Instruction Manual

# Applicator lift system

## ACP0940340
## ACP0940350
## ACP0940360

North America
4205 River Green Parkway, Duluth GA 30096 USA

Original Assembly Instructions

April 2024
ACX4595570
NA
English

# How to use this manual

### Transport damage and missing parts

Examine the machine and parts carefully for possible damage that occurred during transport. Speak to the person that is responsible for transport immediately if you find damage.

Make an order for missing parts.

### General

The function of this manual is to help dealers and agents in the installation and usage of product.

It is important to follow the repair procedures. You must use the applicable tools and equipment in order to complete the procedures in the times specified in the repair time schedule.

You must read this manual before you assemble or use the product.

If more assistance is necessary you should speak to your AGCO dealer.

This manual is only applicable to the models specified on the front cover.

### Fastener torques

Always replace fasteners with fasteners of the same specification. Tighten all fasteners to the correct torque values.

You can find the list of torque values in the service manual. If the torque value is different, it is specified in the procedure.

### Special tools

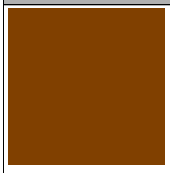
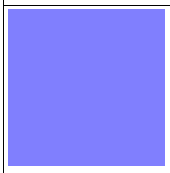
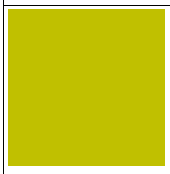
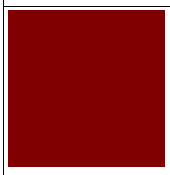
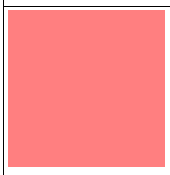
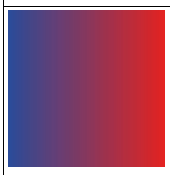
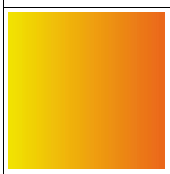
If it is necessary to use a special tool in a procedure, the tool identification is specified in the procedure.

### Illustrations

The illustrations do not always show the same machine specification or machine configuration. The procedure is the same unless the instruction tells you differently.

The illustrations in this manual use a color system to help you follow the instruction correctly.

| Color | Description | Functions |
|---|---|---|
| | **Target/focus item**<br>The primary component in the step is this color. | Primary component, decal location, component location |
| | **Connectors, fasteners**<br>All components that attach the primary component to a different component are this color. | Fasteners, electrical connectors |
| | **Primary alternative**<br>If there are 2 primary components in the illustration, 1 of the 2 components is this color. | Secondary component |

| Color | Description | Functions |
|---|---|---|
|  | **Secondary alternative**<br>If there are 3 primary components in the illustration, 1 of the 3 components is this color. | Tertiary component |
|  | **Special tool**<br>Where the special tools or equipment are in an illustration, they are this color. | Pressure gauges, specified tools |
|  | **Parts that you move**<br>A component that you must move, and that is not necessary to remove from the machine. | Electrical wires, hydraulic hoses |
|  | **Sections**<br>Where a cross-section of a component is necessary, this color shows the component that you see through. | Engines, drivetrain |
|  | **Channels**<br>To show the flow of liquid in a channel. | Engines, drivetrain |
|  | **Temperature**<br>Where the temperature of liquid changes.<br>• Blue - Cold<br>• Red - Hot | Coolant flow, water flow |
|  | **Pressure**<br>Where the pressure or state of gas changes.<br>• Yellow - Low<br>• Orange - High | SCR system, hydraulic systems |

### ISO Hydraulic color definition

| Color | Description | Color | Description |
|---|---|---|---|
| | Pump flow | | Suction flow |
| | Tank flow | | No flow |
| | Measured flow | | Reduced flow |
| | Intensified fluid | | |

## 1.1 Safety icons

The safety warnings shown in this manual use these icons:

**DANGER: This is an immediately dangerous situation which, if you ignore it, will cause death or injury.**

**WARNING: This is an immediately dangerous situation which, if you ignore it, will cause death or injury.**

**CAUTION: This is an immediately dangerous situation which, if you ignore it, can cause injury.**

**IMPORTANT:** *This is an immediately dangerous situation which, if you ignore it, can cause damage to the machine or adjacent area.*

**NOTE:** *Specified data for procedures or components.*

## 1.2 Safety instructions

Make sure that you have the Operator's Manual for the machine you are using with this product. Read and obey all safety instructions in the Operator's Manual of the machine before you continue with these instructions

If you do not obey the instructions, there is a risk of injury.

In most conditions you can prevent injuries if you see dangerous situations before an injury occurs.

The person that installs this kit must be an approved technician and have the necessary tools.

Do not change the equipment. An adjustment not specified by the manufacturer can change the function of the machine and cause damage or personal injury.

Only use AGCO approved replacement parts.

**WARNING:**
**To prevent injury and machine damage, you must:**

- Use the Personal Protective Equipment (PPE) applicable to the task.
  - Eye protection
  - Hand protection
  - Foot protection
  - Ear protection
  - Hard hat
  - Reflective vest

**DANGER: To prevent serious injury or death, you must follow all precautions.**

- The structure is intended only to lift application systems within the weight ratings of the structure. Using the structure for other purposes is not permitted.
- Application systems must have all tanks and/or hoppers emptied before using the applicator lift system.
- Inspect structure before each use. Do not use if damaged.
- Do not exceed the load maximum ratings for the structure.
  - 12,500 lbs maximum total weight
  - 10,000 lbs maximum per beam
- Inspect hardware before each use to ensure it is present and tight. Replace or tighten any missing or loose hardware. Use ASTM grade A325 bolts and A563 nuts if hardware needs to be replaced.
- Follow chain hoist manufacturer recommendations for use, storage, and inspection.
- Do not exceed maximum load ratings for chain hoists and rigging components.
- Park the machine on a solid level surface.
- Disengage the PTO, if installed.
- Set the transmission to park and apply the parking brake.
- Set the control console to OFF.
- Stop the engine and remove the key.
- Look and listen! Wait for the parts that move to stop before you start the work.
- Put wheel chocks in front of and behind the wheels before you do work on or below the machine.
- Remove or release all sources of energy, for example:
  - Disconnect the battery.
  - Release of pressure from a system.
  - Lock the parts that move.
- Clean the oil, dirt, and crop material from the area on the machine where you do the work.

Good safety procedures prevent accidents to you and each person near you.

## 1.3 Waste disposal

Incorrect disposal of waste can cause pollution to the environment. Some examples of dangerous waste materials include oil, fuel, coolant, battery chemicals and air-conditioning refrigerant.

- Only use an approved container to collect the waste material. Always seal the container after you drain the fluids.
- Do not drain or spill waste on the ground, down a water drainage system or into water sources.
- Air-conditioning refrigerant released into the air can cause damage to the environment. The local regulations recommend that only an approved technician removes and recycles the air-conditioning refrigerant.
- Obey pollution laws.
- Speak with the local authorities on the correct procedure to discard of the waste.

Recycling centres or approved dealers have the correct equipment for the disposal of used oil.

Do not discard material with this symbol in the general waste.

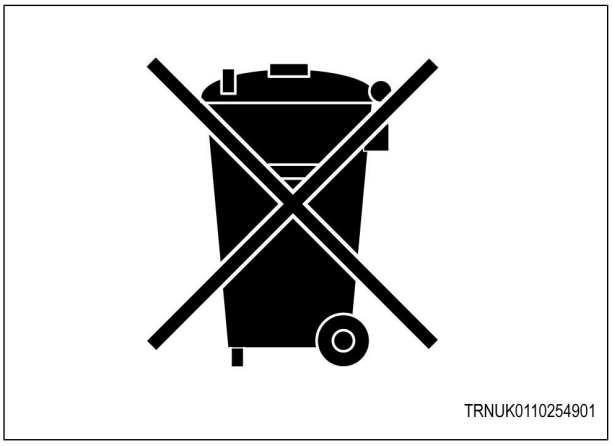



*Fig. 1*

Recycle used materials with this symbol.

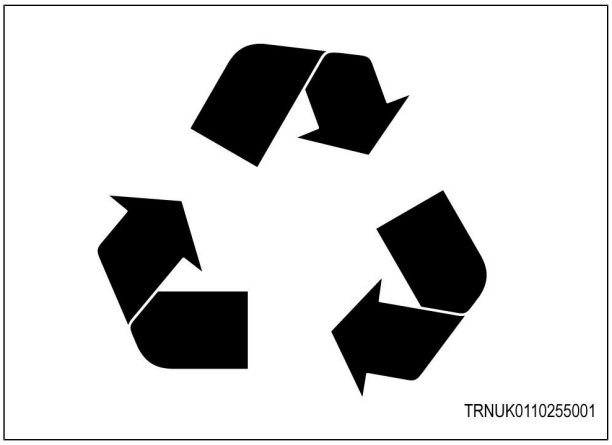



*Fig. 2*

## 2.1 Liquid system removal: Fendt RG932, RG934/RG934H, RG937/RG937H

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. Remove the fasteners and the retainer for the boom on the left side. (Typical design shown.) This will provide clearance for the machine to drive out.

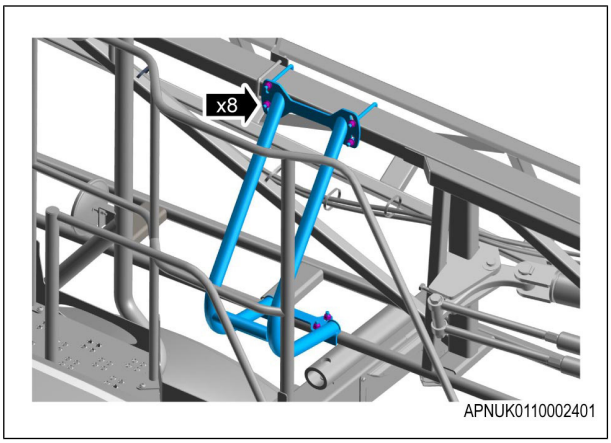



*Fig. 1*

2. **NOTE:** Refer to the workshop manual for information on removal of application system from chassis.

   Complete the procedure to disconnect the liquid system from the chassis.

3. Verify area is clear of people and other obstacles. With axles tracked to the narrowest position, move the machine into the center of the bay and set the parking brake to ON and install the wheel chocks.

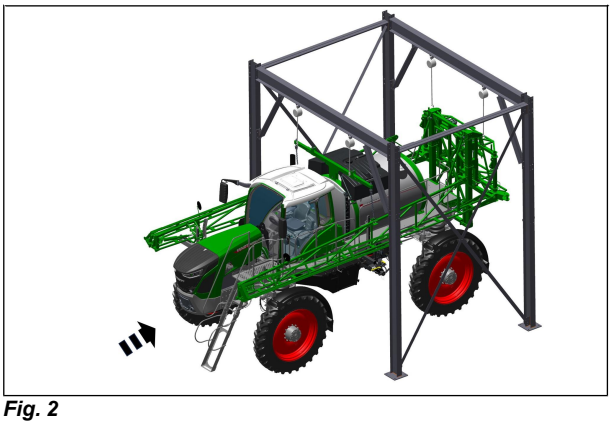


*Fig. 2*

4. **NOTE:** High clearance machines only.

   Raise the machine into the high clearance position.

5. **NOTE:** Refer to the workshop manual.

   Connect the lift equipment to the recommended lifting points on the liquid system.

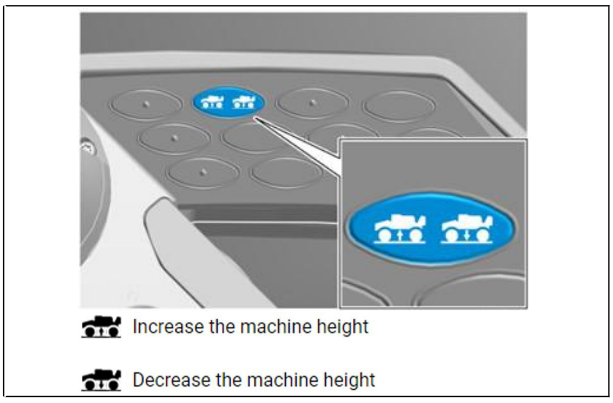



*Fig. 3*

6. **NOTE:** High clearance machines only.

   Lift system initially with chain hoists to ensure system is free of chassis. Raise chain hoists evenly to keep load balanced. Lower the machine into the standard clearance position, note that the red stop button on the hydro handle can be used to stop the lowering process if needed.

7. Lift the front of the liquid system until it is at a sufficient height for the rear suspension to clear the side reload valve.

*Fig. 4*

8. **NOTE:** Standard clearance machine

   Use the chain hoists to lift the liquid system off the chassis. Raise chain hoists evenly to keep load balanced.

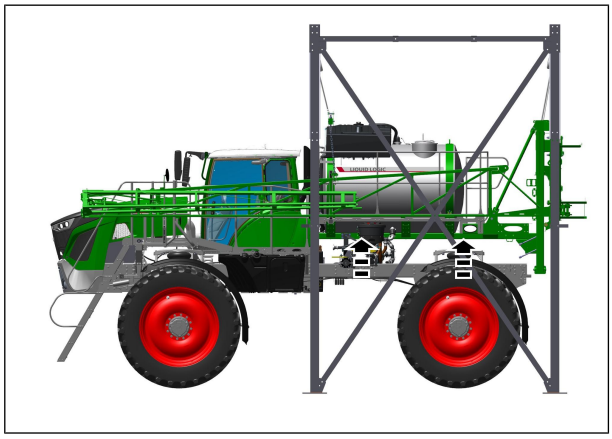


*Fig. 5*

9. Verify area is clear of people and other obstacles and drive the machine forward until clear of the structure/system.

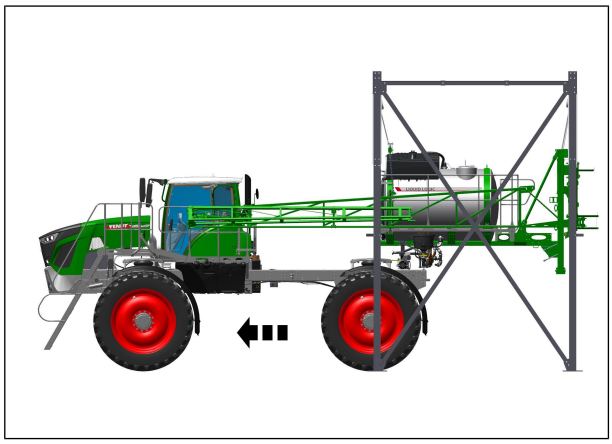


*Fig. 6*

10. Do not store system suspended from the structure. If the system is to be stored in the structure, it should be lowered onto blocks, removing the load from the hoists. Lower chain hoists evenly to keep load balanced.

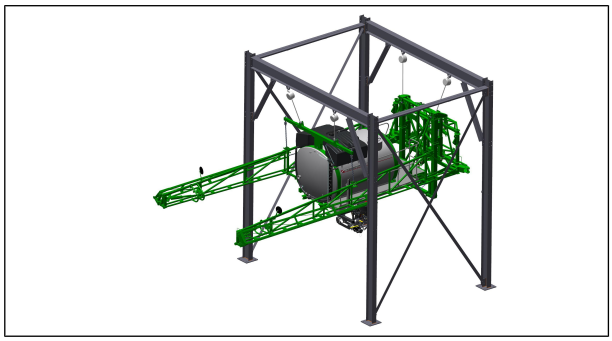


*Fig. 7*

## 2.2 Liquid system installation: Fendt RG932, RG934/RG934H, RG937/RG937H

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. Verify area is clear of people and other obstacles. Ensure boom retainer is removed from left boom (see section 2.1, step 1) and slowly reverse the machine under the suspended system.

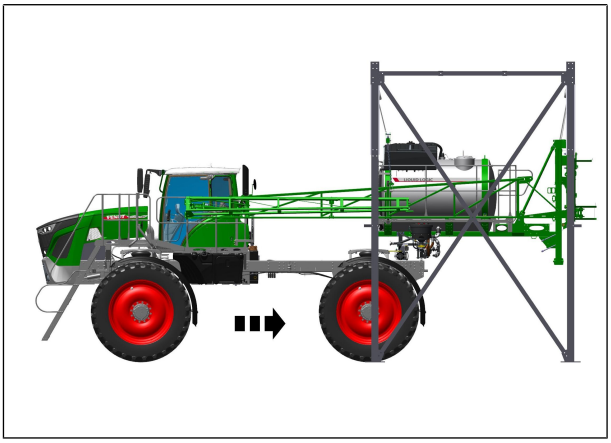


*Fig. 8*

2. Stop the machine when the system tie downs align with the mating points on the chassis and set the parking brake to ON and install the wheel chocks.

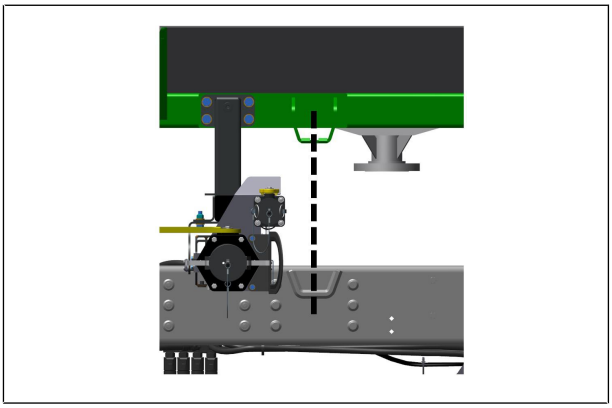


*Fig. 9*

3. **NOTE:** High clearance machines.

   Raise the machine into the high clearance position to lift the chassis toward the liquid system, leaving space for final positioning with the chain hoists.

4. Verify area is clear of people and other obstacles and lower the liquid system to the chassis with the chain hoists. Lower chain hoists evenly to keep load balanced.

5. Disconnect the chain hoists from the liquid system.

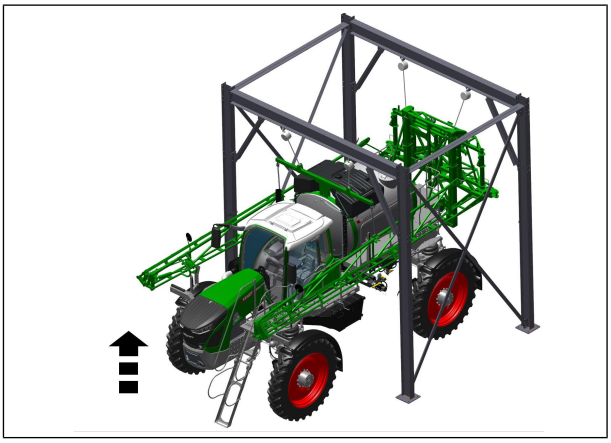


*Fig. 10*

6. **NOTE:** Standard clearance machines.

   Verify area is clear of people and other obstacles and lower the chain hoists until the liquid system is on the chassis rails. Lower chain hoists evenly to keep load balanced.

7. Disconnect the chain hoists from the liquid system and stow the chains out of the path of machine travel.

8. Verify the area is clear of people and other obstacles and drive the machine out of the structure.

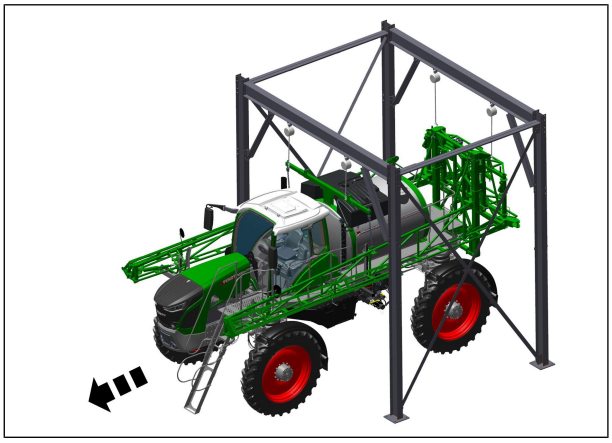


*Fig. 11*

9. Install the retainer and the fasteners for the boom on the left side.

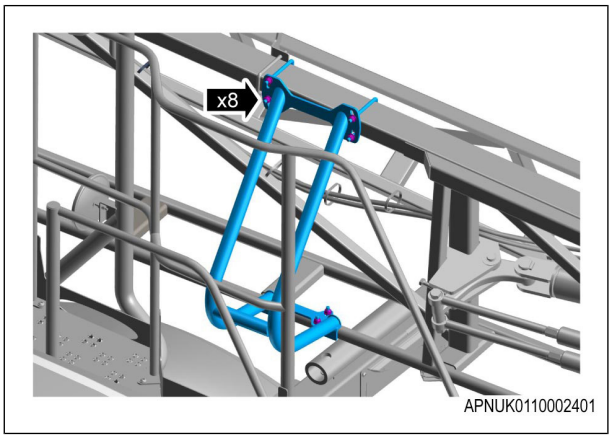



*Fig. 12*

**After finishing the procedure**
**NOTE:** *Refer to the workshop manual for information on installation of application system to chassis.*

Reconnect the system to the chassis.

## 2.3 Dry system removal: Fendt RG932, RG934/RG934H, RG937/RG937H

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. **NOTE:** Refer to the workshop manual for information on removal of application system from chassis.

   Complete the procedure to disconnect the system from the chassis.

2. Verify area is clear of people and other obstacles. With axles tracked to the narrowest position, move the machine into the center of the bay and set the parking brake to ON and install the wheel chocks.

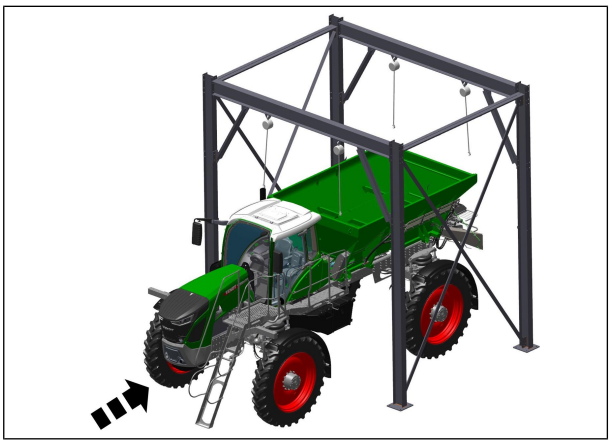


*Fig. 14*

3. **NOTE:** High clearance machines only.

   Raise the machine into the high clearance position.

4. **NOTE:** Refer to the workshop manual.

   Connect the lift equipment to the recommended lifting points on the dry system.

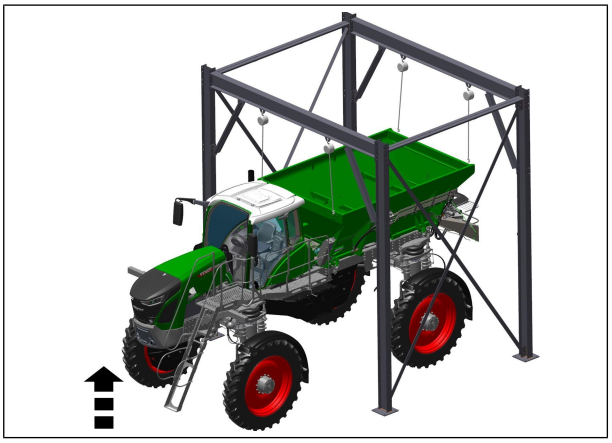


*Fig. 15*

**5.** Lift system initially with chain hoists to ensure system is free of chassis. Raise chain hoists evenly to keep load balanced. Lower the machine into the standard clearance position, note that the red stop button on the hydro handle can be used to stop the lowering process if needed.

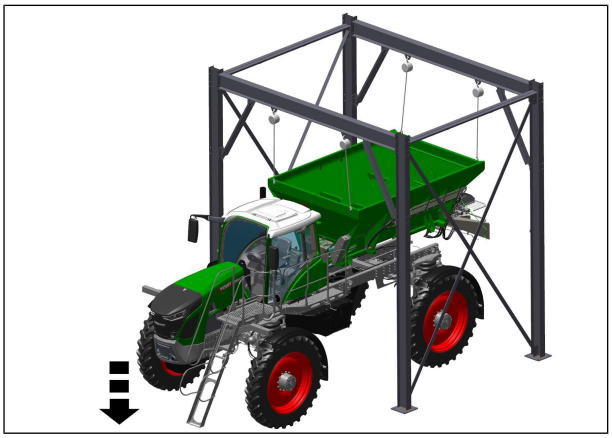


*Fig. 16*

**6.** **NOTE:** Standard clearance machine

Use the chain hoists to lift the system off the chassis. Raise chain hoists evenly to keep load balanced.

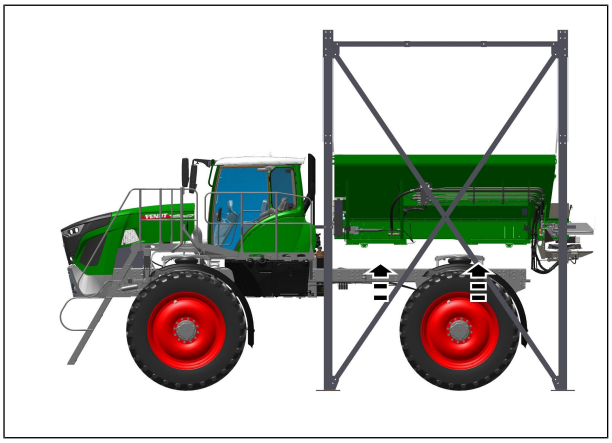


*Fig. 17*

**7.** Verify area is clear of people and other obstacles. Drive the machine forwards until clear of the structure/system.

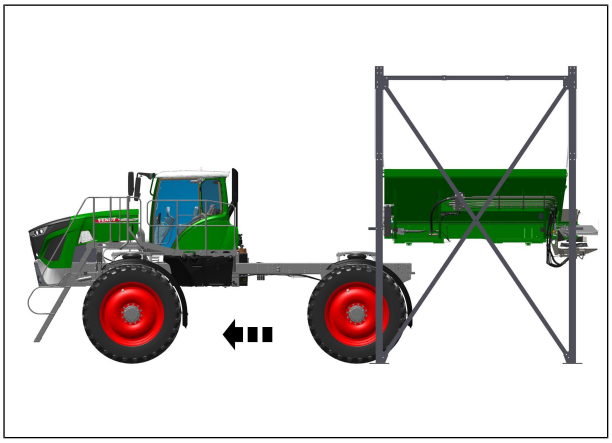


*Fig. 18*

**8.** Do not store system suspended from the structure. If the system is to be stored in the structure, it should be lowered onto blocks, removing the load from the hoists. Lower chain hoists evenly to keep load balanced.

**NOTE:** It is recommended to store dry systems with a tarp installed.

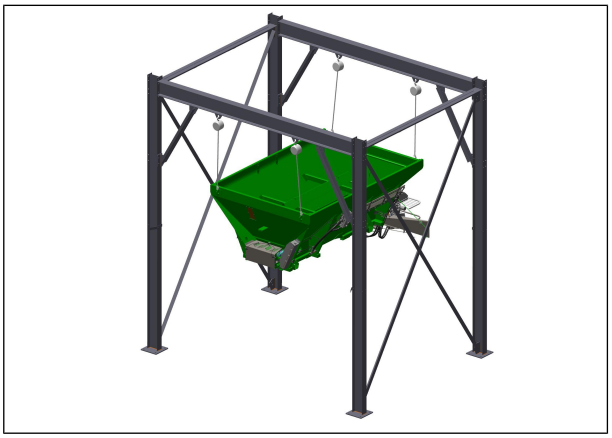


*Fig. 19*

## 2.4 Dry system installation: Fendt RG932, RG934/RG934H, RG937/RG937H

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. Verify area is clear of people and other obstacles and reverse the machine under the suspended system.
2. Stop the machine when the system tie downs align with the mating points on the chassis and set the parking brake to ON and install the wheel chocks.

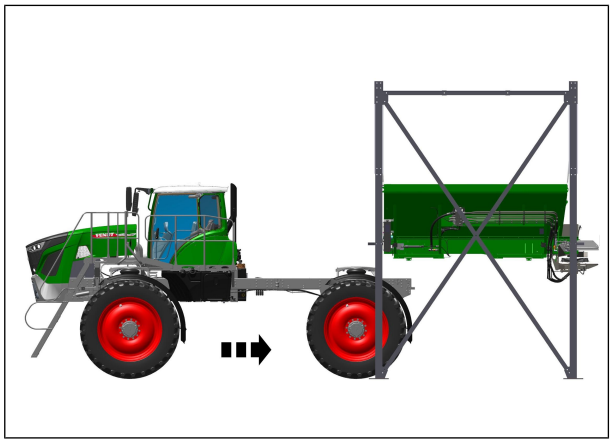


*Fig. 20*

3. **NOTE:** High clearance machines.

   Raise the machine into the high clearance position to lift the chassis to the dry system.
4. Verify area is clear of people and other obstacles and lower the dry system to the chassis with the chain hoists. Lower chain hoists evenly to keep load balanced.
5. Disconnect the chain hoists from the system.
6. **NOTE:** Standard clearance machines.

   Verify area is clear of people and other obstacles and lower the chain hoists until the system is on the chassis rails. Lower chain hoists evenly to keep load balanced.
7. Disconnect the chain hoists from the system.
8. Verify area is clear of people and other obstacles and drive the machine out of the structure.

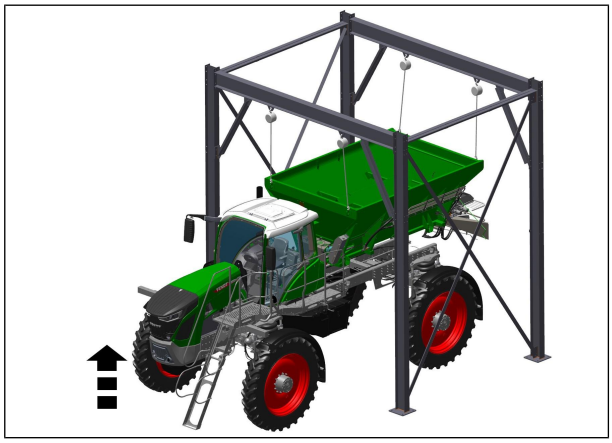


*Fig. 21*

**After finishing the procedure**

**NOTE:** *Refer to the workshop manual for information on installation of application system to chassis.*

Reconnect the system to the chassis.

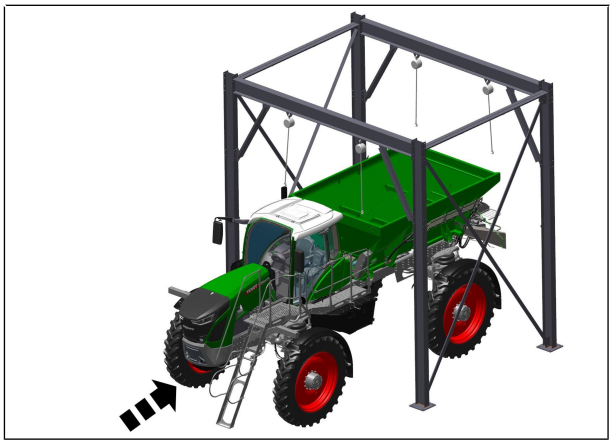


*Fig. 22*

## 2.5 System removal: Universal Application

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. **NOTE:** Refer to machine documentation for information on removal of application system from chassis.

   Complete the procedure to disconnect the system from the chassis.

2. Verify area is clear of people and other obstacles. If the machine is equipped with adjustable track width, move axles to the narrowest position and position the machine into the center of the bay. Set the parking brake to ON and install the wheel chocks.

3. **NOTE:** Refer to machine documentation.

   Connect the lift equipment to the recommended lifting points on the application system.

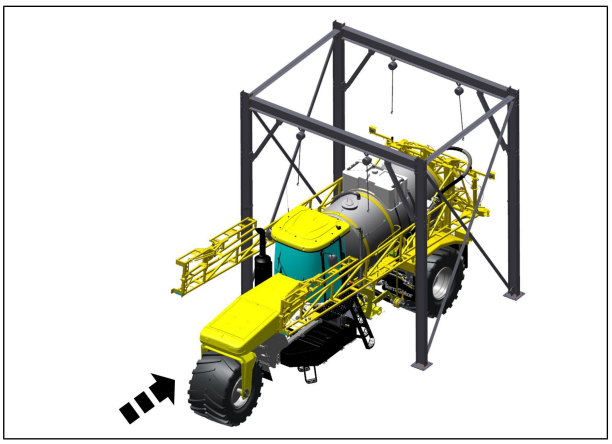


*Fig. 23*

4. Lift system initially with chain hoists to ensure system is free of chassis. Raise chain hoists evenly to keep load balanced.

*Fig. 24*

5. Use the chain hoists to lift the system off the chassis until the system is high enough to clear all chassis components. Raise chain hoists evenly to keep load balanced.

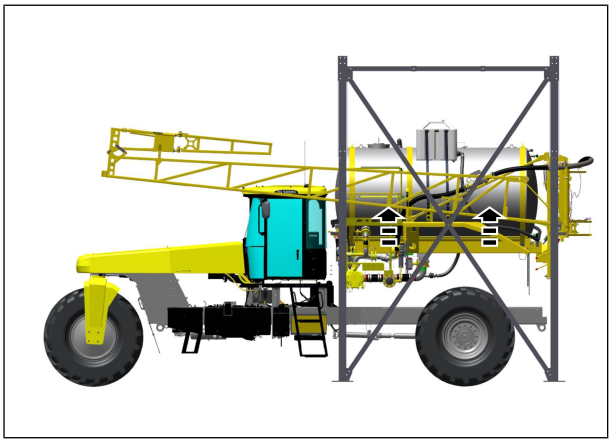


*Fig. 25*

6. Verify area is clear of people and other obstacles. Drive the machine forwards until clear of the structure/system.

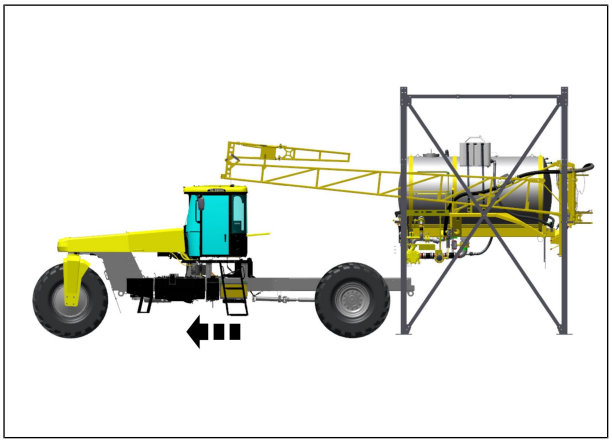


*Fig. 26*

**7.** Do not store system suspended from the structure. If the system is to be stored in the structure, it should be lowered onto blocks, removing the load from the hoists. Lower chain hoists evenly to keep load balanced.

**NOTE:** It is recommended to store dry systems with a tarp installed.

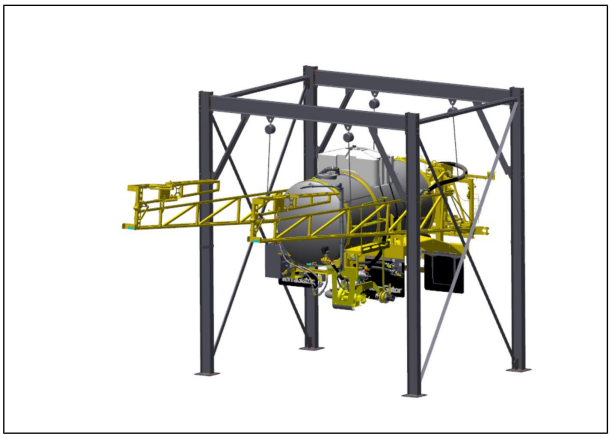


*Fig. 27*

## 2.6 System installation: Universal Application

**WARNING: Heavy components.**

**Incorrect movement of heavy items can cause death or injury.**

**Use the applicable equipment and points to lift or hold the machine and heavy items during procedures.**

**WARNING: Components can fall.**

**Risk of death or injury.**

**Keep all persons away from the heavy items when you lift them, never enter the area below a suspended load.**

**Do not use structure during inclement weather as wind gusts may cause application system to move unexpectedly.**

**Procedure**

1. Verify area is clear of people and other obstacles. Verify the system is lifted high enough to clear the chassis and reverse the machine under the suspended system.

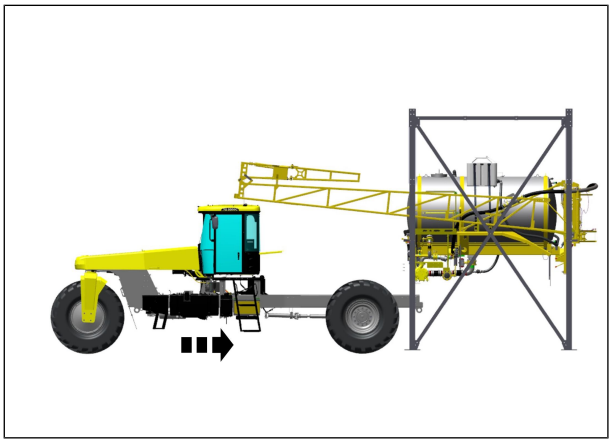


*Fig. 28*

2. Stop the machine when the system tie downs align with the mating points on the chassis and set the parking brake to ON and install the wheel chocks.

3. Verify area is clear of people and other obstacles and lower the application system to the chassis with the chain hoists. Lower chain hoists evenly to keep load balanced.

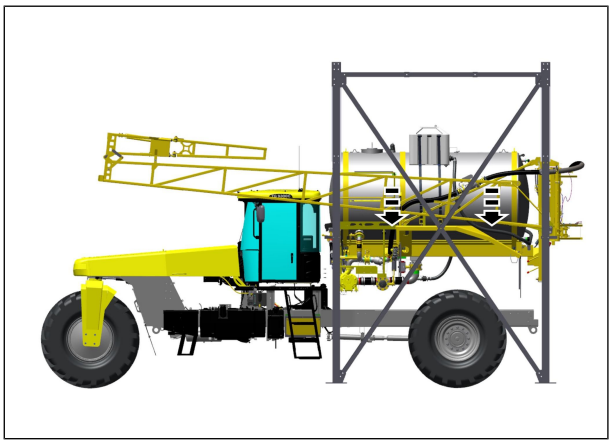


*Fig. 29*

4. Disconnect the chain hoists from the system.

5. Verify area is clear of people and other obstacles and drive the machine out of the structure.

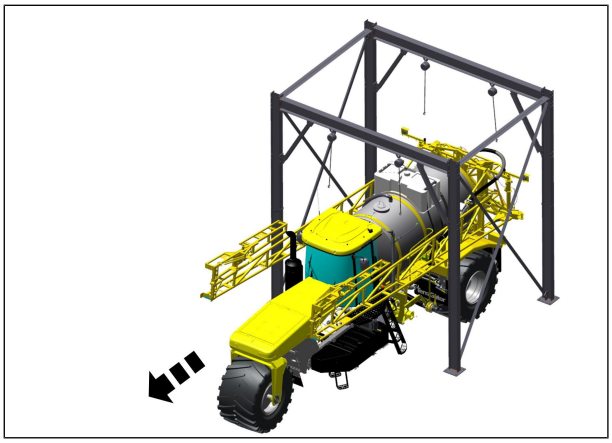


*Fig. 30*

**After finishing the procedure**

**NOTE:** *Refer to the workshop manual for information on installation of application system to chassis.*

Reconnect the system to the chassis.

## 3.1 Structure dimensions

**NOTE:** *For the double bay structure, the center to center dimension of the 2nd bay is the same as the first, 17 feet 6 in.*

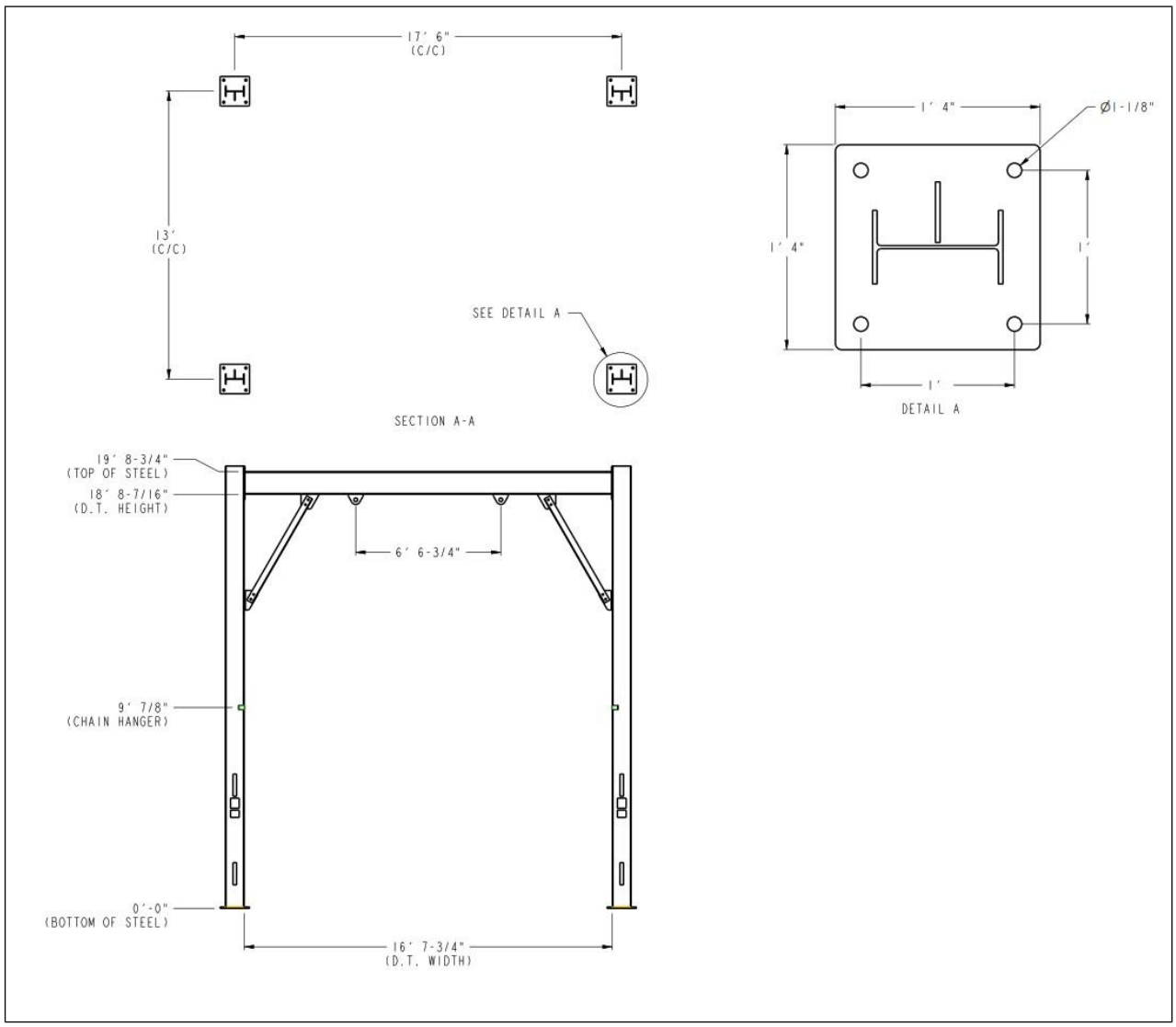



***Fig. 1***

## 4.1 Foundation requirements:

**DANGER: When necessary, you must consider the installation location relative to electrical, fuel, water, and communication utilities**.

**Soil requirements:**

- All engineered fill shall be as specified in the geotechnical report. Remove existing fill material and replace with engineered granular fill in accordance with the geotechnical report.

- All footings, slabs and walls shall rest on soil with a minimum net allowable bearing capacity of 1500 PSF Footings shall:
  - Be a minimum of or equivalent to frost depth (check with local building official) but not less than 12" below undisturbed soil. Footings bearing above frost depth must bear on fill not susceptible to frost heave per geotechincal engineers requirements. Depth of fill must be to frost depth.
  - Be constructed in accordance with ASCE 32 "Design and construction of frost protected shallow foundations".
  - Be erected on solid rock or with compacted engineered granular fill in accordance with the geotechnical report.
  - Follow the geotechnical report.

**Concrete requirements:**

- All concrete work shall be designed on the basis of "Strength design" in accordance with ACI 318 "Building code requirements for structural concrete". Concrete work shall be proportioned in accordance with ACI 301 "Specification for structural concrete" and ACI 211.1 "Recommended practice for selecting proportions for normal weight concrete".

- Each foundation portion shall be placed monolithically. Construction joints are prohibited.

- Beams, slabs, walls, columns, and foundation elements shall not be sleeve or boxed-out or have the reinforcing interrupted, except as indicated on the structural drawings.

- Provide 3/4" chamfer at exterior corner and edges of permantently exposed concrete.

- Slope top of concrete permanently exposed to weather to allow drainage away from the structure.

- All cast-in-place concrete shall be "Normal weight" concrete and have a minimum 28 day compressive strength of 4000 psi (f'c) and shall be mixed using an approved batch machine or mobile mixer until uniform in color.

- All cast-in-place concrete shall have 4" minimum to 6" maximum slump, air-entrained to 5%-8%. No additional water shall be added to concrete after slump test is recorded. Maximum W/C ratio shall be 0.45.

- Cylinders shall be taken for each class of concrete placed each day and not less than once per day nor less than once for each 100 cubic yards and tested for compressive strength at 7 and 28 days. A minimum total of 3 strength tests shall be made.

- Concrete should be a mix of high grade portland cement, clean sand or granular fill and well graded, washed gravel or crushed stone as coarse aggregate. Maximum aggregate size shall be 3/4". All aggregates shall conform to ASTM C33 "Standard specification for concrete aggregates".

- Water used to make concrete shall be potable. Water shall not exceed 5-1/2 gallons for each bag unless sand is very dry.

- Admixtures containing chlorine shall not be used.

**Reinforcing steel:**

- All reinforcing bars shall be new billet steel conforming to the standards of ASTM A615, grade 60. reinforcing bars to be welded shall be ASTM A706. Reinforcement to the epoxy coated shall conform to the standards of ASTM A775.

- All concrete reinforcement shall be detailed, fabricated, labeled, supported, spaced in forms and secured in place in accordance with the procedures and requirements outlined in the latest edition of the "Building code requirements for structural concrete", ACI 318 and the "Manual of standard practice for detailing reinforced concrete structures", ACI 315. All reinforcement steel shall be accurately placed, rigidly supported and firmly tied in place with bar supports and spacers in accordance with ACI 301 and ACI 318.

- Bar supports in contact with exposed surfaces shall be plastic tipped.

- All rebar shall be located 3" clear from the bottom and side of footing where forms are not used and 2" clear from the top and where forms are used unless noted otherwise.

**Approved cast-in-place anchors:**

- 1" Cast-in-place (ASTM F1554 Gr36)
  - 1"x12" Bent anchor rod (galvanized)
  - 1"x10" Threaded rod (galvanized)
    - Large washer w/ double-nut at bottom
  - 6" min. embedment/ 3.5" min. projection

**Concrete finishing:**

- Repair of surface defects shall begin immediately after removal of form or pouring of slab foundation.
- Foundations shall be poured level and shall not vary more than 1/4".
- Provide broom finish texture for all exterior slabs.
- Patch all voids and depressions exceeding 3/8" in any direction.

**Foundation Dimensions:**

- Dimensions of single bay foundation shown. If assembling as a double bay configuration, dimensions are the same for the second bay.

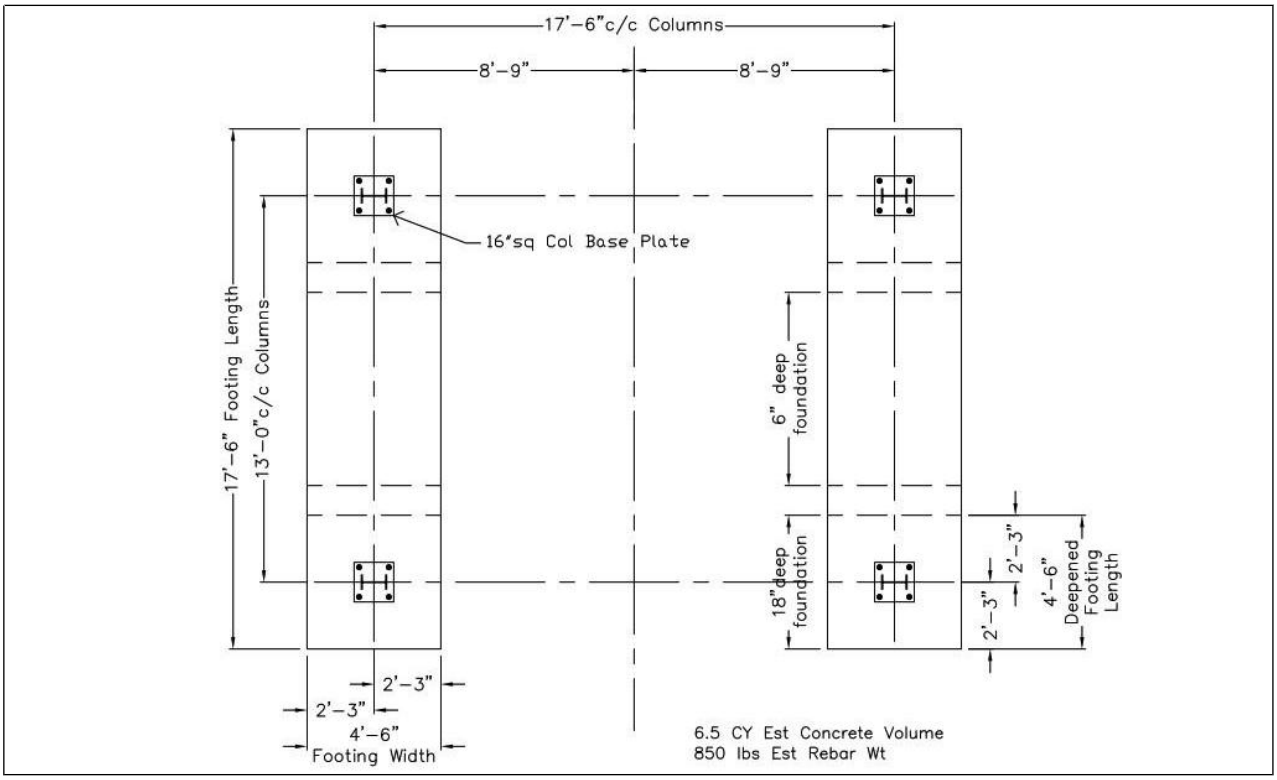



***Fig. 1***

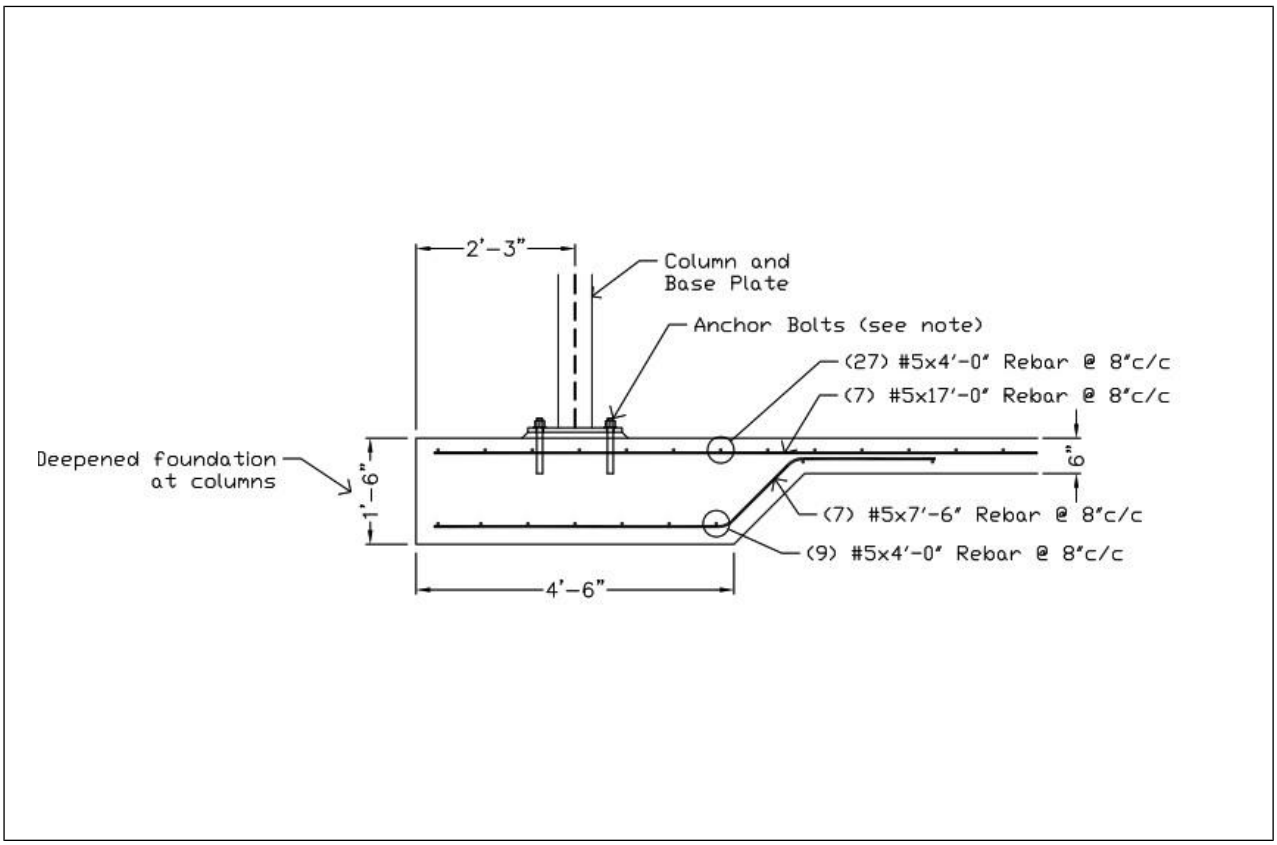



***Fig. 2***

**Approved structure anchors:**

- Hilti Kwik Bolt TZ2 1-9
  - 6.75" hole depth w/ 6.375" min. embedment.
  - 1" hole size (drill bit size)
  - Prepare hole per Hilti recommendations
- HIT-HY 200 V3 w/ 1"x12" threaded rod (ASTM F1554 Gr36)
  - 9" hole depth (min. embedment depth)
  - 1.125" hole size (drill bit size)
  - Prepare hole per Hilti recommendations
- 1" Cast-in-place (ASTM F1554 Gr36)
  - 1"x12" Bent anchor rod (galvanized)
  - 1"x10" Threaded rod (galvanized)
    - Large washer w/ double-nut as bottom
  - 6" min. embedment/ 3.5" min. projection

**Foundation preparation procedure:**

1. Excavate the foundation areas as needed to meet specifications above.
   - Make sure all loose materials and organic materials are removed.
2. Compact base of excavation.
3. Add 6" (min.) of granular base material and compact.
   - Add base in 2 or 3 lifts depending on compactor capacity.
4. Build and set forms.
5. Place anchor bolts (if using cast-in-place).
6. Pour and finish concrete.

## 5.1 Product assembly - single bay structure

**DANGER: Alterations must not be made to this equipment. Alterations can produce dangerous situations resulting in serious injuring or death.**

**When necessary, you must consider the installation location relative to electrical, fuel, water, and communication utilities.**

**Always use proper lifting or hoisting equipment when assembling or disassembling equipment.**

**Do not walk or stand under hoisted equipment.**

**Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which can crush personnel and cause serious injury or death.**

**Use proper fall protection when working above ground level.**

**WARNING: This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.**

**This product has sharp edges, which can cause serious injury.**

**To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment.**

**Erecting the structure:**

- Make sure the structure base is level.
  - -Install leveling nuts or shims at each column location as needed. Use a transit or laser level to ensure columns are set level with each other.
  - -Make sure to grout under base plates using a non-shrink grout made for this purpose.

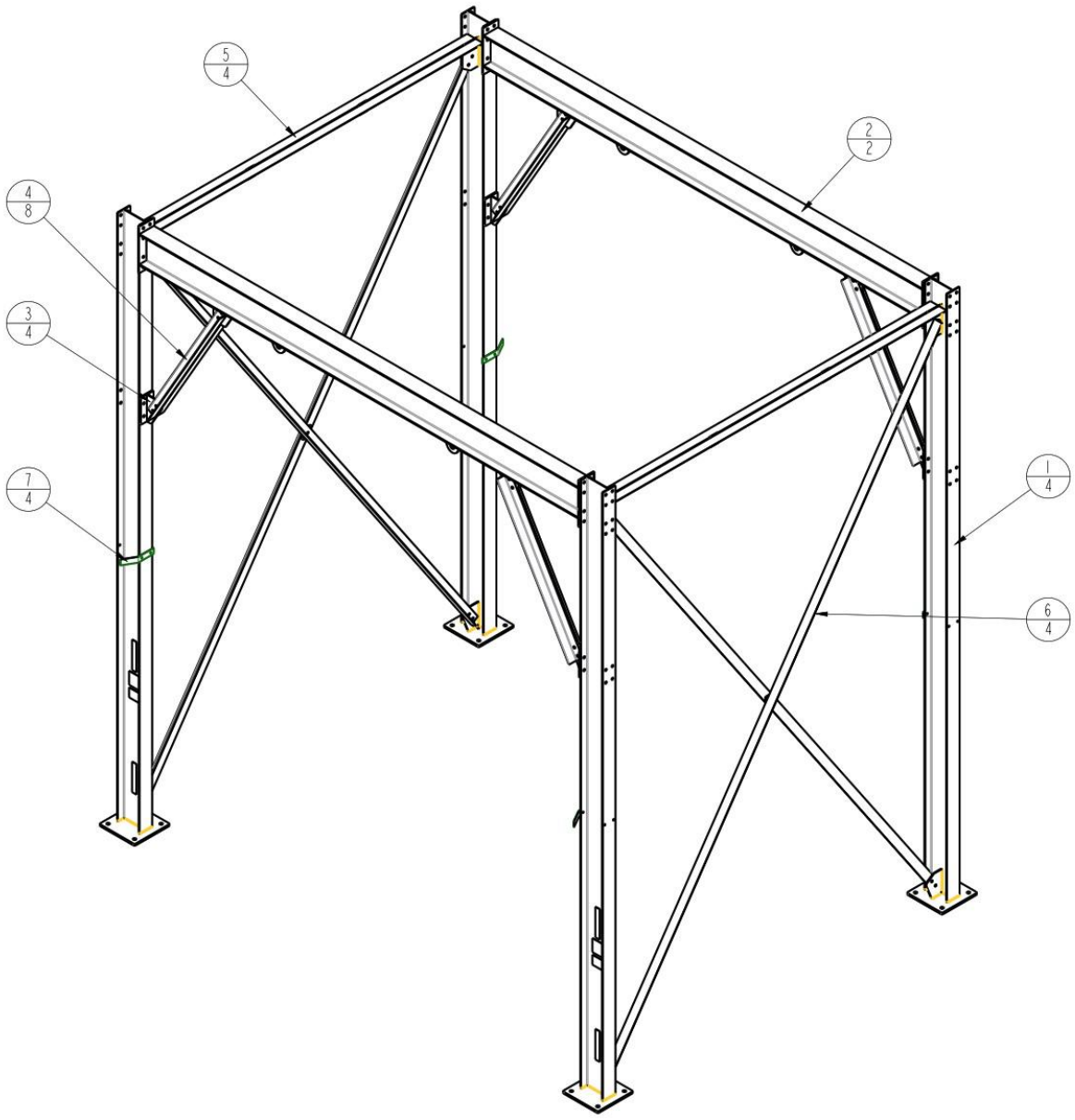
- Erect structure using means and methods appropriate to the equipment being used and the experience of the installers.
  - -Use appropriate hardware as indicated by product documentation.

- Make sure columns are plumb in both directions and that horizontal dimensions match those shown on the structure dimensions on page 21 and foundation section on page 23.
  - -Check dimensions are equal at the tops and bottoms of columns.
  - -Also verify that the diagonal dimensions are equal to ensure that the structure is square.

- If structure is not plumb and square, make appropriate adjustments to the structure until it is so.

- Do a complete nut and bolt check once any adjustments have been made.

## Parts list: single bay structure




| Parts List | | |
|---|---|---|
| Item NO | QTY | Description |
| 1 | 4 | COLUMN WELDMENT |
| 2 | 2 | BEAM WELDMENT |
| 3 | 4 | KNEE BRACE BRACKET WELDMENT |
| 4 | 8 | KNEE BRACE |
| 5 | 4 | STRUT |
| 6 | 4 | BRACE |
| 7 | 4 | CHAIN HANGER |
| 8 | 6 | SPACER |
| 9 | 94 | BOLT, 3/4"-10 X 20", A325, GALVANIZED |
| 10 | 94 | NUT, 3/4"-10 A563 GALVANIZED |
| 11 | 8 | FLANGE BOLT, 1/2"-13 X 1-1/4", GRADE 5, ZINC PLATED |
| 12 | 8 | FLANGE NUT, 1/2"-13, GRADE 5, ZINC PLATED |
| 13 | 1 | MANUAL CANNISTER |

**Fastener torque requirements:**

- Unless otherwise specified, all structure hardware should be tightened to a snug-tight condition.
- This does not include the concrete anchors. Follow the anchor manufacturer recommendations.

**Fastener requirements:**

- Unless otherwise specified, use ASTM A325 3/4" x 2" bolt and nut for all joints during assembly.
- The assembly drawing shows which hardware is to be used in which connection.

**Snug-tightened bolts:**

All fasteners in bracing elements are to be tightened to a "snug-tight" condition.

- The snug-tight condition is a tightness required to bring the components into firm contact with each other.
- The snug-tightened condition can be attained by:
  - a few impacts of an impact wrench.
  - the application of an electric torque wrench until the wrench begins to slow.
  - the full effect of a worker with an ordinary wrench.

**Procedure**

1. **NOTE:** Assemble these components on the floor.

   Install the 2 columns (2) to the top beam (1).
2. Do step 1 for the other top beam.

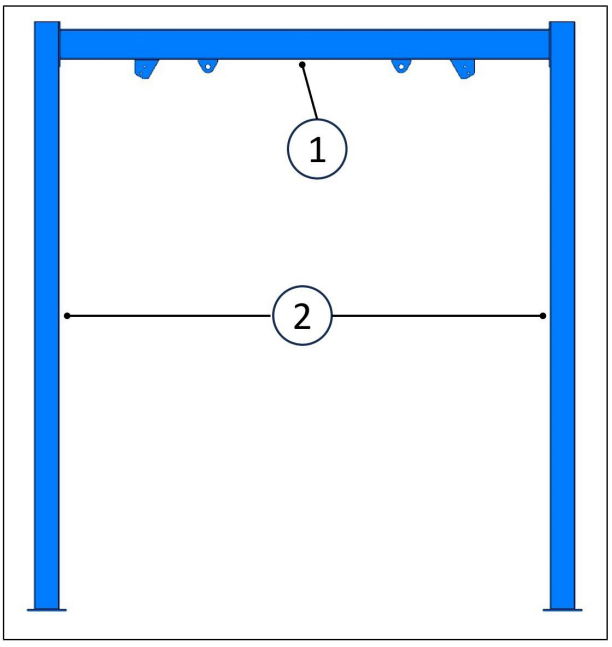



*Fig. 1*

3. Install the 2 brackets (1).
4. Do step 3 again for the other end frame.

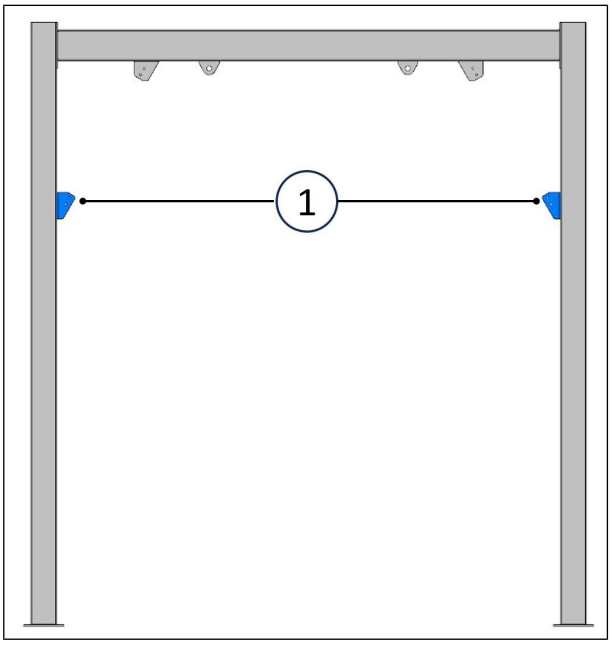



*Fig. 2*

5. **NOTE:** Install the double angle braces with the flat side towards the center as shown.

   Install 2 sets of double angle braces (1) to the frame as shown.
6. Do step 5 again for the other end frame.

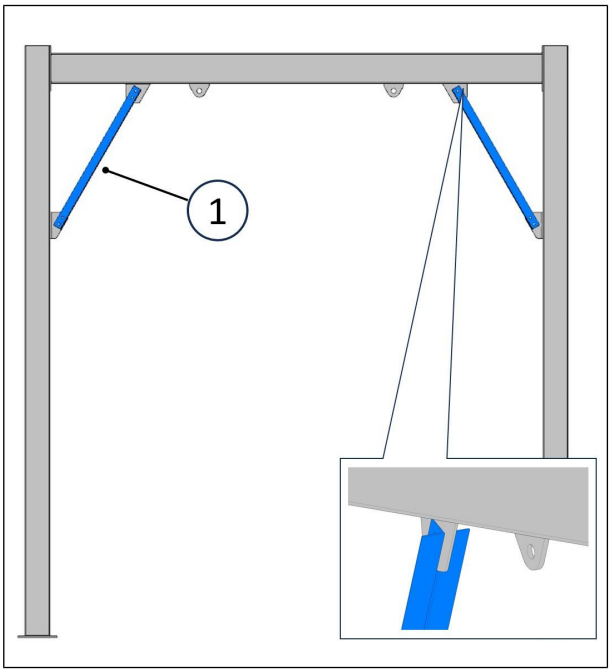



*Fig. 3*

**7.** Lift the end frames into the vertical position:

- This can be done either by lifting both at the same time with a crane or large forklift.
- Lifting 1 end frame assembly, setting it in place on the foundation, temporarily bracing it in place and then lifting the 2nd end frame assembly into place.
- The distance of the end frames (A) should be 156 in. center to center.

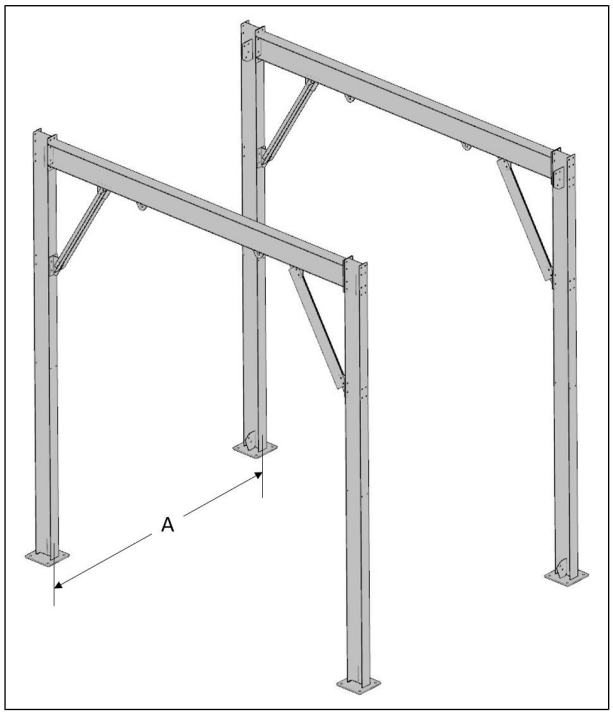



*Fig. 4*

**Connecting the end frame assemblies:**

**8.** **NOTE:** Install the horizontal struts, orient as shown.

Install the 2 horizontal struts, and the 2 square spacers.

**9.** Do step 8 on the opposite side.

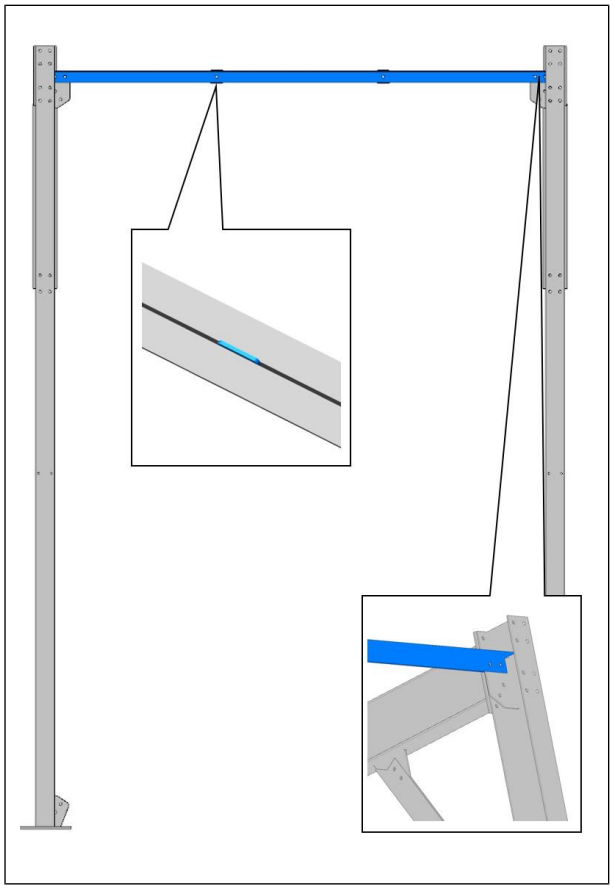


*Fig. 5*

**X-brace assembly:**

**10.** Install 2 angles as shown. Install 1 angle on the inside of the mounting plates and the other angle on the outside of the mounting plates. Install square spacer between both angles at the center hole.

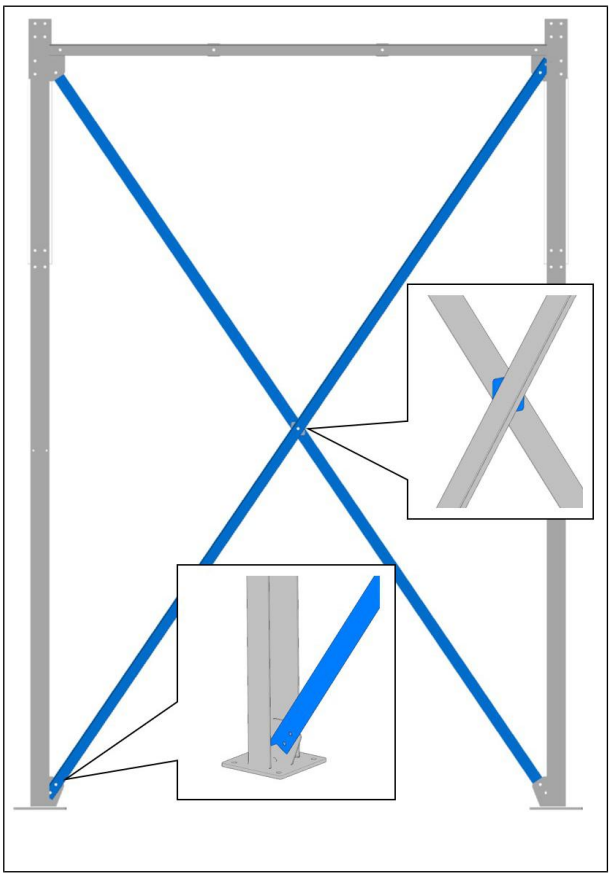


*Fig. 6*

**11.** Do step 10 again on the opposite side.

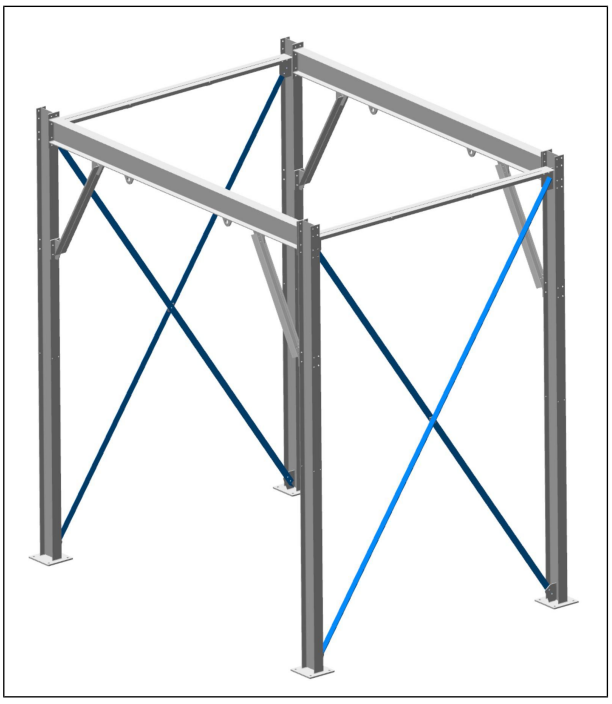


*Fig. 7*

**12.** Install chain hanger on each column as shown using 1/2" x 1-1/4" flange bolts and 1/2" flange nuts.

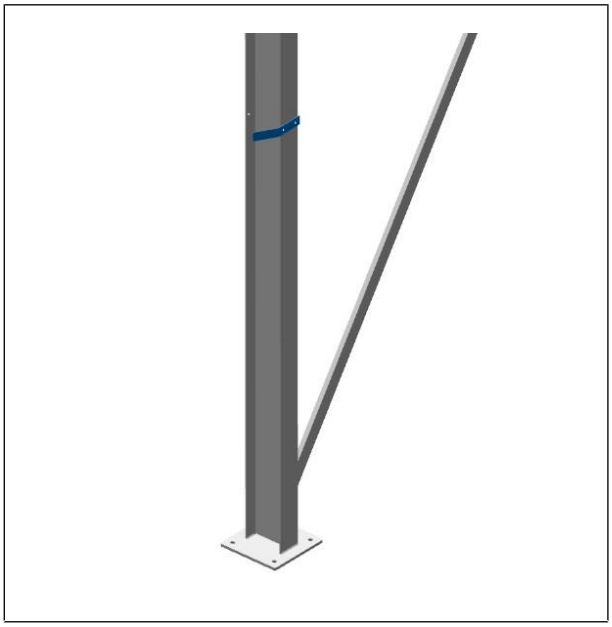


*Fig. 8*

**Anchoring the structure:**

**13.** **NOTE:** This procedure is for post-installed anchors, for cast-in-place anchors, see the foundation requirements section.

When all the components are assembled and all of the fasteners are tightened, verify the structure's dimensions and make sure the structure is square.

**14.** For post-installed anchors, use one of the approved methods:

- Hilti Kwik Bolt TZ2 1" x 9"
  - 6.75" hole depth w/ 6.375" min. embedment.
  - 1" hole size (drill bit size)
  - Prepare hole per Hilti recommendations
- HIT-HY 200 V3 w/ 1"x12" threaded rod (ASTM F1554 Gr36)
  - 9" hole depth (min. embedment depth)
  - 1.125" hole size (drill bit size)
  - Prepare hole per Hilti recommendations

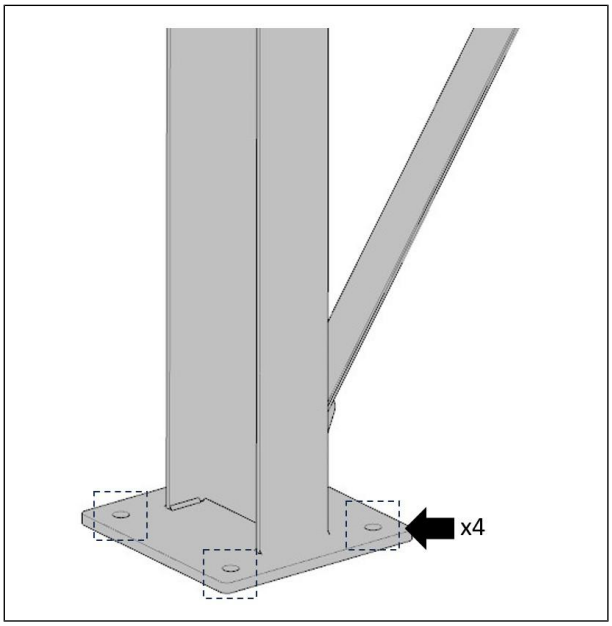
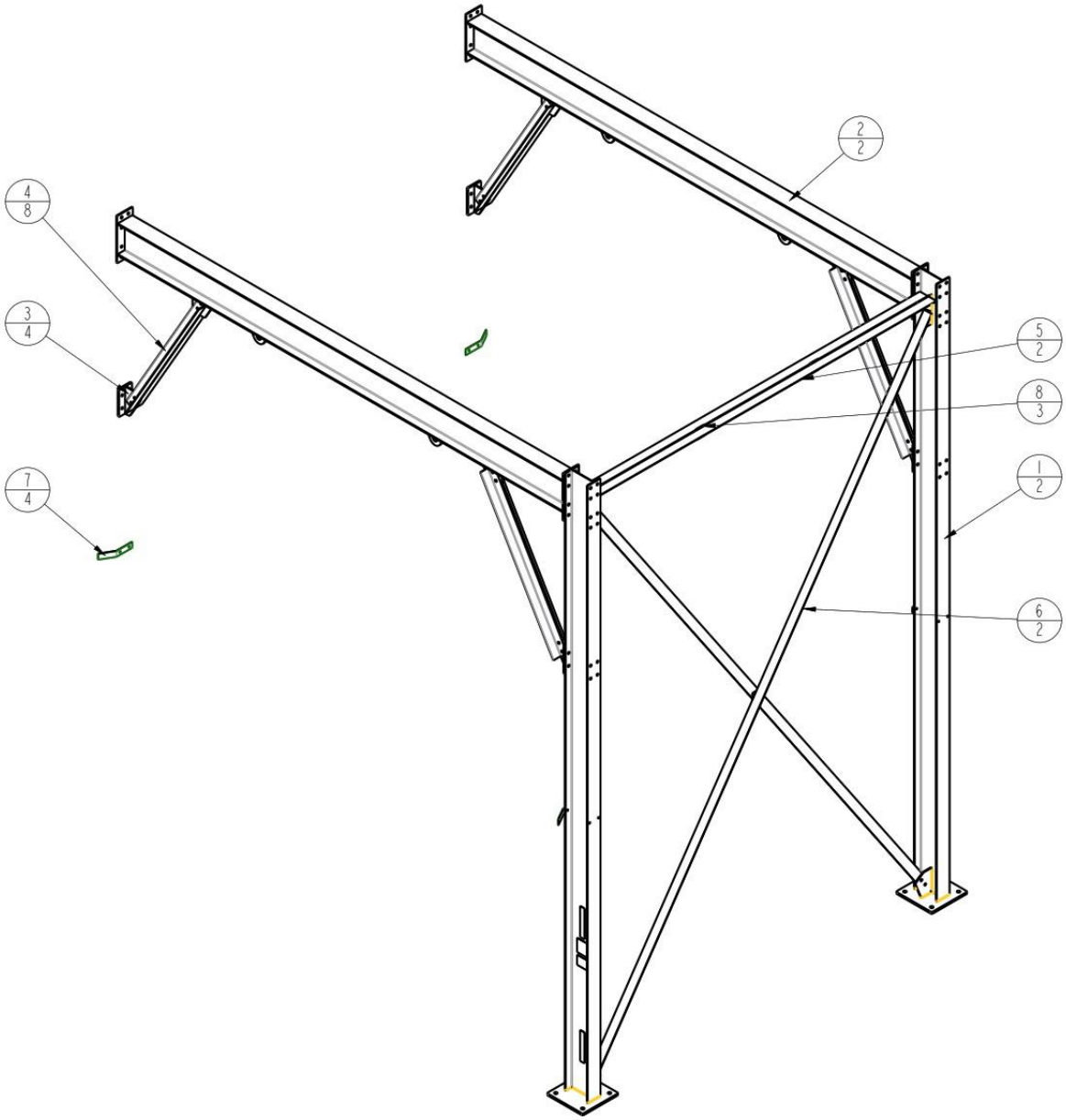



*Fig. 9*

**15.** Install the anchors following the manufacturer's recommended procedure.

**Parts list: addtional bay structure**




| Parts List | | |
|---|---|---|
| Item NO | QTY | Description |
| 1 | 2 | COLUMN WELDMENT |
| 2 | 2 | BEAM WELDMENT |
| 3 | 4 | KNEE BRACE BRACKET WELDMENT |
| 4 | 8 | KNEE BRACE |
| 5 | 2 | STRUT |
| 6 | 2 | BRACE |
| 7 | 4 | CHAIN HANGER |
| 8 | 3 | SPACER |
| 9 | 94 | BOLT, 3/4"-10 X 20", A325, GALVANIZED |
| 10 | 94 | NUT, 3/4"-10 A563 GALVANIZED |
| 11 | 8 | FLANGE BOLT, 1/2"-13 X 1-1/4", GRADE 5, ZINC PLATED |
| 12 | 8 | FLANGE NUT, 1/2"-13, GRADE 5, ZINC PLATED |
| 13 | 1 | MANUAL CANNISTER |

## 5.2 Product assembly - additional bay structure

**Before starting the procedure**
Use the single bay instruction to assemble a single bay.

**Procedure**

1. **Note:** Assemble these components on the ground.

   Install the column (2) onto the top beam (1).

2. Do step 1 for the other top beam.

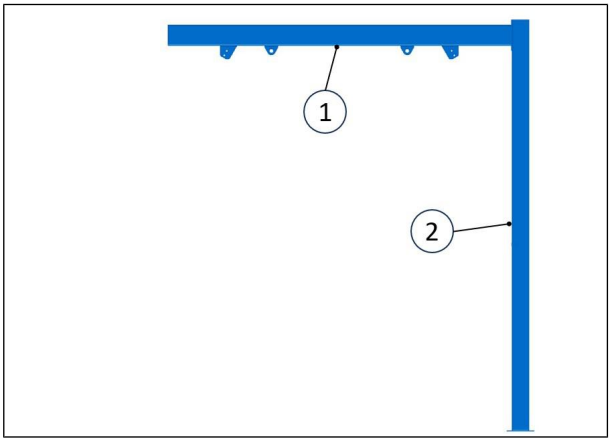



*Fig. 10*

3. Install the 2 brackets (1).

4. Do step 3 for the other beam and column assembly.

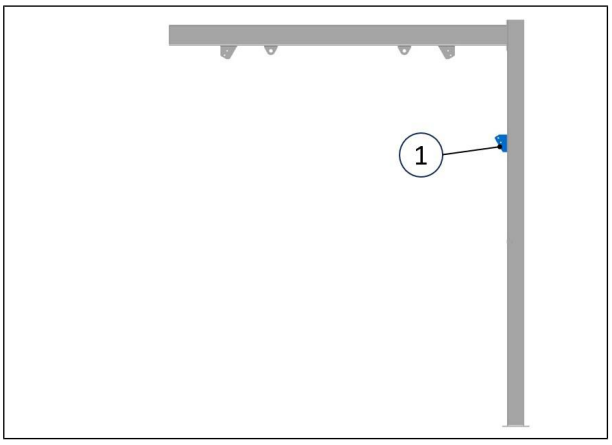



*Fig. 11*

5. **NOTE:** Install the double angle braces with the flat side towards the center as shown.

   Install 2 sets of double angle braces (1) to the frame as shown.

6. Do step 5 for the other beam and column assembly.

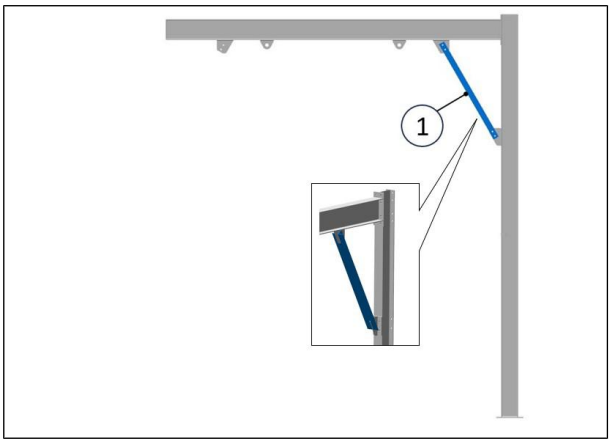



*Fig. 12*

7. Install the 2 end frames (1) onto the assembled structure.

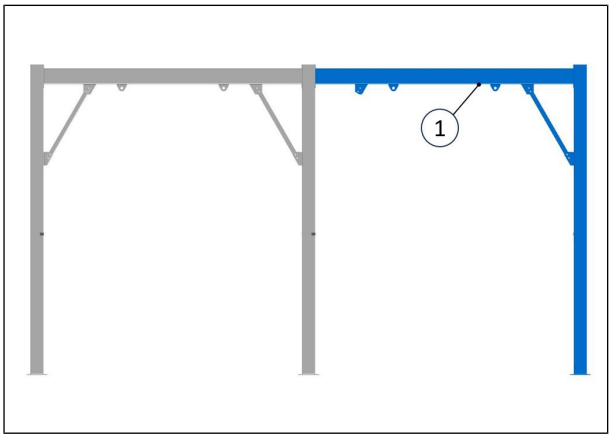



*Fig. 13*

8. Install the bracket (1).

9. Do step 8 again for the other end.

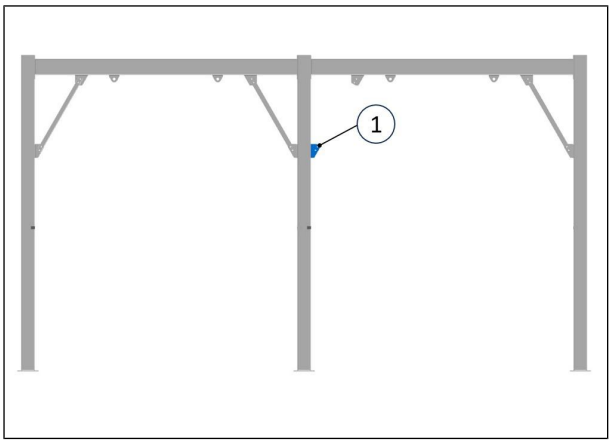



*Fig. 14*

10. **NOTE:** Install the double-angle braces with the flat side towards the center as shown.

    Install the double-angle braces (1) to the frame as shown.

11. Do step 10 again for the other end.

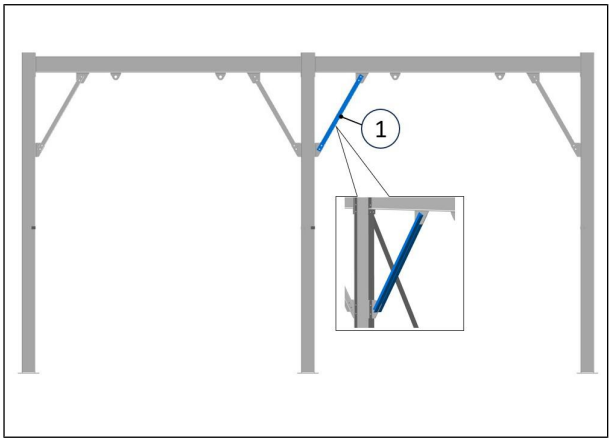



*Fig. 15*

**X-brace assembly:**

**12.** Install 2 angles as shown. Install 1 angle on the inside of the mounting plates and the other angle on the outside of the mounting plates. Install square spacer between both angles at the center hole.

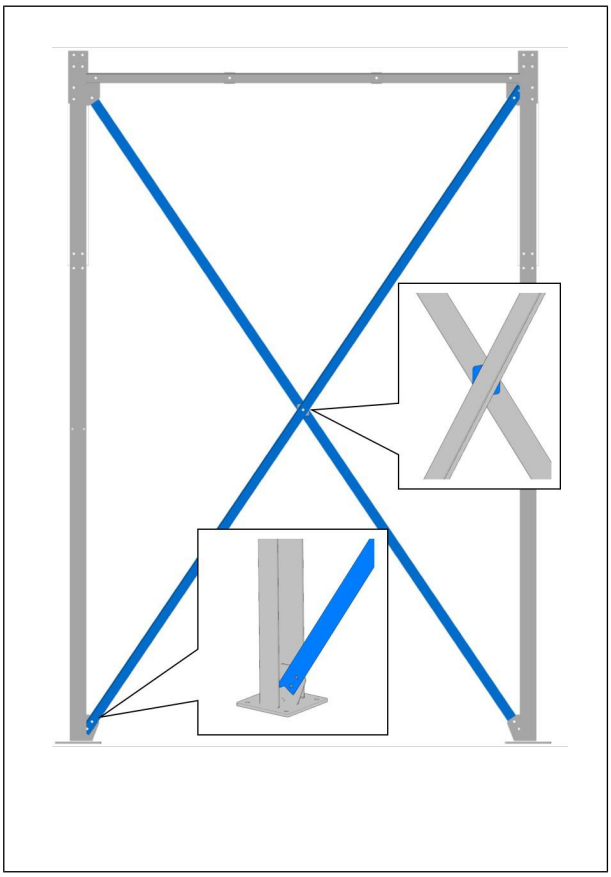


*Fig. 16*

**Anchoring the structure:**

**13.** **NOTE:** This procedure is for post-installed anchors, for cast-in-place anchors, see the foundation requirements section.

When all the components are assembled and all of the fasteners are tightened, verify the structure's dimensions and make sure the structure is square.

**14.** For post-installed anchors, use one of the approved methods:

- Hilti Kwik Bolt TZ2 1" x 9"
  - 6.75" hole depth w/ 6.375" min. embedment.
  - 1" hole size (drill bit size)
  - Prepare hole per Hilti recommendations
- HIT-HY 200 V3 w/ 1"x12" threaded rod (ASTM F1554 Gr36)
  - 9" hole depth (min. embedment depth)
  - 1.125" hole size (drill bit size)
  - Prepare hole per Hilti recommendations

**15.** Install the anchors following the manufacturer's recommended procedure.

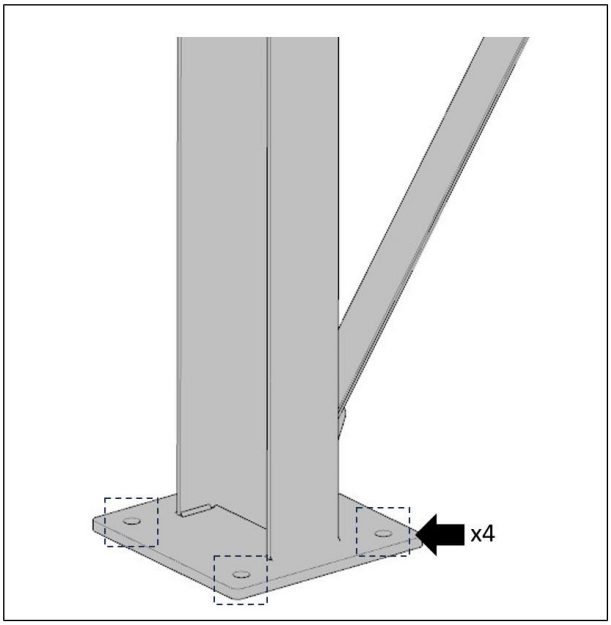



*Fig. 17*

## 6.1 Chain hoist installation

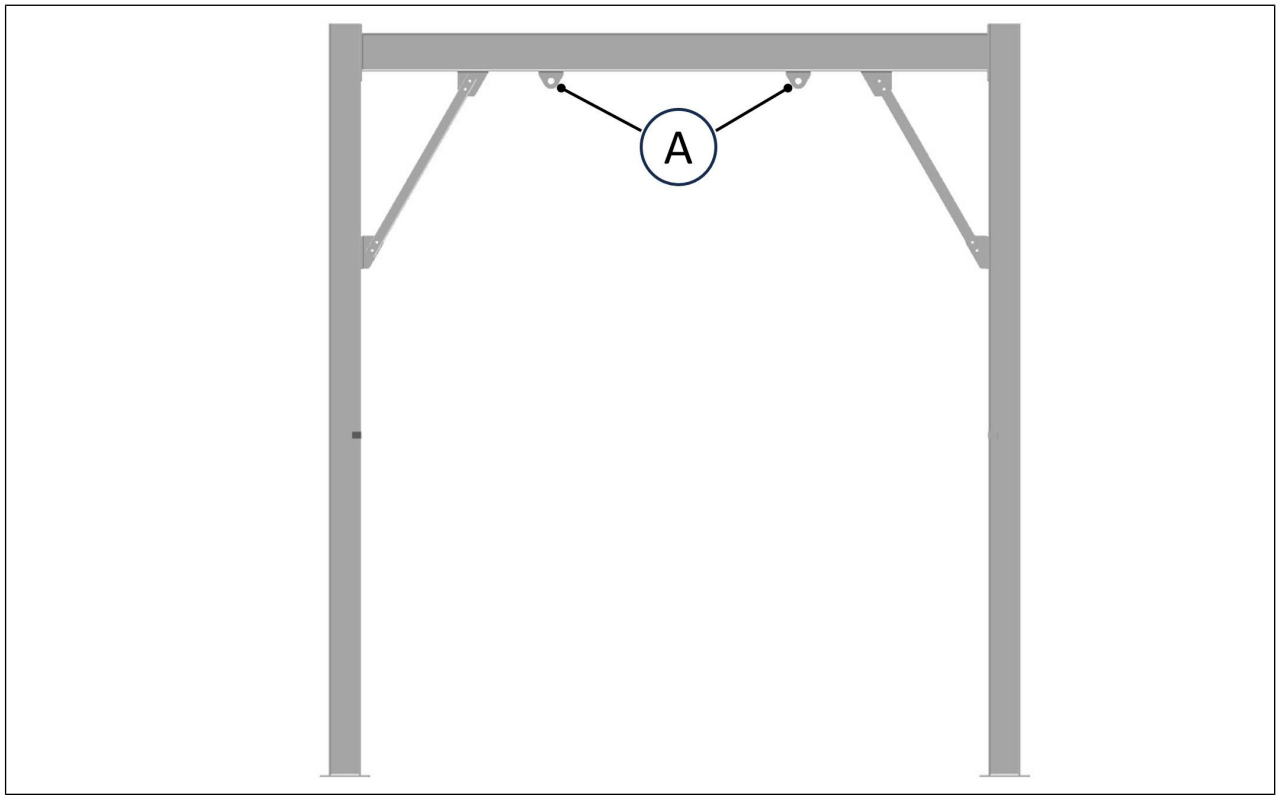



*Fig. 1*
(A) — Chain hoist location

**Procedure**

1. Install one chain hoist onto each lug on the top beam of the structure. Follow chain hoist recommendations for use, storage, and inspection.

   Follow chain hoist manufacturer recommendations for storage when not in use.

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