

EMS VDL Maintenance & Service

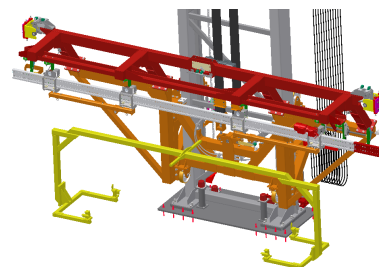
This section will describe service procedures for major mechanical elements of your system.

⚠ WARNING ⚠

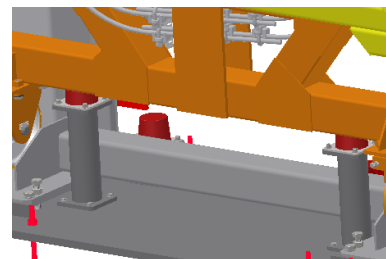
Only qualified and trained personnel should perform the disassembly and assembly of electrical and mechanical components.

Replacing the Upper Drive Unit Gearmotor

- 1 Remove any load on the lift carriage.



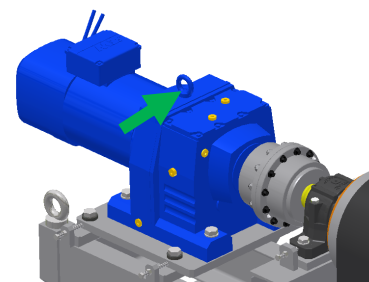
- 2 Jog the carriage assembly down until it is sitting on the bumpers.



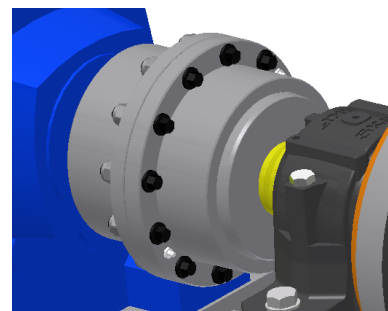
- 3 Mechanically secure the EMS VDL per the procedure in Safety.
Shutdown and lockout the EMS VDL according to your plant's lockout procedures.



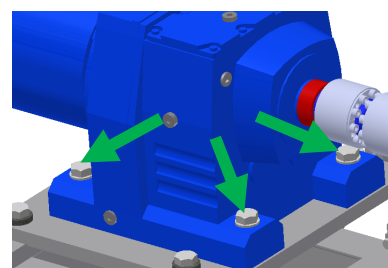
- 4 Secure the gearmotor via the eyebolt.



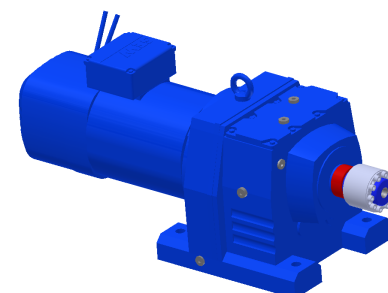
- 5 Disassemble and remove the coupler.



- 6 Loosen and remove the M24 mounting bolts at the base of the gearmotor. This will free it from the structure.

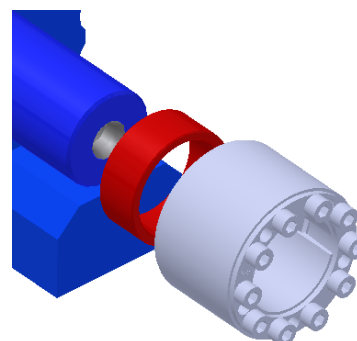


- 7 Remove the gearmotor and place on a workbench to continue.

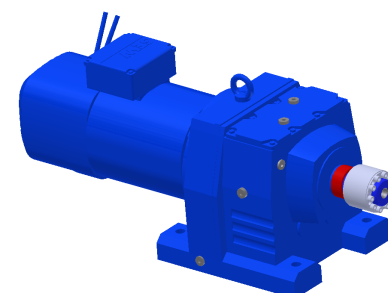


- 8 Remove the locking device and spacer. Refer to the TOLLOK supplied instruction manual for assistance on removing the locking device.

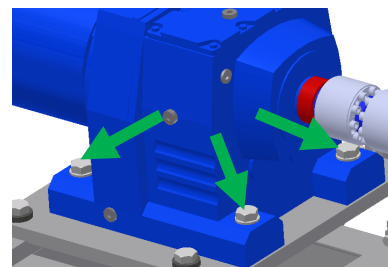
Check the condition of these items and save for later if appropriate.



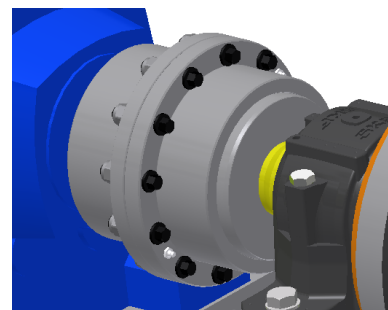
- 9 Exchange the existing gearmotor with the new gearmotor and return the spacer and locking device.



- 10** Return and torque the M24 mounting bolts at the base of the gearmotor to secure it to the frame.



- 11** Reassemble the coupler.

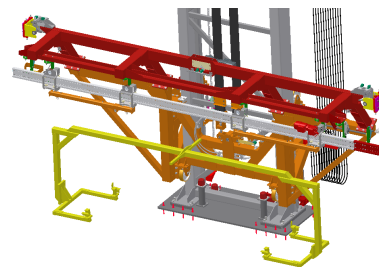


- 12** Remove all safety devices, power up, and verify proper function. Once all is verified, restore the EMS VDL to service.

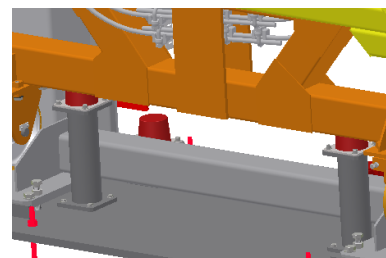


Replacing the Lifting Belts

- 1 Remove any load on the lift carriage.



- 2 Jog the carriage assembly down until it is sitting on the bumpers.



Mechanically secure the EMS VDL per the procedure in Safety.

- 3 Shutdown and lockout the EMS VDL according to your plant's lockout procedures.



- 5 Wear and secure the appropriate anti-fall PPE as required per your plant safety policies.

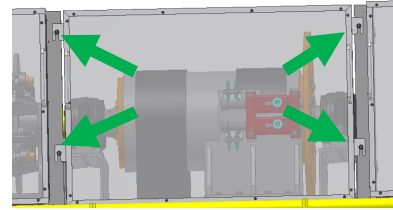


⚠ WARNING ⚠

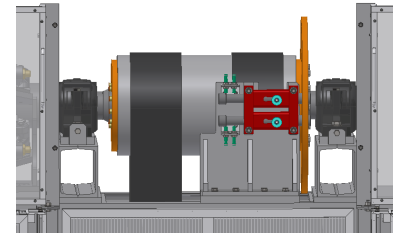
Only qualified and trained personnel should perform the disassembly and assembly of electrical and mechanical components.

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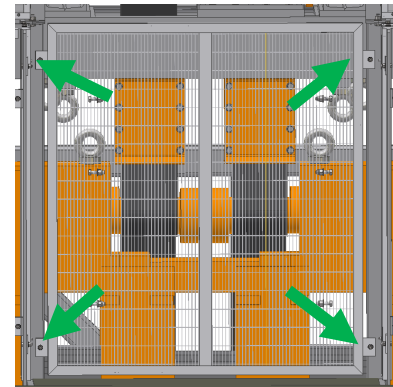
At the maintenance platform, loosen the four bolts holding the polycarbonate panel assembly using the 13mm combination and socket wrenches.


7

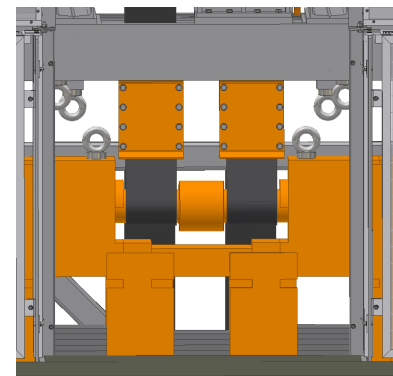
Lift the polycarbonate panel assembly off the bolts and stow in a safe location.


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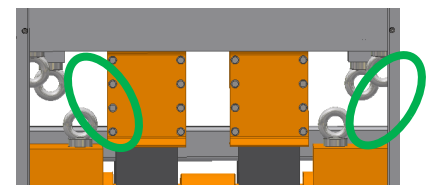
Loosen and remove the four bolts holding the counterweight safety panel using the 13mm combination and socket wrenches.


9

Remove and stow the counterweight safety panel in a safe location.

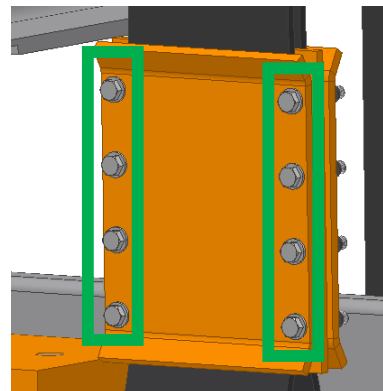

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Secure the counterweight so it will not move by attaching a strap or similar from the eyebolts on top of the counterweight to the eyebolts on the EMS VDL frame.

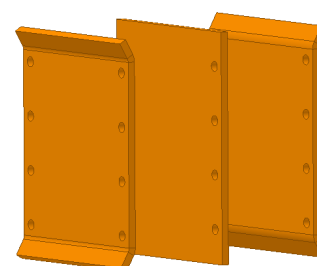


COUNTERWEIGHT BELTS REMOVAL

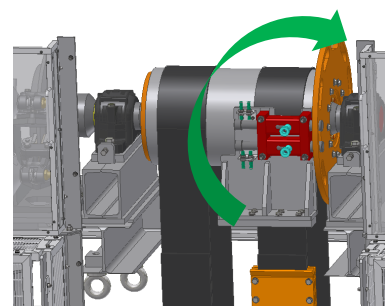
- 11** Loosen and remove the bolts that hold the counterweight belt clamping plates together using the 19mm combination and socket wrenches at a belt while a colleague is holding the plates.



- 12** Discard the torque nuts but keep the bolts and washers.
Stow the clamping plates in a safe location.



- 13** Pull the belt off the drum and toss it over to the floor opposite the maintenance platform.



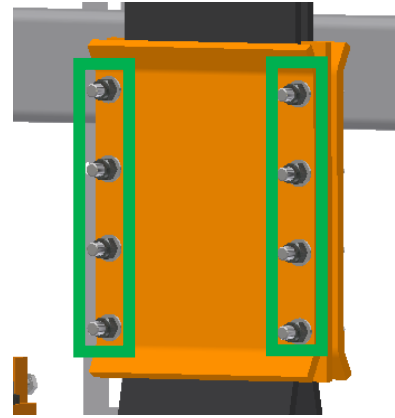
- 14** Repeat steps 11-13 for the second belt.



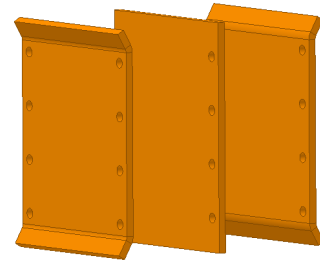
CARRIAGE BELTS REMOVAL

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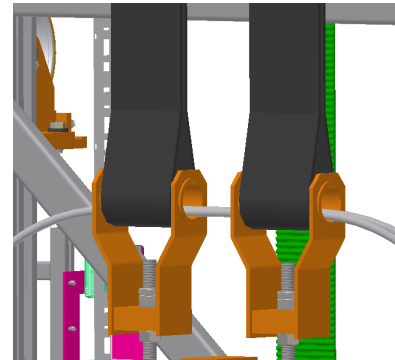
At the top of the lift carriage, loosen and remove the bolts, washers, and torque nuts that hold the belt clamping plates together using the M19 combination and socket wrenches at the belts while a colleague is holding the plates.


16

Discard the torque nuts but keep the bolts and washers.
Stow the clamping plates in a safe location.


17

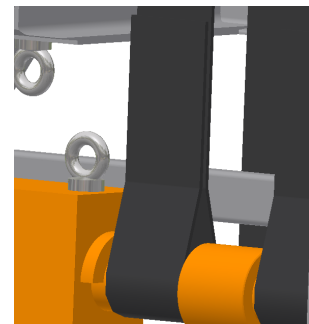
Pull the old belts off their turnbuckles and discard responsibly.



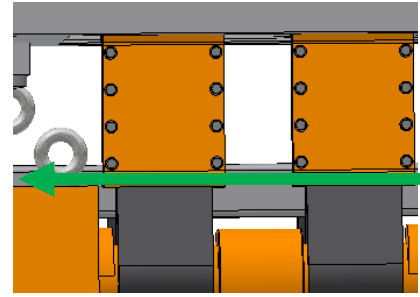
COUNTERWEIGHT BELTS INSTALLATION

18

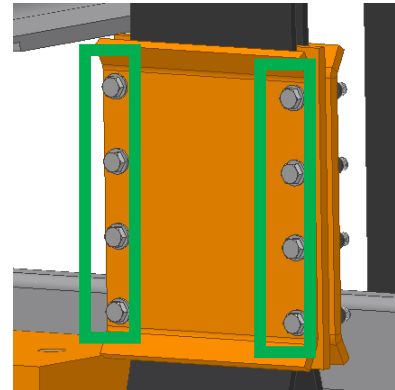
Wrap one end of a belt around the top of the counterweight.



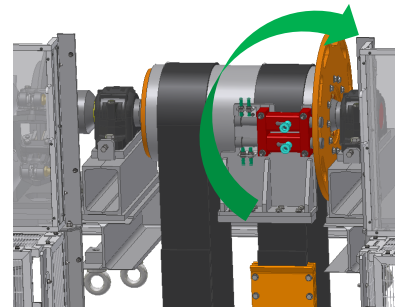
- 19** Place the clamping plates ensuring the bottom of the clamp plates is even with the top of the counterweight.



- Insert the bolts, washers, and new torque nuts to hold the clamping plates together.
- 20** Alternately tighten them in steps up to 89Nm (65 ft-lbs) with the torque wrench.
- Paint witness marks on the bolts to the clamping plates when completed.



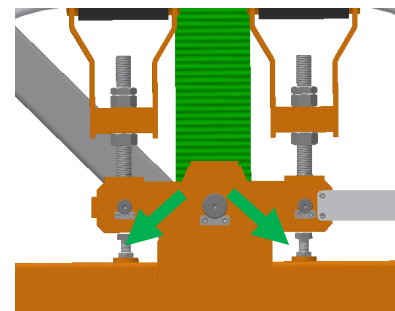
- 21** Wrap the new belt onto the top of the lifting drum and lower the remainder down the other side of the VDL.



- 22** Repeat steps 15-18 for the second belt.

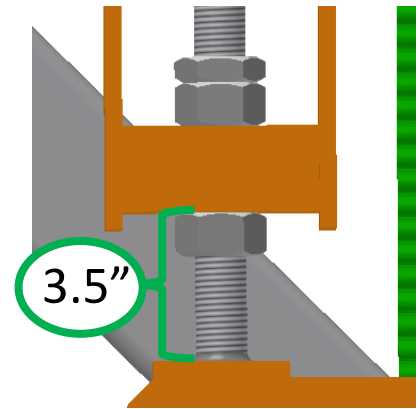


- 23** Raise the support bolts underneath the slack belt actuator lever using the 30mm wrench until they hold it level.



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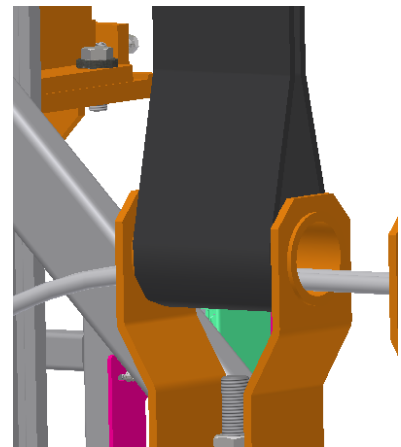
Reposition the turnbuckles' height above the lever to a setup value of 3.5 inches using the 46mm wrench as necessary on the locking and adjusting nuts.



CARRIAGE BELTS INSTALLATION

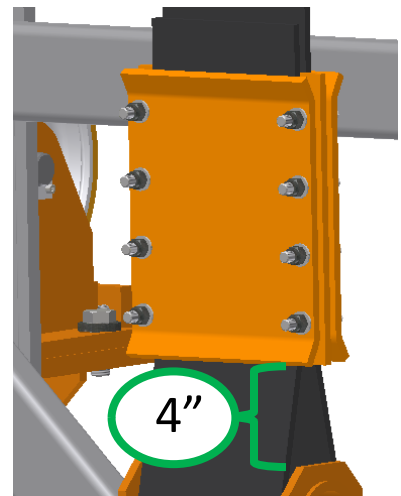
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Wrap one end of a belt around the turnbuckle

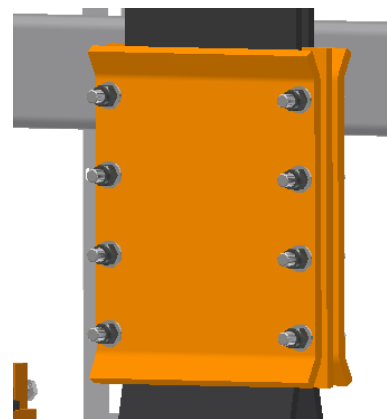


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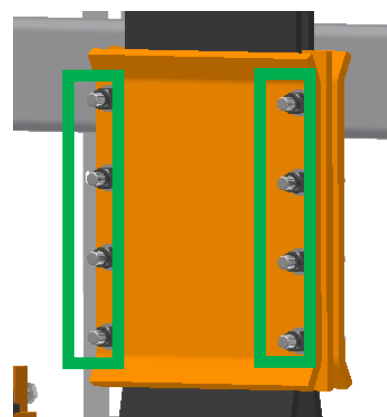
Place the clamping plates with the bottom of the clamp plates four (4) inches above the top of the turnbuckle.



- 27** Insert and hand tighten the bolts, washers, and new torque nuts to hold the clamping plates together.



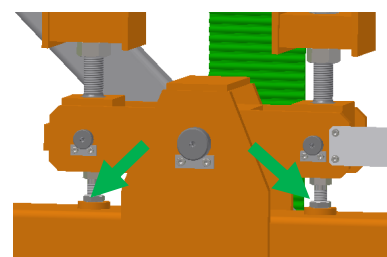
- Make the lifting belt as taut as possible as it hangs from the lifting drum and around the turnbuckle.
- 28** Tighten the clamping plates nuts and bolts in steps up to 89Nm (65 ft-lbs) with the torque wrench.
- Paint witness marks on the bolts to the clamping plates when completed.



- 29** Repeat steps 25-28 for the second belt.



- 30** Lower the support bolts into the lift carriage frame.



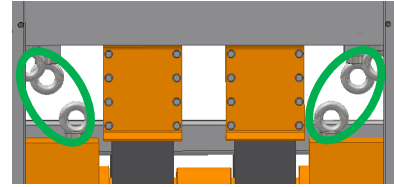
⚠ WARNING ⚠

Not lowering these support bolts will prevent the slack/broken belt sensor from working properly.

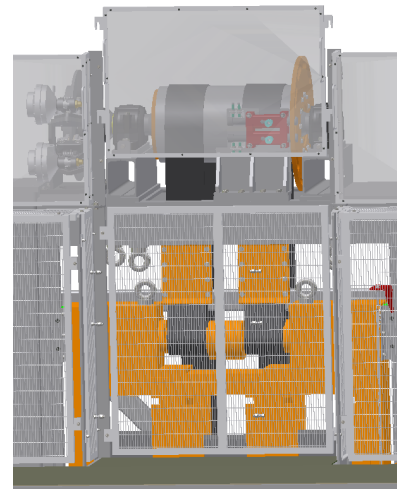
31

Remove the straps that are holding the counterweight to the top of the EMS VDL frame.

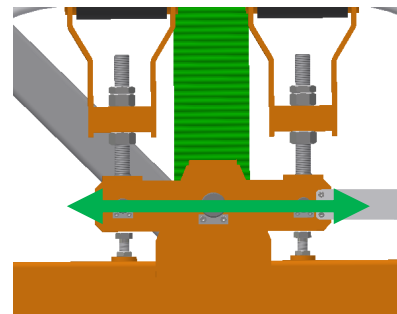
Note: *There should be load tension on the lifting belts now.*


32

Install the counterweight safety panel and the polycarbonate panel assembly that were removed earlier.


33

Check that the slack/broken belt lever is level. If not, adjust a turnbuckle as necessary to level the lever.

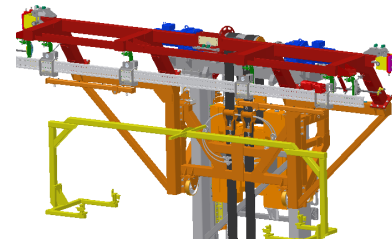

34

Remove all safety devices, power up, and verify proper function. Once all is verified, restore the EMS VDL to service.



Replacing a Side Guide Roller

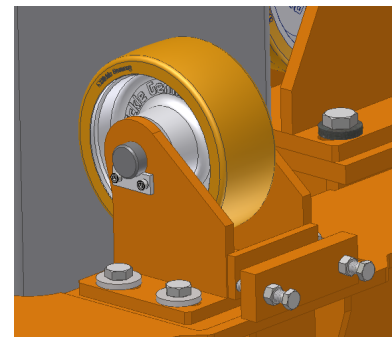
- 1 Raise the lift carriage to the full up position.



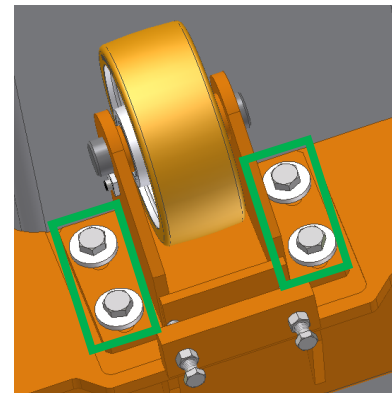
- 2 Mechanically secure the VDL per the procedure in Safety.
Shutdown and lockout the VDL according to your plant's lockout procedures.



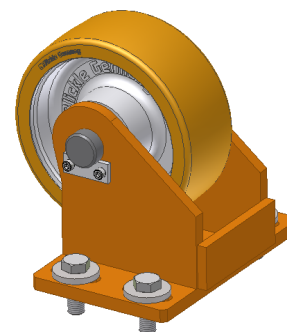
- 3 Locate the side guide roller to be serviced on the carriage.



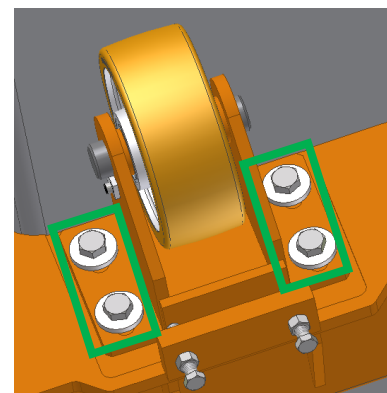
- 4 Loosen and remove the M16 bolts (4) securing the side guide roller assembly to the carriage frame.



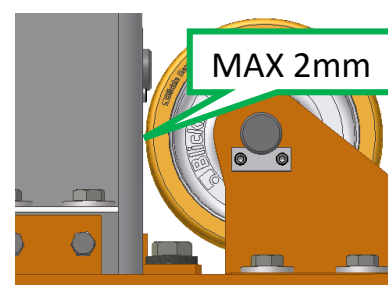
- 5 Remove the original side guide roller assembly and replace with the new one.



- 6 Tighten the M16 bolts (4) securing the side guide roller assembly to the carriage frame.



- 7 Verify that there is a gap between the roller and frame with a maximum of 2mm.

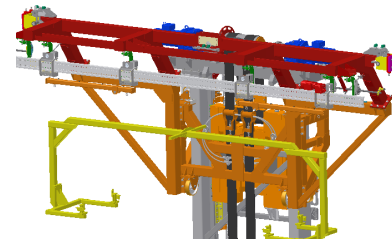


- 8 Remove all safety devices, power up, and verify proper function. Once all is verified, restore the EMS VDL to service.



Replacing a Guide Wheel

- 1 Raise the lift carriage to the full up position.

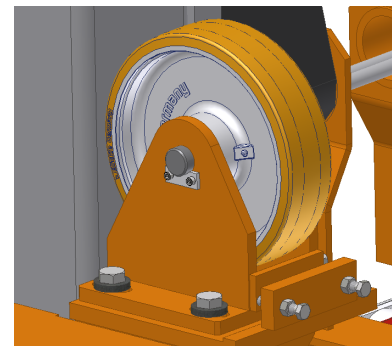


Mechanically secure the VDL per the procedure in Safety.

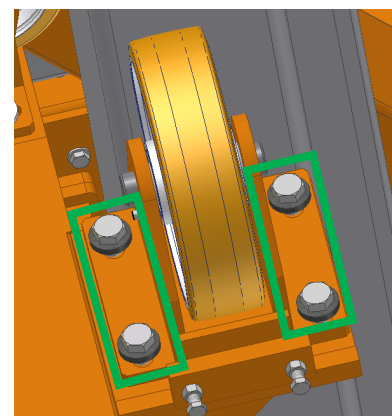
- 2 Shutdown and lockout the VDL according to your plant's lockout procedures.



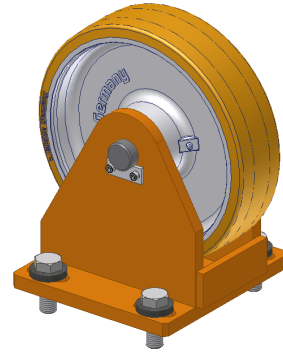
- 3 Locate the guide wheel to be serviced on the carriage.



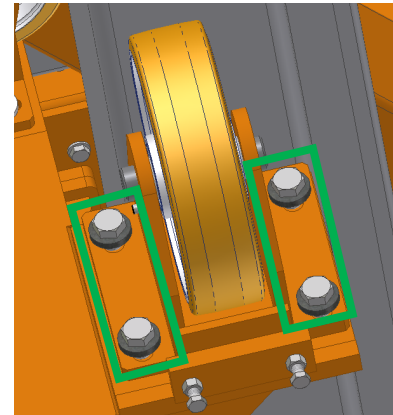
- 4 Loosen and remove the M20 bolts (4) securing the guide wheel assembly to the carriage frame.



- 5 Remove the original side guide roller assembly and replace with the new one.



- 6 Tighten the M20 bolts (4) securing the guide wheel assembly to the carriage frame.



- 7 Remove all safety devices, power up, and verify proper function. Once all is verified, restore the EMS VDL to service.

