

PF SERIES GANTRY CRANE

Assembly and Maintenance Instruction Manual





WARNING

SPANCO GANTRY CRANE CONDITIONS OF USE AND WARNINGS STATEMENT

1. Read, understand, and follow the manual, assembly drawings, and warnings provided with your system **before** beginning installation, use, or disassembly. Follow all instructions carefully.
2. This manual, and any other instructions, must be provided to the user(s) of this equipment. The user(s) must understand the equipment's proper use and limitations.
3. This crane is engineered to accommodate a standard hoist and a standard hoist weight. The standard hoist weight is calculated at 15 percent of the crane's rated capacity. Please inform Spanco if hoist weight exceeds 15 percent of the crane's rated capacity, or if the lifting speed exceeds 50 FPM.
4. "Sidewinder" hoists or low headroom hoists with motors that are parallel to the beam can potentially impart large torques (twisting moments) to the beam that can cause beam twisting and oscillations. Hoist inverter controls are heavily recommended for all "sidewinder" hoists or low headroom hoists with motors that are parallel to the beam installed on beam lengths over 12 feet.

NOTE: To eliminate any form of beam oscillation, use only an inverter controlled hoist of this type.

5. Power Drive options for motorized gantry travel are available for PF-Series Gantry Cranes only. Review Power Drive installation instructions in the separate Power Drive instruction manual.
6. Motorized trolley travel is permissible for PF-Series and T-Series Gantry Cranes.
7. Each component and system must be employed and maintained in accordance with all OSHA and ANSI standards.
8. Use a hoist with the same or lower capacity rating as the gantry crane. Do not lift more than the rated crane capacity.
9. The rated capacity is displayed on a label on the Spanco system. Exceeding the capacities displayed on this label can result in serious injury or death.
10. There should never be any type of loading past the end stops for any reason.
11. Never apply an off-plumb load to the system.
12. Always check for overhead hazards, such as power lines, trees, equipment, overhead structures, or walls, before using or moving a portable system.
13. Never use this system as fall protection or for lifting, hoisting, or carrying personnel.
14. When moving the gantry under load, keep the load in the center of the beam and as close to the ground as possible.
15. Before moving the gantry under load, remove any obstacles and ensure that the load is not attached to the floor.
16. Spanco Gantry Cranes are designed to be moved manually. Do not push or pull the gantry with a lift truck or other vehicle.
17. When moving a gantry crane under load, push the gantry; do not push or pull the suspended load.
18. Never exceed two people pushing an Aluminum gantry crane.
19. Do not disassemble the gantry or adjust the height, span, or caster frame spread (if applicable) when the gantry is under load.
20. Do not stand under the gantry when it is being adjusted in height, span, or caster frame spread.
21. Do not stand or walk under a suspended load.



WARNING

SPANCO GANTRY CRANE CONDITIONS OF USE AND WARNINGS STATEMENT

22. Caster frame spread must be a minimum of 40 percent of the overall height (T-Series only).
23. Adjustments and repairs must be made in an area that does not interfere with operation.
24. Do not load the gantry on an incline.
25. Do not allow the load to swing or roll against the gantry support members.
26. Do not slam the hoist trolley against the end stops or gantry supports at any time.
27. The system must be tied down if exposed to winds exceeding 30 miles per hour. Spanco considers it an unsafe practice to operate cranes in winds over 15 miles per hour. Although the drive may work in speeds exceeding 15 miles per hour, Spanco does not recommend using any crane in winds over 15 miles per hour for safety reasons. If quoted for a pre-defined wind speed, the drive components have been designed for an approximate wind speed. It is the responsibility of others to generate a risk assessment of wind conditions and part stability, and to generate a lifting plan that accounts for the sail effect of the part being lifted and the length of the cable the part is suspended on. Notify Spanco if the system will be subjected to constant buffeting winds.
28. Although Spanco may provide components that are intended for service in a specific environment, it is the customer's responsibility to confirm that the provided Spanco system and components will work in and are acceptable for their specific application and environment.
29. **Before each use**, inspect the system for bent, broken, cracked, or missing components.
30. Thoroughly inspect the system **annually** per OSHA law.
31. Per OSHA law, load testing must be performed before the system can be placed into service.
32. Engineering of any attachment points must be done by others.
33. Component appearances and dimensions shown are approximate and subject to change without notice. All literature dimensions are developed using standard components for the spans and capacities. Substitution of optional trolleys or other components will affect certain dimensions.
34. Never deviate from the above unless you have written permission and authorization from Spanco.



WARNING

Follow the Inspection Checklists in this manual: review the checklist on page 17 before each use and review the checklist on page 18 annually.

SYSTEM APPLICATIONS

The Spanco system is used for material handling applications. This material handling system is labeled with a maximum rated capacity and is designated for Class C service as defined by the CMAA; follow all limitations as noted on system labels.

STANDARDS AND COMPLIANCE

Please refer to local, state, and federal (OSHA) requirements governing occupational safety for additional information regarding material handling. The Spanco system meets or exceeds the requirements set forth in OSHA 1910.179, ANSI B30.11, and CMAA 70.

REQUIRED TRAINING

This system is intended to be used by people who are trained in its correct application and use. It is the responsibility of the users and the users' management to ensure that they are familiar with OSHA law and these instructions, and that they are trained in the correct use and care of this equipment. Authorized users must also be aware of the operating characteristics, application limits, and the consequences of improper use, which can result in serious injury or death. All users must read and understand CMAA 79 *Crane Operator's Manual*.

Every material handling application must be OSHA compliant. Safety and training measures may include, but are not limited to:

- Operator certification training
- Operator evaluation program
- Hand signal protocols if required
- Lock-out/Tag-out training

The above list is not a comprehensive list. Specific applications may need to include additional protocols. For more information on how to set up a proper lift plan within your facility, follow CMAA 79 *Crane Operator's Manual*.

TABLE OF CONTENTS

CONDITIONS OF USE AND WARNINGS STATEMENT	i-iii
SYSTEM APPLICATIONS	iii
STANDARDS AND COMPLIANCE	iii
REQUIRED TRAINING	iii
ASSEMBLY INSTRUCTIONS	2
1. Equipment Needed for Assembly	2
2. Inventory	2
3. Attaching the Caster Brakes to the Caster Assemblies	3
4. Attaching the Swivel Locks to the Caster Assemblies	4
5. Attaching the Caster Assemblies to the Leg Assemblies	4-5
6. Attaching the Leg Connection Plates	5
7. Attaching the Brace Tubes	6-7
8. Attaching the Leg Assemblies to the Beam	7-8
FINAL ASSEMBLY	8
OPTIONAL ACCESSORIES	8
1. V-Groove Track	8-9
2. Power Drive	10
3. Clamp-On Tagline	10-11
MAINTENANCE	12
LOAD TEST	12
DESIGN AND SERVICE FACTORS	12
DISASSEMBLY	13
1. Removing the Leg Assemblies	13
2. Removing the Brace Tubes	14
3. Removing the Leg Connection Plates	15
NOTES	15
LABELING	16
PF-SERIES GANTRY CRANE INSPECTION CHECKLISTS	17
Before Each Use Inspection Checklist	17
Annual Inspection Checklist	18
PRODUCT WARRANTY COVERAGE AND SERVICE POLICY	19
ABOUT SPANCO	BACK COVER

ASSEMBLY INSTRUCTIONS

1. Equipment Needed for Assembly

- a) This manual
- b) Applicable safety equipment for workers' use during assembly, such as hard hats, steel toe shoes, etc.
- c) Multiple telescoping lift trucks, cranes, or other lifting equipment with at least the minimum height and lifting capacity required as determined by the size and weight of the gantry crane.
- d) Man lift/cherry picker (minimum height determined by installed system height)
- e) Measuring tape
- f) Torque wrench
- g) Lifting straps
- h) Several six-inch by six-inch (or larger) wood blocks
- i) Long carpenter's level or laser level
- j) Wrench/socket sets up to 1-1/8 inch
- k) A spacious, level area for assembly (e.g., parking lot)
- l) *PF-SERIES-ASSEMBLY SHEET 1 OF 2*, hereafter referred to as *PF-Series Gantry Crane Assembly Drawing*, included as a separate document.
- m) *PF-SERIES-ASSEMBLY SHEET 2 OF 2*, hereafter referred to as *PF-Series Gantry Crane Label Placement Drawing*, included as a separate document.

2. Inventory

- a) Open all bundles and confirm that all components are accounted for: see *Building Materials Description* located in the top right corner of the *PF-Series Gantry Crane Assembly Drawing*. Note that the quantity of components in an assembly are multiplied by the number of the assemblies.
- b) Check for damage to components that may have occurred during shipping.
- c) Your PF-Series Gantry Crane consists of the following components:
 - 1) One Beam
 - 2) Two left leg assemblies
 - 3) Two right leg assemblies
 - 4) Two middle brace tubes
 - 5) Two lower brace tubes
 - 6) Four Casters
 - 7) Four connecting plates

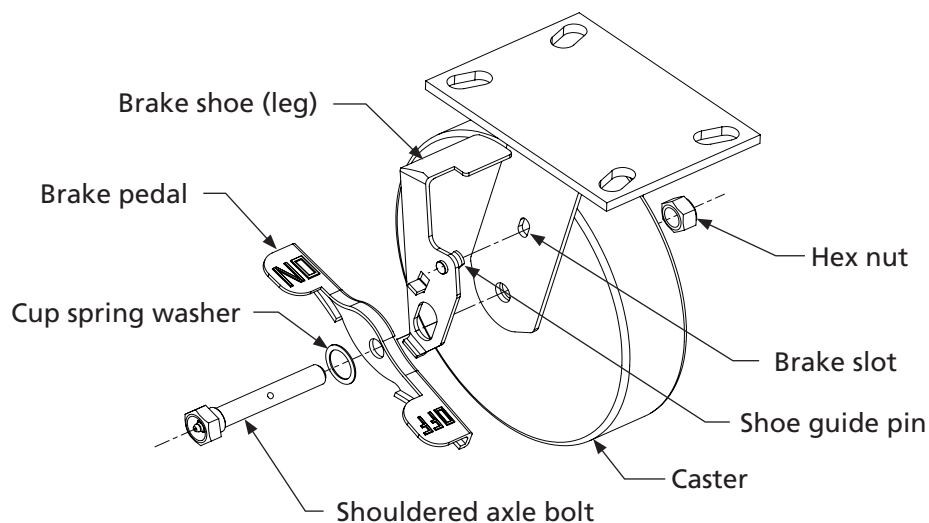
3. Attaching the Caster Brakes to the Caster Assemblies

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through J

WARNING: Crane parts are heavy. Use proper rigging and support on all parts during assembly and disassembly processes. Do not stand under the crane during assembly or disassembly.

- a) Select an area under an overhead hoist, or where a lift truck or multiple lift trucks can be used to raise the beam. Be sure there is no machinery or clutter nearby that will obstruct free movement. All personnel should be wearing applicable safety gear, such as hard hats, steel toe shoes, and safety glasses.
- b) Depending on the system, some polyurethane casters ship with the brakes already attached. If you ordered polyurethane casters, and the brakes were shipped loose, follow steps **c)** through **j)** to attach the caster brakes. Refer to the caster brake assembly drawing below throughout the assembly process.

Detail "E"



- c) Using a 3/4-inch wrench and 3/4-inch socket and ratchet, unbolt the caster stud and remove the nut, bolt, washer, and caster.
NOTE: If the spacers fall out of the caster, reinsert them into the caster holes.
- d) With the top of the brake shoe facing towards the caster assembly, insert the guide pin on the brake shoe into the brake slot on the caster assembly.
- e) Using a screwdriver, slightly bend the brake shoe tab so that the brake shoe guide pin and brake shoe tab fit properly.
- f) With the brake pedal tabs pointed away from the caster assembly, line up the hole on the brake pedal with the hole on the brake shoe. "On" and "Off" on the brake pedal tabs should be visible when the caster is mounted to the system.
- g) Line up the caster holes with the brake shoe hole and brake pedal hole.
- h) With the washer on the bolt-side of the caster assembly, reinsert the longer axle bolt through the brake pedal, brake shoe, and caster. Reapply the axle nut at this time.
- i) Using a 3/4-inch wrench and 3/4-inch socket and ratchet, securely tighten the caster nut.
- j) Repeat steps **b)** through **i)** to install the remaining caster brakes.

4. Attaching the Swivel Locks to the Caster Assemblies

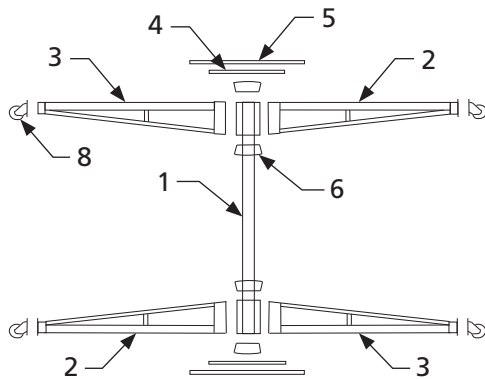
Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through G

- a) If applicable, the swivel lock ships zip-tied to the caster assembly for polyurethane casters. For polyurethane casters, you should have removed the swivel lock while installing the caster brakes.
- b) Insert the pin on the swivel lock into the groove beneath the caster plate on the caster assembly.
- c) Open the pin on the swivel lock by pulling and spinning the ring to fit into the groove at the end of the swivel lock.
- d) Using two 3/4-inch bolts, washers, and nuts, bolt the swivel lock to the caster plate.
- e) Using a 3/4-inch wrench and 3/4-inch socket and ratchet, tighten the swivel lock bolts to 257 foot-pounds.
- f) Repeat steps **b)** through **e)** to install the remaining swivel locks.
- g) Test the caster brakes and swivel locks to ensure they function properly.

5. Attaching the Caster Assemblies to the Leg Assemblies

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through I

NOTE: To simplify assembly, arrange the parts on the floor according to the diagram below.

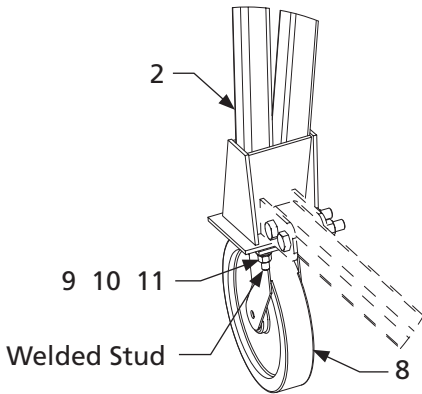


ITEM	DESCRIPTION
1	Beam
2	Right Leg Assembly
3	Left Leg Assembly
4	Upper Brace Tube
5	Lower Brace Tube
6	Leg Connection Plate
8	Caster

NOTE: Leg sets are match marked.

- a) Lay each right leg assembly (2 in the *Building Materials Description*) and left leg assembly (3 in the *Building Materials Description*) on the ground.
- b) Per **Detail "A,"** position the caster assembly under the leg's base plate (where the inner and outer segments of each leg assembly join together). Insert the welded, threaded studs on the bottom of the leg assembly into the holes in the caster assembly's top plate.
- c) Per **Detail "A,"** place a flat washer (9), lock washer (10), and hex nut (11) onto each stud so that the lock washer (10) is between the flat washer (9) and the hex nut (11). Torque all 1/2-inch wheel stud nuts (11) to 23 foot-pounds.
- d) Repeat steps **b)** and **c)** to attach the remaining caster assemblies.
- e) For casters with a bolted connection, align the holes in the leg's base plate with the holes in the caster assembly's top plate.
- f) Per **Detail "A,"** insert a bolt (22) through each of the aligned holes in the leg and the caster assembly so that the bolts (22) extend from the leg through the caster assembly's top plate.
- g) Per **Detail "A,"** place a flat washer (9), lock washer (10), and hex nut (11) on each bolt (22) so that the lock washer (10) is between the flat washer (9) and hex nut (11). Torque all nuts (11) to the correct value specified by the torque chart.

Detail "A" (Casters and Lower Brace Tubes to Legs)



NOTE: Torque all 1/2-inch wheel stud nuts (11) to 23 foot-pounds only.

NOTE: 9, 10, and 11 attach to a stud welded to the bottom of the leg assembly. On some models, the welded studs are replaced with hex bolts (22).

NOTE: 15-ton capacity models may require a crows foot to torque bolts properly.

ITEM	DESCRIPTION
2	Right Leg Assembly
9	Flat Washer
10	Lock Washer
11	Hex Nut
22	Hex Bolt

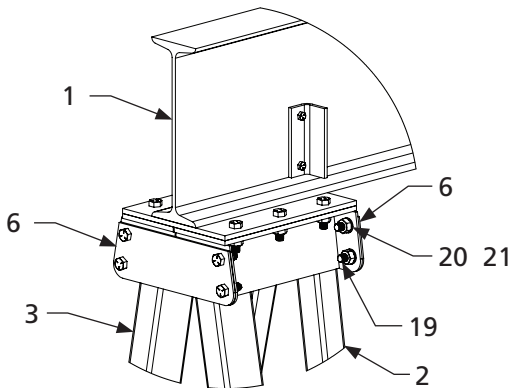
- h) Repeat steps e) through g) to attach the remaining caster assemblies to the leg assemblies.
- i) After the wheel brakes, swivel locks, and caster assemblies have been attached to the system, test the wheel brakes and swivel locks to ensure they function properly.

6. Attaching the Leg Connection Plates

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through E

- a) After the caster assemblies have been attached, lay one right leg assembly (2 in *Building Materials Description*) and one left leg assembly (3 in *Building Materials Description*) on the ground so that the long side of the upper brace tube lugs point up. The outer legs should be on the ground and the inner legs should be off the ground.
- b) Per **Detail "D,"** position the wide ends of both leg assemblies (their tops) so they are next to one another. Lift the tops of both leg assemblies together and place a six-inch by six-inch (or larger) wood block under their outer legs to make the upcoming bolt insertion easier.
- c) Per **Detail "D,"** align one leg connection plate (6) with the four holes on the outer-facing plates at the top of the leg assemblies. Attach the leg connection plate (6) with four sets of bolts (19), lock washers (20), and hex nuts (21). **Securely tighten** all nuts. Attach a second leg connection plate (6) the same way to the inside-facing plates at the top of the leg assemblies.

Detail "D" (Beam and Leg Connection Plates to Legs)



ITEM	DESCRIPTION
1	Beam
2	Right Leg Assembly
3	Left Leg Assembly
6	Leg Connection Plate
19	Hex Bolt (Short)
20	Lock Washer
21	Hex Nut

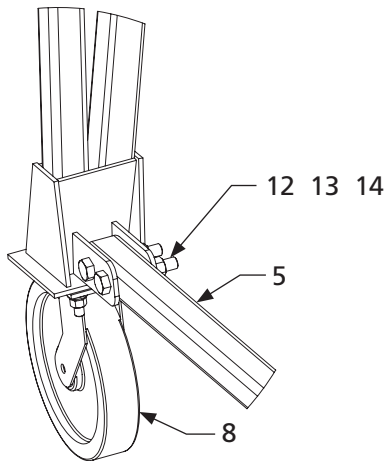
- d) Repeat steps a) through c) for the second set of right (2) and left (3) leg assemblies.
- e) All four leg connection plates (6) for the tops of the leg assemblies should now be attached, giving you two sets of partially assembled legs.

7. Attaching the Brace Tubes

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through E

- a) To make inserting bolts easier during the following steps, place six-inch by six-inch (or larger) wood blocks under each outer leg between the tops of the legs, the lug for the upper brace tube (4 in *Building Materials Description*), and the casters (8).
- b) Per **Detail "A,"** attach the lower brace tube (5) to the lower brace tube lug at the base of each leg assembly (2 and 3) using two bolts (12), lock washers (13), and hex nuts (14) for each end of the lower brace tube. **Securely tighten** the nuts.

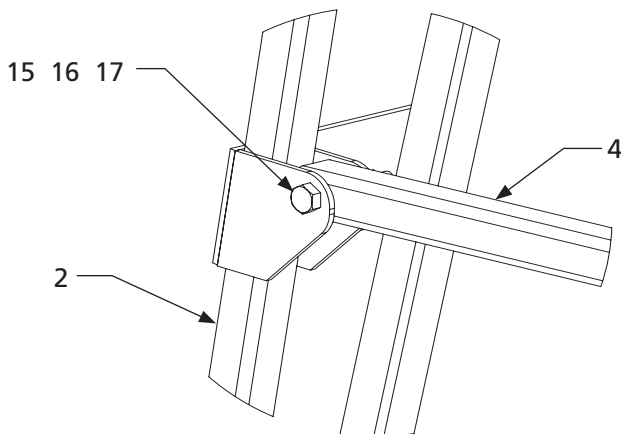
Detail "A" (Casters and Lower Brace Tubes to Legs)



ITEM	DESCRIPTION
2	Right Leg Assembly
3	Left Leg Assembly
4	Upper Brace Tube
5	Lower Brace Tube
8	Caster
12	Hex Bolt (Long)
13	Lock Washer
14	Hex Nut

- c) Place the upper brace tube (4) between the upper brace tube lugs located at the middle of the right and left leg assemblies (2 and 3).
- d) Per **Detail "B,"** bolt the brace tube (4) to the upper brace tube lug using a bolt (15), lock washer (16), and hex nut (17) for both right leg assemblies (2). **Securely tighten** the nuts.

Detail "B" (Upper Brace Tube to Right Leg)

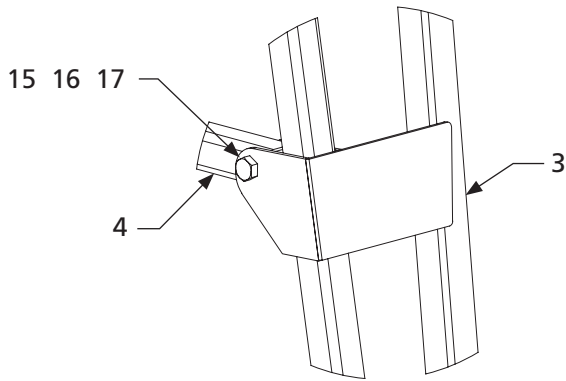


ITEM	DESCRIPTION
2	Right Leg Assembly
4	Upper Brace Tube
15	Hex Bolt (Long)
16	Lock Washer
17	Hex Nut

NOTE: (Detail "A," Detail "B," and Detail "C") Torque all 5/8-inch leg bracing bolts (12 and 15) to 48 foot-pounds. Torque all 3/4-inch leg bracing bolts (12 and 15) to 77 foot-pounds.

- e) Per **Detail "C,"** bolt the brace tube (4) to the inner upper brace tube lug using a bolt (15), lock washer (16), and hex nut (17) for both left leg assemblies (3). **Securely tighten** the nuts.

Detail "C" (Upper Brace Tube to Left Leg)



ITEM	DESCRIPTION
3	Left Leg Assembly
4	Upper Brace Tube
15	Hex Bolt (Long)
16	Lock Washer
17	Hex Nut

8. Attaching the Leg Assemblies to the Beam

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through K

- a) Evenly balance the beam (1 in *Building Materials Description*) on top of two six-inch by six-inch (or larger) blocks so that the labels are right-side-up and legible.
- b) Feed a lifting strap or lifting straps under the beam (1) so the beam weight will be evenly distributed during lifting.
- c) Attach the other end of the lifting strap(s) to your lifting equipment (fork truck[s] or overhead crane[s]) to hoist the beam (1) into the air.

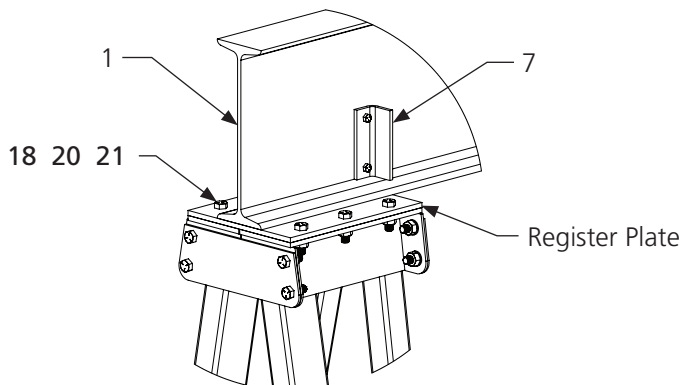
NOTE: Follow all applicable rigging and lifting requirements as determined by the size and weight of the gantry crane. Ensure the beam is properly balanced and safely secured before lifting to full height.

- d) Raise the beam into the air and install the trolley and hoist according to the manufacturer’s recommendations onto the lower flange of the beam and secure it in the middle of the span.

NOTE: The register plates are welded to the bottom flange of the beam on both sides, so the trolley must be separated to be installed on the beam.

- e) Raise the beam high enough to allow both leg assemblies to fit under the connection points on the beam.
- f) Position the assembled legs so the upper brace tube (4) is on the outside of the leg assembly when the legs are lifted into place.
- g) Use a man lift to allow a worker to reach the height of the beam.

Detail "D" (Beam and Leg Connection Plates to Legs)



ITEM	DESCRIPTION
1	Beam
7	End Stop Angle
18	Hex Bolt (Medium)
20	Lock Washer
21	Hex Nut

- h) Per **Detail "D,"** use an additional lift truck or crane to lift the top portion of one leg assembly underneath the beam. Use drift pins to align the six holes in the beam (1) register plate with the six holes in the top plate of the leg assembly.
- i) Attach the plates together using bolts (18), lock washers (20), and hex nuts (21). **Securely tighten** the nuts.
- j) Repeat steps **g** through **j** to assemble the other end of the beam (1 in *Building Materials Description*) and the remaining leg assembly.
- k) Use the supplied shims to plum the legs and align the wheels as necessary.

9. Final Assembly

- a) Confirm that all bolts are fully seated, all washers are in place, and all nuts are **securely tightened**.
- b) Use the man-lift to allow a worker to access all of the system nuts. Torque all of the nuts on the system to the specifications shown below before removing support rigging.

BOLT DIAMETER	HEX NUT TORQUE	MINIMUM HEX LOCKNUT TORQUE
1/2 Inch	78 Foot-Pounds	51 Foot-Pounds
5/8 Inch	154 Foot-Pounds	93 Foot-Pounds
3/4 Inch	257 Foot-Pounds	151 Foot-Pounds
7/8 Inch	341 Foot-Pounds	224 Foot-Pounds
1 Inch	514 Foot-Pounds	325 Foot-Pounds

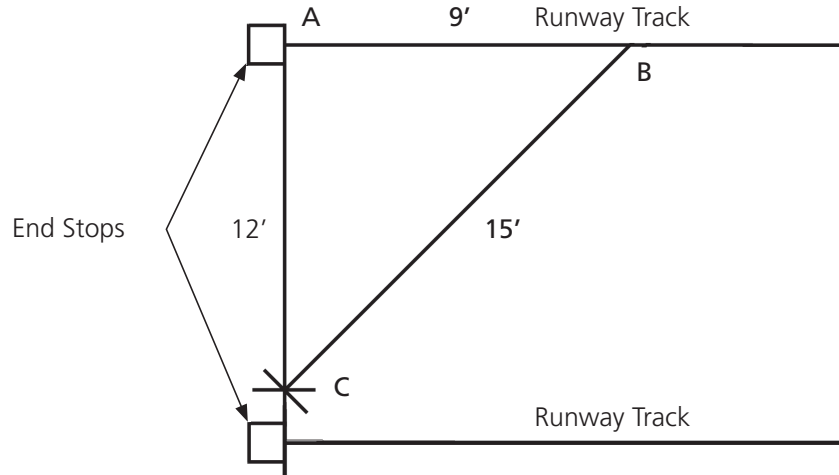
NOTE: This torque value chart is based on grade 5 fasteners. Reduce torque value for lower grade fasteners as needed. See torque notes with individual steps for torque values that differ from the values in the above torque chart.

OPTIONAL ACCESSORIES

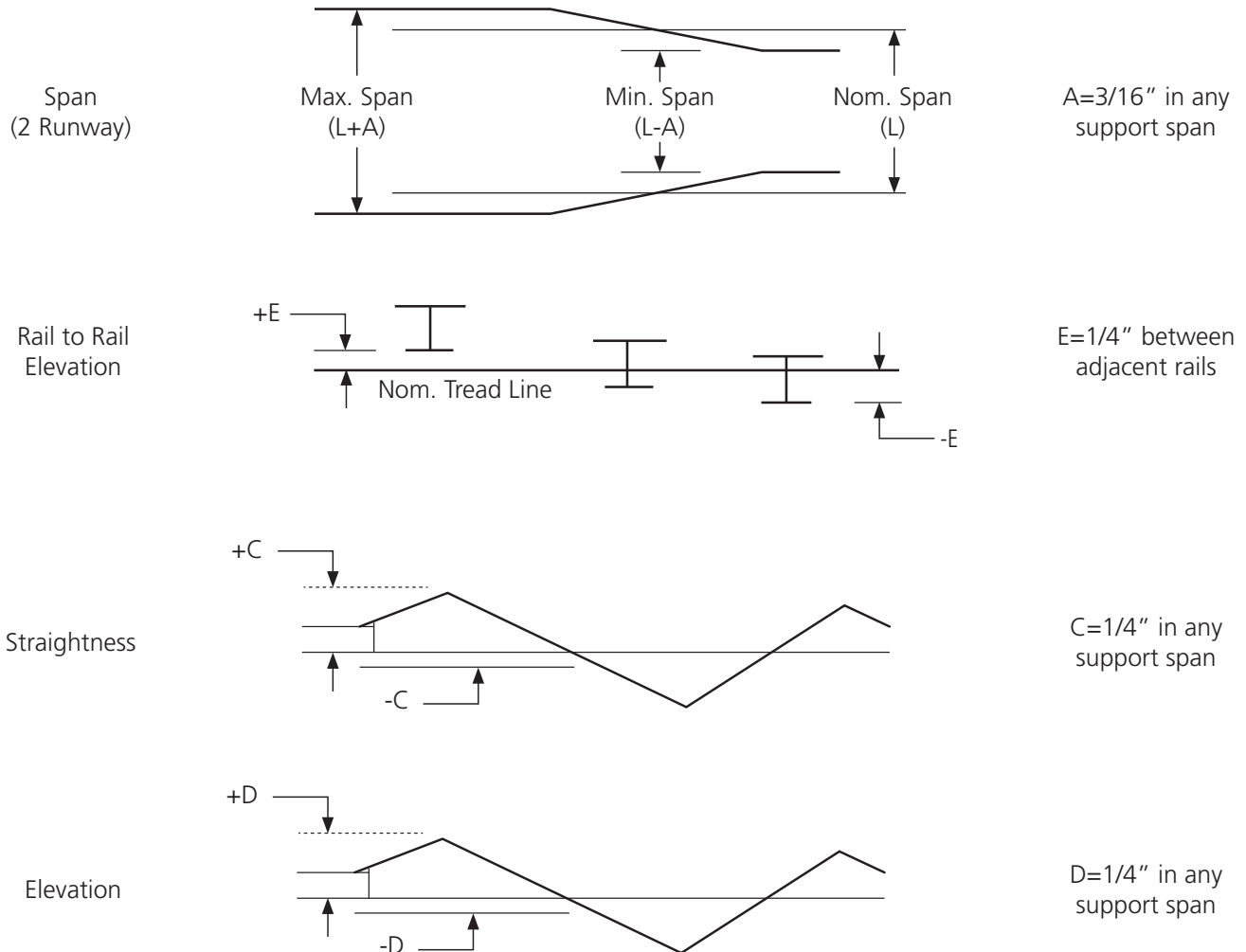
1. V-Groove Tack Installation

- a) The exact span of the crane may vary from the design span. Install the full length of the track on one side, making sure that the track is straight and level. Fasten V-groove track to the floor using 3/8-inch lag bolts and suitable anchors. (For track supplied by Spanco, use a bolt in each hole. Otherwise, space bolts approximately three feet apart on each side of the track in a staggered arrangement.) Use shims or grouting as required to keep the track level and alignment pins at joints to keep the track true. End stops are required at each end of both tracks.
- b) Lay one or two sections of the opposite side of the track at the design span, assemble the crane on the tracks following the assembly instructions, and operate the crane back and forth a few times, being careful not to run the crane off the tracks. The loose sections of track will float and set the track to the exact crane span.
- c) After the operating span is determined, attach all the other sections of track to the floor making sure the track is straight, level, parallel, and at the same elevation as the first track. The end stops should be set square with a 3-4-5 right triangle. The sides and the hypotenuse can be multiplied by any convenient number, such as three, used in the example.
- d) Set one end stop at point A and measure along the runway track nine feet from point A to point B. With point B as a center and 15 feet as a radius, draw a circular arc on the floor. With point A as a center and 12 feet as a radius, draw a circular arc on the floor intersecting the other arc at point C. A line running through points A and C is perpendicular, or square, with the runway track.
- e) Extend this line to the other runway track to locate the end stop on that runway. Repeat the process at the other end of the runway, or measure along each runway the same distance from these end stops for locating the stops at the other end of the runways.

NOTE: For v-groove track, the anchors can be epoxy anchors, or "wedge" anchors, after the floor is completed.

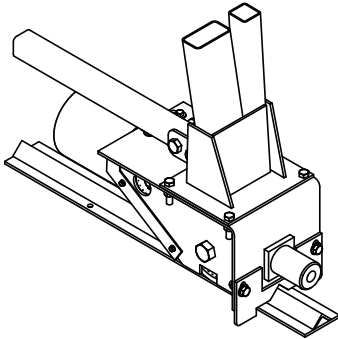


RUNWAY ALIGNMENT TOLERANCE FOR V-GROOVE TRACK

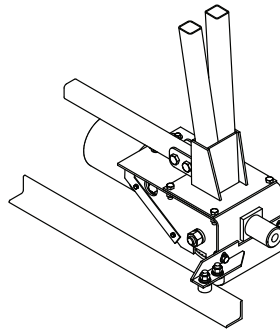


2. Power Drive

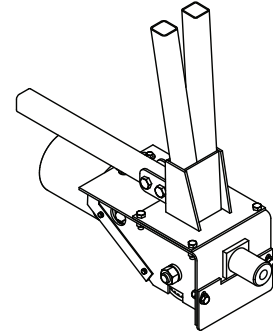
Spanco Power Drive Kits are an economical way to drive high-volume, high-capacity gantry travel, so one worker can guide loads up to 15 tons using a control pendant. The Kits are easy to install and can be specified on new gantries or retrofitted onto your existing Spanco PF-Series Gantry Cranes.



V-Groove Tracks



Guide Angle Drive (Guide Angle or Guide Channel supplied by others)



Trackless Path (manual guidance via motor control)

- a) Install beam electrification and connect all electrical components if required. Ensure all equipment travels in the direction indicated on the control station.
- b) A complete electrical/mechanical manual is supplied separately for the power drive. Refer to the electrical/mechanical manual to correct any errors in operation. All work on electrical components must be completed by a certified industrial electrician.
- c) Before operating the power drive, check the oil level in all gear boxes. Ensure all wheels and roller chains are properly lubricated.
- d) Operate the gantry crane along the full length of the track or operating area several times to ensure it tracks properly and clears all obstructions. If any problems occur while tracking, ensure the legs are plumb. Adjust shims to plumb the legs as needed.

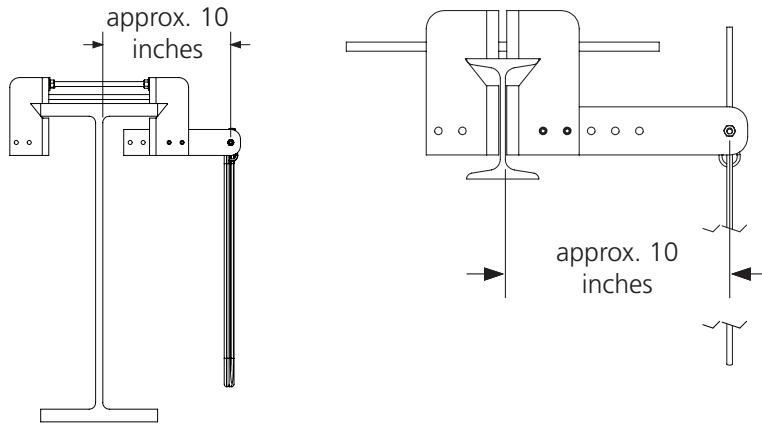
3. Tagline Assembly

Spanco clamp-on tagline assemblies are designed for universal installation. Clamp-on tagline assemblies include universal weldments, applicable hardware, tagline cable, cable clamps, eyebolts, and pulleys with cable ties. One pulley and cable tie is provided for every five feet of tagline length. Power conductor is supplied by others.

Installation

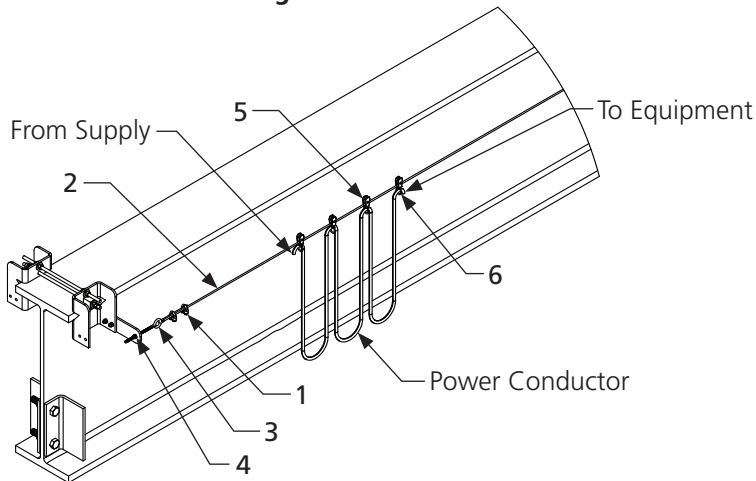
- a) Trim excess rod length to fit socket (if desired).
NOTE: Align each rod so only one end requires trimming.
- b) Torque the inner lower rod nuts (9) to 33 foot-pounds. Adjust the inner upper rod nuts (9) to keep the weldments plumb.
- c) Holding the inner lower rod nuts in place with a wrench, torque the outer lower rod nuts (9) to 33 foot-pounds.
- d) Holding the inner upper rod nuts in place with a wrench, torque the outer upper rod nuts (9) to 33 foot-pounds.
- e) Align the correct holes in the arm plate (11) with the holes in the tagline weldment (7) and insert two hex head bolts (13) through the holes. Align the arm plate to keep the tagline approximately 10 inches from the face of the beam.
- f) Place a lock washer (12) and nut (14) on each bolt (13). Torque the nuts (14) to 10 foot-pounds.

Figure 1



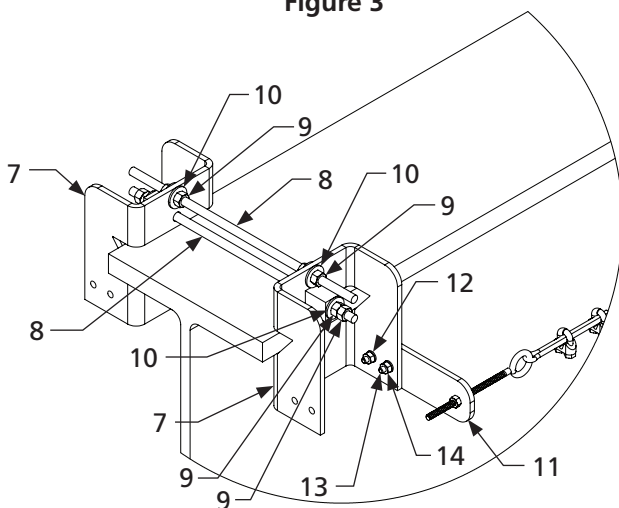
NOTE: Position the Arm Plate so that the tagline is approximately 10 inches from the face of the beam.

Figure 2



BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
1	Cable Clamp	2
2	Tagline Cable	1
3	Eye Bolt	2
4	1/4-Inch Hex Nut	4
5	Pulley	X
6	Cable Tie	X

Figure 3



BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
7	Tagline Weldment	2
8	3/8-Inch Threaded Rod	2
9	3/8-Inch Hex Nut	8
10	3/8-Inch Flat Washer	6
11	Arm Plate	1
12	1/4-Inch Lock Washer	2
13	1/4-Inch Hex Head Bolt	2
14	1/4-Inch Hex Nut	2

Note: Only one end of the beam is shown. Total quantities are doubled.

MAINTENANCE

1. A system inspection should be performed 30 days after installation. All nuts, bolts, and screws should be checked for tightness. All end stops, cotter pins, and hoist trolleys should be checked for abnormal wear or breakage.
2. A complete inspection of all fasteners and connections should be performed annually or every two thousand (2,000) hours. Heavy conditions of use may require more frequent inspections.
3. Operators should visually inspect the system before each use to note any unusual or abnormal system operations.
4. **If the system fails ANY inspection point on any of the inspection checklists, immediately remove the system from service and call Spanco[®] at 800-869-2080 for instructions.**
5. Download and print additional blank inspection checklists from the literature tab at Spanco.com.

LOAD TEST

After the PF-Series Gantry Crane has been installed, OSHA requires a load test before operating and after any modifications. This equipment is designed and manufactured to the rated capacity marked on the equipment with due allowances for safety factors. Prior to initial use of the Gantry Crane, a person appointed by the owner, under the direction of a qualified technical person, must perform a load test at 125 percent of the rated capacity using certified test weights. See CMAA 78 for periodic load testing requirements. Under no conditions shall the rated capacity be exceeded during regular use or during annual or semi-annual load tests.

DESIGN FACTOR

Nameplate capacities represent the rated load on the hoist hook. The load rating of a hoist shall not exceed the nameplate capacity. Spanco's design includes an allowance of 15 percent of nameplate capacity for trolley and hoist deadweight and 25 percent of the nameplate capacity for impact. This design provides a margin to allow for variations in material properties, operating conditions, and design assumptions. **No crane should ever be loaded beyond its rated capacity.**

SERVICE FACTOR

All Spanco gantry cranes are designed for moderate usage (Class C Moderate Service) as defined by CMAA 70:

- System or equipment is used where lifted loads average 50 percent of the rated capacity with five to 10 lifts per hour, averaging 15 feet, not over 50 percent of the lifts at rated capacity.

Applications involving vacuums, magnets, or other high-impact lifters are considered severe usage and require special design considerations. Contact Spanco for special design pricing.

Consult Spanco for usage other than Class C and all instances of high cycle rates or high-impact applications such as high-speed air or electric hoists, vacuum lifters, or magnets.

DISASSEMBLY

1. Removing the Leg Assemblies

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through J

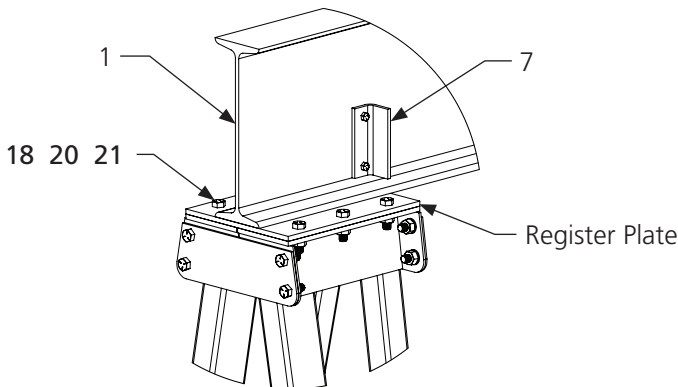
WARNING: Crane parts are heavy. Use proper rigging and safely support all parts during the disassembly process.

- a) Read and understand each step before beginning the disassembly process.
- b) Move the assembled PF-Series Gantry Crane to an area under an overhead hoist, or where multiple lift trucks can be used to raise the beam safely. Be sure there is no machinery or clutter nearby that will obstruct free movement. All parts must be secured to prevent sliding, slipping, or falling during the disassembly process. All personnel should be wearing applicable safety gear, such as hard hats, safety shoes, and safety glasses.
- c) Feed a lifting strap or lifting straps under the beam so the beam weight will be evenly distributed during lifting.
- d) Attach the other end of the lifting strap(s) to your lifting equipment (fork truck[s] or overhead crane[s]) to hoist the beam (1) into the air.

NOTE: Follow all applicable rigging and lifting requirements as determined by the size and weight of the gantry crane. The beam may become unbalanced when one leg is removed. Plan rigging and support accordingly.

- e) Use a man lift to allow a worker to reach the height of the beam.
- f) Use an additional crane or lift truck to secure the top portion of one leg assembly where it is attached to the beam.
- g) Per **Detail "D,"** remove the bolts (18), lock washers (20), and hex nuts (21) from the beam base plate and the top plate of the leg assembly.
- h) Using the additional crane or lift truck, carefully lower the leg to the ground out of the way of the remaining disassembly process. To make following steps easier, place six-inch by six-inch (or larger) wood blocks under each outer leg between the tops of the legs, the lug for the upper brace tube (4), and the casters (A1).
- i) Repeat steps e) through h) to remove the second leg.
- j) Using the first crane or lift truck, carefully lower the beam (1) to the ground. Evenly balance the beam on top of two six-inch by six-inch (or larger) blocks.

Detail "D" (Beam and Leg Connection Plates to Legs)



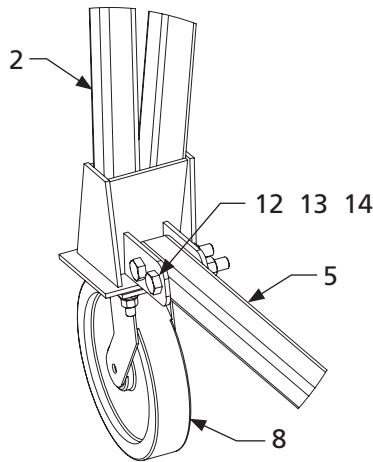
ITEM	DESCRIPTION
1	Beam
7	End Stop Angle
18	Hex Bolt (Medium)
20	Lock Washer
21	Hex Nut

2. Removing the Brace Tubes

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through C

- a) With the leg supported on six-inch by six-inch (or larger) wood blocks, remove the two hex nuts (14), lock washers (13), and bolts (12) from the lower brace tube lug at the base of each leg assembly and remove the lower brace tube (5).

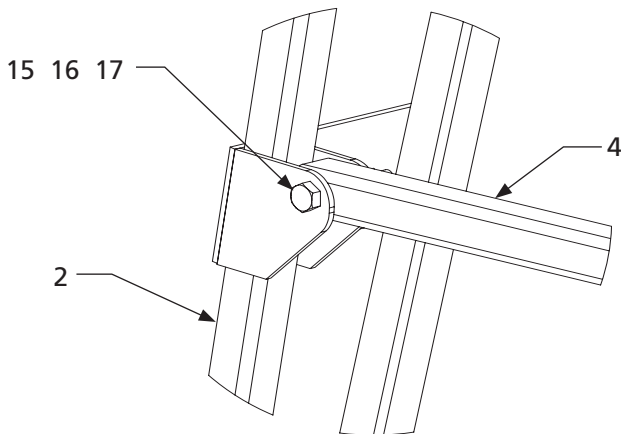
Detail "A" (Casters and Lower Brace Tubes to Legs)



ITEM	DESCRIPTION
2	Right Leg Assembly
4	Upper Brace Tube
5	Lower Brace Tube
8	Caster
12	Hex Bolt (Long)
13	Lock Washer
14	Hex Nut

- b) Per **Detail "B,"** remove the two hex nuts (17), lock washers (16), and bolts (15) from the upper brace tube lug. Remove the brace tube (4) from the leg assembly.

Detail "B" (Upper Brace Tubes to Legs)



ITEM	DESCRIPTION
2	Right Leg Assembly
4	Upper Brace Tube
15	Hex Bolt (Long)
16	Lock Washer
17	Hex Nut

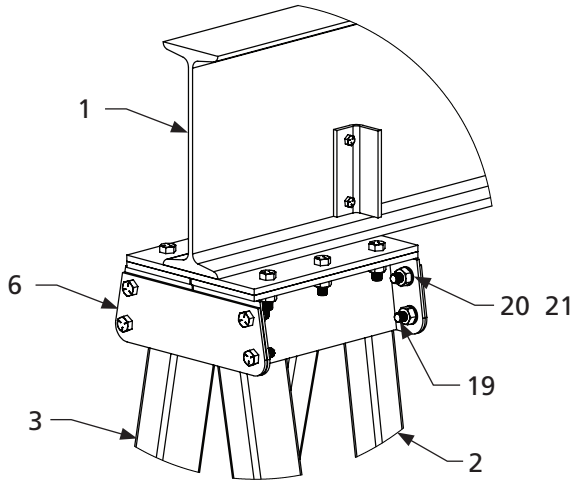
- c) Repeat steps **a)** and **b)** to remove the brace tubes from the second leg.

3. Removing the Leg Connection Plates

Refer to PF-Series Gantry Crane Assembly Drawing for Steps A Through C

- a) Remove all eight hex nuts (21), lock washers (20), and bolts (19) from the leg connection plates (6) and the right and left leg assemblies (2 and 3). Remove the leg connection plates.

Detail "D" (Beam and Leg Connection Plates to Legs)



ITEM	DESCRIPTION
1	Beam
2	Right Leg Assembly
3	Left Leg Assembly
6	Leg Connection Plate
19	Hex Bolt (Short)
20	Lock Washer
21	Hex Nut

- b) Repeat step a) for the second set of right and left leg assemblies (2 and 3).
- c) With all four leg connection plates (6) removed, lay each right leg assembly (2) and left leg assembly (3) on the ground.

Notes

LABELING

The letters correspond to the accompanying labels. All labeling must be legible and attached to the system. If at any time these labels are lost, stolen, removed, or become illegible, contact Spanco. Labels can be ordered by part number as listed below.

If the system is shipped unpainted or without properly secured labels, proper label placement is the sole responsibility of the end user. Spanco cannot be held liable for any damage or injury resulting from omitted or improper label placement.

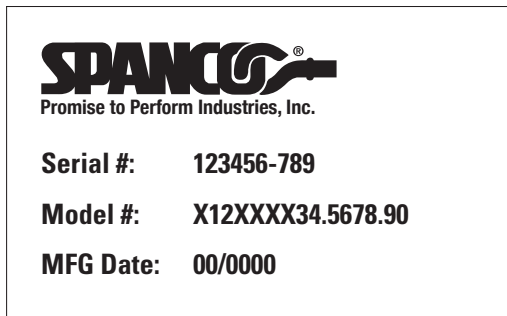
"A"



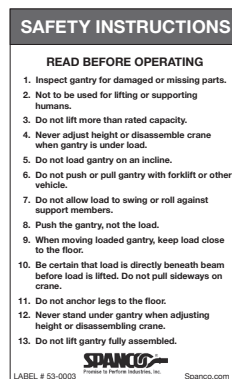
"B"



"C"



"D"



P/N 53-0003

"E"



P/N 53-0589

Notes on Label Placement Drawing

- Label **"A"** should be centered on the beam on both sides and is part number **53-0000**, **53-0001**, or **53-0002** depending on beam size.
- Label **"B"** should be placed label **"A"** on both sides of the beam and is part number **53-0010** or **53-0014** for one-ton capacity systems, **53-0011** or **53-0015** for two-ton capacity systems, **53-0012** or **53-0016** for three-ton capacity systems, **53-0013** or **53-0017** for five-ton capacity systems, **53-0018** for seven-and-a-half-ton capacity systems, **53-0019** for 10-ton capacity systems, and combined **53-0014** and **53-0017** for 15-ton capacity systems.
- Label **"C"** should be placed on all four legs and on label **"A"** inside the outlined area.
- Label **53-0003 "D"** should be placed on each of the four legs.
- Label **53-0589 "E"** should be placed on each of the four legs at eye level (approximately 62 inches from the ground).

BEFORE EACH USE PF-SERIES GANTRY CRANE SYSTEM INSPECTION CHECKLIST

Inspector Name: _____

Date: _____

System Number: _____

Model: _____

INSPECTION POINTS	Inspection Result (✓)	
	PASS	FAIL
1. Inspect hoist per manufacturer's instructions.		
2. Verify that the trolley can easily and smoothly roll the full length of the beam.		
3. Verify that the caster wheels can easily and smoothly roll along the full length of the surface the gantry operates on.		
4. Check all system welds for cracks.		
5. Check system components for corrosion.		
6. Check system components for bent or damaged areas.		
7. Visually check all bolted assemblies for proper connections and properly secured bolts and nuts.		
Caster Inspection		
1. Inspect casters for visible signs of damage or excessive wear.		
2. Check each caster unit for potentially concealed damage.		
3. Visually check that all caster studs are present and tight.		
4. Ensure that the caster's axles are properly secured.		
5. Ensure that the casters' brakes and swivel locks perform properly.		
6. Ensure that the caster brakes make contact with the caster material for maximum effectiveness.		

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ANNUAL GANTRY CRANE SYSTEM INSPECTION CHECKLIST

Inspector Name: _____

Date: _____

System Number: _____

Model: _____

INSPECTION POINTS	Inspection Result (✓)	
	PASS	FAIL
1. Check that end stops are present and have lock washers installed.		
2. Using a torque wrench, check that all bolts are present and torqued to values shown in the system manual.		
3. Verify that capacity labels are present, attached, and legible.		
4. Check the beam flanges. Beam flanges cannot be bent downward.		
5. Check the beam flange thickness. Beam flange thickness cannot be worn more than 10 percent.		
6. Check all system welds for cracks.		
7. Check system components for corrosion and bent or damaged areas.		
8. Verify that the hoist can traverse the entire length of the beam without snags.		
9. Inspect the hoist per the manufacturer's instructions.		
10. Check the entire system for loose components.		
11. Check that all wheel studs, if supplied, are torqued to the value shown in the system manual. Note that 1/2-inch wheel studs have a different torque value than other 1/2-inch bolts.		
12. Check motorization components, if supplied, for improper performance or noncompliance with applicable safety requirements.		
13. Check drive chain sprockets, if supplied, for excessive wear and excessive chain stretch.		
14. Check the electrical apparatus, if supplied, for any deterioration of the controller contactors, limit switches, and push button stations.		
15. Check system for unauthorized modifications. Only Spanco can authorize modifications. Remove system from service if it is modified in anyway.		

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PRODUCT WARRANTY COVERAGE

Spanco warrants its products to be free from defects in material and workmanship as follows:

- **Manual Systems & Equipment:** Ten Years
- **Motorized Systems & Equipment and Paint and Finishes for Non-Aluminum Components:** Two Years

Ten-Year Warranty Coverage:

- Defects in equipment material and workmanship of manual systems and equipment
- Only applies to the wearable wheels on workstation bridge crane end trucks and hoist trolley

Spanco warrants its manual workstation bridge crane, jib crane, and gantry crane products to be free from defects in material and workmanship for a period of ten (10) years or 20,000 hours, commencing on the date of shipment to the first retail purchaser. This warranty extends to non-wearable parts only, with the exception of the wheels supplied on manually operated workstation end trucks and hoist trolleys.

Two-Year Warranty Coverage:

- Defects in equipment material and workmanship of motorized systems and equipment
- Paint coatings and finishes for non-aluminum components

Spanco warrants motorized equipment to be free from defects in material and workmanship for a period of two (2) years or 4,000 hours, commencing on the date of shipment to the first retail purchaser. Spanco warrants its paint and finishes for a period of two (2) years. Warranty claims related to coatings must be accompanied by documentation of the product's application and environmental conditions from time of delivery to time of claim.

WARRANTY TERMS & CONDITIONS

All warranty claims must be approved by Spanco before any work is performed. Spanco's obligation under this warranty is limited to the replacement or repair of Spanco products at the factory or separate location approved by Spanco. Other than the above mentioned warranty, Spanco will not honor any other warranties—whether expressed, implied, or statutory—and disclaims any warranties of merchantability or fitness for a particular purpose. Spanco has the right to reject any warranty claim due to harsh and/or inappropriate environmental conditions.

Spanco Is Not Liable for:

- Indirect, incidental, or consequential damages including lost profits, operating costs, loss of production, or travel expenses
- Components or accessories not manufactured by Spanco
- Defective equipment or system failure caused by misuse, negligence, and improper installation or maintenance
- Equipment that has been used in excess of its rated capacity or beyond its service factors
- Rework and modification of any equipment that has been altered without Spanco's written authorization
- Freight charges and damage incurred by freight carriers
- Any loss, injury, or damage to persons or property resulting from failure or defective operation of material or equipment
- Any damage to paint coatings and finishes caused by negligence and improper storage, such as temporarily storing an indoor system outdoors

Reimbursement Disclaimer:

- Written notice of any claimed system defect must be given to Spanco within ninety (90) days of shipment.
- All requests for reimbursement must be accompanied by proper documentation.
- Reimbursement is provided in the form of a credit unless otherwise approved by Spanco management.
- Reimbursement for labor will be provided at a maximum rate of \$75 per hour.
- All reimbursement is subject to approval by Spanco management.

ABOUT SPANCO[®]

Our Commitment

Spanco professionals are dedicated to designing and manufacturing a variety of material handling solutions that meet all applicable CMAA, ANSI, OSHA, and MMA guidelines and standards. Our team of engineers and industry experts combine many years of experience in the material handling industry to manufacture material handling solutions that are backed by the best warranty in the industry.

Spanco production facilities are certified under the ISO 9001:2015 Quality Management System to provide superior quality products. Every welder at Spanco is AWS D1.1 certified to handle steel products in accordance with the rigorous requirements and lab testing established by the American Welding Society. Our aluminum welders are also AWS D1.2 certified to handle aluminum products.

Spanco professionals welcome challenging projects that require custom crane engineering. Spanco also offers hundreds of pre-engineered lifting solutions, including Workstation Bridge Cranes, Jib Cranes, Gantry Cranes, Monorails, and Tractor Drives.

Our Production:

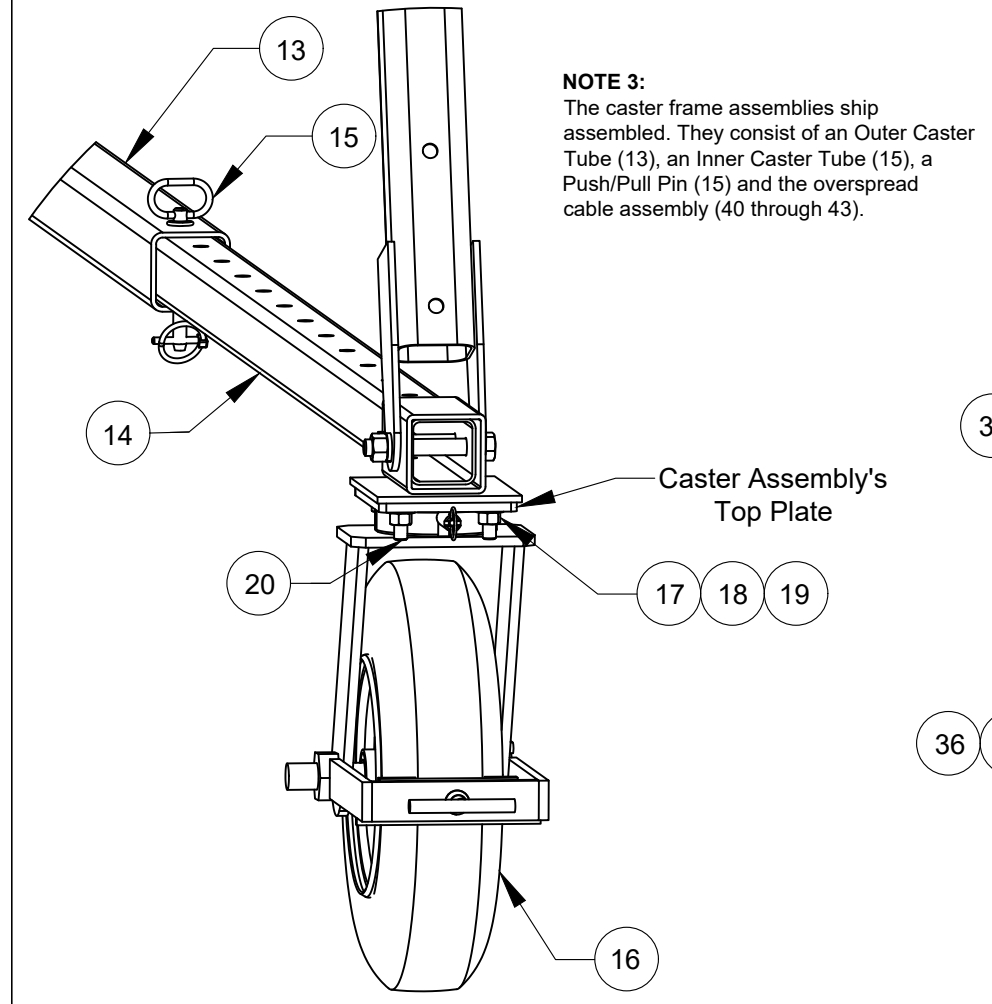
All of our systems are designed and manufactured in the United States of America. We have production facilities in Las Vegas, Nevada, and at our headquarters in Morgantown, Pennsylvania.



Morgantown, PA | Las Vegas, NV
Toll Free: (800) 869-2080 | Local: (610) 286-7200 | Outside US: 1-610-286-7200 | Fax: (610) 286-0085
Spanco.com | info@Spanco.com

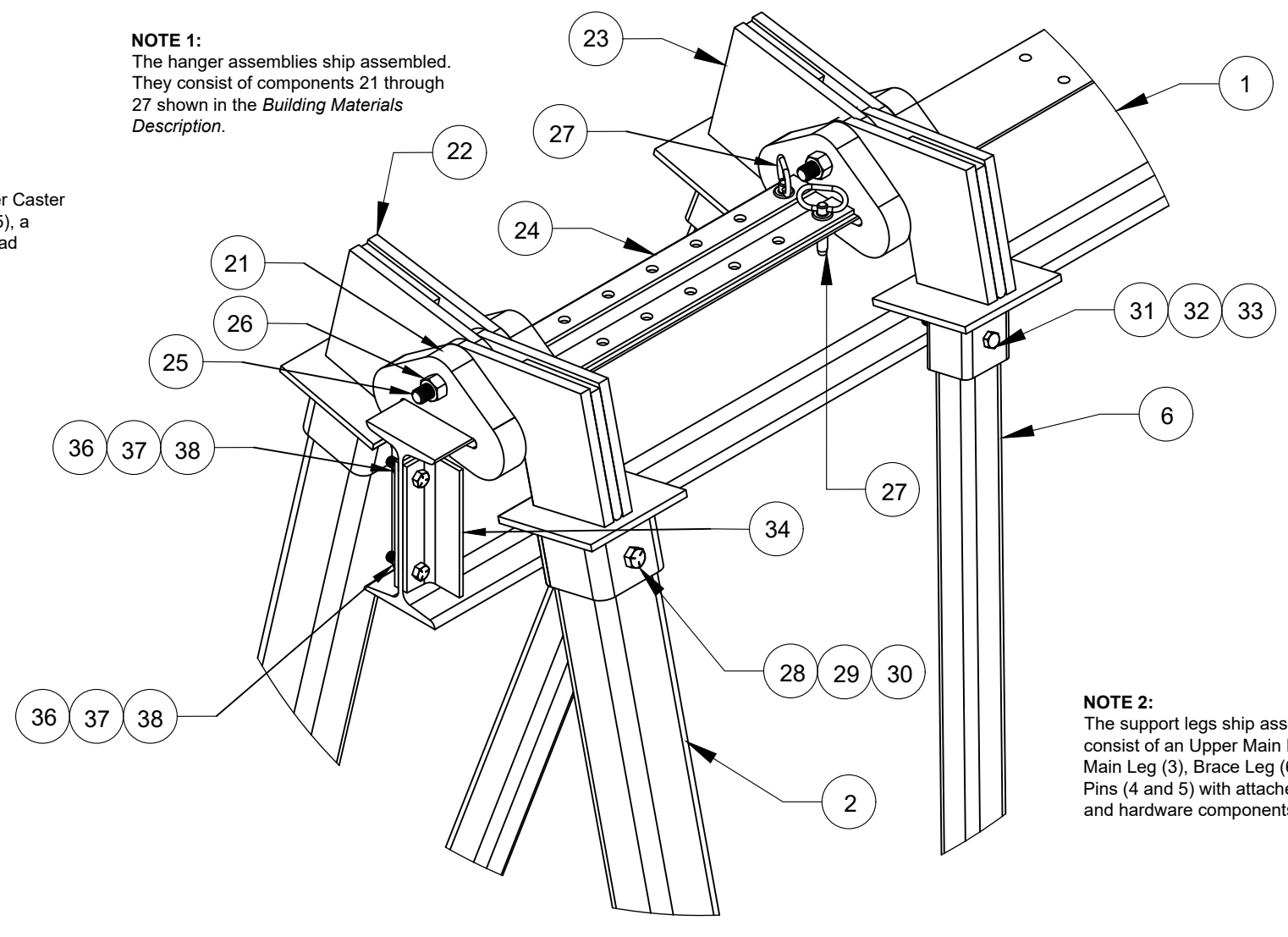


Detail "A" (Caster Assemblies to Caster Frame Assemblies)



NOTE 3:
The caster frame assemblies ship assembled. They consist of an Outer Caster Tube (13), an Inner Caster Tube (15), a Push/Pull Pin (15) and the overspread cable assembly (40 through 43).

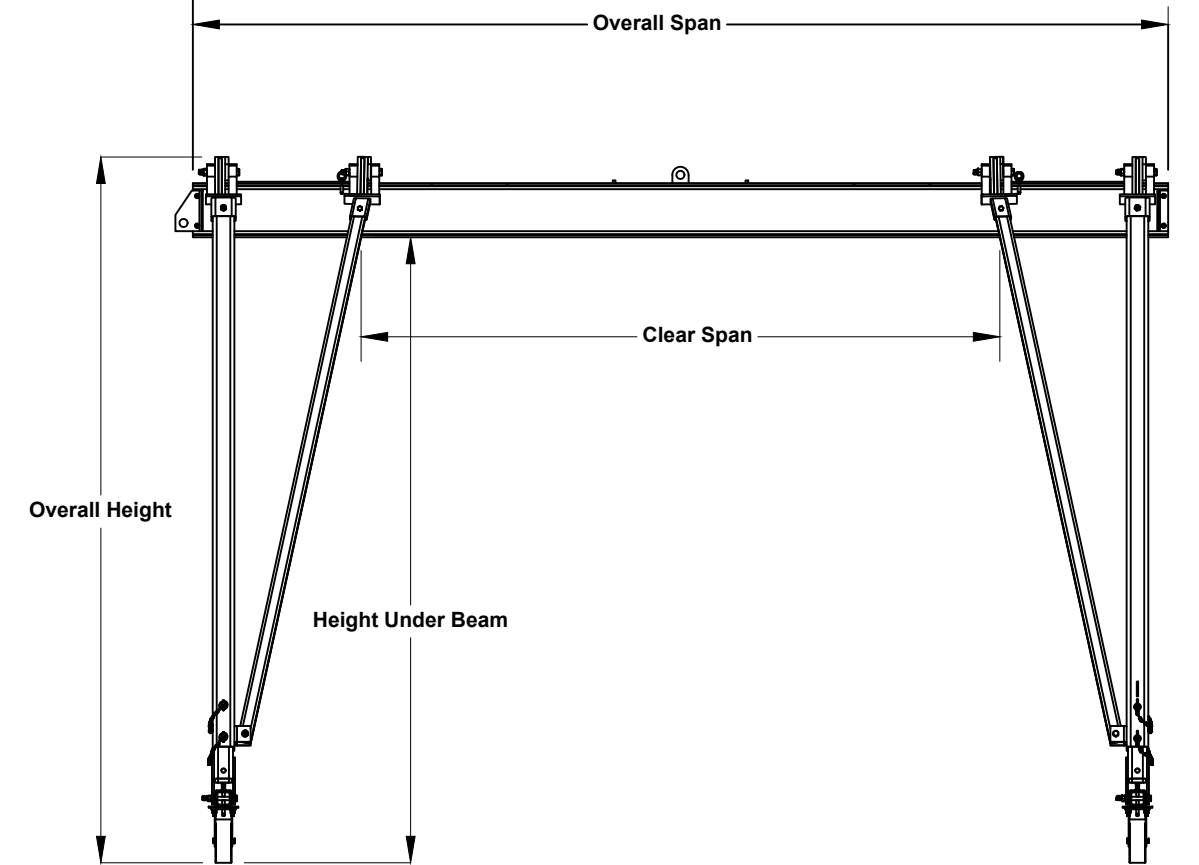
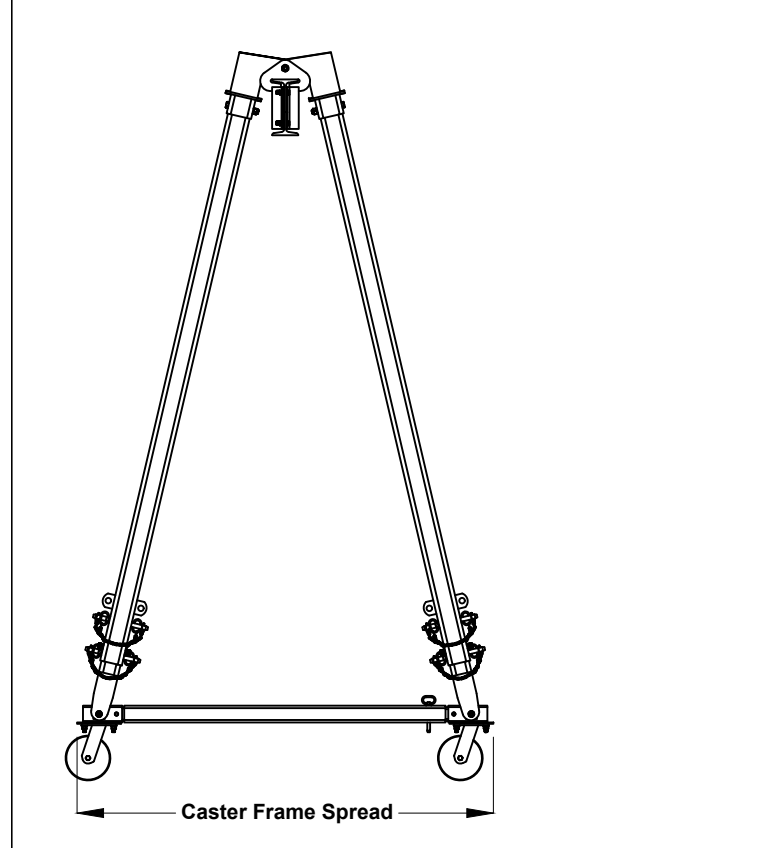
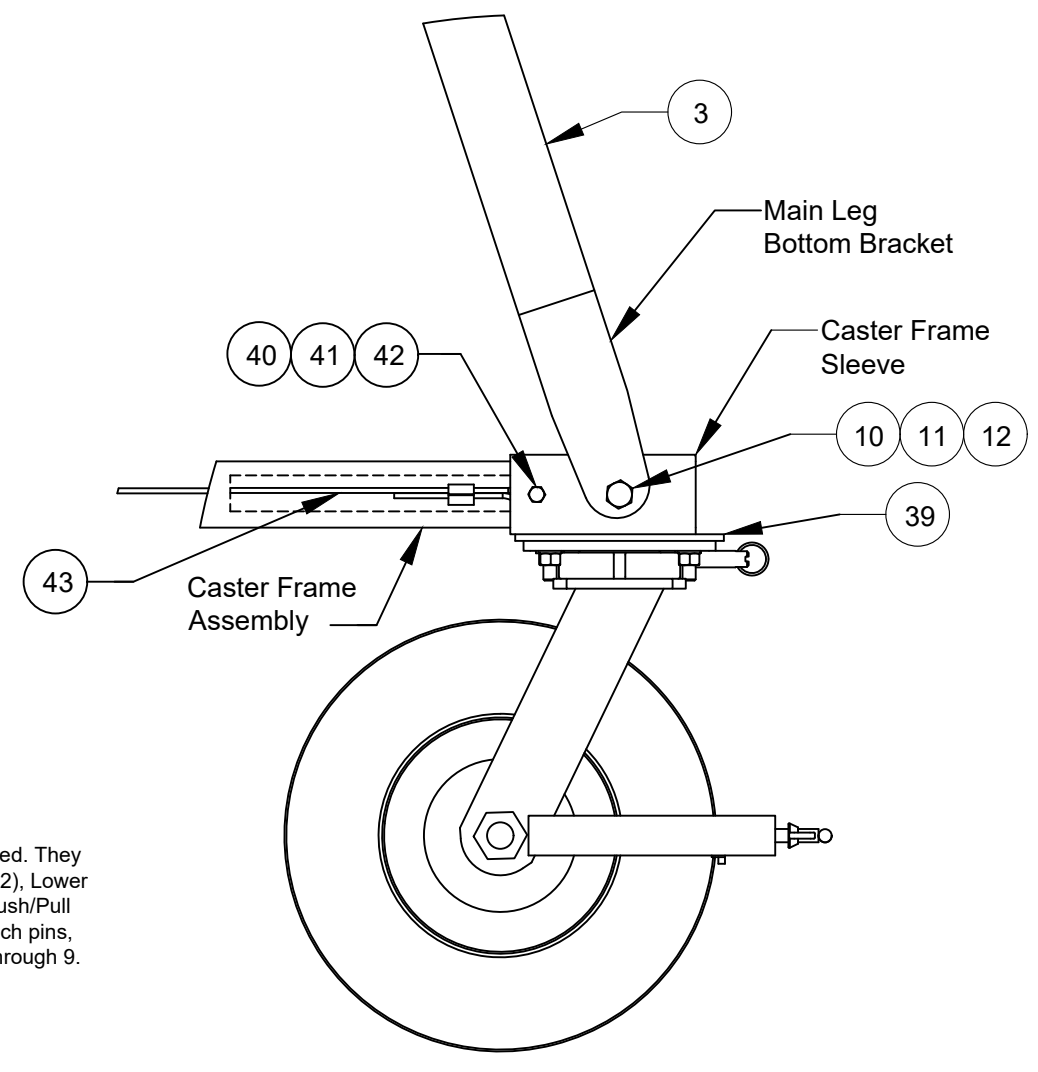
Detail "B" (Beam Hanger Assemblies, End Stop Angles, and Support Legs to Beam)



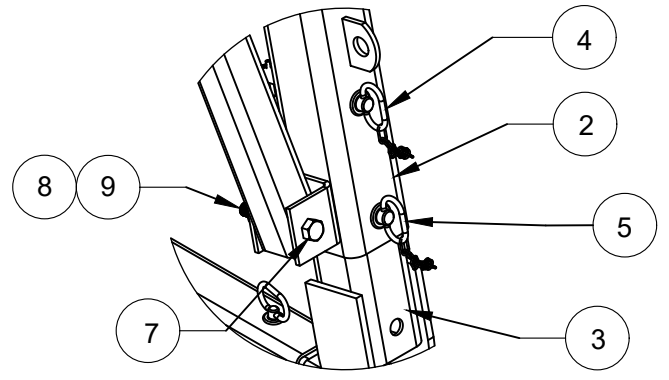
NOTE 1:
The hanger assemblies ship assembled. They consist of components 21 through 27 shown in the Building Materials Description.

NOTE 2:
The support legs ship assembled. They consist of an Upper Main Leg (2), Lower Main Leg (3), Brace Leg (6), Push/Pull Pins (4 and 5) with attached linch pins, and hardware components 7 through 9.

Detail "D" (Caster Frame Assemblies to Support Legs)



Detail "C" (Brace Leg to Main Leg)



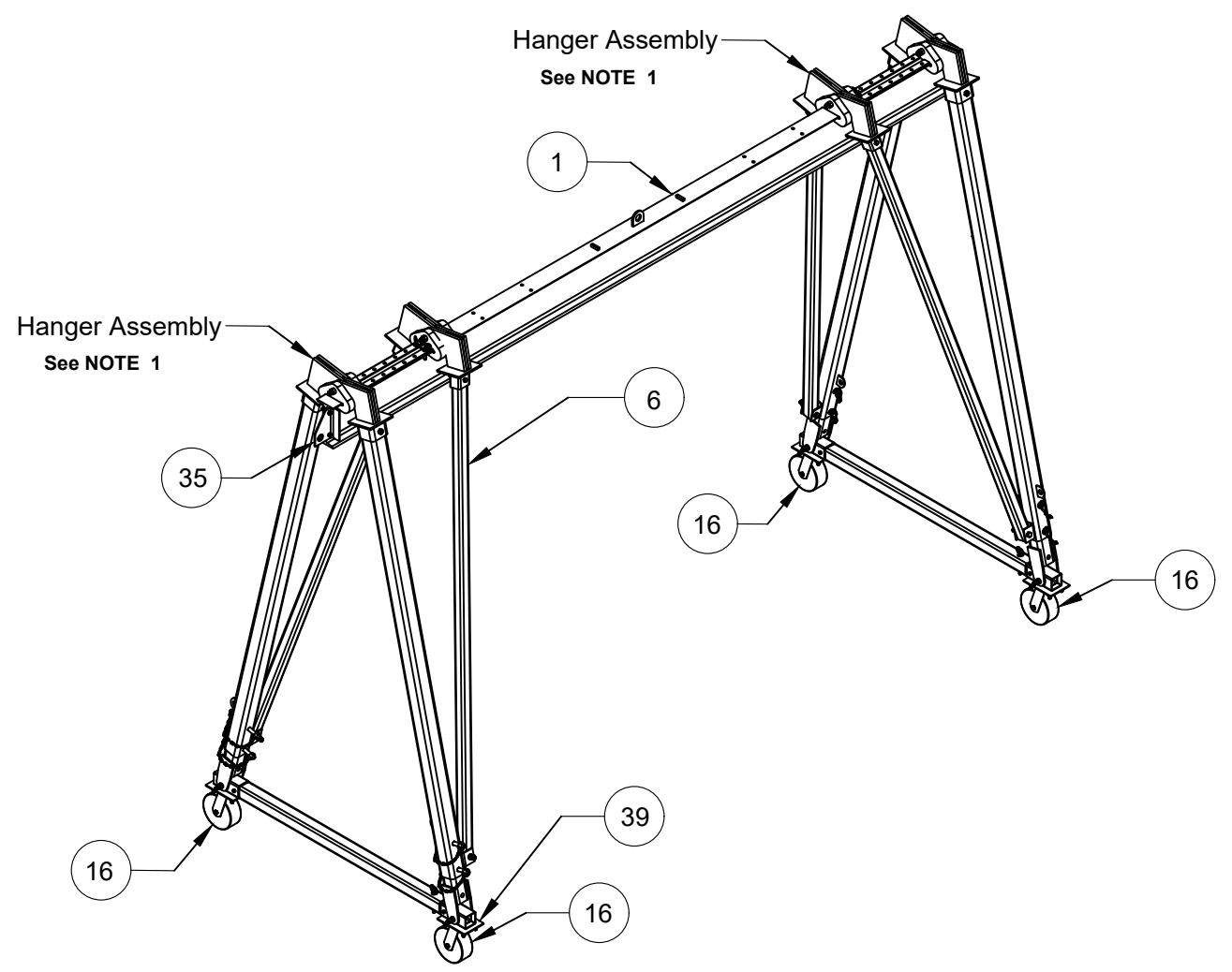
NOTE 9:
While in use, the caster frame spread must be at maximum distance.

Item	Quantity	Building Materials Description
1	1	Beam
2	4	Upper Main Leg
3	4	Lower Main Leg
4	4	Push/Pull Pin
5	4	Push/Pull Safety Pin
6	4	Brace Leg
7	4	Hex Bolt
8	4	Lock Washer
9	4	Hex Nut
10	4	Hex Bolt
11	4	Lock Washer
12	4	Hex Nut
13	2	Outer Caster Tube
14	2	Inner Caster Tube
15	2	Caster Frame Spreader Pin
16	8	Single Caster
17	16	Flat Washer
18	16	Lock Washer
19	16	Hex Nut
20	16	Hex Bolt
21	4	I-Beam Hanger
22	4	Main Leg Hanger Assembly
23	4	Brace Leg Hanger Assembly
24	2	Beam Hanger Weldment
25	4	Hex Bolt
26	4	Locknut
27	4	Push/Pull Pin with Linch Pin
28	4	Hex Bolt
29	4	Lock Washer
30	4	Hex Nut
31	4	Hex Bolt
32	4	Lock Washer
33	4	Hex Nut
34	3	End Stop Angles
35	1	Counterweight Lug
36	4	Hex Bolt
37	4	Lock Washer
38	4	Hex Nut
39	4	Caster Mounting Plate—Single Caster
40	4	Hex Bolt
41	4	Hex Nut
42	4	Lock Washer
43	2	Leg Overspread Cable

NOTE 4:
On some models, item 20 is replaced with a welded stud.

Torque Specifications		
Bolt Diameter	Hex Nut Torque	Minimum Hex Locknut Torque
*1/2 Inch	78 Foot-Pounds	51 Foot-Pounds
**15/8 Inch	154 Foot-Pounds	93 Foot-Pounds
†13/4 Inch	257 Foot-Pounds	151 Foot-Pounds
7/8 Inch	341 Foot-Pounds	224 Foot-Pounds
1 Inch	514 Foot-Pounds	325 Foot-Pounds

*The 1/2-inch diameter hex nuts (19) on the caster frame assemblies' studs should be torqued to 23 foot-pounds.
 **The 5/8-inch diameter locknuts (26) on the hanger assemblies should be torqued to 108 foot-pounds.
 †5/8-inch diameter leg bracing bolts (7) should be torqued to 48 foot-pounds.
 ††3/4-inch diameter leg bracing bolts (7) should be torqued to 77 foot-pounds.

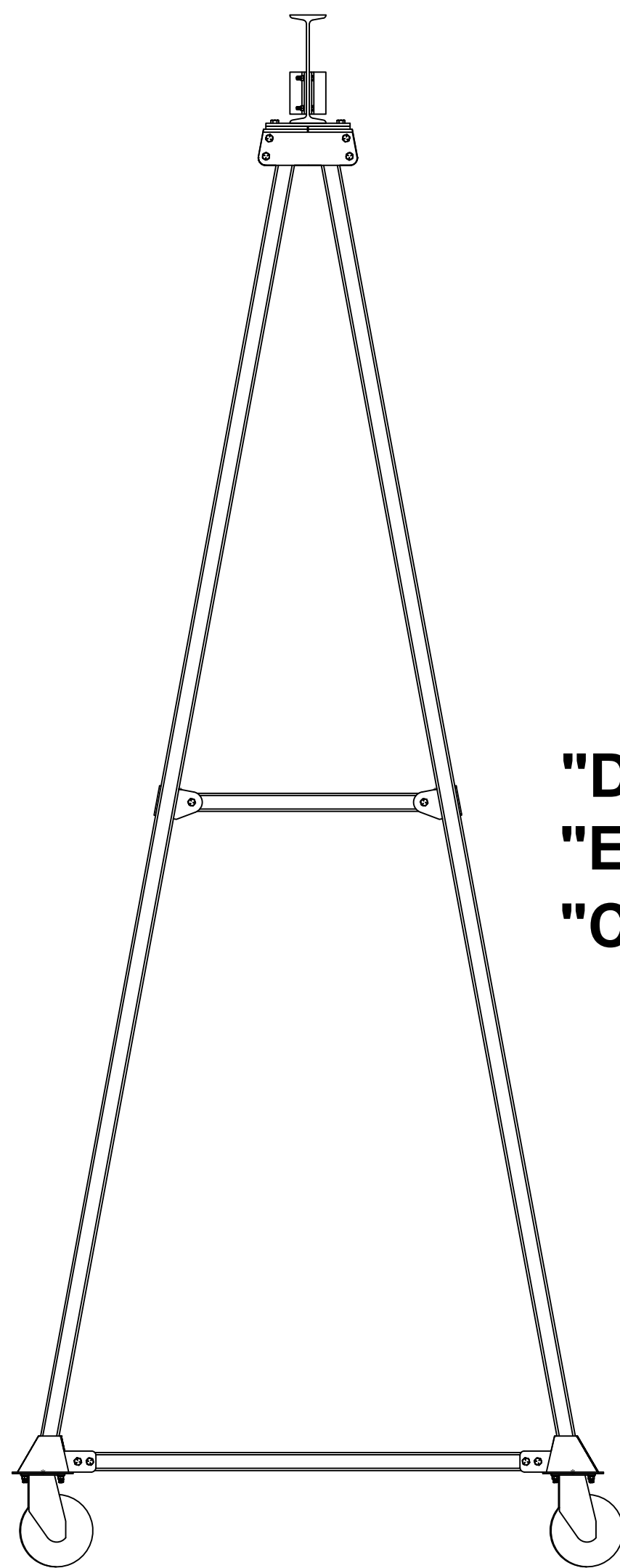


SHEET 1 OF 2

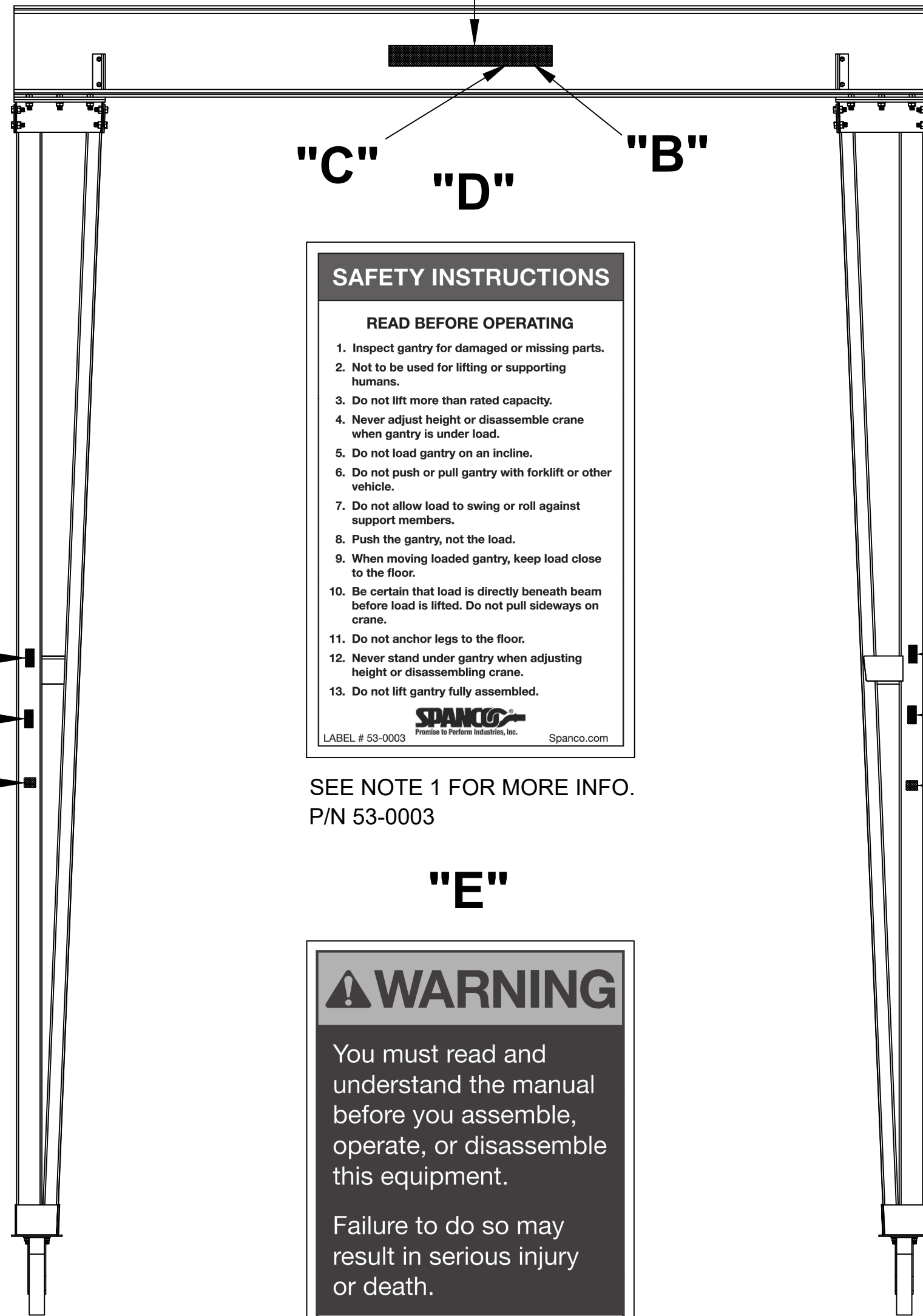
REV.	DATE	NAME	REVISION DESCRIPTION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE. DO NOT SCALE DRAWING	
TOLERANCES ARE:			APPROVALS	DATE
FRACTIONS	DECIMALS	ANGLES	DRAWN	08/25/21
±1/16"	.XX ±.05	±1°	JRM	
	.XXX ±.005		CHECKED	
	.XXXX ±.0005			
MATERIAL			APPVD:	04/01/22
FINISH			PLOT DATE:	WT.
STATUS:			PROJECT NO.:	SCALE:
			SIZE/DWG. NO.	REV.
			C	T-SERIES-ASSEMBLY
			CAD FILE:	SHEET 1 OF 2



MATERIAL HANDLING
T-SERIES GANTRY CRANE ASSEMBLY DRAWING



"D"
"E"
"C"



"A"
"C" "D" "B"

SAFETY INSTRUCTIONS

READ BEFORE OPERATING

1. Inspect gantry for damaged or missing parts.
2. Not to be used for lifting or supporting humans.
3. Do not lift more than rated capacity.
4. Never adjust height or disassemble crane when gantry is under load.
5. Do not load gantry on an incline.
6. Do not push or pull gantry with forklift or other vehicle.
7. Do not allow load to swing or roll against support members.
8. Push the gantry, not the load.
9. When moving loaded gantry, keep load close to the floor.
10. Be certain that load is directly beneath beam before load is lifted. Do not pull sideways on crane.
11. Do not anchor legs to the floor.
12. Never stand under gantry when adjusting height or disassembling crane.
13. Do not lift gantry fully assembled.

SPANCO
Promise to Perform Industries, Inc.
LABEL # 53-0003 Spanco.com

SEE NOTE 1 FOR MORE INFO.
P/N 53-0003


"E"

WARNING

You must read and understand the manual before you assemble, operate, or disassemble this equipment.

Failure to do so may result in serious injury or death.

To download a replacement manual, visit Spanco.com or scan the QR code.

 SCAN ME

P/N: 53-0589

SEE NOTE 1 FOR MORE INFO.
P/N 53-0589

"A"

SPANCO
Promise to Perform Industries, Inc.
SPANCO.COM | (800) 869-2080
PROUDLY MADE IN THE USA

TON

SEE NOTE 1 FOR MORE INFO.

"B"

7 1/2

SEE NOTE 1 FOR MORE INFO.

"C"

SPANCO
Promise to Perform Industries, Inc.


Serial #: 123456-789
Model #: X12XXXX34.5678.90
MFG Date: 00/0000

SEE NOTE 1 FOR MORE INFO.

NOTE 1:
LABEL "A" SHOULD CENTERED ON THE BEAM ON BOTH SIDES AND IS PART NUMBER **53-0000**, **53-0001**, OR **53-0002** DEPENDING ON BEAM SIZE.
LABEL "C" SHOULD BE PLACED ON ALL FOUR LEGS AND ON LABEL "A" INSIDE THE OUTLINED AREA.
LABEL **53-0003** "D" SHOULD PLACED ON EACH OF THE FOUR LEGS.
LABEL **53-0589** "E" SHOULD BE PLACED ON EACH OF THE FOUR LEGS AT EYE LEVEL (APPROXIMATELY 62 INCHES FROM THE GROUND).

NOTE 2:
LABEL "B" SHOULD BE PLACED ON LABEL "A" ON BOTH SIDES OF THE BEAM AND IS P/N **53-0010** OR **53-0014** FOR ONE-TON CAPACITY SYSTEMS, **53-0011** OR **53-0015** FOR TWO-TON CAPACITY SYSTEMS, **53-0012** OR **53-0016** FOR THREE-TON SYSTEMS, **53-0013** OR **53-0017** FOR FIVE-TON CAPACITY SYSTEMS, **53-0018** FOR SEVEN-AND-A-HALF-TON CAPACITY SYSTEMS, **53-0019** FOR 10-TON CAPACITY SYSTEMS, AND COMBINED **53-0014** AND **53-0017** FOR 15-TON CAPACITY SYSTEMS.

SHEET 2 OF 2

REV.	DATE	NAME	REVISION DESCRIPTION	
CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE. DO NOT SCALE DRAWING.				
APPROVALS	DATE			
DRAWN: JRM	11/29/21		MATERIAL HANDLING PF-SERIES GANTRY CRANE LABEL PLACEMENT DRAWING	
CHECKED:				
APPVD: JRG	04/01/22			
PLOT DATE:	WT.	SIZE	DWG. NO.	REV.
PROJECT NO.:	SCALE:	C	PF-SERIES ASSEMBLY	-
CAD FILE: 7PF1520B		SHEET 2 OF 2		