10” PORTABLE SWING AWAY GRAIN PUMP ®

42’, 52’, 62’, 72’ & 82’ MODELS

OWNER’S & OPERATOR’S MANUAL

Effective June 10, 2021

Publication No. 1052824

IMPORTANT! The reducer gearbox is shipped **With Oil.**
Oil level must be checked before operation.
Refer to the Lubrication Section in this manual.

AGI HUTCHINSON MAYRATH

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POLICIES and PROCEDURES

Prices: Prices in effect at time of shipment will apply. Prices are subject to change without notice. All prices are F.O.B. Clay Center, Kansas. Orders shipped from locations other than Clay Center, Kansas will be subject to additional charges, such as back freight and/or additional freight.

Service Charge: A service charge will be assessed for all past due balances as permitted by state law not to exceed 1-1/2% per month.

Minimum Order: Processing and handling costs necessitate a minimum charge of $15.00 net on all orders.

Back Orders: Back orders will be shipped as they become available. Contact Hutchinson,Mayrath Customer Service for alternative shipping options or if cancellation is desired.

Damaged Goods: It is the consignee's responsibility to check all shipments thoroughly upon receipt of goods. If any damage is discovered, it must be noted on the freight bill of lading before signing. The consignee must make necessary claims against the respective freight line. All damage claims must be submitted within 30 days of delivery receipt.

Shortages: All shortages must be noted at time of delivery. Shortages must be noted on the freight bill of lading before signing. Hutchinson,Mayrath must be advised of all concealed shortages upon discovery. Once notified of concealed shortages Hutchinson,Mayrath will advise corrective action to be taken.

Return of Goods: All returns must be approved by Hutchinson,Mayrath prior to shipment. All return requests will be issued a return authorization number. NO RETURNS WILL BE ACCEPTED WITHOUT A RETURN AUTHORIZATION NUMBER AND PRIOR AUTHORIZATION FROM THE FACTORY. All returns must be shipped prepaid. A 15% restocking charge will be applied to all returned merchandise. Custom Products may not be returned for credit. Only current products in new and salable condition may be returned. No safety devices may be returned for credit.

Modifications: It is the policy of Hutchinson,Mayrath to improve its product whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring the obligation to make such changes, improvements and modifications on any equipment sold previously.

Limited Warranty: (a) For a period of (1) year after receipt of goods by the original consumer buyer, Hutchinson,Mayrath will supply free of charge replacement parts for parts that prove defective in workmanship or material. Defective parts must be returned freight prepaid to a specified Hutchinson,Mayrath location. Only Hutchinson,Mayrath original repair parts may be used for warranty repairs.
(b) This limited warranty does not extend to parts designed to wear in normal operation and be replaced periodically; or to damage caused by negligence, accident, abuse or improper installation or operation.
(c) GOODS NOT MANUFACTURED BY HUTCHINSON,MAYRATH CARRY ONLY THE MANUFACTURER'S WARRANTY.
(d) THIS UNDERTAKING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

FAILURE TO FOLLOW THE INSTRUCTIONS CONTAINED IN THE OWNER'S & OPERATOR'S MANUALS AND THE ITEMS LISTED BELOW WILL RESULT IN THE VOIDING OF THIS LIMITED WARRANTY.

(1) Improper assembly, including failure to properly install all safety equipment.
(2) Improper installation.
(3) Unauthorized alternations of goods.
(4) Goods operated when obviously in need of repair.
(5) Use of unauthorized repair parts.
(6) Irresponsible operation.
(7) Used to handle materials other than free flowing, nonabrasive and dry materials, as intended.
(8) Damaged through abusive use or accident.

Limitation of Liability: BUYER AGREES THAT IN NO EVENT SHALL HUTCHINSON,MAYRATH HAVE LIABILITY FOR DIRECT DAMAGES IN EXCESS OF THE CONTRACT PRICE OF THE GOODS IN RESPECT OF WHICH CLAIM IS MADE. BUYER FURTHER AGREES THAT IN NO EVENT SHALL HUTCHINSON,MAYRATH ON ANY CLAIM OF ANY KIND HAVE LIABILITY FOR LOSS OF USE, LOSS OF PROFITS, OR FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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SAFETY

GENERAL SAFETY STATEMENT

This manual was written with the safety of the operator and others who work with the equipment as our prime concern. The instructions presented will help the reader learn **SAFE** day to day work practices. We want you as our partner in safety.

It is your responsibility as an owner, operator or supervisor to know what specific safety requirements and precautions exist and to make these known to all other personnel working with the equipment or in the area, so that they too may safely perform their duties and avoid any potentially hazardous situations.

We suggest the implementation of a Safety Program for all personnel that includes, but is not limited to, the proper use of PPE (personal protective equipment), Fall Protection Systems and Lock Out-Tag Out procedures.

Please remember safety equipment provides important protection for persons around a grain handling system that is in operation. Be sure **ALL** safety shields and protection devices are installed and properly maintained. If any shields or guards are damaged or missing, contact your dealer to obtain the correct items.

Avoid any alterations of the equipment. Such alterations may create a dangerous situation where serious injury or death may occur.

SAFETY ALERT SYMBOL

The safety symbol shown is used throughout this manual to alert you to information about unsafe actions or situations, and will be followed by the word DANGER, WARNING, or CAUTION.

DANGER - Indicates immediate hazards that may result in severe injury or death. **WARNING** - Indicates unsafe actions or situations that may cause severe injury, death and/or major equipment or property damage. **CAUTION** - Indicates unsafe actions or situations that may cause injury, and/or minor property damage.

Watch this symbol - it points out important safety precautions. It means - **ATTENTION! Become alert! Your safety and the safety of others is involved!** Read the message that follows the symbol when a warning is given, be alert to the possibility of personal injury or death.

BE ALERT!
YOUR SAFETY IS INVOLVED

Follow Safety Instructions

Carefully read all safety messages in this manual and safety signs on your machine. Check to ensure all Safety Decals are present and in good condition.

If a decal cannot easily be read for any reason, or has been painted over, replace the decal immediately. Safety decals are offered free of charge, and can be ordered through your Hutchinson/Mayrath dealer or directly from the factory.

Learn how to operate the machine and how to use controls properly.

Keep your machinery in proper working condition. Understand service procedures before doing work. Never lubricate, service or adjust machine while it is in operation.

Keep work area clean, dry and free from of all debris and tools which may cause accidental tripping or falling.

Read and Understand Manual

Understand Service Procedures

Keep Work Area Clean

Prepare for Emergencies

Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

Keep a first-aid kit and fire extinguisher handy.

Be prepared if a fire starts

First Aid Equipment

Fire Extinguisher

Wear Proper PPE (Personal Protective Equipment)

Some materials can create flying debris when they are filed, cut or drilled. Safety glasses should be worn at all times to protect your eyes from such debris.

Hearing protection should be worn when operating power tools or other power equipment that could be harmful to your hearing.

Gloves should be worn to protect your hands from sharp metal and plastic edges, as well as providing protection from the handling of heavy objects.

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

Wear a hard hat to help protect your head from falling objects as well as from accidental bumping.

Use caution when working at elevations greater than four (4) feet *(1.22 m)* above the ground.

Use the appropriate fall protection equipment as set forth by OSHA guidelines and regulations.

A respirator may be needed to prevent breathing potentially toxic fumes and dust, especially when working within a grain bin or storage structure.

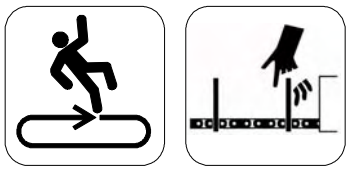
Stay Clear of Moving Parts

Keep all shields, covers and safety devices in place at all times.

Entanglement in moving chains, rotating impeller arms and sprockets will cause serious injury or death.

Wear close fitted clothing. Keep hands, feet and clothing away from moving parts.

Shutdown and lockout power source before making adjustments, cleaning or maintaining the equipment.



GRAIN BIN SAFETY

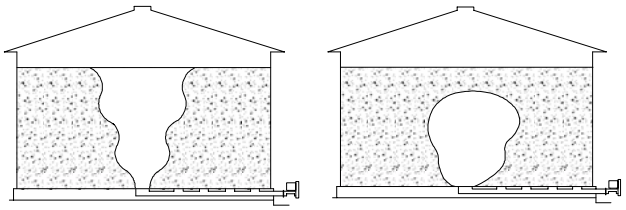
The 10" Portable Grain Pump is generally designed to transfer grain into grain bins or other storage structures. **Be aware of the dangers inherent in grain bins.**

Consult the grain bin manufacturer's manual for information on the proper loading and unloading of the bins, structural stress analysis, adequate venting and important safety information.

WARNING! Do Not enter the bin if the grain has "Bridged" or has not flowed normally out of the bin, See Example's 1 & 2. The grain may suddenly break loose and bury resulting in suffocation.

Do Not enter the bin unless all power driven equipment has been shut down and locked out.

Never enter the bin unless monitored by another person.



Example 1
(Abnormal Flow)

Example 2
("Bridging")

SAFETY DECALS

Check to ensure all Safety Decals are present and in good condition. If a decal cannot easily be read for any reason, or has been painted over, replace the decal immediately. Safety decals are offered free of charge, and can be ordered through your Hutchinson/Mayrath dealer or directly from the factory.

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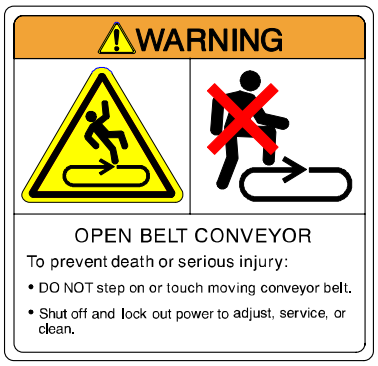

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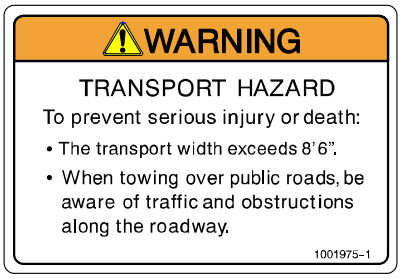

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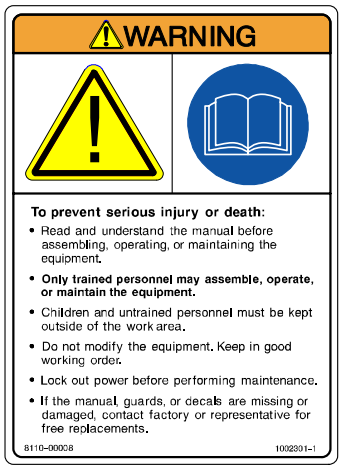

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OPERATOR QUALIFICATIONS

WARNING

Anyone who will operate or work around this machine shall first read this manual! This manual must be delivered with the equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

Operation of this conveyor system shall be limited to competent and experienced persons. In addition, anyone who will operate or work around a conveyor must use good common sense. In order to be qualified, he must also know and meet all other requirements, such as:

1. Some regulations specify that no one under the age of 16 may operate power machinery. This includes this conveyor. It is your responsibility to know what these regulations are in your area or situation.
2. Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in safe operation and servicing of all equipment with which the employee is, or will be involved." *
3. Unqualified persons are to stay out of the work area. See Page 17.
4. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.
5. Persons operating, servicing or repairing equipment that requires above ground work shall be properly secured with the use of "fall protection" equipment as set forth by OSHA guidelines and regulations.

***Federal Occupational Safety & Health Standards for Agriculture Subpart D, Section 1928.57 (a) (6).**

SIGN OFF SHEET

As a requirement of OSHA, it is necessary for the employer to train the employee in the safe operation and safety procedures with this conveyor. We include this sign off sheet for your convenience and personal record keeping.

Training Sign-Off Sheet

Date	Employer Signature	Employee Signature

RIGHT and LEFT DESIGNATION

When referencing the left, right, front or rear of the conveyor, it is always determined by standing at the inlet end of the conveyor and looking towards the discharge end.

GENERAL INFORMATION

MACHINE INSPECTION

Our conveyors are well made and we are proud of our line of equipment. We would like you, as our customer, to do your part in using caution and good judgement in using our equipment, as well as any other machinery.

After delivery of your new conveyor and/or completion of assembly and before each use, inspection of the machine is mandatory. The conveyor should be frequently checked and serviced to operate freely. Use the assembly instructions in this manual as a reference to determine that the conveyor is assembled properly. This inspection should include, but not be limited to:

1. Check to see that all shields listed in the assembly instructions are in place, secured and functional.
2. Check all safety signs (decals) and replace any that are worn, missing or illegible.
3. Check ***all*** fasteners; nuts, bolts, set screws etc. for tightness.
4. Check hydraulic connections, hoses and fittings. Make sure hoses are not pinched, kinked or crimped in any way that would restrict fluid flow.
4. Check winch and cable for security and operation. Winch should have at least three complete wraps of cable around the winch drum with conveyor in the full down position.
5. Check oil levels in gearboxes (See the Lubrication and Maintenance Section in this manual).
6. Make sure clean-out door in bottom of hopper and all inspection opening covers are shut and secured.
7. Check that drive chain and conveyor chains are properly adjusted (See Maintenance Section).
8. Check that swing-away conveyor belt is properly adjusted (See Maintenance Section).

GENERAL CONVEYOR INFORMATION

WARNING! Use caution when working in areas above the ground. Persons operating, servicing or repairing equipment that requires above ground work shall be properly secured with the use of "fall protection" equipment as set forth by OSHA guidelines and regulations.

Keep all safety shields and devices in place. Keep hands, feet, and clothing away from moving parts.

WARNING! During initial start-up and break-in period, the operator shall be aware of any unusual vibrations or noises that would indicate a need for service or repair.

Metal buildings, scaffolding and other types of work surfaces can become slippery, especially when surfaces are wet and/or oily. This can create hazardous working conditions. Use caution when working, climbing or walking on these surfaces.

The operator shall have a full view of the conveyor work area and check that all personnel are free from designated work areas before adding power.

- Obtain any needed replacement parts from your dealer and install ***before*** using the machine.
- Inspect the drive before adding power and know how to ***shutdown*** in an emergency (See Pages 18 & 19).
- During operation of your conveyor, one person shall be in a position to monitor the operation.
- Visually inspect the conveyor periodically during operation, be aware of all adjustments and checks which should be performed.
- The conveyor may be operated at speeds from 450 to 540 RPM's (conveyor speed in excess of recommended speed causes excessive wear).
- ***Do Not*** attempt full load operation at speeds below 450 RPM, as high torque requirements may damage the conveyor.
- It is important to become familiar with the routine operating procedures before attempting start-up.

TRACTOR & PTO REQUIREMENTS

The tractor should be **90 HP** ***(67.11 kw)*** or larger for proper and efficient handling during grain moving operation and transport [actual PTO HP *(kw)* required for powering conveyor is 60 HP *(44.74 kw)*].

The tractor should be equipped with an adjustable drawbar that can utilize a ***pintle hook***, or at minimum, a ***hammer strap*** type connection.

The tractor should also have a ***hydraulic control circuit*** capable of producing:

- **1800 to 2000 PSI** ***(12411 to 13790 kPa)***

and have ***three hydraulic selective control valves*** to be used separately for:

- main conveyor winch
- hitch cylinders
- and swing-away hopper hydraulics

The conveyor PTO was designed for use with a tractor that is capable of operating at **540 RPM's** *(speeds greater than this will cause excessive wear and/or damage to the conveyor).*

The PTO driveline furnished with the conveyor is equipped with a "Spring-Lok" coupler at the tractor end.

This type of coupler is spring loaded and will fit the standard 1 3/8" x 6 splined PTO shaft from a tractor.

The PTO driveline is also equipped with a spring-loaded clutch at the tractor connection. The clutch protects the conveyor from damage should the conveyor become plugged or subjected to high loads.

If this scenario should occur, the clutch would "slip" causing the connection to the conveyor to suddenly stop (the tractor PTO would still continue turning, but not the conveyor driveline). **Immediately shutdown the tractor and lockout before attempting to investigate the cause of the problem.**

BREAK-IN INFORMATION

Any conveyor when it is new, or after sitting idle for a season should go through a "break-in" period.

The conveyor should be run at partial capacity until several hundred bushels of grain have been conveyed to polish the housing.

A conveyor that has not been polished in this manner requires greater horsepower to operate, and damage to conveyor can occur.

When the housing has been polished and smooth, the conveyor can be run at full capacity.

If at all possible, do not stop or start the conveyor under load, especially before the housing becomes well polished, as this may cause the conveyor to "freeze-up."

OPERATING CAPACITIES

The 10" Portable Grain Pump conveyor has the ability to convey **6,000 BPH** ***(162 TPH)*** of reasonably dry grain during normal operating conditions. **Feed the conveyor as low on belt as possible.**

Maximum possible capacity will be less with high moisture grain (above 15%) than with dry grain. Twenty-five percent (25%) moisture could cut capacity back by as much as 40% under some conditions.

The results or capacities of conveyors can vary greatly under varying conditions. Different materials, moisture content, amounts of foreign matter, angle of operation, methods of feeding and conveyor speed all play a role in the performance of the conveyor.

A conveyor operating at a 40° incline could be cut by 20% in capacity compared to a conveyor operating horizontally.

Overfeeding the conveyor would result in increased power requirements, extra strain on the driveline and possibly a complete stalling out.

Under the "extra" grain pressure conditions, a control gate or other method of limiting the amount of grain being fed into the conveyor should be used.

CONVEYOR DIMENSIONS

CONVEYOR CLEARANCE

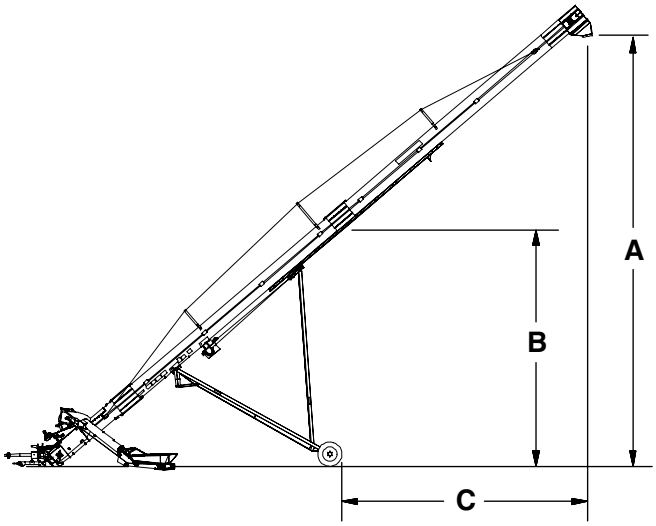
WARNING! Be alert of all overhead obstructions and electrical wires, failure to do so can result in electrocution, serious injury to operator and bystanders, conveyor damage and/or extensive property damage.

Lower the conveyor well below the level of power lines before moving. Maintain at least 10 ft. *(3.05 m)* of clearance *(electrocution can occur without direct contact of the power lines).*

The clearance dimensions for the conveyors are shown below.

The dimensions below are given for the conveyor when it is @ 30° incline, 35° incline and in it's full raised position.

Never transport the conveyor while it is in the raised position, even when moving from one work site to another. *Always transport the conveyor in its full down position.*



Conveyor Model	Overall Transport Height**	Overall Transport Width	Discharge Height @ 30 Deg.	Discharge Height @ 35 Deg.	Discharge Height Maximum	Clearance Height @ 35 Deg.	Reach Distance @ 35 Deg.
			(A)	(A)	(A)	(B)	(C)
10" x 42'	10'-11" *(3.32 m)*	11'-0" *(3.35 m)*	19'-11" *(6.07 m)*	23'-1" *(7.04 m)*	25'-5" *(7.77 m)*	14'-8" *(4.47 m)*	14'-9" *(4.50 m)*
10" x 52'	11'-9" *(3.57 m)*	11'-0" *(3.35 m)*	24'-11" *(7.60 m)*	28'-10" *(8.79 m)*	32'-10" *(10.02 m)*	17'-8" *(5.38 m)*	18'-2" *(5.55 m)*
10" x 62'	13'-7" *(4.13 m)*	11'-0" *(3.35 m)*	29'-11" *(9.13 m)*	34'-7" *(10.54 m)*	39'-4" *(11.99 m)*	20'-3" *(6.16 m)*	22'-9" *(6.93 m)*
10" x 72'	14'-6" *(4.42 m)*	13'-0" *(3.96 m)*	34'-10" *(10.62 m)*	40'-2" *(12.24 m)*	45'-8" *(13.92 m)*	21'-9" *(6.63 m)*	28'-9" *(8.76 m)*
10" x 82'	15'-1" *(4.60 m)*	10'-0" – 13'–0" *(3.7 m – 4.6 m)*	40'-0" *(12.19 m)*	45'-11" *(14.00 m)*	50'-9" *(15.48 m)*	26'-1" *(7.95 m)*	30'-7" *(9.33 m)*

**** Overall Transport Height is with intake on the ground.**
Actual height will be lower when attached to towing vehicle.

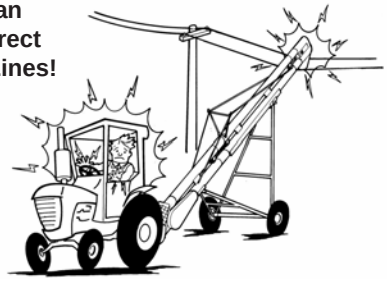
TRANSPORT INFORMATION

Always observe safe driving and operating practices, and comply with your local and state regulations that govern marking, towing and maximum width while transporting.

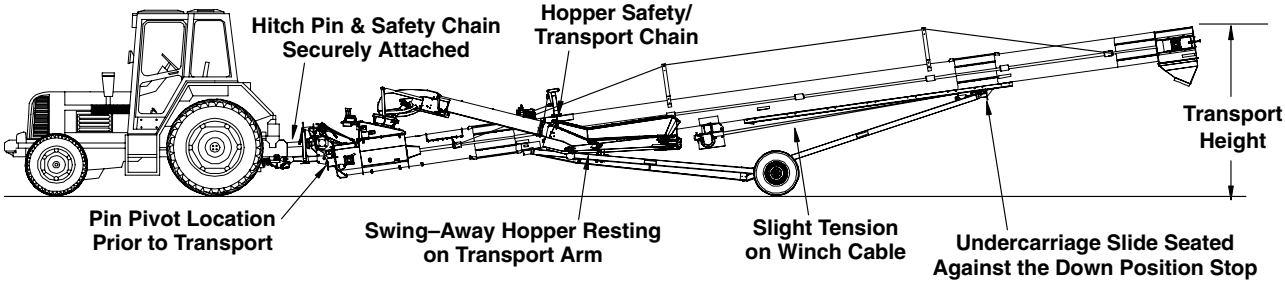
WARNING! Be alert of all overhead obstructions and electrical wires, failure to do so can result in electrocution.

Lower the conveyor well below the level of power lines before moving. Maintain at least 10 feet *(3.05 m)* of clearance *(electrocution can occur without direct contact of the power lines).*

Electrocution Can Occur Without Direct Contact of Power Lines!



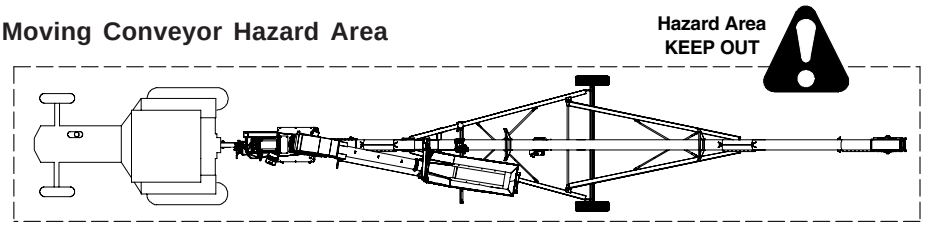
- Plan your route to avoid overhead obstructions and power lines.
- Know the transport height of the conveyor before moving it (see chart below).
- Move the conveyor with a tractor to and from the work area. A pickup truck or other suitable vehicle may be used for transporting the conveyor over great distances.
- *Always transport your conveyor in the full down position.* **On 82' Models, the axles need to be collapsed for transport.**
- The undercarriage slide (trolley) should be seated against the down position stop with slight tension on the winch cable**.**
- Hitch should be secured to tractor and jack stored in its transport position or on towing vehicle (make sure to attach hitch safety chain).
- **Avoid Sharp Turns!** It is possible to hit the tractor tires or fenders.
- To prevent conveyor from upending, make sure all grain has been emptied from the conveyor before transporting.
- Before moving the conveyor, the operator should make sure all personnel are clear of the **"Moving Conveyor Hazard Area"** shown below. **Never** allow persons to stand underneath or ride on the conveyor when it is being transported.
- Secure swing-away hopper.
- Insert hitch pivot pin **prior** to transport.



Conveyor Length	10" x 42'	10" x 52'	10" x 62'	10" x 72'	10" x 82'
Transport Height	9'-6" *(2.90 m)*	10'-3" *(3.12 m)*	11'-10" *(3.61 m)*	12'-9" *(3.89 m)*	13'-8" *(4.17 m)*

Transport height is with conveyor fully lowered. Hitch pinned in lowest position, and attached to a vehicle with a drawbar height of 1'-6" *(45.7 cm)*.

Moving Conveyor Hazard Area



TRANSPORTING CONVEYOR

ATTACH CONVEYOR to TOWING VEHICLE

WARNING! Never stand between the tractor and conveyor when hitching unless all controls are in neutral and the brakes are locked.

Never allow persons to stand underneath or ride on the conveyor when it is being transported.

Never raise the hitch end higher than necessary to attach to the towing vehicle (weight transfers rapidly to the discharge end as the hitch end is being raised, particularly when the conveyor is in the raised position).

The conveyor hitch is a pintle hitch design; for connection to the tractor (or towing vehicle) a pintle hook or hammer strap connection is recommended.

The screw jack provided with the conveyor, will be used to raise and lower the hitch when hitching and unhitching conveyor to the tow vehicle.

1. Depending on the position of the conveyor, the jack needs to be as vertical to the ground as possible when being used.

   Remove the safety pins from the jack stand and extend the legs accordingly, reinstall the pins to secure the jack once it is positioned on the ground (See Fig. 1).

   With the jack properly positioned, raise the intake end of the conveyor only high enough to allow connection to the towing vehicle.

2. Secure the conveyor hitch to the tractor.

   An **auxiliary attachment system (safety chain)** is required when transporting on public roads. Its function is to retain the connection between the towing and towed machines in the event of separation of the primary attachment system.

3. Fasten one end of a safety chain (not furnished) to the drawbar on the towing vehicle, and the other end to the loop-anchor on the bottom side of the conveyor hitch tube (See Fig. 1).

   A clevis or similar type of intermediate support for the chain should be fastened to the hitch tube no farther than 6" *(15.2 cm)* from the hitch pin.

4. Once the conveyor has been properly hitched to the towing vehicle, raise jack stand and secure it in transport position (the jack stand can also be removed and stored with the towing vehicle).

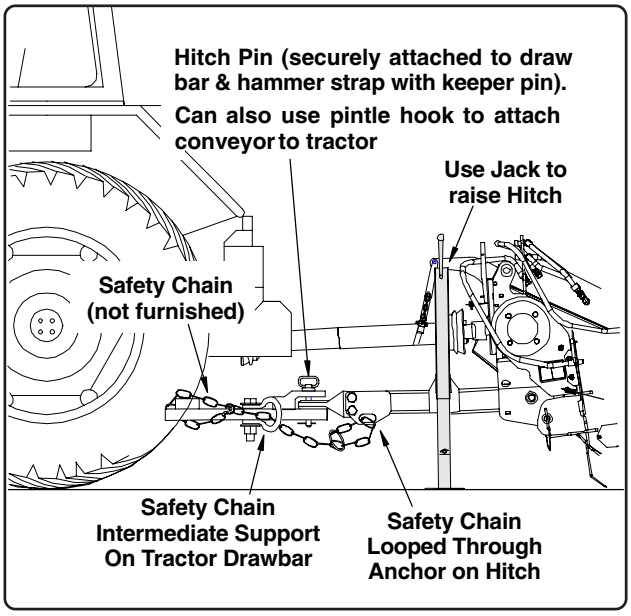


Fig. 1

PLACEMENT of CONVEYOR for FILLING GRAIN BIN

CAUTION! Make sure entire area above conveyor and the path of travel is clear of overhead obstructions and electrical wires. Failure to do so can result in electrocution (maintain at least 10 feet of clearance from power lines, *electrocution can occur without direct contact of the power lines*).

To prevent tip-over when backing, avoid rolling over any obstructions and avoid steep slopes. If the conveyor is to be set on a slope, approach the bin uphill.

Avoid moving the conveyor at right angles to a slope.

Ensure everyone is clear of the work area when moving the conveyor.

Keep hands clear of the winch drum when winch is in operation.

- Conveyor should be placed on as **level a surface as possible** (the wheels must be allowed to roll freely as the conveyor is being raised).

Placement of Conveyor (con't.)

STEP 1: Locate Conveyor Next to Bin

1. Move the conveyor into its working position with a towing vehicle (See Fig. 2). Locate the conveyor as close as possible to the bin, or other storage structure **(move conveyor slowly towards the bin with the towing vehicle - not by hand).**

2. **For 82' Models:** This model is equipped with an extendable/collapsible axle. After the conveyor is positioned at the bin site, and **before raising the conveyor, the axles must be extended (See Step 3 and Fig. 2).**

   IMPORTANT! Conveyor must be in the full down position and attached to the towing vehicle before extending the axles. A hydraulic jack with a minimum 5 ton *(4536 kg)* rating is recommended.

   Raise one side of the undercarriage at a time to extend or collapse the axles. There is a collar welded to the bottom side on each end of the axle tube to prevent the jack from slipping off, position the jack below this collar.

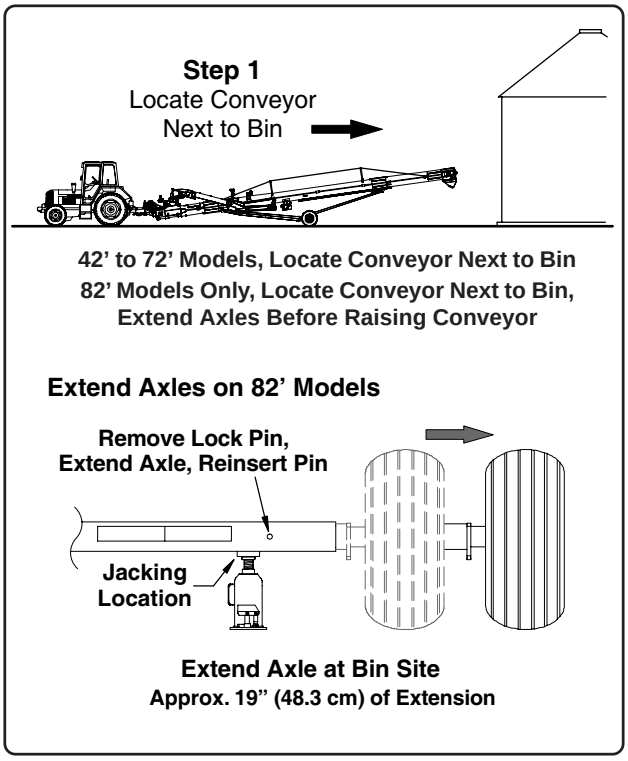


Fig. 2

CAUTION! When raising the conveyor axle, *Do Not* rely solely on hydraulic or mechanical jacks for support. Use appropriate jack stands or equivalent for supporting the unit.

3. Raise the axle just high enough for the tire to clear the ground. **Place jack stands or equivalent beneath the axle for support.**

   Remove the lock pin securing the inner axle tube and extend the axle out aligning the next hole in the inner axle with the hole from which the lock pin was previously removed (the axle will extend approximately 19" *[48.3 cm]* to the next hole location). Reinsert lock pin. Remove jack stands or supports, and lower tire to ground. Repeat this procedure on the opposite side of the conveyor.

STEP 2: Raise Conveyor

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure in the system.

Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause severe injury.

If injured by hydraulic oil escaping under pressure, see a doctor at once. Serious infection or reaction may occur if medical attention is not received immediately.

1. There are **three separate sets of hoses** that will be connected to the tractor's selective control valves.

   These will be used for:

   - the main conveyor winch
   - the hitch cylinders
   - and the swing-away hopper's hydraulics (conveyor, winch & optional wheel kit).

   Check that hose connections are clean and free of dirt and other contaminants.

   Connect hoses to their respective fittings **(refer to the hydraulic fitting install instruction manual P.N. 1053666 included in the box of parts).**

TRANSPORTING CONVEYOR

STEP 2: Raise Conveyor

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure in the system.

Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause severe injury.

If injured by hydraulic oil escaping under pressure, see a doctor at once. Serious infection or reaction may occur if medical attention is not received immediately.

2. Remove the ***transport pivot pin*** connecting the boot weldment to the gearbox mount (See Fig. 3).

   It may be necessary to operate the lever for the hitch cylinders to slightly move the boot and gearbox in order to relieve pressure on the pin for easier removal ***(the pin is used to keep the pressure off the hitch cylinders during transport and storage).***

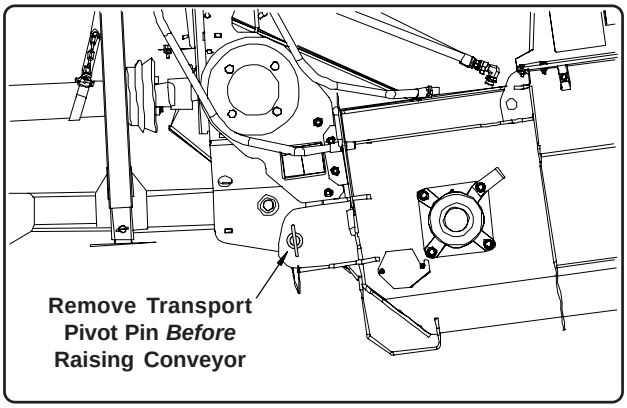


Fig. 3

3. Connect the PTO driveline to the tractor.
4. Disconnect the safety chain supporting the swing-away hopper.
   - Raise the swingaway hopper just high enough to allow the hopper support arm to be swung out of the way.
   - Swing the support arm out and place it on the undercarriage so it does not interfer with conveyor operation (the support arm can also be removed and placed into storage). **See Page 46 fot transport arm assembly and information.**

STEP 2: Raise Conveyor (con't.)

5. Operate the lever on the tractor for the main conveyor winch, and begin raising the discharge end of the conveyor.
6. As the conveyor is raising, use the hitch cylinder hydraulics to help keep the boot and hitch properly positioned (the conveyor will stay connected to the tractor during raising and lowering).

   Do Not block or restrict the movement of the tires. The wheels must be allowed to roll freely as the conveyor is being raised.

7. Raise conveyor high enough to clear the top of the bin (See Fig. 4). **Keep hands clear of the winch drum during winch operation.**

   IMPORTANT! Observe the cable as it is winding onto the winch drum. The cable should roll up on the drum evenly, avoid cable build-up on just one side of the winch drum.

8. Back the conveyor into position until the discharge opening is directly above the bin opening.

   Never move the conveyor by hand, always use a vehicle.

   Do Not attempt to increase conveyor height by positioning its wheels on lumber, blocks or any other means to raise its height.

   When positioning the discharge over the bin opening, keep in mind that the discharge end will lower a few inches as the conveyor fills with grain).

   When discharging into a grain spreader, maintain at least 12" *(30.5 cm)* of space between the discharge and the spreader.

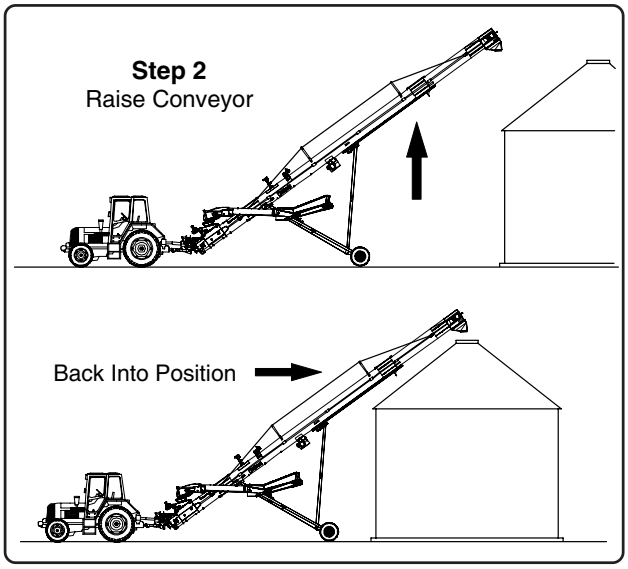


Fig. 4

Placement of Conveyor (con't.)

STEP 3: Lower Inlet End to Ground & Lower Swing-Away Hopper to Ground

1. With the discharge directly over the bin opening, operate the hitch cylinder lever on the tractor to lower intake end to the ground.

   Check discharge spout position. If necessary, reposition and/or lower conveyor so spout is directly above opening when intake is resting on the ground.

   Activate the tractor hydraulic's plumbed to the swing-away hopper, making sure to keep tractor valve in continuous detent.

2. Operate the swing-away hopper winch lever and lower hopper to the ground. Disconnect hopper lift cable.

   After the hopper is on the ground, swing the hopper into desired position for conveyor operation.

   If using the optional wheel drive accessory, operate the wheel drive lever to swing the hopper into desired position (recommend "feathering" the wheel drive lever until familiar with its speed).

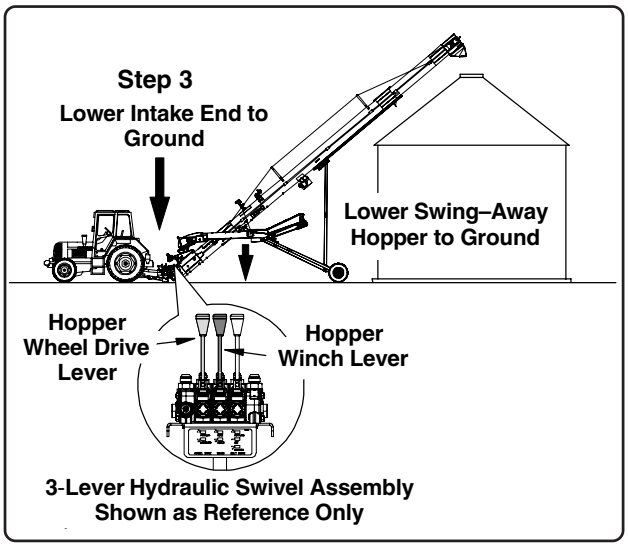


Fig. 4

3. Chock the conveyor wheels to prevent the conveyor from rolling.

   NOTE: It is good practice to secure the discharge end of the conveyor to the bin or storage structure to prevent possible wind damage (remember to disconnect any tie-downs and/or anchors before moving the conveyor away from the bin).

4. Check that all hydraulic hoses are properly secure and away from moving parts.

- Make sure all clean-out doors, access panels and safety guards are in place before beginning grain transfer operations.

RELOCATION OF CONVEYOR

When grain conveying is completed, the conveyor should be moved away from the bin and lowered. It can then be moved to a different bin for more conveying operations, or it can be cleaned-up for storage.

STEP 1: Raise Conveyor

1. Empty all grain from the conveyor and hopper prior to moving conveyor. Clean up the work area.
2. Secure the swing-away hopper to transport position.

CAUTION! Persons operating, servicing or repairing equipment that requires above ground work shall be properly secured with the use of "fall protection" equipment as set forth by OSHA guidelines and regulations.

3. Untie any anchors and/or supports that were used to help secure the conveyor.
4. Remove the wheel chocks and raise conveyor until the discharge spout clears the top of the bin.

   Use the hitch cylinders to raise the inlet just high enough to clear the ground.

5. Move the conveyor slowly away from the grain bin with the towing vehicle. **Never attempt to move conveyor by hand, always use a vehicle.**

   Immediately after conveyor has cleared the bin or storage structure, *lower the conveyor to its full down position,* it may be necessary to use the hitch cylinders to assist with lowering of the conveyor **(as the unit is lowered, adjust hitch cylinders so that the hitch becomes more inline with the conveyor).**

   On 82' Models, the axles will need to be collapsed before transporting conveyor. Refer to the following page (Page 14) on procedures for collapsing the axles.

   IMPORTANT! Lower the conveyor to its full down position even if only relocating to another bin. *Do Not* transport or move conveyor when it is in the raised or even in the partially raised position.

TRANSPORTING CONVEYOR

Relocation of Conveyor (con't.)

STEP 2: Lower Conveyor Move to Next Bin Site or Storage

1. After the conveyor has been completely lowered, operate the hitch cylinder lever to align the boot and gearbox and ***reinsert*** **the transport pivot pin.** Install the cylinder stops.
2. Disconnect the PTO driveline and the hydraulic hoses from the tractor. Secure the PTO driveline in its transport/storage cradle.

   Secure the hydraulic hoses so they cannot be damaged during transport (place caps on the ends of the hose fittings to protect from contaminants).

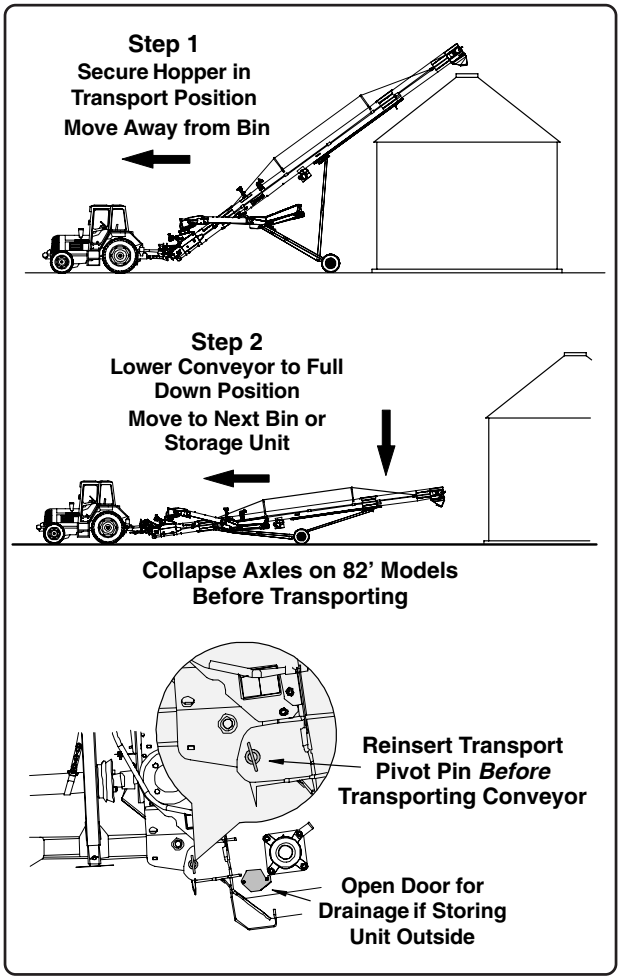


Fig. 5

3. Move conveyor to next job site or to storage.

   If the conveyor will be stored outside, make sure the small door on the lower right side of the hopper remains open (this will allow rain water, melted snow, etc. to drain from the hopper, See Fig. 5).

4. Follow the machine inspection recommendations on Page 6 before operating conveyor again.

Collapse Axles for Transporting Conveyor (82' Models Only)

CAUTION! When raising the conveyor axle, *Do Not* rely solely on hydraulic or mechanical jacks for support. Use appropriate jack stands or equivalent for supporting the unit.

1. **The 82' Models** are equipped with an extendable/ collapsible axle. **The axles must be collapsed for transporting.**

   IMPORTANT! Conveyor must be in the full down position and attached to the towing vehicle before collapsing the axles.

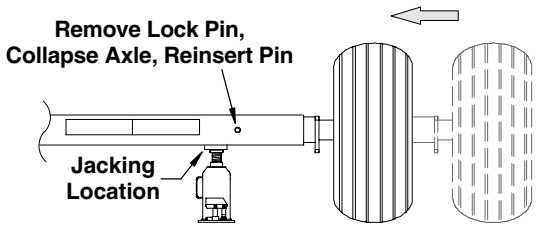
   A hydraulic jack with a minimum 5 ton *(4536 kg)* rating is recommended for lifting.

2. Raise one side of the undercarriage at a time to collapse the axles. There is a collar welded to the bottom side on each end of the axle tube to prevent the jack from slipping off, position the jack below this collar See Fig. 6).

   Raise the axle just high enough for the tire to clear the ground. **Place jack stands or equivalent beneath the axle for support.**

3. Remove the lock pin securing the inner axle tube and collapse the axle *inward* aligning the next hole in the inner axle with the hole from which the lock pin was previously removed. Reinsert lock pin.

   Repeat this procedure on the opposite side of the conveyor.



Collapse Axle Before Transporting 82' Models Only

Fig. 6

DESIGNATED WORK AREA

WARNING! Under no circumstances should persons not involved in the operation be allowed to trespass into the work area. It shall be the duty of all operator's to see that children and/or other persons stay out of the work areas. Trespassing into the work area by anyone not involved in the actual operation, or trespassing into a hazard area by anyone shall result in immediate shutdown by the operator.

It shall be the responsibility of the operator's to see that the work area has secure footing, is clean and free of all debris and tools which might cause accidental tripping and/or falling. It shall also be their responsibility to keep the work area clean and orderly during the operation.

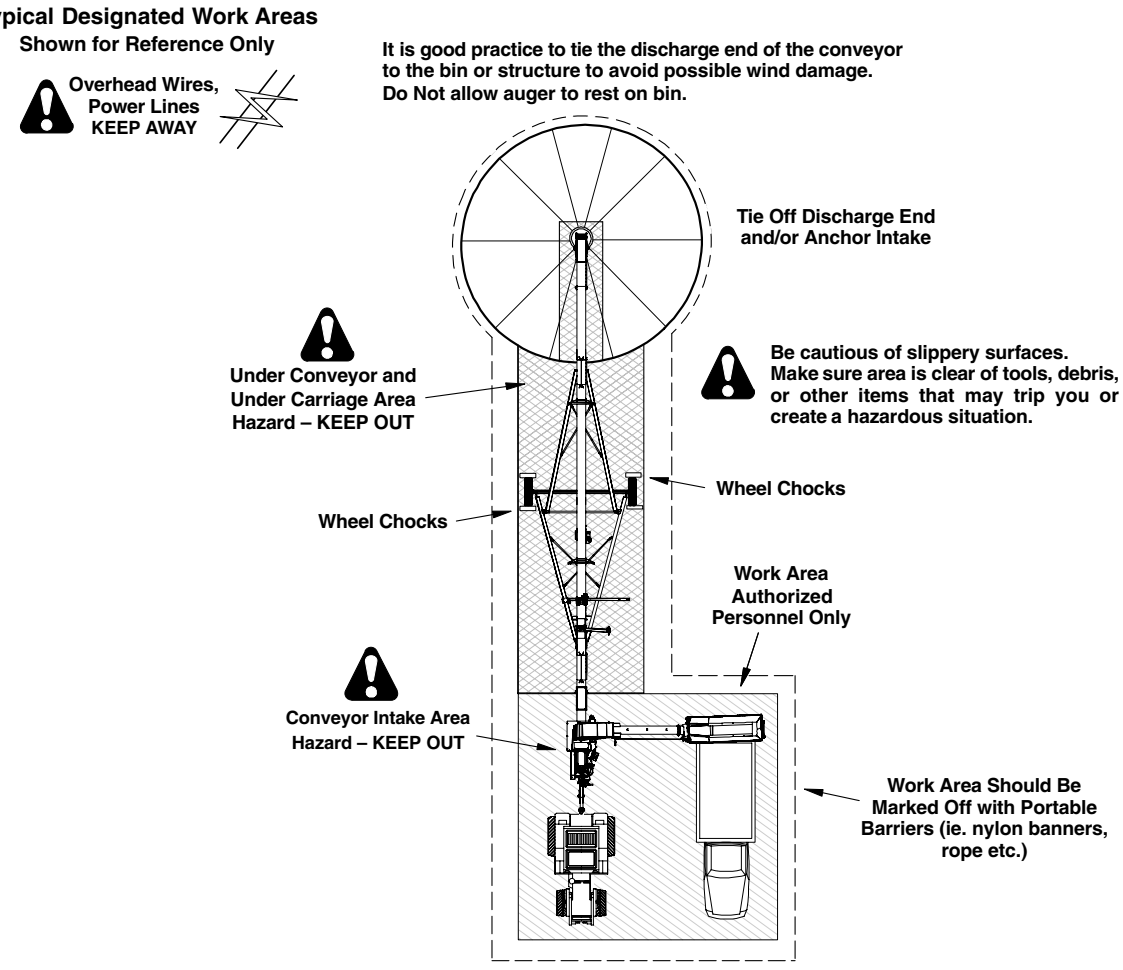
Use caution when working in areas above the ground. Persons operating, servicing or repairing equipment that requires above ground work shall be properly secured with the use of "fall protection" equipment as set forth by OSHA guidelines and regulations.

Metal buildings, scaffolding and other types of work surfaces can become slippery, especially when surfaces are wet and/or oily. This can create hazardous working conditions. Use caution when working, climbing or walking on these surfaces.

Before starting the conveyor, a designated work area should be established and properly marked. The following diagram shows the manufacturers designated work area for conveyor operation. These areas shall be marked off with colored nylon or plastic rope or banners hung as portable barriers to define the designated work area.

All operator's shall know how to shutdown and lockout the equipment in the event of an emergency.

Typical Designated Work Areas
Shown for Reference Only



CONVEYOR OPERATION

OPERATING PROCEDURES

WARNING! The operator shall be aware of any unusual vibrations, noises and the loosening of any fasteners.

Keep all safety shields and devices in place.

Keep hands, feet and clothing away from moving parts.

The operator shall have a full view the conveyor work area and check that all personnel are clear of hazard areas before adding power.

Before starting tractor, be certain power to the PTO is off.

Be certain the PTO driveline is securely attached to the conveyor and tractor.

Use a PTO with a rotating shield in good working condition that can be turned freely on the shaft.

Stay out of designated hazard area of an operating PTO.

Check the following before adding power:

- All safety devices are in place and properly fastened, and the clean-out door on bottom of hopper is in place.
- Make sure tractor is parallel to conveyor with PTO driveline as horizontal as possible. **Do Not operate PTO at extreme angles. The driveline should never be operated at angles more than 15°.**
- Ensure conveyor is properly positioned and work area is appropriately marked and free of tools, debris and other hazards.

  Verify all drive component hardware and fasteners are tight.

Begin Grain Conveying Operations

1. Engage PTO at a slow RPM to minimize shock loads, then work up to recommended RPM. Make sure conveyor is running properly.

   The conveyor can be operated at speeds from 450 to 540 RPM's. Do Not attempt full load operation at speeds below 450 RPM as high torque requirements may damage the conveyor.
2. Engage swing-away hopper belt conveyor.
3. Slowly begin filling belt conveyor with grain until desired flow rate is achieved.

SHUTDOWN/LOCKOUT

WARNING! If the operator must leave the work area, or whenever servicing or adjusting, the conveyor must be stopped and the power source turned off and locked out.

Precaution should be made to prevent anyone from operating the conveyor when the operator is away from the work area.

Emergency Shutdown

Should the conveyor be immediately shutdown under load, **disconnect and lockout the power source.**

Clear as much grain from the hopper and conveyor as you can. Use the clean-out door in the bottom of the hopper to help clean grain from this area.

When as much grain as possible has been cleared, reconnect the power source and clear the conveyor gradually.

Never attempt to restart conveyor when full of grain. Starting the unit under load may result in damage to the conveyor, such damage is considered abuse and is not covered by warranty.

Normal Shutdown

Make certain that the hopper and conveyor are empty before stopping the unit. **Before the operator leaves the work area, the power source shall be locked out** (See "Lockout" below).

Intermittent Shutdown

When a conveyor is stopped and restarted under full load, it may result in damage to the conveyor. Therefore if intermittent operation is to be carried out, it is advisable to reduce the load level.

When kept from absolute filling, conveyor start-up is easier and operation more efficient.

Lockout

Stop PTO and turn off power source. Remove ignition key from power source (if this is not possible, remove the PTO driveline from the work area).

GENERAL MAINTENANCE INFORMATION

WARNING! Shut off power and lockout before attempting to adjust, service, clean or repair the conveyor or any of its components.

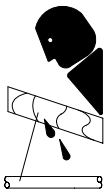
Keep hands, feet and clothing away from moving parts.

Make sure all safety devices, shields and guards are in place and functional. Immediately replace any that are damaged or missing.

Never rely solely on mechanical or hydraulic jacks for support. Use jack stands or equivalent for support.

Never operate the conveyor with access doors or panels open.

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure within the system.



Escaping hydraulic oil, even an invisible pin hole leak can penetrate body tissues and cause serious injury.

Use a piece of wood or cardboard when searching for leaks, Never use your hands or other parts of your body.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction can occur if medical attention is not received at once.

For economical and efficient operation of your conveyor, maintain regular and correct lubrication, maintenance and service schedules. Neglect leads to reduced efficiency, excessive wear and needless down time.

Any parts needing replacement should be replaced with parts of the same type and size. ***Do Not*** **modify or alter any of the conveyor components.**

GUARDS

Check all guards to see if they are properly adjusted and securely fastened.

Guards should not be rubbing against any chains or sprockets. **Immediately replace any worn or damaged guards.**

BEARING LUBRICATION
HEAD & INLET HOPPER BEARINGS

The head bearings are located on the head section at the discharge end of the conveyor (one bearing on each side of the head section). The inlet hopper bearings are located on both sides of the inlet hopper.

These bearings are fitted with grease zerks (lubrication fittings) and should be lubricated after **every 50 hrs. of operation or once annually.**

Before greasing the bearings, make sure the zerks are free of dirt, otherwise the dirt will be passed into the bearing race which can cause contamination resulting in bearing failure.

Use an SAE multi-purpose type grease.

Normally only **one to two pumps** of the grease gun is sufficient when servicing the bearings. **NOTE: Over greasing can be just as harmful as under greasing if it forces grease out of the bearing seals.**

The bearings themselves do not require adjustment, but check to make sure the hardware securing the bearings is tight. Also check the setscrews in the lock collars to ensure they are tight against the shaft.

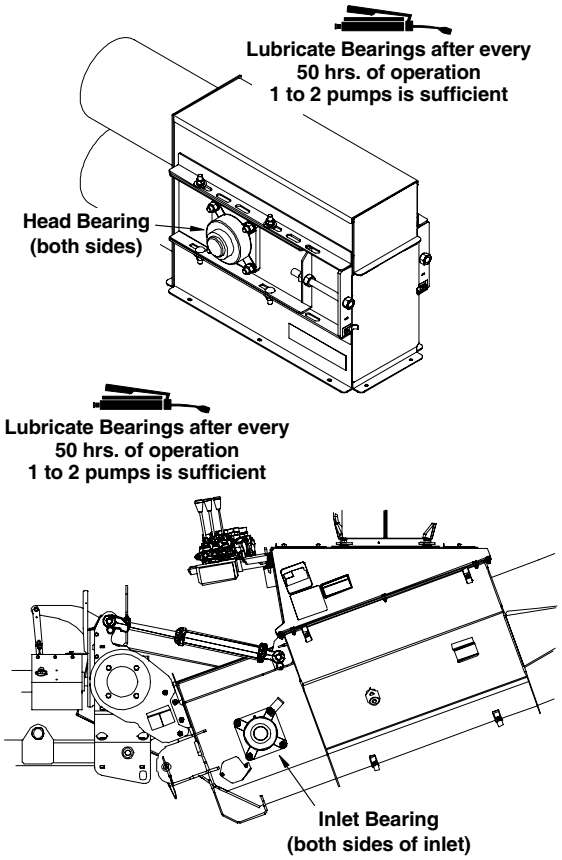


Fig. 7

UNDERCARRIAGE AXLE BEARINGS

WARNING! Do Not rely solely on hydraulic or mechanical jacks for support. Use jack stands or equivalent to support undercarriage axle.

Tapered roller bearings are standard on all auger axles and should be **repacked with grease annually, or as needed determined by usage.**

Use an anti-seize compound on the hub to axle spindle connection.

To Repack Wheel Bearings:

1. Raise the undercarriage axle high enough to allow the tire to clear the ground **(only raise one side of the axle at a time).**

   Place jack stands or equivalent beneath the axle for support and remove the tire.

2. Remove the dust cover by prying around the edges, (See Fig. 8) then remove the cotter pin, slotted nut and flat washer from the end of the axle shaft.

3. Carefully remove the hub from the shaft being careful so the outer bearing doesn't fall to the ground. Clean the bearing with solvent and inspect the bearing for wear and damage, replace if necessary.

   To inspect the inner bearing you will need to remove the seal from the rear of the hub (the seal may become damaged during this procedure, replace as necessary).

   With the seal removed, you can now remove the inner bearing from the hub. Clean the bearing with solvent and inspect it for wear and damage. Replace if necessary.

4. Clean the hub cavity with solvent before reassembly. Using a good **automotive type axle grease,** repack the inner bearing. Insert the inner bearing into the hub and press on the grease seal.

5. Reinstall the hub onto the axle shaft being careful not to damage the lip of the seal during installation.

6. Repack the outer bearing. Fill the hub cavity with grease until about 1/3 full, then install the outer bearing.

7. Reinstall the flat washer and the slotted nut. Tighten the nut to seat the bearings. Keep tightening the slotted nut until the hub begins to bind as it is being rotated. Back off the slotted nut to the next slot and install a new 5/32" x 1 3/4" cotter pin. Reinstall the dust cap and remount the tire.

   Repeat this procedure on the opposite wheel hub.

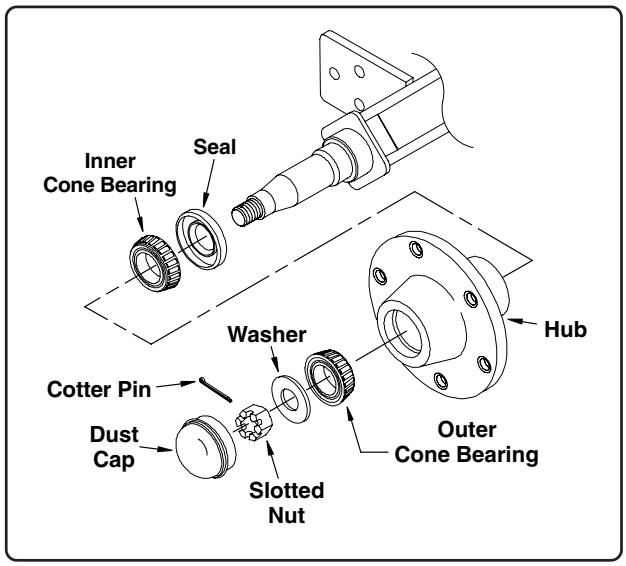


Fig. 8

HITCH JACK LUBRICATION

A grease zerk (lubrication fitting) is located on the handle side of the jack. Its a good idea to lubricate just before storage or as determined by usage. Use a good quality **SAE multi-purpose grease and lubricate annually.**

Extend the leg on the jack and lubricate it with a spray type lubricant or apply a thin layer of a good quality multi-purpose grease, then retract the leg. This too should be done just before storage and again at the start of seasonal operation. **Lubricate annually or as determined by usage.**

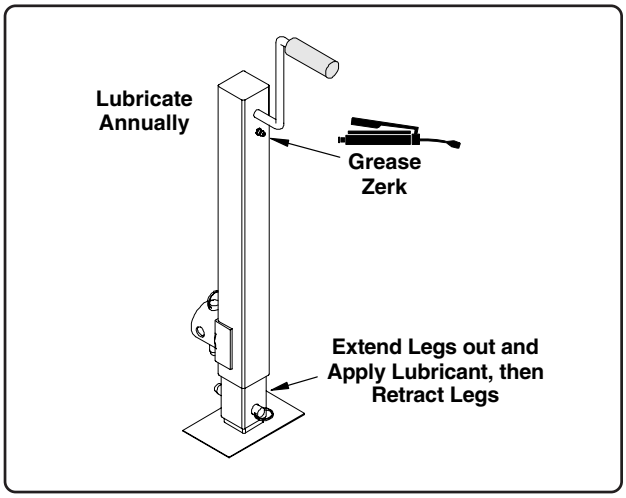


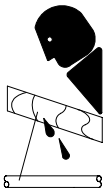
Fig. 9

HYDRAULIC COMPONENTS

The hydraulic components received with your Grain Pump Conveyor were selected to deliver the most efficient and economical use during operation.

Any parts used for replacement should be parts of the same type and size as the original.

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure within the system.



Escaping hydraulic oil, even an invisible pin hole leak can penetrate body tissues and cause serious injury.

Use a piece of wood or cardboard when searching for leaks, Never use your hands or other parts of your body.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction can occur if medical attention is not received at once.

- Allow hoses to coil in their original shape. Avoid pinching, crimping or twisting the hoses that would otherwise restrict the flow of the hydraulic system.

  IMPORTANT! Keep hydraulic hoses away from moving parts. Make sure to secure the hoses in a manner that they cannot become damaged when transporting the conveyor.

- Check hoses, fittings and connectors for leaks. Repair or replace as necessary.
- When not in use, make sure the fittings on the end of the hoses are protected from dirt and other contaminants.
- The quick release fittings required for attaching the hoses to the tractor are furnished. **Using thread sealer, attach fittings to hose ends.**

Hydraulic Operated Main Conveyor Winch

IMPORTANT! Although the winch is shipped **with oil already added to the gearbox, we recommend checking oil level before operation.**

To check oil level, remove the level check plug from the side of the gearbox (See Fig. 10). Oil should begin to leak from the opening. If it does, oil level is sufficient, replace plug.

If additional oil is needed, remove fill plug from upper face of gearbox and remove level check plug,

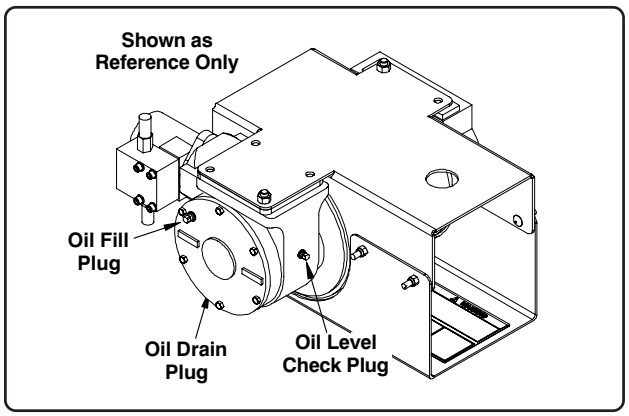


Fig. 10

Add oil until it begins to flow out of the level check opening, reinsert plugs. **Do Not overfill, too much oil may damage the seals.**

Capacity: approx. 16 oz. ***(.474 L)***

When additional oil is required, we recommend the use of an **SAE 90W** non-foaming multipurpose gear oil for normal operating temperatures between 40°F to 120°F *(4.4°C to 48.9°C)*. For temperatures below 40° *(4.4°C)* use an **SAE 80W** oil.

Use a grade/brand that is commercially available for automotive differentials. Extra pressure additives may be of some value in severe applications.

Gearbox oil should be changed after **every 100 hrs.** of operation. Remove drain plug from bottom of gearbox to drain oil. **Dispose of used oil according to your local ordinances.**

Hydraulic Winch for Swing-Away Hopper Belt

A hydraulic motor is used to power the hydraulic drive swing-away belt conveyor.

Hydraulic motors are designed and manufactured to very strict tolerances and assembled under closely controlled conditions. If properly installed and with a minimum of attention, it will give long trouble-free service.

If in need of repair, it should be returned to your nearest service center or to the factory. Only trained personnel should repair and test returned motors.

- The hydraulic drive motor has a displacement of 5.9 cubic inches per revolution.

  At 15 GPM *(56.78 L)*, motor RPM will be approximately 587 RPM [730 fpm *(3.71 mps)* belt speed]. **DO NOT** exceed 15 GPM *(56.78 L)*.

  Exceeding the recommended motor RPM may cause motor damage.

Hydraulic Winch for Hopper Belt (con't.)

- Avoid nuisance leaks. Typical causes are dirty, scratched, bowed or inadequately bolted joints; vibrating, unsupported lengths of flexible and rigid piping. The cure: careful assembly, proper seals, periodic inspection. Only compatible materials (resistant to fluid and temperatures involved) should be used.
- Be aware of temperatures. Use oils that will not be too heavy when cold or too light when hot. Either may affect operation and lubrication.

  Never exceed 180°F *(82.2°C)* oil temperatures or motor damage could occur.
- Avoid shock - limit the rate of pressure build-up. Adjust relief valves, avoid chatter, sudden pressure surges and higher than needed working pressures.

  Pressure and flow are energy - use them efficiently. It is best to let the conveyor completely empty before stopping, so it doesn't restart under load.
- Include adequate filtration in the system. (10 micron or finer)

PTO DRIVELINE LUBRICATION

WARNING! Before engaging PTO, be sure the PTO driveline shaft shield turns freely on shaft.

Keep hands and clothing away from the PTO components during operation.

The conveyor PTO was designed for use with a tractor that is capable of operating at **540 RPM's** *(speeds greater than this will cause excessive wear and/or damage to the conveyor).*

The PTO driveline furnished with the conveyor is equipped with a "Spring-Lok" coupler at the tractor end.

This type of coupler is spring loaded and will fit the standard 1-3/8" x 6 splined PTO shaft from a tractor.

The PTO driveline is also equipped with a spring-loaded clutch at the tractor connection. The clutch protects the conveyor from damage should the conveyor become plugged or subjected to high loads.

If this scenario should occur, the clutch would "slip" causing the connection to the conveyor to suddenly stop (the tractor PTO would still continue turning, but not the conveyor driveline). **Immediately shutdown the tractor and lockout before attempting to investigate.**

The PTO driveline has three (3) fittings that require lubrication (See illustration below).

Lubricate all fittings with a good quality lithium based EP grease which meets NLGI No. 2 Specifications and contains no more than 1 percent molybdenum disulfide (example: Shell Super Duty or equivalent).

An EP grease meeting the NLGI No. 2 Specifications and containing 3 percent molybdenum disulfide **may be substituted in the telescoping members only** example: Mobil Oil Co. (Mobil Grease CMP); Shell Oil (Retinax AM); & Texaco (Molyex EP No. 0 & No. 2).

Telescoping members should be lubricated while in the collapsed position.

- The first lube interval should be **16 to 24 hours after initial start-up and operation, then follow the recommendations shown below.**
- Check the u-joint setscrews at the conveyor end to make sure they are tight against the drive shaft.

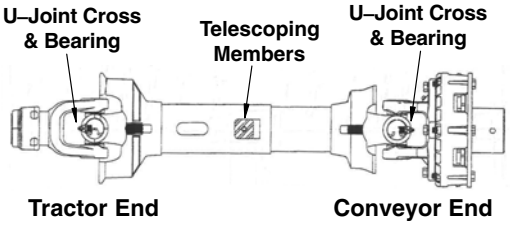
Replacement Parts are Not Lubricated

Replacement parts must be lubricated at the time of assembly. Depending on the replacement part, use the chart below to determine the proper amount of grease to use for that particular location. After repaired parts have been lubricated and installed, follow the recommendations in the chart for lubrication intervals.

PTO Driveline Lubrication Recommendations

After the first lube interval (first 16 to 24 hours of operation) the following schedule should be maintained.

Interval	Location	Amount
4 hrs.	U–Joint Cross & Bearing	1 Pump
8 hrs.	Telescoping Members	4–8 Pumps



GEARBOX OIL LEVEL

IMPORTANT! The gearbox is shipped *with* oil. Oil level needs to be verified *before* operation of the conveyor.

Even under normal working conditions, oil will still dissipate. Check oil level in gearboxes periodically and maintain proper level.

Lubrication is extremely important. For satisfactory operation, follow the information shown on the reducer gearbox nameplate, its warning tag and in the manual provided with the gearbox.

Failure to observe these precautions could result in damage to the equipment.

Oil should be changed more frequently when conveyor is being operated at high temperatures, under extreme dirty conditions, or when operated continuously.

Under these extreme conditions the oil should be changed every **1 to 3 months**, depending on severity of the conditions.

CAUTION: Too much oil will cause overheating and too little oil will result in gear wear and failure. Check oil level regularly.

Capacity: 85 oz. *(2.52 L)*

Oil Change Intervals:

Initial change after **2 weeks of operation** (if desired, this oil may be filtered and reused).

Thereafter, every **2500 hours**, or **6 months.** Under more extreme conditions, **1 to 3 months** of operation. Oil should be drained, magnetic plug cleaned, and gearbox flushed and refilled with new oil.

Very often, small metal particles will show up in the oil due to the wearing process. A magnetic drain plug is provided to help contain the particles.

Check Oil Level

This initial reading should be taken when the gearbox has the correct amount of oil installed, 85 oz. *(2.52 L)*.

1. With conveyor in the full down position, remove the vent/fill plug from the top of the gearbox as shown in Fig. 11.

   Use a dipstick type object and insert into plug opening; mark the oil level on the dipstick for future readings (always check oil level with conveyor in the same position as the initial reading was taken).

Changing Gearbox Oil

1. Prepare the area below the gearbox to catch the drained oil into an appropriate container.

   Remove the vent/fill plug from the top of the gearbox, then remove the drain plug from the bottom of the gearbox (See Fig. 11). After all oil has drained, clean drain plug and reinsert.

   Discard all used oil in accordance with your local city and state ordinances.

2. Add 85 oz. *(2.52 l)* of **an SAE 80/90 weight** high grade petroleum base, rust and oxidation inhibited (R&O) gear oil to the gearbox through the vent/fill opening. Reinstall vent/fill plug.

   For temperatures below 40° F *(4.4° C),* use an SAE 80 weight oil the same quality as the 90 weight oil. Extra pressure additives may be of value in severe applications.

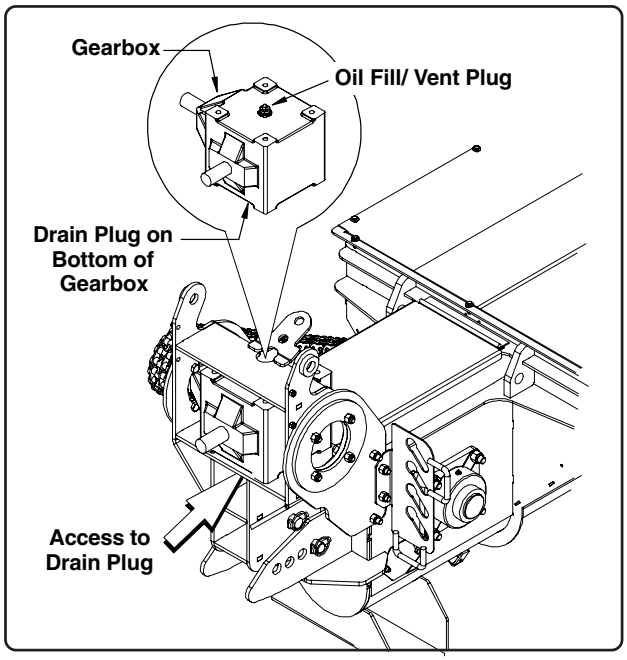


Fig. 11

CONVEYOR DRIVE CHAIN ADJUSTMENT and PADDLE REPLACEMENT

WARNING! Whenever you must service or adjust your equipment, make sure to stop the machine and lockout your power source.

Regular inspections should be established to ensure that the conveyor chain is in good operating condition at all times.

The life of the conveyor chain will be shortened when the chain is allowed to sit in water or is operated in acidic conditions, try to avoid these situations.

To extend chain life, spray a light coat of soybean oil on the chain after each seasons use. **Use extreme caution, keep away from moving chain and paddles.**

Paddle Replacement

1. Remove paddle from attachment bracket . Install new paddle. Torque hardware to 15 - 20 ft. lbs. *(20.1 - 26.8 N·m).* Excessive tightening can deform the paddles.

   Make sure attachment bracket is mounted behind the paddle as the paddle pushes grain towards the discharge end.

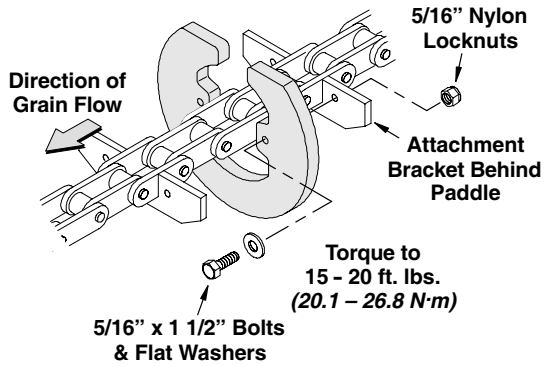


Fig. 12

Check Chain Tension

1. Inspect conveyor chain for loose bolts, missing chain parts, missing or damaged chain paddles and overall chain condition.
2. Check chain tension. Grasp one of the paddles at the inlet end, and attempt to rotate it up towards the chain (See Fig. 13). Proper chain tension should allow only minimal movement of the paddle.

   There may be some flexing of the paddle itself, but overall there should be very minimal movement of the paddle and chain.

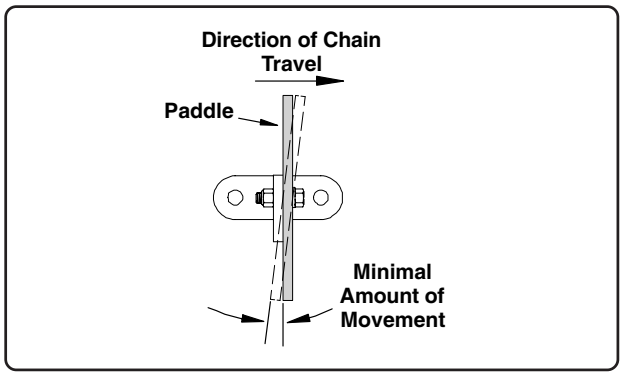


Fig. 13

Conveyor Drive Chain Adjustment and Paddle Replacement (con't.)

Adjust Chain Tension

1. Loosen the four (4) carriage bolts on each of the take-up slides on the head section at the discharge end of the unit, See Fig. 14 (there will be a total of eight carriage bolts).

2. Move the jam nuts on the conveyor chain adjustment bolts in direction desired to either loosen or tighten the chain. **Move the jam nuts in equal increments so that the head shaft remains straight.**

   Check each side for equal distance by measuring from the shaft of each bearing to the head end.

   Once proper tension has been set, tighten the eight carriage bolts and secure the jam nuts.

   If the chain is still too loose after these adjustments, it may be necessary to remove one or more chain links from the chain.

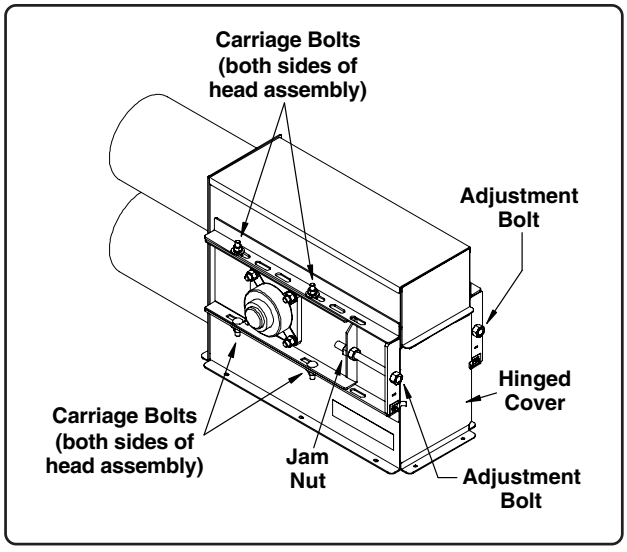


Fig. 14

DRIVE CHAIN LUBRICATION

The drive chain is installed at the factory. It should be checked frequently for signs of wear, damage, as well as proper tension.

Secure the belt guard cover in the open position.

- Lubricate drive chain using a chain lube. The chain should be lubricated **in intervals at 8 hrs.** of operation.
- Check chain tension. The chain has been installed and tension set at the factory.

  If adjustment is necessary, loosen the nut securing the chain tensioner sprockets. Pry the sprockets upward applying tension to the chain and tighten into place [allow about 1/2" to 1" *(13 to 25.4 mm)* of slack in the chain, do not overtighten].
- Replace chain at 3% elongation of original pitch.

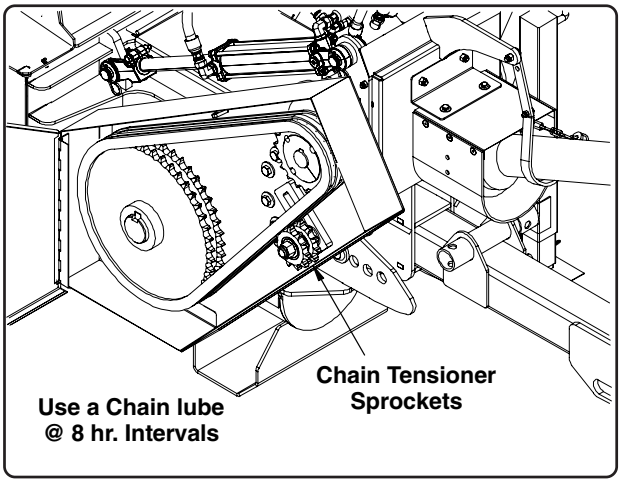


Fig. 15

Belt Maintenance Schedule

- Inspect and replace the belt splice every 800,000 bushels *(20,320.9 MT)* or 180 hours.
- Back the adjustment bolts all the way off for the belt during the off season.
- Insert one - two pumps of grease in each of the bearings every 500,000 bushels *(12,700.6 MT)* or 110 hours or once a season, whichever is reached first (too much grease can push out the bearing seals) and after each time the unit is washed down. After the wash down, insert just enough grease to push out the water and let run for 15 minutes.
- Examine all of the skirting at least every 1,000,000 bushels *(25,401.2 MT)* or 165 hours or once a season, whichever is reached first.
- If the unit will set outside during the off season, make sure that the discharge hood is installed and cover the inlet hopper section with a tarp or plastic. Keep the tarp or plastic off the ground. This should help keep rodents out of the unit and protect the belts. Store the unit inside out of the weather, if possible. Sunlight is hard on the belts and hoses.
- Keep the inlet section off the ground. This will also help keep rodents out of the unit and protect the belts.
- Before start up, tighten the adjustment bolts on the belt and check for proper alignment on start up.
- Check for proper belt alignment during each operational season.

Belt Training

When the belt is installed correctly and trained properly, it will run straight and true.

IMPORTANT: If there is too much tension on the conveyor belt, it will be more difficult to train the belt and may shorten the life of the belt.

Training is the process of adjusting rollers to get the belt to track down the center of the conveyor. If the belt is not properly *trained,* it may work its way off one side of the roller which can cause damage to the belt and conveyor.

Belt tracking during the first few minutes of operation are critical.

It is a good idea to run the belt at ***slow speeds*** to prevent belt damage, should the belt rapidly mistrack.

- once belt appears to be tracking, increase speed gradually and readjust tracking
- continue adjusting gradually until conveyor is running at operating conditions and belt is tracking properly

Make sure the belt is tracking properly before attempting to convey material.

- Check belt frequently during the first 10 hours of operation.
- After 10 hours, the belt is normally seated and will require less frequent checking.

1. For initial operation, all rotating parts (head roller, tail roller and return belt rollers) must be at a 90° angle to the direction of belt travel and centered on all rollers.

   It is best to leave the head roller at 90° to the belt travel and make training adjustments with the other rollers.

Belt Training (con't.)

2. Slight adjustment of rollers may be required to keep the belt centered on them.

   As a general rule, the belt will track toward the loose side. Therefore, if the belt runs to one side of the roller, apply more tension to that side of the roller.

   This is done by loosening the bearing bolts on the roller shaft that is to be moved, and moving the bearing with the adjustment bolt in small increments of 1/16" to 1/8" *(2 mm to 3 mm)*.

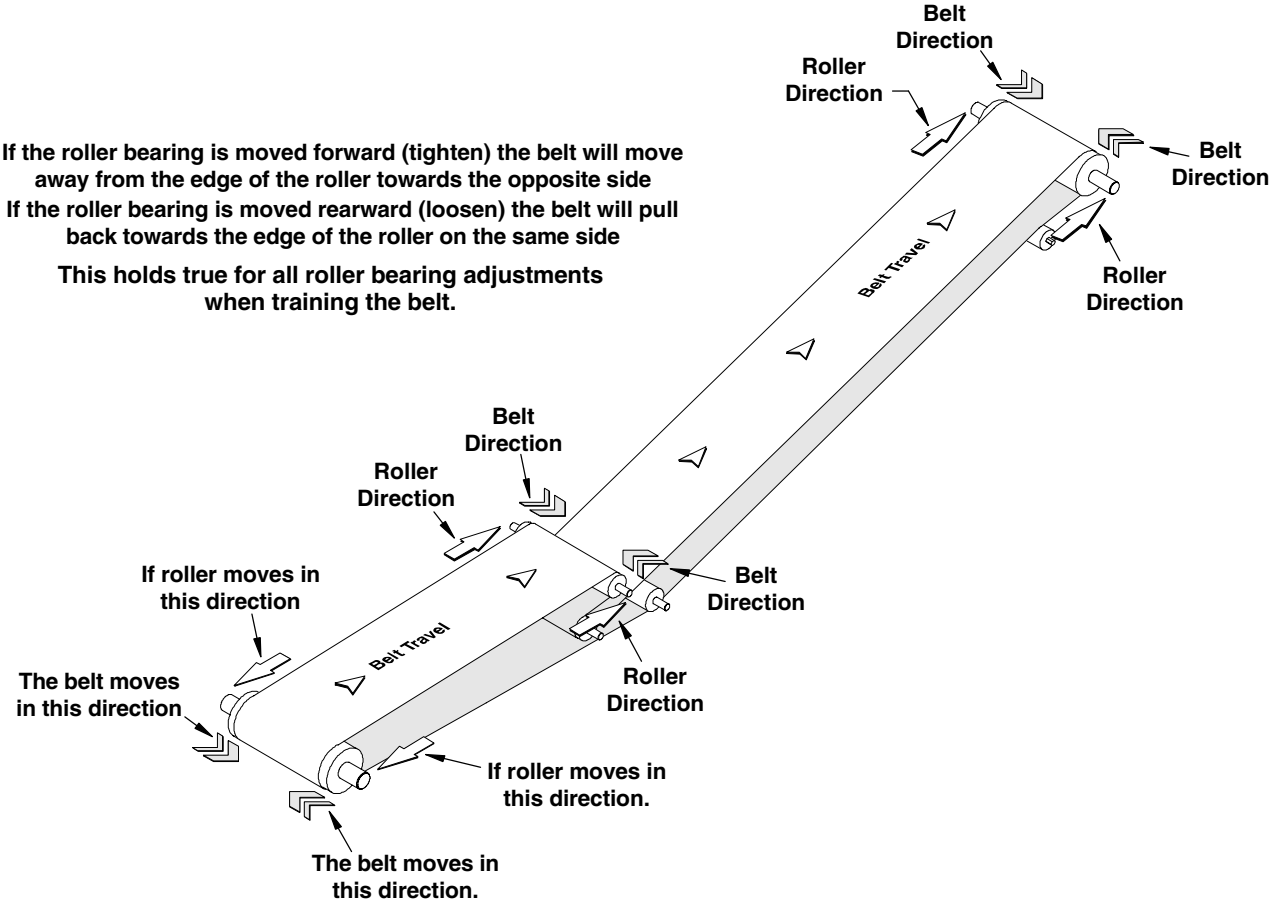
3. The arrows in the diagram show probable direction of belt movement when the roller bearings are moved in a given direction.

   Belt tracking can be monitored at the tail roller and at the return rollers on the incline tube. It can also be monitored where it enters the incline tube (if it is tracking off to one side, that edge of the belt will be higher where it enters the tube).

   If the edge of the belt tracks completely off one side of a pulley, it will be necessary to loosen the take-up adjusting bolts enough to remove all tension from the belt so that is can be manually slid back onto the center of the pulley.

   It is a good idea to note the location of the take-up bearings before loosening so that they can be returned to their original position after moving the belt.

   Before restarting the conveyor, make the appropriate adjustments as recommended in Steps 2 & 3 to correct the tracking problem. It may take several attempts to correct the tracking.



BEARING LUBRICATION
SWING-AWAY HOPPER BEARINGS

The swing-away hopper bearings are located on both sides of the hopper and on both sides of the discharge end of the swing-away (See illustration below).

These bearings are fitted with grease zerks (lubrication fittings) and should be lubricated after **every 50 hrs. of operation or once annually.**

Before greasing the bearings, make sure the zerks are free of dirt, otherwise the dirt will be passed into the bearing race which can cause contamination resulting in bearing failure.

Use an SAE multi-purpose type grease.

Normally only **one to two pumps** of the grease gun is sufficient when servicing the bearings. **NOTE: Over greasing can be just as harmful as under greasing if it forces grease out of the bearing seals.**

The bearings themselves do not require adjustment, but check to make sure the hardware securing the bearings is tight. Also check the setscrews in the lock collars to ensure they are tight against the shaft.

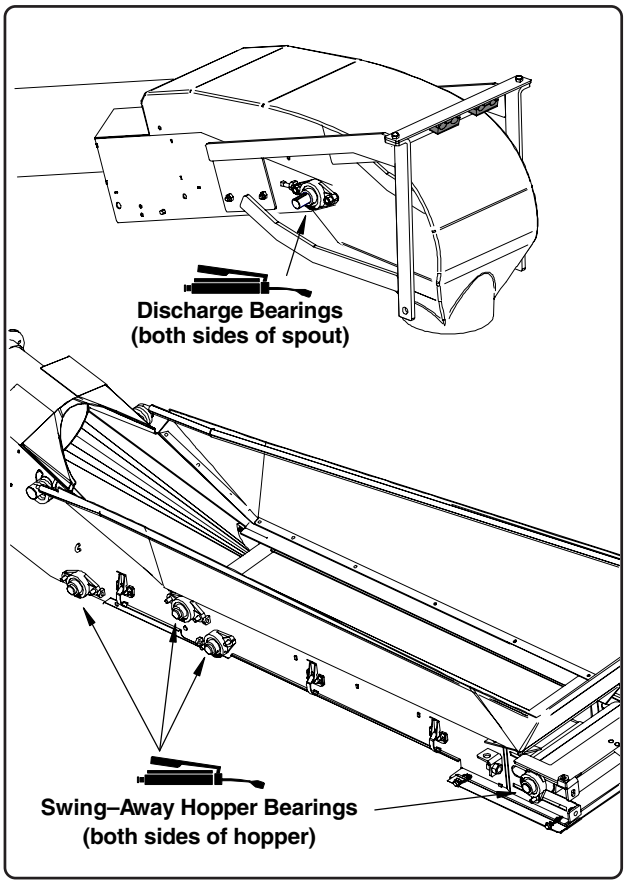


Fig. 16

SWING-AWAY HOPPER BELT, TENSION, MAINTENANCE SCHEDULE & TRAINING

Hopper belt tension is set by adjusting the hopper tail-bearing roller.

1. Loosen the tail bearing bolts and take-up bolt nuts on each side of the hopper (See illustration below).
2. Make sure the hopper belt is centered on all rollers.

   Turn take-up bolts in equal increments until belt is properly tensioned [belt should deflect 1" to 2" *(25 to 51 mm)* when pushed with a 5 lb. force in the center of the belt].

   IMPORTANT: If there is too much tension on the conveyor belt, it will be more difficult to train the belt and may shorten the life of the belt.
3. Retighten hardware once proper tension has been obtained. To keep the roller square, maintain a measurement from the rear side of the hopper frame to the center of the roller shaft on each side of the hopper (roller should be at a 90° angle to the direction of belt travel).

   If slip occurs under load, additional belt tension should be applied by adjusting the take-up bolts enough to prevent slip from occurring under load and during belt start-up.

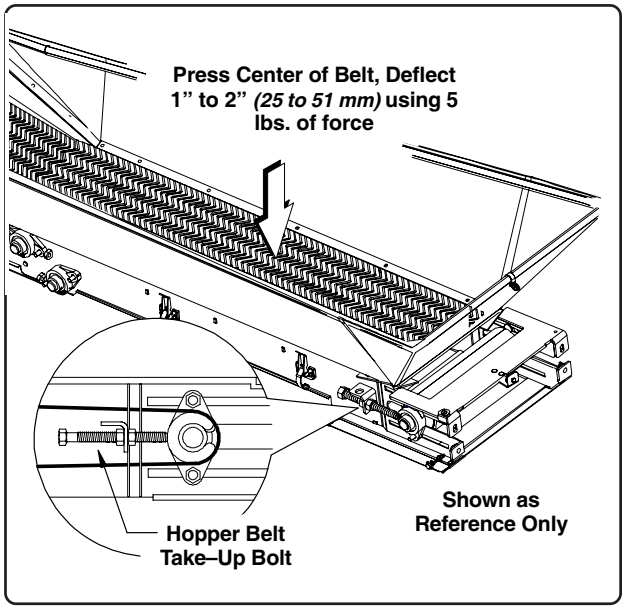


Fig. 17

TROUBLE SHOOTING

SWING-AWAY BELT CONVEYOR TROUBLE SHOOTING

The following trouble-shooting information pertains to the swing-away belt conveyor. Use the numbers at the end of each row to determine what solution(s) in the following column will be used to help correct the problem.

The trouble-shooting information for the complete conveyor is shown on Page 28.

Problem / Cause	For Solutions Refer to Answer #
A. Low conveyor capacity	19, 20, 6, 7, 12
B. Belt runs to one side for long distance or entire length of conveyor.	5, 1, 2
C. Particular section of belt runs to one side at all points on conveyor	3, 4
D. Conveyor belt runs to one side at given point on structure	1, 2, 16
E. Belt runs true when empty, crooked when loaded	5
F. Belt slips	12, 11
G. Belt slips on starting	12, 11
H. Grooving, gouging or stripping of top belt cover	18
I. Severe pulley cover wear	6, 7, 8
J. Belt covers harden or crack	10, 13
K. Belt cover swells in spots or streaks	9
L. Excessive belt edge wear, broken edges	5, 7, 15, 4, 17, 14
M. Short breaks in carcass parallel to belt edge, star breaks in carcass	8
N. Belt ply separation	10
O. Belt cupping (old belt), was ok when new	9, 10
P. Belt runs off at tail pulley	7, 1, 11
Q. Pulley drags or does not turn	21

Solutions f/ Possible Problem / Cause

1. Idlers or pulleys out of square with center line of belt: Readjust idlers in affected area.
2. Conveyor frame or structure crooked: Straighten in affected area.
3. Belt not joined squarely: Remove affected splice and re-splice.
4. Bowed belt: For new belt this condition should disappear during break-in; in rare instances belt must be straightened or replaced: Check storage and handling of belt rolls.
5. Off-center loading or poor loading: Load on center of belt; discharge material in direction of belt travel at or near belt speed.
6. Slippage on drive pulley: Increase tension through screw take-up.
7. Material spillage and build-up: Improve loading and transfer conditions, improve maintenance.
8. Material trapped between belt and pulley.
9. Spilled oil or grease: Improve Housekeeping.
10. Heat or chemical damage: Use belt designed for specific condition.
11. Screw take-up tension too light.
12. Insufficient traction between belt and pulley: Adjust tension.
13. Improper storage or handling.
14. Belt improperly spliced.
15. Belt hitting conveyor structure.
16. Structure not level: Level structure in affected area.
17. Belt misalignment: See conveyor belt training recommendations.
18. Sharp edges of objects caught in inlet.
19. Steep conveyor incline: Capacity at 30° incline will be less than half the capacity at 15° incline.

TROUBLE SHOOTING
MAIN CONVEYOR PROBLEMS/CAUSES

LOW CAPACITY

- The conveyor may not be getting enough grain. Check to see that the hopper intake has not bridged over restricting the flow.
- Chain speed is too slow. See tractor and PTO requirements on Page 7.
- Grain is high in moisture. A low capacity will likely be achieved with high moisture grain. Excessive feeding of high moisture grain can cause plugging.

PADDLE BREAKING OR BENDING

- Paddles may be coming loose from the chain. Keep the paddles securely connected to the chain.
- Housing misalignment.
- Frequent starts underload. Allow conveyor to clean out before shutting down.
- Sprockets at intake or discharge ends may be off center. Align in center of housing.
- Overfeeding; adjust the feeding of the conveyor to allow less grain to enter while maintaining full speed.

EXCESSIVE CONVEYOR NOISE

- Check tension and adjust as necessary.
- Conveyor chain is too loose. Check chain tension and adjust if necessary (See Maintenance Section).
- Improper assembly or misalignment of housing. Loosen housing connection(s) that are the source of noise and disassemble. Check for end smoothness and grind if necessary.
- Sprockets at intake or discharge end may be off center. Check setscrew in sprocket and ensure that it is tight.

DRIVE CHAIN IS LOOSE

- Check tension and adjust as necessary.

GRAIN RETURNING to the INTAKE END THROUGH the TOP of the UNIT

- The discharge spout may be mounted backwards. Spout must be mounted so it slopes back towards the main body of the unit.
- Partially blocked discharge, remove obstruction.

CONVEYOR WILL NOT RAISE OR LOWER

- Hydraulic coupler may not be properly attached to the tractor.
- Tractor reservoir may not be full of oil.
- Hydraulic pressure bypass valve on winch capacity exceeded - turn down adjustment screw 1/4 turn as needed (See below).

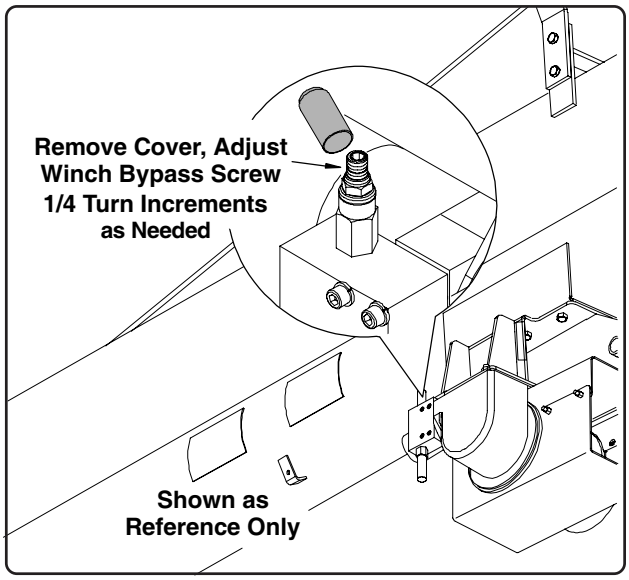


Fig. 18

TRUNK HOUSING LAYOUT

WARNING! Do Not rely solely on hydraulic or mechanical jacks or the hoist for support. Always use jack stands or equivalent for support.

Keep hands, legs and other body parts out from under the conveyor when conveyor is being raised by the hoist or by any other means.

Some parts are heavy, use assistance with lifting and while assembling these parts.

Wear the proper personal protective gear (ie. safety glasses, ear protection, gloves, etc.).

Keep the assembly and work area clean and free of tools and objects which could cause unsafe situations.

Whenever reference is made to the left, right, front or rear of the conveyor, it is always determined by standing at the hitch (inlet) end looking towards the discharge end.

Choose an open level ground accessible to a chain hoist or other lifting devices where the conveyor may be laid out in full length.

It will be convenient for assembly if the sections are placed on stands or saw horses, this will also make assembly of the undercarriage easier as well.

Be sure the stands or saw horses can support the weight of the tube sections. A stand height of at least 36" *(91.4 cm)* tall is recommended.

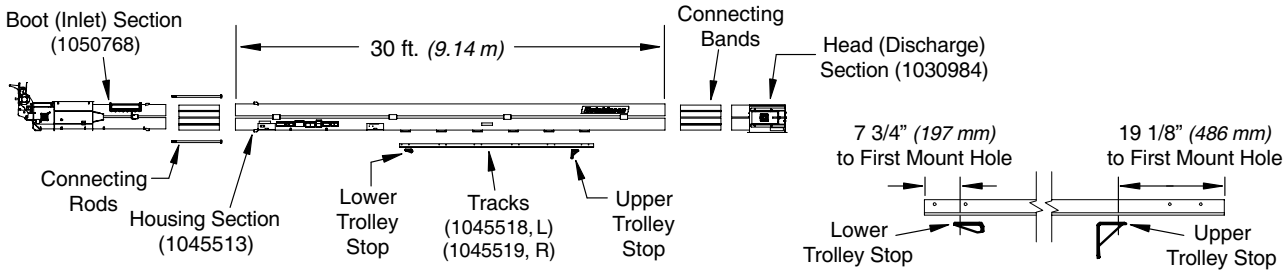
Before beginning assembly it is suggested to read through the assembly instructions in this manual and layout all items from the kits to ensure all parts are accounted for.

This not only helps you become familiar with the parts and assembly procedures, but also makes you aware of what tools, equipment or materials you may need to complete the assembly process.

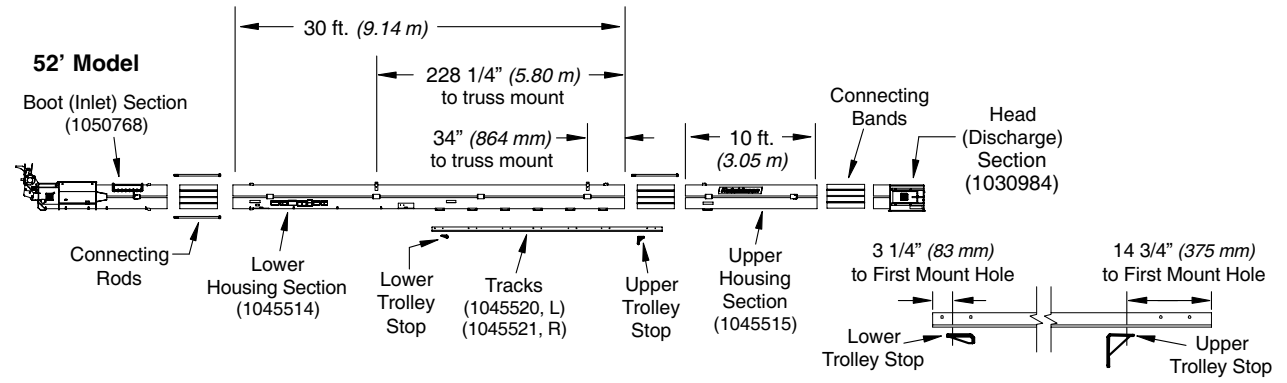
1. Position the tube sections in their respective positions as shown in the following illustrations.

   The support stands may have to be repositioned when installing the tracks on the bottom side of the housing. The tube sections, once connected together, can also be turned upside down to install the tracks and other components that attach to the underside of the conveyor.

42' Model

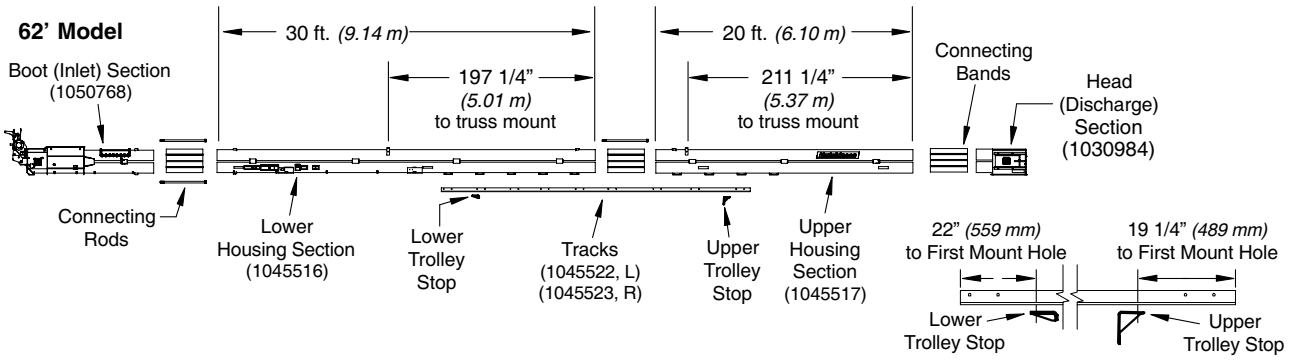


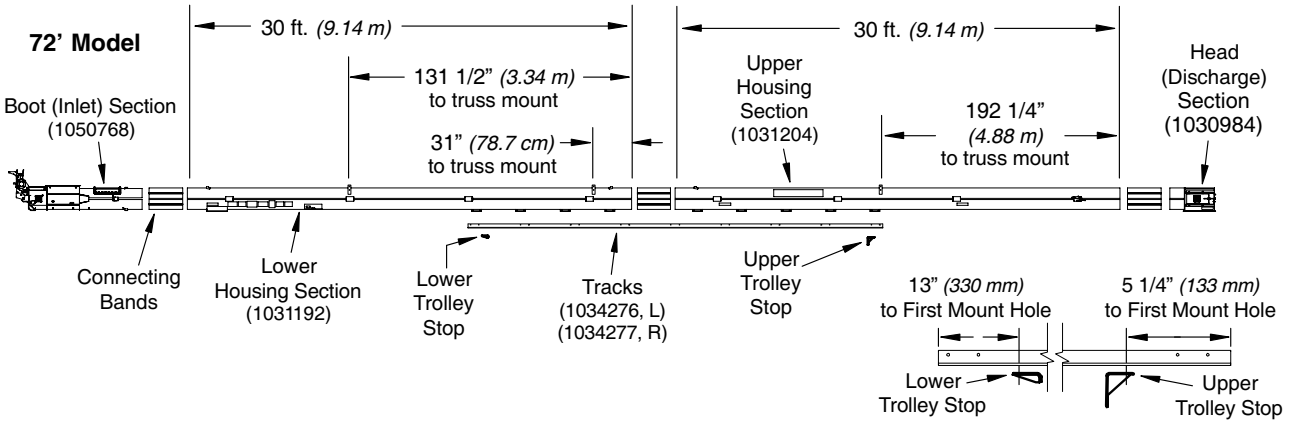
52' Model

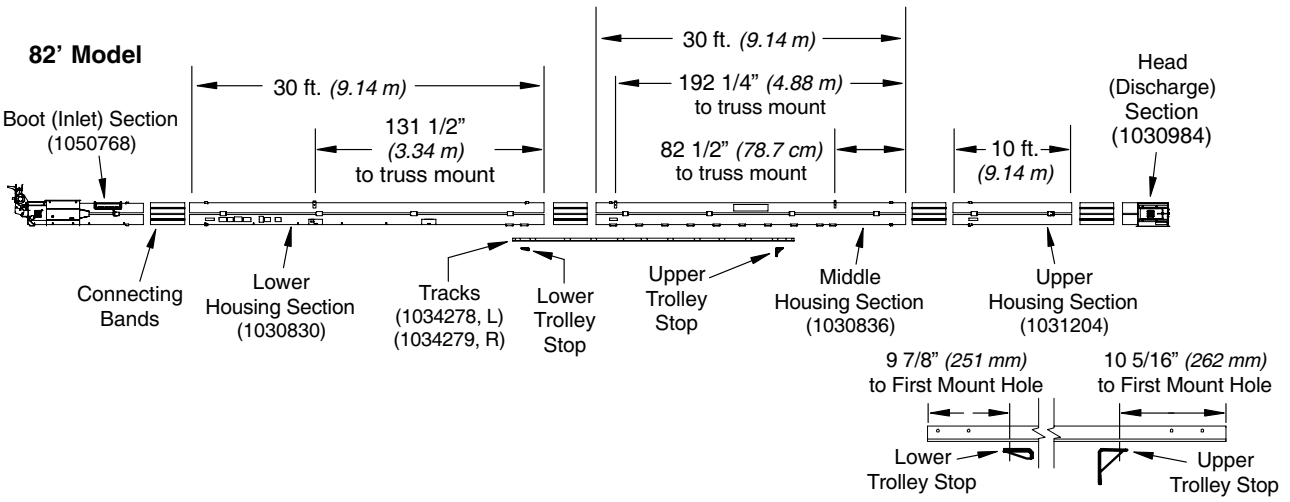


ASSEMBLY INSTRUCTIONS

Trunk Housing Layout (con't.)







CONNECTING BAND & CONNECTING ROD ASSEMBLY

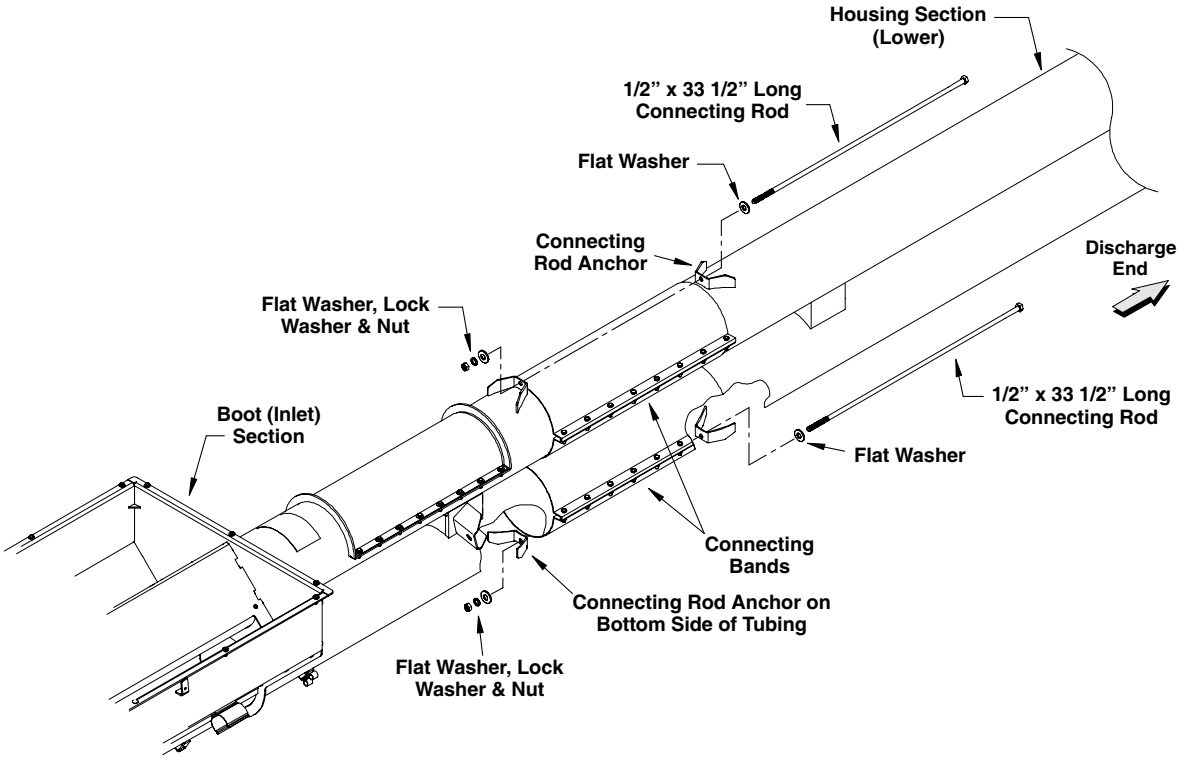
Do Not bolt the head section to the tube housing during these assembly procedures. This section will be attached after the chain has been installed into the housing.

With the tubing sections properly positioned, slide the connecting bands onto the inlet section of tubing (use eight 3/8" x 1-1/2" bolts and nuts for each connecting band, but do not tighten at this time). It may be helpful to measure the half-length of the connecting band and then using that dimension, measure over from the end of the conveyor tube and place a mark. When installing the connecting band place the edge of the band at that mark, this will help ensure the connecting band is centered over the tube joint.

Slide the next section of tubing (the lower section) into the connecting bands until the ends of the inlet and lower tubing sections contact each other.

Use the 1/2" x 33-1/2" long connecting rods, flat washers, lock washers and non-lock nuts to secure the tubing sections together (ensure the tubing sections stay aligned with each other). The rods will pass through the rod anchors welded to the top and bottom of the inlet and lower section housing. **NOTE: The bottom rod will not be used on the lower-to-upper section connection on the 52', 62' & 72' models, and on the lower-to-middle section connection for the 82' models. These sections will have the track assembly attached to them and will only require the upper connecting rod** (See the layout illustrations on the previous pages, 29 & 30).

Tighten the connecting rods, then tighten the connecting bands. Continue assembling the connecting bands, working towards the discharge end, making sure the tubing stays straight and the tubing ends remain tight against each other. Ensure all connecting rods and connecting bands are secure.



42' Models will use *both* the top and bottom connecting rods on the "boot–to–housing" connection.

52', 62, & 72' Models will use *both* the top and bottom connecting rods on the "boot –to–lower tube" connection, and *only* the top connecting rod on the "lower–to–upper" tube connection.

82' Models will use *both* the top and bottom connecting rods on the "boot –to–lower tube" connection, the top connecting rod *only* on the "lower–to–middle" tube connection and *both* the top and bottom connecting rods on the "middle–to–upper" tube connection.

The connecting points not using the bottom connecting rod will have the tracks attached at these locations, thus eliminating the need for the bottom connecting rod.

INSTALL TRACK ANGLES
42', 52' & 62' MODELS

After the tube sections have been properly connected together, the bolt-on tracks will need to be secured to the attachment brackets welded to the bottom side of the conveyor housing.

On 42' Models the tracks are 160" *(4.06 m)* long; 52' Models the tracks are 200" *(5.08 m)* long and 62' Models the tracks are 260" *(6.60 m)* long.

The tracks are made from 3" x 2" angle iron. The three inch side of the track will be bolted to the attachment brackets on the bottom of the conveyor housing with the two inch side facing towards the ground (See illustration below).

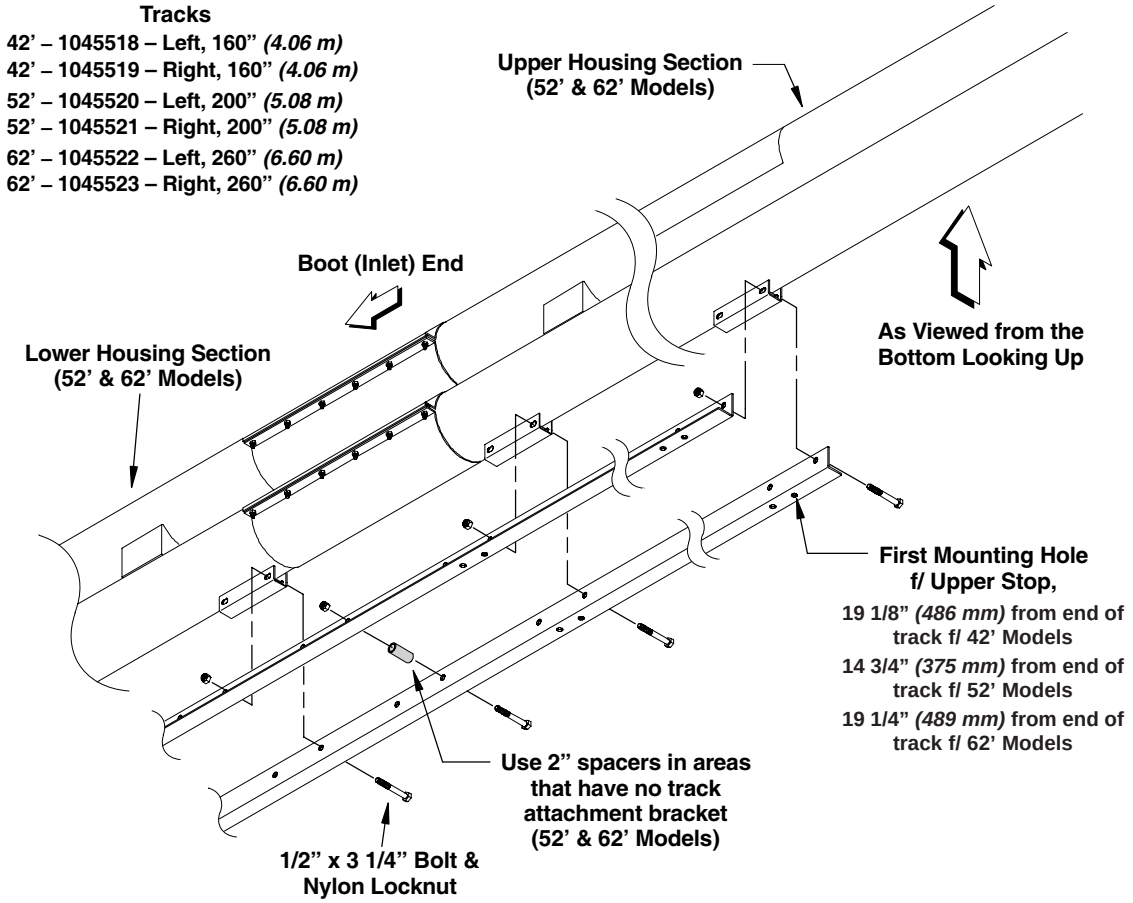
Note the mounting holes at each end on the 2" side of the track. On one end of the track the first mounting hole is approximately 19-1/8" *(486 mm)* from the end of the track (for 42' Models), 14-3/4" *(375 mm)* from the end of the track for 52' Models and 22" *(559 mm)* from the end of the track on 62' Models. **This end of the track is positioned towards the discharge end of the conveyor.**

There is a left side track and a right side track, make sure the mounting holes align with each other when the track is installed.

Position the tracks against the attachment brackets and secure them using the 1/2" x 3-1/4" bolts and nylon locknuts provided.

NOTE: There are areas of the track that do not have an attachment bracket to bolt to, typically below the connecting bands.

When encountering these areas, use the supplied 2" *(51 mm)* long spacers and install them between the tracks. Use the 1/2" x 3-1/4" bolts and nylon locknuts to secure track and spacers in place.



INSTALL TRACK ANGLES
72' & 82' MODELS

After the tube sections have been properly connected together, the bolt-on tracks will need to be secured to the attachment brackets welded to the bottom side of the conveyor housing.

On 72' models each track will be 320" *(8.13 m)* long; 82' models tracks are 335" *(8.51 m)* long.

The tracks are made from 3" x 2" angle iron. The three inch side of the track will be bolted to the attachment brackets on the bottom of the conveyor housing with the two inch side facing towards the ground (See illustration below).

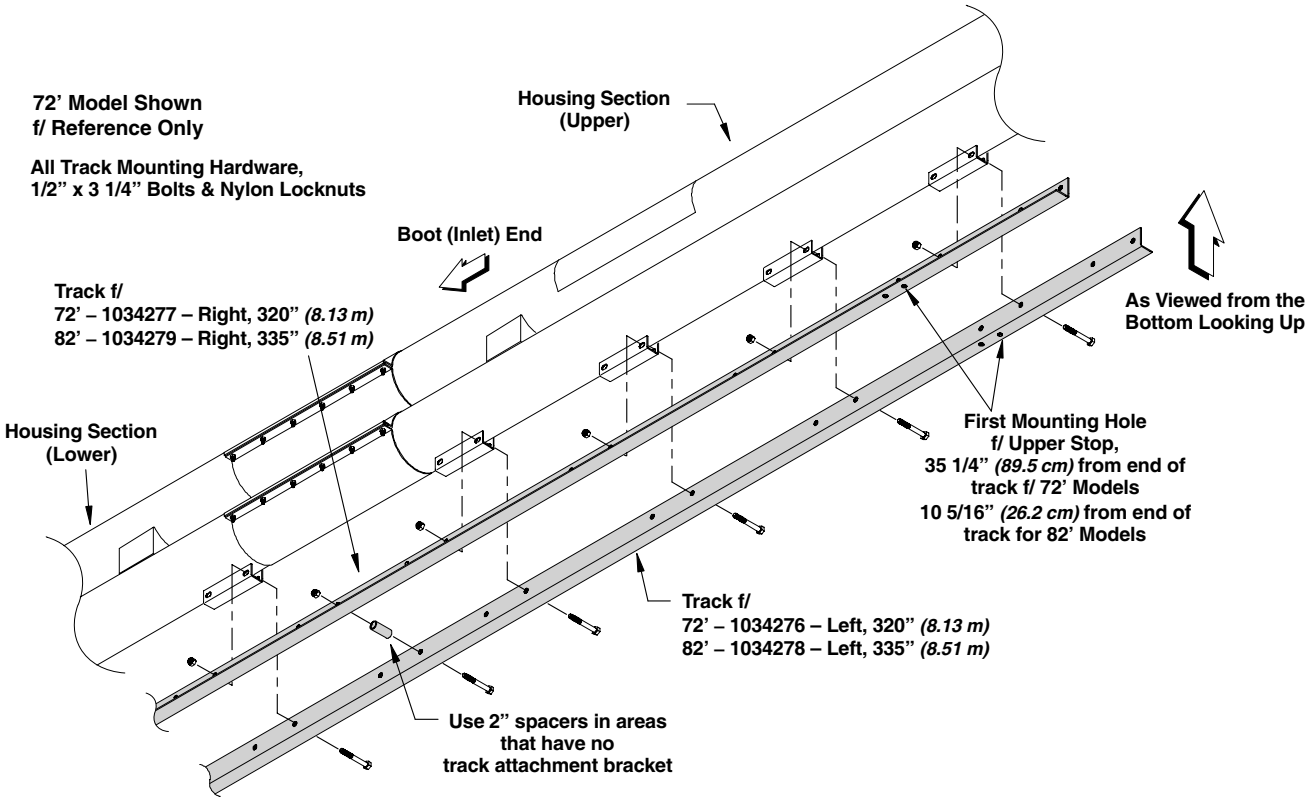
Note the mounting holes at each end on the 2" side of the track. On one end of the track the first mounting hole is approximately 35-1/4" *(895 mm)* from the end of the track (for 72' Models), and 10-5/16" *(262 mm)* from the end of the track for 82' Models. **This end of the track is positioned towards the discharge end of the conveyor.**

There is a left side track and a right side track, make sure the mounting holes align with each other when the track is installed.

Position the tracks against the attachment brackets and secure them using the 1/2" x 3-1/4" bolts and nylon locknuts provided.

NOTE: There are areas of the track that do not have an attachment bracket to bolt to, typically below the connecting bands.

When encountering these areas, use the supplied 2" *(51 mm)* long spacers and install them between the tracks. Use the 1/2" x 3-1/4" bolts and nylon locknuts to secure track and spacers in place.



TOP TRUSS ASSEMBLY for 52' and 62' 10" PORTABLE GRAIN PUMP

Note: 42' Models do not require a truss system. The following instructions are for the truss systems used on the 52' & 62' Models.

1. Loosely bolt the 32" *(813 mm)* long truss sides to the mounting brackets welded to the tube sections.

   Secure each truss side using two 1/2" x 1-1/2" bolts, and nylon locknuts.

2. Bolt the 28" *(711 mm)* truss crossbraces between the truss sides and secure using two 3/8" x 1-1/4" bolts and nylon locknuts.

3. Tighten the truss hardware.

4. Install the eyebolts through the truss cable anchors located at the inlet and discharge ends of the conveyor. After the eyebolt has been inserted through the anchor, install a 5/8" flat washer and two 5/8" non-lock nuts onto the ends of the eyebolts.

5. Attach one end of each cable to the eyebolts at the discharge end of the conveyor. Secure each cable using two 3/8" cable clamps. **Secure the loose end of the cable against the u-bolt portion of the cable clamp as shown in the illustration on the following page.**

6. Run the cables over the truss crossbraces and to the eyebolts at the inlet end of the conveyor. Attach the cables to inside upper-part of the truss sides using the 3/8" cable clamps provided **(Do Not tighten the clamps at this time).**

7. Attach the cable ends to the eyebolts and pull as much slack from the cables as possible. Secure cables to the eyebolts in the same manner used for attaching the cables at the discharge end (two clamps with the u-bolt portion against the loose end of the cable).

8. Using the eyebolts, tighten the cables until they are reasonably snug. Sight down the conveyor to make sure all tube sections are straight (some adjustment can be made after the undercarriage has been installed onto the conveyor housing).

9. Tighten all cable clamps on the truss sides and make sure all truss hardware is secure. Tighten the locking nuts on the eyebolts locking them into place.

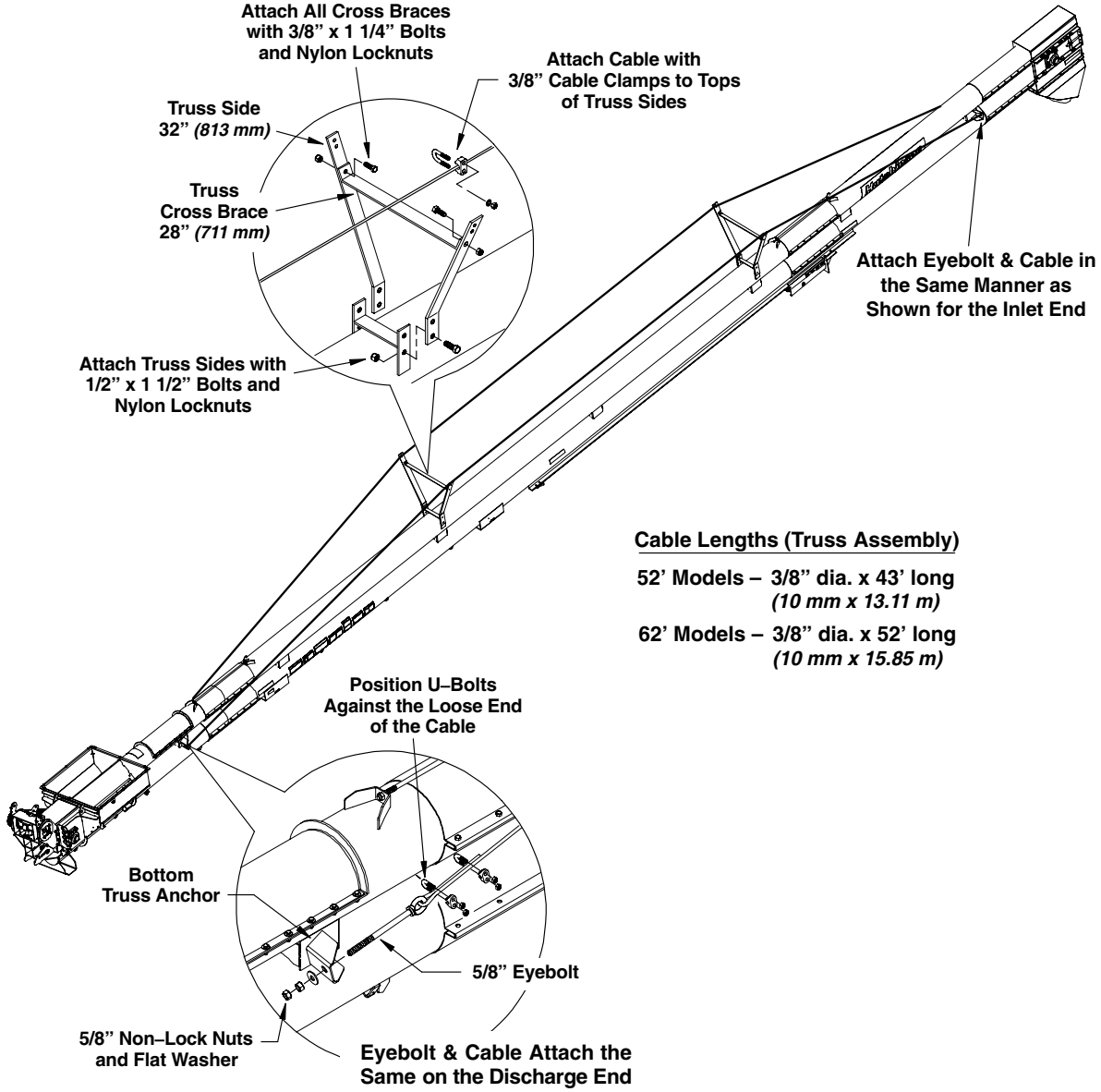
Truss Cable Lengths:

52' Models: 3/8" dia. x 43' long cables
(10 mm x 13.11 m)

62' Models: 3/8" dia. x 52' long cables
(10 mm x 15.85 m)

TOP TRUSS ASSEMBLY for 52' and 62'
10" PORTABLE GRAIN PUMP

Shown as Reference Only
Installation Procedures are the Same for Both 52' & 62' Models



Cable Lengths (Truss Assembly)

52' Models – 3/8" dia. x 43' long ***(10 mm x 13.11 m)***

62' Models – 3/8" dia. x 52' long ***(10 mm x 15.85 m)***

TOP TRUSS ASSEMBLY for 72' and 82' 10" PORTABLE GRAIN PUMP

1. Loosely bolt the truss sides to the mounting brackets welded to the tube sections. Attach the shorter truss sides [32" long *(81.3 cm)*] to the brackets located at the inlet and discharge ends of the conveyor.

   Attach the taller truss sides [43" long *(1.09 m)*] to the middle mounting brackets.

   Secure each truss side using two 1/2" x 1-1/2" bolts, and nylon locknuts.

2. Bolt the truss crossbraces between the truss sides and secure using two 3/8" x 1-1/4" bolts and nylon locknuts. Use one 28" long crossbrace on the inlet and discharge end truss sides, and use two crossbraces [24" & 36" long *(61.0 cm & 91.4 cm)*] for the middle truss.

3. Tighten the truss hardware.

4. Install the eyebolts through the truss cable anchors located at the inlet and discharge ends of the conveyor. After the eyebolt has been inserted through the anchor, install a 5/8" flat washer and two 5/8" non-lock nuts onto the ends of the eyebolts.

5. Attach one end of each cable to the eyebolts at the discharge end of the conveyor. Secure each cable using two 3/8" cable clamps. **Secure the loose end of the cable against the u-bolt portion of the cable clamp as shown in the illustration on the following page.**

6. Run the cables over the truss crossbraces and to the eyebolts at the inlet end of the conveyor. Attach the cables to inside upper-part of the truss sides using the 3/8" cable clamps provided **(Do Not tighten the clamps at this time).**

7. Attach the cable ends to the eyebolts and pull as much slack from the cables as possible. Secure cables to the eyebolts in the same manner used for attaching the cables at the discharge end (two clamps with the u-bolt portion against the loose end of the cable).

8. Using the eyebolts, tighten the cables until they are reasonably snug. Sight down the conveyor to make sure all tube sections are straight (some adjustment can be made after the undercarriage has been installed onto the conveyor housing).

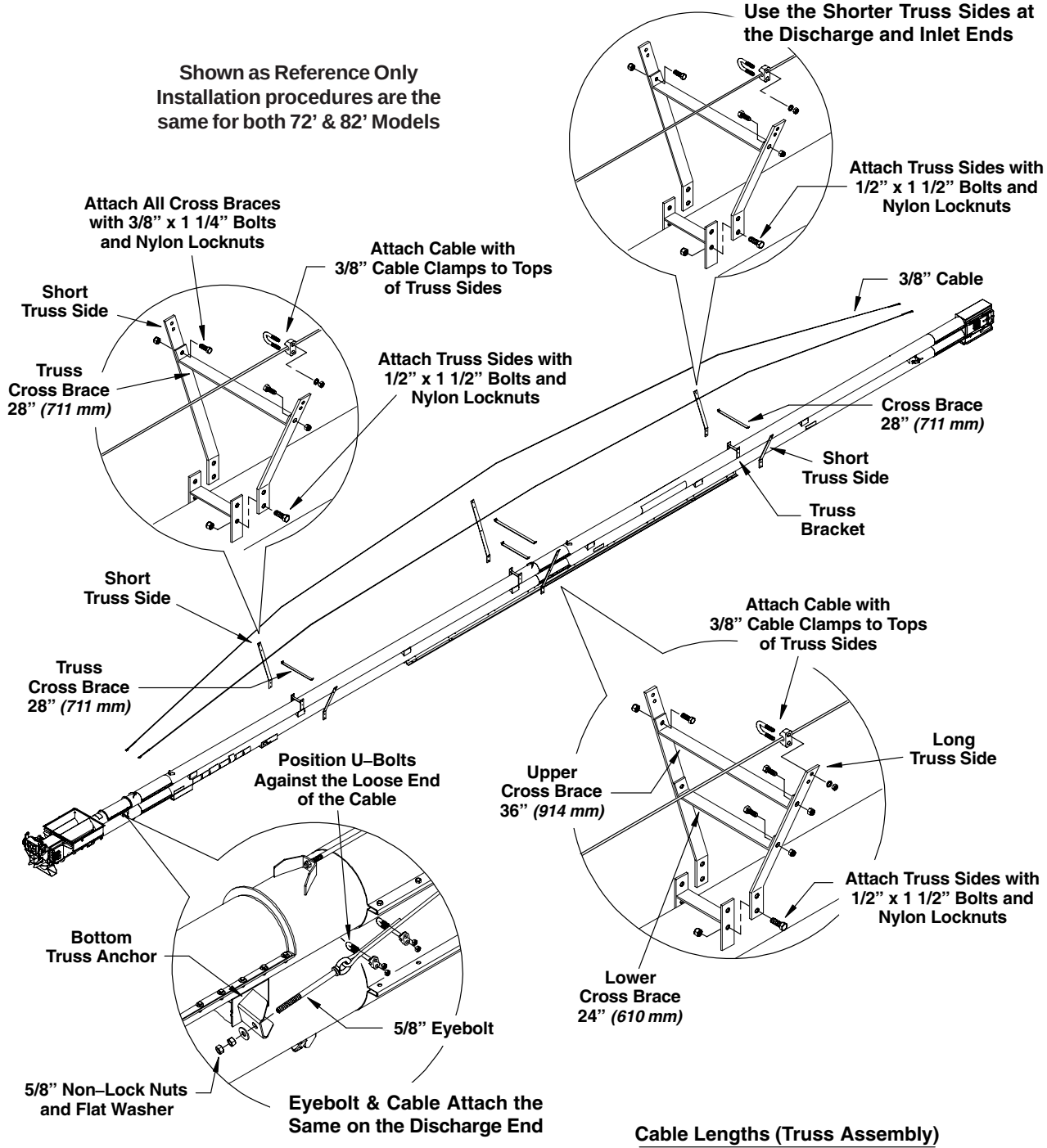
9. Tighten all cable clamps on the truss sides and make sure all truss hardware is secure. Tighten the locking nuts on the eyebolts locking them into place.

Truss Cable Lengths:

72' Models: 3/8" dia. x 62' long cables
(10 mm x 18.9 m)

82' Models: 3/8" dia. x 73' long cables
(10 mm x 22.2 m)

TOP TRUSS ASSEMBLY for 72' and 82'
10" PORTABLE GRAIN PUMP



Cable Lengths (Truss Assembly)

72' Models – 3/8" dia. x 62' long ***(10 mm x 18.90 m)***

82' Models – 3/8" dia. x 73' long ***(10 mm x 22.25 m)***

UNDERCARRIAGE TROLLEY & TROLLEY STOP ASSEMBLY

CAUTION! When initially installed, the trolley will roll freely on the tracks and can create pinch points and/or a crushing hazard.

To prevent personal injury, secure trolley from rolling after installation onto the tracks.

1. At the inlet end of the tracks, position the lower trolley stop as shown in Fig. 19 below. Secure using four 1/2" x 1-1/4" bolts, flat washers and nylon locknuts. **The lower stop will bolt to the tracks in the same manner for all Models.**

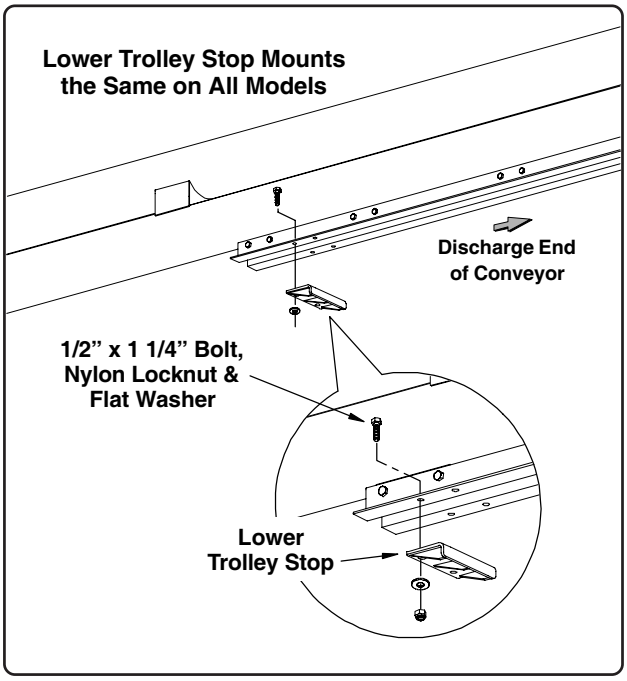
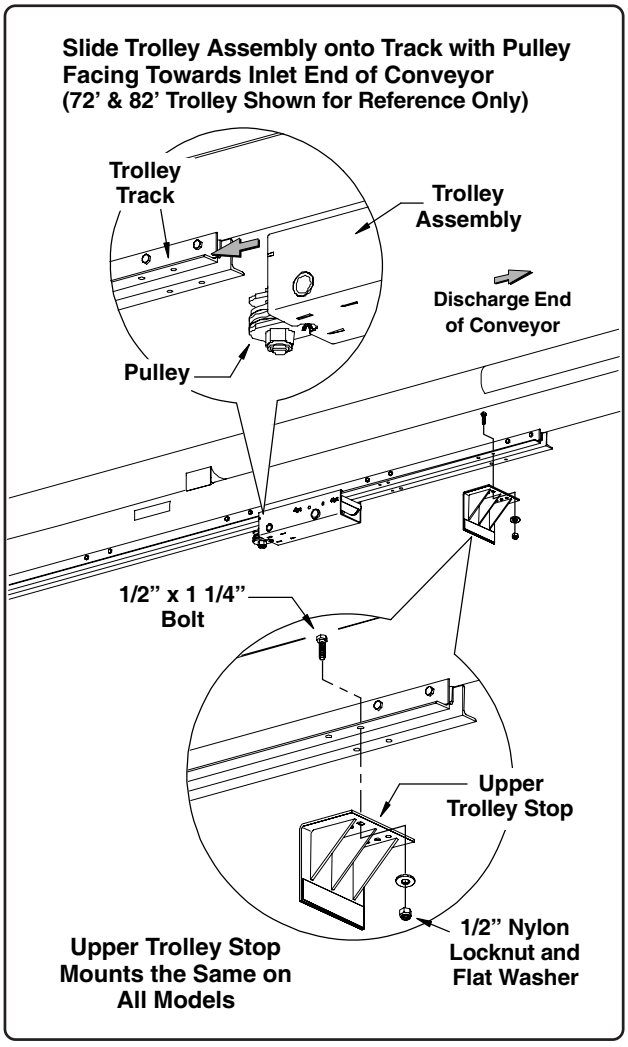


Fig. 19

2. Position the trolley at the discharge end of the tracks with the trolley pulley facing towards the inlet end of the conveyor (42', 52' & 62' Models have rollers in front of the pulley, the same principle applies, pulley facing towards inlet end).

   Slide the trolley on far enough so it does not interfere with the installation of the upper trolley stop. Use vise-grips, tie-down straps or any similar method to hold the trolley in place while the stops are being installed.

3. Bolt the upper trolley stop to the discharge end of the track using four 1/2" x 1-1/4" bolts, flat washers and nylon locknuts (See Fig. 20). **The upper trolley stop will bolt to the tracks in the same manner for all Models.**



Fig, 20

CHAIN & PADDLE INSTALLATION
(48 pitch chain lengths)

The chain and paddles come pre-assembled from the factory in 10'-5 1/4" *(3.18 m)* lengths.

The model number of the chain is stamped on the side of the chain links, make sure ***all*** of the conveyor chain is the same type. The conveyor models listed in this manual use the 81XHH Chain and 1/2" *(13 mm)* thick UHMW paddles.

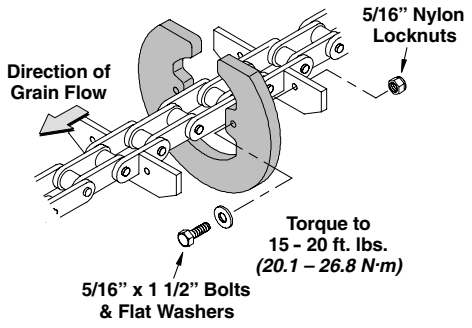
Install the chain so the paddle mounting bracket will be behind the paddle as grain is moved up the tube.

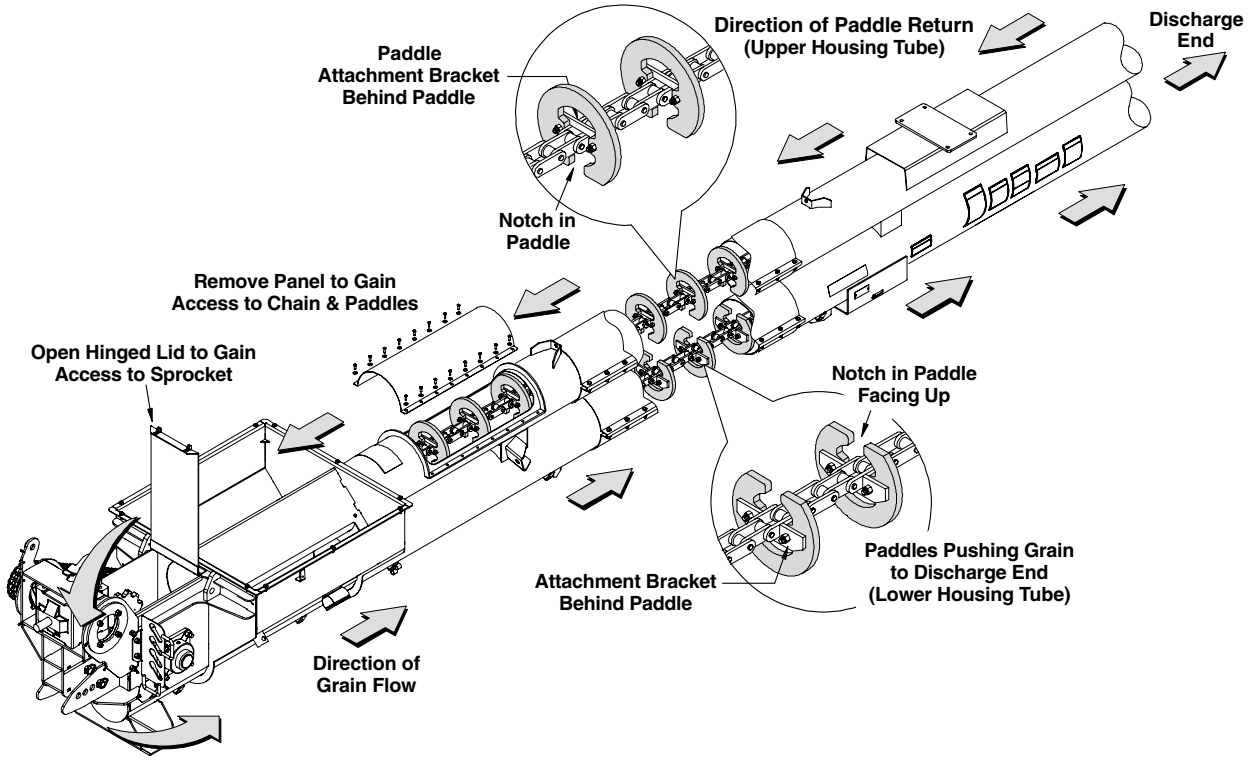
Be careful not to twist the conveyor chain when feeding it through the tube housing. To check for twisted conveyor chain, place a light source at the inlet section and look into the tube housing from the discharge end.

1. The chain and paddles will be inserted into the tube housing from the discharge end of the conveyor (leave the head section off when pulling chain through tubes).
2. Open the hinged lid at the inlet end to gain access to the inlet sprocket.
3. Using the connecting links and cotter pins provided, assemble the sections of conveyor chain together as they are being pulled through the tubes.

   Route the chain down the lower tube housing first to the tail sprocket (inlet end), then route the chain through the upper tubing in the same manner.
4. Route the chain & paddles around the head sprocket and join the chains together with the connecting link and cotter pins.
5. Adjust chain tension as outlined on Page 25 in the maintenance section of this manual **(it may be necessary to shorten the chain to obtain the correct length).**
6. Check the sprockets at the inlet and discharge ends to see if centered in housing. Also check the setscrews in the sprocket hubs to make sure they are tight against the sprocket shaft.

   Use illustration below if paddle replacement is needed. Torque to 15 to 20 ft. lbs. *(20.1 - 26.8 N-m)*. **Excessive tightening can deform paddles.**





LOWER UNDERCARRIAGE MOUNT, WINCH MOUNT w/ LOWER PULLEY and WINCH ASSEMBLY

Electric and hydraulic winch mount in the same location in the same manner.

1. Attach the lower undercarriage mount to the conveyor using the mount bracket that is closest to the inlet end (See illustration below).

   Bolt the mount to the bracket using six 5/8" x 1 1/2" bolts and nylon lock nuts (it will be easiest to insert the middle bolts from the bottom, and the upper and lower bolts from the top).

2. Fasten the winch mount onto the mount bracket closest to the discharge end (position the winch mount so that the pulley assembly is facing towards the discharge end). Bolt the winch mount to the bracket using six 5/8" x 1-1/2" bolts and nylon locknuts. Again, it will be easiest to insert the middle bolts from the bottom, and the upper and lower bolts from the top.

3. Remove the shipping bolts from the winch assembly. Fasten the winch assembly to the winch mount using six 1/2" x 2-1/2" bolts and nylon locknuts.

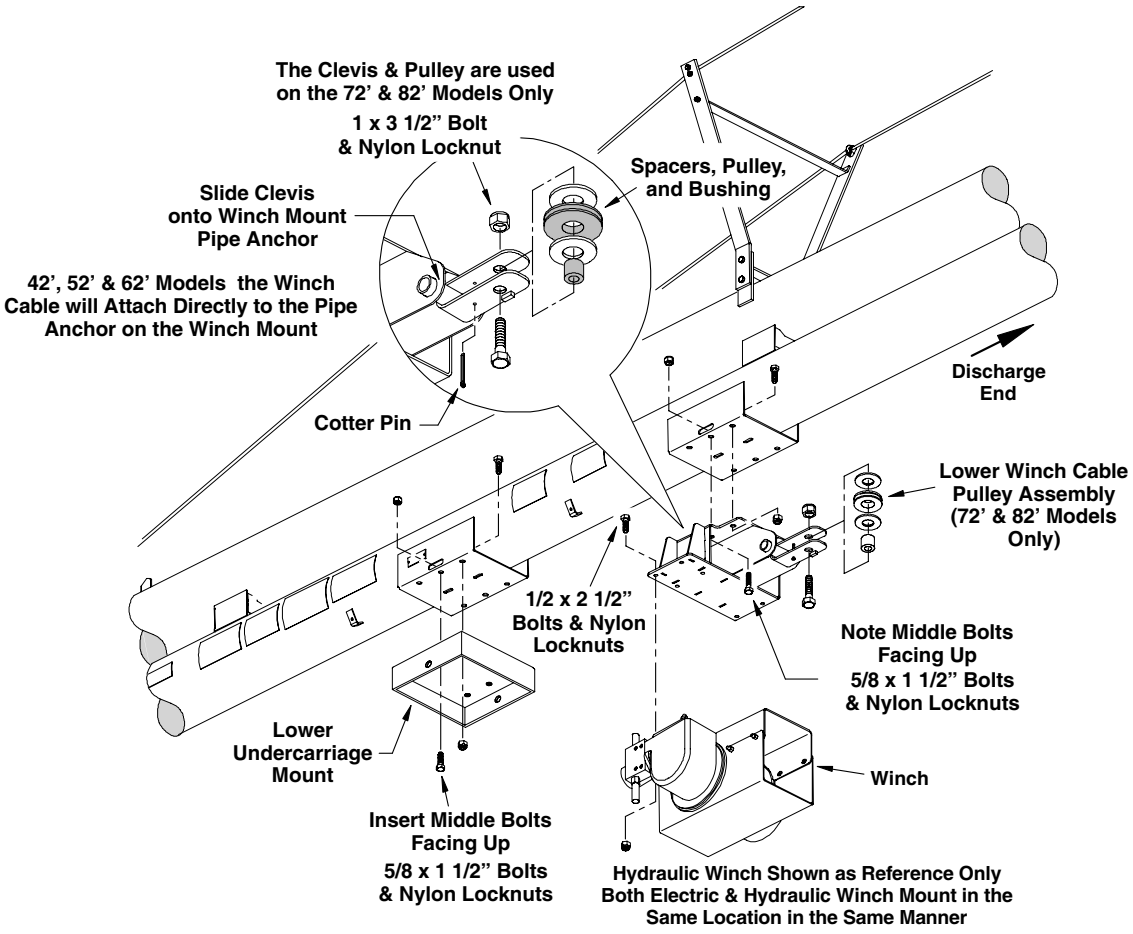
4. Position the hydraulic winch so that the hydraulic relief valve is facing toward the inlet end of the conveyor. Position the electric winch with the belt guard facing the inlet end of conveyor.

5. **For 72' & 82' Models,** slide the cable clevis over the anchor pipe on front of the winch mount and install the 1/4" x 3" cotter pin (See illustration below). Insert the spacer bushing into the cable pulley and slide one 1-1/2" spacer washer over the bushing on each side of the pulley.

   Install this assembly into the end of the clevis and secure using a 1" x 3-1/2" long bolt and nylon locknut.

   (NOTE: Install the bolt with the head of the bolt facing down and against the tab welded to the clevis. This is necessary for cable clearance).

   The 42', 52' & 62' Models do not use the clevis and pulley, but installation of the undercarriage and winch mounts are the same as shown.



MAIN CONVEYOR WINCH HYDRAULIC HOSE ASSEMBLY

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure within the system.

Escaping hydraulic oil, even an invisible pin hole leak can penetrate body tissues and cause serious injury.

Use a piece of wood or cardboard when searching for leaks, Never use your hands or other parts of your body.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction can occur if medical attention is not received at once.

1. Apply a light coat of clean oil around the o-rings on the end of the main conveyor hoses. Attach the hoses to the relief valve on the winch.

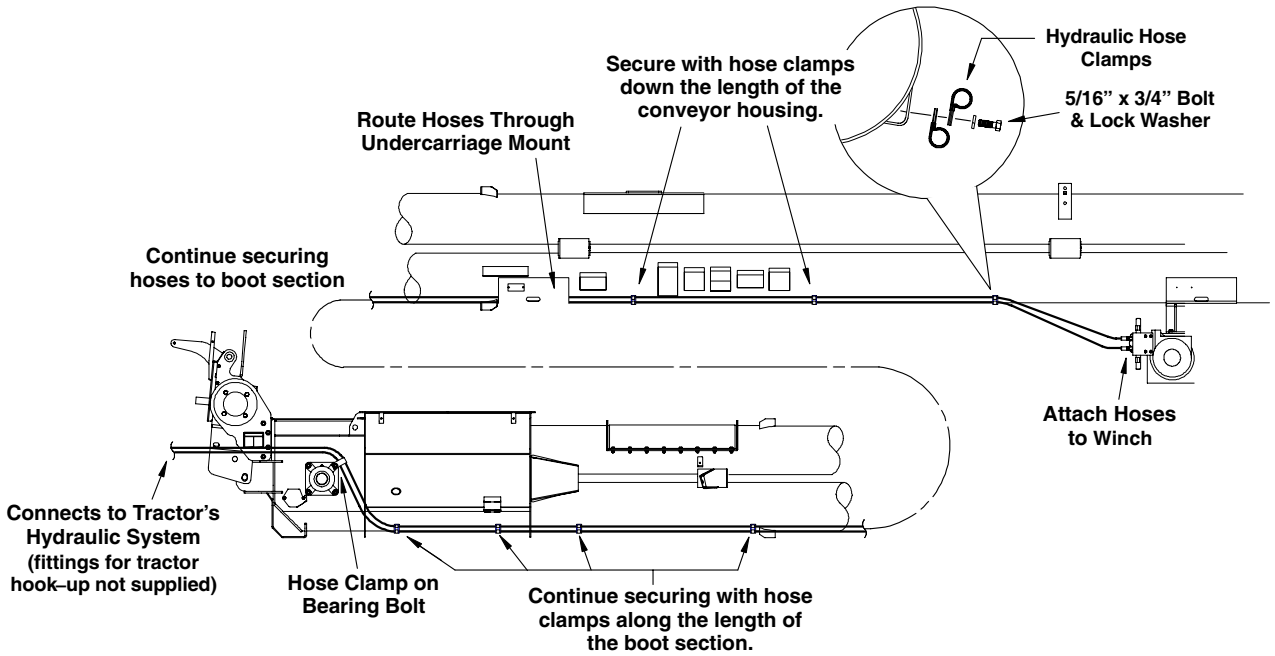
   There are hose clamp mounting-brackets welded to the lower portion of the conveyor housing and along the bottom edge of the boot section.

2. Starting at the winch end of the hose, Route the hydraulic hoses down the length of the conveyor through the undercarriage mount plate and along the length of the boot section.

3. Continue working towards the inlet end securing the hoses to the brackets (make sure not to twist or kink the hoses, let them uncoil in their natural shape).

   At the inlet hopper, loosen the nut that is holding down the hose clamp bracket on the upper front bolt of the four hole flange bearing. Insert the hoses behind the bracket, and retighten the nut.

   Secure the hose ends out of the way while the remaining assembly procedures are being performed (damage to the hoses and/or hose ends can occur if they are not moved out of the way).



UNDERCARRIAGE ASSEMBLY

When assembling the undercarriage, leave all bolts loose until all components of the undercarriage have been installed, or otherwise noted.

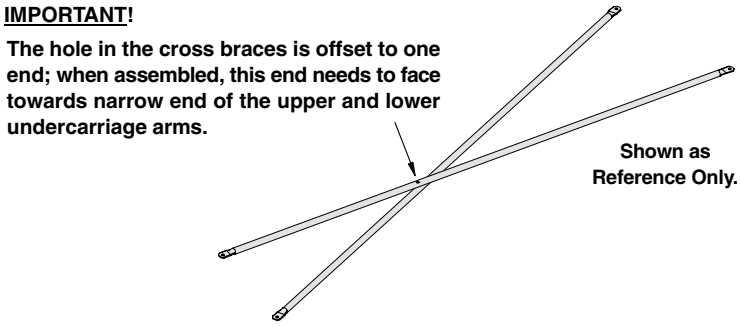
The instructions below and on Page 44, show a reference number in parenthesis ( ), this number refers to the item shown in the assembly illustrations shown on Page 43 & 45. Refer to the illustrations for assistance with assembly and parts identification.

1. With reflective decals face up, bolt the axle (Ref. 1) to the lower arms (Ref. 2 & 3) using 5/8" x 2" bolts and nylon locknuts. **NOTE: The lower arms will bolt on the inside of the axle plate (See Detail "A").**

2. Install the **longer X-brace tubes** (Ref. 4) to the **lower arms** and secure using four 1/2" x 1-1/2" bolts, flat washers and nylon locknuts.

   NOTE: All X-braces have a hole near the center of the tube but is offset to one end, this hole should be positioned towards the narrow end of the lower arms.

   Bolt the X-brace tubes together using one 1/2" x 3-1/4" bolt, flat washer and nylon locknut.



3. Attach the **upper lift arms** (Ref. 5 & 6) to the **lower arms** (Ref. 2 & 3). Secure each arm using one 1" x 3" bolt, flat washer, spacer bushing (Ref. 7) and nylon locknut, See Detail "A" (the bolt is inserted from the inside of the lower arms, the bushing used is 1-1/2" O.D. x 1-1/16" I.D. x 11/16" long).

4. Bolt the **shorter X-brace tubes** (Ref. 8) to the **upper lift arms** using 1/2" x 1-1/2" bolts, flat washers and nylon locknuts. Make sure to position the offset hole towards the narrow end of the arms.

   Bolt the **X-brace tubes together** using one 1/2" x 3-1/4" bolt, flat washer and nylon locknut.

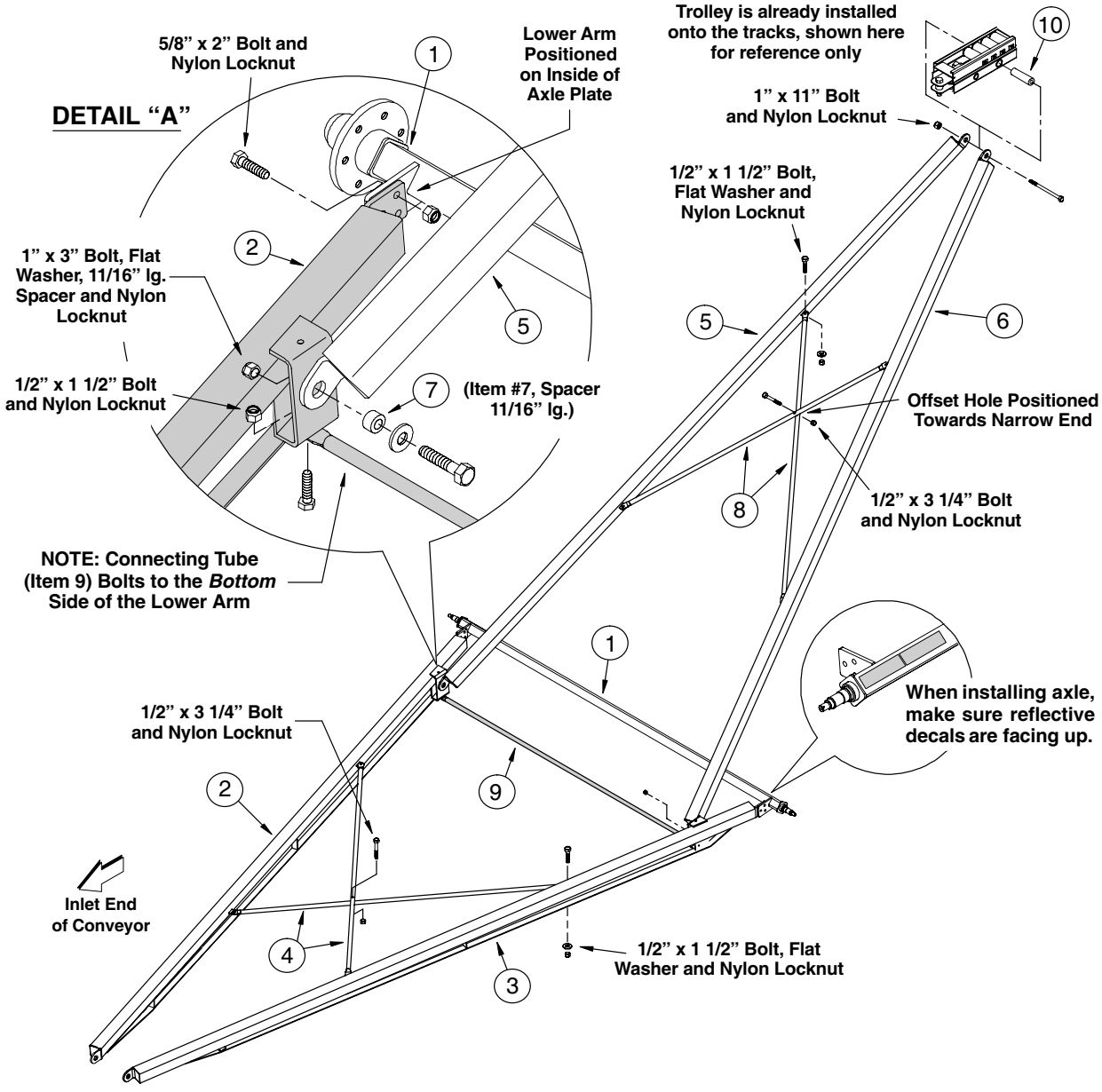
5. Attach the **connecting brace tube** (Ref. 9) to the **bottom side of the lower arms** as shown in Detail "A" on the following page. Secure using two 1/2" x 1-1/2" bolts and nylon locknuts. **IMPORTANT! The connecting tube MUST be installed on the BOTTOM side of the lower arms as shown in Detail "A".**

6. Position the conveyor housing over the undercarriage. The trolley should be against the upper trolley stop and strapped to prevent it from rolling, if not, do so at this time. Install the **7-5/8" long bushing** (Ref. 10) into the trolley and position the trolley between the upper arms (See illustration).

   Secure the trolley using one 1" x 11" bolt, two flat washers and one nylon locknut.

7. Tighten all bolts in the upper arm assembly, including the bolts that connect the upper and lower arms together.

Undercarriage Assembly (con't.)



Cross Braces & Connecting Tube

Item 4	Item 8	Item 9
42' Models: 81-1/2" lg *(2.07 m)*	42' Models: 70-7/8" lg *(1.80 m)*	42' Models: 85-1/16" lg *(2.16 m)*
52' Models: 83-5/8" lg *(2.12 m)*	52' Models: 75" lg *(1.91 m)*	52' Models: 90-1/4" lg *(2.29 m)*
62' Models: 85-3/4" lg *(2.18 m)*	62' Models: 80-1/2" lg *(2.04 m)*	62' Models: 91-1/4" lg *(2.32 m)*
72' Models: 103-3/4" lg *(2.64 m)*	72' Models: 95-3/4" lg *(2.43 m)*	72' Models: 113-1/2" lg *(2.88 m)*
82' Models: 99-3/4" lg *(2.53 m)*	82' Models: 95-1/4" lg *(2.42 m)*	82' Models: 114-1/2" lg *(2.91 m)*

Undercarriage Assembly (con't.)

8. Raise the conveyor with a hoist at a point approximately two-thirds of the distance towards discharge end. Raise the conveyor only high enough to allow the lower arms to be bolted to the undercarriage mount welded to the conveyor housing, See Detail "B" (42' & 52' models) and Detail "C" (62', 72' & 82' models) on Page 43.

42' & 52' Models:

Secure arms and bracket to the conveyor mount using 1" x 3" bolts, bushings (Ref. 11), flat washers and nylon locknuts.

The bushing goes inside the holes of the support bracket and lower lift arm ears.

The flat washer goes under the head of the bolt with the bolt head on the outside, the nylon locknut on the inside, See Detail "B" (the bushing dimensions are, 1-1/2" O.D. x 1-1/16" I.D. x 15/16" long).

62', 72' & 82' Models:

Using one 5/8" x 2" bolt and nylon locknut, bolt the **two halves of the lower pivot support bracket** (Ref. 16) together (insert bolt through hole closest to inlet end, see Detail "C").

Position the support brackets (Ref. 16) between the ends of the **lower arms** (Ref. 2 & 3) and **secure arms and brackets** to the conveyor mount using 1" x 3" bolts, **bushings** (Ref. 8), flat washers and nylon locknuts (the bushing goes inside the holes of the support bracket and lower lift-arm ears).

The flat washer goes under the head of the bolt with the bolt head on the outside, the nylon locknut on the inside, See Detail "C" (bushing dimensions are, 1-1/2" O.D. x 1-1/16" I.D. x 15/16" long).

Secure the **lower pivot brace straps** (Ref. 10) to the remaining mounting hole of the **lower pivot support brackets** (Ref. 16) previously bolted together (attach one strap on each side of the support bracket, see Detail "C"). Secure straps using one 5/8" x 2" bolt and nylon locknut.

Position the **lower pivot cross member** (Ref. 15) between the ends of the brace straps . Secure the straps and cross member between the lower arms of the undercarriage using two 1/2" x 1-1/2" bolts and nylon locknuts (See Detail "C").

All Models:

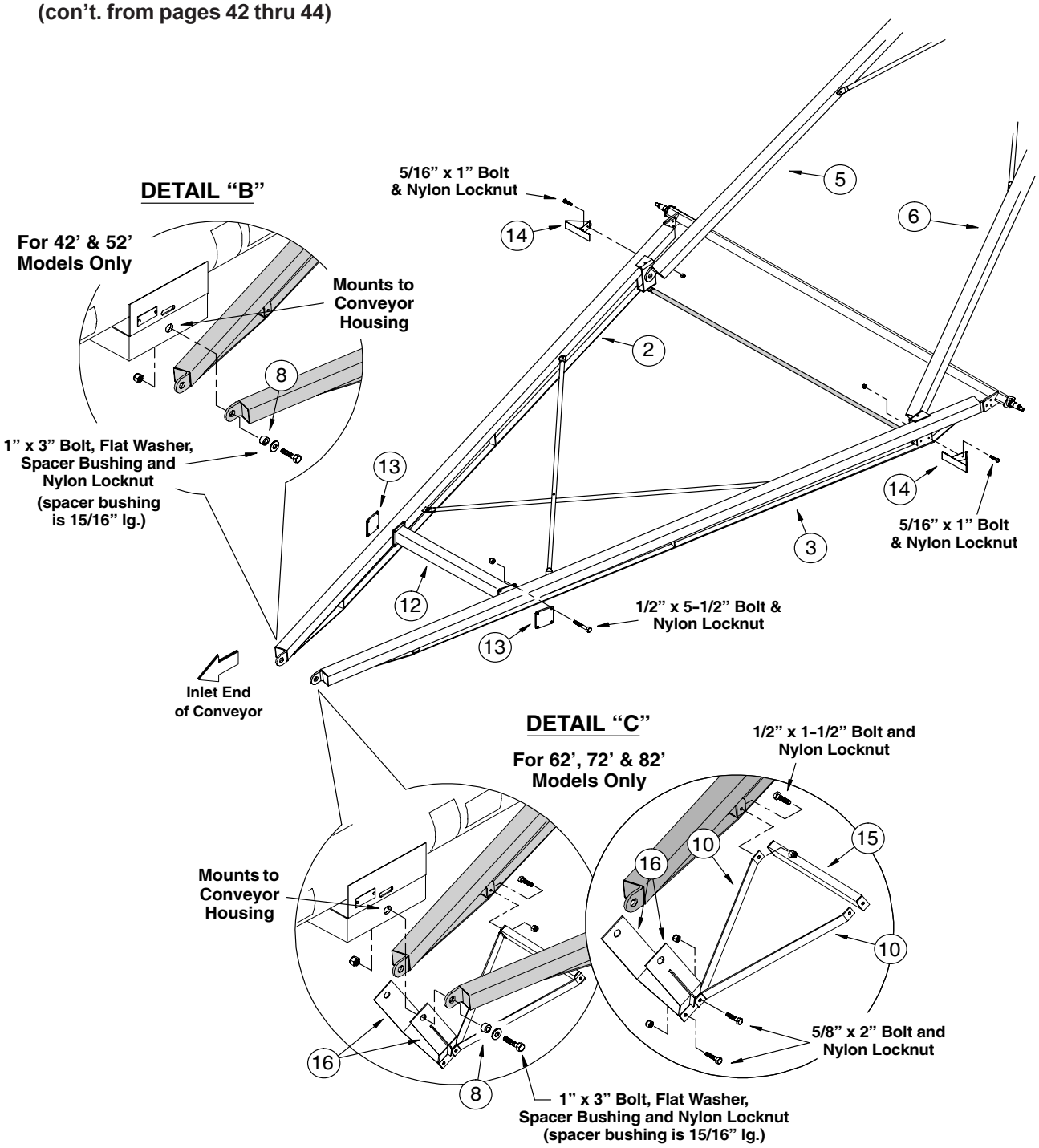
9. Install the **cross stiffener** (Ref. 12) between the lower undercarriage arms (2 & 3) as shown on Page 45. Use the **end plates** (Ref. 13) and 1/2" x 5-1/2" bolts and nylon locknuts to secure the cross stiffener.

   Position the stiffener so each end contacts the undercarriage arms and bolt into place.

10. Install the **reflector brackets** (Ref 14) to the lower arms (near the axle) using 5/16" x 1" bolts and nylon locknuts.

11. Tighten all lower arms assembly bolts and remove temporary strap from trolley.

Undercarriage Assembly
(con't. from pages 42 thru 44)



Undercarriage Assembly (con't.)

Attach Transport Arm

The transport arm can be mounted to either side of the conveyor depending on which side the swing-away hopper has been installed.

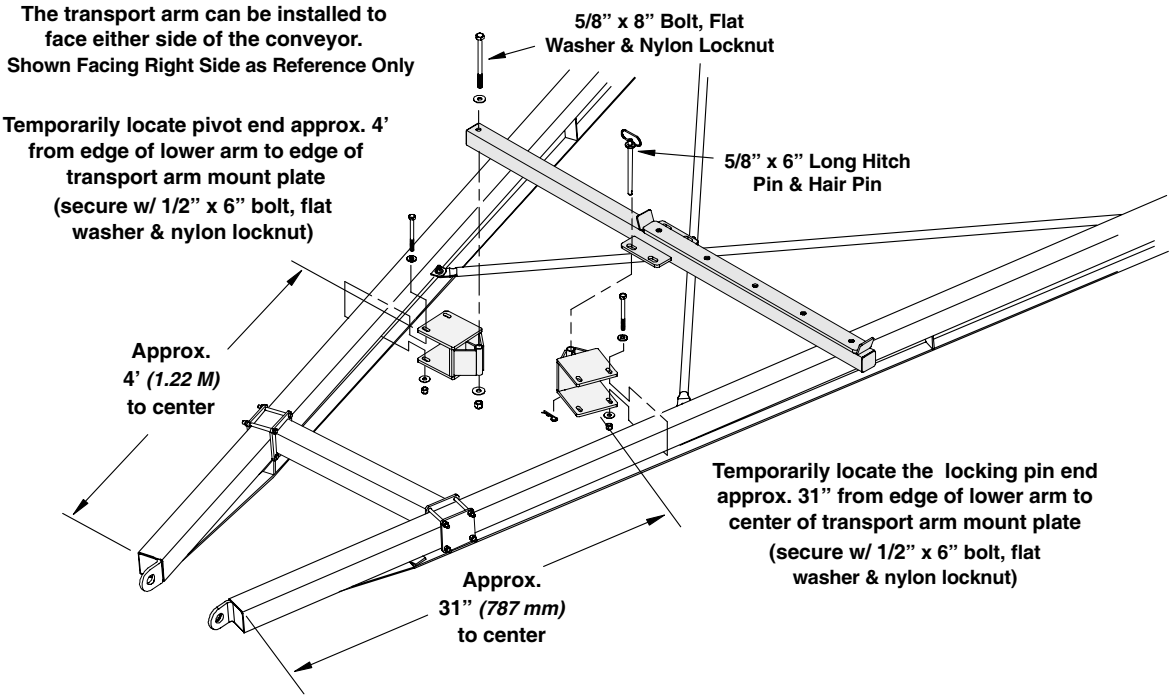
1. Temporarily install the mount plates using the dimensions as shown (the dimensions are only an approximate location for the mount plates, but will be close to the actual location when transport arm is completely installed).

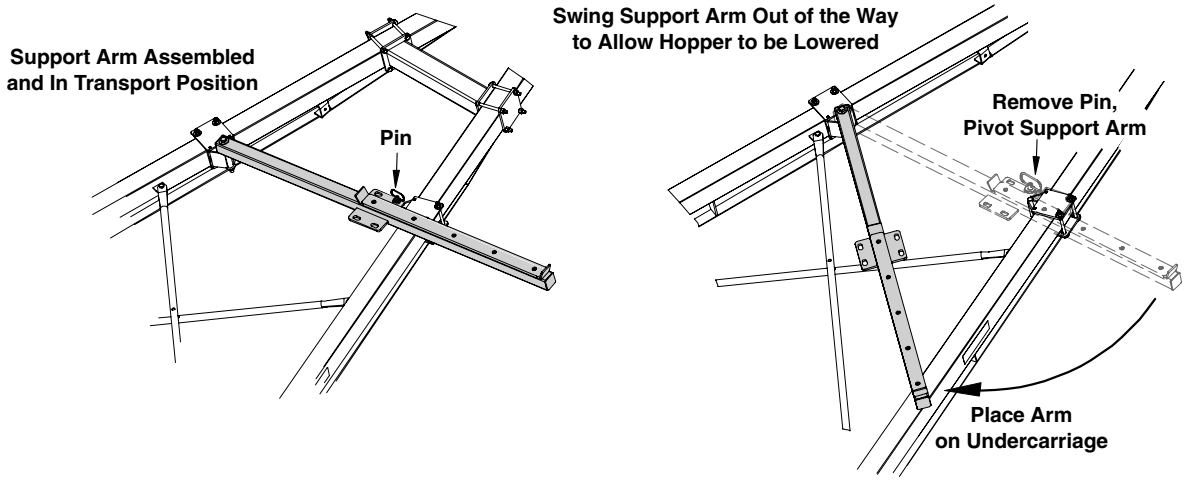
   Install the mount plates to the undercarriage arms using 1/2" x 6" bolts, flat washers and nylon locknuts.

   Attach the pivot end of the support arm to the appropriate mount plate using the 5/8" x 8" bolt, flat washers and nylon locknut (leave the nut loose enough to allow support arm to pivot freely).

   Swing the support arm so it is above the locking-pin mount plate. Align the slotted holes of the support arm with the mount plate and install the 5/8" x 6" hitch pin and hair pin. Make sure the mount plates are positioned correctly and tighten them into place.

   - To lower swing-away hopper; raise hopper high enough to relieve weight off of support arm. Pull pin, swing arm out of the way and set on undercarriage (the support arm can also be removed and placed into storage).





HUB & TIRE ASSEMBLY

Assemble Hub

The 82' Models already have the hubs mounted to the axles.

Use the following procedures for assembling the hubs to the axles of the 42', 52', 62' & 72' Models.

The hub is shipped with the bearing cups already installed. The remaining parts will need to be assembled as detailed below.

When assembling the heavy duty bearing hub, use a good quality axle bearing grease to pack the bearing with. Pack both bearings with grease and fill the hub cavity one-third full.

Place the inner bearing into the hub, and install seal. Carefully install the hub onto the spindle (when placing hub on spindle, be careful not to damage the lip of the grease seal).

Install outer bearing into the hub and onto the spindle. Slide flat washer on and install slotted (castle) nut.

Tighten the slotted nut to seat the bearings until the hub begins to bind as you rotate it. Back off the slotted nut to the next slot and install the 5/32" x 1 1/4" long cotter pin. Install the dust cap.

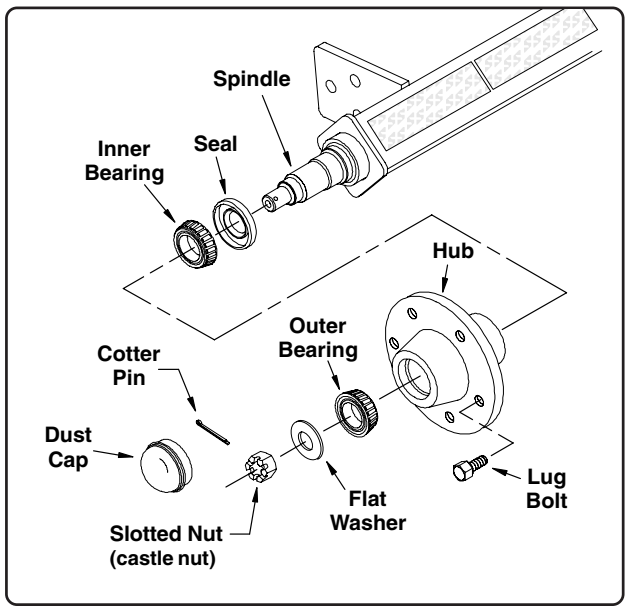


Fig. 21

Mount Tires

CAUTION! When raising the conveyor axle, *Do Not* rely solely on hydraulic or mechanical jacks for support. Use appropriate jack stands or equivalent for supporting the unit.

Raise one side of the conveyor axle at a time. Place appropriate supports beneath the axle.

Mount the tire to the hub (valve stem to outside) and secure with the provided lug bolts.

Repeat procedures on opposite side of axle.

Make sure the tire pressure is correct. Use the pressure rating stated on the tire for proper inflation.

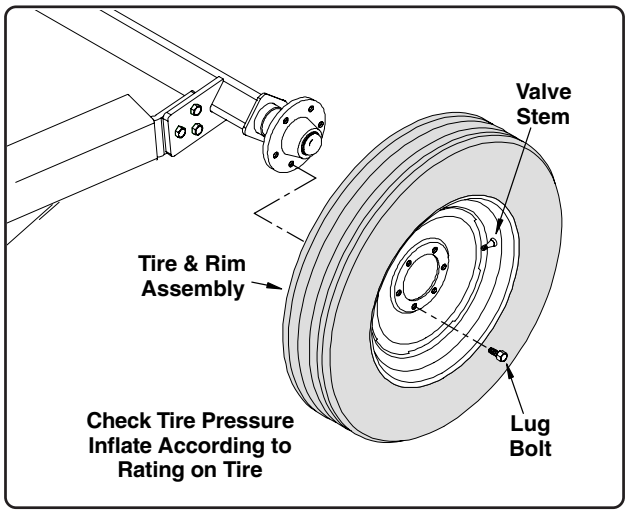
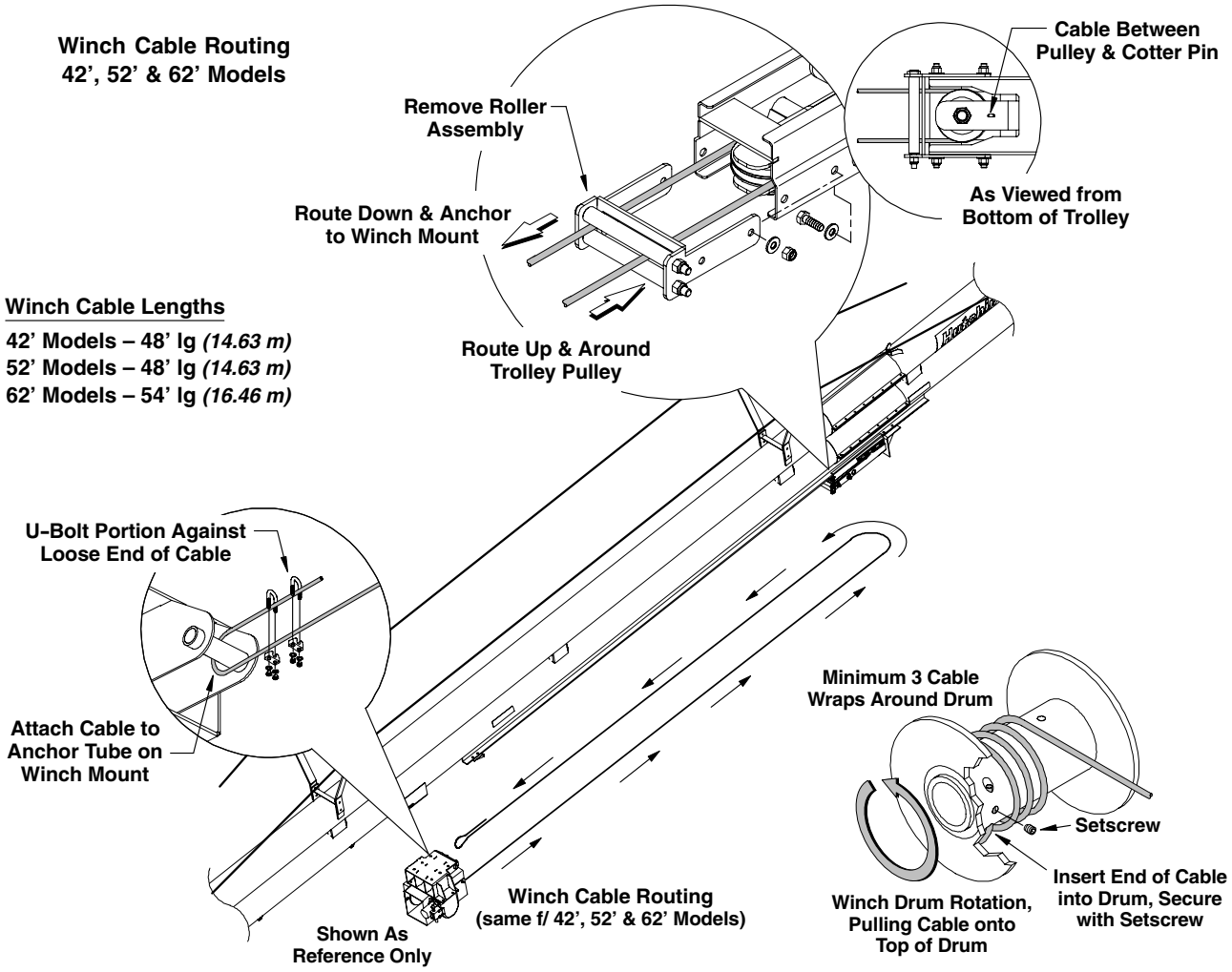


Fig. 22

INSTALL WINCH CABLE
42', 52' & 62' MODELS

1. Attach cable to the winch drum. Make sure there are a minimum of three (3) wraps of cable around the winch drum, then pass the free end of the cable through the small opening in the drum. Lock the cable to the drum by tightening the cable anchor setscrew (See illustration below). Make sure cable will wind onto the top of the winch drum as the conveyor is being raised.
2. The cable may be too stiff to pass through the rollers and around the pulley on the trolley. If necessary, remove the four bolts securing the roller assembly to the trolley. Route cable through rollers, around pulley and back through the rollers. Reinstall the roller assembly and secure using the hardware previously removed (make sure the cable passes between the pulley and the cotter pin).

   Take the cable down to the winch mount and secure the cable to the anchor tube on front of the winch mount (See illustration below). Secure the cable using the two cable clamps provided (make sure the u-bolt portion of the clamp is against the loose end of the cable). Cut off any excess cable if desired.

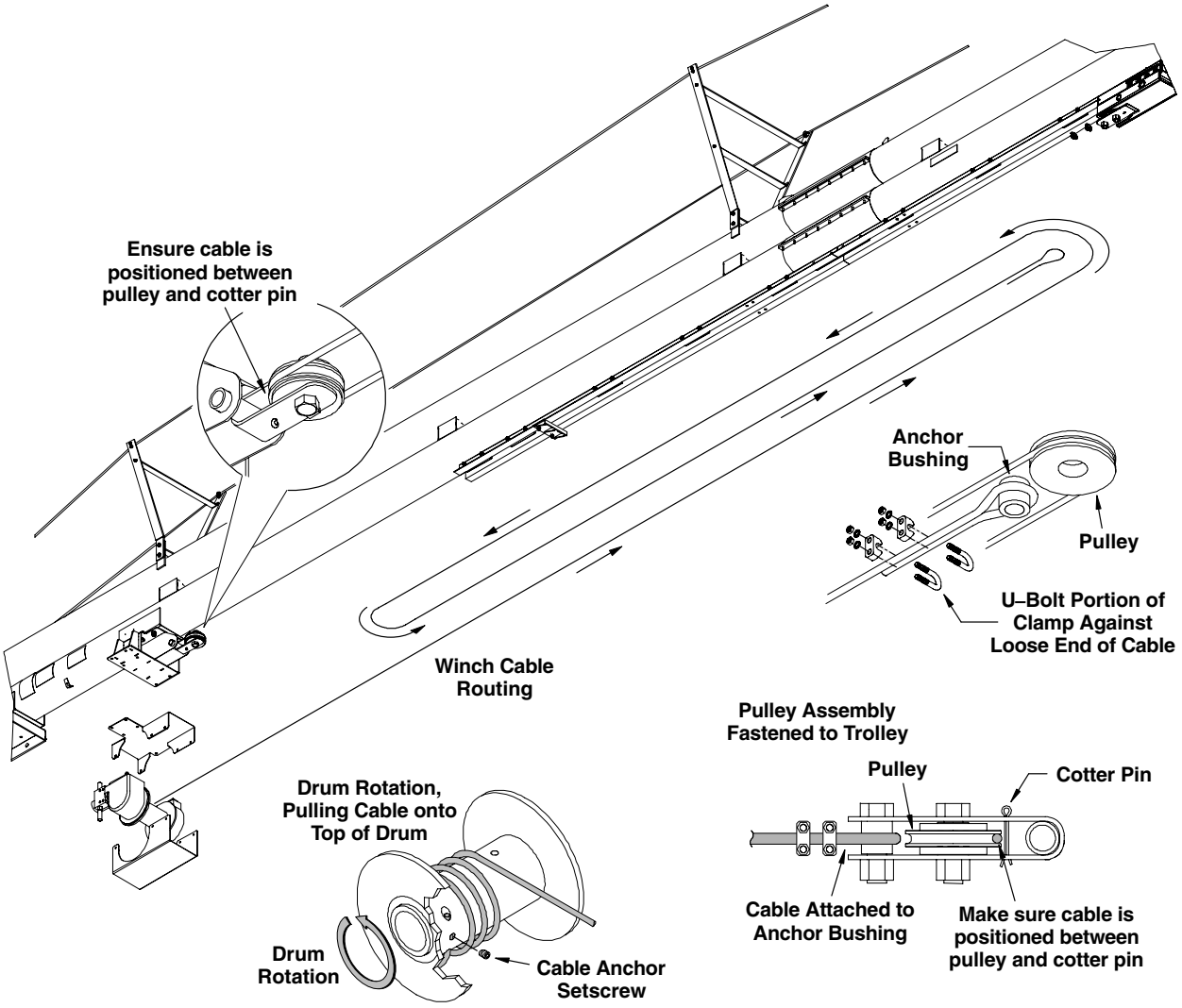


INSTALL WINCH CABLE
72' & 82' MODELS

1. Attach cable to the winch drum, make sure there are a minimum of three (3) wraps of cable around the winch drum. Pass the free end of the wire cable through the small opening in the drum. Lock the cable in the drum by tightening the cable anchor setscrew (See illustration below). Make sure cable will wind onto the top of the winch drum as the conveyor is being raised.

2. Route cable from the winch up and around the pulley on the trolley (ensure cable is positioned between pulley and cotter pin). Bring cable back down and around the pulley attached to the winch mount (make sure cable is between pulley and cotter pin).

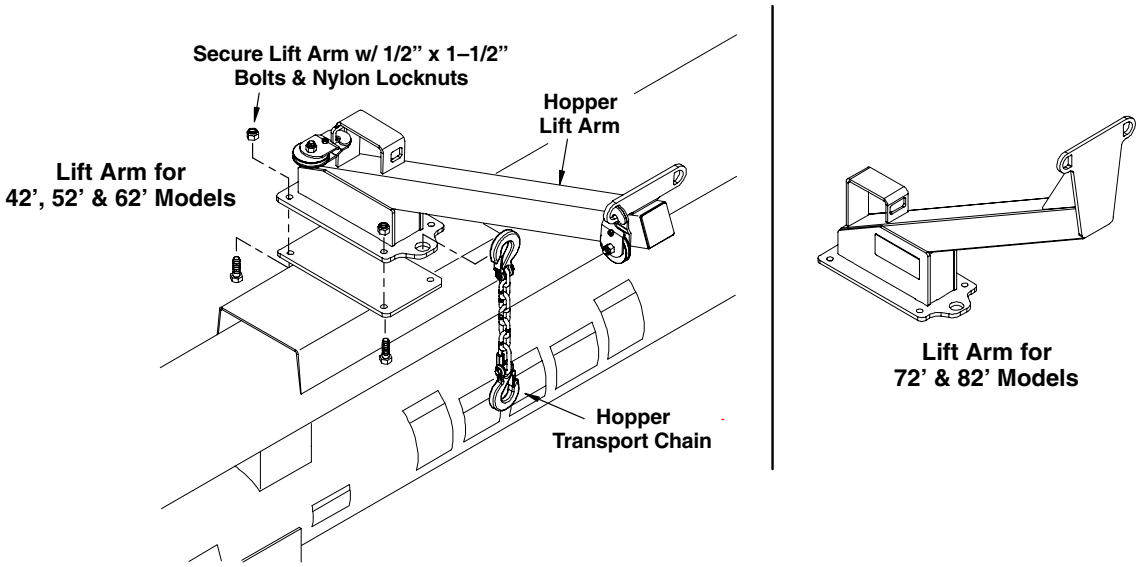
   Take the cable back up to the trolley and secure it to the anchor bushing in front of the trolley pulley. Secure using the two cable clamps provided (make sure the u-bolt portion of the clamp is against the loose end of the cable). Cut off any excess cable if desired.



INSTALLING LIFT-ARM & WINCH f/ SWING-AWAY HOPPER

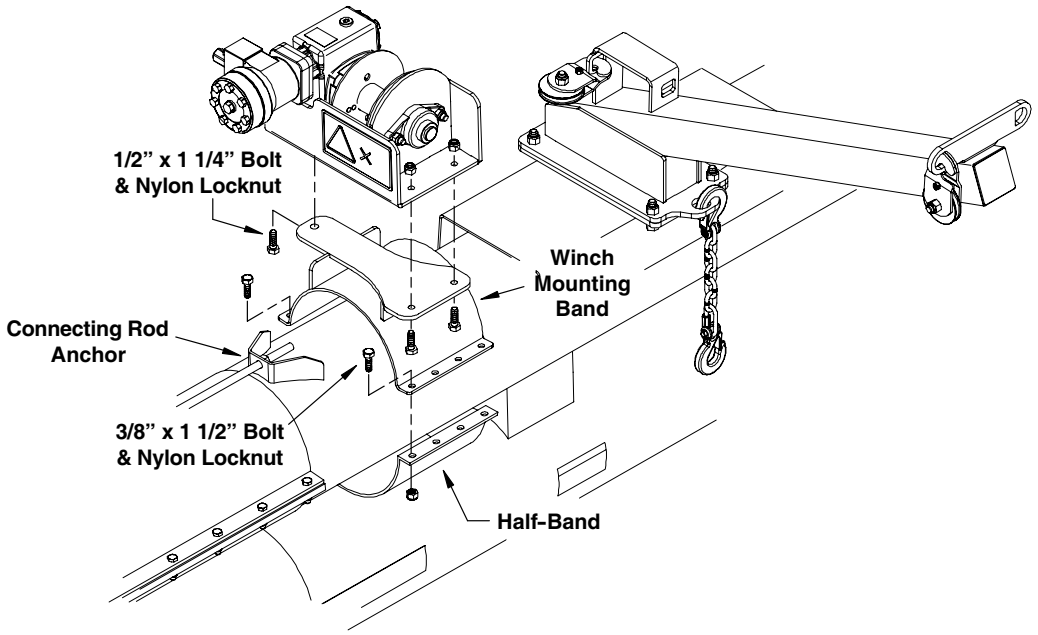
1. Attach the hopper lift-arm to the mounting plate welded to the conveyor housing. Secure using 1/2" x 1-1/2" bolts and nylon locknuts.

   Attach the lift-arm transport chain to the bottom of the lift-arm.



2. Position the winch mounting band and half-band onto the conveyor housing between the lift-arm and the connecting rod anchor. Secure using 3/8" x 1-1/2 bolts and nylon locknuts.

   Mount the hydraulic winch to the mounting band using 1/2" x 1-1/4 bolts and nylon locknuts.



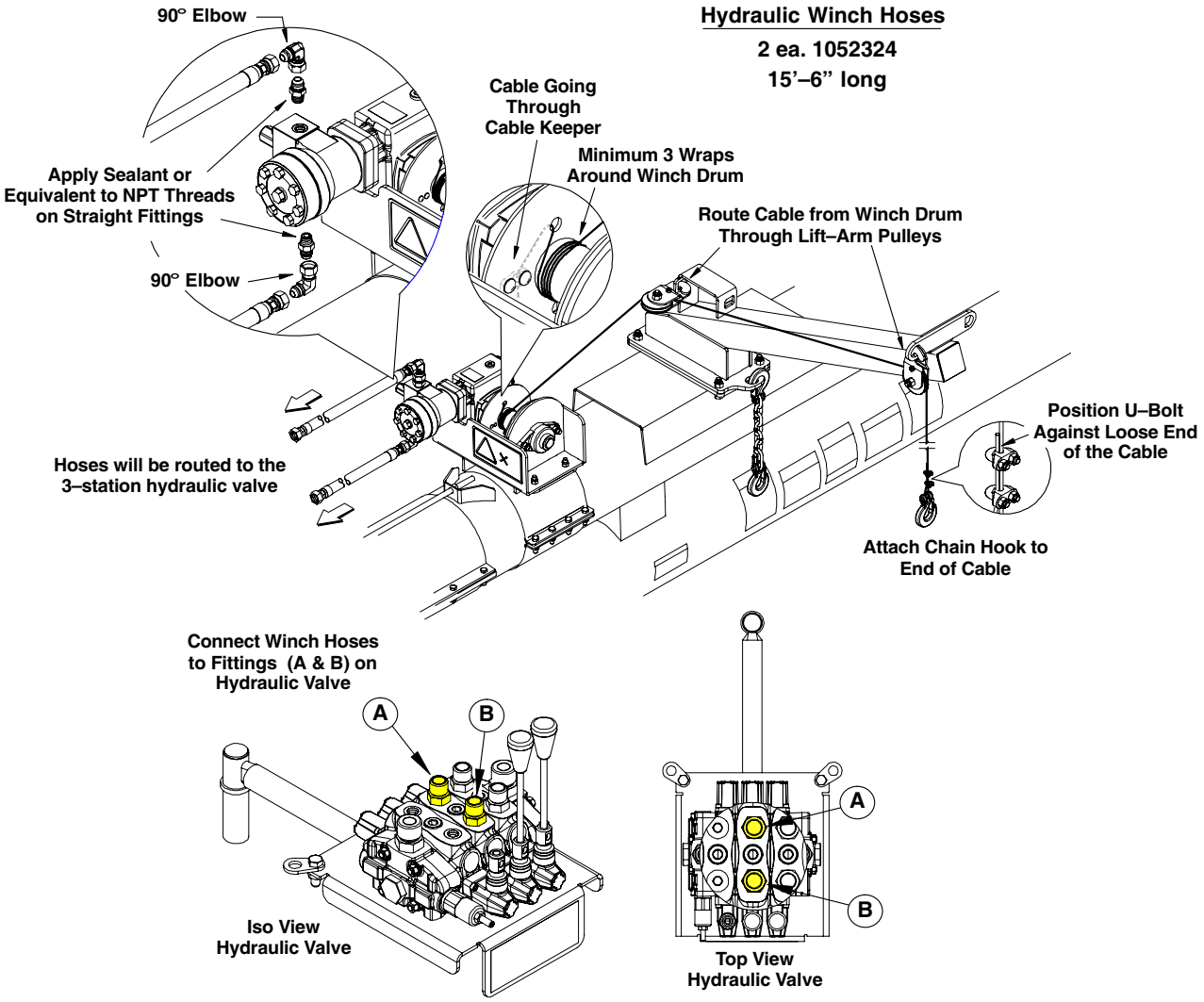
INSTALLING LIFT-ARM & WINCH
f/ SWING-AWAY HOPPER (con't.)

3. Attach winch cable. From the inside of the drum, pass cable through one of the round holes on the side of the drum until the cable extends approximately 1" *(25 mm)* past the cable keeper on the outside of the drum. Secure cable with the cable keeper.

4. Wind the cable around the winch drum a minimum of 3 wraps (cable wraps from the top of the drum).
   Keep the cable taut so it doesn't unwrap from the drum and pass the cable through the first pulley on the lift-arm (make sure cable stays between the pulley and the guide pin). Pass the cable through the second pulley in the same manner.
   Install the lift hook to the end of the cable using two cable clamps (place the u-bolt portion of the clamp against the loose end of the cable).

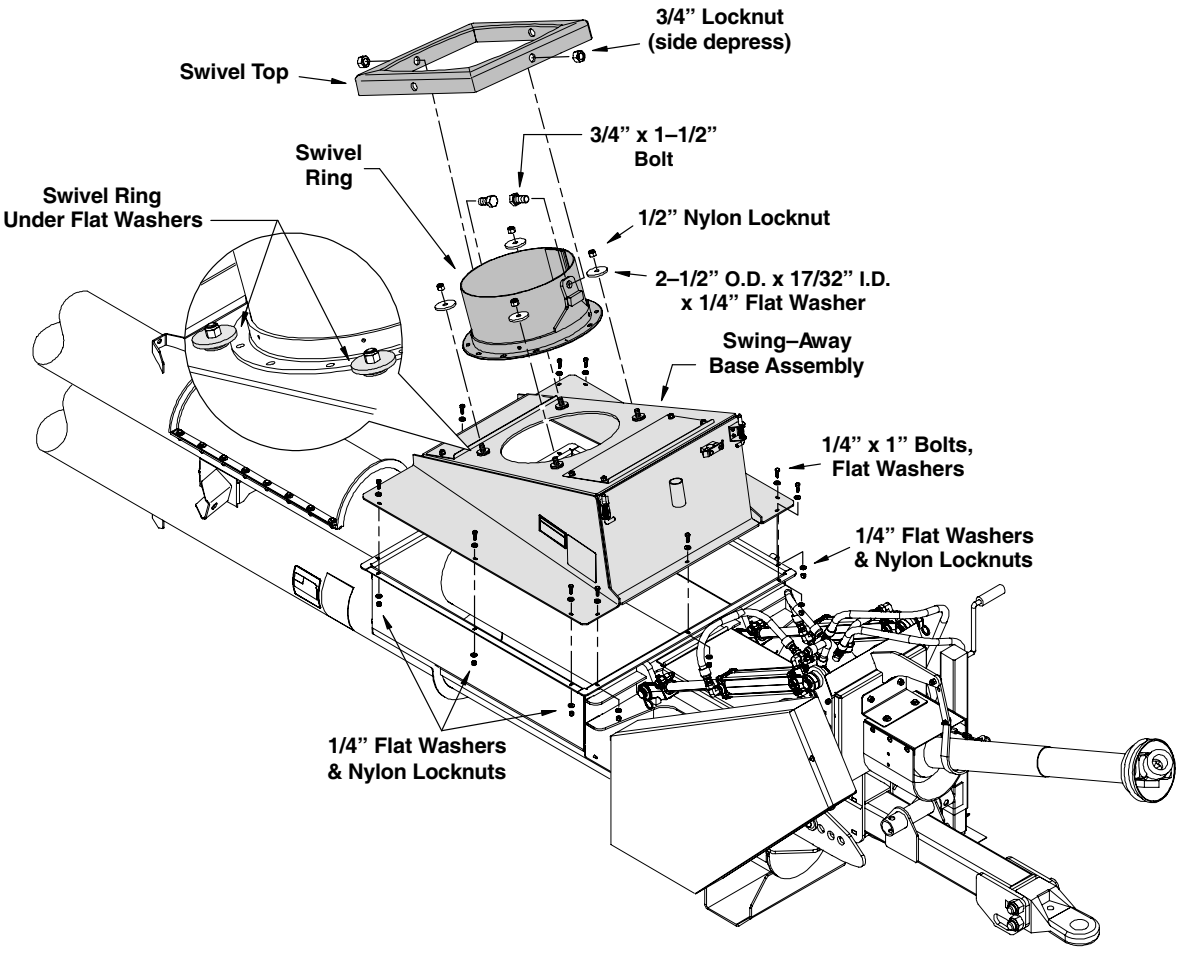
5. Remove the plugs from the sides of the hydraulic valve. Apply a thread sealant to the NPT threads on the straight fittings and install them into the ports. Attach the 90° hydraulic elbows to the straight fittings with the open end towards the inlet end of the conveyor. Connect the hydraulic hoses (2 ea. 1052324, 15'-6" long) to the hydraulic elbow fittings.
   The hoses will connect to the 3-station valve ("A & B") located on the base assembly once the valve/swivel-plate assembly has been installed, secure hoses out of the way until they are ready to be connected.

Refer to the hydraulic fitting install instruction manual P.N. 1053666 included in the box of parts.



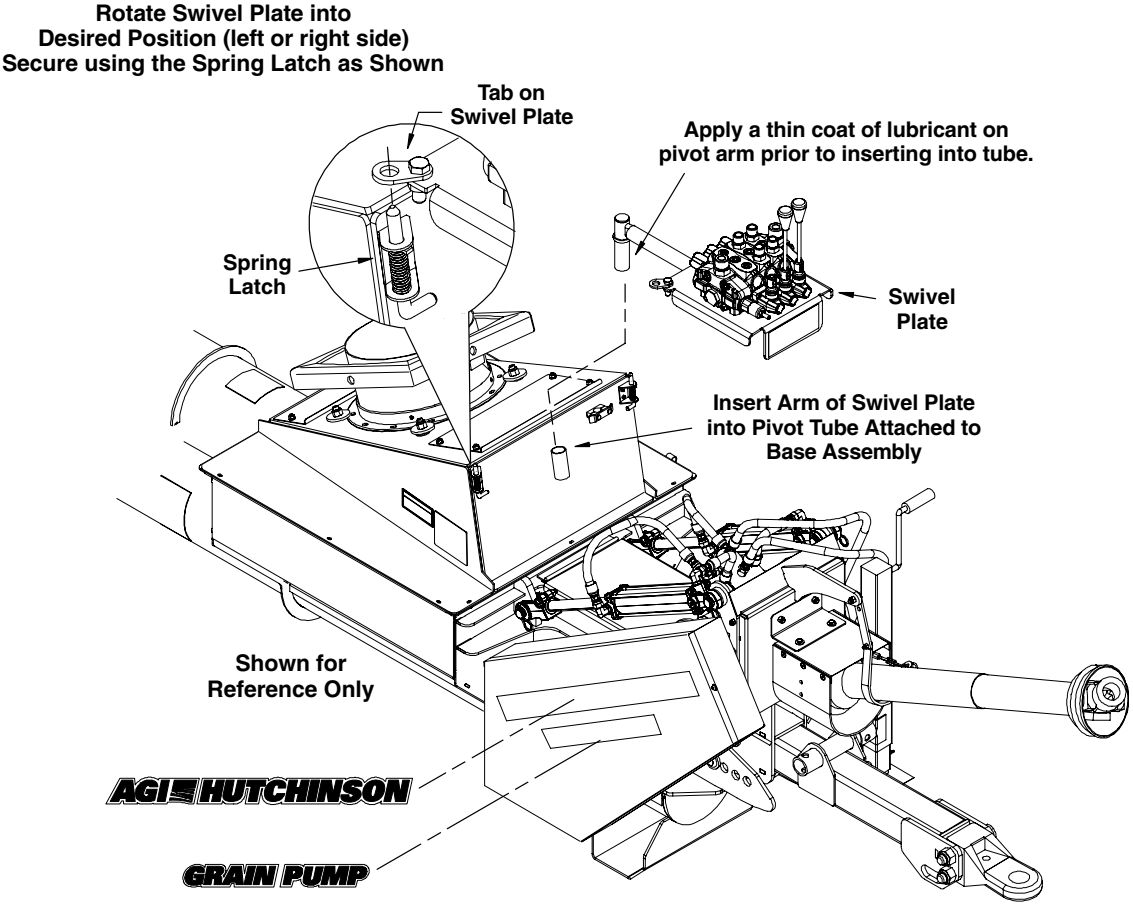
INSTALL BASE ASSEMBLY, SWIVEL RING & SWIVEL TOP BRACKET

1. Position the swing-away base assembly onto the top of the hopper as shown below.
   - Secure the assembly using 1” bolts, 1/4” flat washers, and 1/4” nylon lock nuts.
2. Remove and retain the 1/2” nylon nuts and the 2-1/2” diameter washers from the four studson top of the base assembly. Place the swivel ring onto the base assembly so it is centered over the opening.
   - Secure the swivel ring using the 2-1/2” O.D. washers and the 1/2” nylon locknuts previously removed. Tighten the nuts so that the swivel ring is still allowed to rotate freely.
3. Attach the top swivel bracket to the swivel ring using 3/4” x 1-1/2” bolts and 3/4” side-depress lock nuts.
   - Secure the swivel ring using the 2-1/2” O.D. washers and the 1/2” nylon locknuts previously removed. Tighten the nuts so that the swivel ring is still allowed to rotate freely.



INSTALL HYDRAULIC VALVE SWIVEL PLATE

1. Install the hydraulic valve swivel plae to the boot assembly.
   - Apply a thin coat of lubricant to the portion of the pivot arm that will be inserted into the pivot tube on the base assembly.
2. Install the swivel plate into the pivot tube, rotate swivel plate into desired position (left or right side) and lock into place using the spring-latch as shown.
3. Apply the decals to the chain cover as shown, and apply the model and brand decals to the conveyor housing as detailed in the installation instruction manual 1051644 provided in the box of parts. Use the information in the instruction manual 1051644 to properly apply the decals.



Apply the Hutchinson and Grain Pump decals to the chain cover. Use the decal application information in Instruction Manual 1051644 included with the box of parts for proper application.

The 1051644 instructions also show locations and proper application instructions for the brand and model decals that will be applied to the conveyor. These decals can be applied at anytime during the assembly peocess.

ASSEMBLY INSTRUCTIONS

CONNECTING SWING-AWAY CONVEYOR INCLINE TUBE to HOPPER

1. Attach the swing-away incline tube to the swing-away hopper using 7/16" x 1" bolts and nylon locknuts. If you are not careful, **it is possible to bolt the flanges together non-concentrically with the bolts crooked through the holes** (use a punch to assist with alignment).
2. Place the assembled incline tube and hopper on two support stands.

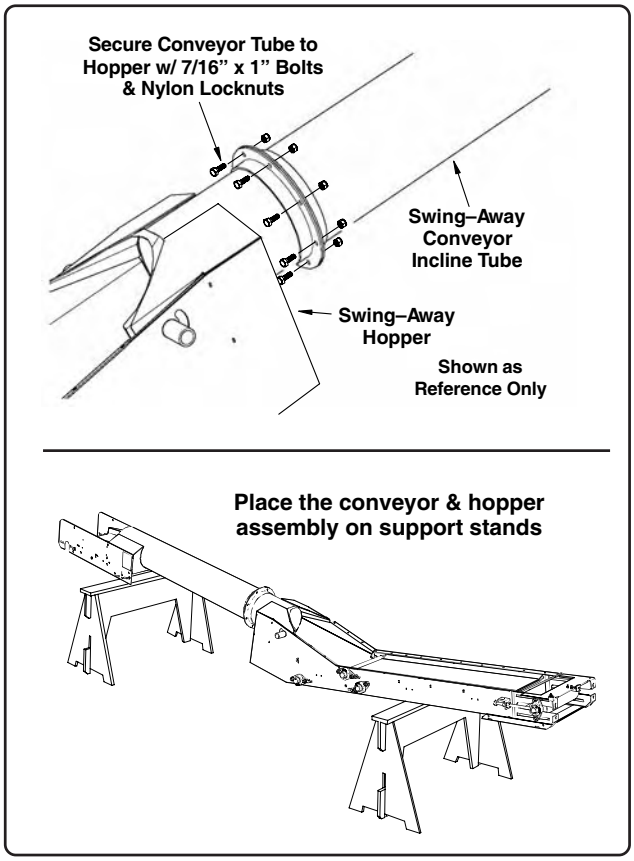


Fig. 23

INSTALL SPOUT ROLLER & HEX ROLLER

1. Install the spout roller with the **keyway in the shaft facing the direction the hydraulic drive motor will be installed** (in this instance, the motor will be mounted on the right-hand side, see Fig. 24).

   Left, right, front & rear are determined by standing at the rear of the hopper and looking towards the discharge end.

2. Position the roller in its mounting location and slide on the two flange bearings. Snug the bearings into place using 1/2" x 2" carriage bolts and nylon locknuts.
3. Center the roller in the spout.

   Tighten the lock collars and setscrews to lock roller into place.

   Make sure the roller is positioned straight by measuring the distance from the front side of the roller, to the edge of the spout side, the distance should be the same (See illustration below).

4. Install a non-lock nut onto each of the adjustment bolts and thread into the tabs on each side of the spout as shown.
5. Install the spring-loaded hex shaft roller as shown.

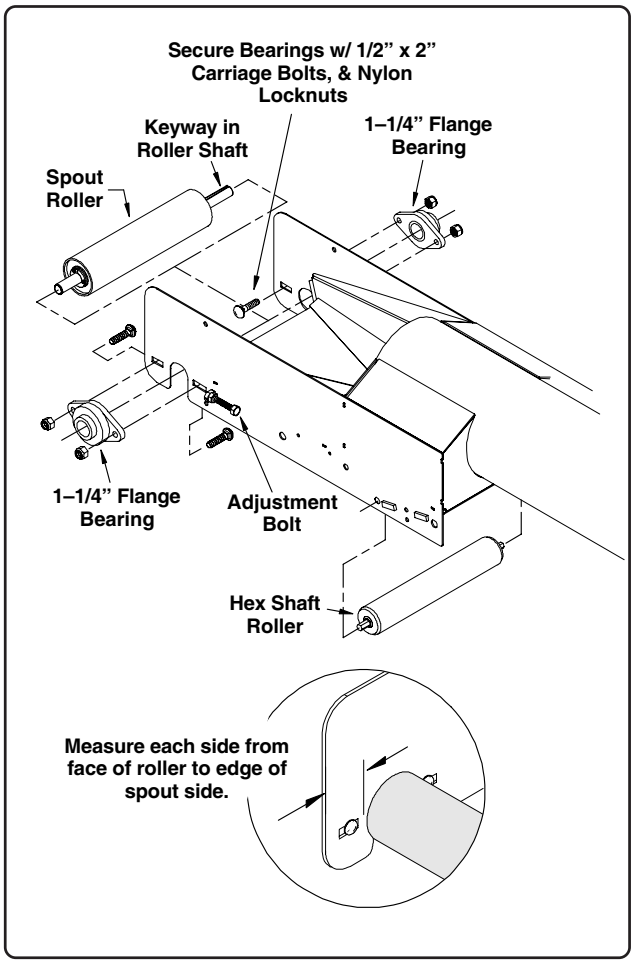


Fig. 24

INSTALLING HOPPER LATCH HARDWARE

1. Attach the hopper latches to both sides of the hopper as shown below. Secure each spacer and latch using 1/4" x 3/4" carriage bolts and nylon locknuts.

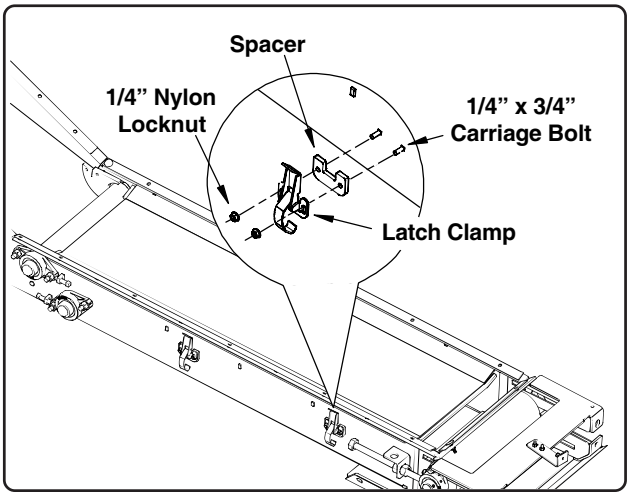


Fig. 25

INSTALLING HOPPER BELT

The following instructions show one example of how the belt can be pulled through the hopper.

1. Position the roll of conveyor belting at the rear of the hopper.

   Insert a round bar through the hub on the inside the roll, and set each end of the rod on a saw horse or similar raised support so that the roll of belting is free to rotate.

   - Make sure the roll is arranged so that when it is unrolled through the hopper the chevron pattern is facing up with the smooth side contacting the rollers.
   - Secure the rod either with clamps or a similar method that will prevent the rod from sliding on top of the sawhorses as the belting is being unrolled.

2. Remove the nylon covered connecting pin from the exposed splice end of the belt roll. Note: You may discard the two retaining washers when removing the pin, as they will not be used.

3. Run a piece of straight wire, at least 36" *(914 mm)* long through the loops of the splice end of the belt (See illustration).

   Tie the wire ends together to form an attachment loop for pulling the belt through the conveyor troughs.

4. Run a length of banding material, or similar material,, through the swing-away from the discharge end to the rear of the hopper and attach it to the wire loop previously created in Step 3.

   Note: The banding material should be slightly longer than the assembled hopper length.

5. Begin pulling the belt from the rear of the hopper towards the discharge end, making sure the chevron pattern is facing up.

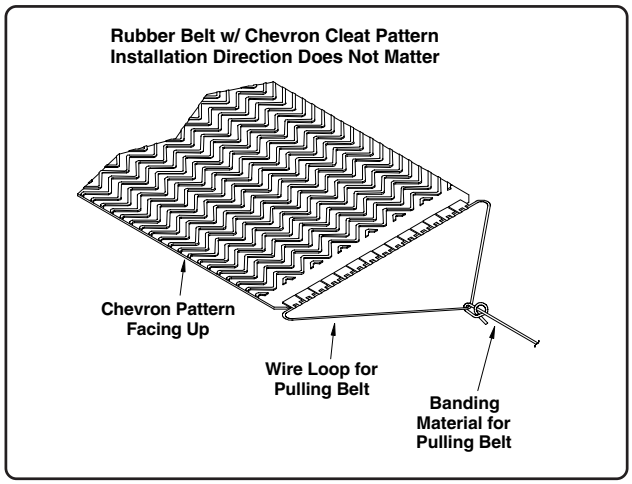


Fig. 26

6. As the belt is being pulled towards the discharge end, route the pull rope, and belt around:
   - the two transition rollers.
   - up through the incline tube and over the spout roller
   - over the top of the hex shaft roller
   - and back towards the rear hopper roller.

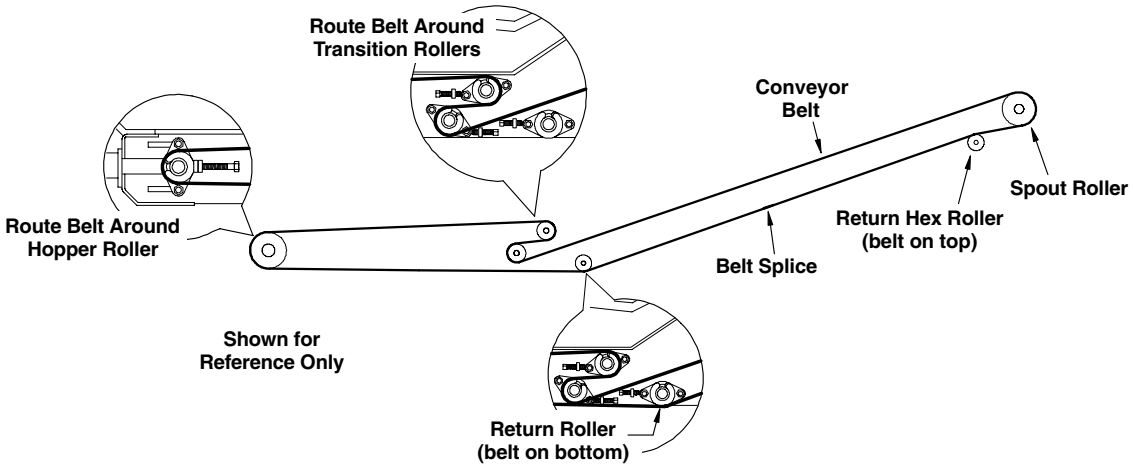
7. Pull the belt so both ends are laying on the flat loading surface.

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

   Inspect the path of the belt to ensure it matches the diagram shown below.

ASSEMBLY INSTRUCTIONS

Installing Hopper Belt (con't.)



8. It may be necessary to provide additional slack to get the ends together, if so, turn the take-up bolts to move the hopper roller towards the discharge spout.

   With both ends of the belt on the flat surface, use the belt splice tool (or similar method) to help pull the belt ends together.

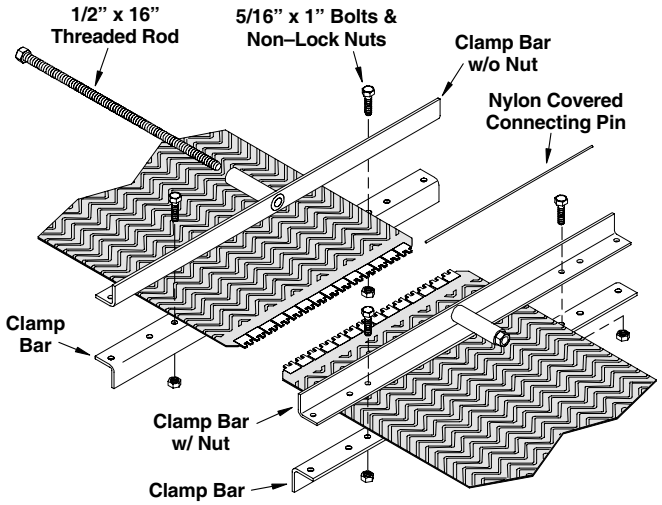
   Assemble the clamp bars using 5/16" x 1" bolts and non-lock nuts (locate the bolts in the belt bolt holes designated for the 15" wide belt). Insert the 1/2" threaded rod through the clamp bar tube, and into the clamp bar with the nut and start tightening the threaded rod.

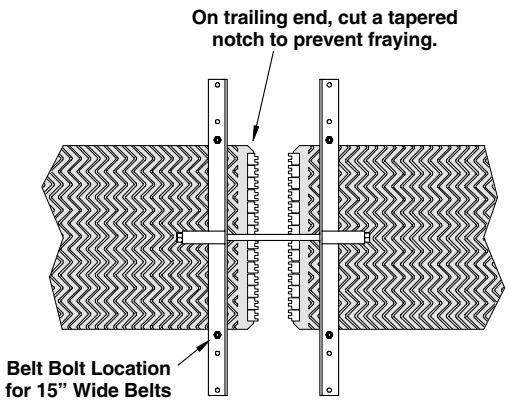
   Continue tightening the threaded rod, pulling the ends of the belt together until the splice bars interlock and the belt edges are aligned with each other.

9. Once ends are interlocked and belt is properly aligned, insert the nylon covered pin through the splice bars to lock belt ends together.

10. Position the conveyor belt so it is centered on the discharge head roller (equal distance of roller showing on each side of the belt). This will help to keep the belt in alignment when training the belt to run true.

    Refer to the Lubrication & Maintenance Section in this manual for instructions on how to properly train and tension the conveyor belt.

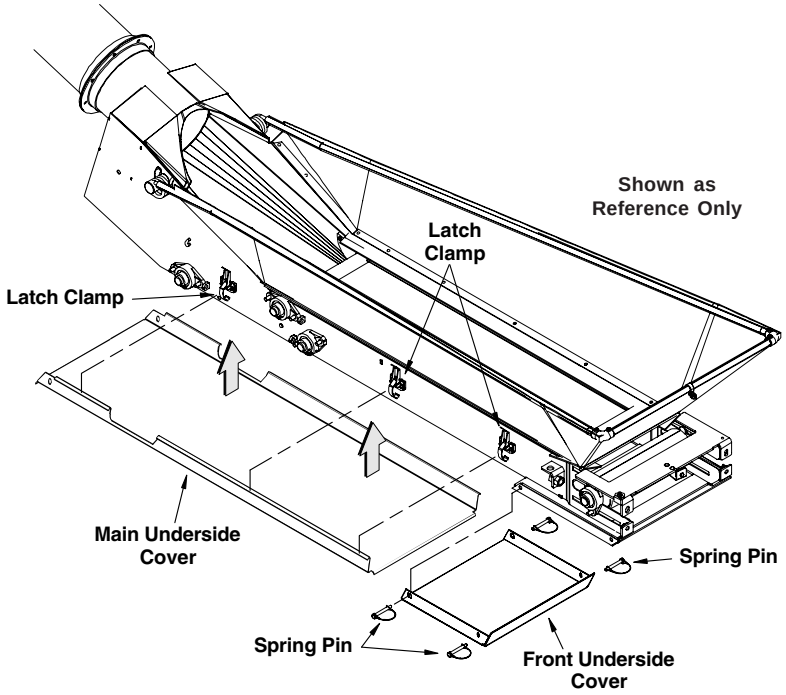




INSTALLING HOPPER UNDERSIDE FRONT & MAIN COVERS

1. Install the underside main cover and underside front cover. Attach the underside front cover using the spring pins as shown below.

   Position the underside main cover below the hopper and secure using the latch clamps located on the sides of the hopper (See illustration below).



INSTALLING HOPPER FLASHING

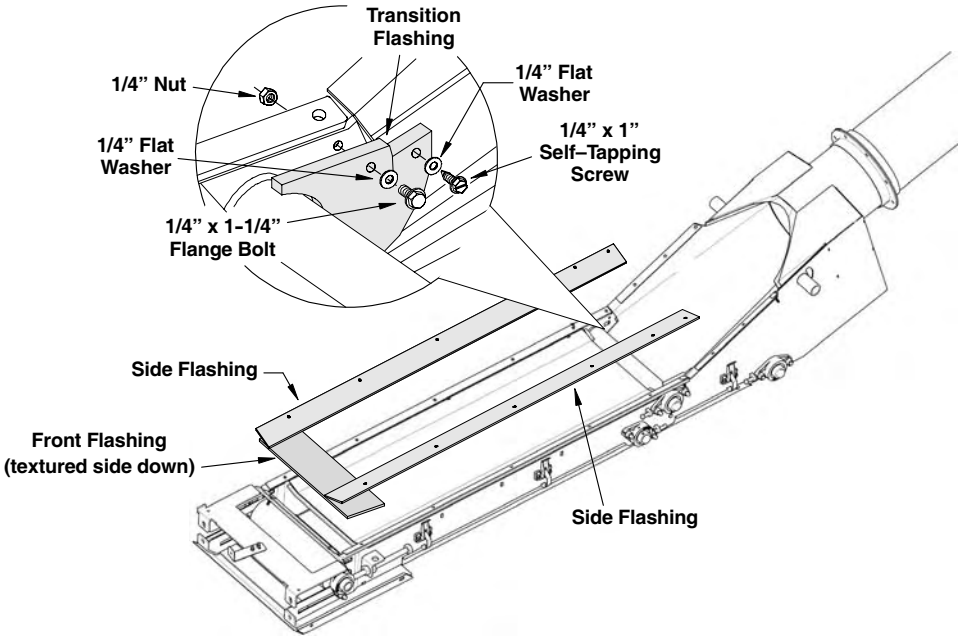
1. Lay the front flashing on the hopper keeping it flush with the edge of the hopper frame (See illustration).

   Note: the textured side of the flashings should be facing down.

2. Install the transition flashing using 1/4" x 1" self-tapping screws, 1/4" flat washers, 1/4" x 1-1/4" flange bolts and 1/4" nuts.

3. Lay the side flashings along each side of the hopper making sure they are flush with the edge of the main hopper frame and overlapping the front flashing (See illustration).

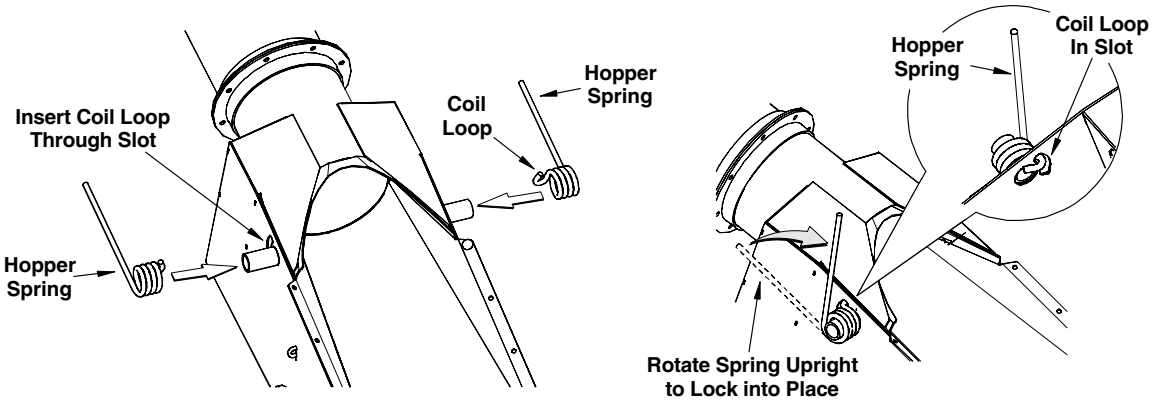
INSTALLING HOPPER FLASHING (con't.)



INSTALLING HOPPER SPRINGS

1. Slide the hopper springs over the tubes on each side of the hopper so that the loop of the spring coil is inserted into the slot (See below).

   Rotate the spring in the slot to lock it into place.



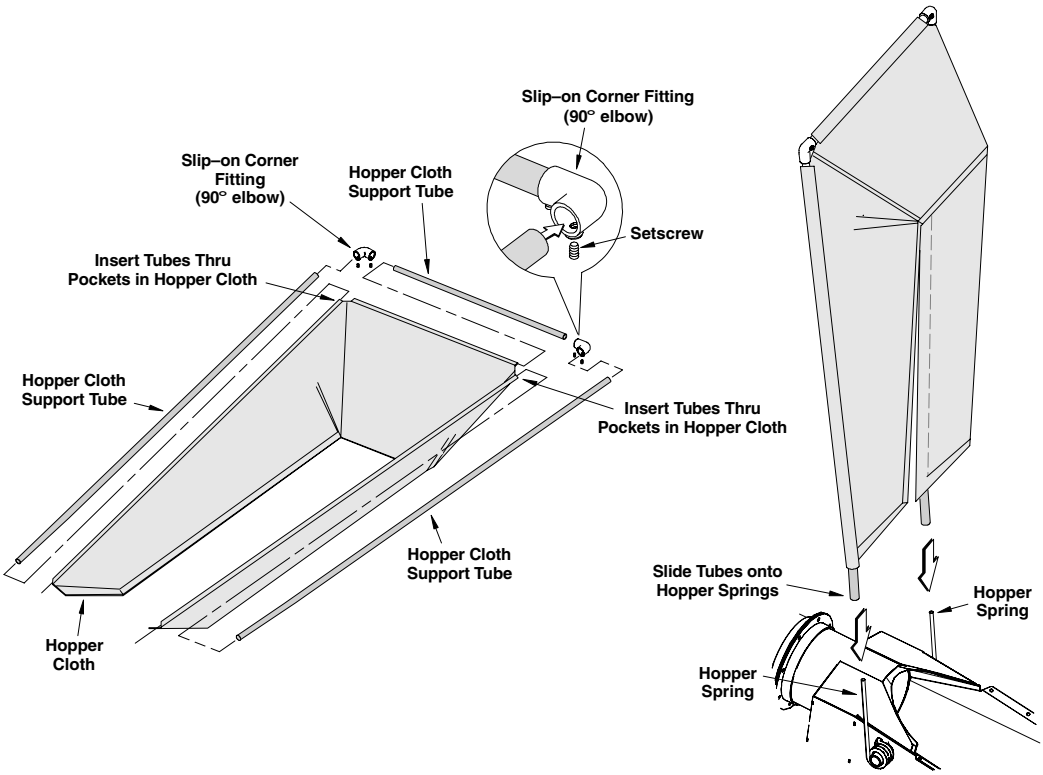
INSTALLING COLLAPSIBLE HOPPER CLOTH

1. Assemble the hopper cloth and support tubes by sliding the three tubes into the pockets in the cloth.

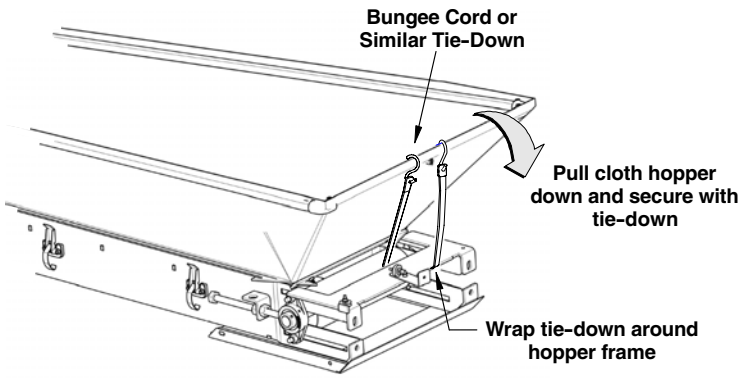
   Note the two 90° elbows (slip-on fittings) with the Allen screws, attach the tubes together at the corners inserting them into the elbows while keeping the setscrews facing down (See illustration).

   Tighten the setscrews to secure tubes into place.

2. Slide the open ends of the tubes over the hopper springs as shown.

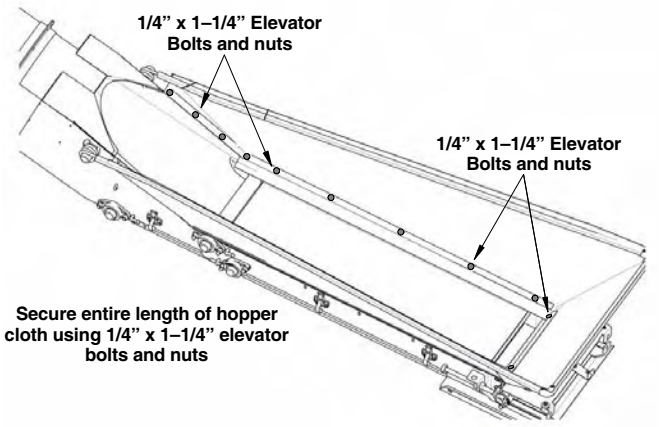


3. Pull the hopper cloth and tubes down until the tubes touch the hopper frame. Use a bungee cord, or similar tie-down method, to wrap around the hopper frame and hopper tubes to hold it in place.



Installing Hopper Cloth (con't.)

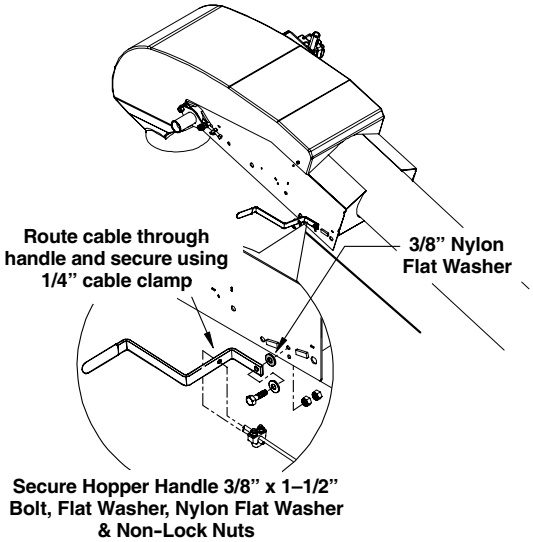
4. Attach the hopper cloth to the conveyor frame. First, attach the front of the hopper cloth to the front flashing, then attach the sides.
    - Drill through the hopper cloth using the existing holes as a guide (drill through the cloth, lower frames, the flashing and hopper weldment.
    - Fasten the cloth using 1/4" x 1-1/4" elevator bolts and 1/4" nuts.



INSTALLING COLLAPSIBLE HOPPER CONTROLS

1. Install the hopper handle onto the side of the spout as shown.
    - Secure the handle using a 3/8" x 1-1/2" bolt, a 3/8" nylon flat washer, 3/8" flat washer and two 3/8" non-lock nuts.

   Tighten the nuts only enough so that the handle can still pivot.
2. Loop the end of the cable through the handle and secure using a 1/4" cable clamp.



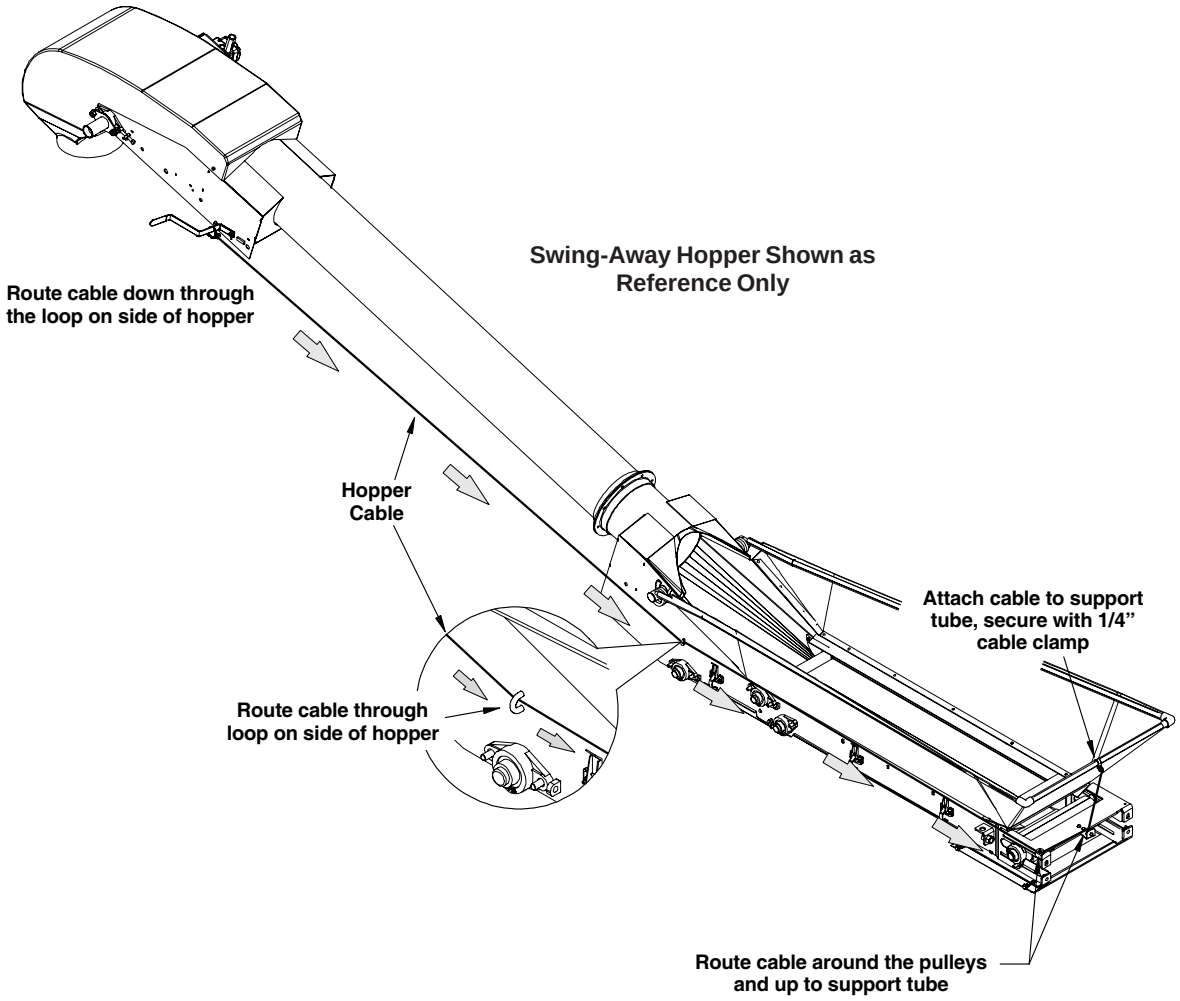
Installing Collapsible Hopper Controls (con't.)

3. Route the cable down through the loop on the side of the hopper, around both pulleys and up to the support tube.

   Punch a hole through the hopper cloth so that the cable can be wrapped around the tube.

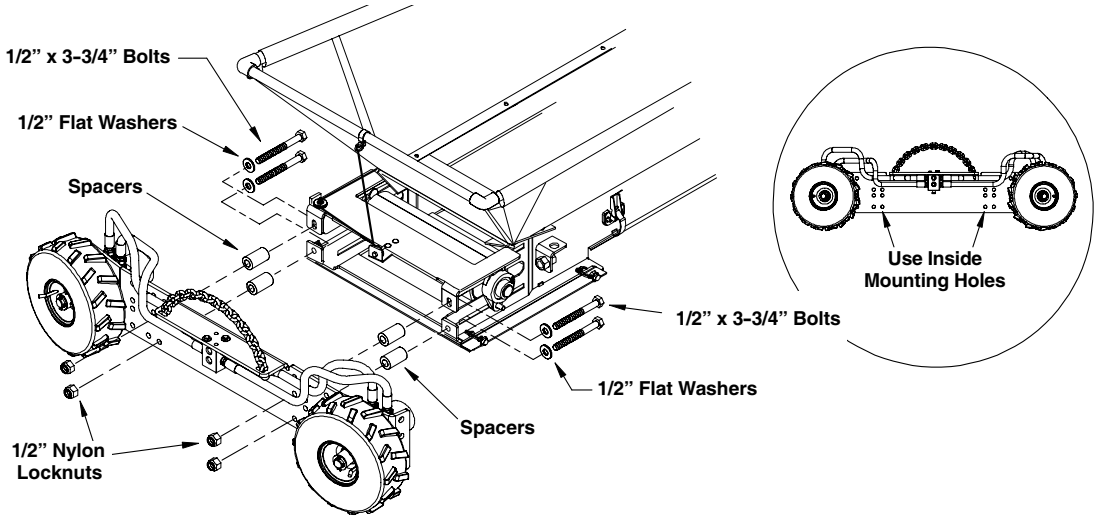
   Pull excess cable through the hole until the cable is taut and holding the collapsible hopper in place, secure with 1/4" cable clamp. Cut off any excess cable.

4. Remove the bungee cord (or tie-downs) from the hopper. Make sure collapsible hopper functions properly. Adjust as necessary.



INSTALLING OPTIONAL HYDRAULIC POWER SWING (HOPPER WHEELS)

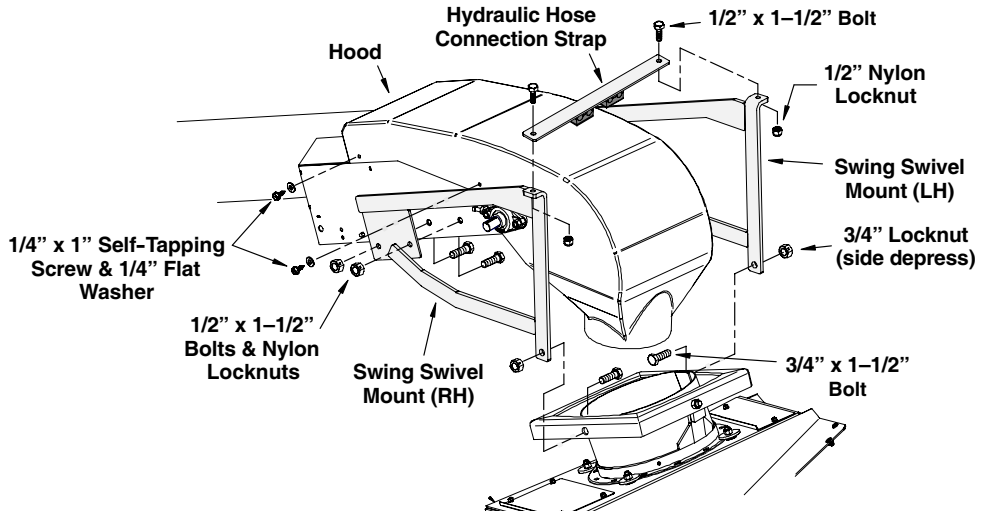
1. Attach the hydraulic swing wheel assembly to the hopper frame as shown.
   - Secure the assembly using 1/2" x 3-3/4" bolts, 1/2" flat washers, the 1" O.D. x 9/16" I.D. x 1-3/4" long spacers and 1/2" nylon lock nuts.



   - An optional **Manual Wheel Kit** is also available. This kit will install using the spacers and mounting hardware in the same manner as the hydraulic kit, only difference is there is not any hydraulic components on the manual wheel kit.

INSTALL HOOD & SWIVEL MOUNT BRACKETS

1. Position the hood over the end of the spout assembly as shown below.
   - Secure the hood using the 1/4" self-tapping screws and 1/4" flat washers.
2. Attach the left and right hand swivel mount brackets to the spout. Secure using 1/2" x 1-1/2" bolts and 1/2" nylon lock nuts.
3. Fasten the swivel mount brackets to the top swivel bracket as shown on Page 54. Secure using 3/4" x 1-1/2" bolts and 1/2" side depress locknuts.

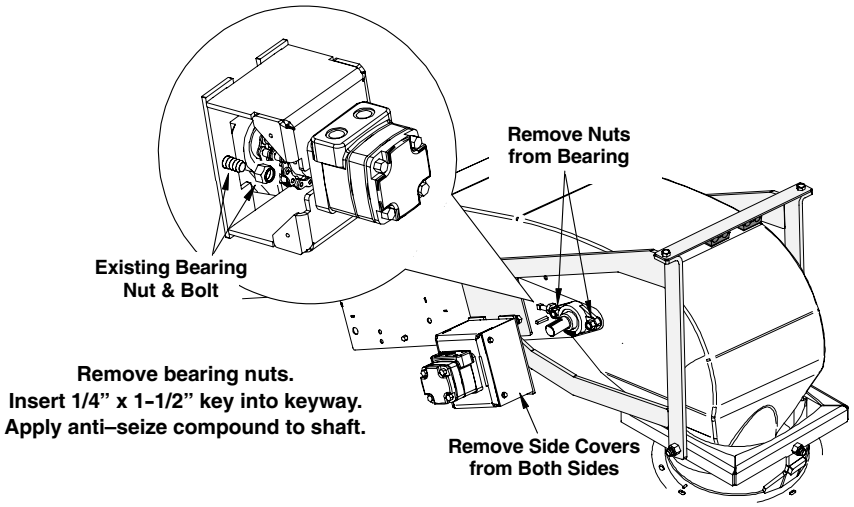


INSTALLING HYDRAULIC MOTOR (f/ HOPPER BELT)

1. Remove the two nuts securing the head bearing to the spout roller (See illustration below).

   Insert the 1/4" x 1-1/2" key into the keyway on the shaft and apply anti-seize compound to the roller shaft

   - Slide the sprocket from the hydraulic motor assembly onto the shaft aligning the mounting holes with the two bolts of the roller bearing.
   - Secure motor assembly into place and replace side covers.

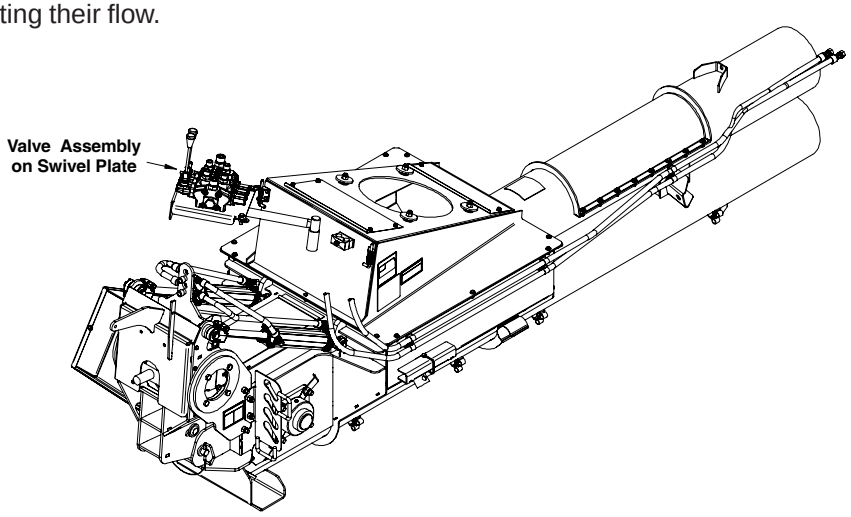


INSTALLING HYDRAULIC HOSES f/ SWINGAWAY HOPPER

The hydraulic hoses for each of the swing-away hopper components will be connected to the hydraulic valve located on the swivel-plate installed on the base assembly.

The illustrations on the following pages show each of the hopper components and their respective hydraulic hose locations when connected to the valve.

- When tightening the hydraulic fittings, use the torque recommendations outlined in the instructions shipped with the box of parts.
- When installing hydraulic hoses, let the hose coil in its natural shape, never pinch or kink hoses obstructing their flow.

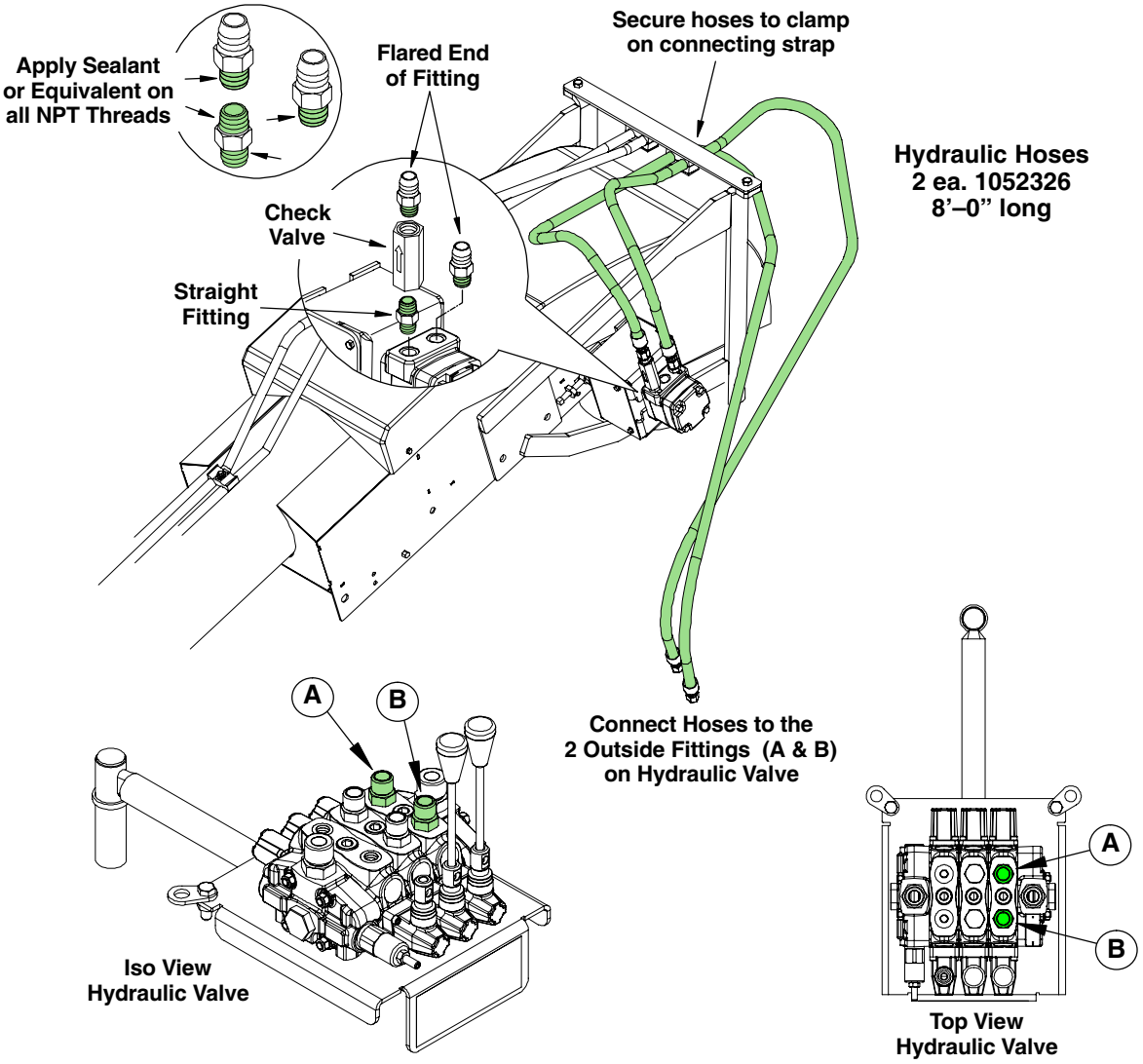


Installing Hydraulic Hoses f/ Swing-away Hopper (con't.)

INSTALLING HOPPER DRIVE MOTOR HYDRAULIC HOSES

When tightening the hydraulic fittings, use the torque recommendations outlined in the instructions shipped with the box of parts.

1. Apply thread sealant or equivalent to all NPT threads on the fittings.
   - Install the straight fitting, check valve and flared fittings to the drive motor ports as shown. Tighten the fittings to the proper torque as shown in the manual shipped with the hydraulic box of parts.
   - Connect the 8'-0" long hoses to the tapered ends of the fittings. Route the hoses through the hose clamp located on the connecting strap and secure to the clamp (See illustration below).
   - Connect the hoses to the hydraulic valve (locations "A & B") as shown.



Installing Hydraulic Hoses f/ Swing-away Hopper (con't.)

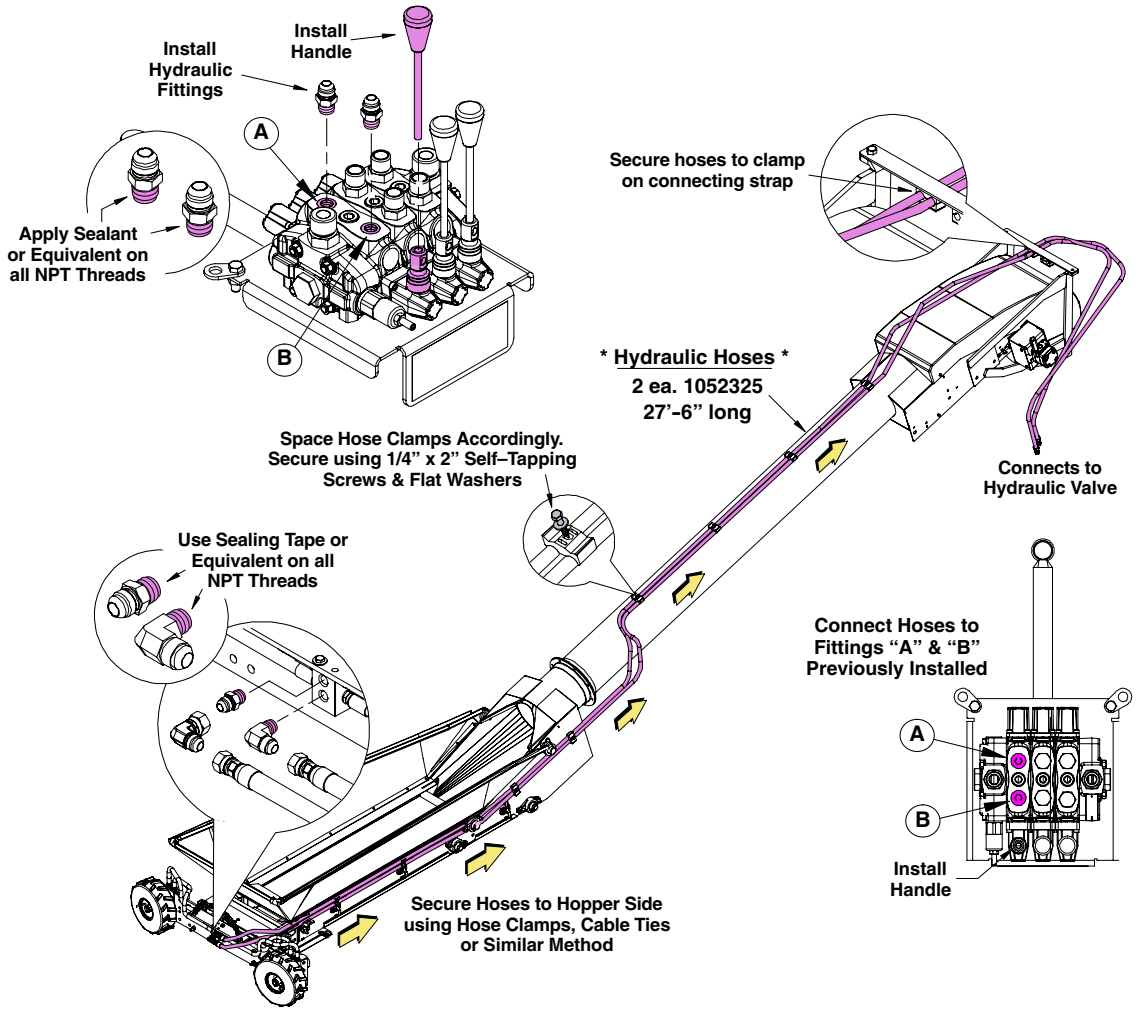
INSTALLING OPTIONAL HYDRAULIC WHEEL HOSES

When tightening the hydraulic fittings, use the torque recommendations outlined in the instructions shipped with the box of parts.

1. Apply thread sealant or equivalent to the NPT threads on a tapered fitting and on the 90° elbow fitting. Install the fittings into the block-valve ports on the wheel assembly as shown.
   - Install the other 90° elbow to the tapered fitting as shown.
   - Connect the 27'-6" long hoses to the 90° elbow fittings. Route the hoses along the side of the hopper, along the top of the incline tube and through the hose clamp located on the connecting strap above the spout (secure to the clamp after routing and securing hoses to the hopper and incline tube).
   - Secure the hoses to the hopper side using cable ties, hose clamps, or a similar method.

     Using 1/4" x 2" self-tapping screws, flat washers and hose clamps, secure the hoses to the top of the incline tube spacing the clamps accordingly.
   - Finish routing the hoses to the hydraulic valve/swivel-plate located on the base assembly.
2. Apply thread sealant or equivalent to the NPT threads on two of the tapered fittings. Install the fittings into the ports "A & B" on the hydraulic valve and connect the hoses to these fittings.

   Install the control handle to the valve and secure into place.
   - Secure hoses away from moving parts and check that all clamps and mounting hardware are secure.



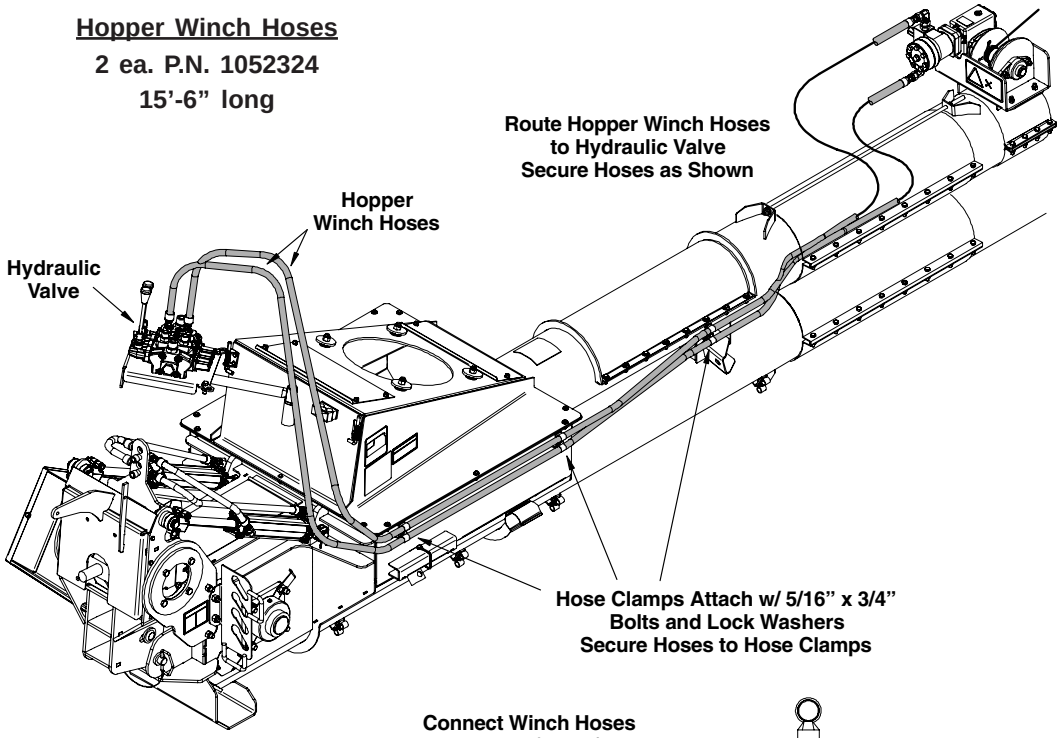
Installing Hydraulic Hoses f/ Swing-away Hopper (con't.)

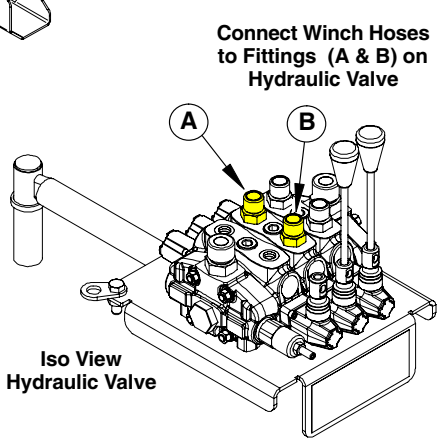
CONNECT HOPPER WINCH HOSES to HYDRAULIC VALVE

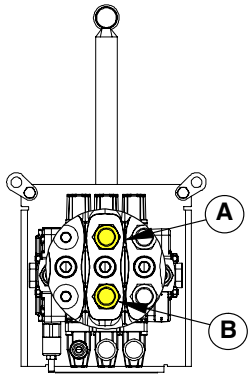
When tightening the hydraulic fittings, use the torque recommendations outlined in the instructions (P.N. 1053666) shipped with the box of parts.

1. The winch hoses were installed onto the winch earlier in these instructions (Page 51).
   - Route the hoses to hydraulic valve and secure to the hose clamps as shown. (hose clamps attach w/ 5/16" x 3/4" bolts and lock washers).
   - Connect the hoses to the hydraulic valve at locations "A & B" as shown below.

Hopper Winch Hoses
2 ea. P.N. 1052324
15'-6" long







Installing Hydraulic Hoses f/ Swing-away Hopper (con't.)

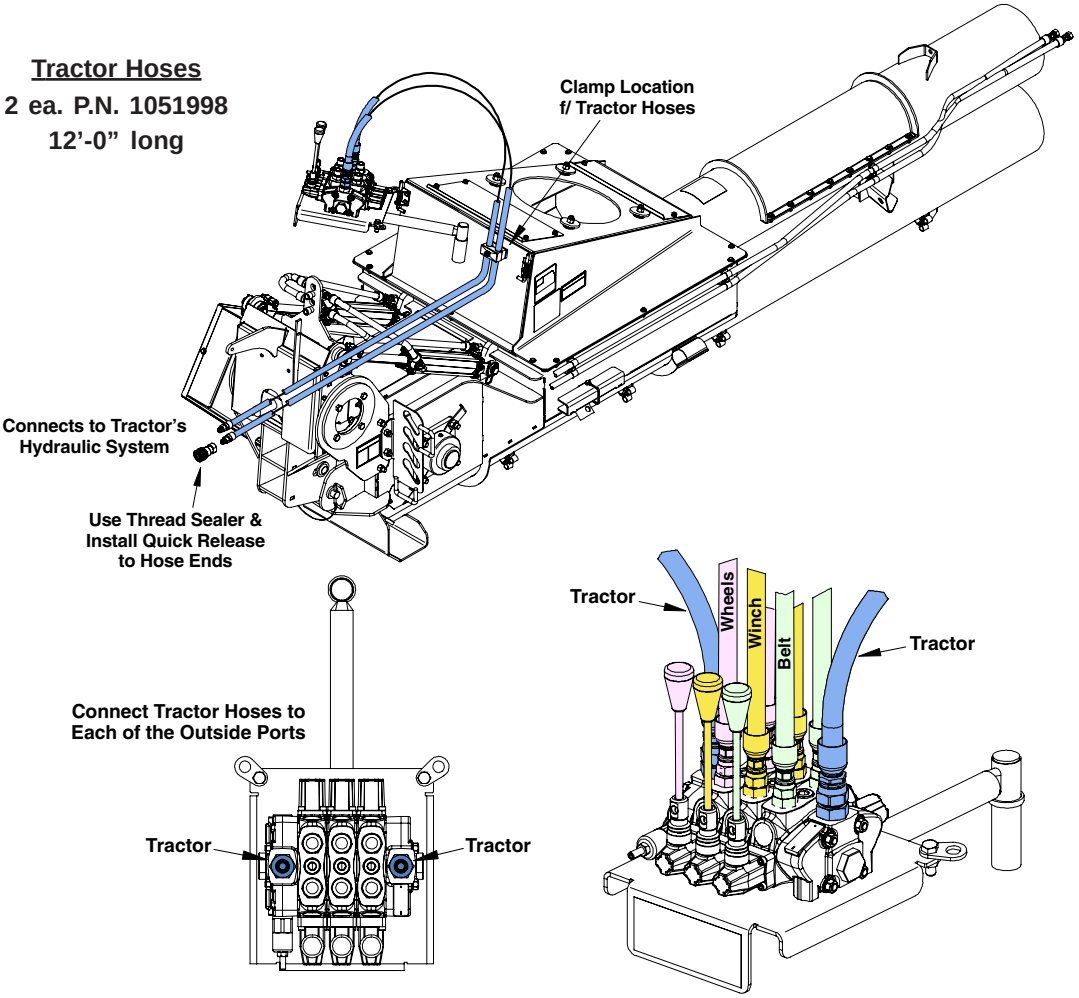
CONNECT TRACTOR HOSES to HYDRAULIC VALVE

WARNING! Hydraulic systems are highly pressurized. Do Not connect or disconnect hydraulic components when there is pressure within the system.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction can occur if medical attention is not received at once.

When tightening the hydraulic fittings, use the torque recommendations outlined in the instructions (P.N. 1053666) shipped with the box of parts.

1. Connect tractor hoses to the outside ports ("A' & "B")on the hydraulic valve.
   - Route the hoses through the hose clamp as shown and secure.
   - The other end of the hoseswill be connected to the tractor's hydraulic system. Install the quick release fittings onto the ends of the hoses (use a thread sealant or equivalent on the threads of the hose ends).
2. Check that all hoses are properly installed, connections are secure and all hardware is tight.
   - Secure all hoses away from moving parts (when not in use, or disconnected from hydraulic fittings, keep the ends of the hoses covered to keep contaminants from entering the system).
   - Check swing-away hopper for proper operation. Make adjustments as necessary.



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