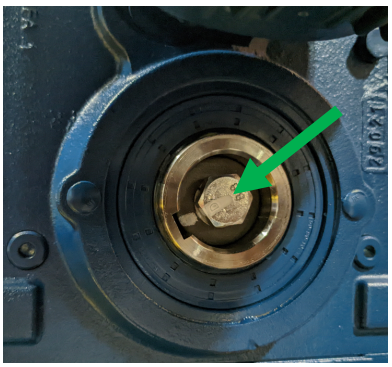


22 Place the gearmotor back onto drive shaft.



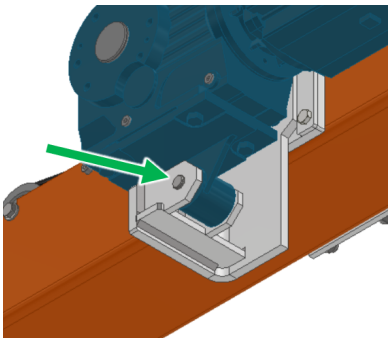
23 Rotate the gearmotor around the driveshaft until it is back into position

24 Insert and tighten the screw that connects the gearmotor to the drive shaft.

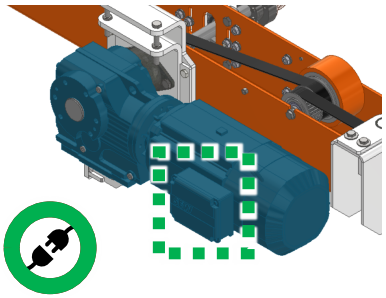


25 Replace the gearmotor's shaft cover.

26 Replace the mount pin.



27 Reconnect the cables to the drive motor



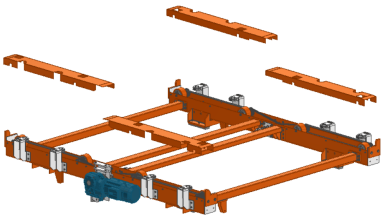
28 Run the Power Roll Bed and observe that the belts are tracking straight and that the table is even all around. Correct if necessary.

29 Lock Out the system again to return safety covers then operate as normal.

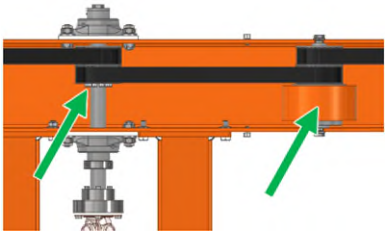
Skillet Power Roll Bed – How to Replace a Drive Belt Non-Motor Side

1 Place the Shuttle into the maintenance position.

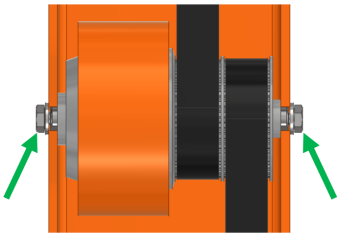
2 Remove safety covers.



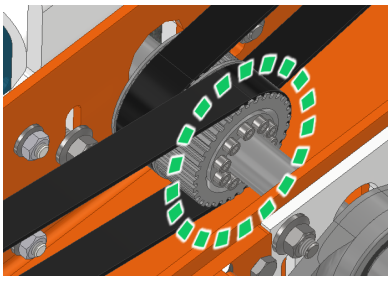
3 Both the drive shaft and the roller of the damaged belt will need to be loosened from the frame to release the belt.



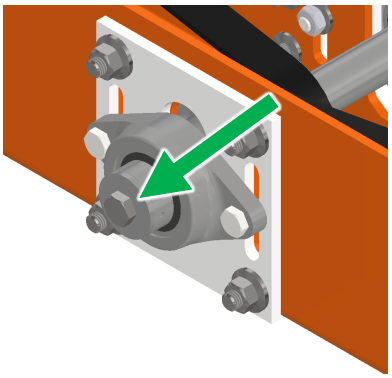
4 Loosen the bolts holding the belt-sharing roller shaft on both ends of the roller.



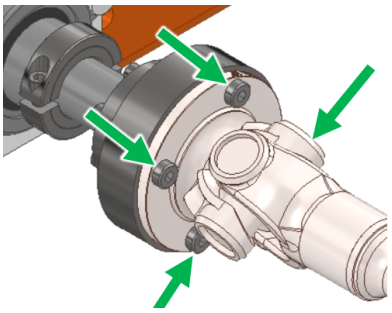
5 Loosen the coupling on the drive sprocket using a crossing pattern.



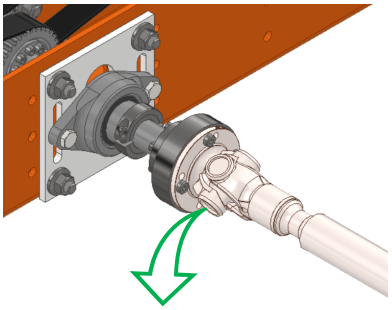
6 Remove bolt and washer from outside end of the shaft



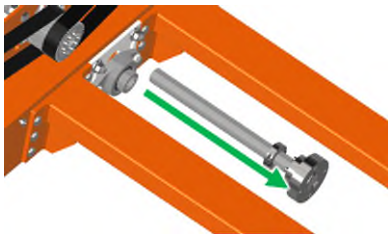
7 Remove the bolts on the companion flange on target end of the cardan shaft.



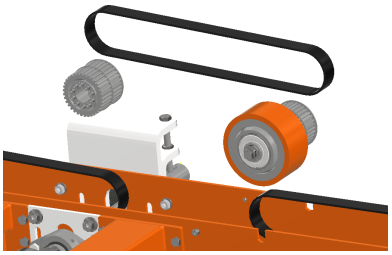
8 Swing the loose cardan shaft out of the way of the drive shaft.



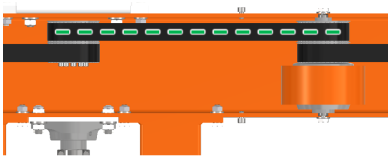
9 Slide the drive shaft assembly out of the bearings from the inside edge.



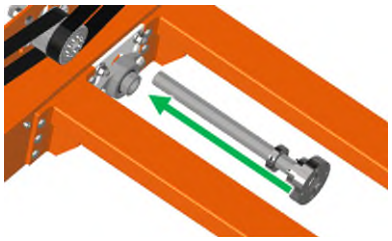
10 Remove the roller and drive sprocket from the frame and remove the belt.



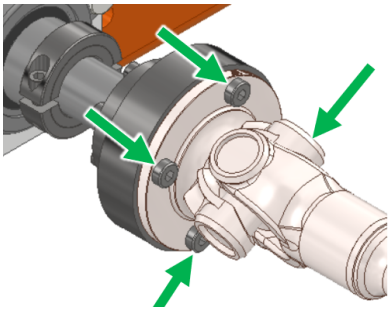
11 Replace the damaged belt with the new unit. Thread the roller and drive sprocket through the toothed belt so that it is on the appropriate track.



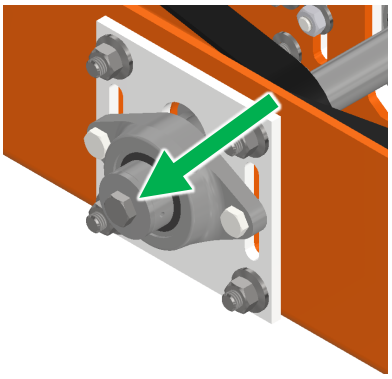
12 Re-position the drive sprocket then re-install the drive shaft.



13 Apply Locktight before returning and tightening the M8 bolts on both companion flanges.

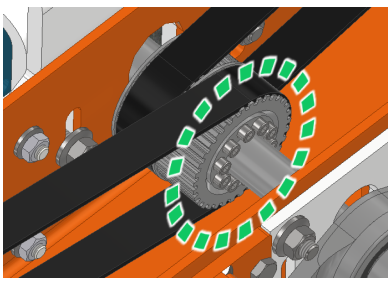


14 Re-install the bolt and washer on the outside end of the shaft.

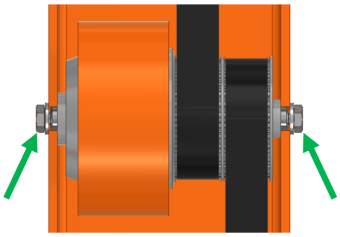


15 Tighten the coupling on the drive sprocket.

Coupling should be torqued in stops in crossing pattern to **17 Nm.**



16 Tighten the bolts holding the roller shafts on both ends of the roller.



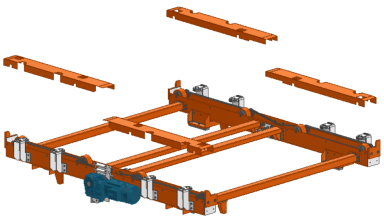
17 Run the Power Roll Bed and observe that the belts are tracking straight and that the table is even all around. Correct if necessary.

18 Lock Out the system again to return safety covers then operate as normal.

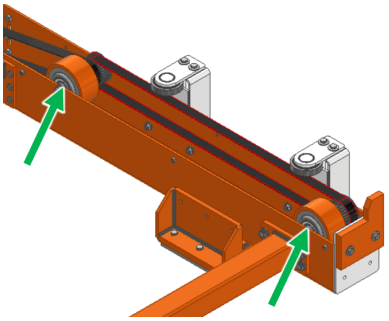
Skillet Power Roll Bed – How to Replace a Driven Belt

1 Place the Shuttle into the maintenance position.

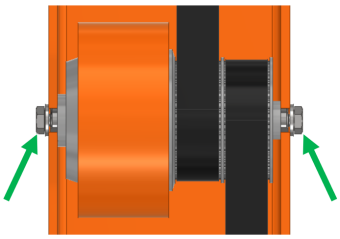
2 Remove safety covers.



3 Both belt sharing rollers of the damaged belt will need to be loosened from the frame to release the belt.

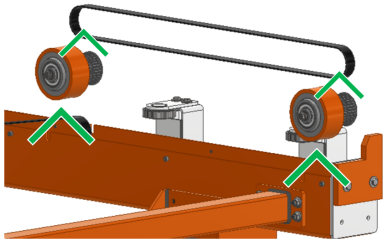


4 Loosen the bolts holding the roller shafts on both ends of the target rollers.



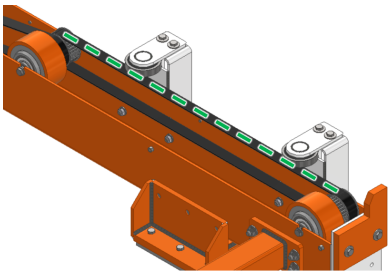
5 Remove the roller from the frame and remove the belt.

Repeat this with the belt-sharing roller.

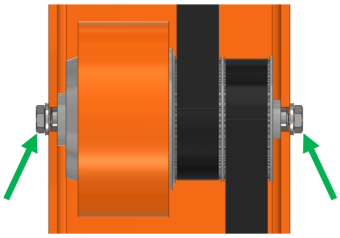


Replace damaged belt with the new unit.

6 Thread each roller through the toothed belt so that they are on the appropriate pulleys and rollers.



7 Tighten the bolts holding the roller shafts on both ends of the rollers.



8 Run the Power Roll Bed and observe that the belts are tracking straight and that the table is even all around. Correct if necessary.

9 Lock Out the system again to return safety covers then operate as normal.