

# OPERATION & MAINTENANCE MANUAL



***VelociWrapper***<sup>TM</sup>

Revision 1

# Introduction

Congratulations on receiving your VelociWrapper! We are certain you will be pleased with your purchase of this innovative and labor-saving machine.

Our goal here at Toro Design and Manufacturing (TDM) is to improve methods and change industries for the better through innovative products. We believe there is always room for improvement, and our goal is to find where changes to methods can lead to huge improvements and focus on those things that will have the greatest impact for the better. We are certain that you will find that the VelociWrapper will save you a tremendous amount of time, labor, and money to keep you competitive in your industry.

We want to help you get the best results from your new cable wrapper, and to operate it safely. This manual contains the information on how to do that. Please read it carefully.

Best wishes,

The VelociWrapper Team

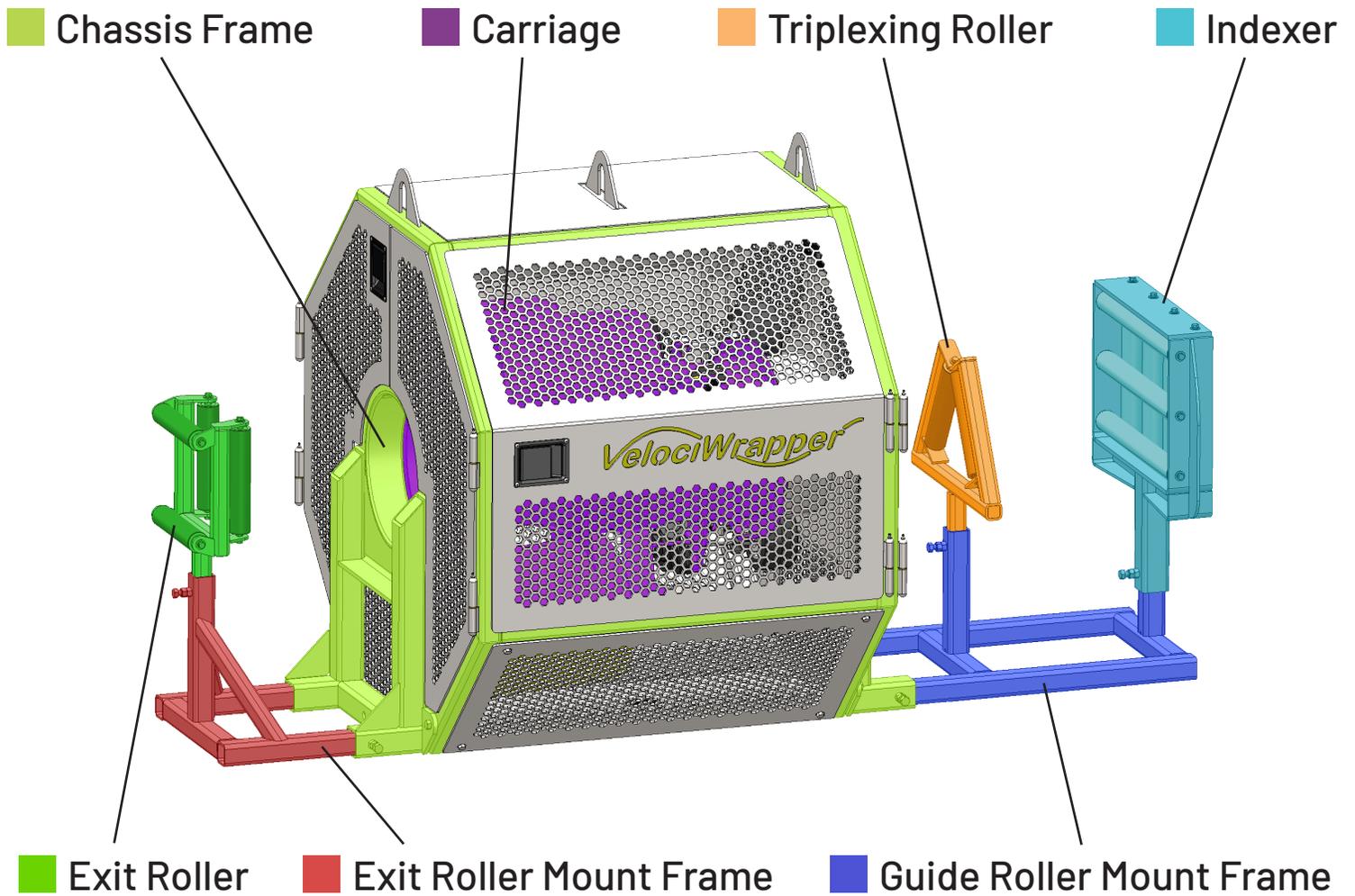
Toro Design and Manufacturing, L.L.C.

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# Components

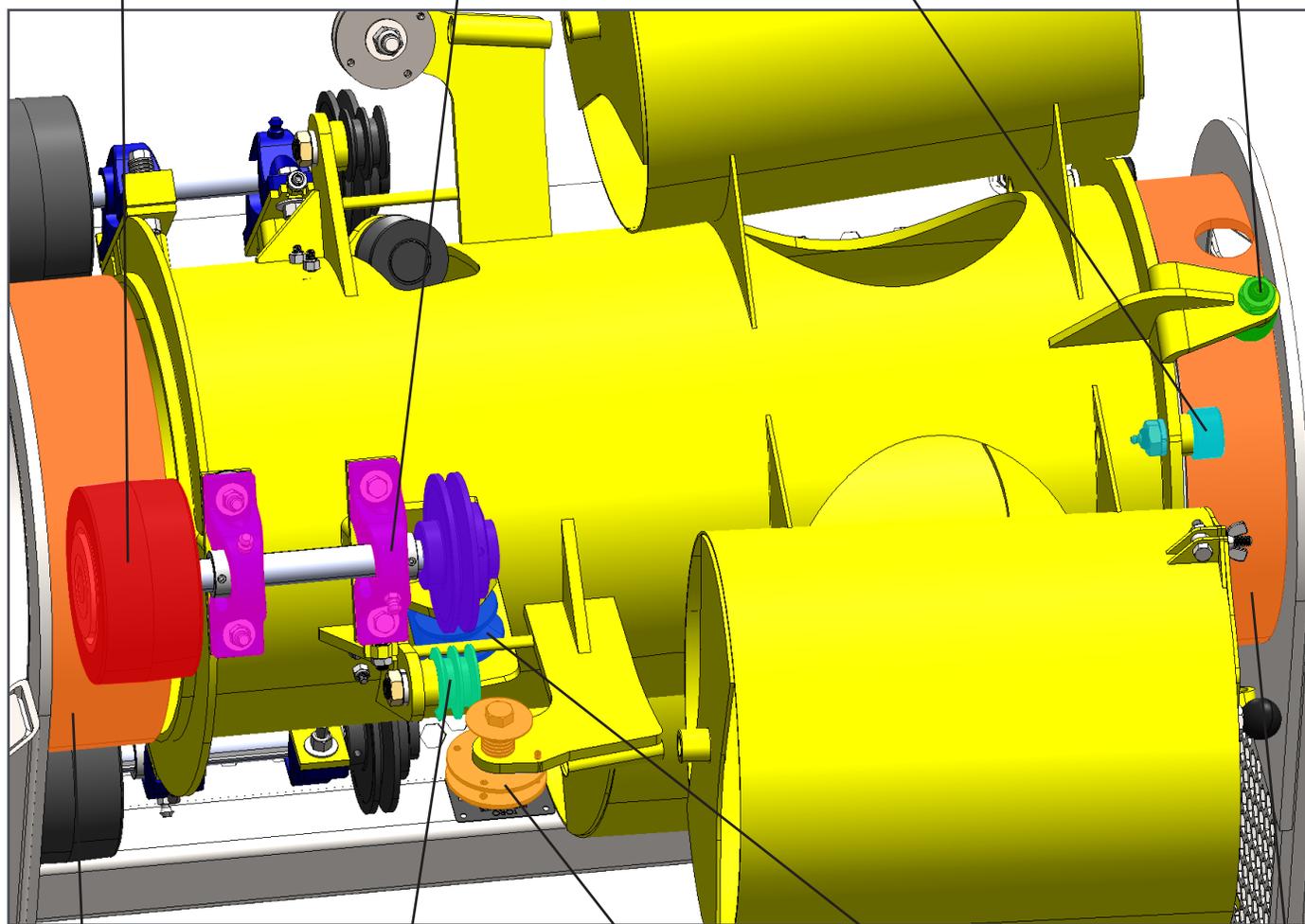
## Overall Components



# Initial Assembly (continued)

## Carriage Components

■ Drive Wheel    ■ Drive Bearing    ■ Carriage Roller    ■ Thrust Roller



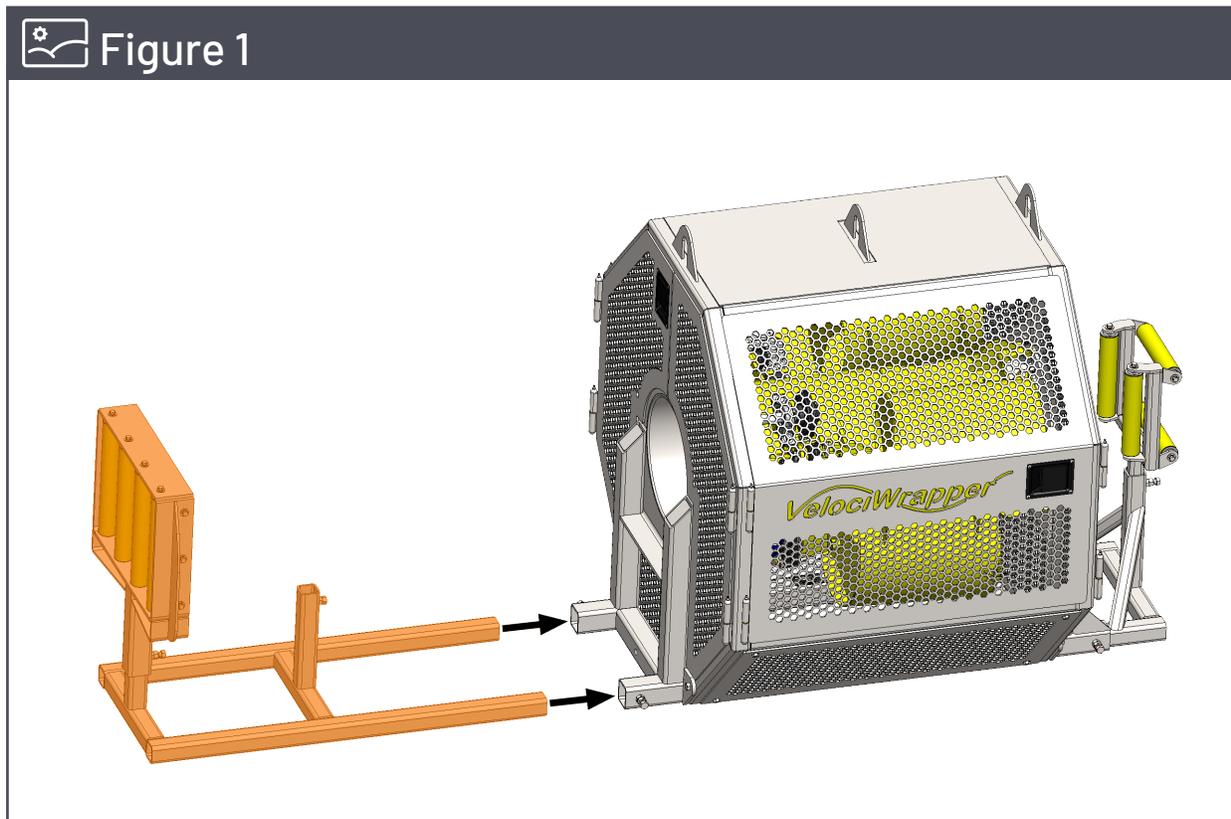
■ Pipe Race    ■ Flange Roller    ■ Tensioner    ■ V-Roller    ■ Pipe Race

# Initial Assembly

Follow the steps below to assemble the machine for operation. Your machine may have been shipped partially disassembled. If this is the case, pages 3, 4, and 5 will apply to your machine. If your machine is completely assembled upon delivery, pages 3, 4, and 5 will not apply.

Insert guide roller mount frame into chassis frame and adjust to the desired operating length (Usually 6-12" from fully in).

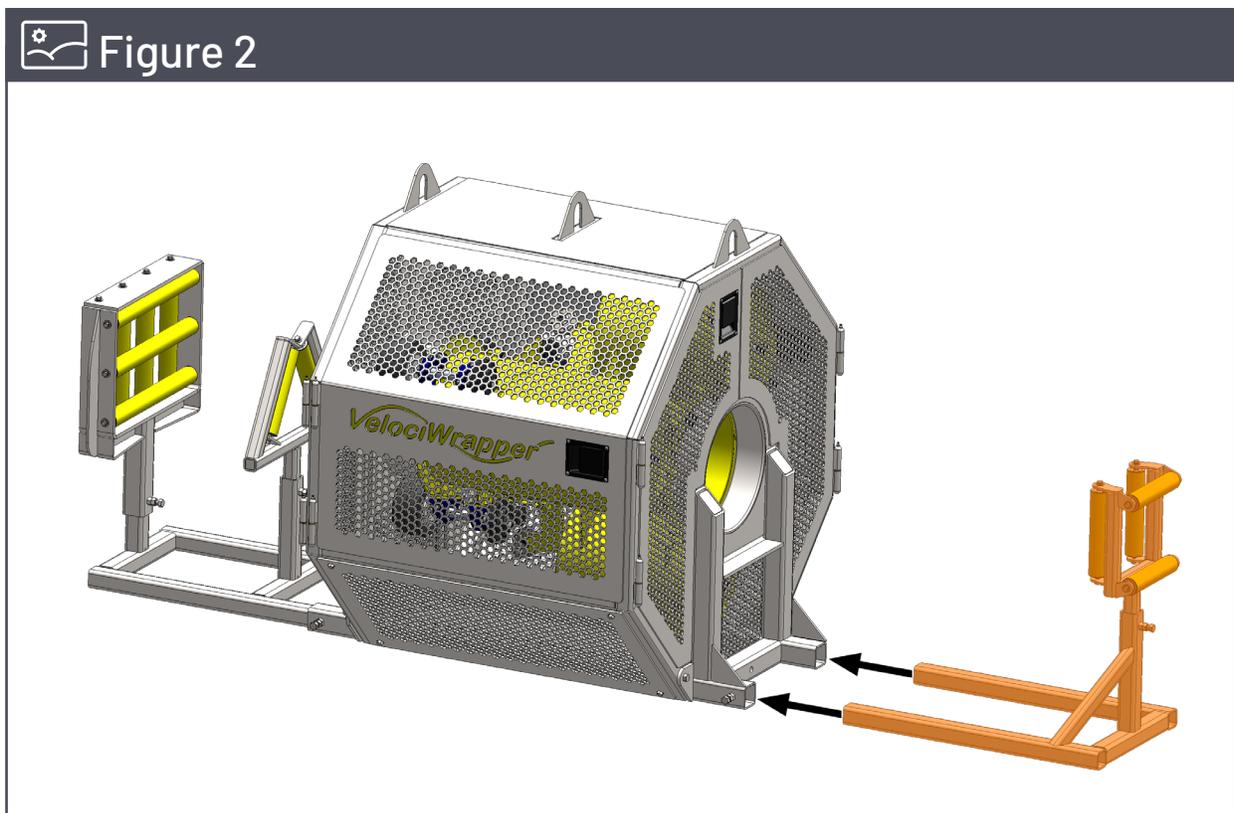
[Figure 1]



# Initial Assembly (continued)

Adjust the exit roller mount frame in the chassis frame to the desired operating length, usually 4" - 8" from full in.

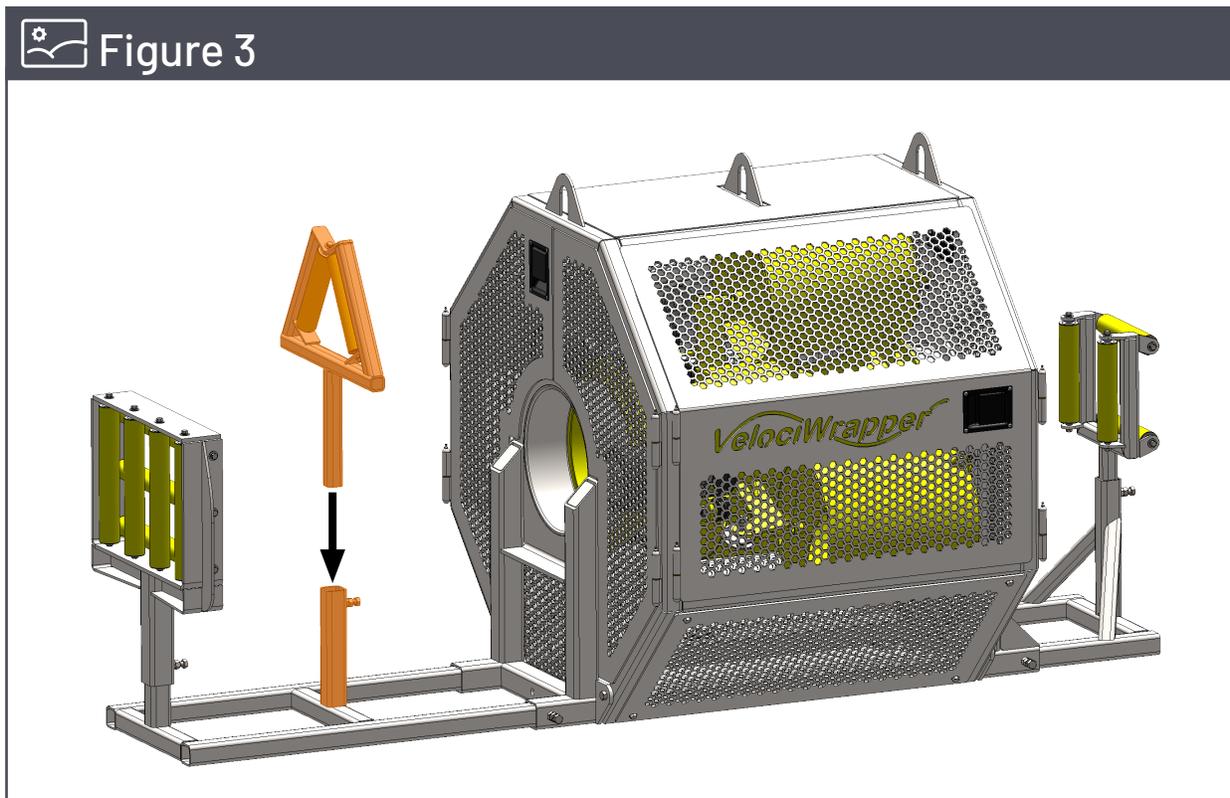
[Figure 2]



# Initial Assembly (continued)

Insert triplexing roller into guide roller main frame. Adjust height to ensure that cables being wrapped are centered in the rotating carriage.

[Figure 3]



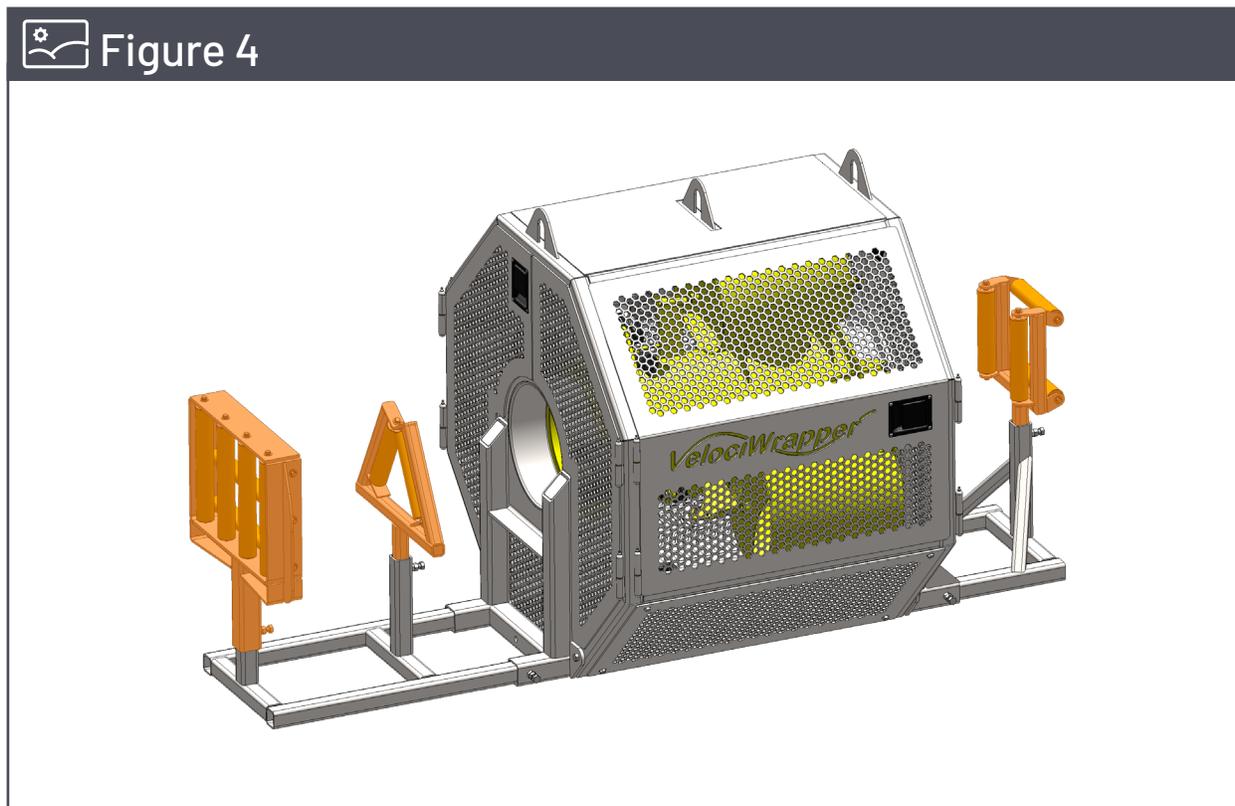
## **i** Note

The proper height to adjust the rollers to will be dependent on cable size, cable insulation, and manufacturer. For a 1250 kcmil cable, the triplex roller height will typically be raised around 3".

# Initial Assembly (continued)

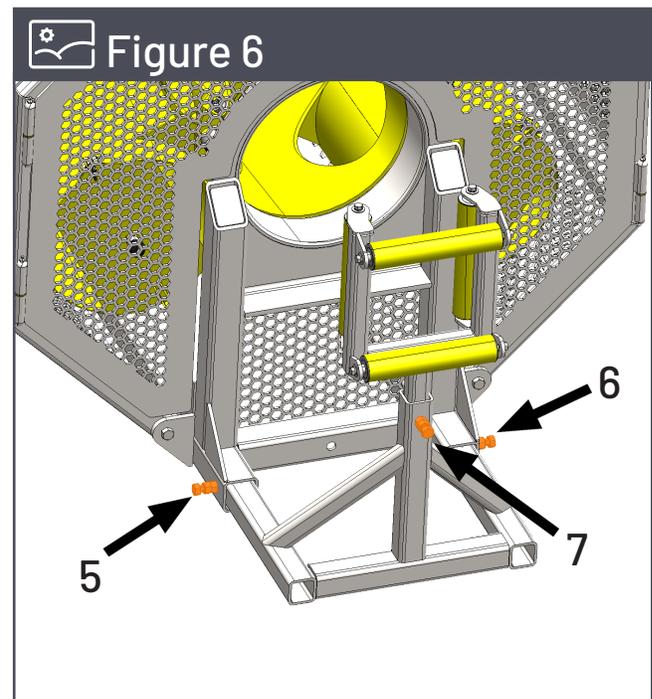
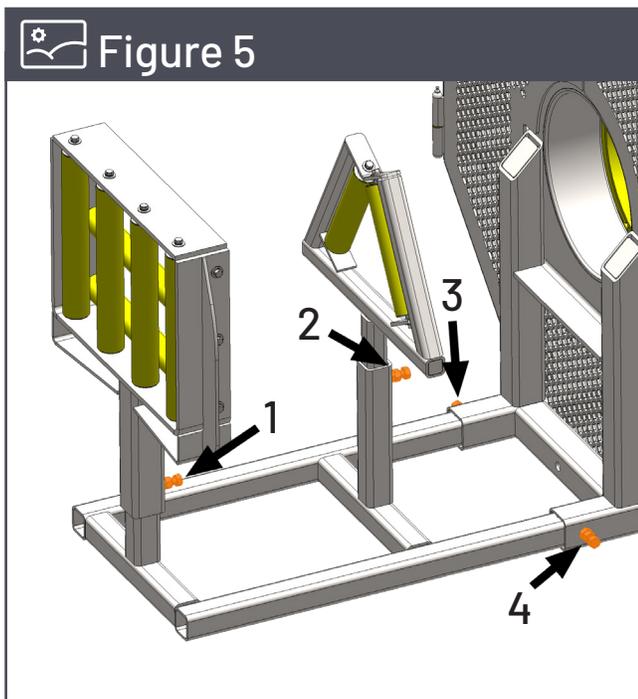
Ensure that the indexer, triplexer and exit roller are all adjusted to a height that will center cable in rotating carriage as much as possible. This is essential to ensure the machine will operate correctly.

[Figure 4]



# Initial Assembly (continued)

There are seven bolts with jam nuts that must be tightened before use. Four of these bolts are on the guide rollers and frame [Figure 5], and three on the exit roller and frame. [Figure 6]

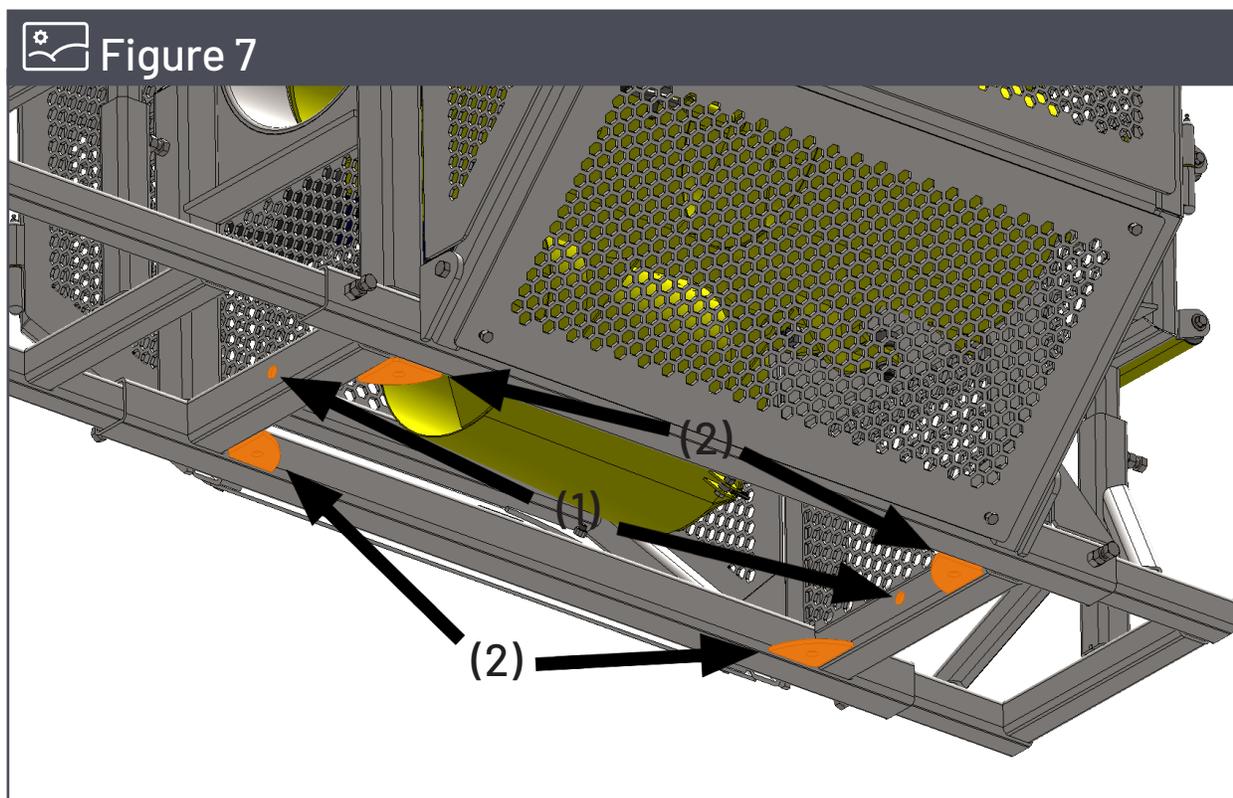


## WARNING

Damage to the machine and/or cable may occur if the adjustment bolts and jam nuts are not completely tightened before use.

# Initial Assembly (continued)

There are two mounting systems on the VelociWrapper. You can mount using the two horizontal 5/8" pins and bolts (1) through the tube steel frame for a quick mount solution, or you can mount with 1/2" bolts using the four mounting plates on the inside corners of the main chassis frame (2) for a more permanent mounting solution. Bolts and pins for mounting are not typically provided with the machine [Figure 7].



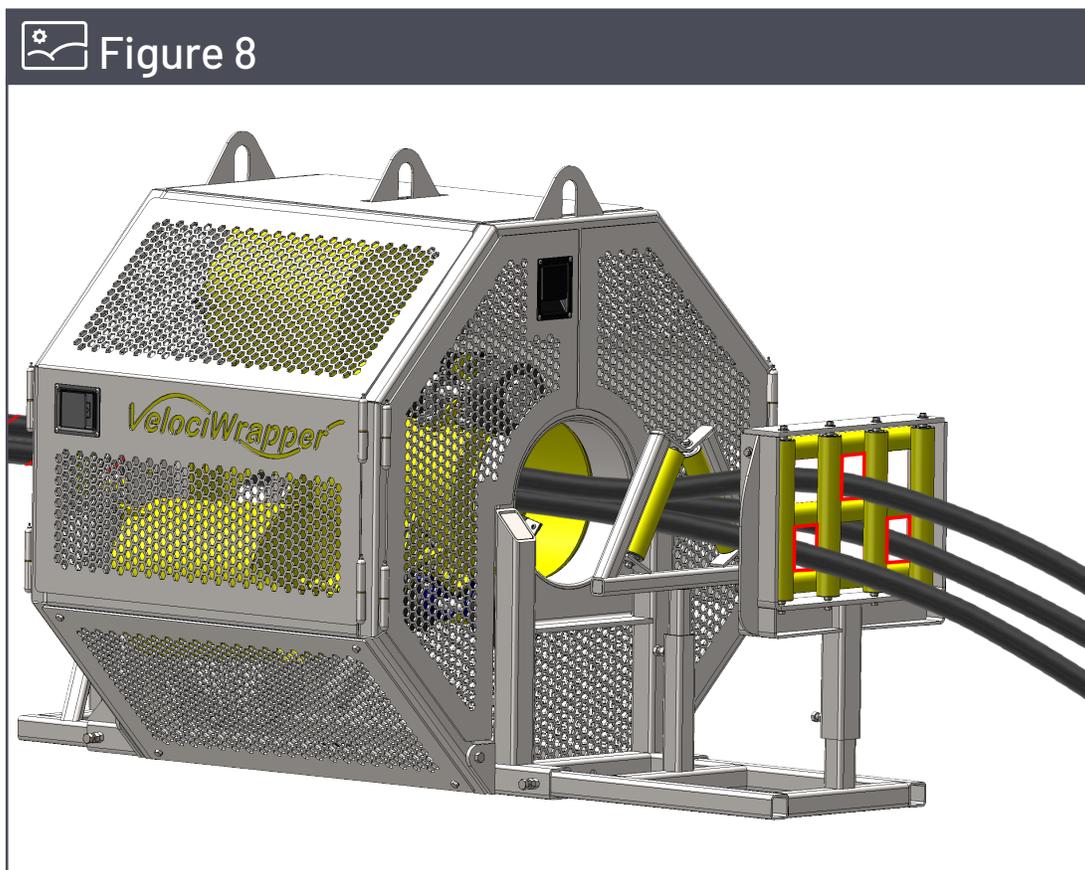
## DANGER

Failure to ensure the machine is securely mounted before use can result in serious injury or death. Ensure all mounting hardware is properly secured before operating the machine.

# Pre-Operation

Your VelociWrapper will arrive threaded with twine and ready to rock-and-roll. However, if the twine has been dislocated out of the drive system during shipping, you may need to re-thread the drive system before operating the machine. Refer to the twine threading section (Page 13) or the twine threading decal on the rotating carriage.

When the twine is properly threaded in the machine, pull the cables through the machine, using the indexer to place the cables in a triangle configuration as shown in **[Figure 8]**. Ground cables, fiber conduits, and other lines can be routed through the remaining indexer slots as needed.



# Pre-Operation (continued)

## WARNING

It is important to verify there are no cable twists between the cable reels and the indexer. Not doing so may result in damage to the indexer support frame.

Tie the cables off to something stationary. With tension on the cables, check again that the indexer, triplexing and exit rollers are at the correct heights. This is when the triplexed bundle is centered in the rotating carriage and the triplexing roller is pulling down slightly and beginning to push the cables in towards each other. At this point, tie or tape the twine to the cable or to the strap that is holding the cable, and you are ready to start wrapping!

# Operation

With the twine routed correctly, tie the twine off to the cable or strap holding the cable. Begin driving forward slowly, making sure the machine is operating as expected and verify all three twine strands are present. You may then accelerate to operating speed.

Avoid abrupt starts/stops to reduce stress on components. If stopped abruptly, the VelociWrapper will coast in one place for a short amount of time, wrapping an excessive amount of twine in a concentrated location on the cable. This is not harmful to the machine or cable but unnecessarily uses an excessive amount of twine. To avoid this, a gradual deceleration is recommended.

When finished with the run, tape the twine to the cables before cutting them to avoid unraveling of the twine from the bundle, allowing the cables to separate from each other.

## Note

It is important to verify correct twine routing/threading before each run. Refer to the twine threading diagram decal on the rotating carriage or in the twine threading section (Page 13) before beginning operation of the machine.

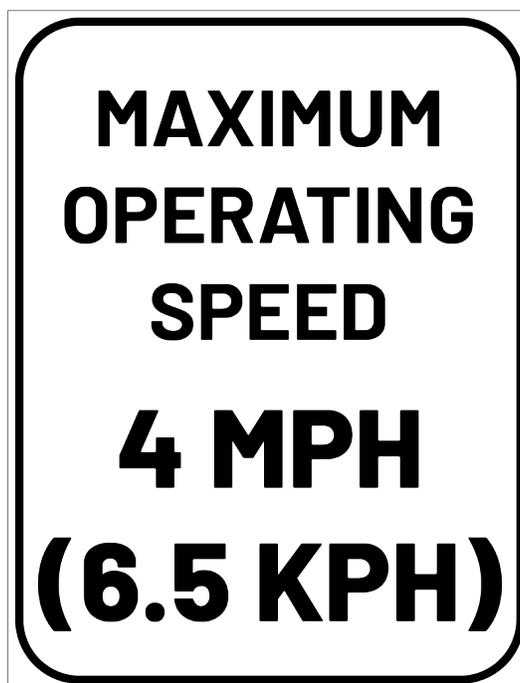
## DANGER

Always verify that all doors are shut and all guards in place before operating the machine. Failure to do so may result in serious injury or death.

# Operation (continued)

## DANGER

The VelociWrapper has a maximum safe operating speed. To avoid serious injury or death, do not operate in excess of 4 MPH (6.5 KPH)! Warranty is void if the maximum operating speed is exceeded as damage to the bearings will occur.

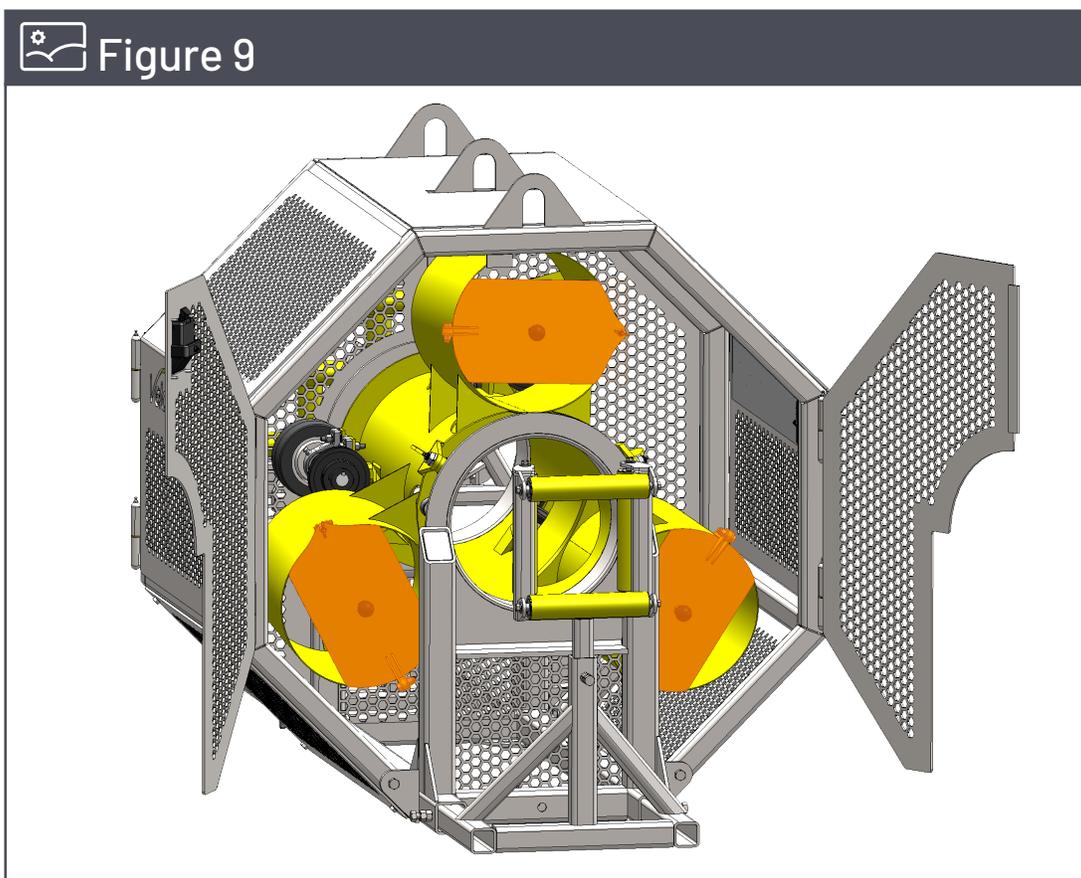


# Twine Replacement/Threading

Open each twine door [Figure 9] and remove twine ball wrapping. Insert the new twine roll with the twine tail pointing away from the twine bin door. Thread the twine through the bushing at the back of the twine bin.

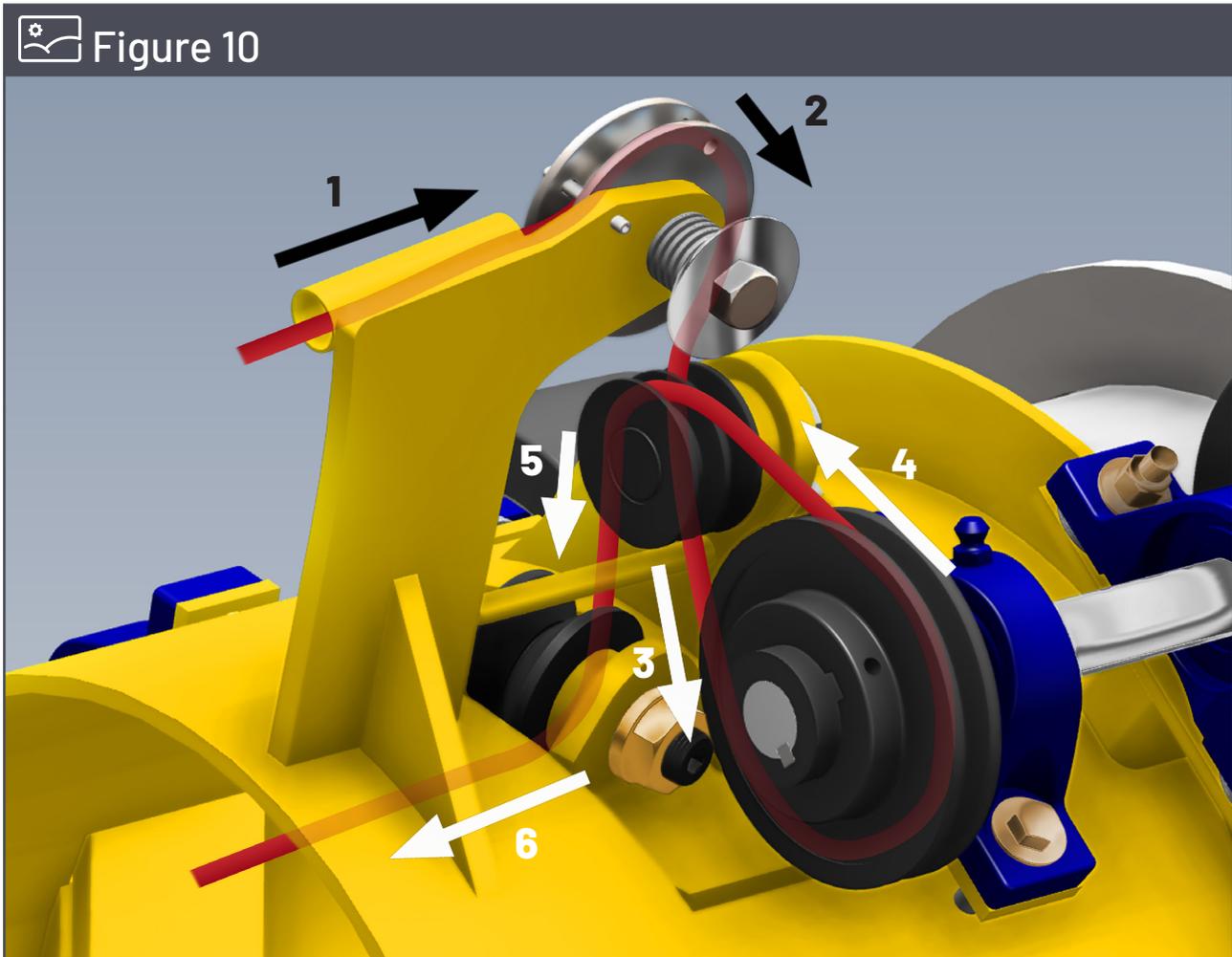
## DANGER

Adding/removing twine from the twine bins can cause the carriage to rotate because of weight imbalance. To avoid injury, have another person stabilize the carriage and prevent it from rotating until all three twine rolls are in place.



# Twine Replacement/Threading (continued)

1. From twine bin, route through sleeve to tensioner
2. Route under tensioner pin and around tensioner
3. Route around flange roller to drive pulley
4. Route around drive pulley and back to the flange roller
5. Route over flange roller and past bar
6. Route under V-Roller, past rubber flap and into rotating carriage
7. Tie the twine off to the cable [Figure 10]



## Note

Scan this QR code to access twine threading video along with other videos about the VelociWrapper.



# Twine Replacement/Threading (continued)

After the twine is replaced, verify the following items before continuing to operate:

1. Twine doors are shut and the wing nuts are tightened
2. Twine is threaded correctly as shown on the threading diagram
3. End doors are shut and latched

Your machine is now ready to continue operation.

## WARNING

Failure to ensure the twine is correctly routed could result in damage to the cable.

## WARNING

Ensure that twine doors are closed and the wing nuts are completely tight before operating the machine. Failure to do so may result in damage to the machine.

## Note

VelociWrapper provides a custom-manufactured roll of twine that is the longest roll on the market with the required tensile strength and denier. Call 1-866-TRIPLEX (874-7539) or visit [www.velociwrapper.com](http://www.velociwrapper.com) to order more twine.

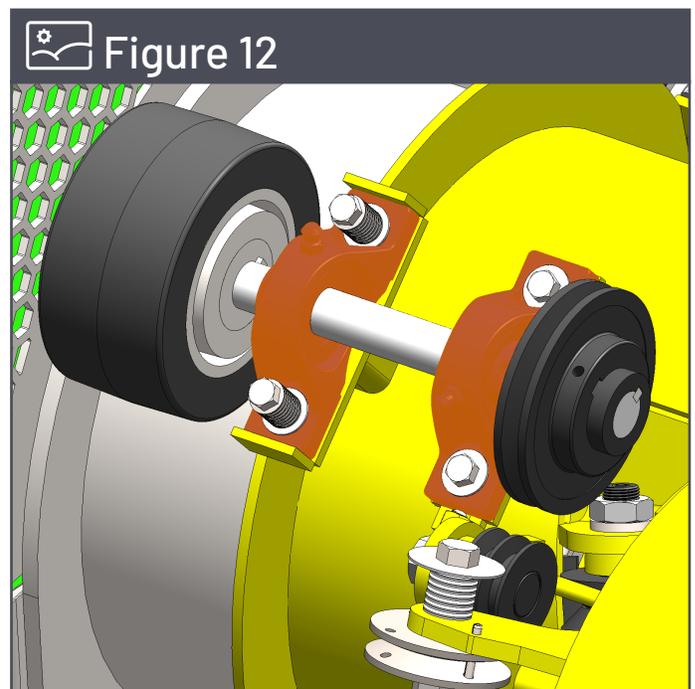
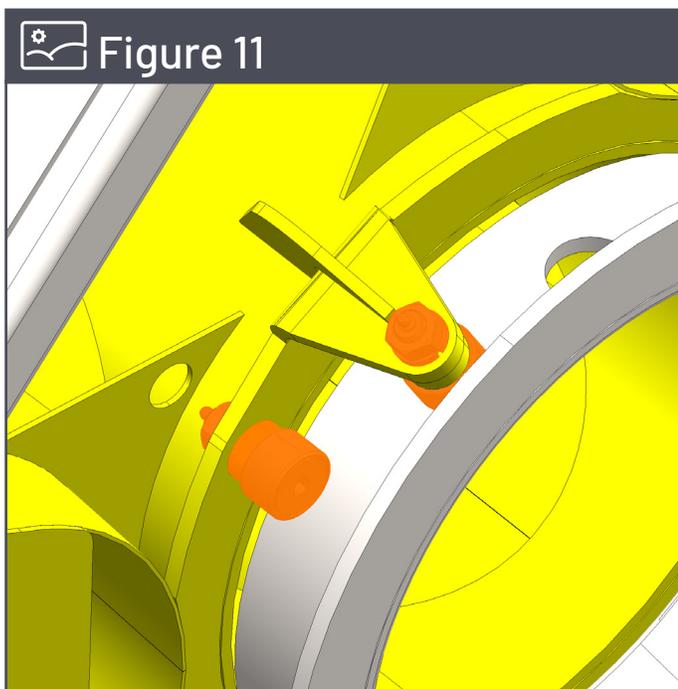
VelociWrapper cannot guarantee that twine purchased elsewhere will operate the machine correctly. Purchasing twine from VelociWrapper is recommended but not required.

# Maintenance

Proper and regular maintenance is crucial to ensuring the life of your VelociWrapper and to minimize downtime and potential failures.

## Daily Maintenance Items:

- Grease carriage and thrust roller bearings - Quantity of six [Figure 11]
- Grease drive shaft bearings - Quantity of six [Figure 12]



### **i** Note

General purpose grease should be used for greasing roller and drive shaft bearings.

## Monthly Maintenance Items (Refer to adjustments section on page 17):

- Check tensioner spring tension
- Check drive wheel slip

# Adjustments

The VelociWrapper comes with everything factory-adjusted for most common wrapping applications. However, if you desire to change the twine tension, or if the machine has been disassembled and reassembled, there are two adjustments to be made:

## Twine Tensioner:

Twine comes out of the twine bin very easily. For the machine to operate correctly, the twine must grip the drive pulley. The tensioner is what facilitates this.

To adjust the tensioner, tighten the bolt [Figure 13] until it is just tight enough to not rattle. This is usually around 1" - 1-1/16". However, this may change as the springs wear and can even be different when new because of the characteristics of the spring washers.



## WARNING

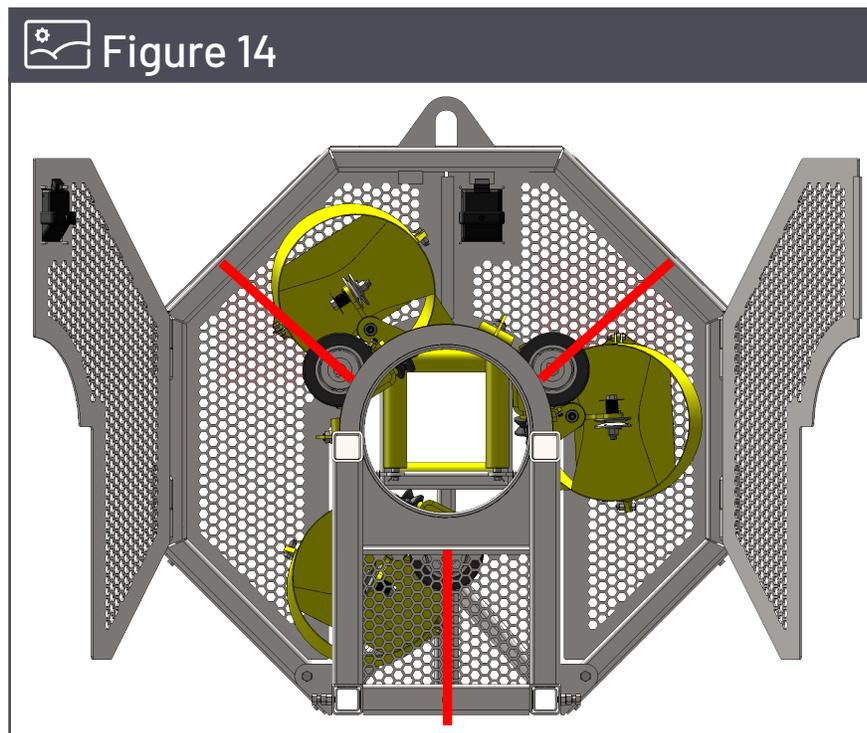
If the tensioner is tightened too tightly, it may prevent the twine from sliding to the bottom of the tensioner which can result in no tension at all on the twine. This can also cause the twine to plug up in the pulley when stopping, causing it to break or otherwise cause problems if not re-threaded before starting again.

# Adjustments (continued)

## Drive Wheel Slip:

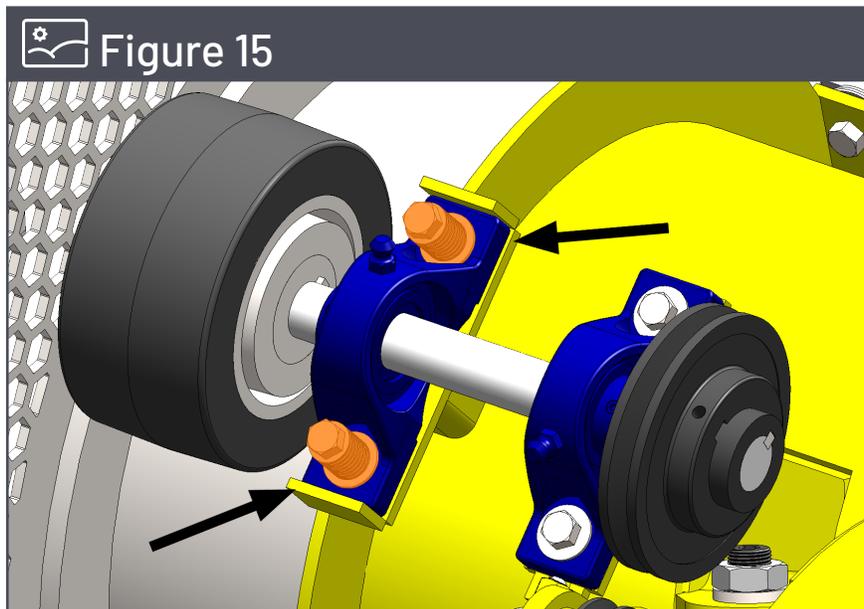
There is one drive wheel with spring-loaded bolts that adjusts the grip of all three drive rollers. This spring system also works as a clutch, slipping the wheel when abrupt force is applied to the twine to ease stress on the components.

To correctly adjust the drive roller slip, rotate the carriage until there is one drive roller on the bottom [Figure 14].



# Adjustments (continued)

Tighten or loosen both spring-loaded bolts [Figure 15] equally, until the bottom roller can rotate by hand with some effort. If the roller cannot slip, the spring-loaded bolts are too tight. If it rotates freely, they are too loose.



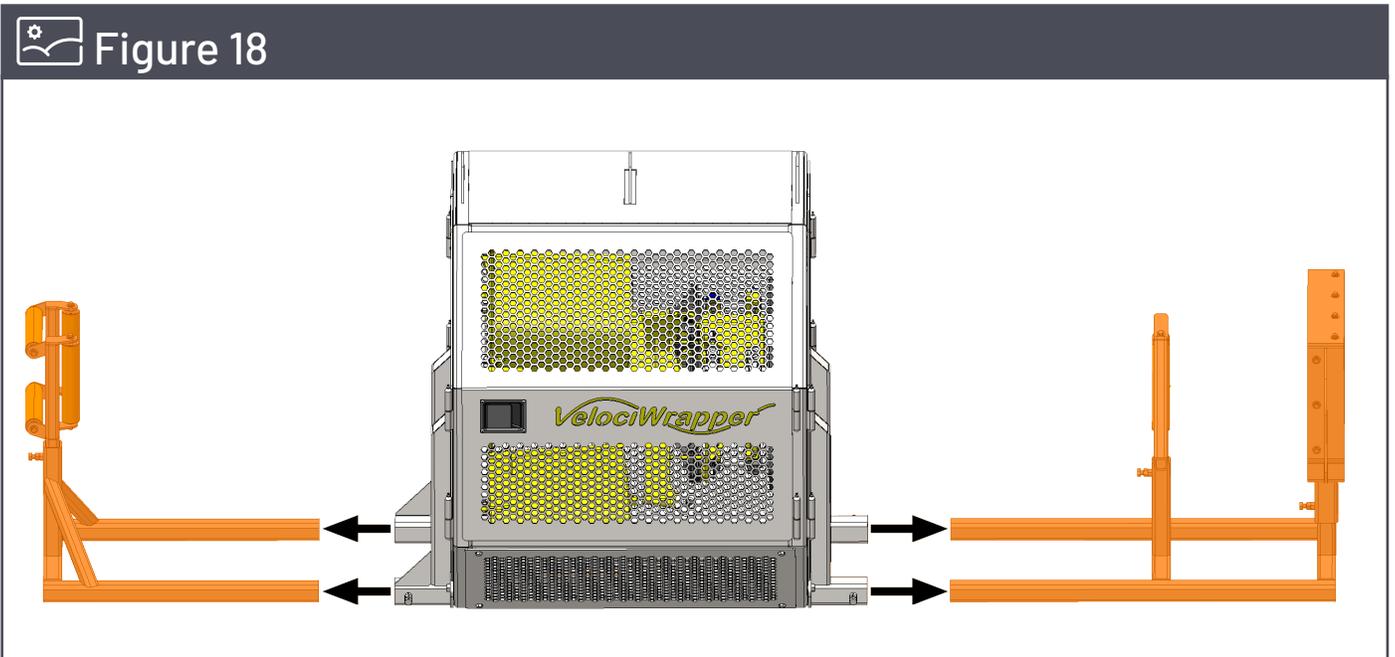
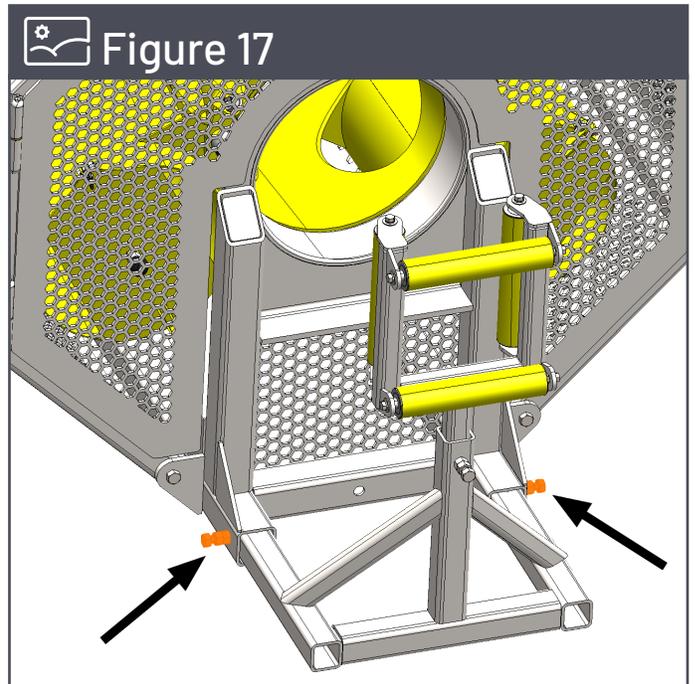
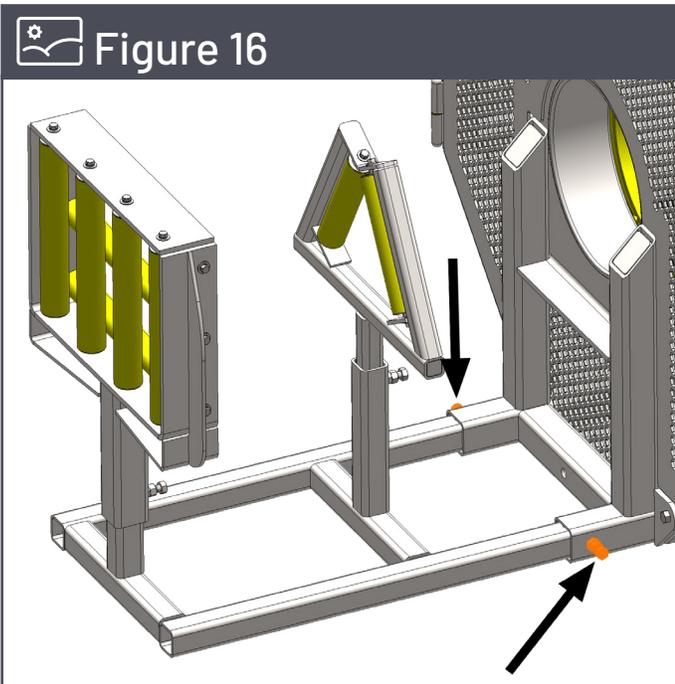
## DANGER

Personal injury can occur if fingers are pinched underneath the drive wheel. Avoid pinch areas when testing the drive wheel friction.

# Disassembly

## Roller Mount Frames:

Loosen 1/2" friction bolts [Figure 16][ Figure 17], and remove roller mount frames by sliding out.[Figure 18]



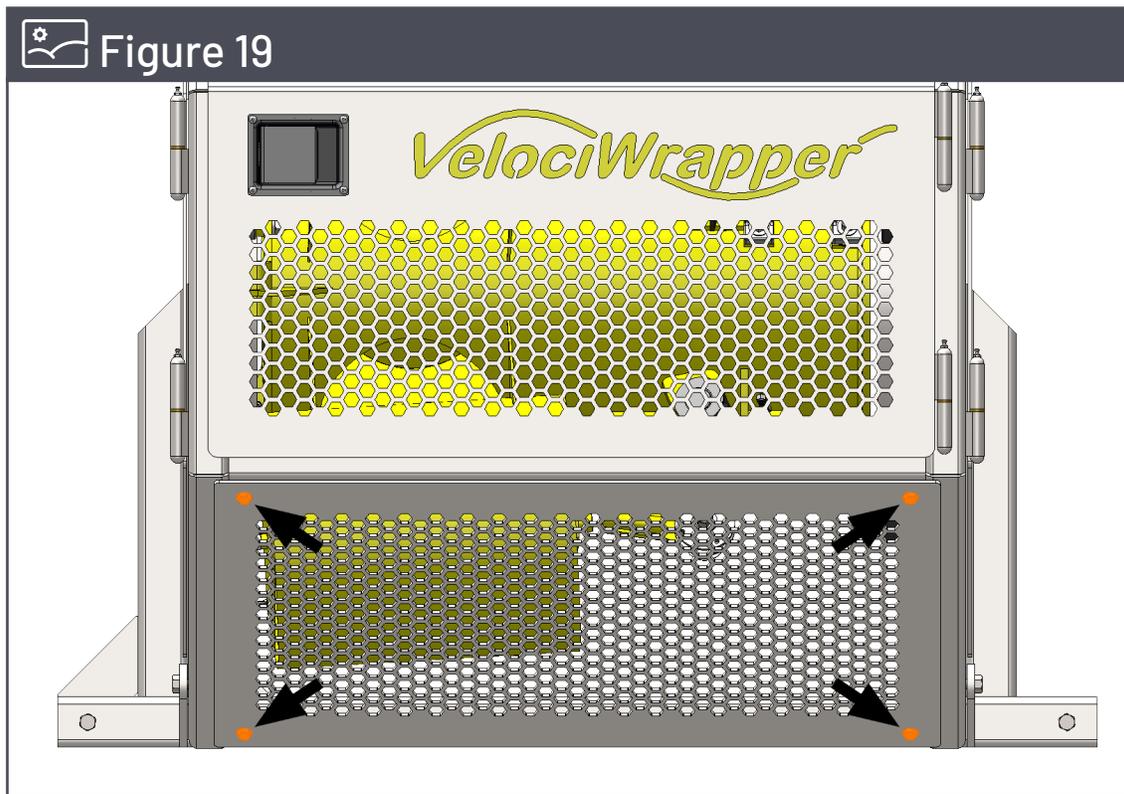
# Disassembly (continued)

## **Note**

You may want to add a mark to the roller frames to show how far they are extended before removing them. This will aid in the reassembly process.

## **Wrapper Cage:**

Remove lower guards, by removing four bolts out of each [Figure 19].



Doors may either be removed or closed, as desired, for easier handling. Attach forklift or crane to the lifting eyes on the top of the cage as shown in [Figure 21].

Remove the four frame attachment bolts [Figure 20]. Lift straight up, rotating carriage, as needed, to keep it clear from contacting the cage frame. [Figure 21]

# Disassembly (continued)

 Figure 20

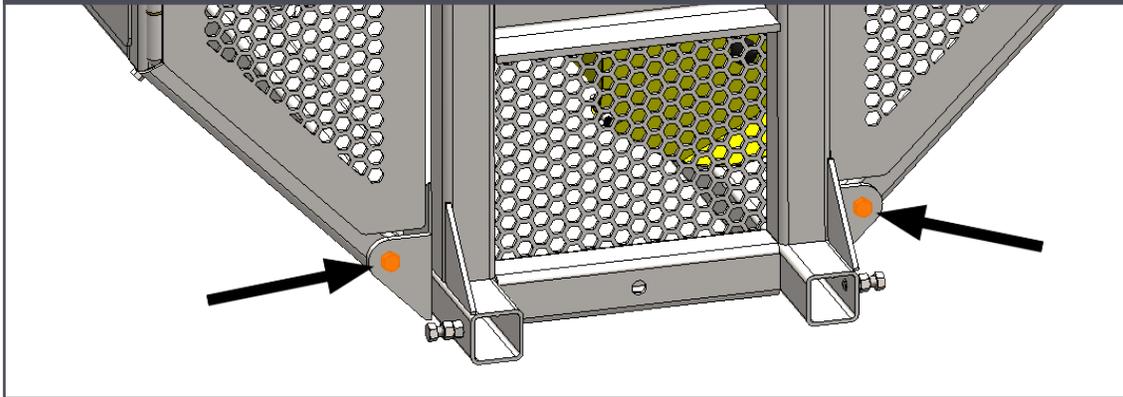
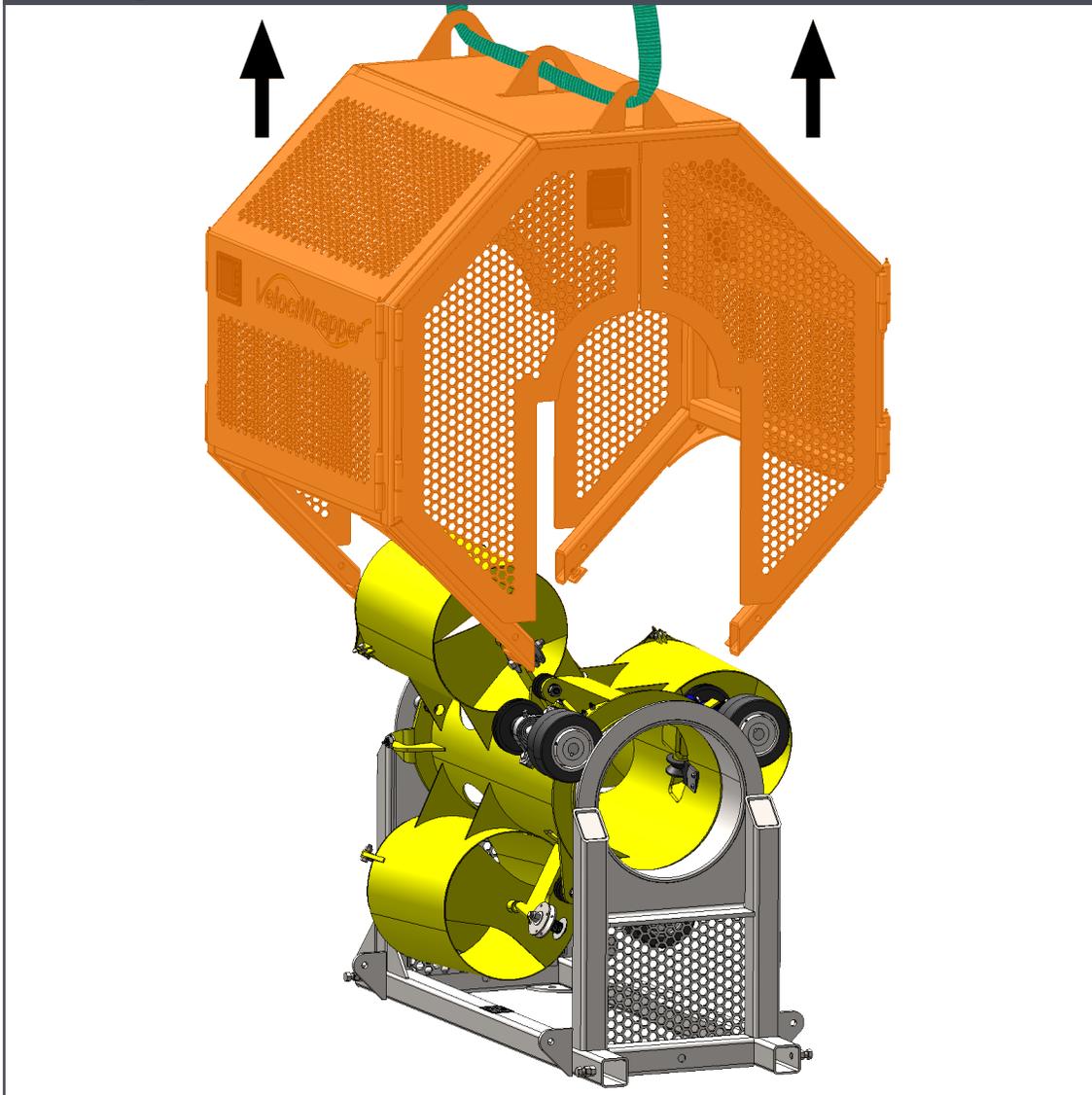


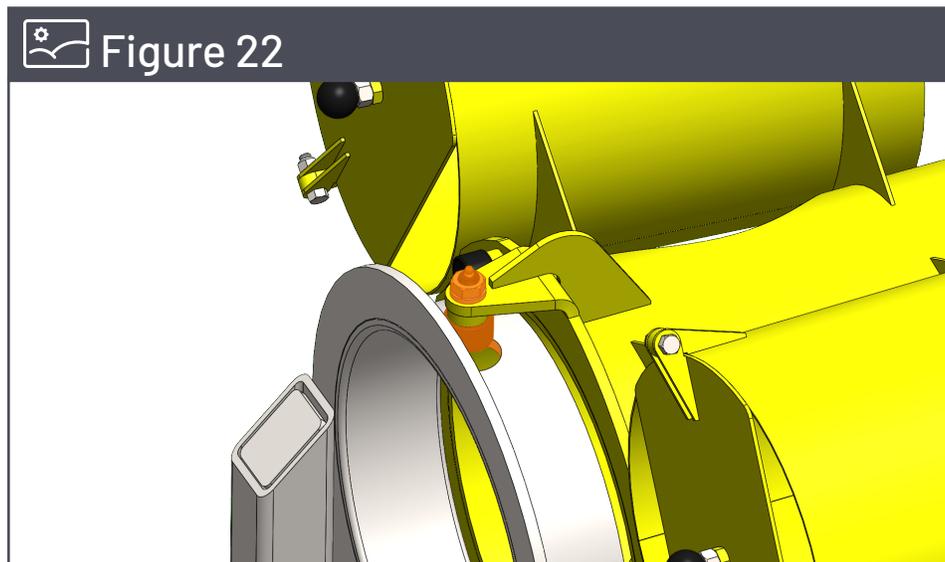
 Figure 21



## Disassembly (continued)

Remove two of the thrust rollers from the carriage. The remaining thrust roller may be left in place if you are not replacing this roller.

To remove the thrust rollers, rotate the carriage so the thrust roller being removed is on top and insert a 5/16" allen key through the hole in the pipe race to hold the roller while removing the nut. [Figure 22]

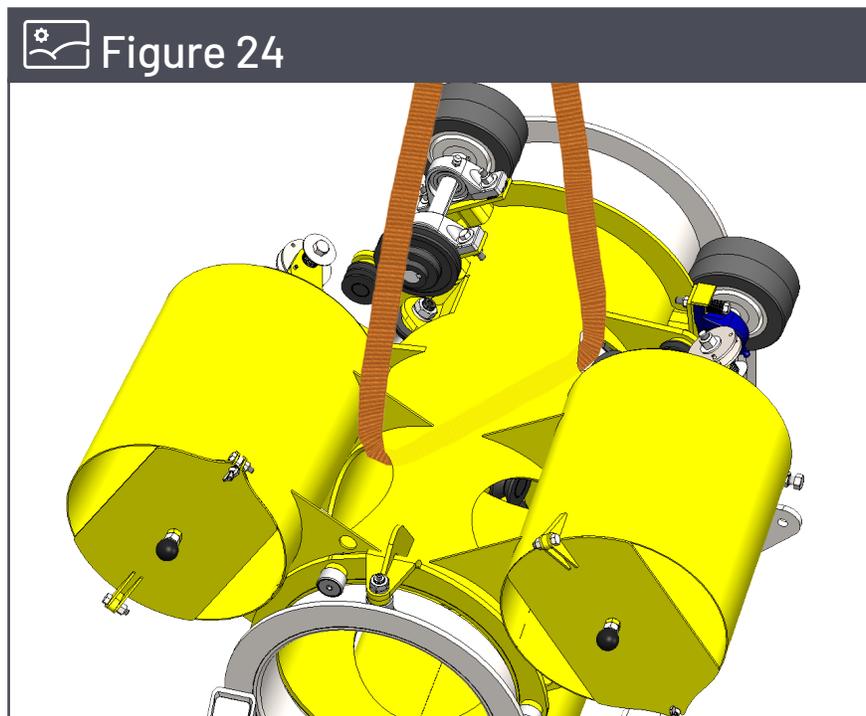


Rotate the carriage so the remaining thrust roller is located at the top of the carriage as shown in [Figure 23].



# Disassembly (continued)

Using a strap, connect a forklift or crane to the carriage, as shown in [Figure 24], and lift until the strap is almost tight, being careful to not lift on the carriage yet.



## DANGER

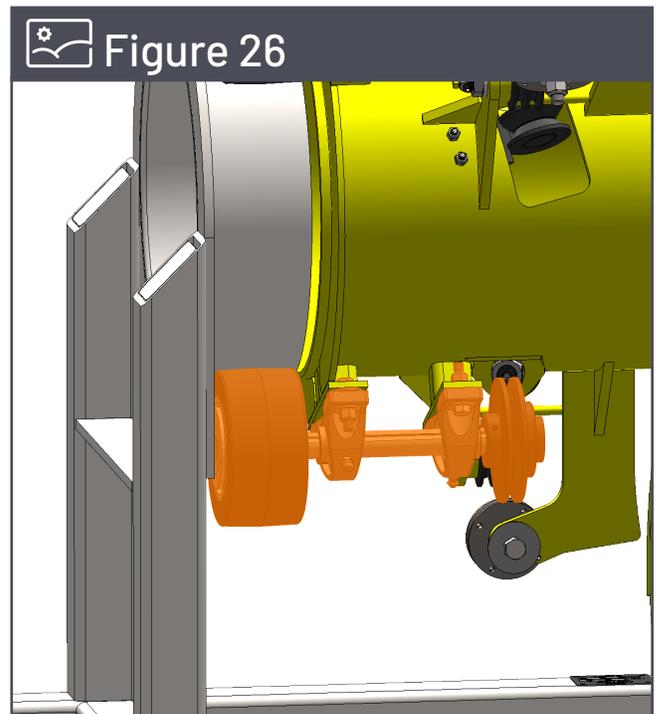
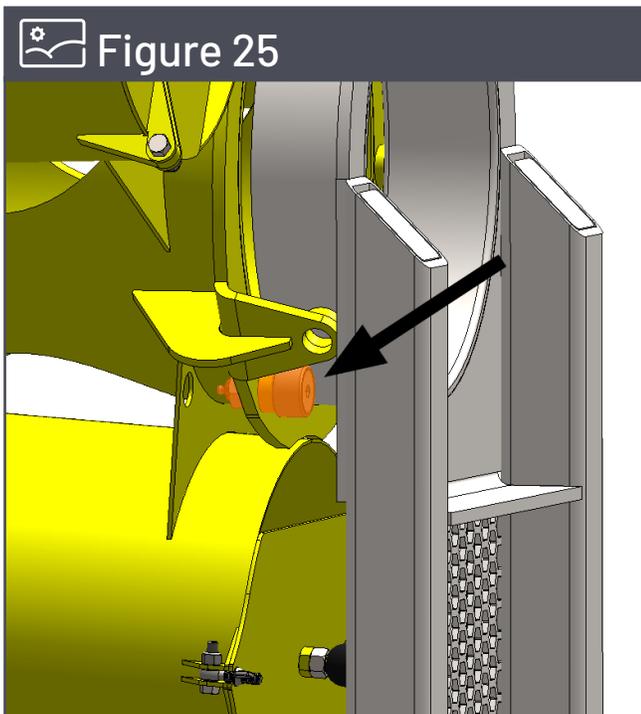
Serious injury and even death can occur if the straps are not secure when lifting the carriage or cage. Ensure that straps are rated for the lifting weight and are secured before lifting the any components.

## DANGER

Injury can occur if limbs are caught between the cage and the carriage when lifting the cage off. Keep limbs clear.

# Disassembly (continued)

Remove the carriage roller [Figure 25] and the drive wheel/pulley assembly [Figure 26] closest to the bottom of the carriage.

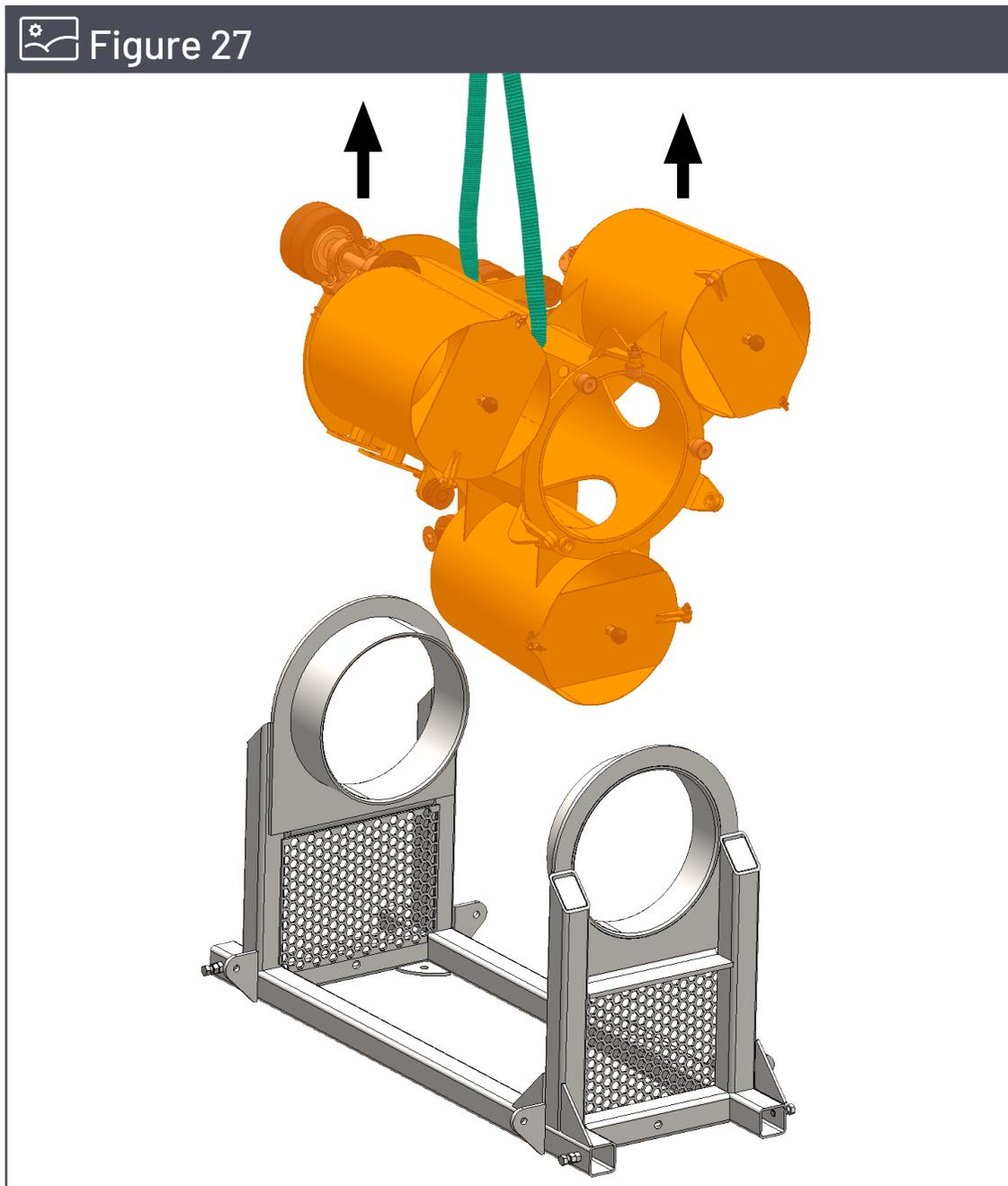


## DANGER

When removing rollers and drive wheels, ensure the strap(s) (page 24) holding the carriage are tight to keep the carriage from rotating or rolling off. Failure to do so may result in serious injury or even death.

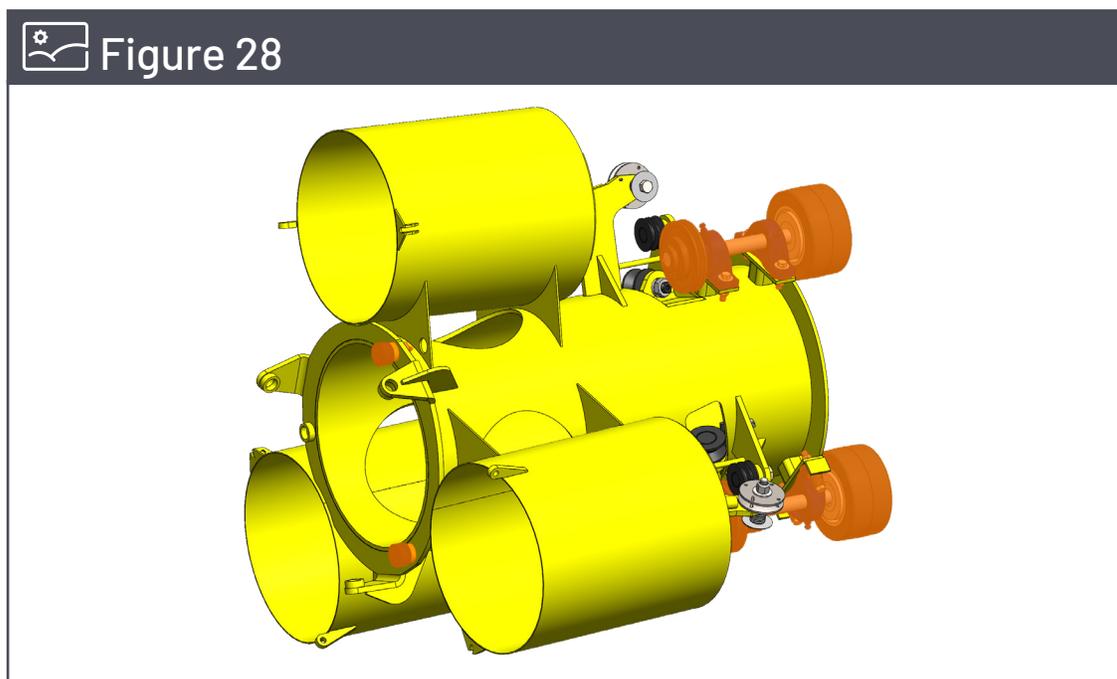
# Disassembly (continued)

Carefully lift the carriage straight up, keeping it level and rocking it slightly to prevent it from binding on the pipe races. [Figure 27]

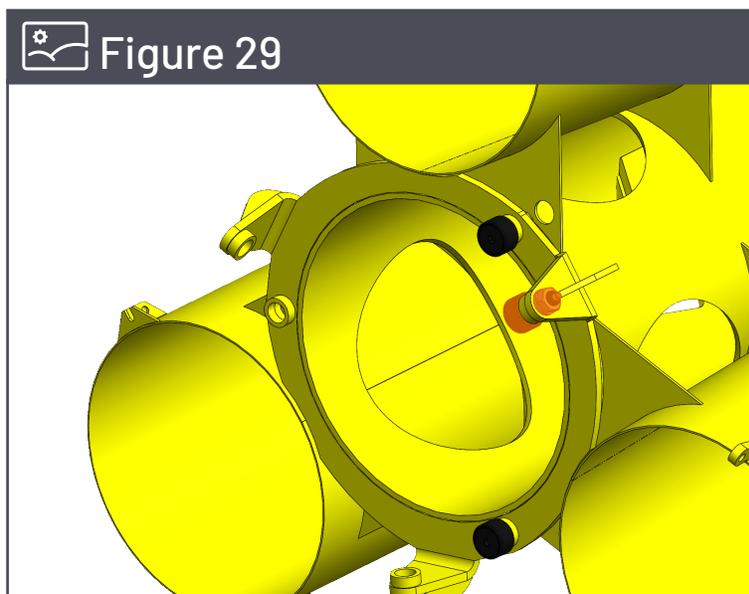


# Reassembly

Install the components for two drive wheels, rollers, shafts, etc., and two carriage rollers. Ensure the installed components are all on the same side of the carriage as shown in [Figure 28].

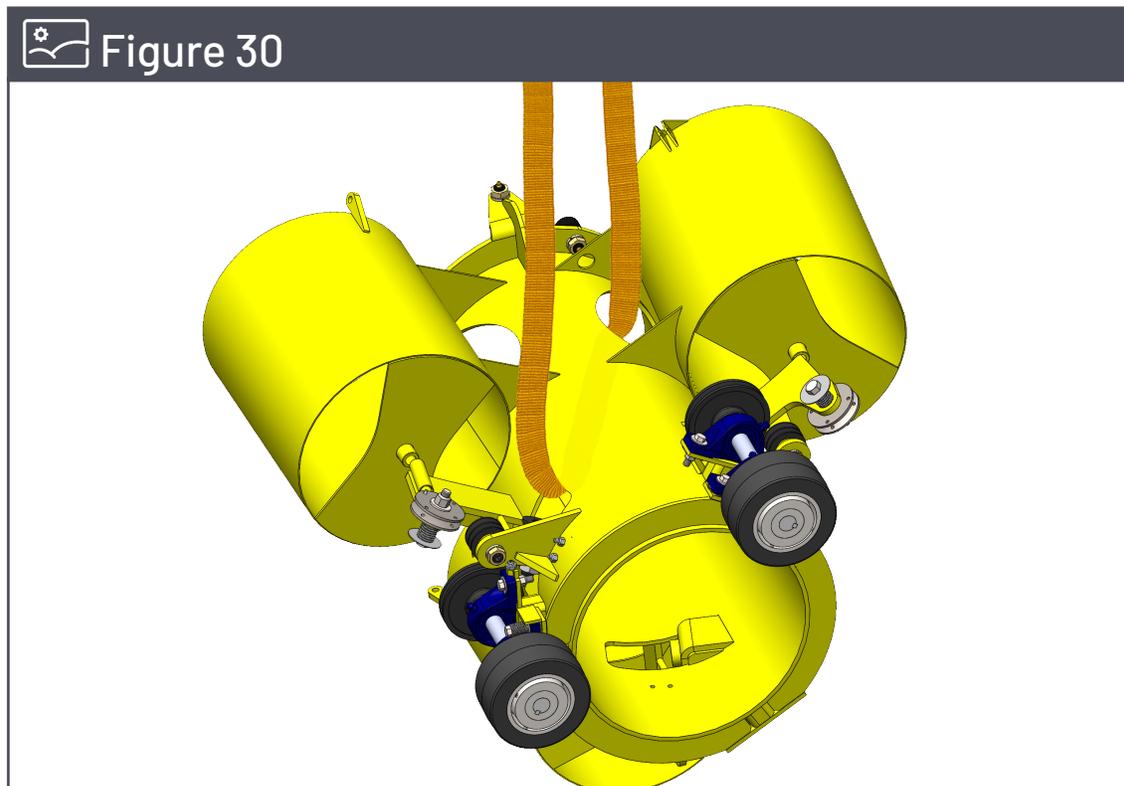


If there is a thrust roller installed, it must be between the two installed carriage rollers as shown in [Figure 29].



# Reassembly (continued)

Attach forklift or crane, with a strap routed through the holes in the carriage as shown in [Figure 30].

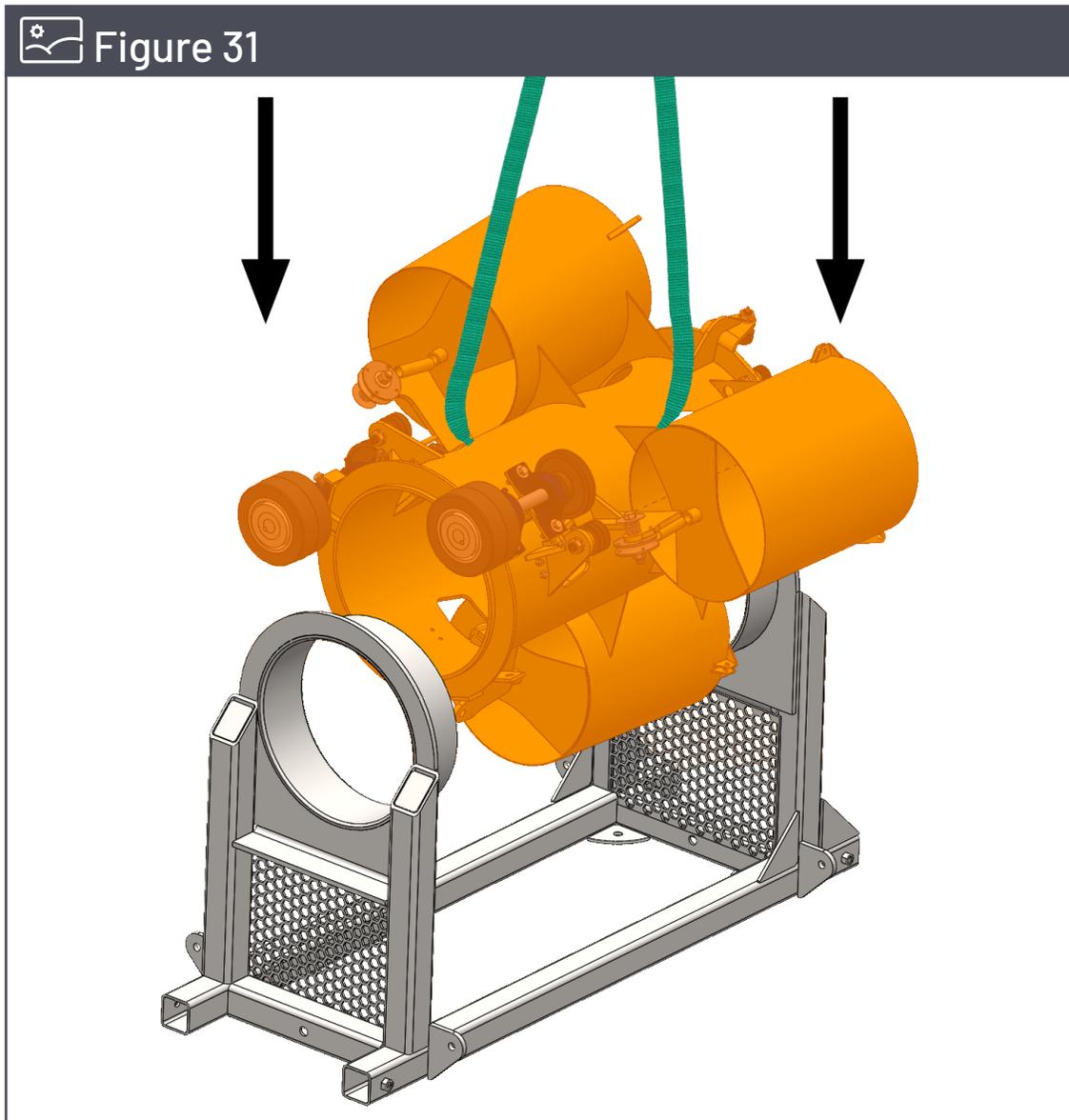


Carefully lower the carriage into the chassis frame with the drive wheels towards longer pipe race and the carriage and thrust rollers towards the shorter pipe race with hole in the top. [Figure 31]

## **i** Note

When lowering the carriage into the chassis frame, rock it back and forth and make sure to keep it level to prevent it from binding on the pipe races.

# Reassembly (continued)



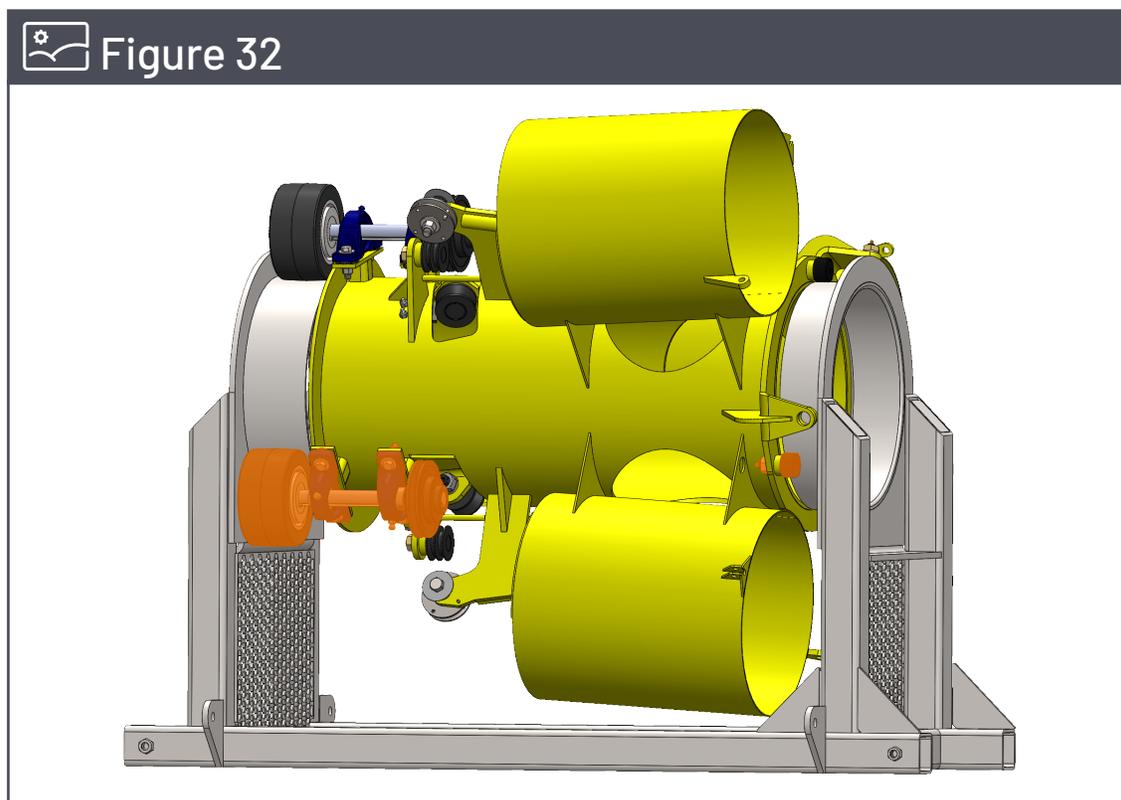
## DANGER

When lowering the carriage, keep limbs away from pinch points between the carriage and chassis frame. Failure to do so can result in injury.

# Reassembly (continued)

When the rollers contact the pipe races, stop lowering the carriage but leave the strap and forklift/crane attached to hold it in place and prevent it from rotating until the bottom rollers are installed.

Install the lower carriage roller and drive wheel assembly, making sure to use the shims or springs that were removed with it. [Figure 32]

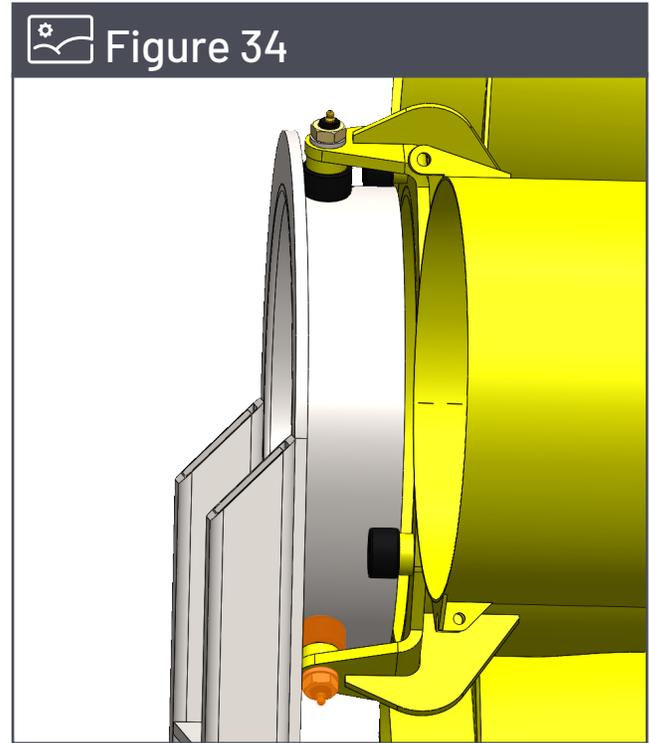
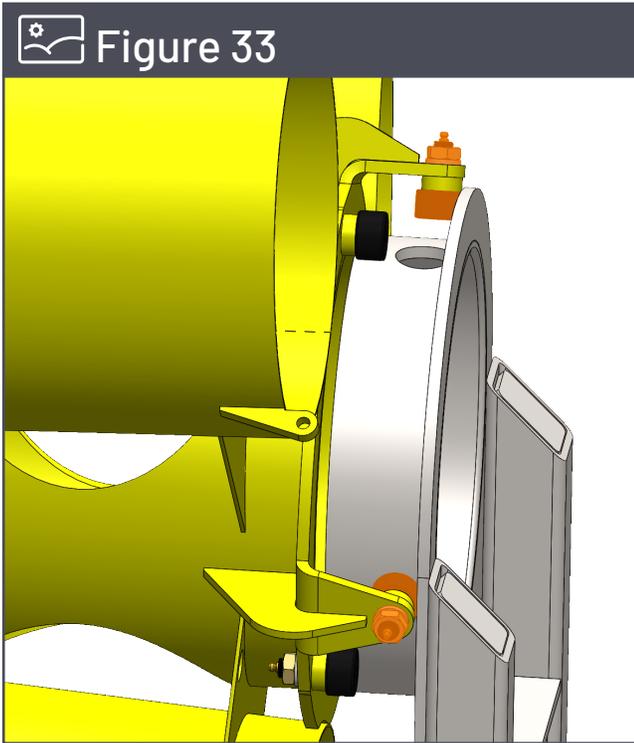


## DANGER

It is important to keep the strap tight, or use a device to keep the carriage from rotating while installing the bottom rollers. Failure to do so may result in the carriage rolling off, which can cause serious injury or even death!

# Reassembly (continued)

Install the three thrust rollers. [Figure 33] [Figure 34]



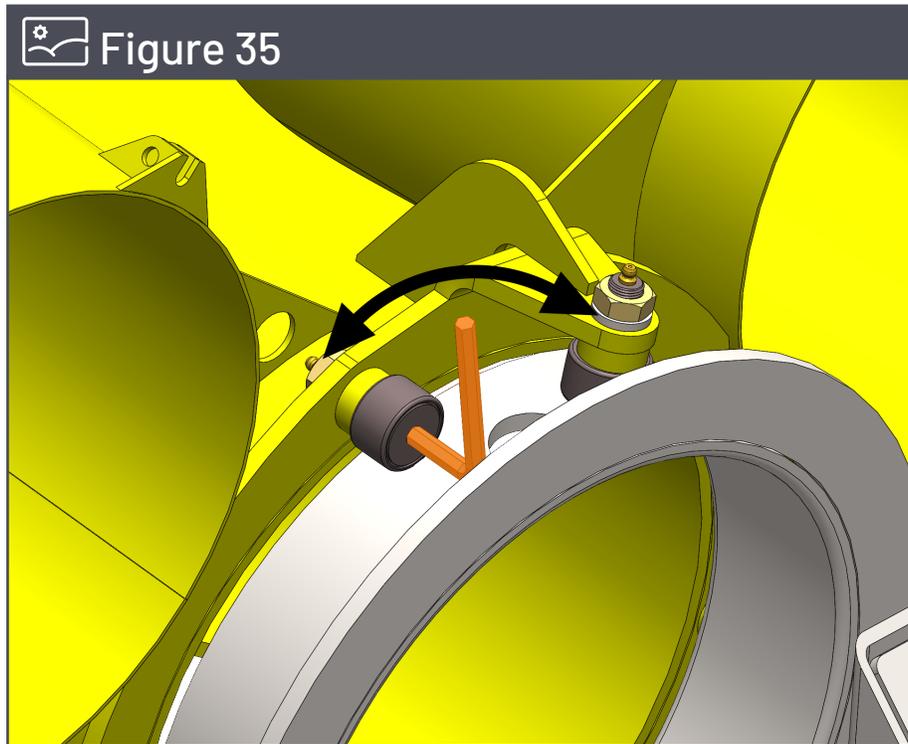
## DANGER

Failure to ensure all rollers are installed, properly tightened and adjusted, can result in damage to the machine and/or personal injury.

# Reassembly (continued)

## Cam Roller Adjustment:

The thrust rollers and carriage rollers (same part number) are provided with an eccentric collar that makes the roller adjustable in and out using a 5/16" allen key as shown in [Figure 35].



Install the roller with the nut loose, using the allen key, rotate the roller and it will move either in or out, depending on the orientation. You can turn the roller until it stops moving in/out and begins to move in the other direction. When it reaches the desired adjustment, hold the roller head with the allen key while tightening the nut.

### **i** Note

The correct adjustment for the carriage rollers is when there is little to no slop and the carriage rotates freely with no tight points where friction increases momentarily.

# Reassembly (continued)

## Note

It is recommended to have all the carriage and thrust rollers somewhere near the same adjustment point. When the rollers are adjusted correctly, the carriage will be concentrically centered on the pipe races and the thrust rollers will contact the roller race flange as uniformly as possible as the carriage is rotated.

## Chassis Cage:

Reverse the disassembly instructions (Page 21 and 22), except with the end doors either removed or open to reduce the interference and damage with the roller race flanges, making sure that the side door latches are on the same end of the machine as the twine bins. Install the four cage bolts and tighten (Page 22). Install the lower guards with four bolts each (page 21).

## DANGER

Ensure that all bolts and nuts are tight before beginning operations with the machine. Failure to do so can result in damage to the machine and/or personal injury or death.

# Reassembly (continued)

## Roller Frames:

Insert each frame and each roller into their respective locations and adjust to desired length and height [Figure 36]. Tighten the friction bolts and jamb nuts.



### **i** Note

If the roller frames and mounts were marked before disassembly, they can be inserted to the mark and tightened to be adjusted to the point they were before disassembly. This is recommended to speed up the assembly process.

### **i** Note

For detailed instructions on inserting and adjusting the roller frames and mounts, refer to pages 3-6.

### **i** Note

After assembly, refer to the twine replacement/threading section (pages 13-15).

# Storage

## **VelociWrapper:**

If your VelociWrapper is stored for an extended period of time, it is recommended to store it out of direct sunlight. Direct sunlight for extended periods may be harmful to some components including, but not limited to, the rubber drive wheels and twine in the machine.

## **Twine:**

Most destructive to the twine is UV rays. Store twine inside or under a tarp or other protective layer to avoid weakening the twine which can cause it to break rather than turning the machine.



Keep this manual with the machine at all times. A manual holder is provided inside the machine on the underside of the top plate.



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