

# Installation, Operation, & Maintenance Manual



**IMPORTANT! DO  
NOT DESTROY**

## Fixed & Adjustable Height Steel Gantry Cranes

Gorbel® Customer Order No. / Serial No. \_\_\_\_\_

Gorbel® Dealer \_\_\_\_\_

Date \_\_\_\_\_  
Month \_\_\_\_\_ Year \_\_\_\_\_

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**Questions? Concerns? Comments? Please call (314) 869-7200.**

# INTRODUCTION

Thank you for choosing a Gorbel® Gantry Crane to solve your material handling needs. The innovative design and heavy-duty construction of Gorbel® Fixed Gantry Cranes will provide a superior quality product. All Gorbel® cranes are pre-engineered for powered hoist operation. The hoist weight allowance is 15% of the crane capacity (for example, a crane rated for 1000 pounds, allows for a 1000-pound live load plus 150 pounds for the weight of the hoist). There is also an allowance of 25% of the crane capacity for impact caused by hoist use. Gorbel® Gantry Cranes will provide many years of dependable service by following the installation and maintenance procedures described herein.

***Dimensions contained in this installation manual are for reference only and may differ for your particular application. Please refer to the enclosed General Arrangement Drawing for actual dimensions.***

**Normal safety precautions:** These include, but are not limited to:

- Checking for obstructions in crane travel
- Checking that all bolts are tight and have lockwashers
- Making sure that festooning cannot be snagged or pinched, whether it is electric or pneumatic
- Checking for any other unsafe conditions
- For additional safety precautions, see page 10.

## WARNING

Read all instructions in this manual before assembling or using this equipment.

## WARNING

**NEVER** exceed the rated capacity of the crane.

## WARNING

A load should be moved from one point to another by moving the trolley back and forth along the Gantry I-beam, while the Gantry Crane itself is stationary. Use **EXTREME CAUTION** and **CENTER THE LOAD ON THE I-BEAM** when attempting to horizontally move a load by moving the entire Gantry Crane. See additional instructions on Page 10.

## WARNING

**NEVER** leave a suspended load unattended or walk under a suspended load. The equipment must be operated from a position that will not be hazardous to the operator.

## WARNING

Gantry Crane should be used on a level, flat, smooth surface which is free of defects and obstructions.

## WARNING

Gantry Crane should not be moved by pushing or pulling on load.

## WARNING

Crane cannot be utilized as a ground: A separate ground wire is required. For example, systems with 3-phase power require three conductors plus one ground wire.

## WARNING

Equipment described herein is not designed for, and should not be used for, lifting, supporting or transporting humans. Failure to comply with any one of the limitations noted herein can result in serious bodily injury and/or property damage. Check State and Local regulations for any additional requirements.

## WARNING

Reference the American Institute of Steel Construction (AISC) Steel Construction Manual, Specification for Structural Joints using ASTM A325 or A490 Bolts, for the proper procedures to follow when using any torque tightening method.

## INSTALLATION

### STEP 1 - PRE-ASSEMBLY

➡ **TIP:** Packing list can be found in plastic pocket inside hardware box: General Arrangement Drawing can be found inserted in this installation manual.

- 1.1 Check packing list to make sure correct quantity of parts is included. Review supplied hardware sizes for proper tool selection.

Bolt Dia.	Tool Size	Torque
3/8"	9/16"	30 ft.-lbs.
1/2"	3/4"	60 ft.-lbs.
5/8"	15/16"	110 ft.-lbs.
3/4"	1-1/8"	200 ft.-lbs.

Chart 1. Torque Chart.

- 1.2 Tools and materials (by others) typically needed to assemble crane are as follows:
- Ladders/man lifts
  - Spud Wrench
  - Mallet
  - Shop brush
  - Torque wrench
  - Tape measure, combination wrenches, socket sets
  - Lifting sling (rated for 4000 lbs. capacity minimum)
  - Lifting device to lift heavy Gantry Crane components
  - Leveling tools
  - Safety equipment (hard hats, barricades, etc.)

### STEP 2 – BLOCKING AND BOOM TO VERTICAL SUPPORT WELDMENTS CONN.

- 2.1 Assemble your Gantry Crane in a clear area free of obstructions (refer to enclosed **General Arrangement Drawing** for overall size, other relevant dimensions and hardware locations).
- 2.2 Layout and block up Gantry (as shown in **Diagram 2A**). Block up high enough to install trolley and (optional) Tag Line Bracket and to facilitate hardware installation.

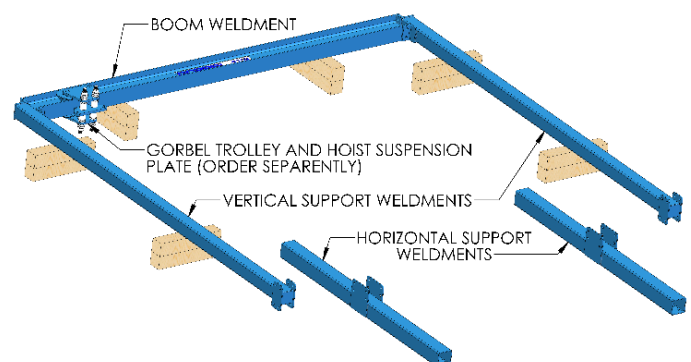
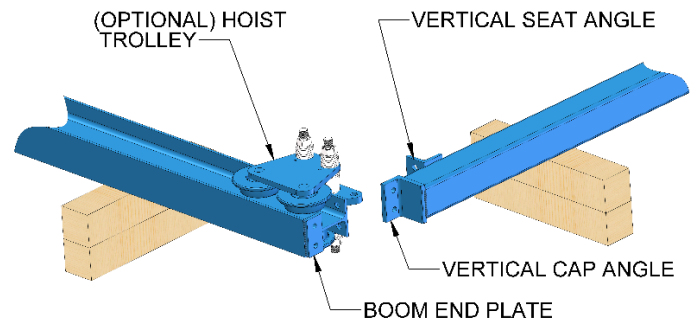


Diagram 2A. Gantry Weldments

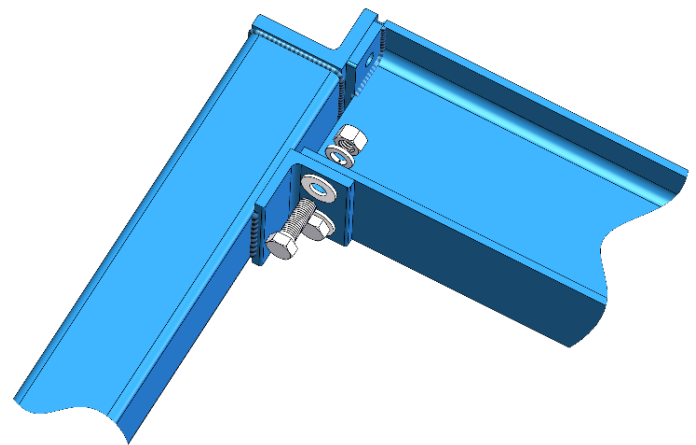
**TIP:** For easiest installation, install trolley while Boom is on its side. To order hoist and trolley (ordered separately), select Jib for Crane Type, enter Height under Boom and enter the Beam Size of the Gantry found on the **General Arrangement Drawing**.

- 2.3** Install hoist or hoist trolley onto wide flange beam per instructions supplied with trolley (as shown in **Diagram 2B**). If wheels **will** clear Boom End Plate, Trolley may be bench assembled with Suspension Plate and adjusted for the beam width. If Trolley Wheels **will not** pass by Boom End Plate, Trolley halves will need to be assembled on beam..



**Diagram 2B.** Trolley Installation.

- 2.4** Align Boom and Vertical Support Weldment connection holes. Install Boom/Vertical Seat Hardware (as shown in **Diagram 2C**). Seat hardware may consist of two or four bolts per weldment. Snug tighten. Torque tightening will be done after the connection is checked for squareness. To protect coating, only torque head or nut on flat washer. Split lock washer side should remain stationary. Repeat for other Vertical Support Weldment.

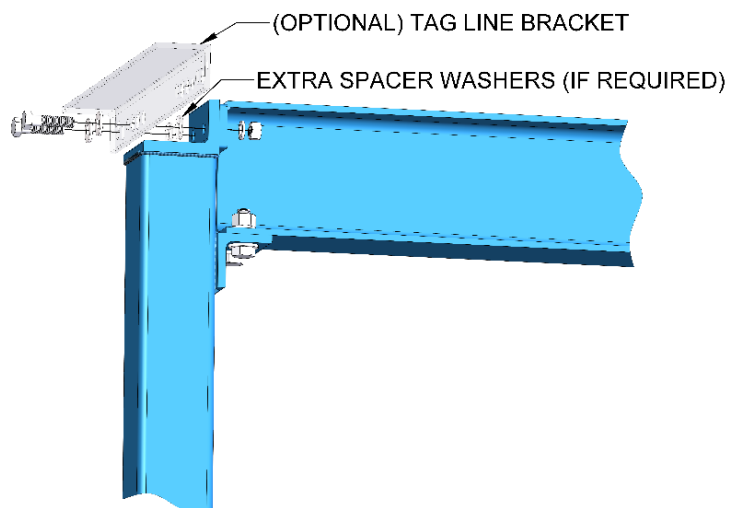


**Diagram 2C.** Boom/Vertical Seat Hardware.

**TIP:** Use Spud wrench to align first holes

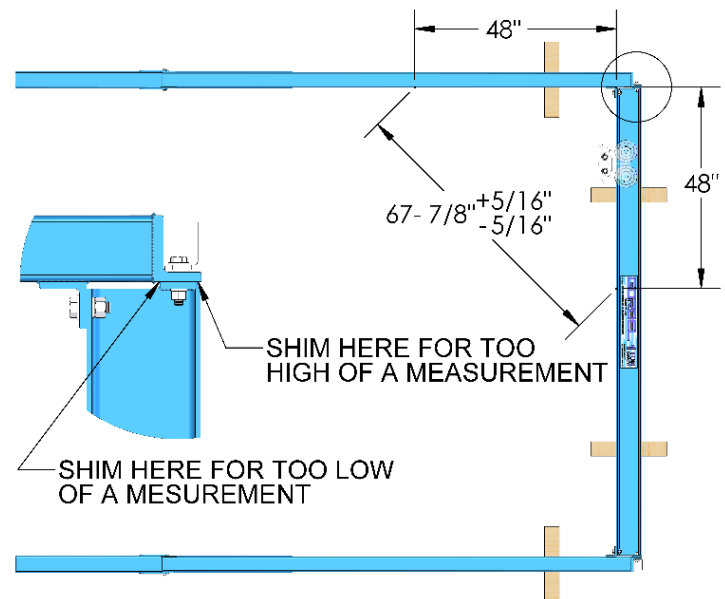
- 2.5** Install Boom End Plate/Vertical Cap Hardware (as shown in **Diagram 2D**). If Tag Line Option was ordered, install Tag Line Bracket using Boom End Plate/Vertical Cap Hardware. Note, Tag Line Bracket has additional holes for use with multiple configurations, align appropriate holes for this connection. Some holes in bracket may be oversized. Extra Washers may be required to prevent interference of Tag Line Bracket with corner radius of Vertical Cap Angle. Snug tighten hardware. Verify mating surfaces are making full contact. Repeat for other Vertical

Support Weldment.



**Diagram 2D.** Boom End Plate/Vertical Cap Hardware.

- 2.6** Check connections for squareness. Locate a point on the inside of the Vertical Tube 48 inches below the bottom of the Boom. Locate a point on the bottom of the Boom 48 inches from the Vertical Tube. Measure the distance between these points. If it measures outside of the range (as shown in **Diagram 2E**), shimming is required. If shimming is needed, loosen hardware and place an appropriate shim (provided by others) between the Boom End Plate and the Vertical Cap Angle either on top or on bottom (see **Diagram 2E**). Tighten hardware and re-measure. Repeat for the other Support.



**Diagram 2E.** Squaring Connection.

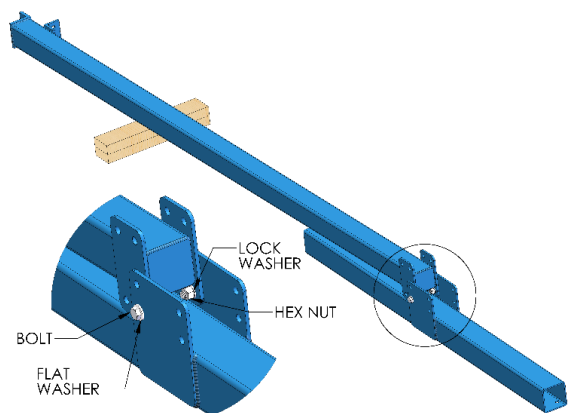
- 2.7** Tighten all Boom to Vertical Support hardware (refer to **Chart 1**, on page 2, for proper torque rating).

## WARNING

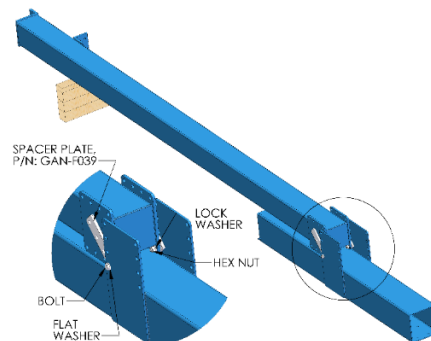
Do not place body parts where they can be pinched by mating connection plates or between vertical supports, horizontal supports and boom.

## STEP 3 –SUPPORT WELDMENTS PIVOT CONNECTION

- 3.1** Use protective material between floor and Horizontal Support Weldments and also between Horizontal and Vertical Support Tubes to protect the paint coating
- 3.2** Carefully position Vertical Support Weldment Connection Plates between Horizontal Support Connection Plates using appropriate rigging (straps/slings are preferred to reduce paint damage). Align lowest Connection Plate holes on one side and assemble hardware (as shown in **Diagram 2B**). Do not tighten this hardware until Step 4 when remaining Connection Plate hardware is installed. For tall 5 Ton Gantries with a 10" Horizontal Tube, Spacer Plates, GAN-F039, are part of this assembly (see **Diagram 2C**). Repeat with the other Support Weldment.



**Diagram 3A.** Pivot Connection.



**Diagram 3B.** Large Pivot Connection.



## STEP 4 – PIVOT GANTRY AND COMPLETE SUPPORT CONNECTIONS

- 4.1** Carefully and safely, by means of rigging that is sized and oriented correctly for raising the load and by means of an overhead lifting device or lift truck, lift and rotate the Boom and the Vertical Supports by pivoting on the Horizontal Supports (as shown in **Diagram 4A**).

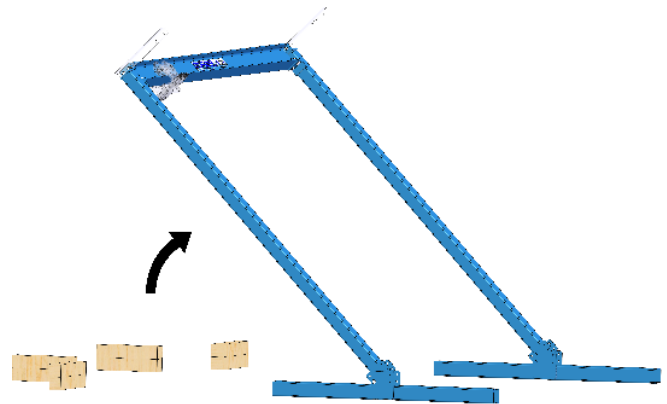


Diagram 4A. Pivoting Gantry.

### WARNING

Ensure that NO ONE is standing near or in the vicinity of the crane while it is being erected.

### WARNING

Ensure there are no other obstructions that might hinder the crane from being erected.

- 4.2** Align remaining holes in the Vertical and Horizontal Connection Plates and install hardware (and spacer plates if required) (as shown in **Diagram 4B**). Connection Plates may have 4, 6 or 8 holes. Install hardware in all the Connection Plate holes. Loosely tighten.
- 4.3** Using a level, vertically align Vertical Support Tubes and tighten all Connection Plate hardware (refer to **Chart 1**, on page 2, for proper torque rating).

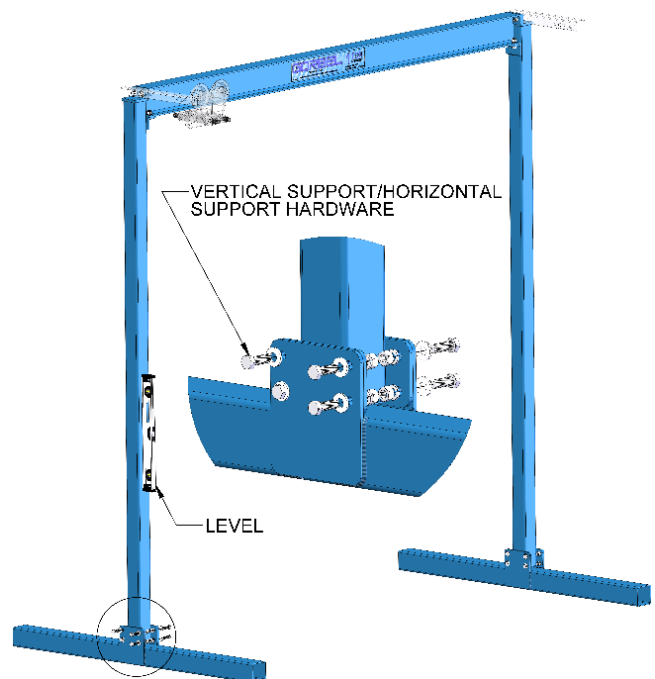


Diagram 4B. Vertical/Horizontal Connection.

## STEP 5 - CASTER TO HORIZONTAL SUPPORT CONNECTIONS

- 5.1 Raise Gantry and block up under Horizontal Tubes (as shown in **Diagram 5A**).
- 5.2 Install Casters and 4-Position Swivel Locks with supplied hardware (as shown in **Diagram 5B**) and snug tighten. Flat Washers must be installed over slotted holes. 4-Position Swivel Locks are standard and are to be used to facilitate movement of Gantry while loaded.

TIP: Choose the 2 outer-most slotted holes when mounting the 4PSL. This will ensure that the 4PSL pull ring will be accessible from the outside of the horizontal support tube allowing you to engage or disengage the spring loaded pin from the locking caster slots.

- 5.3 Engage Swivel Lock and check squareness of Caster Wheel relative to the Horizontal Tube in each locked position. Align Caster as required and tighten Hardware (refer to **Chart 1A**, on page 2, for proper torque rating).
- 5.4 Raise Gantry, remove blocking and lower Gantry.
- 5.5 As an alternative, on smaller Gantries, the Casters and Swivel Locks may be installed prior to **Step 3** on the Horizontal Supports. This will avoid **Steps 5.1 and 5.4**. Note, if doing this, more blocking may be required in **Step 2** and in **Step 3**, the Boom may need to be tilted.



Diagram 5A. Gantry on Blocking.

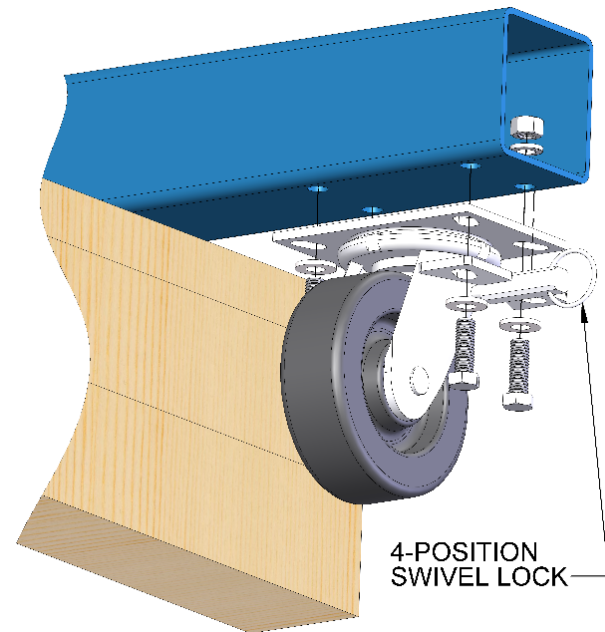
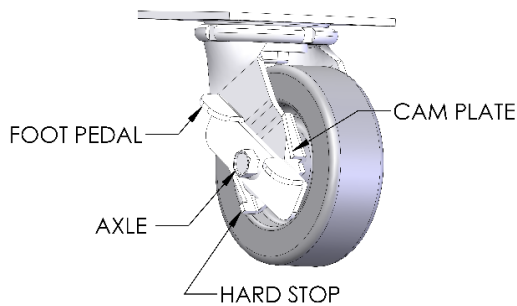
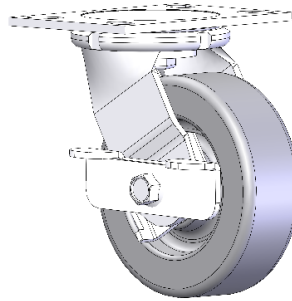


Diagram 5B. Caster and Swivel Lock Hardware.

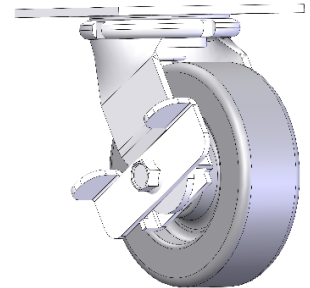
- 5.6** For Casters with Cam Brakes, adjustment may be required to prevent the Foot Pedal from disengaging from the Cam (as shown in Diagram 5C). If the Foot Pedal has come off the Cam, loosen Axle enough to allow Foot Pedal to move on top of the Cam. Tighten axle hardware. Test brake by carefully depressing Foot Pedal until it is horizontal see Diagram 5D). If more braking is required, release brake by pressing opposite foot pedal until it is hard stopped (see Diagram 5E) and further tighten axle hardware.



**Diagram 5C.** Caster Cam Brake Requiring Adjustment.



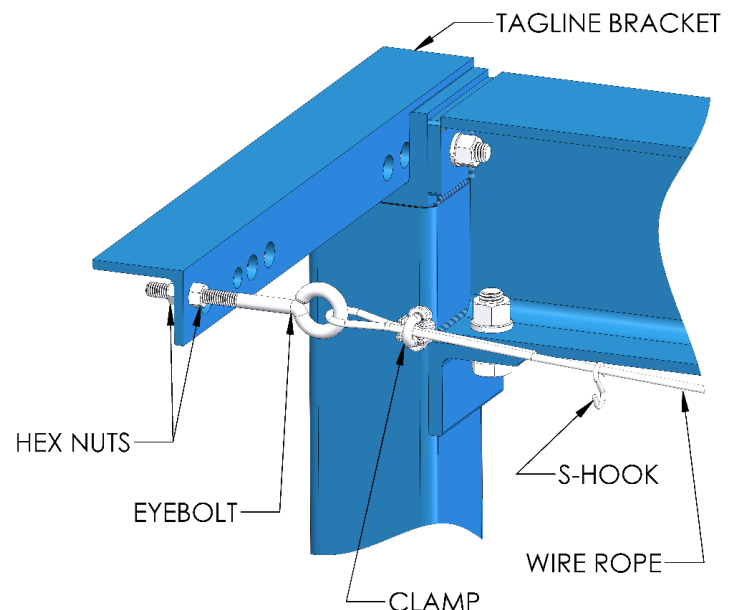
**Diagram 5D.** Caster Cam Brake Properly Engaged.



**Diagram 5E.** Foot Pedal Against Hard Stop, Brake Disengaged.

## STEP 6 – OPTIONAL TAGLINE INSTALLATION

- 6.1** See Step 3 for installation of Tagline Brackets.
- 6.2** Install Eyebolt. Thread wire through eyebolt and loop. Use wire rope clamp to secure wire end back unto wire. Repeat on other end while removing slack in the wire rope.
- 6.3** Tension wire by holding eye of bolt and drawing eyebolt further into bracket. Lock eyebolt in place by tightening hex nuts. Note, do not over tension, wire rope requires some sag in a horizontal line. There should be a minimum of about an inch of sag in for every 10 feet of length.
- 6.4** Attach S-hooks and run festoon cable (by others) through the S-hooks. Squeeze S-hooks to grip cable or hose.
- 6.5** Wire your Gorbel® hoist (purchased separately) per instructions supplied with the hoist.



**Diagram 6.** Tagline Assembly.

## STEP 7 – OPTIONAL BUMPER INSTALLATION

- 7.1 Install Bumpers on Clamps so that bumpers will be facing toward the center of the Beam using 5/16" hardware and tighten.
- 7.2 Loosely position Clamps on Beam in desired location to prevent hoist from impacting the Vertical Support using 3/8" hardware in hole closest to Beam (as shown in **Diagram 7**). Note, the lower hole on Beam Clamp is not used. Roll trolley up to bumpers and verify position of Clamps. Tighten 3/8" hardware (refer to **Chart 1**, on page 2, for proper torque rating).

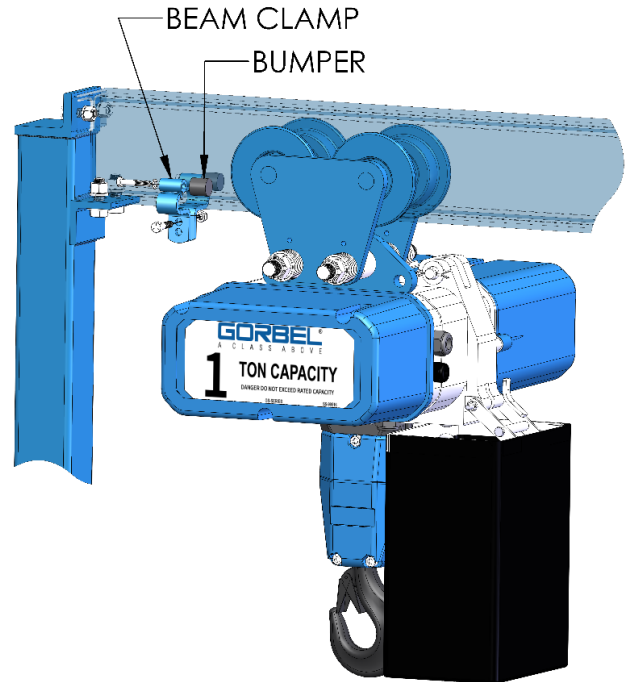


Diagram 7. Bumper Installation.

Note, Vertical Supports act as the Gantry's End Stops. Bumpers are recommended to prevent damage to hoist from impacting Vertical Support should it be handled roughly.

## STEP 8 - FINAL STEPS

➡ **TIP:** Do not throw away this manual: the maintenance schedule is on the last page.

- 8.1 Check to make sure all bolts are tight and lockwashers are compressed.
- 8.2 Install Horizontal Support Tube End Caps. For 6" width and less tubes, rotate Swivel Lock Ring so that it is horizontal (as shown in Diagram 8A) and push in plastic End Plug. A soft blow hammer may be required. For tube widths greater than 6", metal End Covers are provided. Use supplied #6-32 hardware to install these (see Diagram 8B).

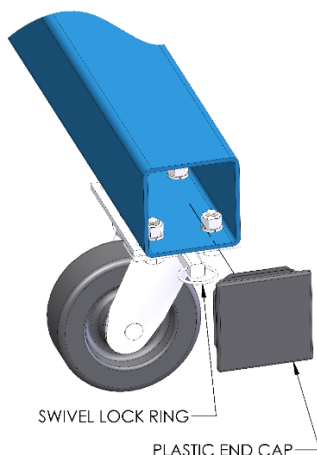


Diagram 8A. End Plug Installation.

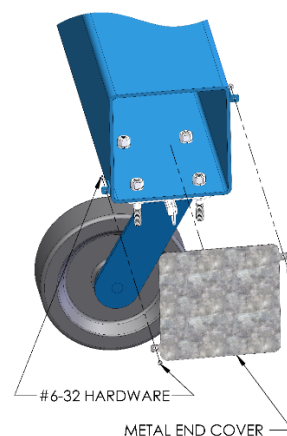
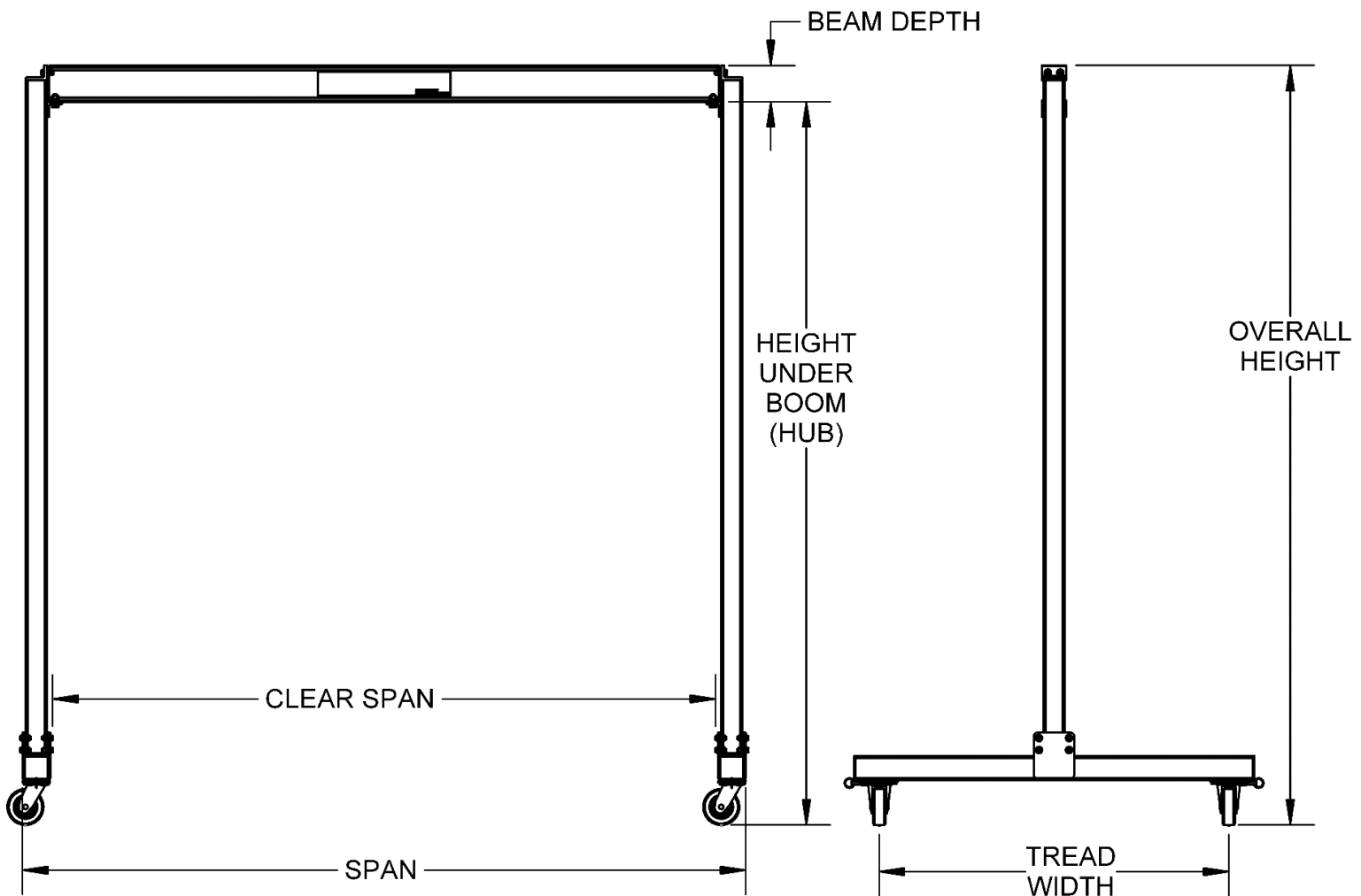


Diagram 8B. End Cover Assembly.

- 8.3 If necessary, touch up Gantry Crane with paint provided.
- 8.4 Keep Packing List, Installation Manual, General Arrangement Drawing, and any other inserts filed together in a safe place.
- 8.5 **For Gantry Cranes utilizing optional Steel V-Groove Casters only:** Install the assembled Gantry Crane onto the V-Track per the manufacturer's instructions

## GENERAL LAYOUT DRAWING



## CRANE OPERATOR INSTRUCTIONS

Overhead cranes and gantry cranes generally handle materials over working areas where there are personnel. Therefore, it is important for the Crane Operator to be instructed in the use of the crane and to understand the severe consequences of careless operation. It is not intended that these suggestions take precedence over existing plant safety rules and regulations or OSHA regulations. However, a thorough study of the following information should provide a better understanding of safe operation and afford a greater margin of safety for people and machinery on the plant floor. It must be recognized that these are suggestions for the Crane Operator's use. It is the responsibility of the owner to make personnel aware of all federal, state and local rules and codes, and to make certain operators are properly trained.

### Qualifications

Crane operation, to be safe and efficient, requires skill: the exercise of extreme care and good judgment, alertness and concentration, and rigid adherence to proven safety rules and practices as outlined in applicable and current ANSI and OSHA safety standards. In general, no person should be permitted to operate a crane:

- Who cannot speak the appropriate language or read and understand the printed instructions.
- Who is not of legal age to operate this type of equipment.
- Whose hearing or eyesight is impaired (unless suitably corrected with good depth perception).
- Who may be suffering from heart or other ailments which might interfere with the operator's safe performance.
- Unless the operator has carefully read and studied this operation manual.
- Unless the operator has been properly instructed.
- Unless the operator has demonstrated his instructions through practical operation.
- Unless the operator is familiar with hitching equipment and safe hitching equipment practices.

### Handling the Trolley Motion

Before a load is handled, the hoist should be positioned directly over the load that is to be handled. When the slack is taken out of the slings, if the hoist is not directly over the load, bring it directly over the load before hoisting is continued. Failure to center the hoist over the load may cause the load to swing upon lifting or the gantry to abruptly move. Always start the trolley motion slowly and reduce the trolley speed gradually.

### Handling the Hoist Motion

Refer to the lifting (hoist) equipment's operating instructions.

### Handling the Crane Motion

Use extreme caution if moving the gantry crane while loaded. Prior to moving the loaded gantry crane the following precautions are required.

Plan the movement and verify the path is clear of any obstructions that may hinder the caster wheel motion.

Center gantry over load, orient casters in the direction of movement and engage swivel locks on the two leading casters. The General Layout Drawing shows casters in correct position to move the gantry to the right in a direction parallel to the boom.

Lift the load, refer to the lifting (hoist) equipment's operating instructions. Keep the load as close to the ground as possible.

Two operators are required. An operator shall be positioned outside of each leg, with one pushing and the other pulling the support leg for movements parallel to the boom and both operators pushing for movements perpendicular to the boom.

**WARNING!** Never move the gantry while standing between the support legs. The trolley may suddenly move and the lifted load may strike the operator.

## GENERAL SUGGESTIONS

### Know Your Crane

Crane operators should be familiar with the principal parts of a crane and have a thorough knowledge of crane control functions and movements. The crane operator should be required to know the location and proper operation of the main conductor disconnecting means for all power to the attachments on the crane.

### Responsibility

Each crane operator should be held directly responsible for the safe operation of the crane. Whenever there is any doubt as to SAFETY, the crane operator should stop the crane and refuse to handle loads until: (1) safety has been assured or (2) the operator has been ordered to proceed by the supervisor, who then assumes all responsibility for the SAFETY of the lift.

Do not permit **ANYONE** to ride on the hook or a load

### Inspection

Test the crane movement and any attachments on the crane at the beginning of each shift. Whenever the operator finds anything wrong or apparently wrong, the problem should be reported immediately to the proper supervisor and appropriate corrective action taken.

## Operating Suggestions

One measure of a good crane operator is the smoothness of the crane operation. The good crane operator should know and follow these proven suggestions for safe, efficient crane handling.

1. The crane should be moved smoothly and gradually to avoid abrupt, jerky movements of the load. Slack must be removed from the sling and hoisting ropes before the load is lifted.
2. Center the crane over the load before starting the hoist to avoid swinging the load as the lift is started. Loads should not be swung by the crane to reach areas not under the crane.
3. Crane-hoisting ropes should be kept vertical. Cranes shall not be used for side pulls.
4. Be sure everyone in the immediate area is clear of the load and aware that a load is being moved.
5. Do not make lifts beyond the rated load capacity of the crane, sling chains, rope slings, etc.
6. Make certain that before moving the load, load slings, load chains, or other lifting devices are fully seated in the saddle of the hook with hook latch closed (if equipped with hook latch).
7. Check to be sure that the load and/or bottom block is lifted high enough to clear all obstructions when moving gantry or trolley.
8. At no time should a load be left suspended from the crane unless the operator has the push button with the power on, and under this condition keep the load as close as possible to the floor to minimize the possibility of an injury if the load should drop. When the crane is holding a load, the crane operator should remain at the push button.
9. Do not lift loads with sling hooks hanging loose. If all sling hooks are not needed, they should be properly stored, or use a different sling.
10. All slings or cables should be removed from the crane hooks when not in use (dangling cables or hooks hung in sling rings can inadvertently snag other objects when the crane is moving).
11. Operators shall not carry loads and/or empty bottom blocks over personnel. Particular additional caution should be practiced when using magnet or vacuum devices. Loads, or parts of loads, held magnetically could drop. Failure of power to magnets or vacuum devices can result in dropping the load. Extra precaution should be exercised when handling molten metal in the proximity of personnel.
12. Whenever the operator leaves the crane the following procedure should be followed:
  - Raise all hooks to an intermediate position.
  - Spot the crane at an approved designated location.
  - Place all controls in the "off" position.
  - Open the main switch to the "off" position.
  - Make visual check before leaving the crane.
13. In case of emergency or during inspection, repairing, cleaning or lubrication, a warning sign or signal should be displayed and the main switch should be locked in the "off" position. This should be done whether the work is being done by the crane operator or by others.
14. Contact with bumpers or end stops shall be made with extreme caution. The operator should do so with particular care for the safety of persons below the crane, and only after making certain that any persons on the other cranes are aware of what is being done.
15. ANY SAFETY FEATURES AND MECHANISMS BUILT-IN OR OTHERWISE PROVIDED WITH THE CRANE BY GORBEL ARE REQUIRED FOR THE SAFE OPERATION OF THE CRANE. DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE OR OTHERWISE IMPAIR OR DISABLE THE PROPER FUNCTIONING OF ANY CRANE SAFETY MECHANISMS OR FEATURES BUILT-IN OR OTHERWISE PROVIDED BY GORBEL FOR SAFE OPERATION OF THE CRANE. ANY REMOVAL, IMPAIRMENT OR DISABLING OF ANY SUCH SAFETY MECHANISMS OR FEATURES OR OTHER USE OR OPERATION OF THE CRANE WITHOUT THE COMPLETE AND PROPER FUNCTIONING OF ANY SUCH SAFETY MECHANISMS OR FEATURES AUTOMATICALLY AND IMMEDIATELY VOIDS ANY AND ALL EXPRESS AND IMPLIED WARRANTIES OF ANY KIND OR NATURE.



## LIMITED WARRANTY

It is agreed that the equipment purchased hereunder is subject to the following LIMITED warranty and no other. Gorbel Incorporated ("Gorbel") warrants the manual push-pull Work Station Cranes, Jib Crane, and Gantry Crane products to be free from defects in material or workmanship for a period of ten years or 20,000 hours use from date of shipment. Gorbel warrants the Motorized Work Station Cranes and Jib Crane products to be free from defects in material or workmanship for a period of two years or 4,000 hours use from the date of shipment. Gorbel warrants the G-Force® and Easy Arm™ products to be free from defects in material or workmanship for a period of one year or 2,000 hours use from the date of shipment. This warranty does not cover Gantry Crane wheels. This warranty shall not cover failure or defective operation caused by operation in excess of recommended capacities, misuses, negligence or accident, and alteration or repair not authorized by Gorbel. No system shall be field modified after manufacture without the written authorization of Gorbel, Inc. Any field modification made to the system without the written authorization of Gorbel, Inc. shall void Gorbel's warranty obligation. OTHER THAN AS SET FORTH HEREIN, NO OTHER EXPRESS WARRANTIES, AND NO IMPLIED WARRANTIES, ORAL OR WRITTEN, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE BY GORBEL WITH RESPECT TO ITS PRODUCTS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED. GORBEL SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES WHATSOEVER, WHETHER OR NOT FORESEEABLE, INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOST PROFITS AND ALL SUCH INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES ARE HEREBY ALSO SPECIFICALLY DISCLAIMED. Gorbel's obligation and Purchaser's or end user's sole remedy under this warranty is limited to the replacement or repair of Gorbel's products at the factory, or at the discretion of Gorbel, at a location designated by Gorbel. Purchaser or end user shall be solely responsible for all freight and transportation costs incurred in connection with any warranty work provided by Gorbel hereunder. Gorbel will not be liable for any loss, injury or damage to persons or property, nor for damages of any kind resulting from failure or defective operation of any materials or equipment furnished hereunder. Components and accessories not manufactured by Gorbel are not included in this warranty. Purchaser's or end user's remedy for components and accessories not manufactured by Gorbel is limited to and determined by the terms and conditions of the warranty provided by the respective manufacturers of such components and accessories.

**A) DISCLAIMER OF IMPLIED WARRANTY OF MERCHANTABILITY**

Gorbel and Purchaser agree that the implied warranty of merchantability is excluded from this transaction and shall not apply to the goods involved in this transaction.

**B) DISCLAIMER OF IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE**

Gorbel and Purchaser agree that the implied warranty of fitness for particular purpose is excluded from this transaction and shall not apply to the goods involved in this transaction.

**C) DISCLAIMER OF EXPRESS WARRANTY**

Gorbel's agents, or dealer's agents, or distributor's agents may have made oral statements about the machinery and equipment described in this transaction. Such statements do not constitute warranties, and Purchaser agrees not to rely on such statements. Purchaser also agrees that such statements are not part of this transaction.

**D) DISCLAIMER OF SPECIAL, INCIDENTAL AND CONSEQUENTIAL DAMAGES**

Gorbel and Purchaser agree that any claim made by Purchaser which is inconsistent with Gorbel's obligations and the warranty remedies provided with Gorbel's products, and in particular, special, incidental and consequential damages, are expressly excluded.

**E) DEALER OR DISTRIBUTOR NOT AN AGENT**

Gorbel and Purchaser agree that Purchaser has been put on notice that dealer or distributor is not Gorbel's agent in any respect for any reason. Gorbel and Purchaser also agree that Purchaser has been put on notice that dealer or distributor is not authorized to incur any obligations or to make any representations or warranties on Gorbel's behalf other than those specifically set forth in Gorbel's warranty provided in connection with its product.

**F) MERGER**

This warranty agreement constitutes a final and complete written expression of all the terms and conditions of this warranty and is a complete and exclusive statement of those terms.

**G) PAINTING**

Every crane (excluding components) receives a quality paint job before leaving the factory. Unfortunately, no paint will protect against the abuses received during the transportation process via common carrier. We have included at least one (1) twelve ounce spray can for touchup with each crane ordered (unless special paint was specified). If additional paint is required, contact a Gorbel® Customer Service Representative at 1-800-821-0086 or 1-585-924-6262.

**Title and Ownership:**

Title to the machinery and equipment described in the foregoing proposal shall remain with Gorbel and shall not pass to the Purchaser until the full amount herein agreed to be paid has been fully paid in cash.

**Claims and Damages:**

Unless expressly stated in writing, goods and equipment shall be at Purchaser's risk on and after Seller's delivery in good shipping order to the Carrier. Gorbel shall in no event be held responsible for materials furnished or work performed by any person other than it or its authorized representative or agent.

**Cancellations:**

If it becomes necessary for the purchaser to cancel this order wholly or in part, he shall at once so advise Gorbel in writing. Upon receipt of such written notice all work will stop immediately. If the order entails only stock items, a flat restocking charge of 15% of the purchase price will become due and payable by Purchaser to Gorbel. Items purchased specifically for the canceled order shall be charged for in accordance with the cancellation charges of our supplier plus 15% for handling in our factory. The cost of material and/or labor expended in general fabrication for the order shall be charged for on the basis of total costs to Gorbel up to the time of cancellation plus 15%.

**Returns:**

No equipment, materials or parts may be returned to Gorbel without express permission in writing to do so.

Extra Charge Delay: If Purchaser delays or interrupts progress of Seller's performance, or causes changes to be made, Purchaser agrees to reimburse Gorbel for expense, if any, incident to such delay.

**Changes and Alterations:**

Gorbel reserves the right to make changes in the details of construction of the equipment, as in its judgment, will be in the interest of the Purchaser; will make any changes in or additions to the equipment which may be agreed upon in writing by the Purchaser; and Gorbel is not obligated to make such changes in products previously sold any customer.

**Third Party Action:**

Should Gorbel have to resort to third party action to collect any amount due after thirty (30) days from date of invoice, the Purchaser agrees to pay collection costs, reasonable attorney's fees, court costs and legal interest.

**OSHA Responsibilities:**

Gorbel agrees to fully cooperate with Purchaser in the design, manufacture or procurement of safety features or devices that comply with OSHA regulations. In the event additional equipment or labor shall be furnished by Gorbel, it will be at prices and standard rates then in effect, or as may be mutually agreed upon at the time of the additional installation.

**Equal Employment Opportunity:**

Gorbel agrees to take affirmative action to ensure equal employment opportunity for all job applicants and employees without regard to race, color, age, religion, sex, national origin, handicap, veteran, or marital status. Gorbel agrees to maintain non-segregated work facilities and comply with rules and regulations of the Secretary of Labor or as otherwise provided by law or Executive Order.



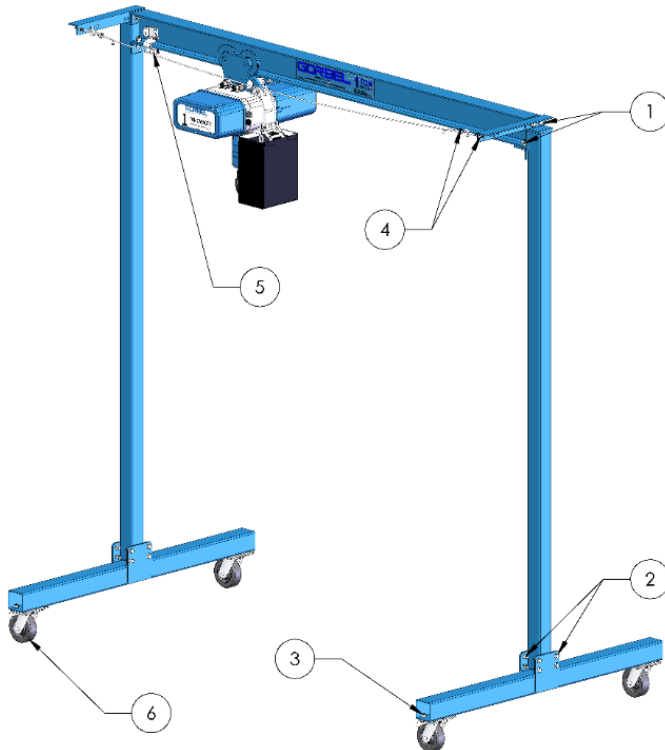
# INSPECTION AND MAINTENANCE

GORBEL® GANTRY CRANE INSPECTION AND MAINTENANCE SCHEDULE			
ITEM	COMPONENT	MAINTENANCE	FREQUENCY*
1	Vertical Support / Boom Hardware	Check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 1, page 3).	Every 1,000 hours or 6 months
2	Vertical Support / Horizontal Support Hardware	Check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 1, page 3).	Every 1,000 hours or 6 months
3	Caster Hardware	Remove tube covers and check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 1, page 3).	Every 1,000 hours or 6 months
4	Tagline Hardware	Check that the 3/8" eyebolt nuts are secure and the wire rope has adequate tension. Do not over tension. Check wire clamp hardware and tighten if necessary.	Every 1,000 hours or 6 months
5	Bumper Hardware	Check that the bumper is secure. Tighten hardware as required.	Every 1,000 hours or 6 months
6	Casters	Check for cracks, pits, grooves or excessive wear: all of these hinder the crane's mobility. If any of these conditions exist, wheels should be replaced. Check caster frame welds for cracks. Also add an adequate amount of grease through the zirk fittings. Each caster will have one or two grease fittings (one on the fork weldment and one on the wheel itself).	Every 1,000 hours or 6 months

\*Federal, state and local codes may require inspection and maintenance checks more often. Please check the federal, state and local code manuals in your area.

## WARNING

Any changes in rolling effort or unusual noises must be immediately identified and corrected.



**GORBEL®**  
A CLASS ABOVE  
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Fishers, NY 14453-0593

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www.tsoverheadcrane.com  
Tel: (314) 869-7200

# Installation, Operation, & Maintenance Manual



**IMPORTANT!  
DO NOT DESTROY**

## Adjustable Height Steel Gantry Cranes

Gorbel® Customer Order No. / Serial No. \_\_\_\_\_

Gorbel® Dealer \_\_\_\_\_

Issued: 05/2013  
Revised: 09/2019

Date \_\_\_\_\_  
Month \_\_\_\_\_ Year \_\_\_\_\_

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**Questions? Concerns? Comments? Please call (314) 869-7200.**

# INTRODUCTION

Thank you for choosing a Gorbel® Gantry Crane to solve your material handling needs. The innovative design and heavy-duty construction of Gorbel® Adjustable Gantry Cranes will provide a superior quality product. All Gorbel® cranes are pre-engineered for powered hoist operation. The hoist weight allowance is 15% of the crane capacity (for example, a crane rated for 1000 pounds, allows for a 1000-pound live load plus 150 pounds for the weight of the hoist). There is also an allowance of 25% of the crane capacity for impact caused by hoist use. Gorbel® Gantry Cranes will provide many years of dependable service by following the installation and maintenance procedures described herein.

***Dimensions contained in this installation manual are for reference only and may differ for your particular application. Please refer to the enclosed General Arrangement Drawing for actual dimensions.***

**Normal safety precautions:** These include, but are not limited to:

- Checking for obstructions in crane travel
- Checking that all bolts are tight and have lockwashers
- Making sure that festooning cannot be snagged or pinched, whether it is electric or pneumatic
- Checking for any other unsafe conditions
- For additional safety precautions, see page 7

## WARNING

Read all instructions in this manual before assembling or using this equipment.

## WARNING

**NEVER** exceed the rated capacity of the crane.

## WARNING

A load should be moved from one point to another by moving the trolley back and forth along the Gantry I-beam, while the Gantry Crane itself is stationary. Use **EXTREME CAUTION** and **CENTER THE LOAD ON THE I-BEAM** when attempting to horizontally move a load by moving the entire Gantry Crane; this is **NOT RECOMMENDED**.

## WARNING

**NEVER** leave a suspended load unattended or walk under a suspended load. The equipment must be operated from a position that will not be hazardous to the operator.

## WARNING

With **ADJUSTABLE** Gantry Cranes, raise or lower the I-beam prior to attaching a load. **DO NOT** raise or lower the I-beam with a load attached. Ensure that the hitch pin assemblies are installed immediately (including the clip-on safety hair pins) after raising or lowering the crane to the desired height and before removing the overhead lifting device or lift truck.

## WARNING

Gantry Crane should be used on a level, flat, smooth surface which is free of defects and obstructions.

## WARNING

Gantry Crane should not be moved when loaded.

## WARNING

Gantry Crane should not be moved by pushing or pulling on load.

## WARNING

Equipment described herein is not designed for, and should not be used for, lifting, supporting or transporting humans. Failure to comply with any one of the limitations noted herein can result in serious bodily injury and/or property damage. Check State and Local regulations for any additional requirements.

## WARNING

Crane cannot be utilized as a ground: A separate ground wire is required. For example, systems with 3-phase power require three conductors plus one ground wire.

## WARNING

Reference the American Institute of Steel Construction (AISC) Manual of Steel Construction (9th edition), Part 5, Specification for Structural Joints using ASTM A325 or A490 Bolts (section 8.d.2) for the proper procedures to follow when using any torque tightening method.

## INSTALLATION

### STEP 1 - PRE-ASSEMBLY

➡ **TIP:** Packing list can be found in plastic pocket inside hardware box: General Arrangement Drawing can be found inserted in this installation manual.

- 1.1 Check packing list to make sure correct quantity of parts is included.
- 1.2 Tools and materials (by others) typically needed to assemble crane are as follows:
  - Ladders/man lifts
  - Large square
  - Mallet
  - Shop brush
  - Torque wrench (200 ft.-lbs. capable)
  - Tape measure, combination wrenches, socket sets
  - Lifting sling (rated for 4000 lbs. capacity minimum)
  - Leveling tools (transit, laser level, water level, etc.)
  - Lifting device to lift heavy Gantry Crane components
  - Safety equipment (hard hats, barricades, etc.)

## STEP 2 - I-BEAM TO END SUPPORT WELDMENT CONNECTIONS

- ➡ **TIP:** For easiest installation ensure that the end support weldments are being supported while lying on their side (as shown in **Diagram 2A**) prior to bolting the I-beam to them.
- ➡ **TIP:** Be sure that the top plate (located on top of vertical tubes) length is oriented parallel to the I-beam length.

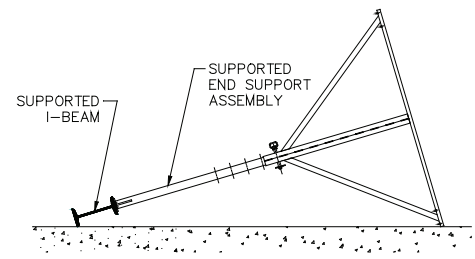


Diagram 2A. End Support Assembly.

- 2.1 Assemble your Gantry Crane in a clear area free of obstructions (refer to enclosed **General Arrangement Drawing** for overall size and other relevant dimensions).
- 2.2 Assemble the first end support assembly by fully engaging the upper support weldment into the lower support weldment such that the overall height is at its minimum and the holes in both tubes are correctly oriented relative to one another. Next, slide assembly apart until the first hole in inner tube is aligned with outer tube hole. Secure assembly by inserting the hitch pin assembly through the holes in both weldment tubes followed by connecting the snap-on safety hair pin and small cable (if provided by the manufacturer) to both ends of the hitch pin. Ensure that the hitch pin chains are located on the side of the end support assembly that the eyebolt hole is on (located on diagonal brace tube (as shown in **Diagram 2B**)). Insert eyebolt into threaded hole and attach chain with open-end chain link. Repeat with the other end support assembly.

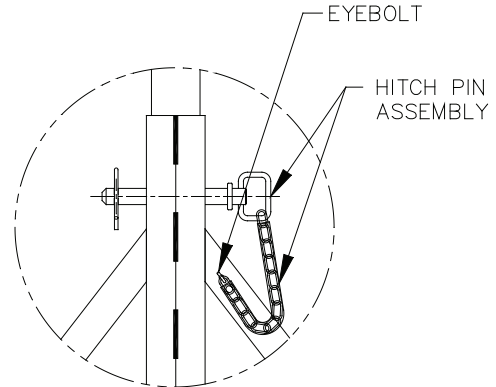


Diagram 2B. Hitch Pin Assembly.

- 2.3 While resting on the floor tilt the I-beam (by means of rigging (straps/slings are preferred to reduce paint damage) that is sized and oriented correctly for raising the load and overhead lifting device or lift truck) so that the I-beam flange with the holes is aligned with the top plate holes of the first end support assembly (as shown in **Diagram 2A**).

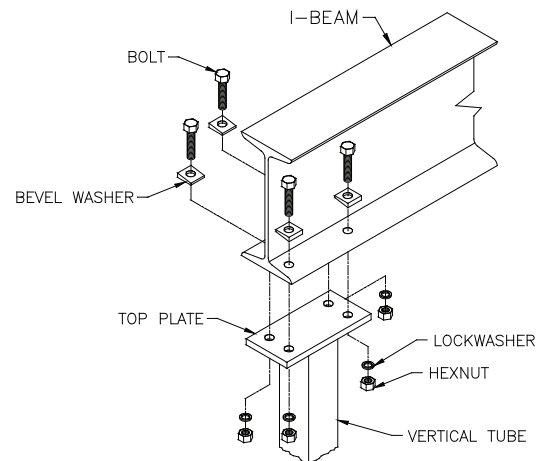


Diagram 2C. Beam to Top Plate Connection.

- 2.4 Install the appropriate hardware (as shown in **Diagram 2C**). **Note:** Bevel washers are used with “S” beams only. Tighten bolts (refer to **Chart 2A** for proper torque rating). There must be a minimum of two threads showing at the end of each bolt.
- 2.5 Install hoist or hoist trolley (by others) onto I-beam per manufacturers specifications.
- 2.6 Repeat steps 2.3 and 2.4 with the other end support assembly.

Bolt Dia.	Torque
1/2"	60 ft.-lbs.
5/8"	110 ft.-lbs.
3/4"	200 ft.-lbs.

Chart 2A. Torque Chart.

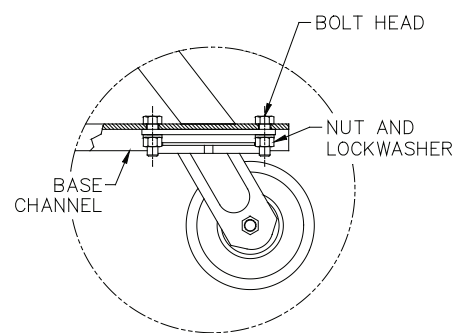
## STEP 3 - CASTER TO BASE CHANNEL CONNECTIONS

➡ **TIP:** To install casters, assemble while the Gantry Crane is still lying on its side (as shown in **Diagram 2A** on pg. 3).

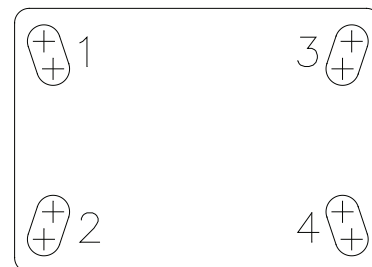
**3.1** Assemble the appropriate hardware so that the heads of the sixteen 1-1/2" long hex head bolts are located on the top surface of the base channel (as shown in **Diagram 3A**).

**3.2** **For 1, 2 and 5 Ton Gantry Cranes utilizing optional 4-Position Swivel Locks only:** The optional 4-Position Swivel Locks (4PSL) are installed via a bolted connection (unlike the 3 Ton Gantry Cranes which accept a 4PSL that is pre-welded to the caster). Ensure that the 4PSL's are installed on the under-side of the caster base plate. To install the 4PSL's align the two slotted holes in the swivel lock with two slotted holes (either holes 1 & 2 only or holes 3 & 4 only) on the short side of the caster base plate (as shown in **Diagram 3B**).

➡ **TIP:** Choose the 2 outer-most slotted holes when mounting the 4PSL. This will ensure that the 4PSL pull ring will be accessible from the outside of the formed base channel allowing you to engage or disengage the spring loaded pin from the locking caster slots. If the 4PSL is pre-welded to the caster simply rotate the caster assembly so that the 4PSL faces outward.



**Diagram 3A.** Caster Assembly.



**Diagram 3B.** Caster Base Plate.

**3.3** Tighten caster hardware (refer to **Chart 2A**, on page 3, for proper torque rating).

**3.4** You are now ready to erect the assembled Gantry Crane into the upright position. Ensure that the hitch pin assemblies are still properly engaged in upper and lower vertical tube holes and that the safety hair pins are intact. **Carefully and safely** (by means of rigging (straps/slides are preferred to reduce paint damage) that is sized and oriented correctly for raising the load) lift and rotate the Gantry Crane onto its casters by means of an overhead lifting device or lift truck. Use Gorbel® Blue touch-up paint (provided) to cover any scratches and abrasions as needed.

### WARNING

Ensure that NO ONE is standing near or in the vicinity of the crane while it is being erected.

### WARNING

Ensure there are no other obstructions that might hinder the crane from being erected.

**3.5** If your Gantry Crane is equipped with the optional cam brakes (pre-installed prior to receiving them) you may use your hand or foot to engage the brake for each caster by pressing down on one of the cam brake foot pedals located on the sides of the casters. Try moving the Gantry Crane after engaging the cam brakes to ensure that they are properly engaged.

**3.6** **For Gantry Cranes utilizing optional Steel V-Groove Casters only:** Install the assembled Gantry Crane onto the V-Track per the manufacturer's instructions.



## STEP 4 - OPTIONAL ENDSTOP/TAGLINE INSTALLATION

**4.1 Optional Endstop Installation (without tagline) only:** Bolt the 4 endstops to I-beam (as shown in **Diagram 4A**) using the holes located in I-beam web. Tighten endstop hardware (refer to **Chart 2A**, on page 3, for proper torque rating).

**4.2 Optional Endstop Installation (with tagline):** Bolt the 2 tagline bracket assemblies and 2 endstops to I-beam (as shown in **Diagram 4B**) using the holes located in I-beam web. Tighten tagline hardware (refer to **Chart 2A**, on page 3, for proper torque rating).

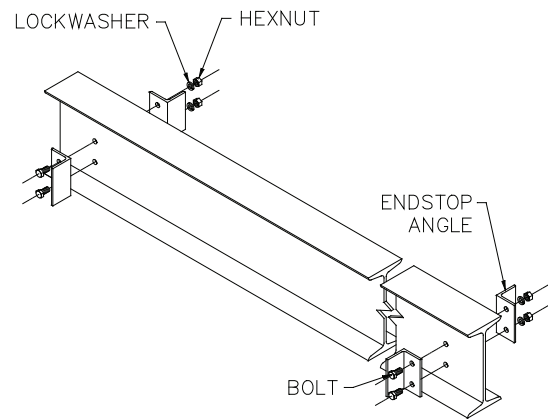
**4.3** Bolt eyebolts to tagline brackets using two hexnuts and lockwashers per eyebolt.

**4.4** Loop the wire rope through one of the eyebolts and clamp the loop using cable clamps. Repeat this step at the other eyebolt while removing any slack from the wire rope.

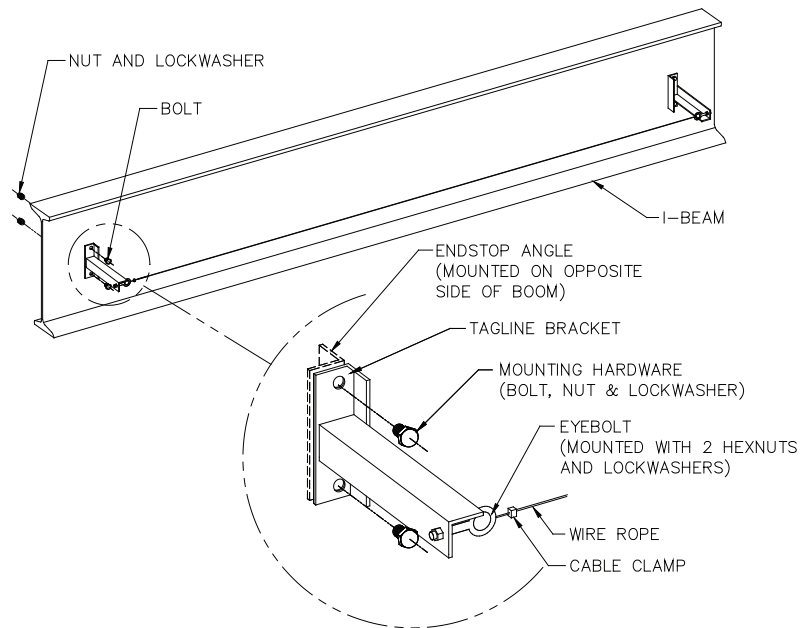
**4.5** Adjust the eyebolts to achieve the desired cable tension and lock the eyebolts in place by tightening the hexnuts.

**4.6** Run the festoon cable (by others) through the S-hooks or wire rope trolleys (squeeze bottom of S-hooks to grip cable or hose).

**4.7** Wire the hoist (by others) per manufacturing (SIC) instructions.



**Diagram 4A. Endstop Installation.**



**Diagram 4B. Tagline Assembly.**

## STEP 5 - FINAL STEPS

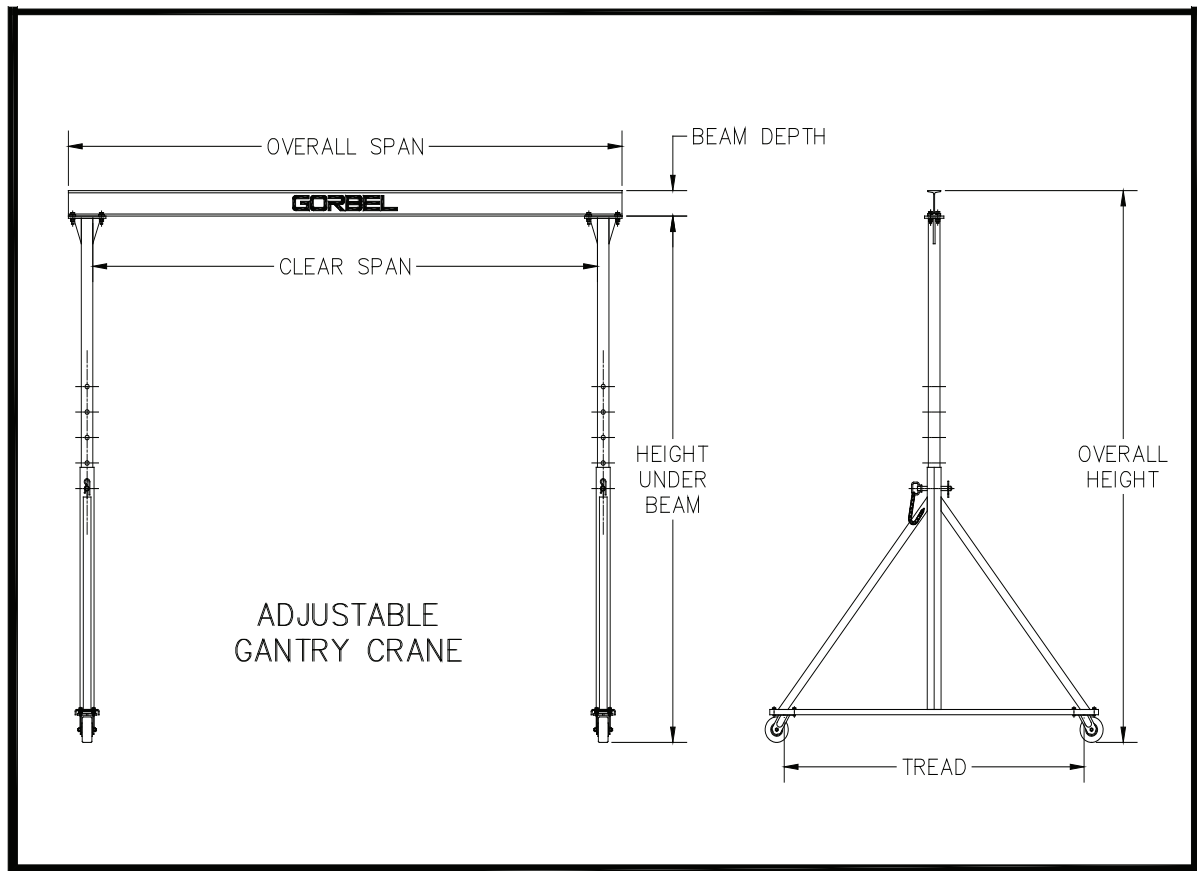
➡ **TIP:** Do not throw away this manual: the maintenance schedule is on the last page.

**5.1** Check to make sure all bolts are tight and lockwashers are compressed.

**5.2** If necessary, touch up Gantry Crane with paint provided.

**5.3** Keep Packing List, Installation Manual, General Arrangement Drawing, and any other inserts filed together in a safe place.

## GENERAL LAYOUT DRAWINGS



# CRANE OPERATOR INSTRUCTIONS

Overhead cranes and jib cranes generally handle materials over working areas where there are personnel. Therefore, it is important for the Crane Operator to be instructed in the use of the crane and to understand the severe consequences of careless operation. It is not intended that these suggestions take precedence over existing plant safety rules and regulations or OSHA regulations. However, a thorough study of the following information should provide a better understanding of safe operation and afford a greater margin of safety for people and machinery on the plant floor. It must be recognized that these are suggestions for the Crane Operator's use. It is the responsibility of the owner to make personnel aware of all federal, state and local rules and codes, and to make certain operators are properly trained.

## Qualifications

Crane operation, to be safe and efficient, requires skill: the exercise of extreme care and good judgment, alertness and concentration, and rigid adherence to proven safety rules and practices as outlined in applicable and current ANSI and OSHA safety standards. In general, no person should be permitted to operate a crane:

- Who cannot speak the appropriate language or read and understand the printed instructions.
- Who is not of legal age to operate this type of equipment.
- Whose hearing or eyesight is impaired (unless suitably corrected with good depth perception).
- Who may be suffering from heart or other ailments which might interfere with the operator's safe performance.
- Unless the operator has carefully read and studied this operation manual.
- Unless the operator has been properly instructed.
- Unless the operator has demonstrated his instructions through practical operation.
- Unless the operator is familiar with hitching equipment and safe hitching equipment practices.

## Handling the Trolley Motion

Before a load is handled, the hoist should be positioned directly over the load that is to be handled. When the slack is taken out of the slings, if the hoist is not directly over the load, bring it directly over the load before hoisting is continued. Failure to center the hoist over the load may cause the load to swing upon lifting. Always start the trolley motion slowly and reduce the trolley speed gradually.

## Handling the Hoist Motion

Refer to the lifting (hoist) equipment's operating instructions.

# GENERAL SUGGESTIONS

## Know Your Crane

Crane operators should be familiar with the principal parts of a crane and have a thorough knowledge of crane control functions and movements. The crane operator should be required to know the location and proper operation of the main conductor disconnecting means for all power to the attachments on the crane.

## Responsibility

Each crane operator should be held directly responsible for the safe operation of the crane. Whenever there is any doubt as to SAFETY, the crane operator should stop the crane and refuse to handle loads until: (1) safety has been assured or (2) the operator has been ordered to proceed by the supervisor, who then assumes all responsibility for the SAFETY of the lift.

Do not permit **ANYONE** to ride on the hook or a load

## Inspection

Test the crane movement and any attachments on the crane at the beginning of each shift. Whenever the operator finds anything wrong or apparently wrong, the problem should be reported immediately to the proper supervisor and appropriate corrective action taken.

## Operating Suggestions

One measure of a good crane operator is the smoothness of the crane operation. The good crane operator should know and follow these proven suggestions for safe, efficient crane handling.

1. The crane should be moved smoothly and gradually to avoid abrupt, jerky movements of the load. Slack must be removed from the sling and hoisting ropes before the load is lifted.
2. Center the crane over the load before starting the hoist to avoid swinging the load as the lift is started. Loads should not be swung by the crane to reach areas not under the crane.
3. Crane-hoisting ropes should be kept vertical. Cranes shall not be used for side pulls.
4. Be sure everyone in the immediate area is clear of the load and aware that a load is being moved.
5. Do not make lifts beyond the rated load capacity of the crane, sling chains, rope slings, etc.
6. Make certain that before moving the load, load slings, load chains, or other lifting devices are fully seated in the saddle of the hook with hook latch closed (if equipped with hook latch).
7. Check to be sure that the load and/or bottom block is lifted high enough to clear all obstructions when moving boom or trolley.
8. At no time should a load be left suspended from the crane unless the operator has the push button with the power on, and under this condition keep the load as close as possible to the floor to minimize the possibility of an injury if the load should drop. When the crane is holding a load, the crane operator should remain at the push button.
9. Do not lift loads with sling hooks hanging loose. If all sling hooks are not needed, they should be properly stored, or use a different sling.
10. All slings or cables should be removed from the crane hooks when not in use (dangling cables or hooks hung in sling rings can inadvertently snag other objects when the crane is moving).
11. Operators shall not carry loads and/or empty bottom blocks over personnel. Particular additional caution should be practiced when using magnet or vacuum devices. Loads, or parts of loads, held magnetically could drop. Failure of power to magnets or vacuum devices can result in dropping the load. Extra precaution should be exercised when handling molten metal in the proximity of personnel.
12. Whenever the operator leaves the crane the following procedure should be followed:
  - Raise all hooks to an intermediate position.
  - Spot the crane at an approved designated location.
  - Place all controls in the "off" position.
  - Open the main switch to the "off" position.
  - Make visual check before leaving the crane.
13. In case of emergency or during inspection, repairing, cleaning or lubrication, a warning sign or signal should be displayed and the main switch should be locked in the "off" position. This should be done whether the work is being done by the crane operator or by others.
14. Contact with rotation stops or trolley end stops shall be made with extreme caution. The operator should do so with particular care for the safety of persons below the crane, and only after making certain that any persons on the other cranes are aware of what is being done.
15. ANY SAFETY FEATURES AND MECHANISMS BUILT-IN OR OTHERWISE PROVIDED WITH THE CRANE BY GORBEL ARE REQUIRED FOR THE SAFE OPERATION OF THE CRANE. DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE OR OTHERWISE IMPAIR OR DISABLE THE PROPER FUNCTIONING OF ANY CRANE SAFETY MECHANISMS OR FEATURES BUILT-IN OR OTHERWISE PROVIDED BY GORBEL FOR SAFE OPERATION OF THE CRANE. ANY REMOVAL, IMPAIRMENT OR DISABLING OF ANY SUCH SAFETY MECHANISMS OR FEATURES OR OTHER USE OR OPERATION OF THE CRANE WITHOUT THE COMPLETE AND PROPER FUNCTIONING OF ANY SUCH SAFETY MECHANISMS OR FEATURES AUTOMATICALLY AND IMMEDIATELY VOIDS ANY AND ALL EXPRESS AND IMPLIED WARRANTIES OF ANY KIND OR NATURE.

## LIMITED WARRANTY

It is agreed that the equipment purchased hereunder is subject to the following LIMITED warranty and no other. Gorbel Incorporated ("Gorbel") warrants the manual push-pull Work Station Cranes, Jib Crane, and Gantry Crane products to be free from defects in material or workmanship for a period of ten years or 20,000 hours use from date of shipment. Gorbel warrants the Motorized Work Station Cranes and Jib Crane products to be free from defects in material or workmanship for a period of two years or 4,000 hours use from the date of shipment. Gorbel warrants the G-Force® and Easy Arm™ products to be free from defects in material or workmanship for a period of one year or 2,000 hours use from the date of shipment. This warranty does not cover Gantry Crane wheels. This warranty shall not cover failure or defective operation caused by operation in excess of recommended capacities, misuses, negligence or accident, and alteration or repair not authorized by Gorbel. No system shall be field modified after manufacture without the written authorization of Gorbel, Inc. Any field modification made to the system without the written authorization of Gorbel, Inc. shall void Gorbel's warranty obligation. OTHER THAN AS SET FORTH HEREIN, NO OTHER EXPRESS WARRANTIES, AND NO IMPLIED WARRANTIES, ORAL OR WRITTEN, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE BY GORBEL WITH RESPECT TO ITS PRODUCTS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED. GORBEL SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES WHATSOEVER, WHETHER OR NOT FORESEEABLE, INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOST PROFITS AND ALL SUCH INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES ARE HEREBY ALSO SPECIFICALLY DISCLAIMED. Gorbel's obligation and Purchaser's or end user's sole remedy under this warranty is limited to the replacement or repair of Gorbel's products at the factory, or at the discretion of Gorbel, at a location designated by Gorbel. Purchaser or end user shall be solely responsible for all freight and transportation costs incurred in connection with any warranty work provided by Gorbel hereunder. Gorbel will not be liable for any loss, injury or damage to persons or property, nor for damages of any kind resulting from failure or defective operation of any materials or equipment furnished hereunder. Components and accessories not manufactured by Gorbel are not included in this warranty. Purchaser's or end user's remedy for components and accessories not manufactured by Gorbel is limited to and determined by the terms and conditions of the warranty provided by the respective manufacturers of such components and accessories.

**A) DISCLAIMER OF IMPLIED WARRANTY OF MERCHANTABILITY**

Gorbel and Purchaser agree that the implied warranty of merchantability is excluded from this transaction and shall not apply to the goods involved in this transaction.

**B) DISCLAIMER OF IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE**

Gorbel and Purchaser agree that the implied warranty of fitness for particular purpose is excluded from this transaction and shall not apply to the goods involved in this transaction.

**C) DISCLAIMER OF EXPRESS WARRANTY**

Gorbel's agents, or dealer's agents, or distributor's agents may have made oral statements about the machinery and equipment described in this transaction. Such statements do not constitute warranties, and Purchaser agrees not to rely on such statements. Purchaser also agrees that such statements are not part of this transaction.

**D) DISCLAIMER OF SPECIAL, INCIDENTAL AND CONSEQUENTIAL DAMAGES**

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Every crane (excluding components) receives a quality paint job before leaving the factory. Unfortunately, no paint will protect against the abuses received during the transportation process via common carrier. We have included at least one (1) twelve ounce spray can for touchup with each crane ordered (unless special paint was specified). If additional paint is required, contact a Gorbel® Customer Service Representative at 1-800-821-0086 or 1-585-924-6262.

### Title and Ownership:

Title to the machinery and equipment described in the foregoing proposal shall remain with Gorbel and shall not pass to the Purchaser until the full amount herein agreed to be paid has been fully paid in cash.

### Claims and Damages:

Unless expressly stated in writing, goods and equipment shall be at Purchaser's risk on and after Seller's delivery in good shipping order to the Carrier. Gorbel shall in no event be held responsible for materials furnished or work performed by any person other than it or its authorized representative or agent.

### Cancellations:

If it becomes necessary for the purchaser to cancel this order wholly or in part, he shall at once so advise Gorbel in writing. Upon receipt of such written notice all work will stop immediately. If the order entails only stock items, a flat restocking charge of 15% of the purchase price will become due and payable by Purchaser to Gorbel. Items purchased specifically for the canceled order shall be charged for in accordance with the cancellation charges of our supplier plus 15% for handling in our factory. The cost of material and/or labor expended in general fabrication for the order shall be charged for on the basis of total costs to Gorbel up to the time of cancellation plus 15%.

### Returns:

No equipment, materials or parts may be returned to Gorbel without express permission in writing to do so.

Extra Charge Delay: If Purchaser delays or interrupts progress of Seller's performance, or causes changes to be made, Purchaser agrees to reimburse Gorbel for expense, if any, incident to such delay.

### Changes and Alterations:

Gorbel reserves the right to make changes in the details of construction of the equipment, as in its judgment, will be in the interest of the Purchaser; will make any changes in or additions to the equipment which may be agreed upon in writing by the Purchaser; and Gorbel is not obligated to make such changes in products previously sold any customer.

### Third Party Action:

Should Gorbel have to resort to third party action to collect any amount due after thirty (30) days from date of invoice, the Purchaser agrees to pay collection costs, reasonable attorney's fees, court costs and legal interest.

### OSHA Responsibilities:

Gorbel agrees to fully cooperate with Purchaser in the design, manufacture or procurement of safety features or devices that comply with OSHA regulations. In the event additional equipment or labor shall be furnished by Gorbel, it will be at prices and standard rates then in effect, or as may be mutually agreed upon at the time of the additional installation.

### Equal Employment Opportunity:

Gorbel agrees to take affirmative action to ensure equal employment opportunity for all job applicants and employees without regard to race, color, age, religion, sex, national origin, handicap, veteran, or marital status. Gorbel agrees to maintain non-segregated work facilities and comply with rules and regulations of the Secretary of Labor or as otherwise provided by law or Executive Order.

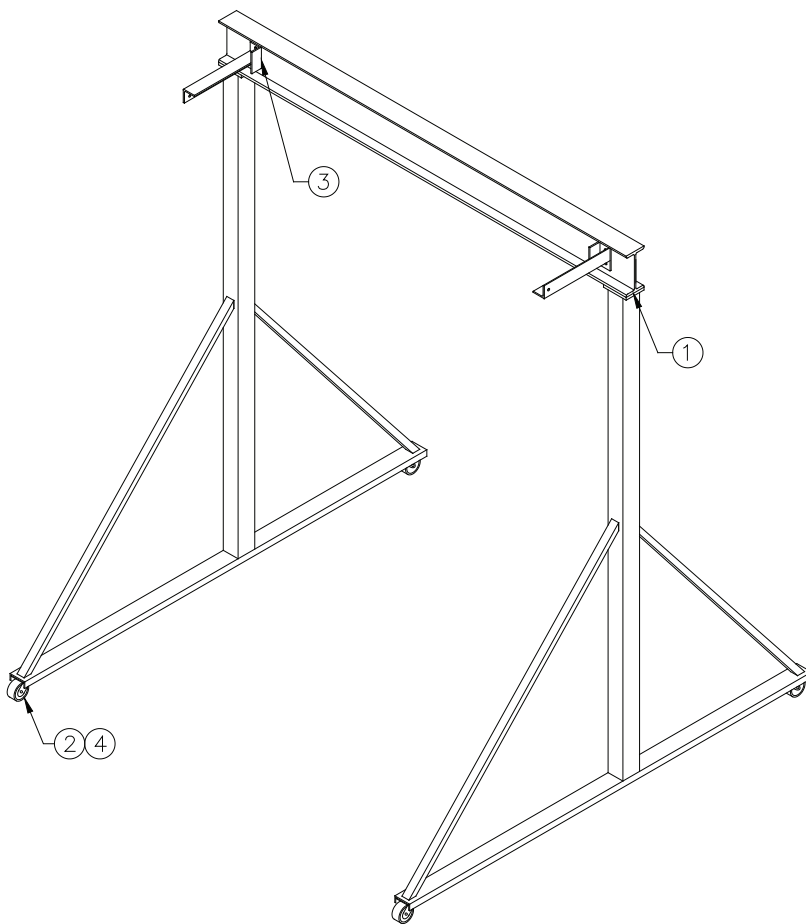
# INSPECTION AND MAINTENANCE

GORBEL® GANTRY CRANE INSPECTION AND MAINTENANCE SCHEDULE			
ITEM	COMPONENT	MAINTENANCE	FREQUENCY*
1	Top Plate Hardware	Check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 2A, page 3).	Every 1,000 hours or 6 months
2	Caster Hardware	Check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 2A, page 3).	Every 1,000 hours or 6 months
3	Endstop/Tagline Bracket Hardware	Check for full compression of lockwasher. Bolts should be tightened to torque specifications (Chart 2A, page 3). Also check that the 3/8" eyebolt nuts are secure and the wire rope has adequate tension.	Every 1,000 hours or 6 months
4	Casters	Check for cracks, pits, grooves or excessive wear: all of these hinder the crane's mobility. If any of these conditions exist, wheels should be replaced. Also add an adequate amount of grease through the zirk fittings. Each caster will have one or two grease fittings (one on the fork weldment and one on the wheel itself).	Every 1,000 hours or 6 months

\*Federal, state and local codes may require inspection and maintenance checks more often. Please check the federal, state and local code manuals in your area.

## WARNING

Any changes in rolling effort or unusual noises must be immediately identified and corrected.



**⚠ WARNING**

This product can expose you to chemicals, including acrylonitrile, which are known to the State of California to cause cancer. For more information go to:

[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**GORBEL®**  
A CLASS ABOVE

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