Top-Drive Standard Conveyor

Portable Grain Belt Conveyor
Assembly Manual

This manual applies to the following brands and models:

1227, 1232

Original Instructions

Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: P1512174 R1

Revised: June 2019

New in this Manual

The following changes have been made in this revision of the manual:

Description	Section
Install Downspout (Ontario Only)	Section 3.20.1 – Install the Telescopic Downspout (Ontario Only) on page 45

CONTENTS

1. Safety

1.1. Safety Alert Symbol and Signal Words

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

Signal Words: Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

DANGER Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

WARNING Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

1.2. General Product Safety

YOU are responsible for the **SAFE** use and maintenance of your conveyor. **YOU** must ensure that you and anyone else who is going to work around the conveyor understands all procedures and related **SAFETY** information contained in this manual.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. All accidents can be avoided.

- It is the conveyor owner, operator, and maintenance personnel's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them when operating, or maintaining the equipment.

- Owners must give instructions and review the information initially and annually with all personnel before allowing them to operate the conveyor. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- The conveyor is not intended to be used by children.
- Use the conveyor for its intended purposes only.
- Do not modify the conveyor in any way without written permission from the manufacturer. Unauthorized modification may impair the function and/or safety, and could affect the life of the conveyor. Any unauthorized modification will void the warranty.
- Follow a health and safety program for your worksite. Contact your local occupational health and safety organization for information.

1.3. Moving Conveyor Belt Safety

⚠ WARNING

- DO NOT step on or touch moving conveyor belt.
- Shut off and lock out power to adjust, service, or clean.

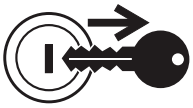
1.4. Rotating Parts Safety

⚠ WARNING

- Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets.
- Do not operate with any guard removed or modified. Keep guards in good working order.
- Shut off and remove key or lock out power source before inspecting or servicing machine.

1.5. Drives and Lockout Safety

Inspect the power source(s) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down the power source and unplug or remove the key (as applicable) to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power source(s). Ensure that all personnel are clear before turning on power to equipment.



1.5.1 Hydraulic Power Safety

⚠ WARNING **Power Source**

- Refer to the rules and regulations applicable to the power source operating your hydraulic drive.
- Do not connect or disconnect hydraulic lines while system is under pressure.
- Keep all hydraulic lines away from moving parts and pinch points.
- Escaping hydraulic fluid under pressure will cause serious injury if it penetrates the skin surface (serious infection or toxic reaction can develop). See a doctor immediately if injured.
- Use metal or wood as a backstop when searching for hydraulic leaks and wear proper hand and eye protection.
- Check all hydraulic components are tight and in good condition. Replace any worn, cut, abraded, flattened, or crimped hoses.
- Clean the connections before connecting to equipment.
- Do not attempt any makeshift repairs to the hydraulic fittings or hoses with tape, clamps, or adhesive. The hydraulic system operates under extremely high pressure; such repairs will fail suddenly and create a hazardous and unsafe condition.

Lockout

- Always place all hydraulic controls in neutral and relieve system pressure before disconnecting or working on hydraulic system.

1.6. Tire Safety

⚠ WARNING Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion that may result in serious injury or death.

- DO NOT attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.
- When replacing worn tires, make sure they meet the original tire specifications. Never undersize the replacement tire.
- DO NOT weld to the tire rim with the tire mounted on the rim. This action may cause an explosion which could result in serious injury or death.
- Inflate tires to the manufacturer's recommended pressure.
- Tires should not be operated at speeds higher than their rated speed.
- Keep wheel lug nuts tightened to manufacturer's recommendations.
- Never reinflate a tire that has been run flat or seriously under-inflated without removing the tire from the wheel. Have the tire and wheel closely inspected for damage before remounting.

1.7. Hand Winch Safety

⚠ WARNING **When Equipped:**

- Inspect lift cable before using. Replace if frayed or damaged. Make sure lift cable is seated properly in cable sheaves and cable clamps are secure.
- Tighten brake lock by turning winch handle clockwise at least two clicks after lowering the conveyor.
- Lower the conveyor fully before towing, then rotate winch handle until cable has light tension.
- Do not lubricate winch brake discs.

1.8. Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when assembling the equipment.

Safety Glasses

- Wear safety glasses at all times to protect eyes from debris.

Work Gloves

- Wear work gloves to protect your hands from sharp and rough edges.

Steel-Toe Boots

- Wear steel-toe boots to protect feet from falling debris.

Coveralls

- Wear coveralls to protect skin.

Hard Hat

- Wear a hard hat to help protect your head.

1.9. Safety Equipment

The following safety equipment should be kept on site:

Fire Extinguisher

- Provide a fire extinguisher for use in case of an accident. Store in a highly visible and accessible place.

First-Aid Kit

- Have a properly-stocked first-aid kit available for use should the need arise, and know how to use it.

1.10. Safety Decals

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available **free of charge** from your distributor, dealer, or factory as applicable.

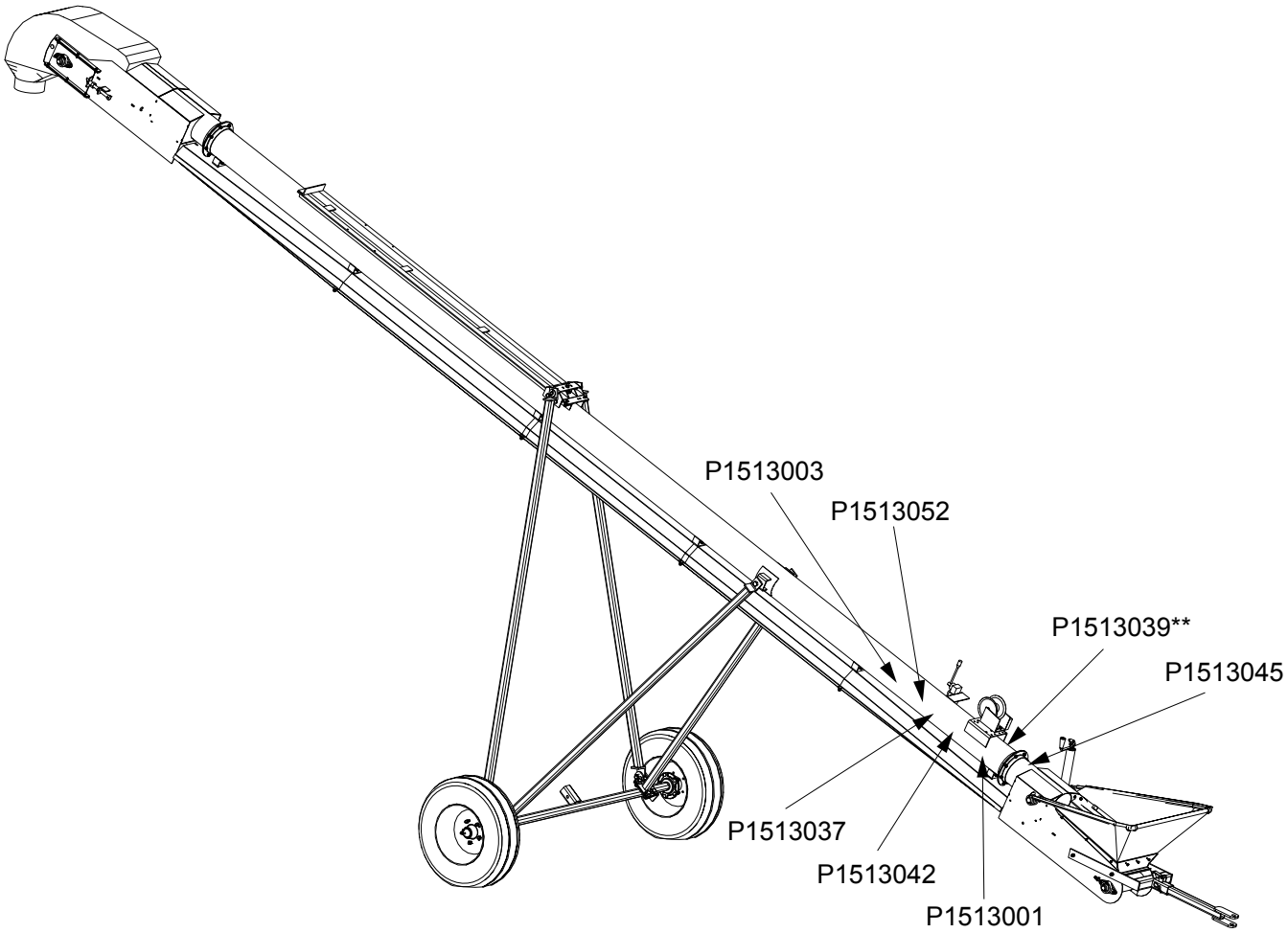
1.10.1 Decal Installation/Replacement

1. Decal area must be clean and dry, with a temperature above 50°F (10°C).
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the sign backing paper.

1.10.2 Safety Decal Locations and Details

Replicas of the safety decals that are attached to the conveyor and their messages are shown in the figure(s) that follow. Safe operation and use of the conveyor requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.

Figure 1. Safety Decal Locations



** if equipped with hand winch

Figure 2. Hydraulic Top Drive Safety Decal Locations

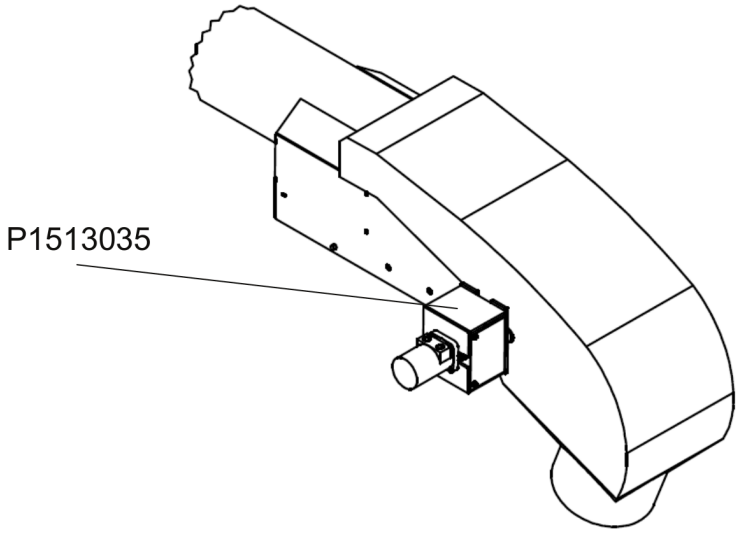


Table 1. Safety Decals

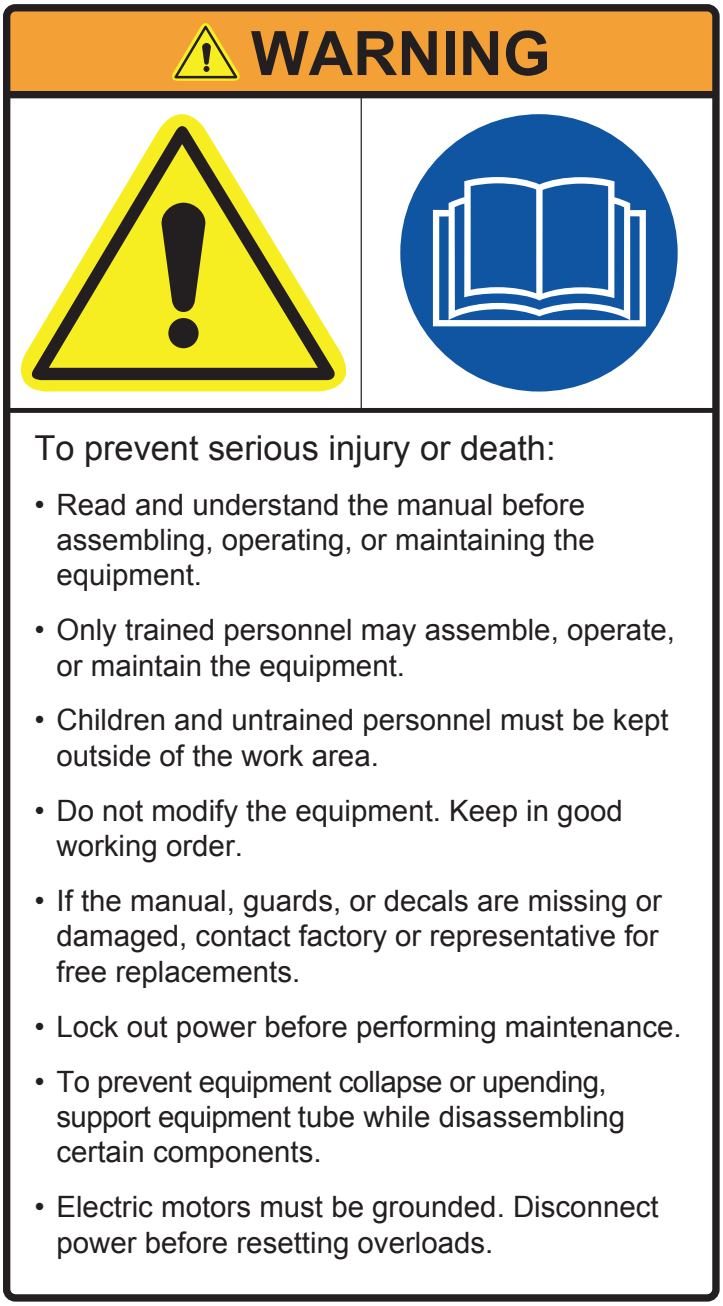
Part Number	Description
P1513001	

Table 1 Safety Decals (continued)

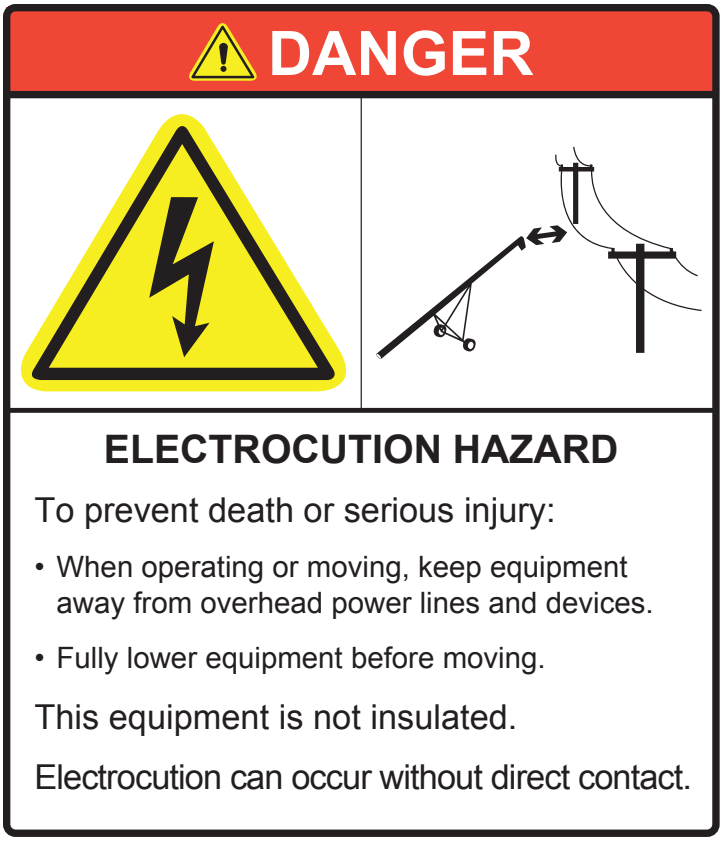
Part Number	Description
P1513003	
P1513045	

Table 1 Safety Decals (continued)

Part Number	Description
P1513037	
P1513035	

Table 1 Safety Decals (continued)

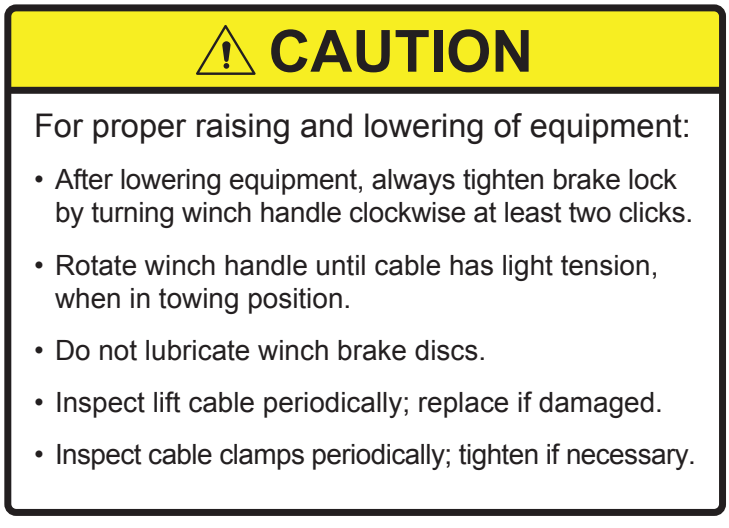
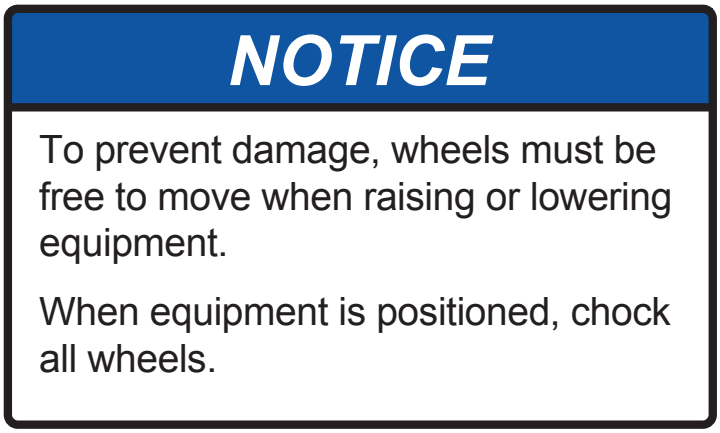
Part Number	Description
P1513042	
P1513039	

Table 1 Safety Decals (continued)

Part Number	Description
P1513052	

2. Features

This section covers the main features of the conveyor.

Figure 3. Typical Top-Drive Standard Conveyor Components

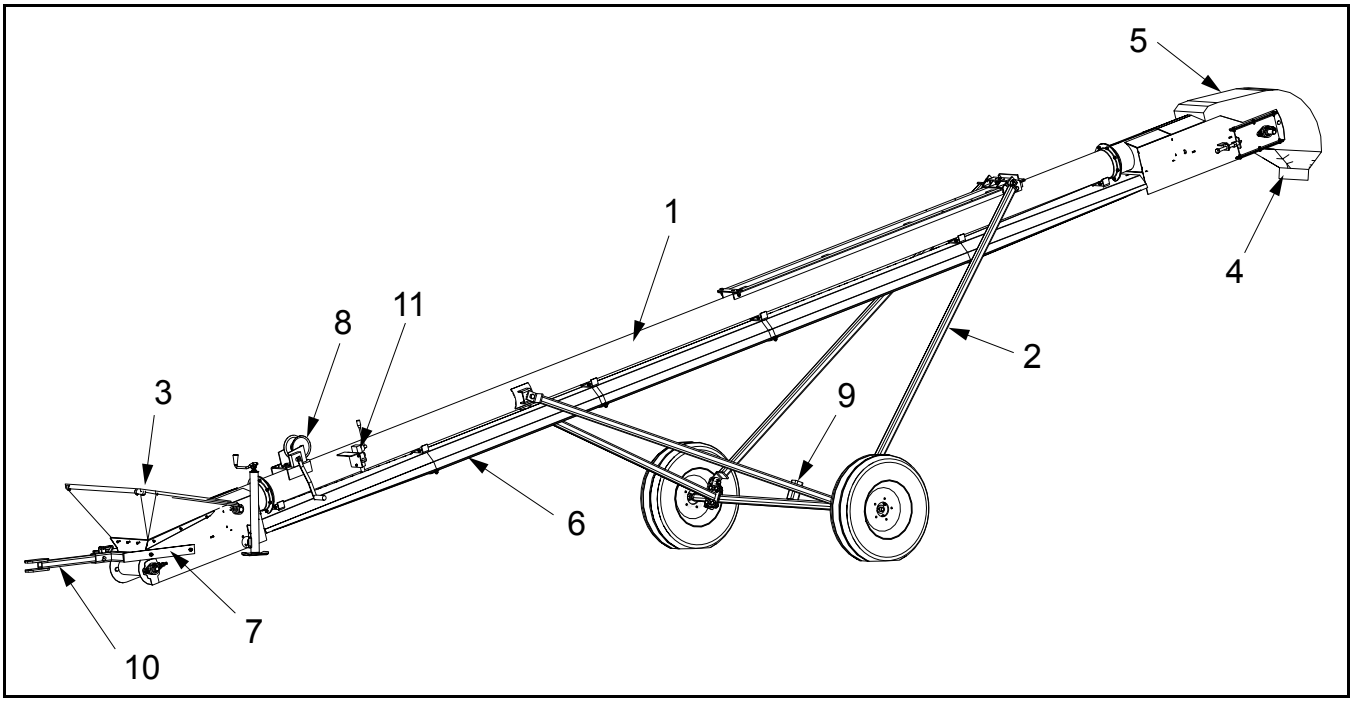


Table 2. Typical Top-Drive Standard Conveyor Components

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Tube	7	Hitch
2	A-Frame	8	Winch
3	Hopper	9	Hitch Tongue Holder
4	Spout Assembly	10	Straight Tongue Tube
5	Hood	11	Hydraulic Valve
6	Belt Return and Weather Guard	12	Top Drive Motor (Not Shown)

3. Assembly

Before continuing, ensure you have completely read and understood this manual's Safety section, in addition to the safety information in the section(s) below.

3.1. Assembly Safety

WARNING

- Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
- Carry out assembly in a large open area with a level surface.
- Always have two or more people assembling the conveyor.
- Make sure you have sufficient lighting for the work area.
- Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
- Stay away from overhead power lines and other obstructions during assembly. Contact with power lines can cause electrocution.
- Do not work in high winds.

3.2. Check Shipment

Unload the conveyor parts at the assembly site and compare the packing slip to the shipment. Ensure that all items have arrived and that none are damaged.

Report missing or damaged parts immediately to ensure that proper credit is received from Batco or your distributor/dealer, and to ensure that any missing parts can be shipped quickly to avoid holding up the assembly process.

Important

Do not assemble or install damaged components.

3.3. Required Tools

- 2–3 pipe stand(s)
- 2 sawhorse(s) (1200 lb [544.3 kg])
- 1 standard socket set(s)
- 2 wrench set(s)
- 1 torque wrench(es)
- 1 set(s) of Allen wrenches
- 1 hammer and punch
- 1 drill with bits 3/16", 5/16"
- 2 tape measure(s) (25' [7.6 m])
- 1 tape measure(s) (100' [30.5 m])
- 1 ratchet strap
- 2 C-clamp(s) or vise grip(s)
- 1 fish tape (100' [30.5 m])
- 1 tire pressure gauge
- 1 tire chuck
- 1 propane torch
- 1 picker with minimum reach of 12' (3.7 m) and 4000 lb to 6000 lb (1814 kg to 2722 kg) lifting capacity

3.4. Before You Begin

Before you assemble the conveyor:

- Familiarize yourself with all the sub-assemblies, components, and hardware that make up the equipment.
- Have all parts and components on hand, and arrange them for easy access.
- Separate the hardware (bolts, nuts, etc.) and lay them out into groups for easier identification during assembly.
- Ensure there is adequate space to remove the assembled conveyor from the assembly area.

3.5. Hydraulic Fittings and Bolt Tightening

Remember the following basic considerations when tightening hydraulic fittings and bolts:

- Tighten all fasteners to the torque specified in Section 5.1 – Bolt Torque on page 60. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
- All hydraulic fittings should be torqued to the recommended specifications. See Section 5.2 – Fittings Torque Values on page 61.

NOTICE Do not over-tighten fittings. Over-tightening hose fittings can crack the fittings or motor body and will void the warranty.

3.6. Component Locations

Layout Drawing

Be sure to select the proper layout drawing. The dimensions change for each machine depending on the drive option selected. Incorrect placement of the components affects machine balance and can cause a heavy or light intake. The layout drawing is attached to the packing list.

Mark the Tube

Always ensure that the hopper remains level during the attachment of all components that bolt to the conveyor tubing. Use a tape measure to mark out component locations that bolt to the tube. Mark locations on the top side of the tube. Refer to the tube drawing attached to the packing list for layout measurements and component locations.

Tightening Brackets

For all bolt-on brackets and u-clamps, tighten nuts part-way on one side of bracket, then tighten part-way on opposite side. Do this until bracket is fully tightened and ensure it remains level during this procedure.

3.7. Assemble the Conveyor Tube

1. Review the tube layout figure below for your specific conveyor model to determine the order in which the tubes must be connected together. Part numbers are shown for tube identification.
2. Place the tubes on two or more support stands to support each tube section. The support stands must be set at equal height (see Figure 4). Anchor the tubes to the stands if necessary to prevent rolling.

   ⚠ CAUTION Failure to secure the tubes may result in personal injury.
3. Confirm that all tubes are set level and oriented correctly.
4. Fasten tube flanges together with 7/16" x 1" bolts (2) and 7/16" locknuts (1) as each tube section is placed, starting at the hopper end and working toward the spout end. Ensure the tubes are aligned and the bolts are straight.

   Note

   A punch can be used to assist alignment. If you are not careful, it is possible to bolt the flanges together non-concentrically with the bolts crooked through the holes.

Table 3. Tube Connection Components

Item	Description
1	7/16" Locknut
2	7/16" x 1" Bolt GR8

Figure 4. Typical Tube Connection

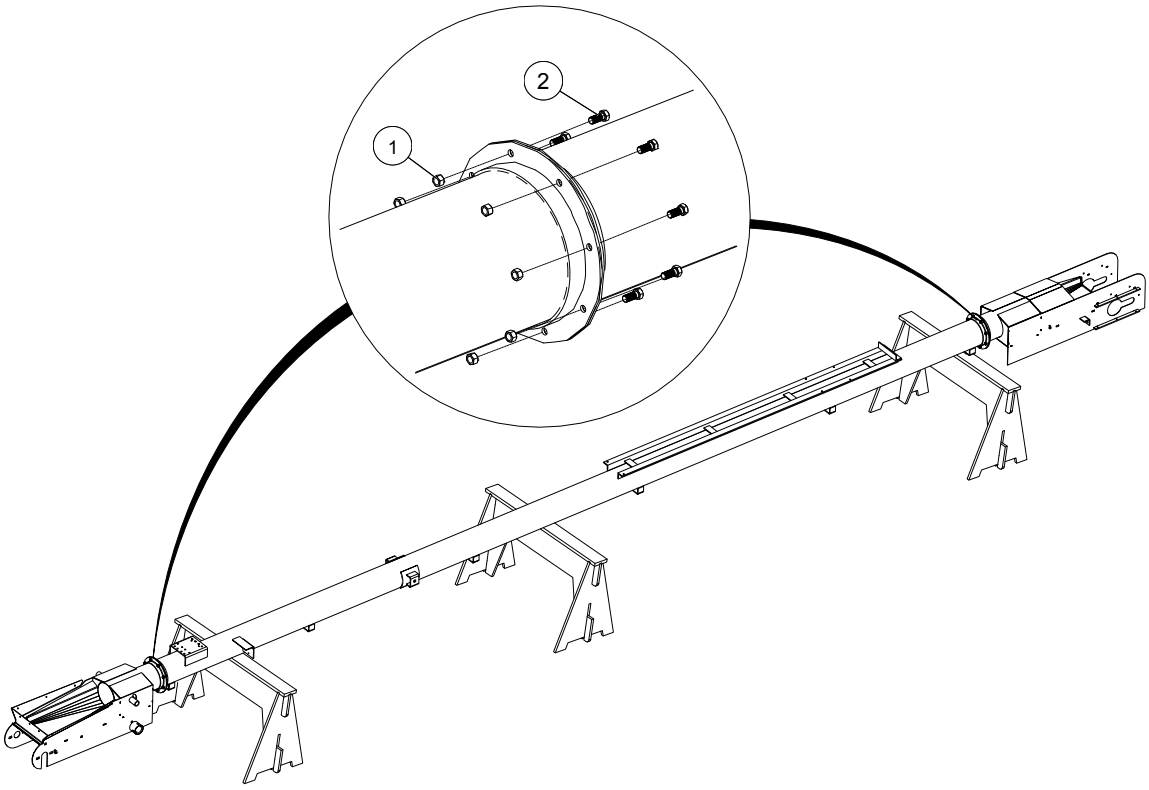
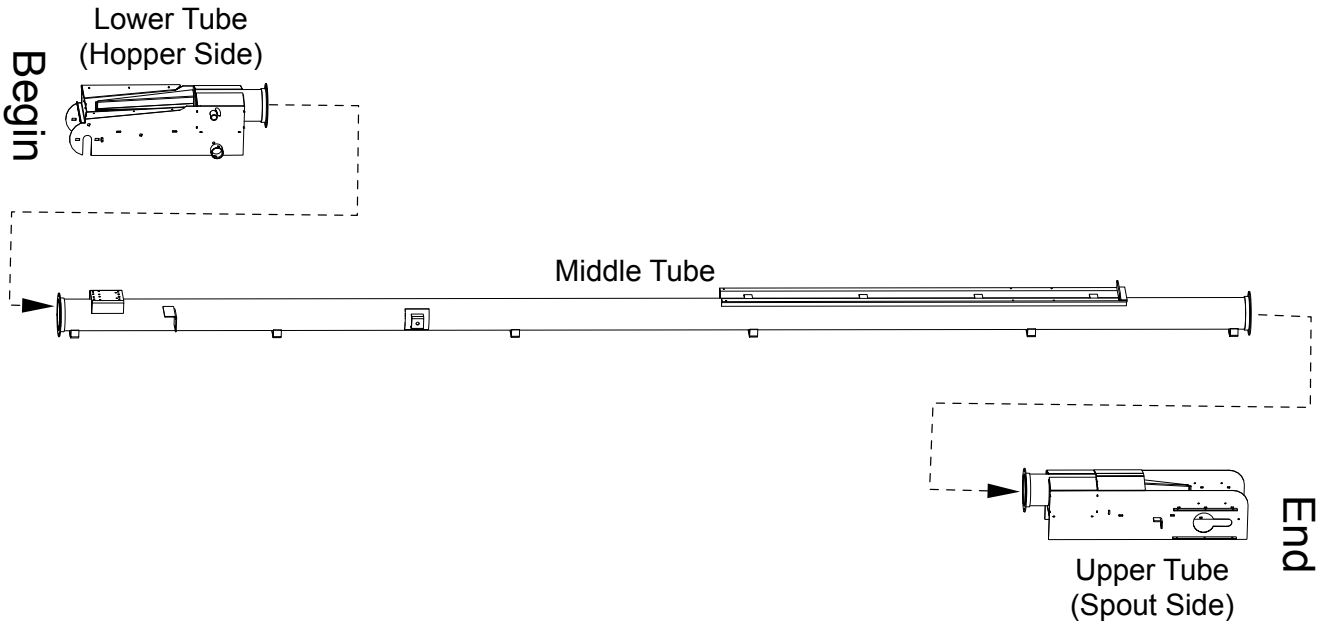


Figure 5. Conveyor Tube Layout for 1200 Series Top Drive Models



3.8. Brand and Model Decal Placement

Important

Do not cover any existing safety or instruction decals with the brand and model decals. Also make sure the decals do not interfere with any welded-on brackets or tube flanges.

- The decals should be placed as follows (see Figure 6):
  - Brand (B): as near as possible to the conveyor spout
  - Model (M): as near as possible to the bottom end of the track

  Examples of the appearance of brand and model decals are in Figure 7 and Figure 8.

Figure 6. Brand (B) and Model (M) Decal Placement

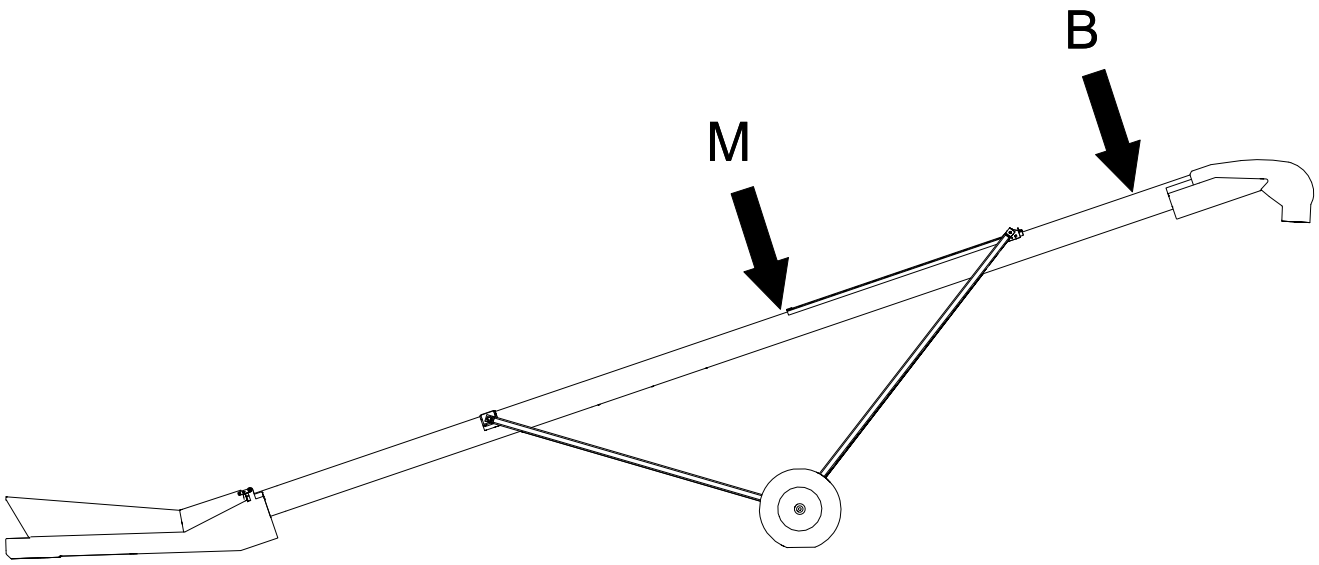


Figure 7. Brand Decal (example)

AGI BATCO

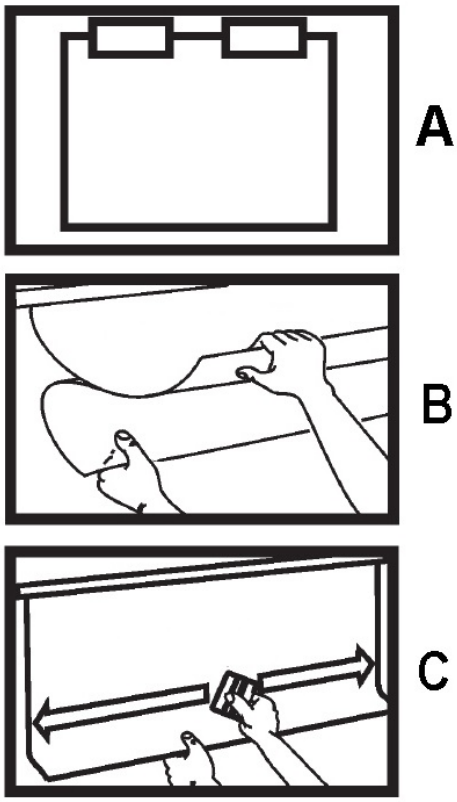
Figure 8. Model Decal (example)

BCX2 1549

- Apply decals to both sides of conveyor tube.
- For each decal:
  1. Prepare surface by cleaning thoroughly with soap and water. Surface must be clean and free of dirt, grime, rust and oil. To clean oily surface, wipe with clean cloth and solvent cleaner or isopropyl alcohol.
  2. Position the decal by centering it vertically on the tube and apply masking tape along the top, creating a gate hinge (see Detail A in Figure 9).
  3. Remove backing paper from decal 6” from the top and use the squeegee to adhere decal to the tube (see Detail B). Start at the top center of the decal and work your way outward both left and right using overlapping strokes.

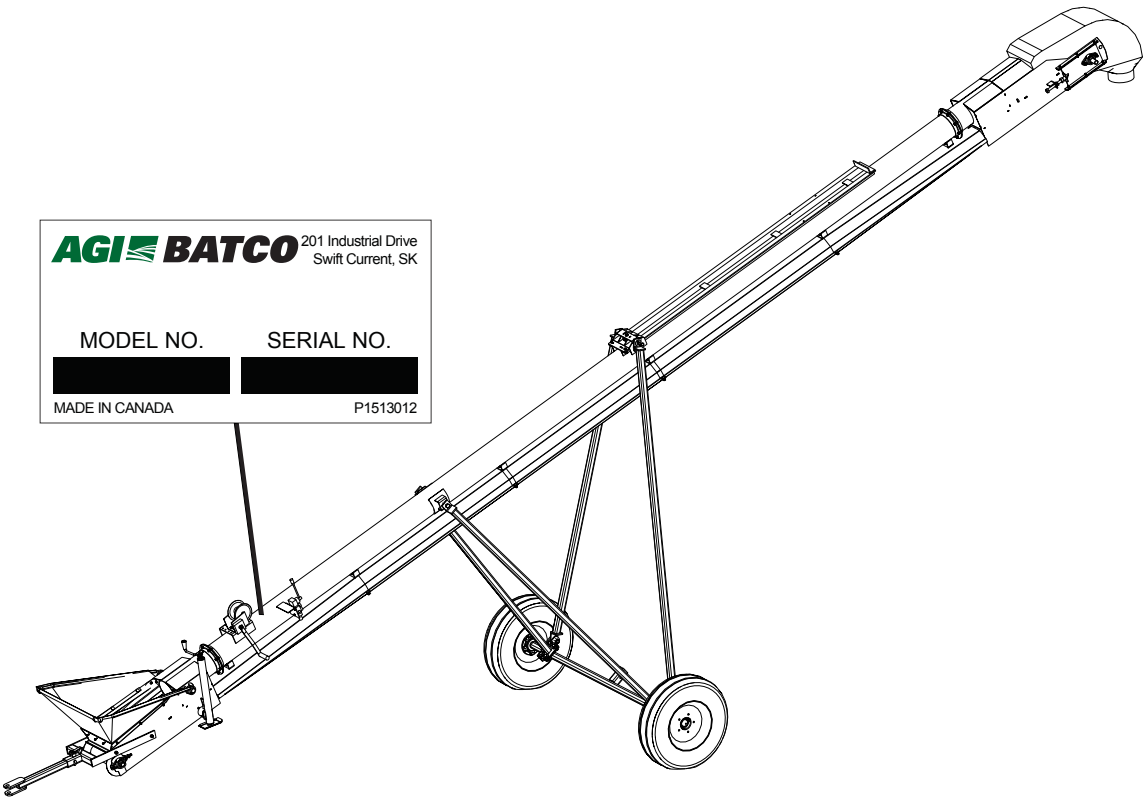
4. As you work your way down the decal, peel back the backing paper 6” at a time. Repeat Step 3 until the entire decal has been applied to the tube (see Detail C as an example).
5. Once the entire decal has been properly adhered to the tube, remove tape hinge from front of decal. Remove the front application tape at a sharp 180° angle.
6. Inspect the entire decal for air pockets; if found, remove them by punching a tiny hole with a pin and then squeegee the surface flat.
7. Squeegee the corners and edges of the decal to ensure proper adhesion and to prevent premature peeling.

Figure 9. Decal Placement Technique



3.9. Serial Number Decal Placement

Place the serial number decal on the conveyor as shown below.



3.10. Install the Hopper Roller

1. Insert the roller (2) into the front end of the hopper (1).
2. Slide a 1-1/2" bearing (7) on each end of the roller and secure to the hopper using 1/2" x 1-1/2" carriage bolts (3), 0.531" square flat washers (6), and 1/2" locknuts (4).

   Important

   If the square shoulder of the carriage bolt still sticks through the spout side plates, you must either add a 2nd square washer or tighten up the nut slowly as to not crack the bearing body.
3. Center the roller (2) in the hopper.
4. Make sure the roller (2) is positioned straight by measuring from each end of the roller to each end of the hopper weldment sidewall (it should be the same distance on both sides).
5. For each bearing, use a hammer and punch to rotate the lock collar so that it seats onto the inner race of the bearing. Tighten the lock collar securely to the shaft with its hex set screw.

   Note

   Make sure to install the Bearing Mount Plate (8) for the left side baring installation.
6. Insert the square-head set screw (4) as in Figure 10 on both sides of the hopper section (1).

   Note

   This set screw will be used to adjust the hopper roller after installing the belt.

Figure 10. Installing Hopper Roller

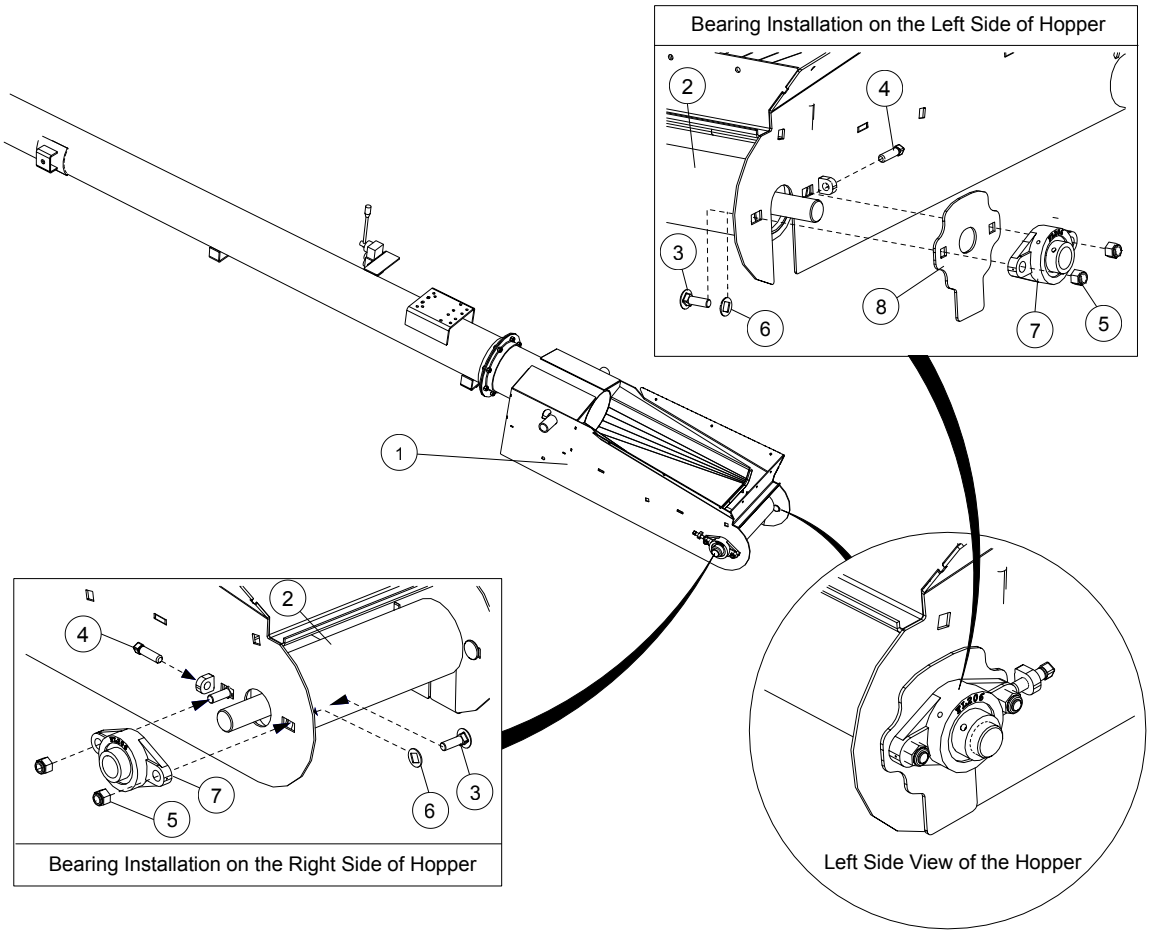


Table 4. Hopper Components

Ref	Description
1	Hopper Section
2	Vulcanized Roller
3	Carriage Bolt 1/2" x 1-1/2"
4	Square-Head Set Screw 7/16” x 1–1/2”
5	Nylon Locknut 1/2"
6	Flat Washer 0.531 Square -1.00-0.060
7	Bearing Flange Unit 1-1/4"-SAFL206-20
8	Bearing Mount Plate (only for left side of the hopper)

3.11. Install Belt Tightener and Belt Guide

Figure 11. Install Belt Tightener Plate and Belt Guide Flashing

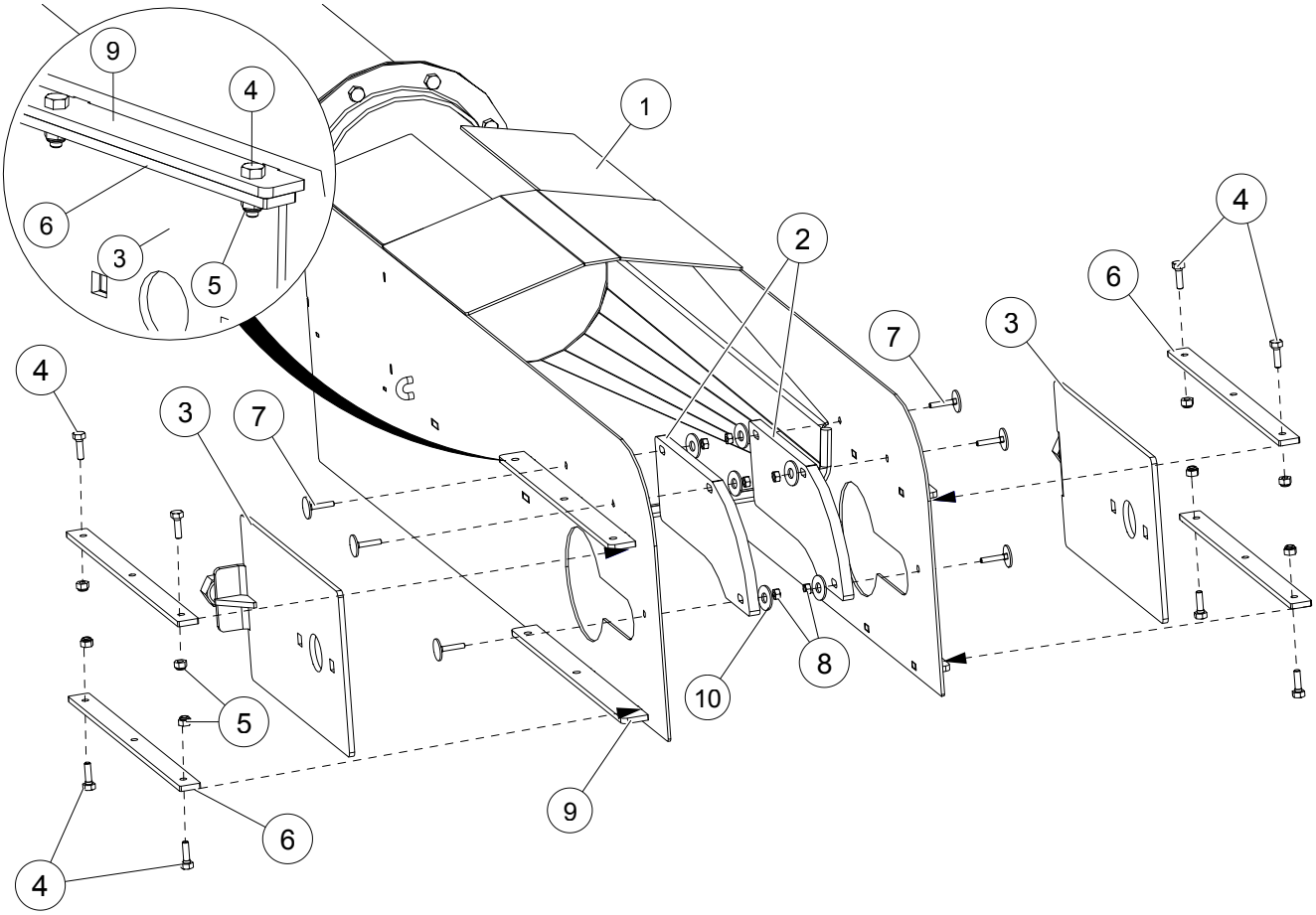


Table 5.

Ref	Description
1	Spout Section
2	1/2” Belt Guide Flashing
3	1/4” Spout Tightener Plate
4	Hex Bolt, 5/16” X 1”
5	Nylon Lock Nut, 5/16”
6	Spout Retainer Plate
7	Elevator Bolt, 1/4” X 1-1/4”
8	Nut, 1/4”
9	Spout Bearing Mount Tab (Pre-attached), 1/4”
10	Washer, 1/4"

3.12. Install the Spout Roller

1. Prior to installing the spout roller, please check Figure 11 in Section 3.11 – Install Belt Tightener and Belt Guide on page 26 for belt tightener and belt guide installation.
2. Insert the roller (2) into the spout (1) (see Figure 12).

   Important

   Make sure the keyway in the spout roller is installed on the same side of the conveyor as the motor used to drive it (see appropriate drive assembly section).

3. Slide a bearing (5) on each end of the roller and secure to the spout using 1/2" x 2" carriage bolts (3), square flat washers (4), and 1/2" locknuts (6).

   Important

   If the square shoulder of the carriage bolt still sticks through the spout side plates, you must either add a 2nd square washer or tighten up the nut slowly as to not crack the bearing body.

4. Center the roller (2) in the spout.
5. Make sure the roller (2) is positioned straight by measuring the distance from the end of the roller to the end of the spout weldment sidewall on both sides (it should be the same distance).
6. For each bearing, use a hammer and punch to rotate the lock collar so that it seats onto the inner race of the bearing. Tighten the lock collar securely to the shaft with its hex set screw.
7. Insert the 3/4" x 7" tap bolt (7) and 3/4" hexnuts (8) in the spout tightener plate on both sides the spout end as in Figure 12.

   Note

   The tap bolts are used to set the alignment of the belt, after the belt is installed.

Figure 12. Installing Spout Roller

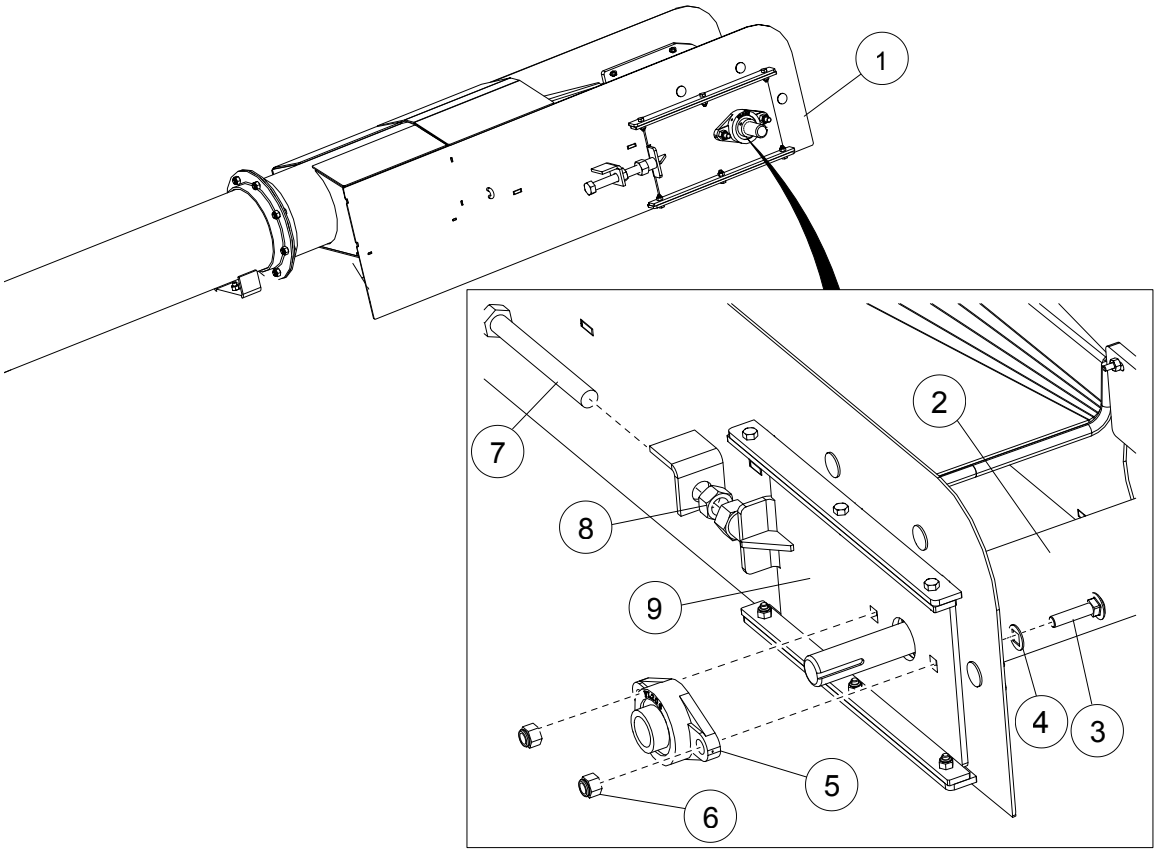


Table 6. Spout Roller Components

Ref	Description	Ref	Description
1	Spout Section	5	1-1/2" Bearing Flange Unit (SAFL208–24)
2	Vulcanized Spout Roller	6	1/2" Nylon Locknut
3	1/2" x 2" Carriage Bolt	7	3/4" x 7" Tap Bolt
4	Square Flat Washer (0.531"-1.00"-0.060")	8	3/4" Hexnut

3.13. Attach the Hitch

Refer to Figure 13

1. Attach the hitch (2) to the hopper weldment using 1/2" x 1–1/2" bolts (6) and 1/2" nuts (7).
2. Insert the tongue (3) into the hitch (2).
3. Secure the tongue in place using 5/8" x 3" hitch pin (4) and 3/16" x 3–1/4" hairpin (5).

Figure 13. Installing Hitch

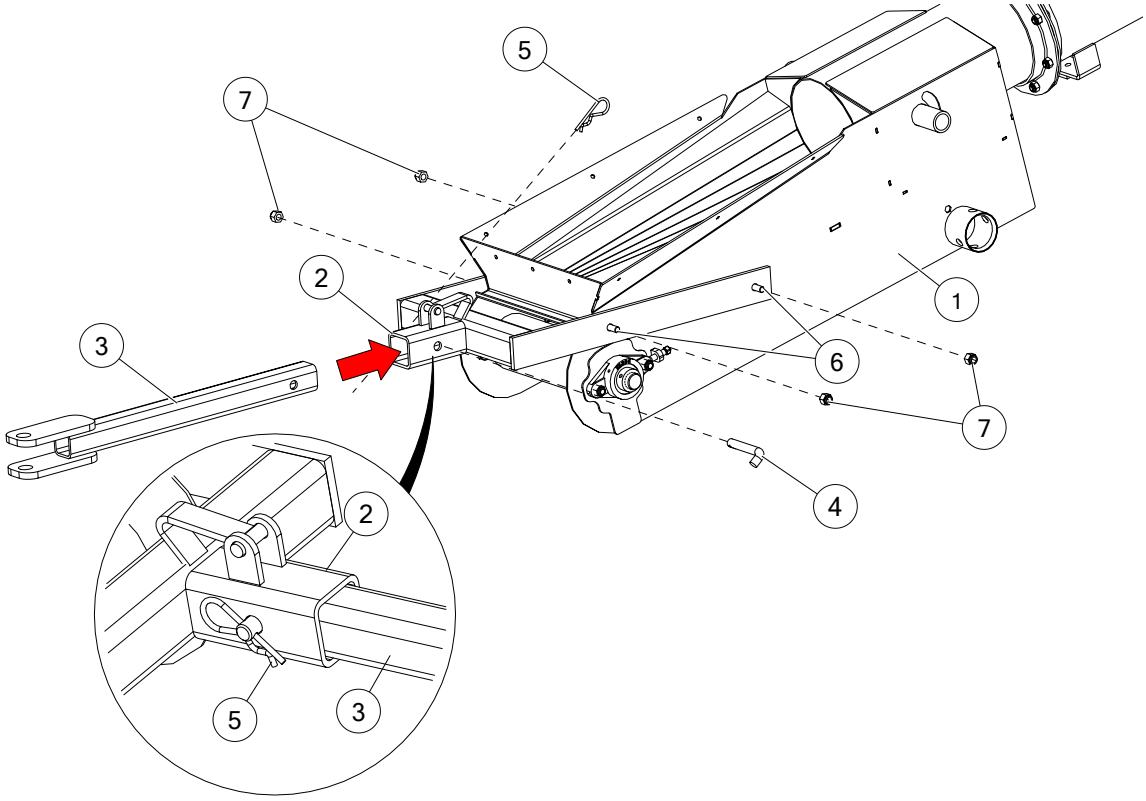


Table 7. Hitch Components

Ref	Description	Ref	Description
1	Hopper Section	5	Hairpin 3/16" x 3-1/4"
2	Hitch	6	Carriage Bolt, 1/2” x1-1/2”
3	Straight Tongue	7	Nylon Locknut, 1/2”
4	Hitch Pin 5/8" x 3"		

3.14. Install the Hand Winch

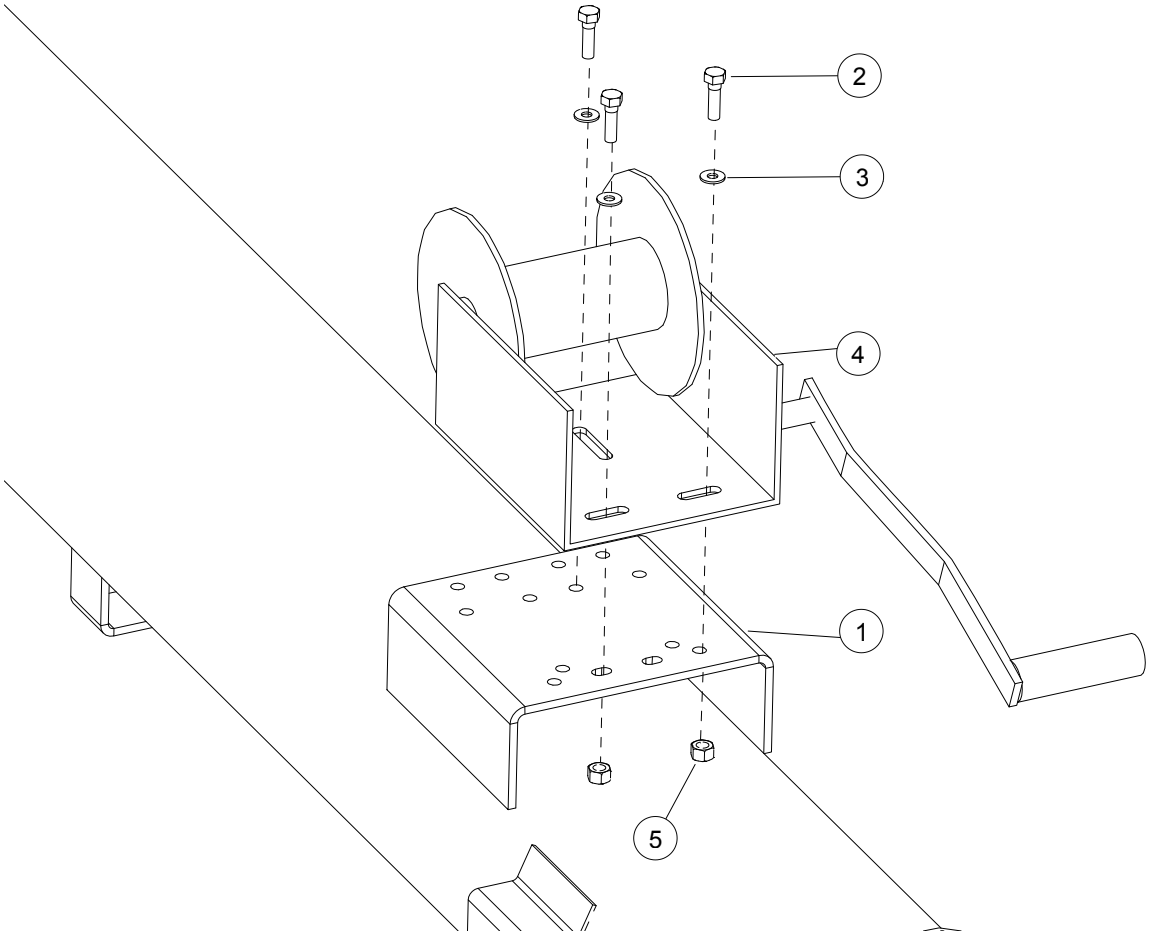
Depending on your conveyor model, it may be equipped with either a hand winch or a hydraulic winch.

1. Attach the winch (4) to the winch mount bracket (1) with 3/8" x 1" bolts (2), 3/8" flat washers (3), and 3/8" locknuts (5) (see Figure 14).

Table 8. Hand Winch Components

Ref	Description	Ref	Description
1	Winch Mount Bracket	4	Hand Winch
2	3/8" x 1" Hex Bolt (GR 8)	5	3/8" Nylock Nut
3	3/8" Flat Washer		

Figure 14. Installing the Hand Winch



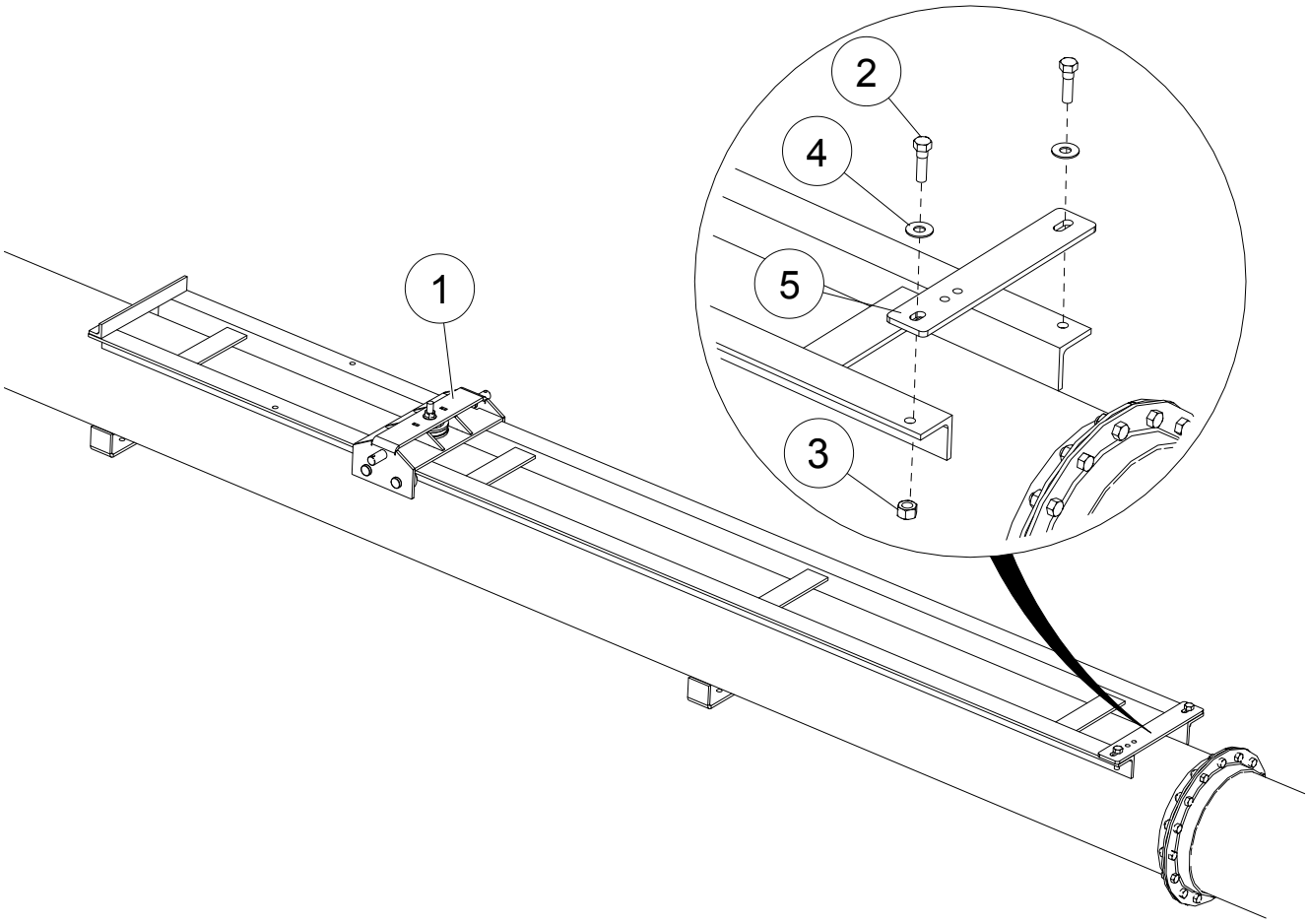
3.15. Install the Frame Slider

1. Slide the slider (1) onto the track (see Figure 15).
2. Install the cable attach (5) on the track with 7/16" x 1-1/2" bolts (2), 7/16" locknuts (3), and flat washers (4).

Table 9. Frame Slider Components

Ref	Description	Ref	Description
1	Slider	4	7/16" Flat Washer
2	7/16" x 1-1/2" Hex Bolt (GR8)	5	Cable Attach
3	7/16" locknut		

Figure 15. Installing the Frame Slider



3.16. Assemble the Weather Guard

1. Install the types of weather guard sections in Table 10 which are indicated by the identifier letters as shown on your particular conveyor model schematic that follows.
2. Connect each weather guard section to the tube brackets as indicated by the position arrows on your particular conveyor model schematic that follows. Use a uni-mount cast plate (1), 3/8" x 1-1/4" capscrew (2), and 3/8" locknut (3). Leave the 3/8" locknuts loose (see Figure 16).

   NOTICE Overlap of the weather guard sections must be as shown to prevent belt damage.
3. Confirm all weather guard mount bar holes are aligned.
4. Tighten the 3/8" locknuts (3) after all of the weather guards have been installed.

Table 10. Identifiers for Types of Weather Guard Sections

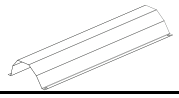
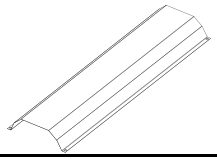
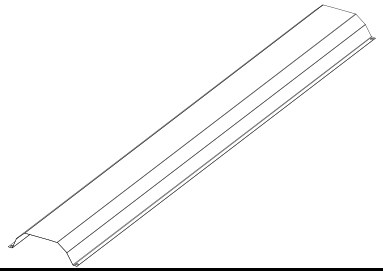
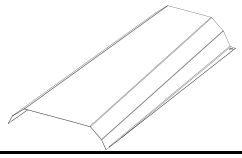
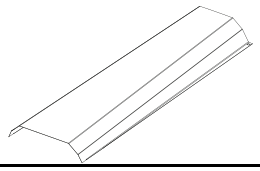
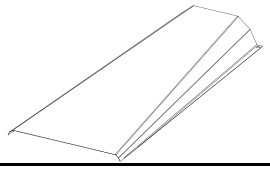
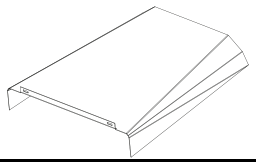
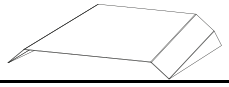
Identifier	Type of Weather Guard Section	
A	3' (0.91 m) Standard	
B	5' (1.52 m) Standard	
C	10' (3.05 m) Standard	
D	4' (1.22 m) Flared	
E	5' (1.52 m) Flared	
F	5' (1.52 m) Flat	
G	Guard -Above S-Drive	
H	Upper Transition	

Table 10 Identifiers for Types of Weather Guard Sections (continued)

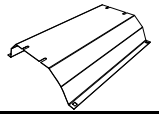
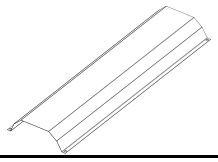
Identifier	Type of Weather Guard Section	
J	2' (0.61 m) Standard	
K	6' (1.83 m) Standard	

Table 11. Components to Install Weather Guard onto the Tube Bracket

Item	Description	Quantity
1	Uni-Mount Plate Cast	1
2	Capscrew 3/8" x 1-1/4" Flat Head Socket	1
3	Nylon Locknut 3/8"	1

Figure 16. Installing a Weather Guard Section

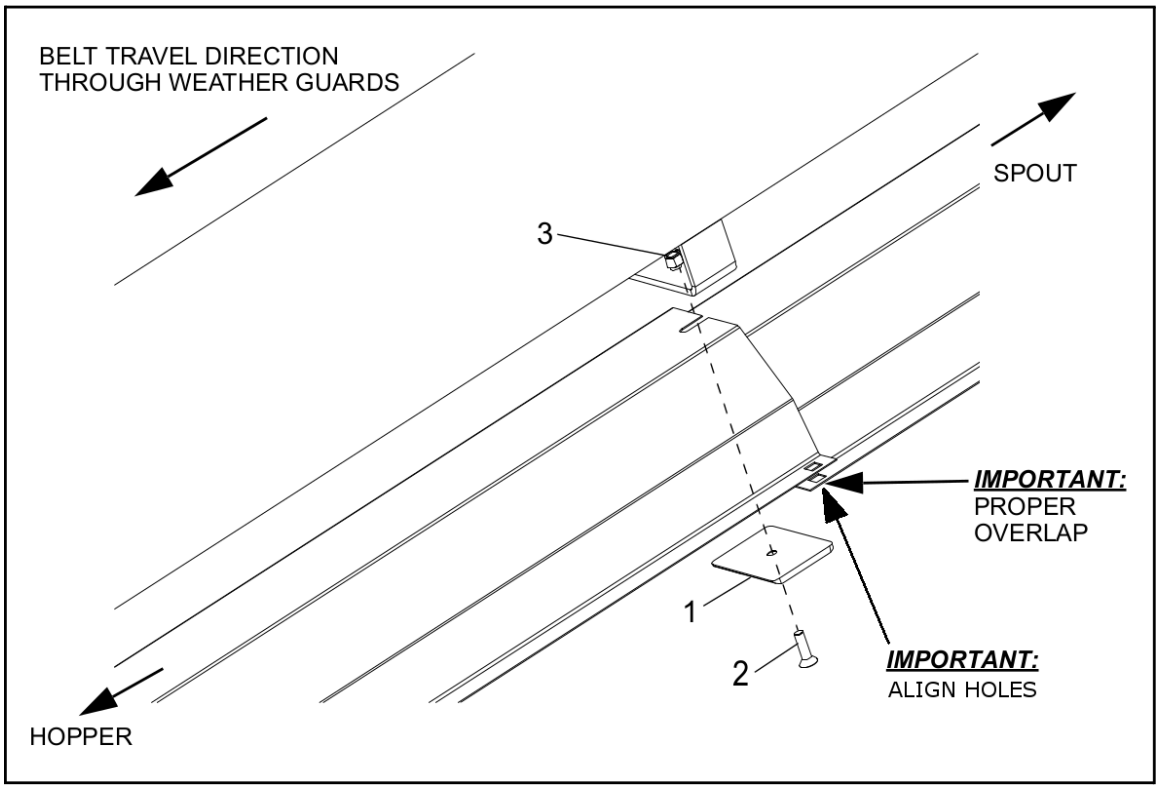
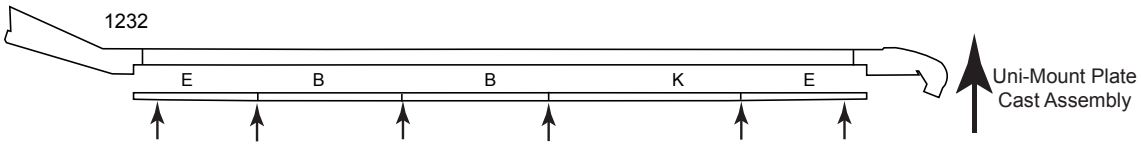


Figure 17. Weather Guard Section Locations



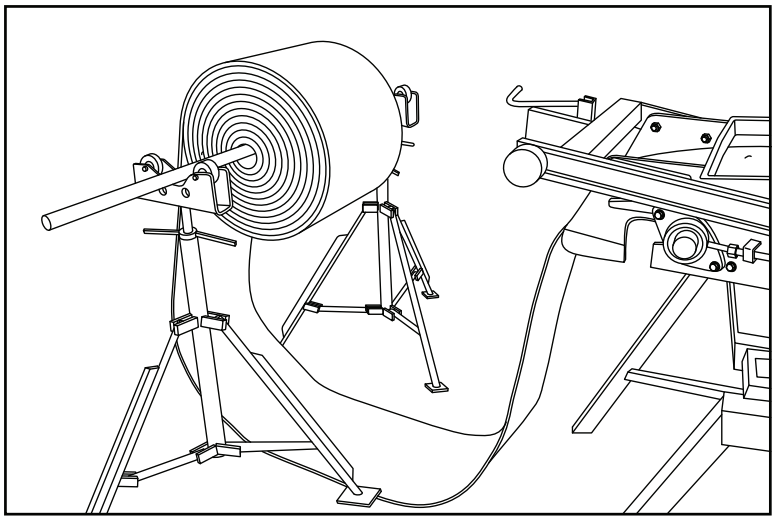
3.17. Install the Belt

This section describes how to install the conveyor belt in the tube. Refer to the packing slip for the length of the conveyor belt used in the installation.

Thread a Fish Tape through the Conveyor Tube

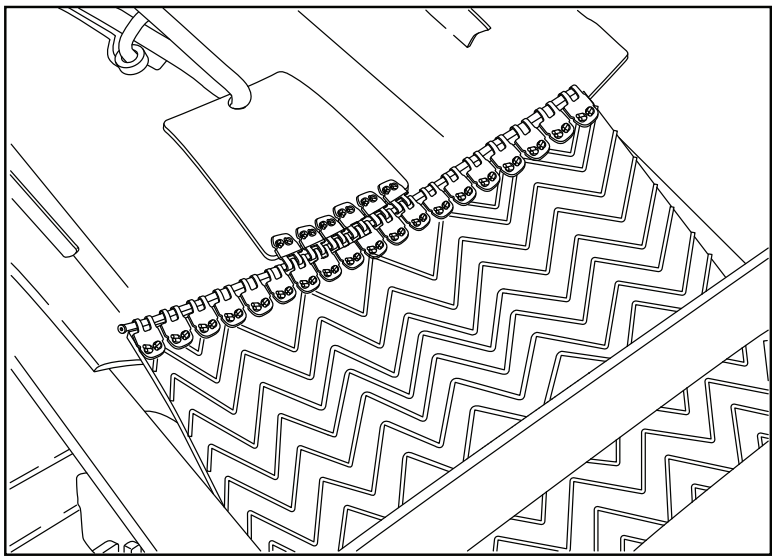
1. Place the rolled belt on a stand behind the hopper.
2. Pull the conveyor belt over the top of the hopper roller, until just inside the hopper, as shown below.

Figure 18. Rolled Belt Behind a Typical Hopper



3. Feed a fish tape in at the spout, through the tube, and into the hopper.
4. Attach the end of the belt to the fish tape using a clamp, or use a short piece of belt and thread the connector wire through the lacing clips to connect.

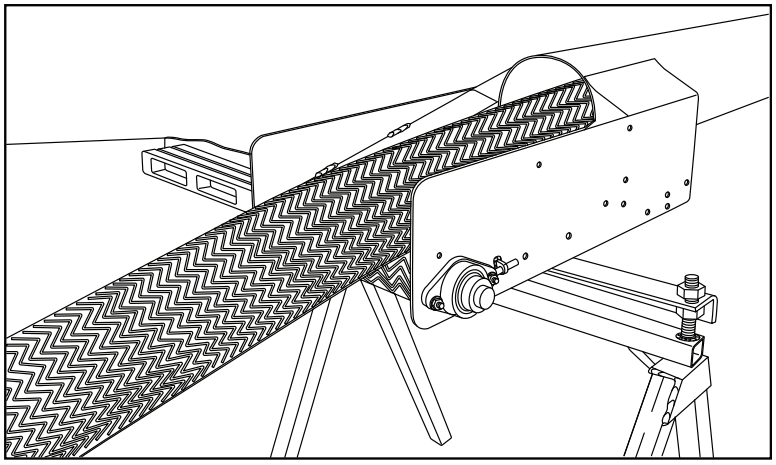
Figure 19. Fish Tape Connected to a Short Piece of Belt



Thread the Conveyor Belt

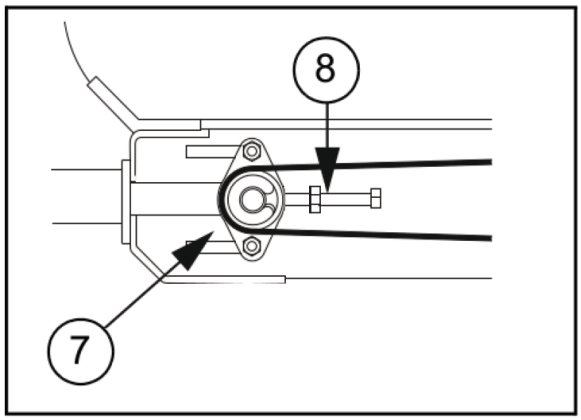
1. From the spout end, pull the fish tape until the belt emerges from the spout.

Figure 20. Conveyor Belt Pulled Through the Spout



2. Wrap the belt around the spout roller and pull it back under the conveyor tube to the hopper until approximately 6' (1.8 m) of excess belt remains on the stand behind the hopper.
3. Wrap the remaining conveyor belt around the hopper roller (7) and under the tube.

Figure 21. Conveyor Belt Around Hopper Roller



Item	Description
7	Hopper Roller
8	Set Screw

The conveyor belt is now ready to be connected.

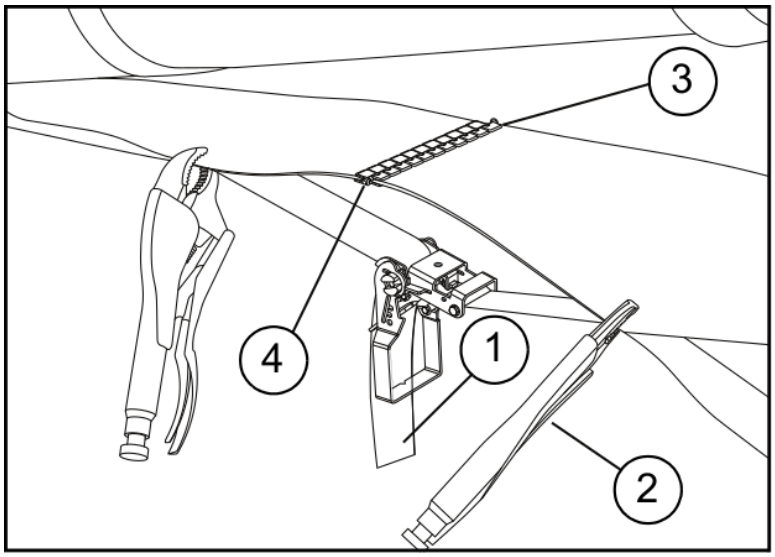
Connect the Conveyor Belt

1. Attach a strap puller (1) to each end of the belt and secure with vise-grips (2).

NOTICE Do not attach the vise grips too tightly, this can damage the belt.

2. Pull the ends of the belt together.
3. Install connector wire through the belt lacing (3).

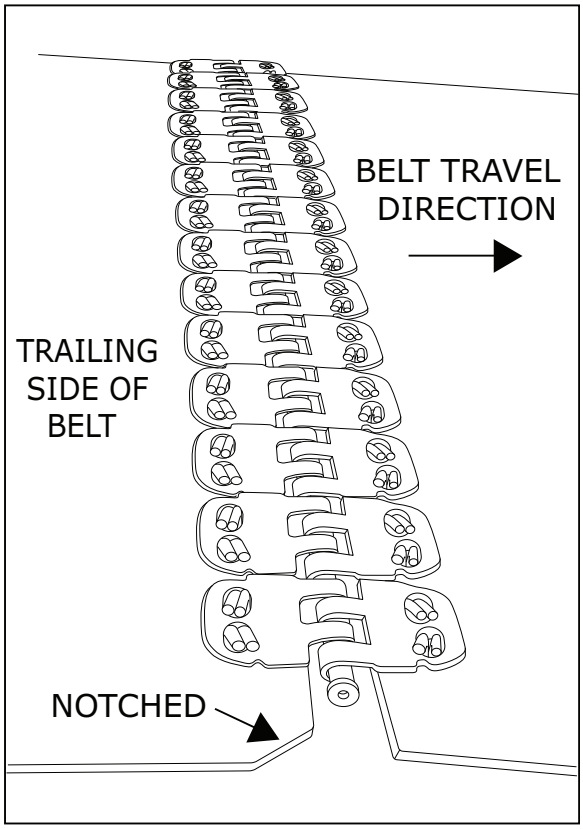
Figure 22. Using a Strap Puller



Item	Description
1	Strap Puller
2	Vise Grip
3	Belt Lacing
4	Lacing Pin

4. On both corners of the trailing edge of the belt, trim a tapered notch to prevent fraying.

Figure 23. Tapering the Trailing Edge of the Belt



Tighten the Conveyor Belt

Use the hopper roller bolts to set the belt tension.

1. Tighten the hopper roller bolts until the conveyor belt deflects 1–2” when pushed down with a 5 lb force.
2. Measure to be sure both sides are set at the same position.

The belt will require final tension and alignment after the conveyor is fully assembled. Refer to the conveyor operation manual for complete instructions.

3.18. Install the Weather Guard Mount Bars

1. Install the mount bar assemblies (refer to Figure 24) at the positions indicated by arrows on the conveyor model schematic diagram (Figure 25).
2. There are four mount bars are required to install in each joint of the five weather guard sections.
3. Adjust the position on all weather guards and mount bars to achieve the best fit.

   Note

   Ensure the steel guide plates are sitting tight against the edge of weather guard to avoid the belt trap in.

4. Tighten all bolts and nuts.

Figure 24. Types of Mount Bar Assemblies

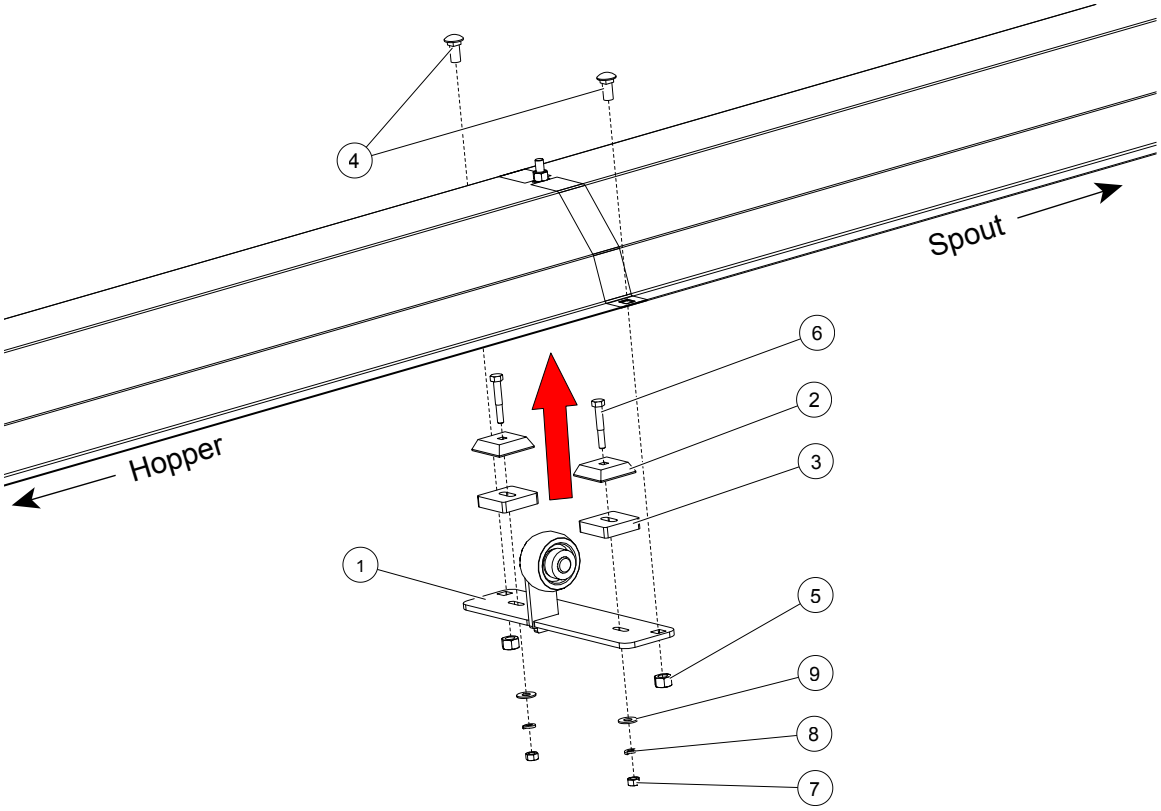
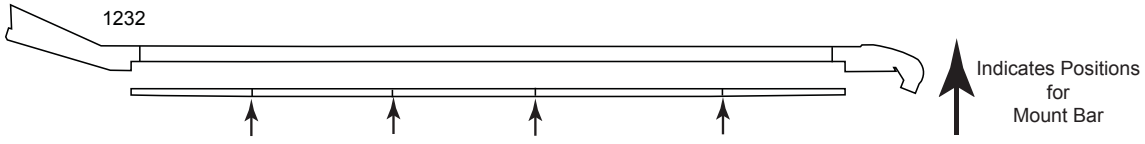


Table 12. Weather Guard Mount Bar Components

Item	Description	Item	Description
1	Mount Bar with Roller	6	5/16" x 2" Hex Bolt
2	Belt Guide Block	7	5/16" Hex Nut
3	Belt Guide Plate	8	5/16" Lock Washer
4	7/16" x 1" Carriage Bolt	9	5/16" Flat Washer
5	7/16" Nylon Locknut		

Figure 25. Mount Bar Schematic Diagram



3.19. Install the Collapsible Hopper Cloth

Refer to the Table 13 below for a list of items used for installing the hopper cloth.

Table 13. Components for Installing the Hopper Cloth onto the Conveyor

Ref	Description
1	1/2" Pipe Sch 40 (Side)
2	1/2" Pipe Sch 40 (Front)
3	1/2" Elbow Rail Fittings
4	Hopper Cloth
5	Elevator Bolt, 1/4" x 1-1/4"
6	Nut, 1/4"
7	Tek Screw, 1/4"X1"
8	Flat Washer, 1/4"
9	Front Flashing

Install the Hopper Spring

1. Slide hopper spring over tubes on the sides of the hopper. See Figure 26 for correct spring orientation.
2. Rotate the spring so that the loop of the spring coil is locked in place by the slot. See Figure 27.

Figure 26. Installing the Hopper Springs

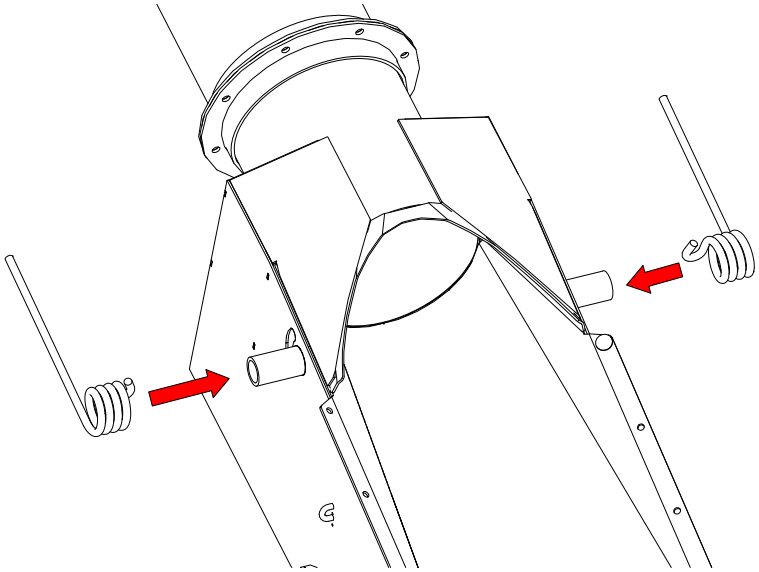
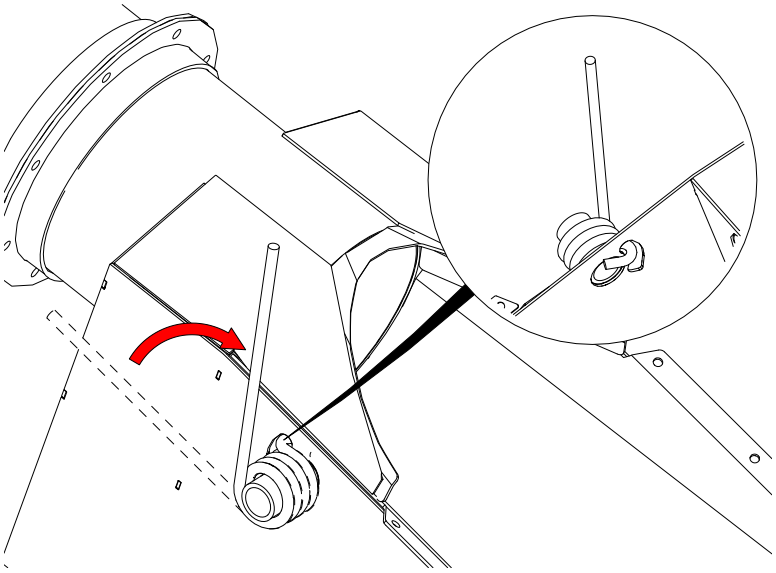


Figure 27. Lock the Hopper Spring



Install the Front Flashing

Refer to Figure 28.

1. Set the front flashing (9) on the hopper before installing the hopper cloth as showing in Figure 28.
2. Using two tek screws (7) and washers (8) attach the flashing on both sides of the hopper weldment.

- When attaching the flashing kit, make sure there is no gap or opening. Use as much tek screws as necessary to prevent any leakage. Check from the down (roller side) of the hopper that there is no light (or least amount of light) coming from the contact. Please check the 29 Leakage of Hopper on page 41 for better understanding.

Important

Ensure the tek screws are not catching the belt after installation.

Figure 28. Installing Front Flashing

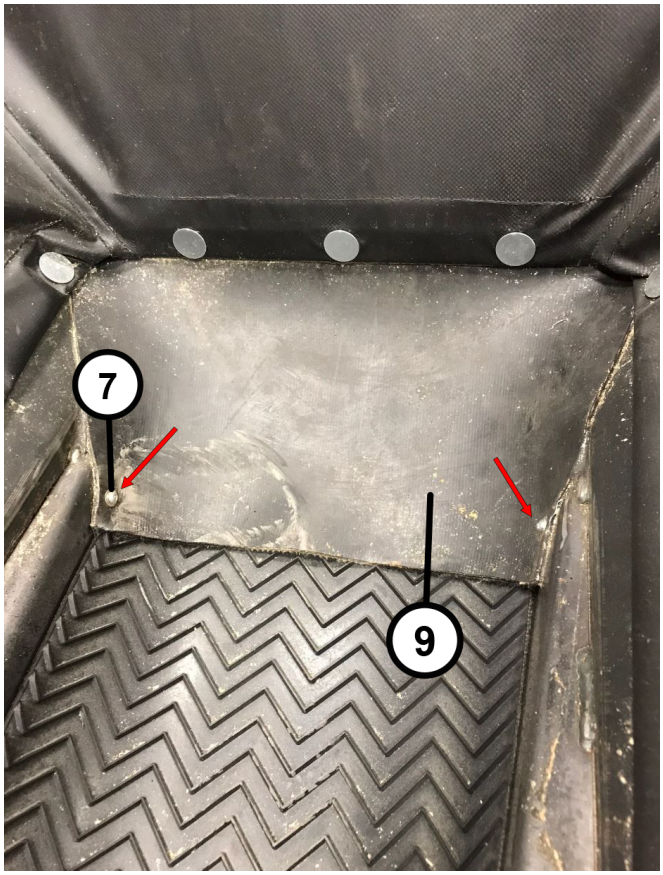
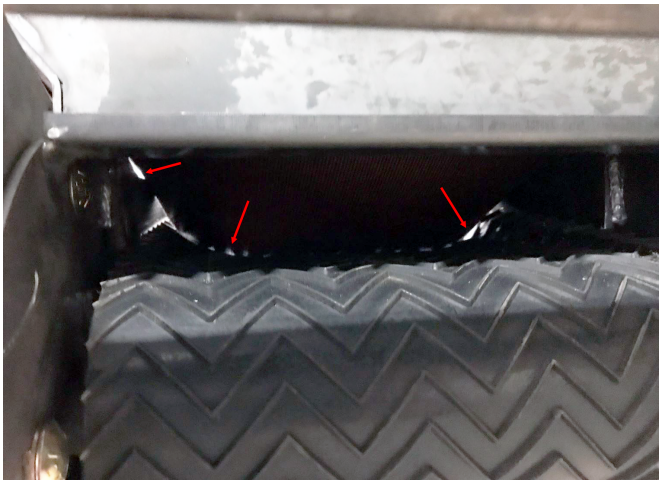


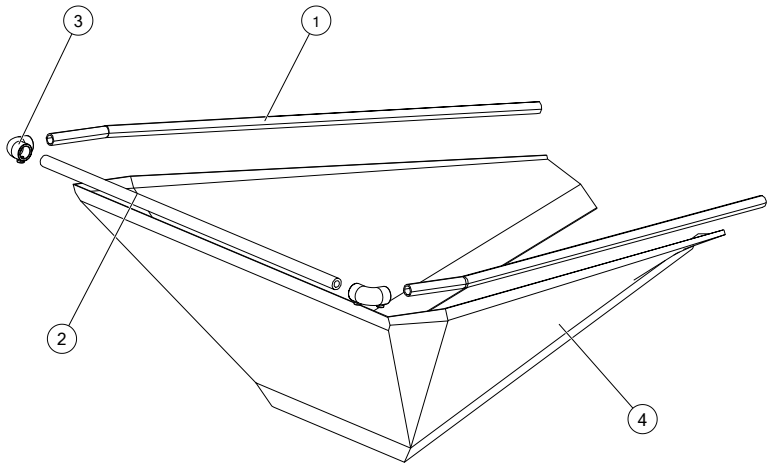
Figure 29. Leakage of Hopper



Install the Hopper Cloth

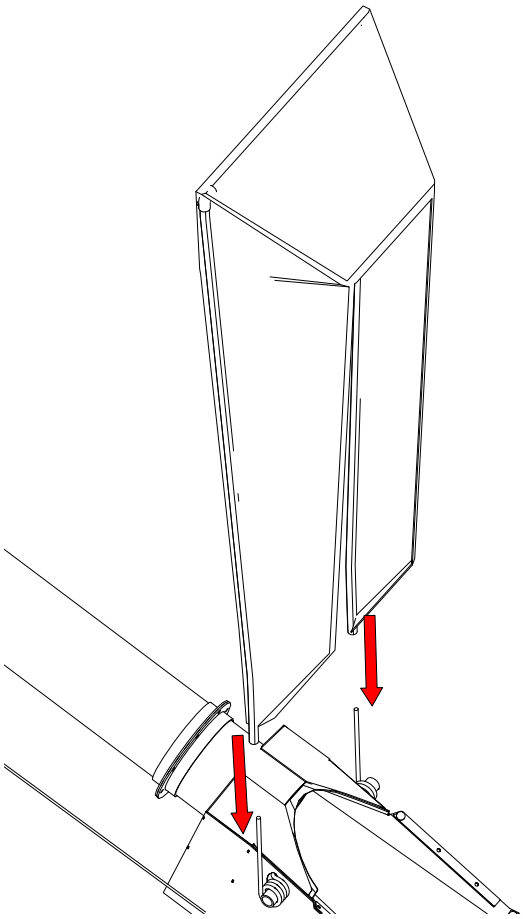
1. Slide the tubes (1, 2) into the hopper cloth (4).
2. Connect the front corners with the slip-on rail fittings (3). Orient the fittings so that the Allen screws are facing down. See Figure 30.

Figure 30. Installing the Hopper Cloth Tubes



3. Tighten the Allen screws to secure the tubes in place.
4. Slide the open end of the tubes (1) over the hopper springs. See Figure 31.

Figure 31. Installing the Hopper Cloth



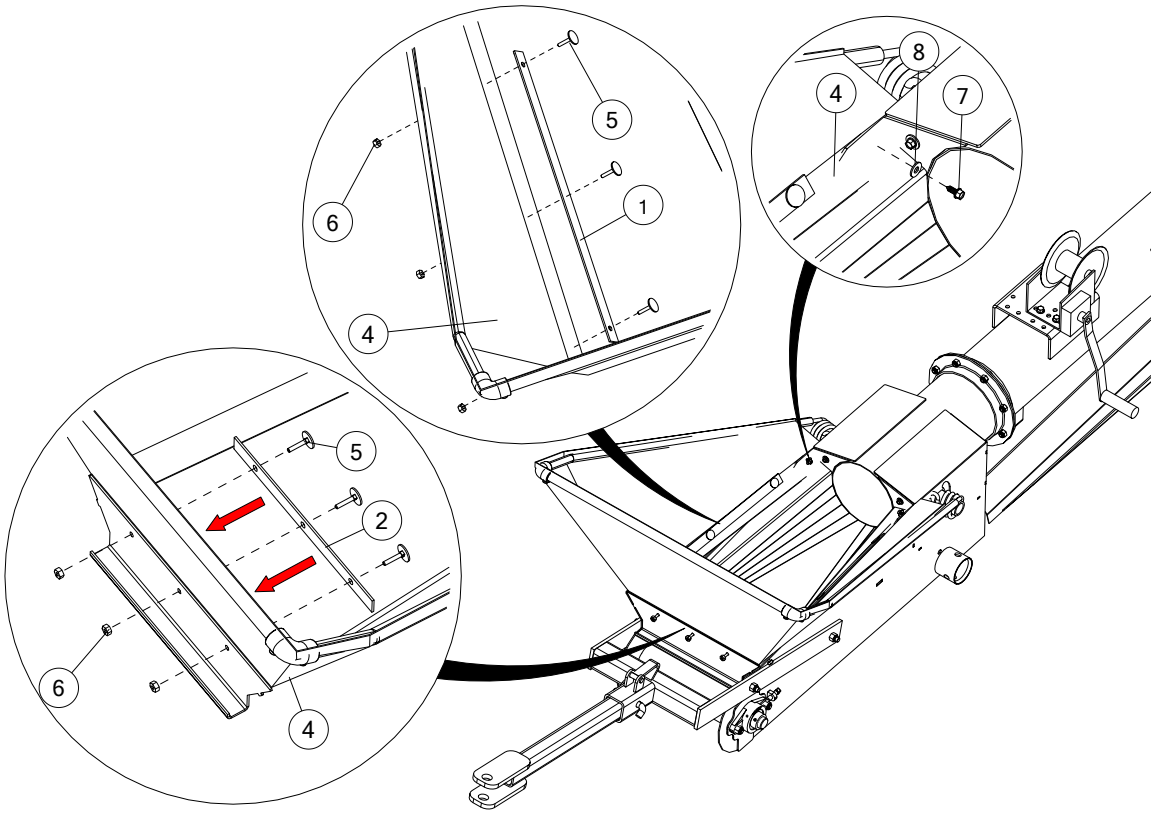
5. Pull down the tube with the hopper cloth and attach the hopper cloth to the conveyor (see Figure 32):

- First, attach the front of the hopper cloth to the front flashing. Afterward, attach the sides.
- Drill through the hopper cloth and use the existing holes as a guide through the lower frames, flashings, and hopper weldment.
- Fasten using 1/4" x 1-1/4" elevator bolts (5) and 1/4" nuts (6).

Important

When attaching the elevator bolts make sure the flashing is covered under the hopper cloth. Install the bolts (5) through the flashing.

Figure 32. Installing the Hopper Cloth onto the Conveyor



6. Use tek screws (7) and washers (8) to attach the corder of the hopper cloth to the side plates of the hopper weldment (see Figure 32)

3.20. Install the Spout Hood

1. Place the hood (2) around the bearing assembly (see Figure 33).
2. Use 1/4" x 1" self-tapping screws (3) and 1/4" flat washers (4) to tighten the hood (2) to the conveyor spout (1).

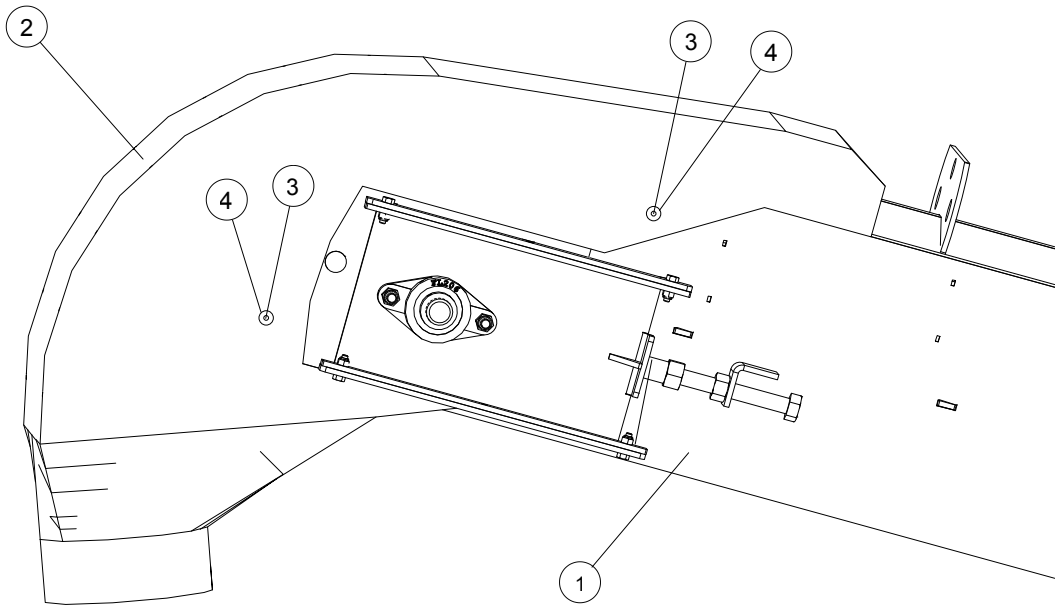
Note

Make sure the screws will not interfere with belt operation.

Table 14. Spout Hood Components

Item	Description	Quantity
1	Spout Assembly	1
2	Hood	1
3	1/4" x 1" Self-Tapping Screw	4
4	1/4" Flat Washer	4

Figure 33. Installing Spout Hood



3.20.1 Install the Telescopic Downspout (Ontario Only)

1. Secure the Downspout to the hood using ¼" tek screw and washer. See Figure 34.
2. Attach hook snap, chain link and quick link to the strap of the Downspout as shown in Figure 35.
3. Attach the Downspout to the side of the chain link as needed (when not in use). See Figure 36.

Ref.	Description	Qty
1	Spout Hood	1
2	Telescopic Downspout	1
3	Tek Screw and Washer	4
4	Quick Link, 3/16"	1
5	Chain Link, 5/16"	2 ft
6	Hook Snap, 1/4"	1

Figure 34.

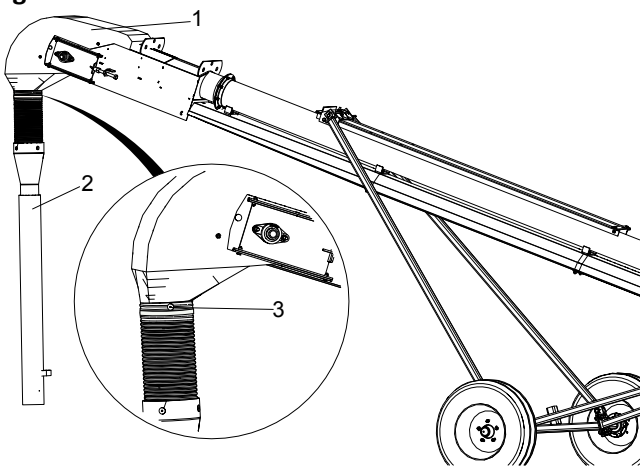


Figure 35.

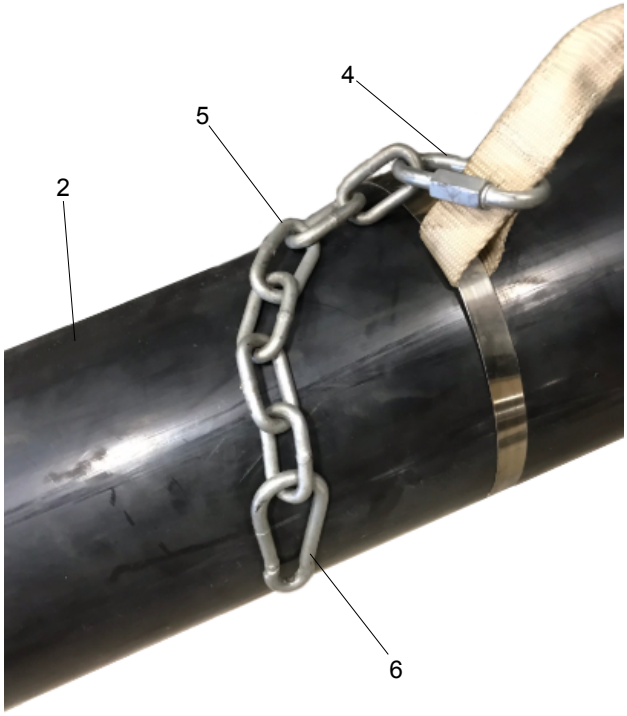


Figure 36.

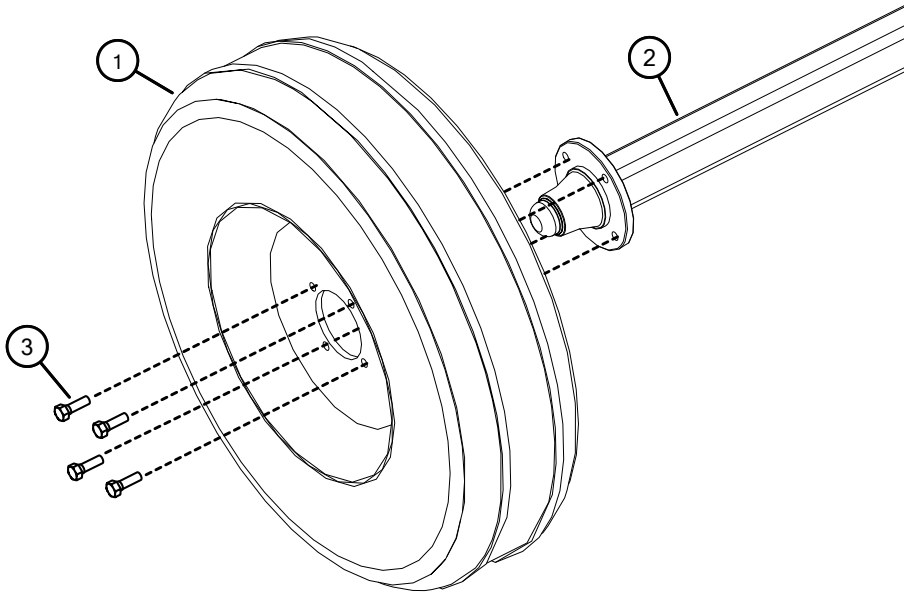
3.21. Install the Wheels

1. Check if the pressure of tires matches the pressure indicated on the tire sidewall.
2. Mount the wheels (1) to the axle (2) with wheel bolts (3) provided (see Figure 37).

Table 15. Components to Attach the Wheels to the Axle

Item	Description
1	Tire Assembly
2	Axle
3	Wheel Bolt

Figure 37. Attaching the Wheels to the Axle



Note

Wheels may have four or six bolts, depending on the model of conveyor.

3.22. Assemble the A-Frame

Ensure the wheels are mounted to the axle before beginning this procedure.

1. Loosely fasten the axle arms (9) to the axle (12) using one 5/8" x 5" bolt (15), three 5/8" x 2" bolts (13), five 5/8" flat washers (14), and four 5/8" nylon locknuts (8).

   Note

   The axle arms will be tightened after the upright arms have been installed.

2. Fasten the axle arms to the suspension bracket using 3/4" x 2" hex bolts (11) and 3/4" nylon locknuts (10).
3. Secure the slider (4) to the end of the track (towards the spout) using vise-grips.

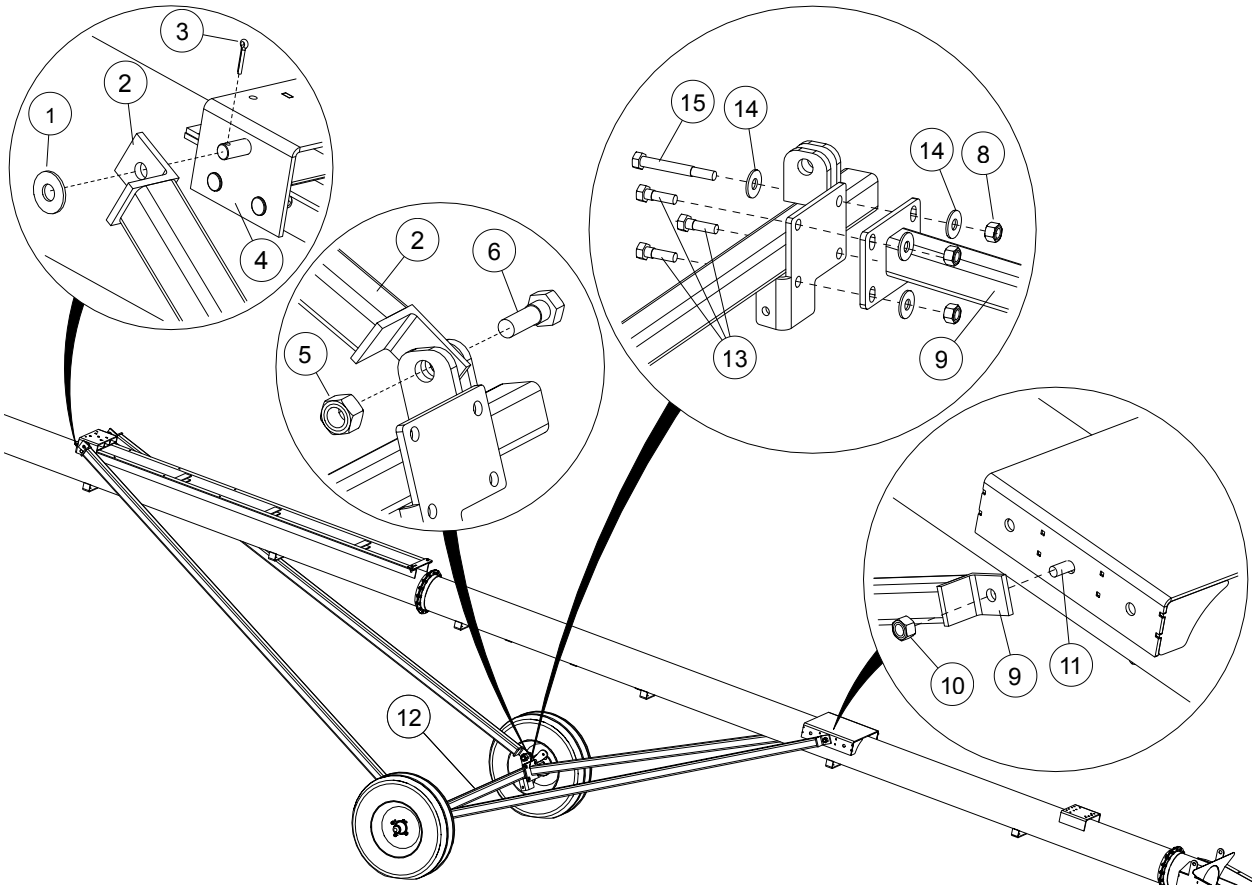
4. Fasten upright arms (2) to the slider (4) using 3/4" flat washers (1) and 1/4" x 2" cotter pins (3).
5. Lift the spout end of the tube until the loose ends of the upright arms align with their brackets on the axle.
6. Fasten the upright arms to the axle using 1" x 3" hex bolts (6) and 1" nylon locknuts (5).
7. Tighten the bolts that fasten the axle arms to the axle.
8. Lower tube and remove vise grips.

⚠ WARNING Do not remove the tube support(s) until the conveyor is fully assembled.

Table 16. Components to Assemble the A-Frame

Item	Description
1	3/4" Flat Washer (plated USS)
2	Upright Arm
3	1/4" x 2" Cotter Pin
4	Slider
5	1" Nylon Locknut
6	1" x 3" Hex Bolt
8	5/8" Nylon Locknut
9	Axle Arm
10	3/4 " Nylon Locknut
11	3/4" x 2" Hex Bolt
12	Axle
13	5/8" x 2" Hex Bolt
14	5/8" Flat Washer (plated USS)
15	5/8" x 5" Bolt

Figure 38. Assembling the A-Frame



3.23. Install the Tube Lift Cable

1. Wrap the cable (1) around the bottom side of the winch drum with three complete wraps around the drum when conveyor is in transport position (see Figure 39).

   ⚠ WARNING Failure to follow could result in conveyor collapse and cause serious injury.

2. Thread cable onto drum and secure with spool anchor.
3. Run the cable towards the spout and thread it through the slider pulley.
4. Run the cable from the slider pulley towards the hopper and stop at the cable attach (3).
5. Loop the cable under and around the cable attach and secure it with two 5/16" cable clamps (2).
6. Trim excess cable.
7. Test the function of the winch by lifting the conveyor to its raised position.

   ⚠ WARNING Crushing/impact hazard

   Do not stand under the conveyor while testing the winch. The conveyor may drop unexpectedly. Ensure all equipment and personnel are clear of the conveyor while testing the winch.

   NOTICE The tube lift components may become damaged.

   Stop the test if anything should slide, slip, or jam. Correct the issue before continuing.

Figure 39. Installing the Tube Lift Cable

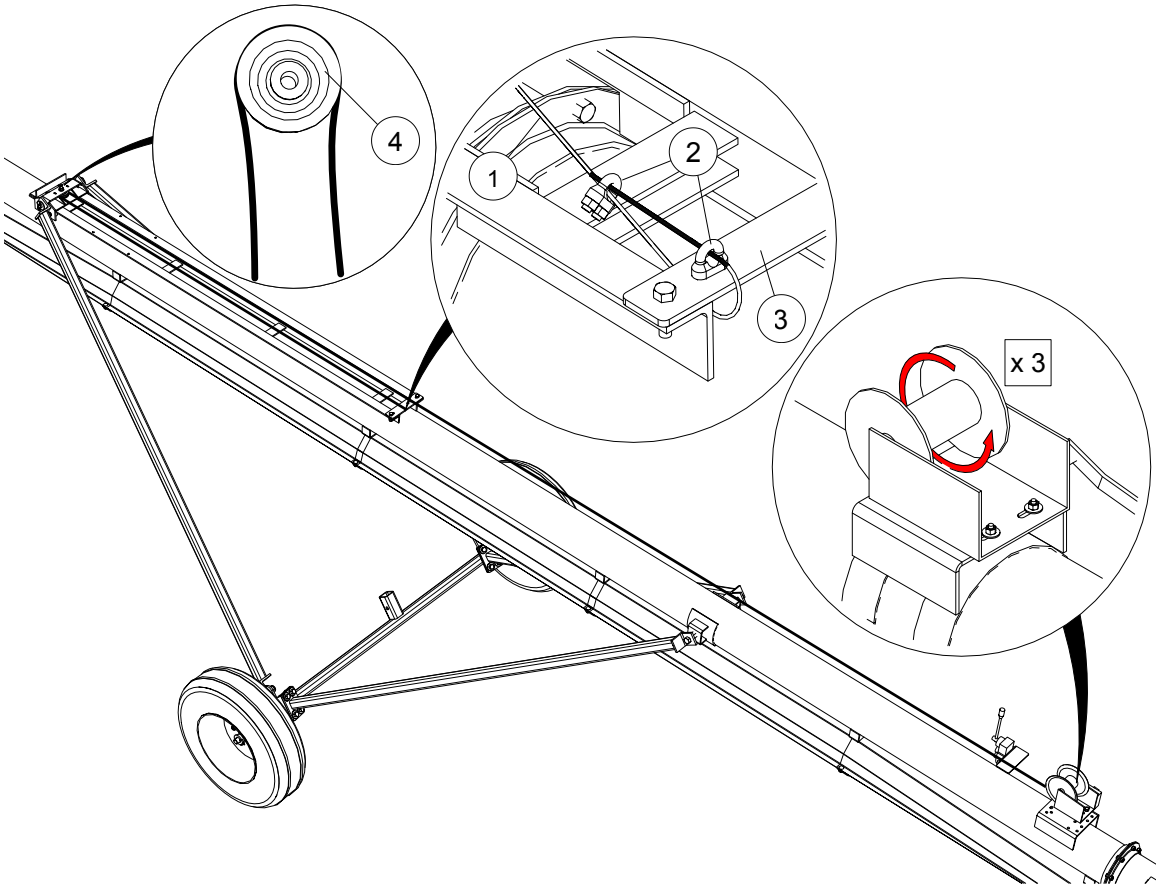


Table 17. Tube Lift Cable Components

Ref	Description
1	Cable length: 40'
2	5/16" Cable Clamp
3	Small Cable Attach
4	Cable Pulley

3.24. Align the Winch

This procedure describes the alignment of the winch.

1. Check the alignment of the winch by watching the cable wrapping on the drum as the conveyor is raised. Proper alignment is achieved when the cable indexes, filling each row on the drum evenly and not piling up against one side.
2. Lower the conveyor fully if the cable does not index properly until there is slack in the cable.
3. Loosen the bolts holding the winch, adjust the winch, re-tighten bolts and retest.

3.25. Drive Assemblies

3.25.1 Install the Hydraulic Valve

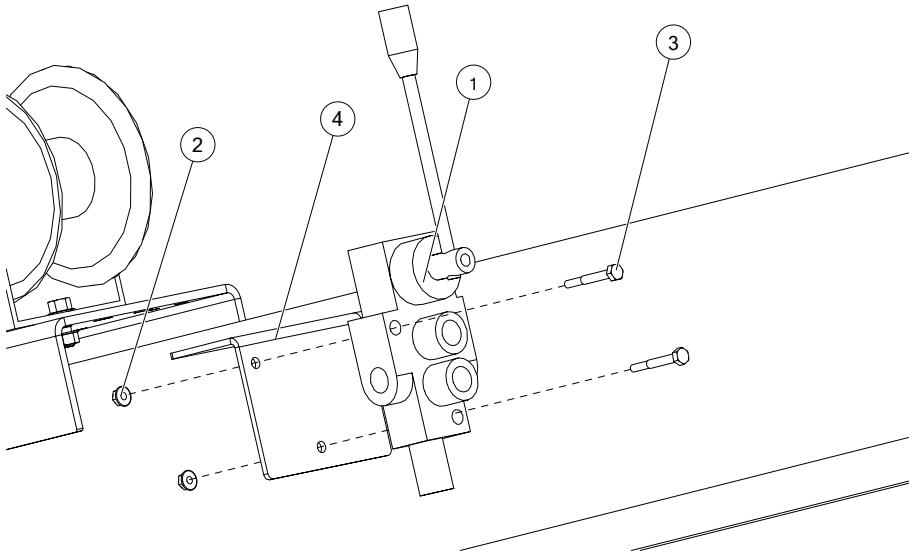
Please refer to Figure 40 for hydraulic valve installation.

- Use two 1/4" x 2” hex bolts and 1/4" nuts to install the hydraulic valve to the attached valve bracket (Welded to the side of the middle conveyor tube near the winch).
- (If equipped and required) Attach a nylon rope to the valve handle to control the valve. Connect two 1/4" cable clamps using one 1/4" x 3/4" hex bolt and 1/4" hex nut (see Figure 41).

Note

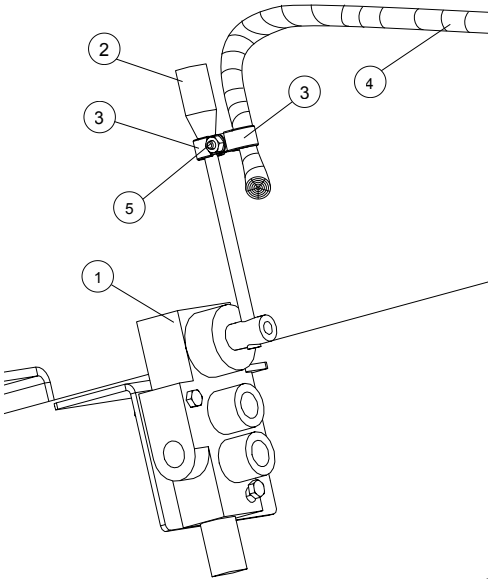
Make sure the clamps are tight enough to hold the valve handle and the rope in place.

Figure 40. Installing the Valve



Ref	Description
1	Hydraulic Valve
2	Hex Nut, 1/4"
3	Hex Bolt, 1/4" x 2"
4	Valve Bracket

Figure 41. Attach the Rope to Valve Handle



Ref	Description
1	Hydraulic Valve
2	Valve Handle
3	Cable Clamp, 1/4"
4	Nylon Rope
5	Hex bolts, 1/4" x 3/4" and Hex Nuts, 1/4"

3.25.2 Install the Hydraulic Top Drive

Install the Motor Mount:

1. Install the square key (3) into the drive roller shaft (7).
2. Attach the motor mount (1) to the drive roller carriage bolts (6) using two 1/2" hex flange nuts (2).
3. Install the sprockets (4) (refer to Figure 43) and chain assembly (5):
   a. Assemble the 1-1/4"" bore sprockets (4) and chain (5) with the connector link.
   b. Slide the sprocket and chain assembly onto the drive roller shaft (7).

Table 18. Motor Mount and Sprocket/Chain Assembly Components

Ref	Description	Ref	Description
1	Motor Mount	5	Chain Coupling (5014)
2	Hex Flange Nut, 1/2"	6	1"-1/4" Bore Sprocket (5014)
3	Key, 1/4" X 1-1/2"	7	Carriage Bolt, 1/2" X 2" UNC GR5
4	1"-1/4" Bore Sprocket (5014)	8	Spout Drive Roller Shaft

Figure 42. Installing the Motor Mount and Sprocket/Chain Assembly

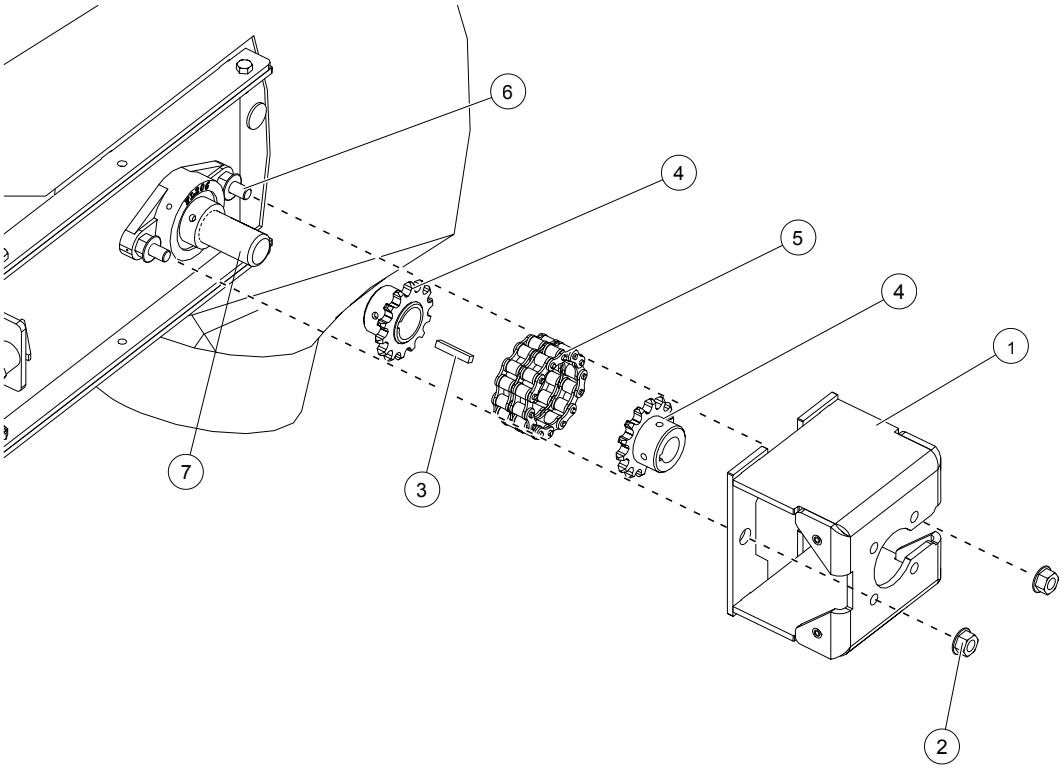
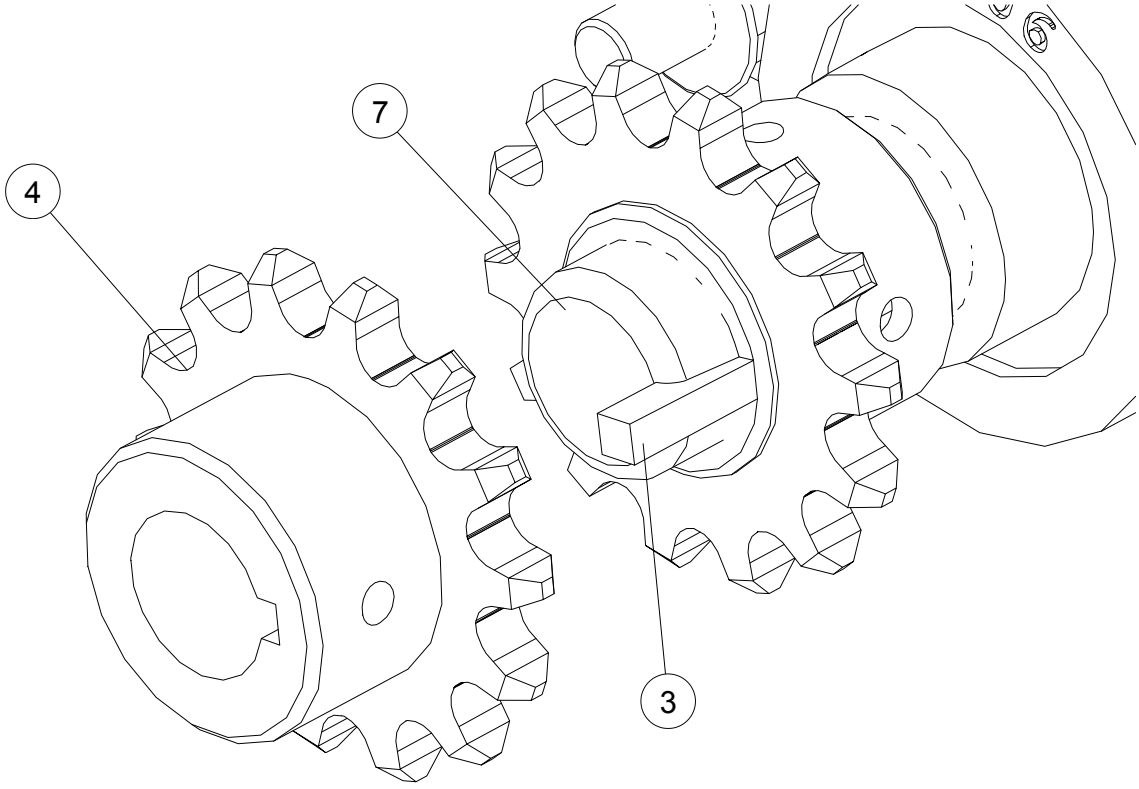


Figure 43. Install the Sprokets



Install the Hydraulic Motor

Refer to Figure 44.

1. Slide the drive shaft of the hydraulic motor (2) into the sprocket and chain assembly.
2. Install the 3/8" x 2" spring pin (3) into the drive shaft of the hydraulic motor (2) through the sprocket.
3. Loosely fasten the motor onto the motor mount using 3/8" x 3/4" hex bolts (4).
4. Secure the sprocket and chain assembly to the shafts by centering it then loosely fastening the set screws on each sprocket.
5. Tighten fasteners in sequence starting with the bolts connecting the motor mount to the bearing, followed by the bolts connecting the motor to the motor mount, and finally the set screws on the sprockets.

Figure 44. Installing the Hydraulic Motor

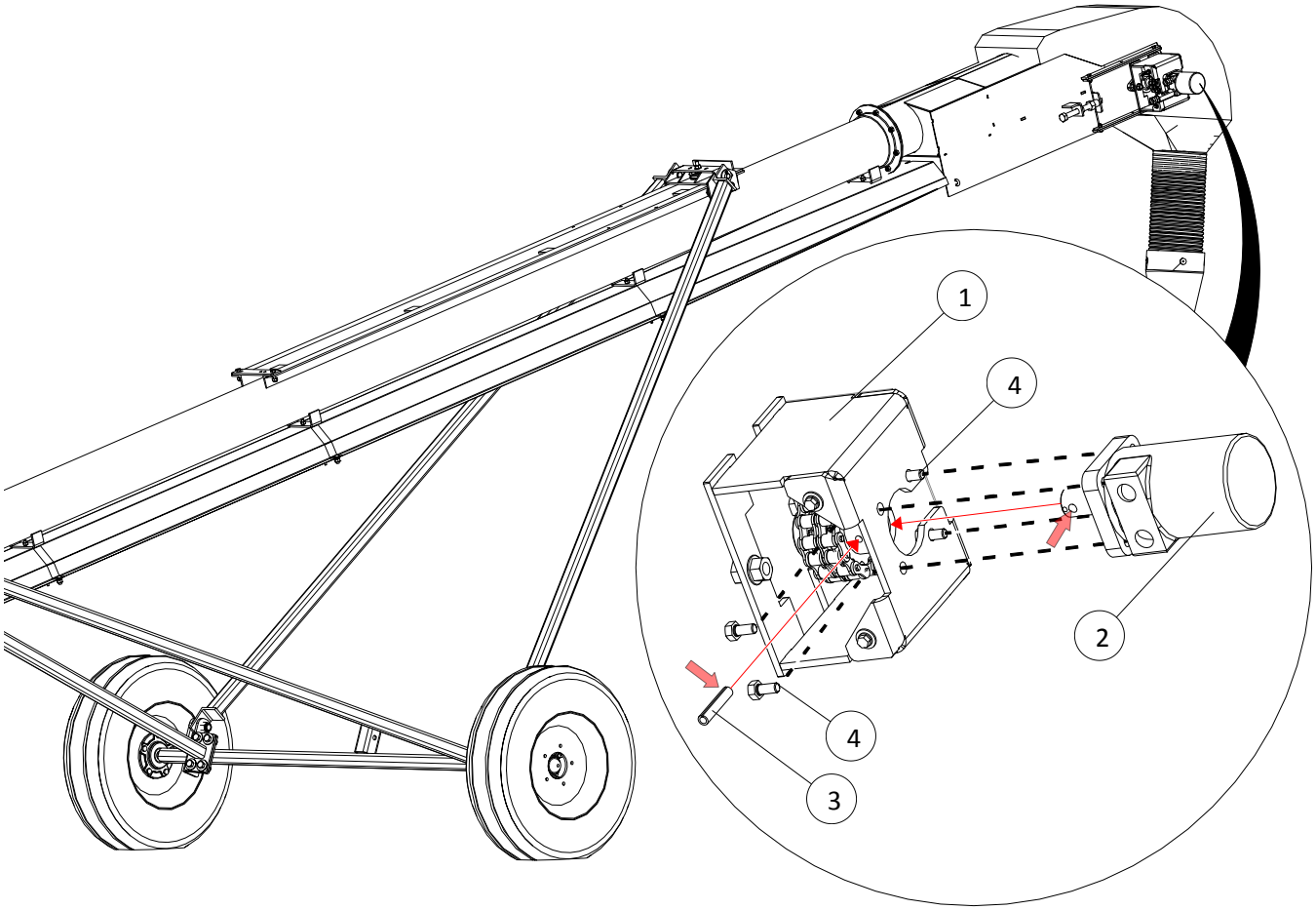


Table 19. Hydraulic Motor Components

Ref	Description	Ref	Description
1	Motor Mount	3	3/8" x 2" Spring Pin
2	Hydraulic Motor (2000) 6.2 CPR	4	3/8" x 3/4" Hex Bolt GR8

Install the Hydraulic Fittings and Coupler Guard

Refer to the Figure 45 and Table 20.

1. Insert the 1/2" swivel (1) and 1/2" nipple (3) into the hydraulic motor.
2. Install a 1/2" check valve (2) onto the return line 1/2" nipple (3).
3. Insert a 1/2" swivel (1) into the return line check valve (2).
4. Install the coupler guard (6) using 1/4"x1" Tek screws (4) and 1/4" flat washers (5).
5. Install the shaft guard (see Section 3.26 – Install the Shaft Guard on page 55 for instructions).
6. Place the safety decal above the hydraulic motor assembly as indicated in Section 1.10.2 – Safety Decal Locations and Details on page 10.
7. Attach and secure hydraulic hoses to the motor (Figure 45).
8. Attach and secure hydraulic hoses to the valve (Figure 46).

Important

Make sure to install the pressure and return hose to the proper connection. Refer to Figure 45 and Figure 46 for connection settings.

Figure 45. Installing the Hydraulic Fittings and Coupler Guard

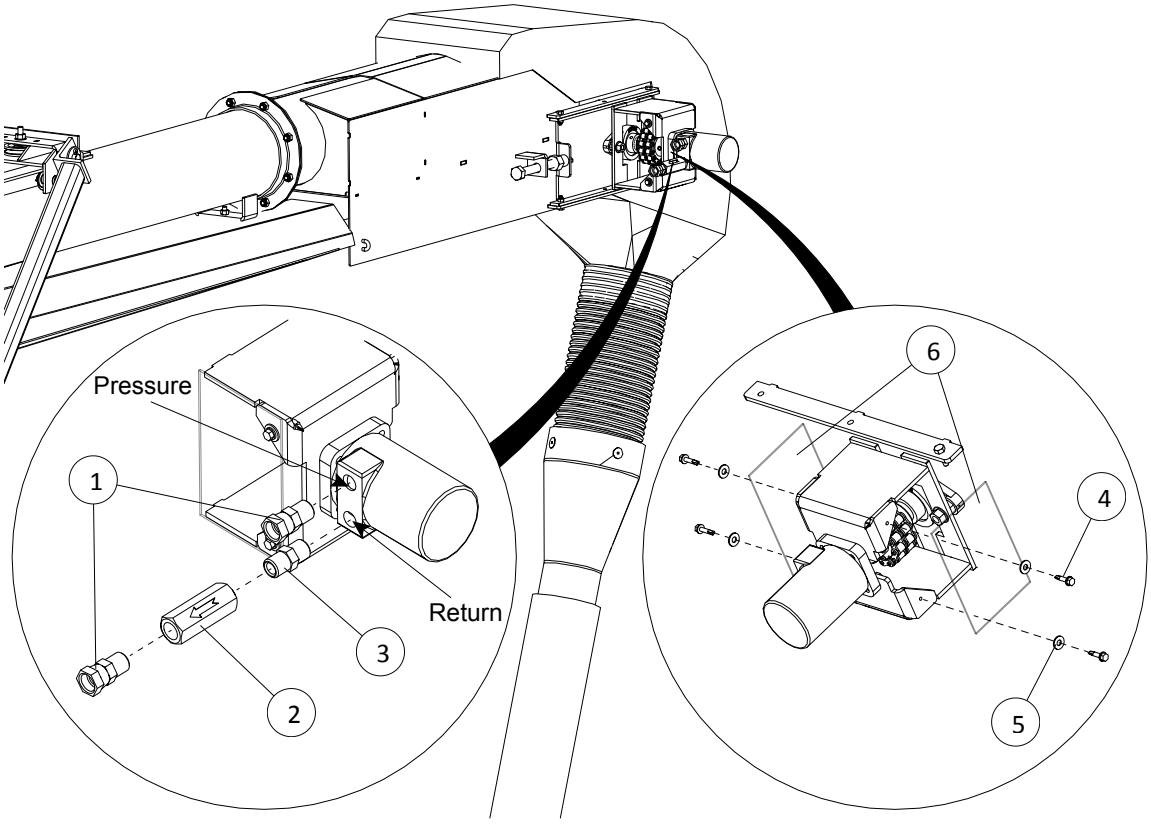
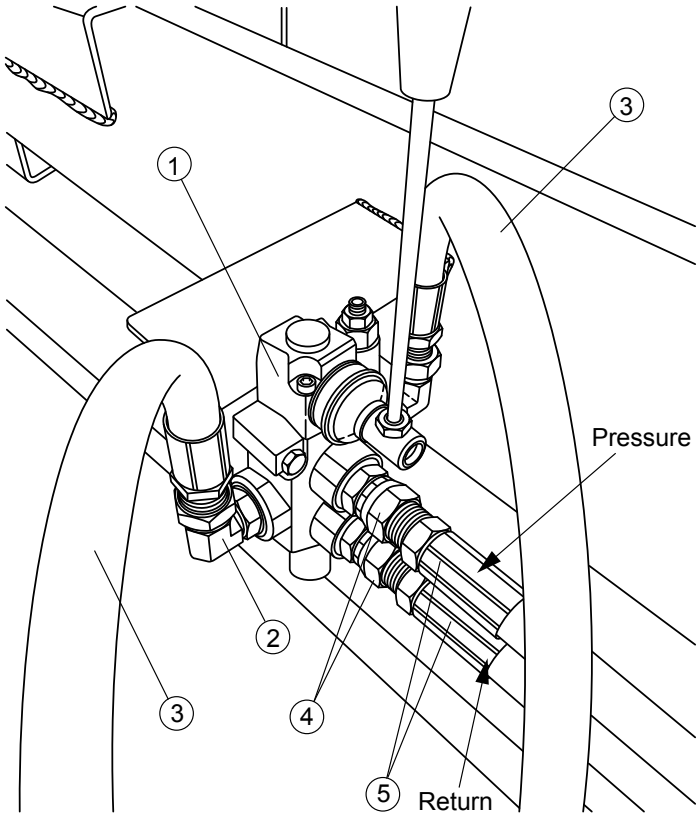


Table 20. Hydraulic Fittings and Coupler Guard Components

Ref	Description	Ref	Description
1	Swivel-1/2"MPTX1/2"FPT	4	1/4"x1" Tek Screw
2	Check Valve-1/2" (No Hole)	5	1/4" Flat Washer (Plated USS)
3	Nipple-1/2"PT Hex	6	Hydraulic Coupler Guard

Figure 46. Install The Hydraulic Fittings to the Valve



Ref	Description
1	Hydraulic Valve
2	Swivel-8MORBX 1/2" FPT/90D
3	Hose 1/2 (9'6")-1/2"MPT-1/2"MPT
4	Swivel-8MORBX 1/2"FPT
5	Hose 1/2 (26')-1/2"MPT-1/2"MPT

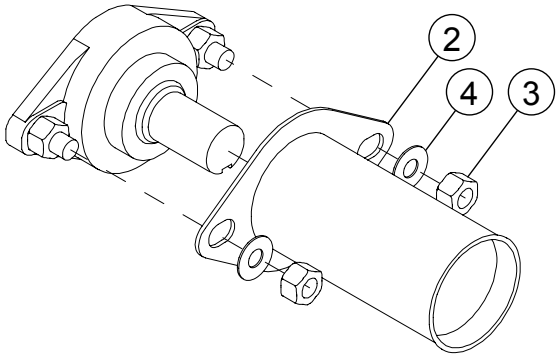
3.26. Install the Shaft Guard

1. Mount the shaft guard (2) over the roller shaft and onto the flange bearing carriage bolts (see Figure 47).
2. Secure the shaft guard in place using two locknuts (3) and two flat washers (4).

Note

When mounting onto a 15/16" bearing (FL210), use 5/8" locknuts and flat washers.
When mounting onto a 1-1/4" bearing (FL206) or 1-1/2" bearing (FL208), use ½" locknuts and flat washers.

Figure 47. Installing Shaft Guard



3.27. Install the Manual Container

1. Position the manual container (1) on the axle arm.
2. Depending on your type of container, either:
   a. secure with two gear clamps (2) (see Figure 48), or
   b. secure with two self-tapping screws (3) (see Figure 49).

Figure 48. Clamp-on Manual Container

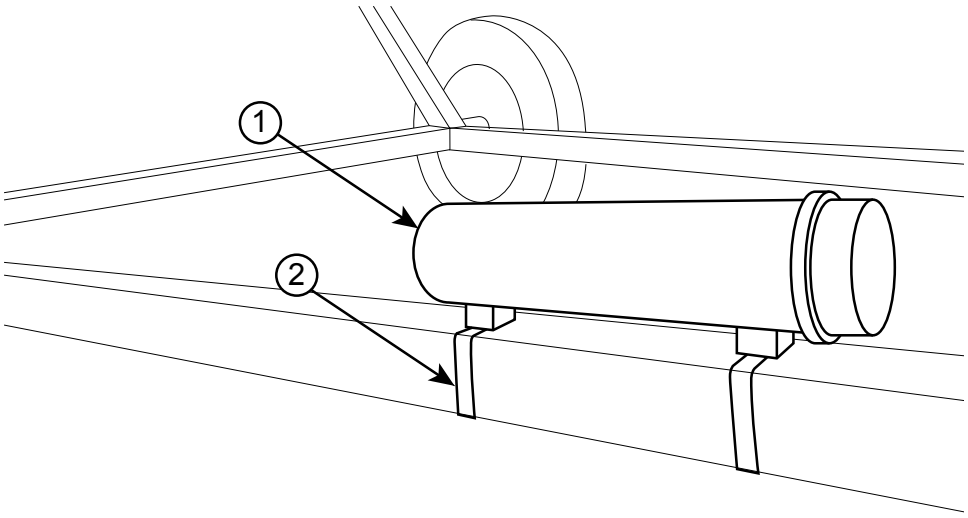
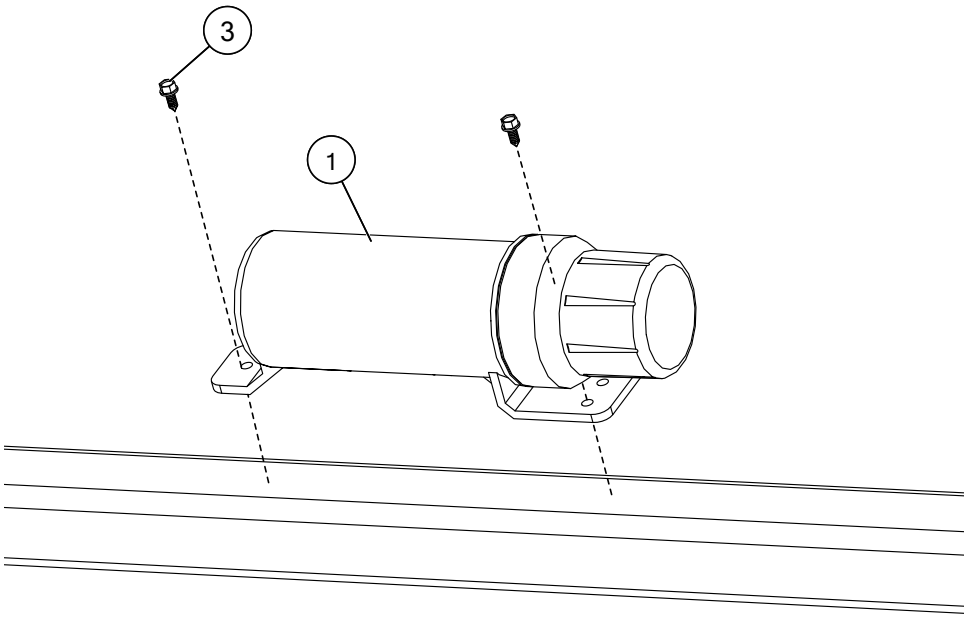


Figure 49. Screw-on Manual Container

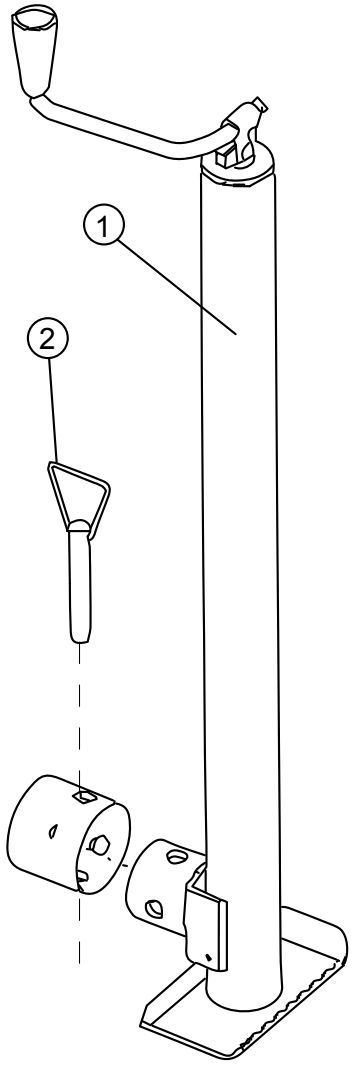


Item	Description
1	Manual Container
2	Gear Clamps
3	Self-Tapping Screw #14 x 5/8"

3.28. Attach the Jack

1. Insert the jack (1) into the jack stub (located on the conveyor hitch) (see Figure 50).
2. Secure the jack in place with the pin (2) provided.

Figure 50. Attaching the Jack



Ref	Description
1	Jack
2	Pin

4. Specifications

Table 21. Top-Drive Standard Conveyor Conveyor

MODEL	**1232**
DIMENSIONS	
Conveyor Tube Size (Diameter)	8"
Belt Length	66'1"
OTHER	
Hydraulic Drive (HP)	5.9
Electric Drive (HP)	5
Hitch Pin Size (Min. Diameter x Length)	5/8" x 3"
Gear Box Oil Type	SAE Approved 90W or equivalent
Hydraulic Fluid[1]	ISO 32 Hydraulic Oil or Automatic Transmission Fluid (Dexron 2™) or equivalent
Required Tractor Hydraulic Output	12–16 gal/min

1. **Do not use “trans-hydraulic fluid”, because this may result in premature pump wear.**

5. Appendix

5.1. Bolt Torque

Table 22 gives the correct torque values for various hardware. Tighten all bolts to the torque specified, unless otherwise noted. Check tightness periodically, using Table 22 as a guide. Replace the hardware with the same strength bolt, contact Batco if you are unsure.

Table 22. Recommended Bolt Torque[a]

Size	Dry or Lubricated	Threads per inch (Course/ Fine)	Area of Bolt (sq in.)		Recommended Torque (ft-lb)							
					Grade 2		Grade 5		Grade 8		8.8 S/S	
			Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	Dry	20/28	0.0318	0.0364	5.5	6.3	8	10	12	14	6.3	7.8
	Lubricated				6.3	4.7	6.3	7.2	9	10	-	-
5/16"	Dry	18/24	0.0524	0.058	11	12	17	19	24	27	11	11.8
	Lubricated				8	9	13	14	18	20	-	-
3/8"	Dry	16/24	0.0775	0.0878	20	23	30	35	45	50	20	22
	Lubricated				15	17	23	25	35	35	-	-
7/16"	Dry	14/20	0.1063	0.1187	32	36	50	55	70	80	31	33
	Lubricated				24	27	35	40	50	80	-	-
1/2"	Dry	13/20	0.1419	0.1599	50	55	75	85	110	120	43	45
	Lubricated				35	40	55	65	80	90	-	-
9/16"	Dry	12/18	0.182	0.203	70	80	110	120	150	170	57	63
	Lubricated				55	60	80	90	110	130	-	-
5/8"	Dry	11/18	0.226	0.256	100	110	150	170	210	240	93	104
	Lubricated				75	85	110	130	160	180	-	-
3/4"	Dry	10/16	0.334	0.373	175	200	260	300	380	420	128	124
	Lubricated				130	140	200	220	280	310	-	-
7/8"	Dry	9/14	0.462	0.508	170	180	430	470	600	670	194	193
	Lubricated				125	140	320	350	180	180	-	-
1"	Dry	8/14	0.606	0.679	250	280	640	720	910	1020	287	289
	Lubricated				190	210	480	540	680	760	-	-
1-1/8"	Dry	7/12	0.763	0.856	350	400	790	890	1290	1440	288	290
	Lubricated				270	300	590	670	970	1080	-	-
1-1/4"	Dry	7/12	0.989	1.073	500	550	1120	1240	1820	2010	289	291
	Lubricated				380	420	840	930	1360	1510	-	-
1-1/2"	Dry	6/12	1.405	1.581	870	960	1950	2200	3160	3560	-	-
	Lubricated				650	730	1460	1640	2370	2670	-	-

[a]Torque value for bolts and cap screws are identified by their head markings. Established at 75% of yield strength of bolt given the cross-sectional area.

Note

Torque figures in table are valid for non-greased or non-oiled threads and head unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

5.2. Fittings Torque Values

These specifications are for carbon steel. With Zinc plating always lubricate threads and seals. For stainless steel, use the high value of the torque range of steel. For brass, use 70% of the torque value of steel. For mixed metals, use the torque of the lower of the two metals. Torque range is normally calculated +/- 10%.

Table 23. Pipe Rigid - Tapered Pipe Threads (NPTF, N/NF) - Carbon Steel

Pipe Size	Turns-from-finger	Max ft-lbs	Max N-m
1/8" (-2)	3/4 - 1 3/4	12	16
1/4" (-4)	3/4 - 1 3/4	25	34
3/8" (-6)	3/4 - 1 3/4	40	54
1/2" (-8)	1/2 - 1 1/2	54	73
3/4" (-12)	1/2 - 1 1/2	78	106
1" (-16)	1/2 - 1 1/2	112	152
1 1/4" (-20)	1/2 - 1 1/2	154	209
1 1/2" (-24)	1/2 - 1 1/2	211	286
2" (-32)	1/2 - 1 1/2	300	407

Table 24. Pipe Swivel - Straight Pipe Threads (NPSM, N/NFS) - Carbon Steel

Pipe Size	Max ft-lbs	Max N-m
1/8" (-2)	12	16
1/4" (-4)	25	3
3/8" (-6)	40	54
1/2" (-8)	54	73
3/4" (-12)	78	106
1" (-16)	112	152
1 1/4" (-20)	154	209
1 1/2" (-24)	211	286
2" (-32)	300	407
Note: seals on an internal male 30° seat		

Table 25. Stud End O-Ring Boss (ORB) SAE (U/UF)

		Carbon Steel	
Tube Size	**Thread UNF-2A**	**Max ft-lbs**	**Max N-m**
-2	5/16" - 24	6-7	8-9
-3	3/8" - 24	8-9	11-12
-4	7/16" - 20	13-15	18-20

Table 25 Stud End O-Ring Boss (ORB) SAE (U/UF) (continued)

		Carbon Steel	
Tube Size	**Thread UNF-2A**	**Max ft-lbs**	**Max N-m**
-5	1/2" - 20	17-19	23-26
-6	9/16" - 18	22-24	29-33
-8	3/4" - 16	40-43	49-53
-10	7/8" - 14	43-48	59-64
-12	1 1'16" - 12	68-75	93-102
-14	1 3/16" - 12	90-99	122-134
-16	1 5/16" - 12	112-123	151-166
-20	1 5/8" - 12	146-161	198-218
-24	1 7/8" - 12	154-170	209-231

Table 26. JIC 37° Flare Tube Fitting (J/JFS)

Tube Size	Thread UNF-2A	Torque ft-lbs	Torque N-m
-2	5/16 - 24	6-7	8-9
-3	3/8 - 24	8-9	11-12
-4	7/16 - 20	11-12	15-16
-5	1/2 - 20	14-15	19-21
-6	9/16 - 18	18-20	24-28
-8	3/4 - 16	36-39	49-53
-10	7/8 - 14	57-63	77-85
-12	1 1/16 - 12	79-88	107-119
-14	1 3/16 - 12	94-103	127-140
-16	1 5/16 - 12	108-113	147-154
-20	1 5/8 - 12	127-133	172-181
-24	1 7/8 - 12	158-167	215-226
-32	2 1/2 - 12	245-258	332-350

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