6”, 8” & 10” GRAIN PUMP®
LOOP CONVEYING SYSTEM

OWNER’S & OPERATOR’S MANUAL

Effective March 8, 2016 **Publication No. 1039052**

This Manual is for Serial Numbers of 906815 or Higher

IMPORTANT! The gearbox is shipped **Without Oil.**
Oil must be added before operation.
Refer to the Lubrication Section in this manual.

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Hutchinson/Mayrath

*A Division of **GLOBAL** Industries, Inc.*

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.

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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.

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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 THE 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.

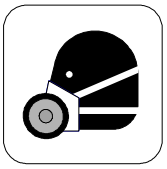

Eye & Hearing Protection


Gloves


Steel Toe Boots


Hard Hat


Fall Protection


Respirator

Operate Electric Motor(s) Properly

Do not operate electric motor equipped units until motor(s) are properly grounded.

Know how to "Shutdown and Lockout" the power source. Shutdown and lockout power source before performing any service, maintenance or adjustments to the unit.

Disconnect power on electrical driven units before resetting motor overloads.


Lockout / Tagout


Electric Shock Hazard

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.


Entanglement Hazards

GRAIN BIN SAFETY

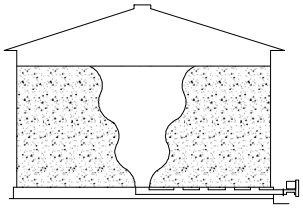
The Loop Conveying System is generally designed to move grain into or from grain bins or other storage structures. **Be aware of the dangers inherent in grain bins.**

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.

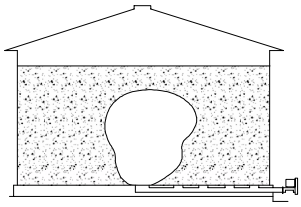
WARNING! Do Not enter the bin if the grain has "Bridged" or has not flowed normally out of the bin, See Example's 1 & 2. The grain may suddenly break loose and bury resulting in suffocation.

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)

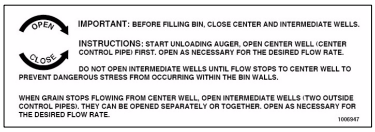


Example 2
("Bridging")

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.

Refer to the Parts List Section for decal Part No's. and location of decals on components.



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 6.
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

SERIAL NUMBER

To ensure efficient and prompt service, please furnish us with the model and serial number of your conveyor in all correspondence or other contact. The serial plate is located on each of the drive corners.

GENERAL INFORMATION

MACHINE INSPECTION

After completion of assembly and before each use, inspection of the machine is mandatory. This inspection should include, but not be limited to:

1. Inspect the conveyor for loose bolts, missing chain parts, missing or damaged paddles and the overall chain condition.
2. Check chain tension.
3. Check the condition and tension of drive belts and adjust as necessary.
4. Inspect sheaves for alignment and see that they are securely fastened.
5. Check oil level in drive reducer.
6. Check all safety signs and replace any that are worn, missing or illegible. The safety signs are listed in the front of this manual. Safety signs may be obtained free of charge from your dealer or ordered from the factory.
7. Check that all safety devices, guards and shields are installed and that all inspection doors are latched closed.
8. Check auto take-up corner, if so equipped. See that the sprocket carriage is free to move up and down. Lubricate, as necessary.

Obtain any needed replacement parts from your dealer and install before using the machine.

CONVEYOR HORSEPOWER (KW) INFORMATION

The height and length of a loop system are limited by the combined power required to move grain those distances. The vertical component requires greater power per foot *(meter),* so taller units will be more limited in horizontal length. System lengths of several hundred feet are common. However, relatively small systems to accomplish more specific tasks are often built.

Loop units are provided with Dodge gear reducer drives to be driven by one or two electric motors. There are maximum power limits for each drive, but when greater power than can be provided by one drive is needed, a second drive of equal power can often be added. Drives are always located at upper corners. A single drive must always be located at the top corner after the last discharge.

Overfeeding a grain pump loop may cause plugging. We recommend the loading rate be monitored by an amp meter on the electric motor drive(s).

CONVEYOR HORSEPOWER (con't.)

The Grain Pump® will operate more smoothly, move more grain and last longer if loaded 80% of fill, instead of an uncontrolled approach to 100% of fill. "Soft Start" motors are always recommended to protect a conveyor from high torque shocks against a unit that may have inadvertently been stopped under load or plugged.

ELECTRIC MOTOR DRIVE INFORMATION

WARNING! A main power disconnect switch that can be locked in only the "OFF" position shall be provided. This shall be locked whenever work is being done on the conveyor.

The reset and starting controls must be located so that the operator has full view of the entire operation.

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

Make certain electric motor is grounded.

Disconnect power before resetting motor overloads.

Shut off power and lockout whenever cleaning or servicing the conveyor.

Always use a motor with required HP *(kw)* as calculated on previous page (Page 7). Use a 60 hz motor that operates at 1750 rpm *(50 hz @ 1460 rpm).* ***Units using 50 hz motors require different drive pulleys, consult factory for specifications.***

Electrical motor and controls shall be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all local and state codes.

A magnetic starter should be used to protect your motor when starting and stopping. It should stop the motor in case of power interruption, conductor fault, low voltage, circuit interruption or motor overload. Then the motor must be restarted manual.

Some motors have built-in thermal overload protection. If this type motor is used, use only those with a manual reset.

Install with an ampmeter on motor or motors, so that the load can always be monitored to prevent overloading.

A main power disconnect switch that can be locked only in the **"Off"** position shall be installed. This shall be locked whenever work is being done to the conveyor.

HOW TO CALCULATE TOTAL HORSEPOWER (KW)

NOTE: The power recommendations are for conveying reasonably dry grain at approximately 56 lbs. per bushel *(720 kg per cu. meter).* Adjust the power requirements up or down for material of a different density.

1. Determine the vertical height of the system, usually the peak height of the tallest bin plus 3' *(1 m)*. **Multiply the vertical height by the vertical HP factor** to determine the vertical power requirement.
2. Add the total upper and lower horizontal length of conveyor that will contain material during operation. If you plan to recirculate the grain at full capacity from one storage structure to another, it may add length to the power calculation. **Multiply the total horizontal length by the horizontal HP factor** to determine the horizontal power requirement.
3. Add the vertical and horizontal power together to find the total system power required.

Pump Dia.	Vertical per ft. *(m)*	Horizontal per ft. *(m)*
6"	**HP *(kw)* factor = .20 *(.48)***	**HP *(kw)* factor = .05 *(.12)***
8"	**HP *(kw)* factor = .35 *(.85)***	**HP *(kw)* factor = .08 *(.19)***
10"	**HP *(kw)* factor = .50 *(1.2)***	**HP *(kw)* factor = .11 *(.27)***

NOTE: As stated in the Conveyor Horsepower Information section, there are maximum power limits for the drive motors. For excessively long runs (horizontal) with short heights (vertical), the far drive corner can only pull grain for its rated HP/HP per ft.

To determine the maximum horizontal length a motor can handle: **divide the motors rated HP by the horizontal HP factor .05 *(.12 kw)*.**

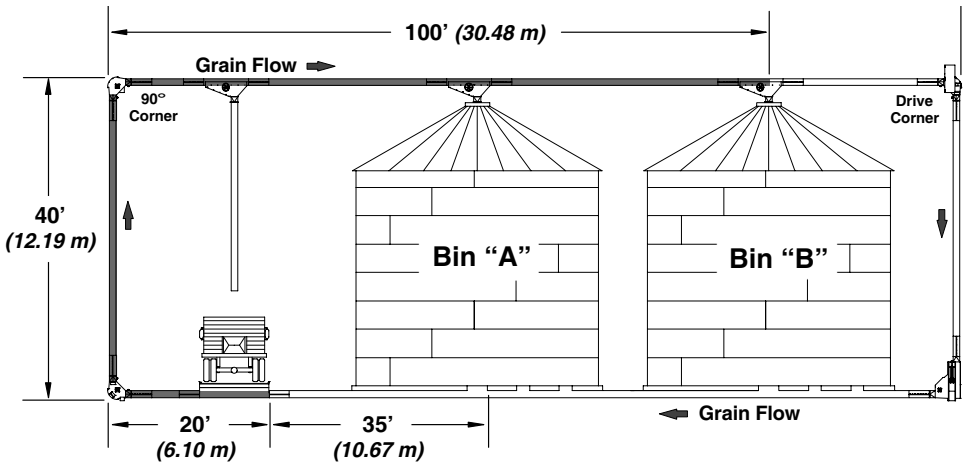
For example, to determine how long of a horizontal run you can have using a 30 HP motor.

Pump Dia.	30 HP *(22 kw)*
6"	**HP *(kw)* factor = .05 *(.12)***

30 divided by .05 = 600 ft.

that is the maximum distance grain **can be moved in the top tube.**

When determining the length of your system, take into consideration, not only the horizontal and vertical HP required as determined below, but the limits of the rated HP/HP per ft. of the motor.



In this example (using the 6" pump) there is 40 ft. *(12.19 m)* of vertical conveyor and 120 ft. *(36.58 m)* of horizontal conveyor that will contain grain [20' *(6.10 m)* from truck to vertical and 100' *(30.48 m)* from vertical to Bin B = 120' *(36.58 m)*].

Vertical HP Requirement 40' x .20 (vertical HP factor) ..... = 8 *(5.9 kw)*
Horizontal HP Requirement 120' x .05 (horizontal HP factor) ..... = 6 *(4.4 kw)*
Total HP *(kw)* - Vertical + Horizontal ..... = 14 *(10.4 kw)*
Electric Motor size required ..... = 15 HP *(11 kw)*

If there are plans to transfer grain from Bin A to Bin B, an additional 35 ft. of horizontal length must be added to the calculation. For example with the 6" pump, take the 35' x .05 [horizontal HP *(kw)* factor] that equals 1.75.
Add that to the total HP *(kw)* of the 40' & 120' calculation from above (1.75 + 14 = 15.75), you would need a 20 HP motor
Horizontal HP *(kw)* requirement, 35' x .05 (horiz. HP factor) ..... = 1.75 *(1.3 kw)* added to previous 14 *(10.4 kw)*
Total HP *(kw)* - Vertical + Horizontal ..... = 15.75 *(11.7 kw)*
Electric Motor Size Required ..... = 20 HP *(15 kw)*

GENERAL INFORMATION

START-UP and BREAK-IN INFORMATION

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.

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

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

It is essential to inspect your conveyor and drive components before adding power and to know how to shut down in an emergency. During the operation of your conveyor, one person shall be in a position to monitor the operation.

During the initial start-up and break-in period, the operator should watch for any unusual vibrations or noises.

Any conveyor, when it is new or after it sits idle for a season, should go through a "break-in" period. It should be run at partial capacity at full speed until the inside of the housing becomes polished, before attempting full capacity. A failure will most likely occur when it is run at full capacity before it has a chance to "shine up".

If at all possible, do not start or stop the Grain Pump® Conveyor under load, especially before the housing becomes well polished, as this may cause the unit to stall. If so equipped, inspect and lubricate the automatic take-up corner. Be sure that the sprocket carriage is free to move up and down.

DESIGNATED WORK AREA

The area around the conveyor and inside the grain storage units is considered the work area. Use the following to ensure a safe working environment.

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 operators to see that children and/or other persons stay out of the work area! Trespass into the work area by anyone not involved in the actual operation, or trespass into a hazard area by anyone shall result in an immediate shutdown by the operator.

It shall be the responsibility of all operators 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.

FULL LOAD OPERATION INFORMATION

Operation of the Grain Pump® Conveyor will generally include moving grain into or out of grain storage structures.

Grain will enter the conveyor through a dump hopper or through bin wells in grain bins. There are flow control devices included with these components that should be used to control grain flow rates into the conveyor.

It is possible to use more than one inlet component at the same time, such as when blending is desired or simply to increase the flow rate into the conveyor.

Grain is discharged from the conveyor through outlets with movable gates for opening and closing the outlets. Optional ground controls are available for operating the gates. All gates should be closed except the one at the selected discharge point.

Typically with a system of this size, a sweep auger is installed and kept inside the bin. Refer to the operator's manual that is supplied with the sweep auger for installation instructions and safety practices.

WARNING! Do Not enter the bin if the grain has "Bridged" or has not flowed normally out of the bin, See Fig'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.

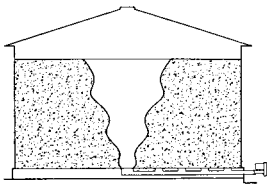


Fig. 1
(Abnormal Flow)

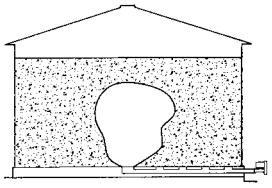


Fig. 2
("Bridging")

For unloading bins into a truck, the operator may want to leave the discharge gate over the bin being unloaded open, in addition to the discharge gate over the truck load-out. This will allow the operator to close the gate to the truck when it is full and let the loop clean-out as the inlet (bin well) is closed (See Fig's. 3 & 4).

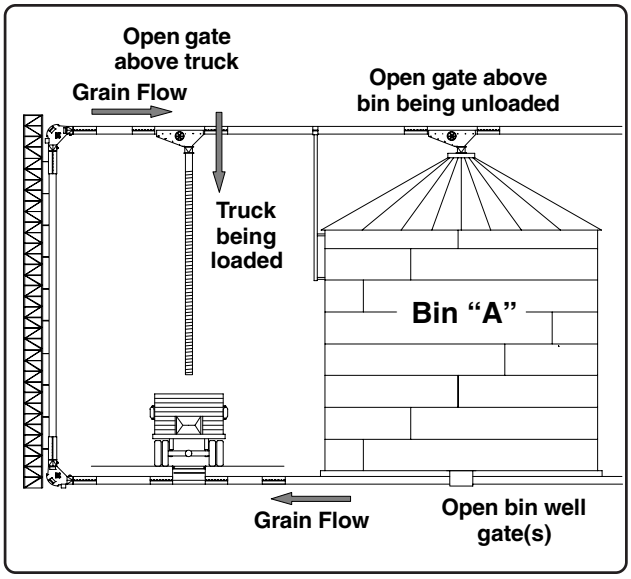


Fig. 3

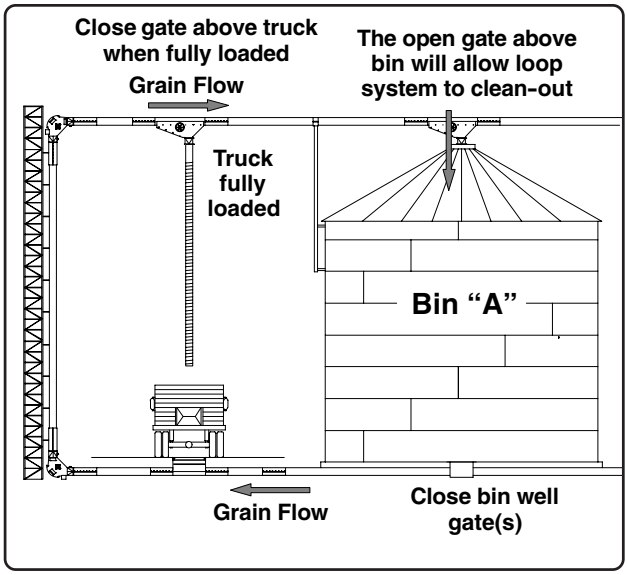


Fig. 4

OPERATING PROCEDURES

WARNING! Make certain everyone is clear before operating the equipment.

The operator shall be aware of any unusual vibrations or noises that would indicate the need for service or repair.

Keep all safety shields in place.

Keep hands, feet and clothing away from moving parts.

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

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 absent from the work area.

The reset and starting controls must be located so that the operator has full view of the entire operation.

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

Make certain electric motor is grounded.

Disconnect power before resetting motor overloads.

Shut off power and lockout whenever cleaning or servicing the conveyor.

Never enter the bin when the sweep auger is in operation. Never attempt to control the operation of the sweep auger by pushing on an operating sweep auger with shovels, brooms or other devices.

Do Not attempt to restrain the movement of the sweep auger by attaching ropes, bars or other devices to be held by an operator.

1. Start the conveyor for operation. Open the conveyor outlet gate for the desired discharge point (all gates should be closed except the one at the selected discharge point).
2. If moving grain from bins or storage structures, gradually open the gate in the center well until desired flow is established. ***Do Not*** overload the conveyor.

   If intermediate wells are used, they should be opened ***after*** grain has stopped flowing into the center well.

   When the desired amount of grain has been moved or unloaded, close all bin wells and allow the conveyor to clean itself out. **Shut down and lock out power source.**
3. If moving grain through a dump hopper, begin unloading grain from dump vehicle in small increments and gradually build up to desired flow. ***Do Not*** overload conveyor.

   After grain flow from dump vehicle has stopped, allow the conveyor to clean itself out and close outlet gate. **Shut down and lock out power source.**

EMERGENCY SHUTDOWN

Should the machine need to be immediately shut down under full load, **disconnect** and **lockout** the power source. Clear as much grain from the hopper and conveyor as possible. Use the release door provided in the standard corner to drain the vertical tube after the dump hopper.

Never attempt to restart when full. Starting the unit under full load may result in damage. Such damage is considered abuse of the equipment and will not be warranted.

NORMAL SHUTDOWN

Close flow controls in bin wells and allow the conveyor to empty before stopping the unit.

Before the operator leaves the work area, the power source shall be locked out.

INTERMITTENT SHUTDOWN

When a conveyor is stopped and started 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.

If a conveyor is kept from absolute filling, it will make start-up easier and will convey grain more efficiently.

LOCKOUT

The power source shall have a main disconnect box that can be locked only in the **"Off"** position. This is what **"shutdown and lockout"** refers to, shut off the main power source and lock handle or breaker switch in the **"Off"** position.

GENERAL MAINTENANCE INFORMATION

WARNING! A main power disconnect switch that can be locked in only the "OFF" position shall be provided. This shall be locked whenever work is being done on the conveyor.

Keep all safety shields and devices in place.

Never clean, adjust or lubricate a machine that is in operation.

Disconnect power before resetting motor overloads.

Shut off power and lockout whenever cleaning or servicing the conveyor.

Keep hands, feet and clothing away from moving parts.

For economical and efficient operation of your Grain Pump® maintain regular and correct lubrication. Neglect leads to reduced efficiency, excessive wear, and needless down time. Regular inspections should be established in order to ensure that the equipment is in good operating condition at all times. Use the "Machine Inspection" list on Page 6 for guidelines.

The following information will detail the parts that require lubrication and the various conditions that determine the frequency span.

CONVEYOR CHAIN

It is important not to overtighten the conveyor chain. However, if the chain is not sufficiently tight, it will slip at the drive sprocket as capacity is increased. Should this occur, shut off grain flow to the unit and allow conveyor to clean itself out. **Shutdown and lockout the power source (See Page 10).**

To check conveyor chain tension, open the inspection door, grasp one of the paddles and attempt to rotate it up toward the chain. Proper chain tension should allow only minimum rotation of the paddle (See Fig. 5).

Inspect the conveyor chain for loose bolts, missing chain parts, missing or damaged chain paddles and the overall chain condition.

IMPORTANT SERVICE - MAINTENANCE NOTICE:

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

To extend chain life, spray a light coat of vegetable oil on the chain after each season's use.

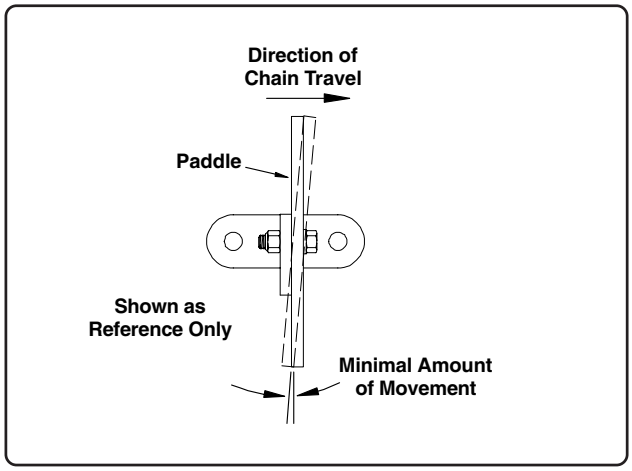


Fig. 5

Another indicator of proper chain tension is whether the traction wheel is turning while the loop system is running. When the chain gets slack in it, it loses contact with the smooth surface of the traction wheel so the wheel and shaft do not turn.

Also, the wheel and shaft may turn when the loop is being run with no-load, but when loaded, slack is created and the shaft and wheel will not turn.

To check chain tension in this manner, start loop system operation and note if shaft is turning (See Fig. 5A). Run both no-load and loaded to help determine proper tension. Adjust chain tension accordingly.

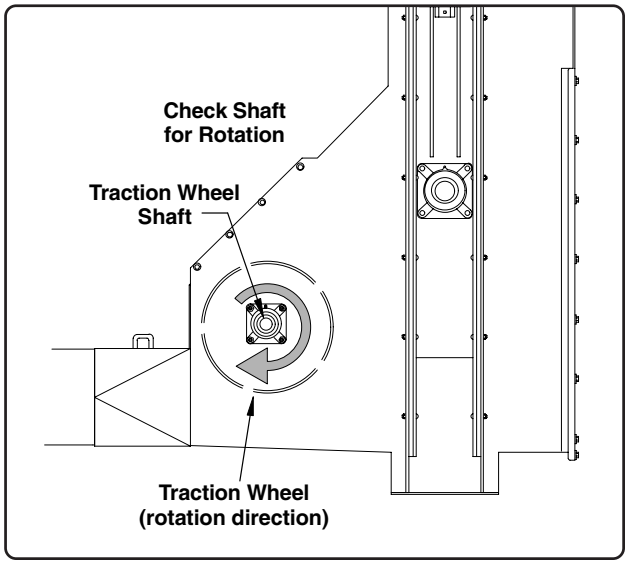


Fig. 5A

BEARING LUBRICATION

The bearings used in the various components of the loop system are equipped with lubrication fittings (grease zerks).

These bearings are self-aligning, sealed ball bearings which have been packed at the factory. They should be lubricated at approximately **fifty (50) hour intervals** with an SAE multipurpose type grease (See Fig. 6, Fig. 7, Fig. 8 & Fig. 9).

Typically only 1 pump is sufficient, *Do Not* over grease as this may damage the seals on the bearings.

Inspect bearings closely for wear and/or seal damage. Check that the bearings and lock collars are firmly fastened.

These bearings use an eccentric type lock collar. To tighten this type of lock collar, first slide it against the cam end of the inner ring of the bearing. Rotate collar in the direction of shaft rotation until the cams engage. Tap the collar further into this rotation to lock it, then tighten the setscrew.

Check all setscrews and hardware for tightness.

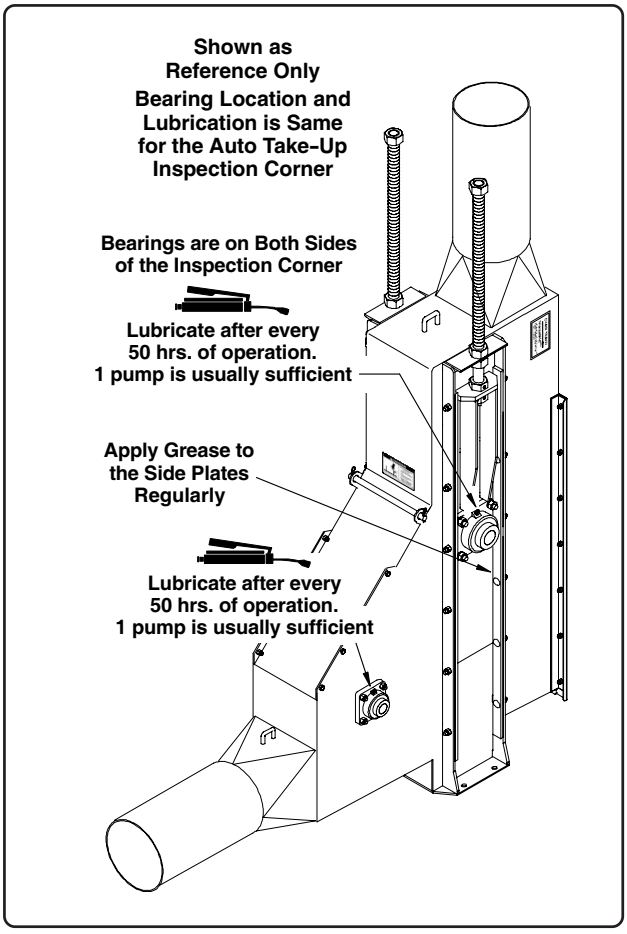


Fig. 6

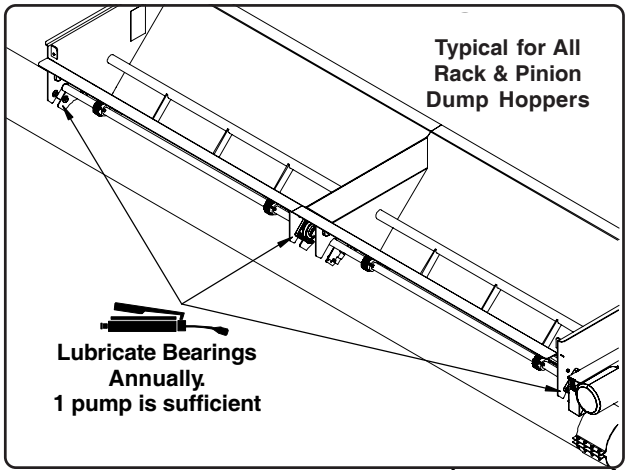


Fig. 7

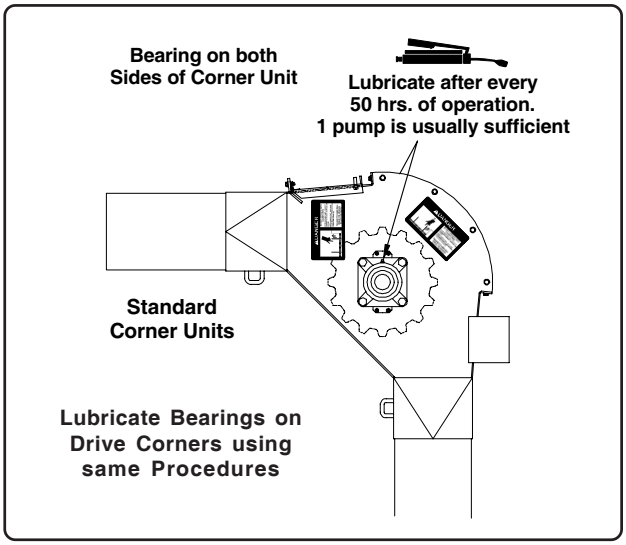


Fig. 8

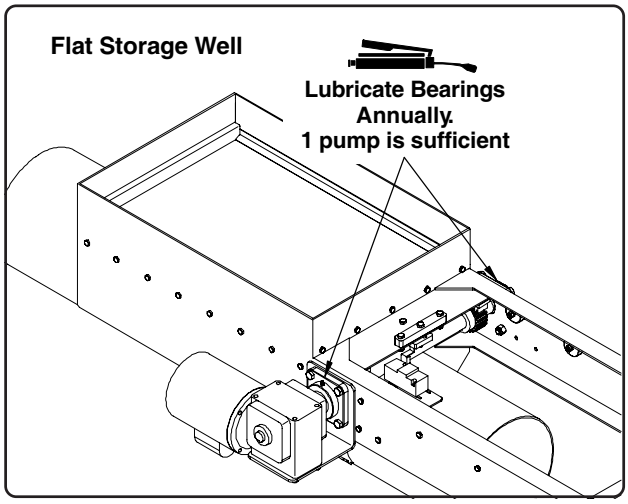


Fig. 9

LOOP SYSTEM & DROP ASSEMBLIES

Check hardware and fasteners to make sure they are all in place and secure.

For ground control discharge drops, ensure cables or chains are properly routed around the sprocket and pulleys (rollers) and operate freely.

Check connecting bands to ensure they are secure.

Ensure all hardware securing the towers and other support systems are tight and properly installed.

DRIVE CORNER BELTS

WARNING! A main power disconnect switch that can be locked in only the "OFF" position shall be provided. This shall be locked whenever work is being done on the conveyor.

The drive belt tension should be checked regularly. Check belts for tightness, cracking, fraying or other damage. Replace as necessary.

To tighten belts, turn the 3/4" nuts on the motor mount rods to raise the motor mount assembly (See Fig. 10). Raise all the rods the same distance so the motor mount assembly is parallel with top of conveyor trunking.

Proper tension is **1/2"** ***(13 mm)*** of deflection per belt when belts are firmly pressed at the center of the span between the two sheaves.

Sheaves must be aligned with each other. Check alignment by placing straight edge across the outer face of both sheaves.

Check that drive keys are properly installed and mounting bolts in sheave taper lock bushings are tight.

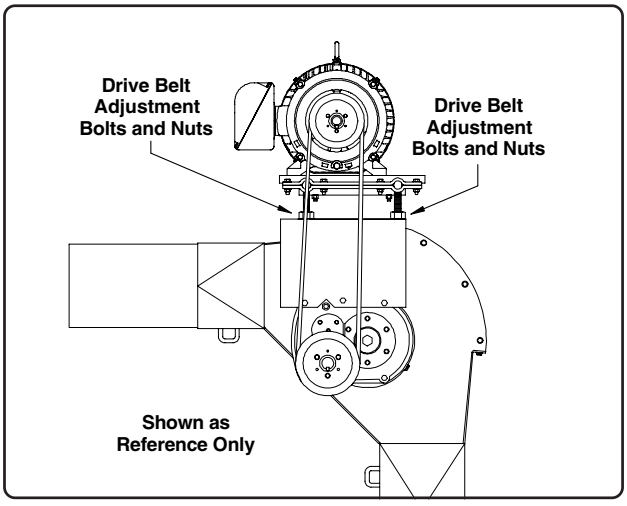


Fig. 10

AUTO TAKE-UP CORNER

If the conveyor is equipped with an Auto Take-up on the inspection corner, the take-up slide mechanism needs to be inspected and lubricated regularly.

There are two lubrication fittings (grease zerks) for the slide mechanism located on each side of the inspection corner (See Fig. 11). **These fittings should be lubricated after approximately every 10 hrs. of operation. 1 to 2 pumps of an SAE multi-purpose grease is typically sufficient.**

The sprocket and carriage assembly will go through an up/down cycle when the conveyor is started; therefore the free travel of the sprocket carriage must be maintained.

Be sure that the sprocket carriage is not fully bottomed out. If the carriage is in the full down position, then it may be necessary to shorten the chain by removing one or more links to tighten the chain. (Refer to "Conveyor Chain" information for proper chain tension.)

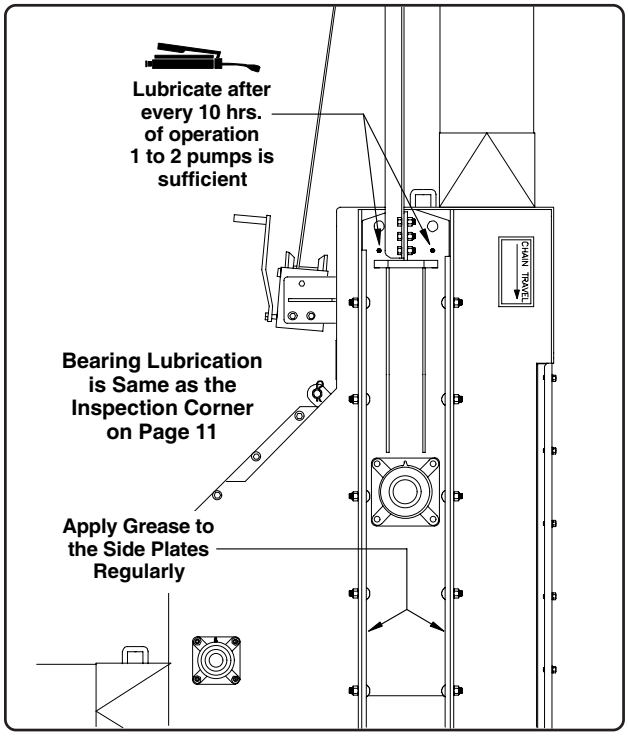


Fig. 11

DRIVE AND CORNER SPROCKETS

The conveyor chain sprockets should be occasionally checked against sliding on the shaft. The sprockets must be centered in the middle of the housing.

Ensure the sprockets are centered in the housing and the setscrews are tight securing the sprocket into place.

GEAR REDUCER

IMPORTANT! Because the gear reducer is shipped **without oil**, it is necessary to add the proper amount of oil before conveyor operation.

Use a high grade petroleum base, rust and oxidation inhibiting (R & O) gear oil, an ISO 220 grade is recommended for ambient temperatures of 50°F to 125°F *(10°C to 52°C)*. Follow the instructions on the reducer name plate, warning tags, and in the instruction manual provided with the reducer.

Under normal industrial operating conditions, the lubricant should be changed every **2500 hours of operation or every six (6) months,** whichever occurs first. Drain the reducer and flush it with kerosene, clean the magnetic drain plug and refill reducer to its proper level with new lubricant.

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

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil pump temperatures above 200°F *(93.3°C),* the oil should be changed every **1 to 3 months** depending on severity of conditions.

For reducers operating in ambient temperatures that range between -22°F *(-30°C)* and 20°F *(-6.6°C),* the use of a synthetic hydrocarbon lubricant, 100 grade or AGMA 3 grade (for example, Mobil SHC627) is recommended.

Some of the reducer gearboxes are oriented in position "A" as shown in Fig. 12 **(also refer to the manual provided with the gearboxes).**

Use the oil level and fill plugs for the gearboxes oriented in position "A" as shown in Fig. 12.

For the gearboxes that are oriented at an angle, you should use a dipstick type device to check the oil level (See Fig. 12).

Use the vent/fill plug opening to insert the dipstick and mark the level onto the dipstick for future reference. Use this same method for checking oil level for all future level checks.

The gearboxes are equipped with a magnetic drain plug. When changing oil, ensure the the drain plug is clean of all metal filings before reinstalling.

Note: The following oil fill levels apply to loop systems which are installed vertically. For angled loop systems consult the manual provided with the gearbox for proper oil level.

Capacities:

6" Models

Reducer SCXT215 f/ 5, 7 1/2 & 10 HP systems *(4, 5.5 & 7.5 kw)* approx. 1 qts. *(.95 L)*

Reducer SCXT315 f/ 15 HP *(11 kw)* system approx. 1 3/4 qts. *(1.66 L)*

Reducer SCXT415 f/ 20, 25 & 30 HP systems *(15, 18.5 & 22 kw)* approx. 1 7/8 qts. *(1.77 L)*

8" Models

Reducer SCXT415 f/ 15 & 20 HP systems *(11 & 15 kw)* approx. 1 7/8 qts. *(1.77 L)*

Reducer SCXT515 f/ 30 HP *(22 kw)* system approx. 3 1/2 qts. *(3.3 L)*

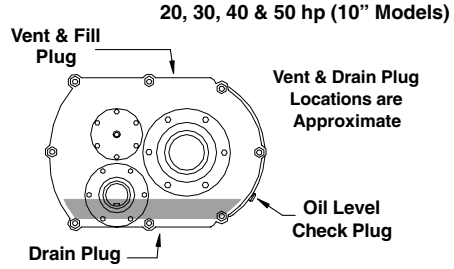
Reducer SCXT615 f/ 40 HP *(30 kw)* system approx. 4 1/4 qts. *(4.00 L)*

10" Models

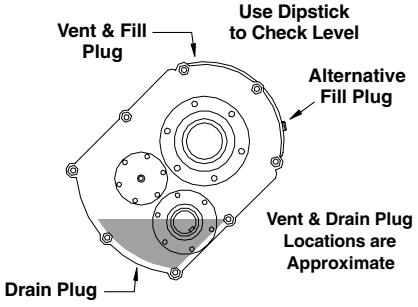
Reducer SCXT415 f/ 20 HP *(15 kw)* system approx. 1 7/8 qts. *(1.77 L)*

Reducer SCXT515 f/ 30 HP *(22 kw)* system approx. 3 1/2 qts. *(3.3 L)*

Reducer SCXT615 f/ 40 & 50 HP systems *(30 & 37 kw)* approx. 4 1/4 qts. *(4.00 L)*



Oil Level Shown with Reducer at Position "A" as Shown in the Manual Provided with the Reducer



Reducer Position for 5, 7 1/2, 10 & 15 hp (6" Models)

Fig. 12

RACK & PINION

Rack & Pinion f/ 13" Floors

The rack & pinion control does require a little maintenance. The handle is supported with bronze bushings. A lubricant spray can be used on these bushings every **6 months or annually** depending on climate conditions and severity of operation.

These bushings should also be lubricated when the loop system will be idle for an extended period of time.

A **chain lubricant** should be used to keep the chain rust free and in good operating condition. This procedure should be performed **every 6 months or annually.**

There are openings on the sides of the Rack & Pinion housing that allow access to the chain and sprockets. The sprockets should be lubricated at the same time the chain is being serviced.

Rack & Pinion f/ 15" Floors

Lubricate the chain shaft and the tube guide the chain shaft slides on every **6 months or annually** depending on climate conditions and severity of operation.

A **chain lubricant** or **good quality grease** can be used to keep the chain rust free and in good operating condition. A spray lubricant can also be used to keep the sprocket in good condition**.**

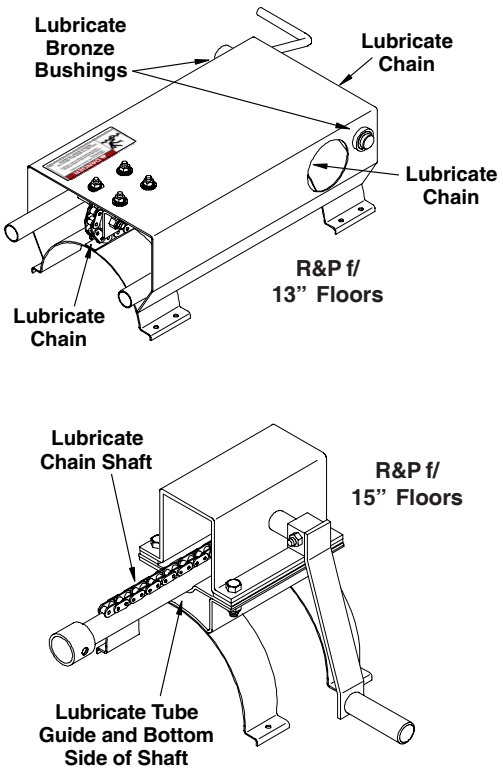


Fig. 13

TROUBLE SHOOTING

1. Extreme noise from housing.

A. Conveyor chain is too loose. Chain is slipping at drive sprocket. Check chain tension and adjust, as necessary.

B. Improper assembly or misalignment of housing. Locate tube connection(s) that is the source of noise and disassemble. Check for end smoothness and grind, if necessary.

C. A conveyor sprocket is not centered in a corner unit causing paddles to rub hard on conveyor sides. Sprocket must be moved on shaft to center position and locked.

2. Belt slippage on electric drive.

A. Incorrect belt tension. Turn the adjustment bolts on the motor mount until proper tension is reached.

B. Unit is plugged. Clear the grain and any obstructions from the machine as is possible.

3. Grain returning to the intake.

A. All discharge spout gates may be closed. Make sure the proper gate is open.

B. Partially blocked discharge; remove obstruction.

C. Chain travel is too fast causing grain carry-over.

4. Unit not running to full capacity.

A. Grain is high in moisture causing lower capacity. Excessive feeding of high moisture grain can cause plugging.

B. Chain speed is too slow.

C. Obstruction at intake.

D. There is grain returning to the intake (See 3 above).

5. Paddle breaking or bending.

A. Paddles may be coming loose from the chain. Keep paddles securely connected to chain.

B. Housing misalignment.

C. Frequent starts under loads. Allow machine to clean out before shutting down.

D. Sprockets may be off center. Align in center of housing.

E. Overfeeding; adjust the feeding of the unit to allow less grain to enter while maintaining full speed.

INSTALLATION

The purpose of this section is to advise and instruct owners on how the equipment can be installed.

A millwright or other experienced contractor should perform the installation. **The installer should read this manual and understand the complete operation of the equipment.**

INSTALLATION INFORMATION

- All systems require the joining of four or more sections of tubular conveyor housing.
- All systems will include four 90° corners.
- The 90° discharge with gate includes either an 8' *(2.44 m)* or 12'-6" *(3.81 m)* long section of tubular housing that must be fit within other conveyor tubing so the discharge is properly located.
- The inlet dump hoppers include a length of tubular conveyor housing that must fit within other tubular housing so the hopper is located properly.
- Wells used in grain bin floors fasten onto standard tubular conveyor housing. Access openings must be cut in the tubing to install wells.

LAYOUT

Grain Pump® Systems are usually installed around rows of storage structures, with access for vehicle or rail traffic and other devices.

Grain bins may be conventional or elevated on a supporting structure with hopper bottoms.

Grain dryers, cleaners or other devices may have access to the system.

Systems have been used to transfer between trucks and rail cars with several temporary storage tanks included.

The Grain Pump® conveyor can be used in many different ways and operation can vary from installation to installation.

Thought given to proper grain system layout prior to conveyor installation can prevent later problems in the grain flow plan and avoid possible "bottle-necks".

A layout should be made to determine the exact location of conveyor, inlets, outlets, power source, support and mounting locations.

The illustration on Page 17 shows some of the various components that can be used with your system. Consideration during the layout process should be given to their location if any of them are to be used in your application.

LAYOUT (con't.)

Dimensional information of components is found in the Parts List Section beginning on Page P-3.

IMPORTANT! If using the chain access assembly, it is recommended that it be installed on a horizontal section of the loop system.

LAYOUT CONSIDERATIONS

Following are major items that should be considered when laying out the system:

A. Type of material to be conveyed.

B. Volume of material to be conveyed [bushels *(tons)* per hour].

C. Location and amount of material fed into system.

D. Location and number of outlets.

E. How will the conveyor be supported?

F. Installation of a catwalk?

G. Further expansion. Will more bins be added and where?

H. The direction of grain flow.

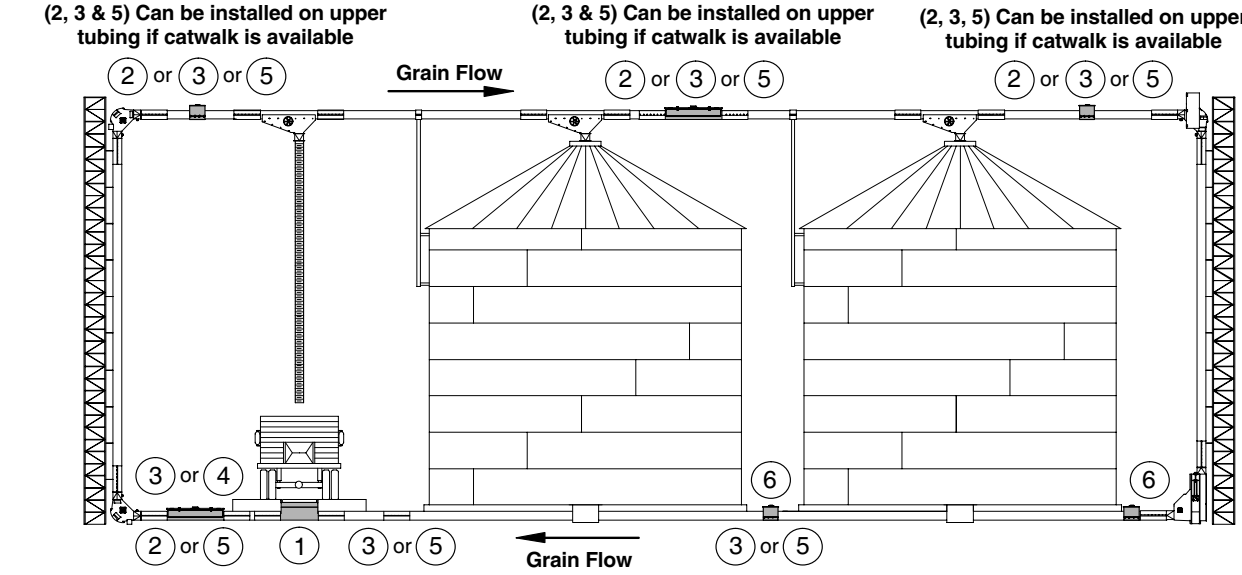
Note: If two drive corners are used, the regular drive corner and the reversed drive corner can be switched to allow the belt guard (drive motor) to be on a particular side of the loop.

Use these general guidelines to help layout your conveyor system:

- Grain pumps are designed to move grain in one direction only.
- Leave adequate room to perform periodic maintenance.
- The conveyor will handle a wide range of free flowing grains. It should not be used with highly corrosive material, such as fertilizer. The life of the conveyor chain will be shortened when the chain is allowed to sit in water or is operated in acidic conditions, so avoid these situations.
- Be sure not to overfeed the conveyor. This will cause plugging. Intake rate should not exceed the particular capacity of the conveyor.
- It is important that a firm, level foundation or support structure be provided on which the conveyor can be mounted. This support should be ample to carry the load of the conveyor when fully loaded.
- Locate outlets where connecting bands will not interfere with outlets or control. ***Do Not* cut or modify tube connecting bands.**

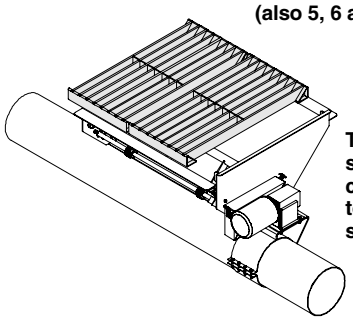
LAYOUT INFORMATION

Location of Components shown as a reference only.



2 Grate Dump Hopper
(also 5, 6 and 7 grate hoppers)

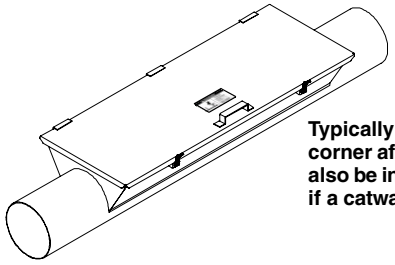
1



Typically located near standard corner where chain and paddles turn to carry grain into the system.

Chain Inspection Access
(horizontal installation only)

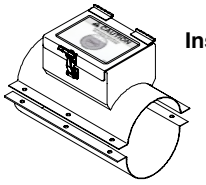
2



Typically located near standard corner after dump hopper, can also be installed in upper tubing if a catwalk is available

Inspection Port

3

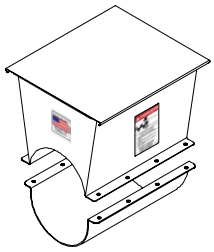


Inspection Ports's may Differ in Appearance

Typically located near standard corner, usually after dump hopper (must be installed in horizontal tube). Can also be installed in upper horizontal tubing if a catwalk is available .

Inlet Hopper

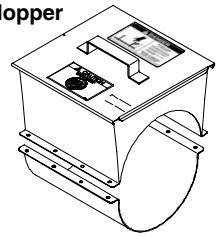
4



Used mainly for dumping grain into the system without using the drive-over dump hopper. Typically located near standard corner or outside of the loop system tying into another loop system.

Inspection Hopper

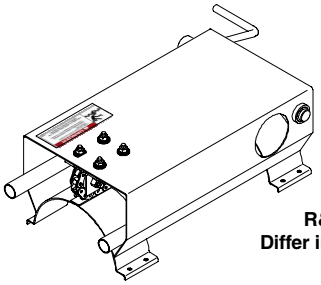
5



Generally installed after dump hopper or each bin. Can basically be installed anywhere along the horizontal tube of the loop system to view grain flow.

Rack & Pinion Control

6



R&P's may Differ in Appearance

Located outside of grain gin or storage structure close to outside wall. Opens and closes center and intermediate well gates.

SYSTEM SUPPORT INFORMATION

Towers or other adequate supports are needed to hold the vertical ends of the Grain Pump® System in position.

Consider the weight **per foot *(meter)* of a fully loaded tubular conveyor,** based on **56 lb. per bu. of material *(720 kg per cu. meter),*** the individual corners and all other components, particularly the ones with drives which weigh considerably more.

The horizontal tubular conveyor should be supported at 20 ft. to 30 ft. *(6.10 to 9.14 m)* intervals. This can be done with vertical supports from the ground, from the bin side walls or from the bin roof at the peak. **Consult the bin manufacturer concerning their recommendations for loads their bin will support in these areas.**

Weight per foot *(meter)* of tubular conveyor:

Conveyor Tubing Empty:

6" = 10.5 lbs/ft. *(14.9 kg/m)* **8"** = 18 lbs/ft. *(17.9 kg/m)* **10"** = 20 lbs/ft *(22 kg/m)*

Conveyor Tubing Fully Loaded:

6" = 19.5 lbs./ft. *(28.3 kg/m)* **8"** = 34 lbs/ft. *(41.7 kg/m)* **10"** = 45 lbs/ft. *(59.5 kg/m)*

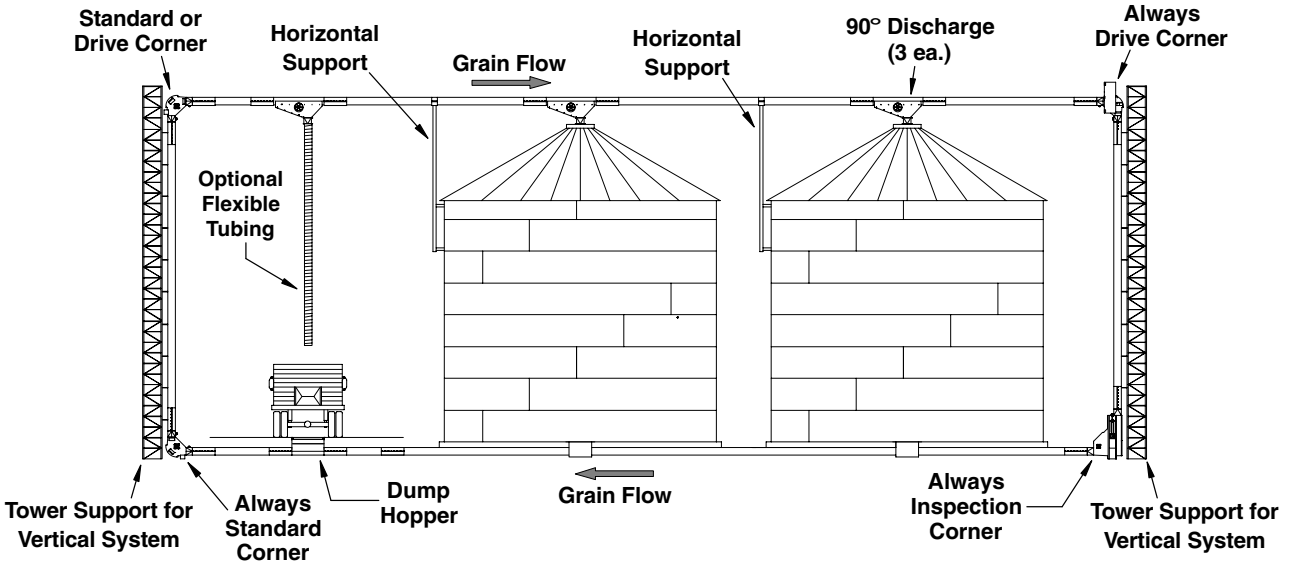
GRAIN FLOW AND DRIVE CORNER LOCATION

Grain Pump® Loop Systems will include one or two drive corners. The drive corner, on systems with one (shown in the illustration below), must be located at the overhead point toward which the overhead chain will travel. On systems with two drive corners locate them at the two overhead positions.

The inspection corner includes the adjustable slide that is used to tighten the conveyor chain. Locate the inspection corner on the bottom at the end where the conveyor chain travels down from top to bottom. The inspection corner also provides access to the conveyor chain and paddles for periodic maintenance.

There will be one or two standard corners, depending on the number of drive corners. They will be located at the end where the conveyor chain moves up carrying grain from the bottom to the top. When there are two drives, there is only one standard corner located at the bottom.

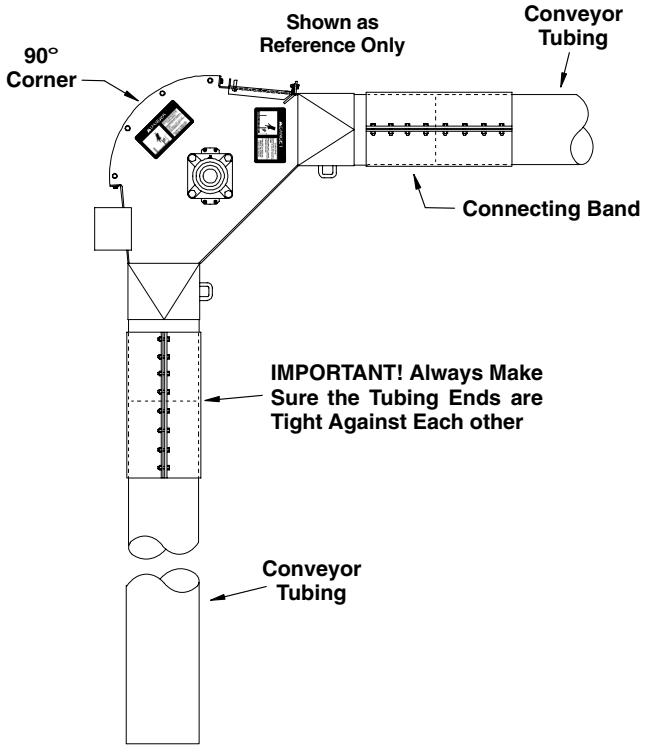
The system should be laid out to minimize the distance grain must be moved to perform the necessary loading and unloading operation. In the example, the dump hopper is located next to the end where the grain will be carried up to the overhead part of the system. If the dump hopper were located at the other end of the system the grain must travel a greater distance in the system to reach a bin. Grain would also travel a greater distance to the load out point when unloading bins.

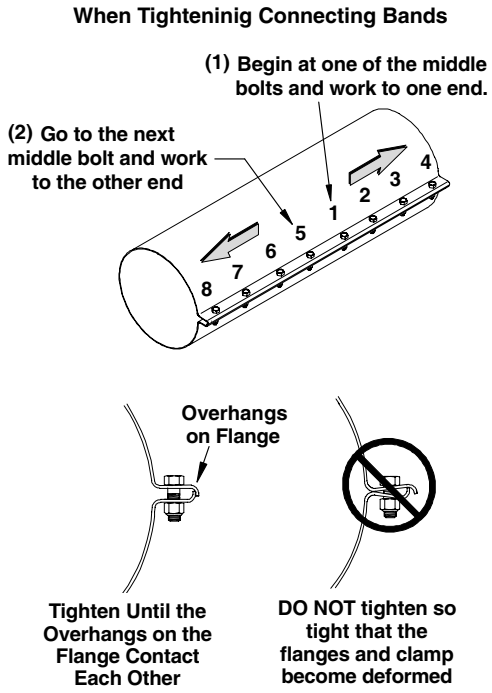


TUBE AND CORNER ASSEMBLY

Lay the tubing and corner sections out in order so as to determine what portions to assemble prior to actual placement in the system.

When cutting tubes to exact length, the ends must be cut square and any burrs on the ends removed. Join the corner tubes and conveyor tubing together with connecting bands (slide the tube sections tight together). Tighten using the hardware provided with the connecting bands.



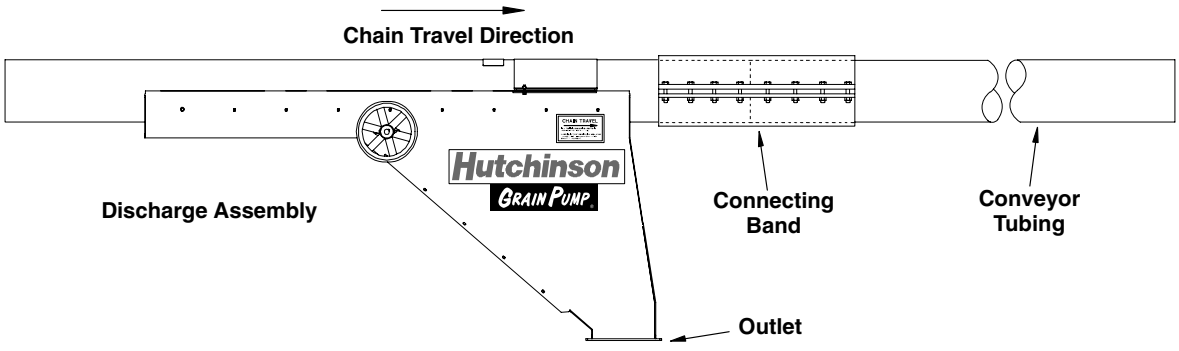


DISCHARGE WITH GATE ASSEMBLY

The discharge unit includes either a 8 ft. or 12'-6" *(2.44 m or 3.81 m)* long section of conveyor tube. Locate the outlet of the discharge in the desired location. It may be necessary to cut exact lengths of other tube conveyor sections to locate the discharge unit in its proper place.

The discharge with gate is designed for chain travel through in only one direction. Make sure it is oriented properly by comparing the appearance to the diagram or referring to a label on the discharge unit. **Operation in the wrong direction can cause paddle damage.**

Fasten the discharge in place within the tubular conveyor with connecting bands. Secure using the hardware provided with the connecting bands.

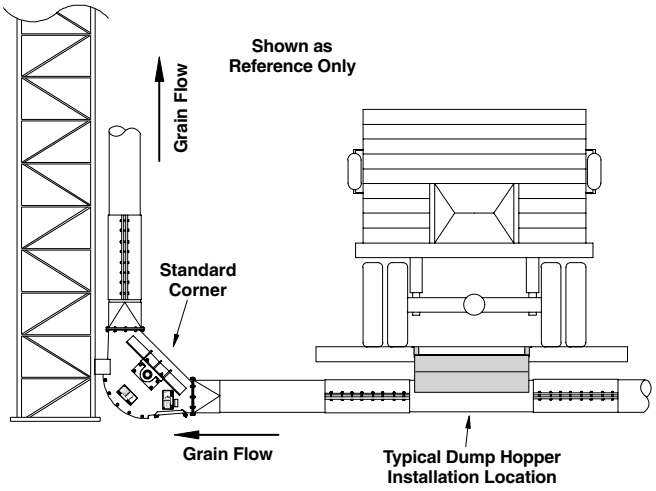


INLET DUMP HOPPER INSTALLATION

The dump hopper will include conveyor tubing from 8' to 15'-4" depending on the length of the dump hopper selected. It will also include either a top safety screen or drive over grating depending on your application.

There is a grain flow control inside the hopper that is adjustable using chains mounted at each end. There is also a dump hopper available that has a control gate operated by an electric motor. The instructions for the electric motor connection are included with the motor and requires installation by a qualified electrician.

A dump hopper is to receive grain into the Grain Pump® Loop System and should be located at a point along the bottom conveyor portion. Usually the dump hoppers are located near the standard corner where the chain and paddles turn to carry grain up into the system (See illustration below).

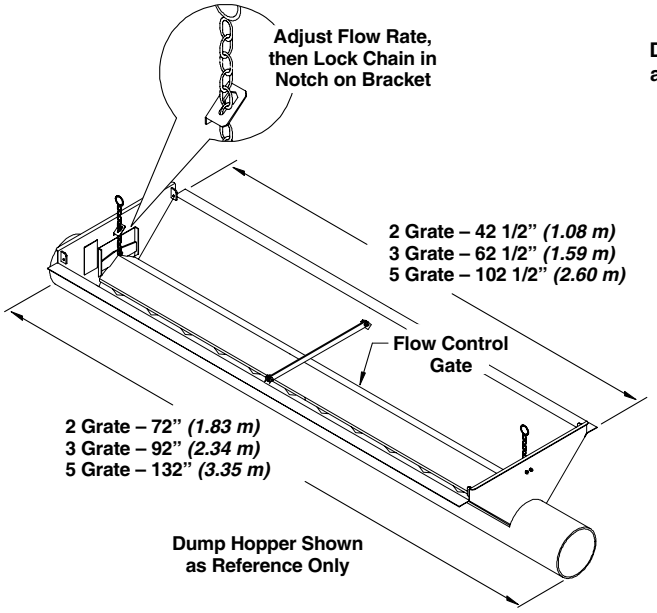


A hopper with top safety screen may be used in non-drive over situations (the top safety screen ***will not*** support vehicles). Make sure either the top safety screen or drive over grating is in place on the hopper at all times.

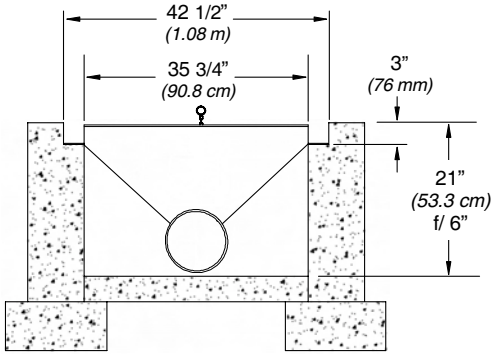
For drive-over systems the grate must be supported by a concrete structure, such as shown below. Even if the dump hopper is not used for a drive-over system, it will still need some type of support structure.

Once the location of the dump hopper has been determined and properly installed, attach the hopper to the loop system conveyor tubes using the connecting bands provided.

6" Drive-Over Hoppers



Dimensions given are used with all 6" drive–over dump hoppers

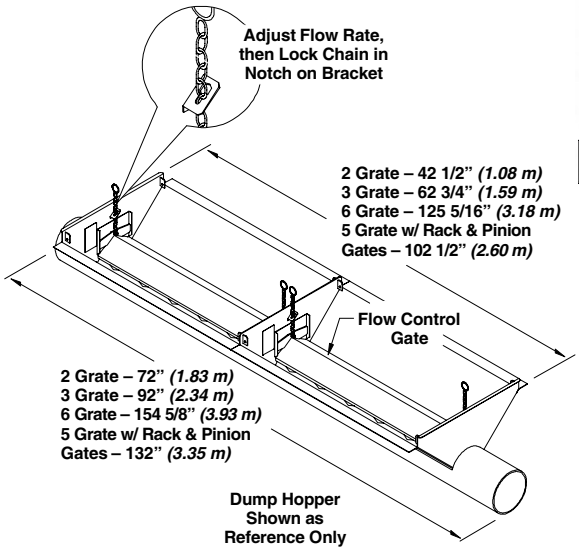


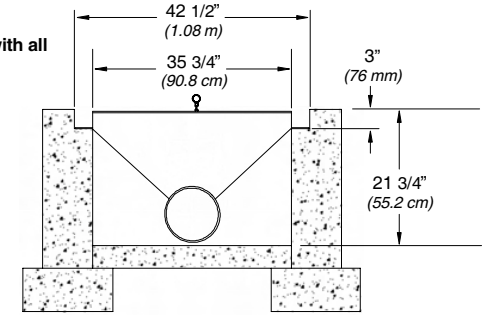
Use Concrete Structure for Drive–Over System
Use Similar Support Structure for Non–Drive Over Applications

INLET DUMP HOPPER (con't.)

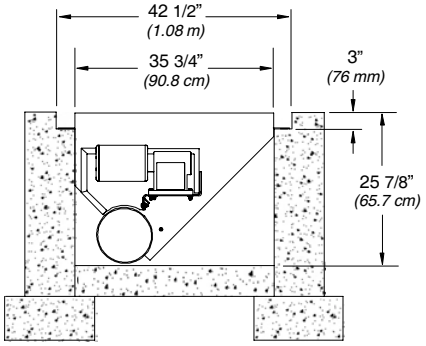
8" Dump Hoppers

Dimensions given are used with all 8" drive-over dump hoppers.





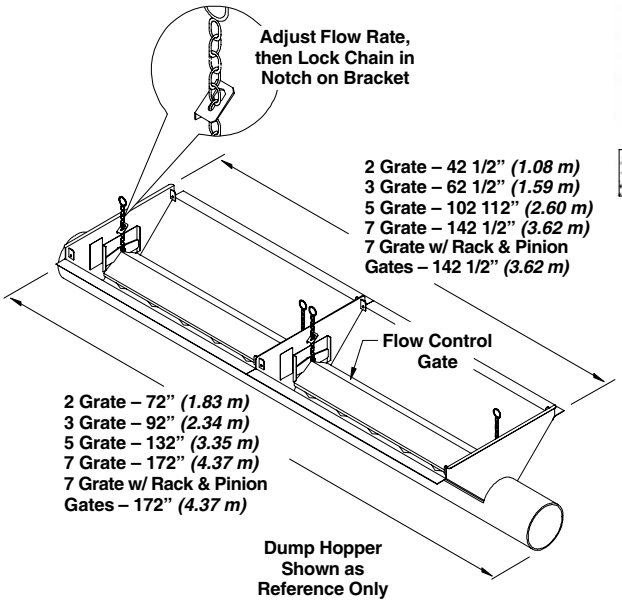
Use Concrete Structure for Drive-Over System
Use Similar Support Structure for Non-Drive Over Applications

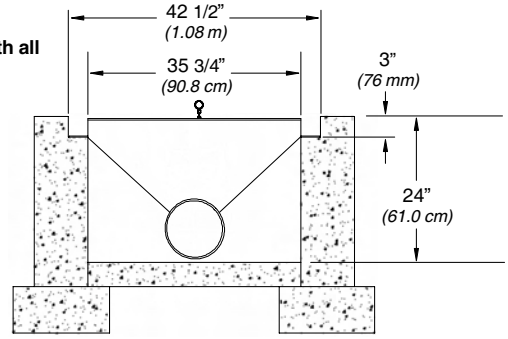


5 Grate Dump Hopper w/ Rack & Pinion Gates

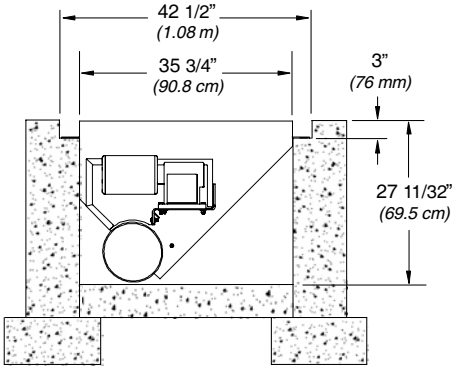
10" Dump Hoppers

Dimensions given are used with all 10" drive-over dump hoppers.





Use Concrete Structure for Drive-Over System
Use Similar Support Structure for Non-Drive Over Applications



7 Grate Dump Hopper w/ Rack & Pinion Gates

AUTO TAKE-UP CORNER ASSEMBLY

After the location for the corner assembly has been determined, attach the upper and lower tubing sections to the conveyor tube system and secure using the connecting bands provided.

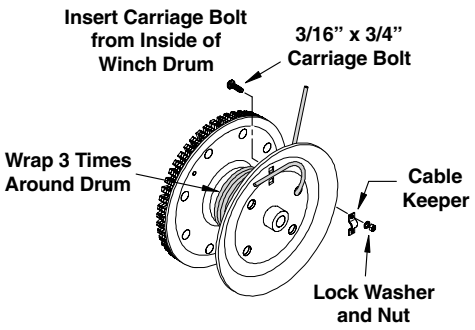
1. Install the winch onto the mounting bracket located on the inside face of the corner assembly. Secure the winch using three 3/8" x 1" bolts and nylon locknuts. Attach the winch handle to the winch.
2. Mount the weights onto the auto take-up carriage. Place a single weight on one side, then another weight on the opposite side. Repeat until all eight weights have been placed onto the auto take-up carriage. To keep the weights from sliding off, install a 3/8" x 1-1/2" bolt and nylon locknut onto each end of the take-up carriage.
3. Assemble the pulley using the provided pulley wheel, side plates, bushing and 1/2" x 2" bolt and nylon locknut. Hang the pulley assembly from the pulley bracket mounting tabs and secure using one 1/2" x 2-1/2" bolt and nylon locknut.
4. Fasten the pulley bracket w/pulley onto the vertical tube above the auto take-up weights, as shown below. Position the pulley bracket approximately 34" *(86.4 cm)* above the top of the corner, and using one halfband and six 3/8" x 1-1/2" bolts and non-lock nuts, secure the pulley bracket to the tube. (Make sure the pulley hangs directly above the large hole centered between the two sides of the auto take-up carriage).
5. Attach the lift cable to the winch drum as shown below. Wind the cable onto the drum such that the cable wraps around the drum three times. (The cable should wrap from the bottom of the drum when the handle is turned in a clockwise direction).

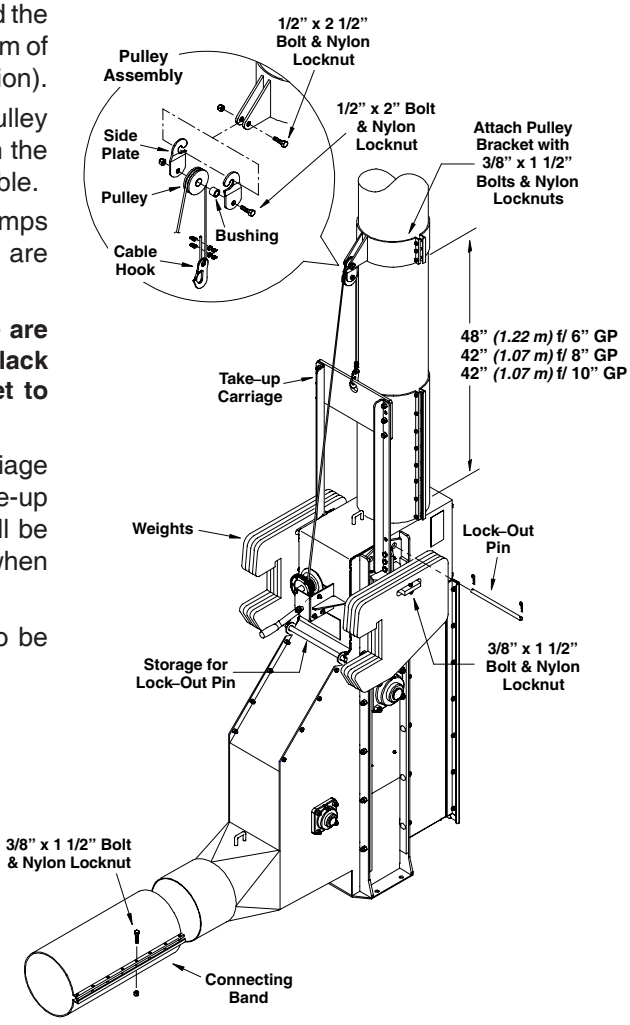
   String the loose end of the cable up and through the pulley previously installed above the take-up carriage. Attach the cable hook to the cable and leave a little slack in the cable.

   Secure the ends of the cable using the two cable clamps provided. (Make sure the u-bolt portion of the clamps are against the loose end of the cable).

   IMPORTANT! When the weights and take-up carriage are in the full down position, there needs to be some slack in the cable. This allows the chain tension sprocket to provide proper pressure on the chain.
6. Operate the winch and check to see that the take-up carriage travels through its entire range of travel (when the take-up carriage is in its full raised position, the lockout pin will be inserted through the slide plates to support the carriage when servicing the unit is required).

   When lowered to its full down position, there needs to be some slack in the cable.





WARNING! Do Not operate the conveyor when inspection or access doors are open.

DRIVE CORNER

WARNING! Whenever you must service or adjust the equipment, make sure to stop the motor and lock-out the power source.

A main disconnect switch capable of being locked in only the "Off" position shall be used. This shall be locked whenever work is being done to the conveyor.

The Commercial Grain Pump® Loop System is powered by an electric motor. Always use a motor with required horsepower *(kw)* as calculated on Page 7. Use a 60 hz motor that operates at 1750 RPM *(50 hz @ 1460 RPM).* Also see "Electric Motor Drive Information" and Lockout procedures on Pages 6 & 10 in this manual. ***For 50 hz motors, different drive pulleys are required, consult factory for proper specifications.***

Electrical motors and controls must be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all state and local codes.

IMPORTANT! Use the motor sheave that is furnished with the conveyor system. If a different size sheave is used or substituted, improper chain speed will result causing unsatisfactory conveyor operation.

Use the proper size and speed motor to ensure the conveyor operates effectively and efficiently. Too small a motor will not supply the horsepower *(kw)* required to achieve capacity and possible damage to the motor can occur.

Too large of a motor may cause high stress on the conveyor components resulting in shorter life for these components. Refer to Page 7 for information on calculating correct motor size.

If two drive corners are used, the regular drive corner and the reversed drive corner can be switched to allow the belt guard (drive motor) to be on a particular side of the loop.

1. Attach the flanged tube sections to the drive corner using 3/8" x 1" bolts and nylon locknuts. Connect the drive corner and flange tubes to the conveyor tubes using the connecting bands and 3/8" x 1 1/2" bolts and nylon locknuts provided.
2. Install the cooling fan (if provided) to the reducer shaft using the instructions provided with the cooling fan.
3. Mount the belt guard according to the instructions provided with the belt guard and drive components.

   When mounting the sheaves to either the motor shaft or reducer shaft do the following:

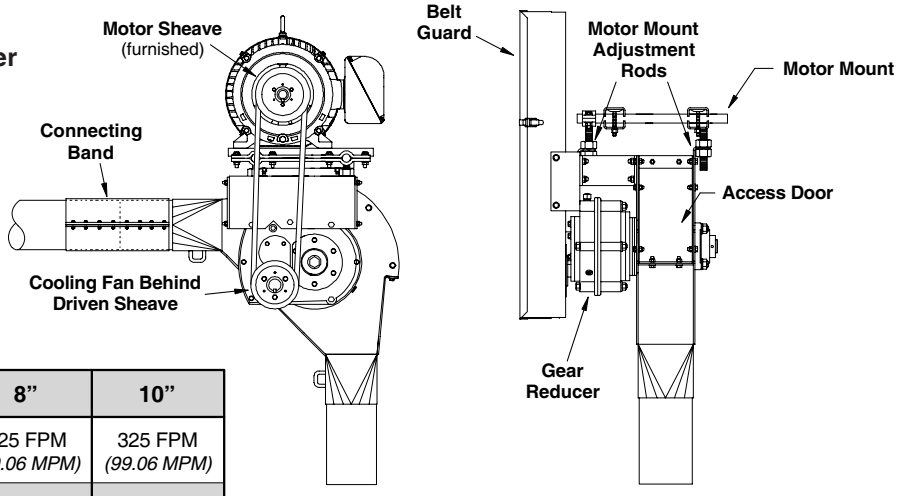
   Install the bushing onto the shaft first, then slide the sheave onto the bushing (the bushing will be on the inside).

   Install the driven sheave as close to the back of the belt guard as possible. Align sheaves by using a straight edge placed across the face of both sheaves. Secure sheaves into place.

   Install the drive belts to the sheaves and set belt tension. To tighten belts, turn the 3/4" nuts on the motor mount bolts until belt tension has been achieved (proper belt tension is approx. 1/2" *(13 mm)* of deflection when belts are firmly pressed in the center of the span between the two sheaves.

   IMPORTANT! The gear reducer is shipped <u>without oil</u>. It is necessary to add oil before unit operation. Refer to Page 14 for procedures on adding oil and the proper grade of oil to be used.

Typical Drive Corner Assembly



Unit Size	6"	8"	10"
Recommended Chain Speed	325 FPM *(99.06 MPM)*	325 FPM *(99.06 MPM)*	325 FPM *(99.06 MPM)*
Corner Shaft RPM	124 RPM	109 RPM	94 RPM

INSPECTION CORNER INSTALLATION (MANUAL TAKE-UP)

CAUTION! Do Not operate the conveyor when the inspection door or access doors are open.

After the location for the inspection corner has been determined, attach the vertical conveyor tubing to the top of the inspection corner and the horizontal conveyor tubing to the bottom of the inspection corner using the connecting bands provided.

When cutting tubes to exact length, the ends must be cut square and any burrs on the ends removed (make sure the tube ends are tight against each other when installing connecting bands).

1. Remove the inspection door on the rear of the corner assembly and the access door on the front as well (this will give you access when running the chain and paddle sections through the loop system).

   The rear inspection door, and the access panel can be removed to check chain tension whenever it is necessary. **Do Not operate the conveyor with the inspection or access doors open.**

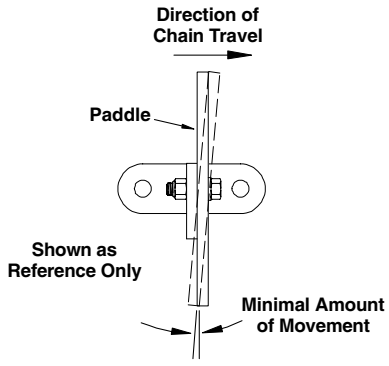
   To check chain tension, grasp one of the paddles and attempt to rotate it towards the chain. Proper tension should only allow minimal movement of the paddle. Another indication of proper chain tension is whether the traction wheel shaft is turning while the loop system is running. **See Page 11 in the Maintenance Section formore information on this procedure.**

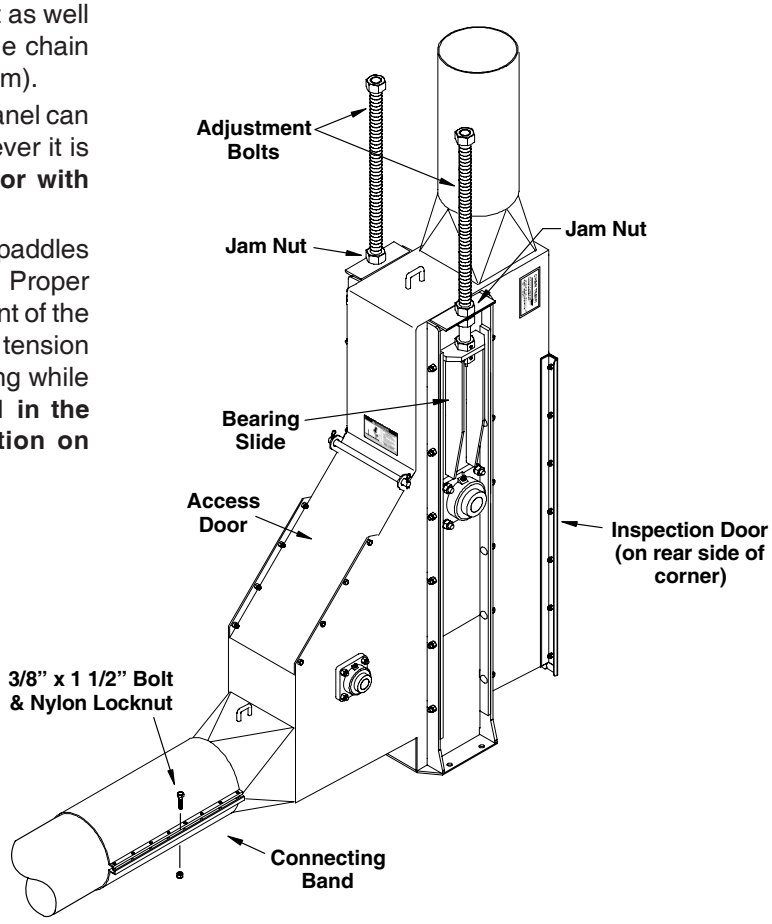
2. When chain tension requires adjustment, remove the inspection door from the rear of the inspection corner assembly. Loosen the jam nuts securing the adjustment bolts at the top of the housing.

   Turn each adjustment bolt in equal increments until desired chain tension has been achieved.

   If the chain is still too loose after the inspection corner sprocket has been adjusted to the full down position, it may be necessary to remove one or more links from the chain.

   When adjustment of chain tension is complete, tighten jam nuts to lock bearing slides & sprocket into place.





CHAIN & PADDLE ASSEMBLY

CAUTION! The areas around the chain sprockets can create pinch points causing personal injury. Use caution when working around these areas.

The take-up carriage is provided with a lock-out pin. To avoid serious injury, Do Not attempt to access or service the chain, paddles or other parts within the inspection corner without the lock-out pin in place.

Note: Some units may be shipped with the paddles already attached to the chain. If your unit already has the paddles attached, continue with Step 2 below.

If the paddles have not been installed, begin with Step 1 below.

1. Install the paddles so that the paddle mounting brackets are behind the paddles as grain is being moved through the conveyor tubes.

   For 81X chain (6" models), attach each paddle to the mounting brackets with two (2) 5/16" x 1 1/4" bolts, two (2) flat washers (on paddle side) and two (2) nylon locknuts, **8" and 10" (81XHH chain)** use 5/16" x 1 1/2" bolts (See illustration below). Make sure a paddle is attached to every mounting bracket along the length of the chain.

2. It will be necessary to use an electrical fish tape, wire, or rope to pull the chain through the conveyor tube sections. It is recommended to begin and end at the take-up inspection corner, as this will be where the chain's tension will be determined. Using the winch, raise the take-up carriage and weights high enough to **insert the lock-out pin** through the slide plates to support the raised carriage (for manual take-up corner, use the adjustment bolts to raise sprocket high enough to allow clearance for chain assembly).

IMPORTANT! On long horizontal runs it is possible for the chain to rotate 360° during the pull-through between corners. Use inspection doors discharge gates and openings in bin wells to observe the chain position along the length of the conveyor sections.

After the chain and paddles have been installed through the conveyor housing and around all corner sprockets, connect the ends of the chains together at the take-up inspection corner using the connecting link and cotter pins provided.

Once the chain ends have been connected together, slowly lower the take-up carriage aligning the sprocket and the chain. Continue lowering the carriage until sprocket is down as far as it can go.

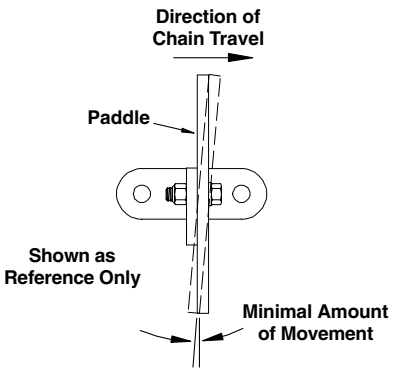
For **auto take-up** corners, the full weight of the carriage will be resting on the chain and there should be a bit of slack in the winch lift cable **(if the lift cable is tight during operation, proper chain tension will not be maintained).**

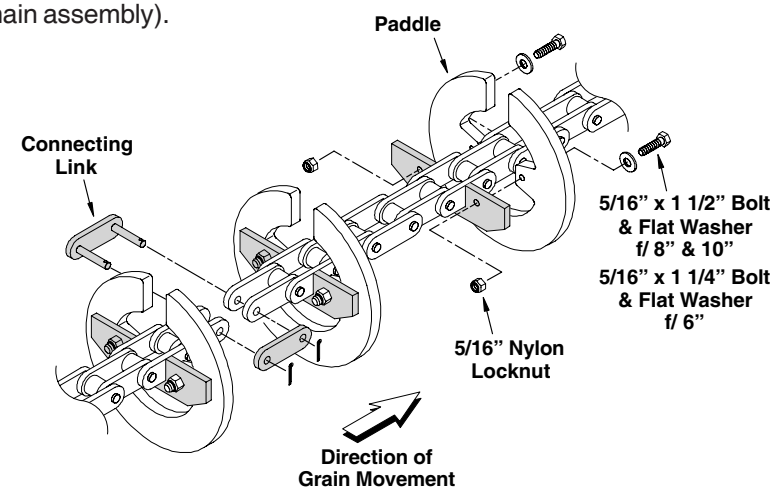
To check chain tension, grasp one of the paddles and attempt to rotate it towards the chain. Proper tension should allow only minimal movement of the paddle.

If there is more movement than recommended and all weight is resting on the chain, it may be necessary to remove more links from the chain **(if less tension is desired, remove weights in pairs, one from each side until desired tension is achieved).**

For **manual take-up** corners, use the adjustment bolts to acheive proper chain tension. Check chain tension as stated above.

Another indication of **proper chain tension** is whether the traction wheel shaft is turning while the loop system is running. **See Page 11 in the Maintenance Section for information on this procedure.**





DISCHARGE SPOUT with CABLE GROUND CONTROL GATES

CAUTION! Metal parts may have sharp edges and can create flying debris when filed, cut or drilled. Use proper safety equipment such as gloves, eye protection and hearing protection when working with metal materials.

Use caution when working in areas above the ground. Use fall protection equipment and follow applicable 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.

The location of the discharge controls and routing of the control cables (or ropes) should have been determined before ordering the Grain Pump® Loop System.

The discharge gate controls must be located in line with the conveyor tube so the control cable, or rope will track properly on the control wheels.

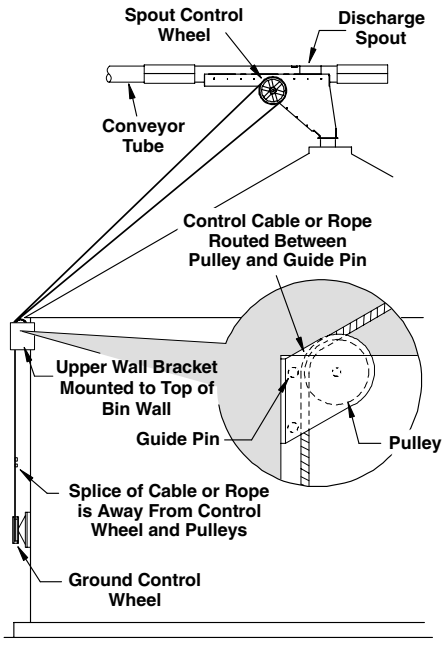
The cable, or rope should be one continuous length. If splicing is necessary, splice the ends together with cable clamps. Plan where the splice(s) in the control cable, or rope are to be located. Avoid splicing where the splice will be pulled onto a control wheel or through a pulley while the gate is being opened or closed.

The wall brackets are designed to be mounted directly to the grain bin wall. Locate the control wheel about 5' off the ground (or at a height that is easy and convenient to reach). Locate the upper wall bracket (with pulleys) at the top of the bin wall so the control cable, or rope will clear the eave of the roof or other hanging structures.

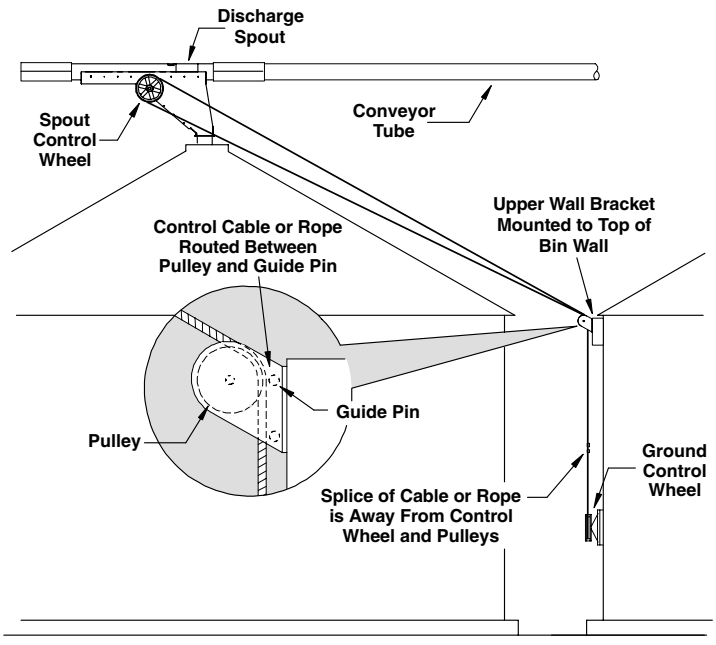
The ground control wheel can be mounted to the same bin that the discharge spout is attached to (See Example 1), or the ground control wheel can be mounted to an adjacent bin (Example 2).

Refer to the following page, Page 27, for assembly procedures of the wall brackets, pulleys and cable control wheels.

The control cable, or rope must be anchored to both the upper and lower wheels to provide positive control and to prevent the cable or rope, from slipping on the control wheels.



Example 1
Controls Mounted on Bin Where Spout is Located
(pulley mounted on inside of bracket)

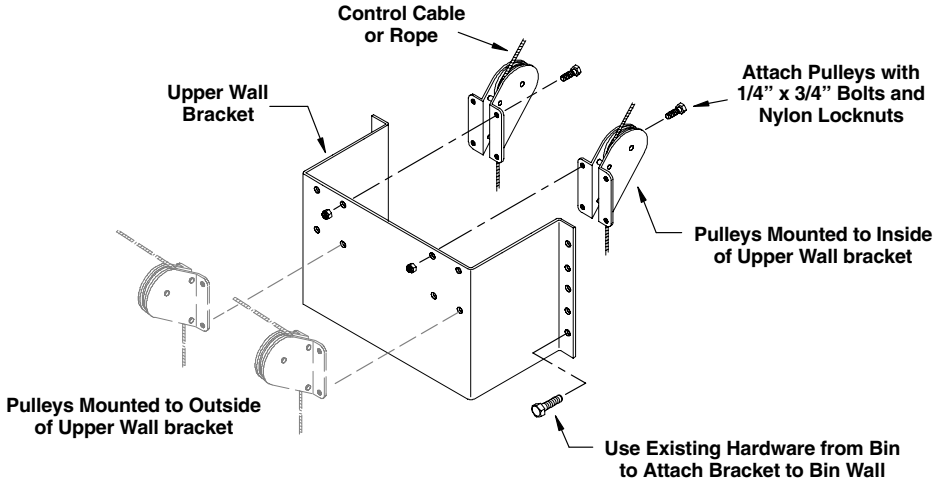


Example 2
Controls Mounted on Adjacent Bin
(pulley mounted on outside of bracket)

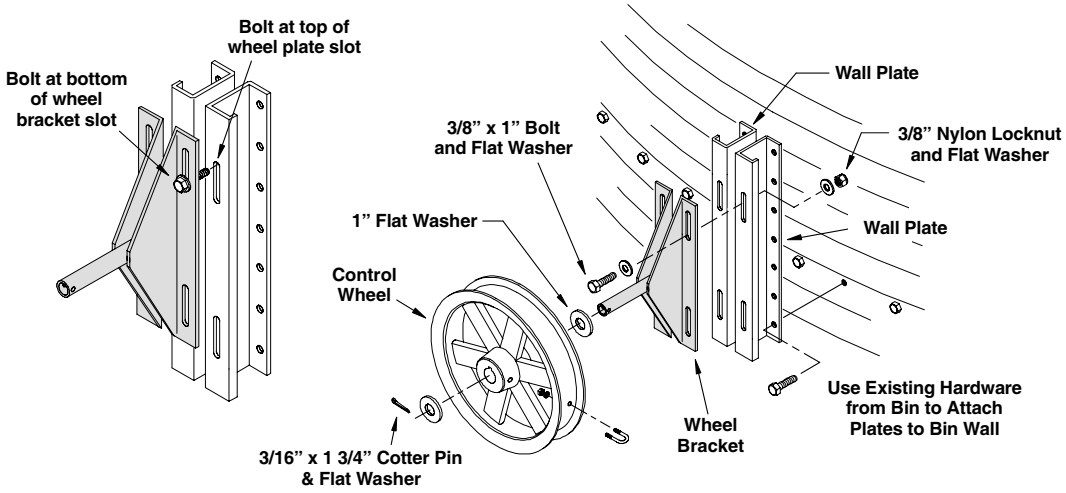
DISCHARGE SPOUT with CABLE
GROUND CONTROL GATES (con't.)

The upper wall bracket and the ground control wall plate are designed to be mounted directly to the grain bin wall. Use the existing hardware from bin wall to fasten the bracket and plate to the bin.

1. Attach the two pulleys to the upper wall bracket using four (4) 1/4" x 3/4" bolts and nylon locknuts for each pulley. **Note: Mount the pulleys so both of them are either on the inside or on the outside of the wall bracket.**
   A. If the controls are mounted on the same bin that the discharge spout is attached to, mount the pulleys on the inside of the wall bracket (See Example 1 on Page 26 and illustration below).
   B. If the controls are mounted to an adjacent bin, mount the pulleys on the outside of the wall bracket (See Example 2 on Page 26 and the illustration below).
2. Locate the wall bracket and pulleys so they are in line with the discharge spout control wheel (this will allow the cable, or rope to properly track onto the spout control wheel). Attach the wall bracket to the top of the bin wall in a position that allows the cable, or rope to clear the eave of the bin.



3. Attach each wall plate to the wheel bracket as shown below. Secure the brackets using two (2) 3/8" x 1" bolts, four (4) flat washers, and two (2) nylon locknuts (be sure to use a flat washer over each slot). Slide the wheel bracket up so the bolts are at the bottom of the wheel bracket slots, but at the top of the wall plate slots.
4. Determine the location of the ground control wheel and attach the wall plates to the bin wall (use the existing hardware from the bin to mount the plates).
5. Slide a 1" flat washer over the shaft on the wheel bracket and install the control wheel. Slide another 1" flat washer onto the shaft and secure using a 3/16" x 1 3/4" cotter pin.



DISCHARGE SPOUT with CHAIN GROUND CONTROL GATES

CAUTION! Metal parts may have sharp edges and can create flying debris when filed, cut or drilled. Use proper safety equipment such as gloves, eye protection and hearing protection when working with metal materials.

Use caution when working in areas above the ground. Persons working on 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 climbing, walking or working on these of surfaces.

The location of the discharge controls and routing of the control chains should have been determined before ordering the Grain Pump® Loop System.

The discharge gate controls must be located in-line with the conveyor tube so that the control chain will track properly on the control sprockets.

The chain should be one continuous length having only one splice. Plan where the splice(s) in the chain will be located **(the splice needs to be located so it cannot be pulled onto the sprocket wheel.**

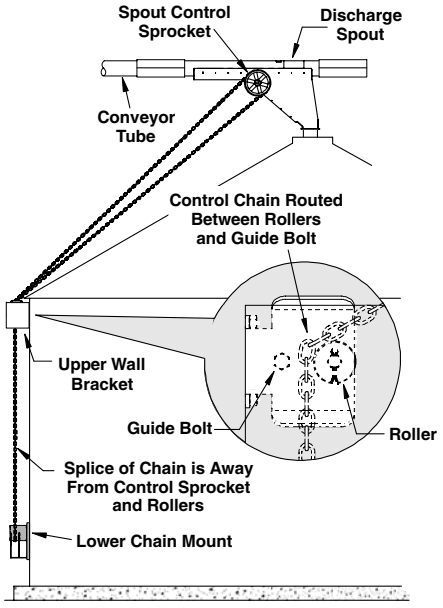
Although a chain is furnished with the kit, it does not mean the length provided will be long enough for your application. If additional chain is needed and requires more than one splice, make sure to locate the additional splice in the same manner.

The upper wall bracket and the ground control wall plate were designed to be mounted directly to the grain bin wall. Use the existing hardware from the bin wall to attach the bracket and plate to the bin.

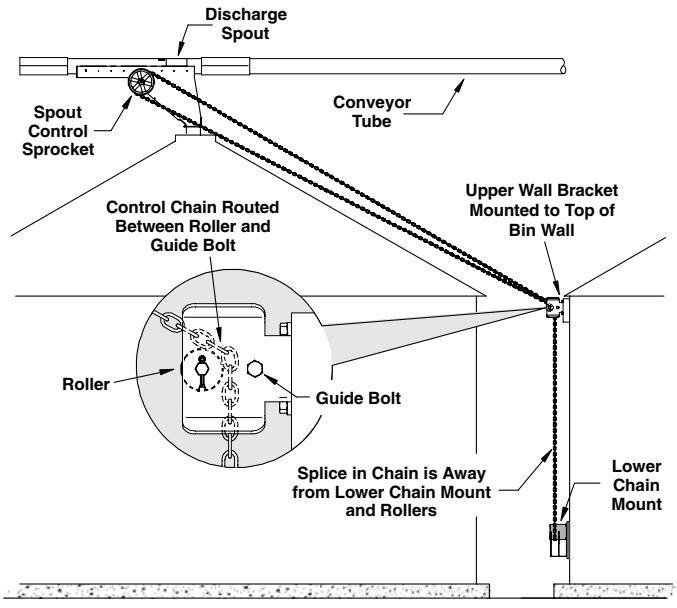
The lower chain mount can be mounted to the same bin that the discharge spout is attached to, or it can be mounted to an adjacent bin (See Examples 3 & 4 below). Whichever method is used, both rollers need to be mounted either on the inside or on the outside of the wall bracket.

Locate the lower chain mount about 2' to 3' *(61.0 cm to 61.4 cm)* off the ground (or at a height that is easy and convenient in order to reach the chain above the lower chain mount).

Locate the upper wall bracket (with rollers) at the top of the bin wall so the control chain will clear the eave of the roof or other hanging structures.



Example 3
Controls Mounted on Bin Where Spout is Located
(rollers mounted on inside of bracket)

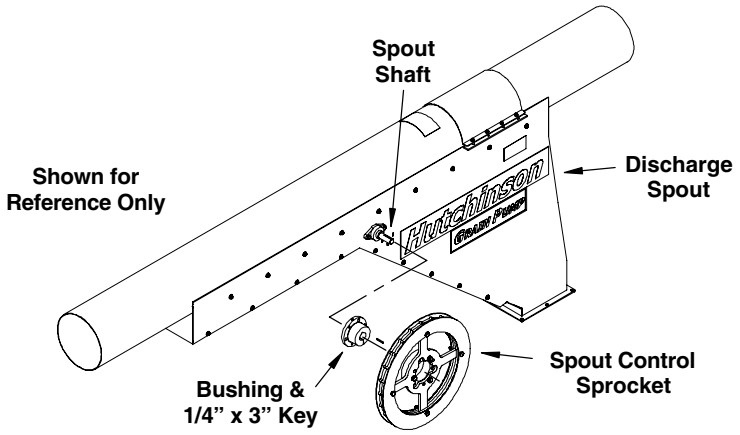


Example 4
Controls Mounted on Adjacent Bin
(rollers mounted on outside of bracket)

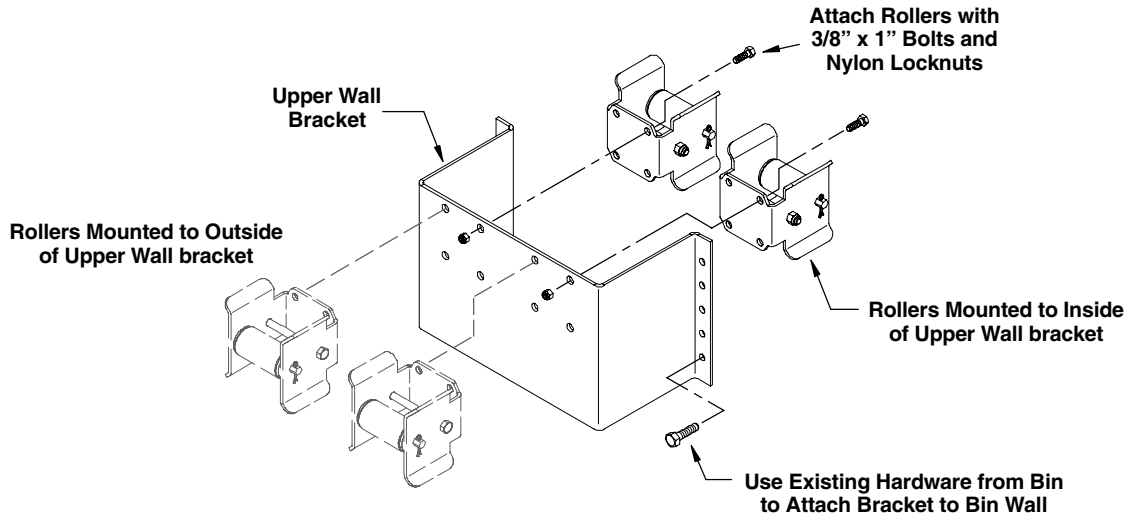
DISCHARGE SPOUT with CHAIN
GROUND CONTROL GATES (con't.)

Install Chain Ground Control Components

1. Install the spout control sprocket onto spout shaft as shown below. Install the bushing onto the shaft using the 1/4" sq. x 3" long key and tighten setscrews to secure bushing to shaft. Attach the sprocket to the bushing using the bolts provided with the sprocket.



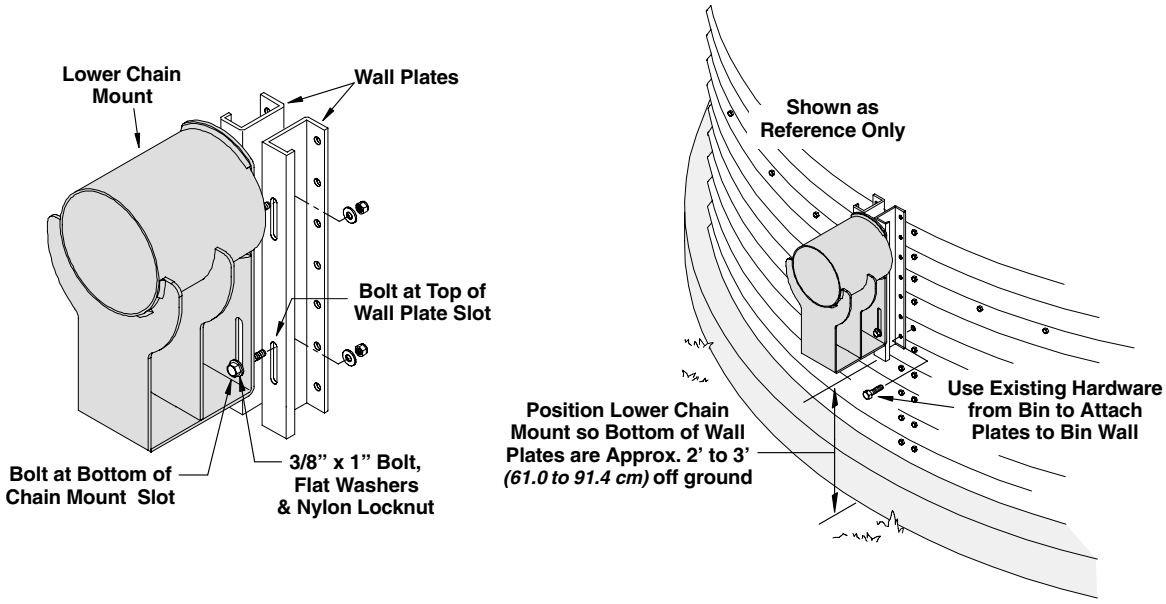
2. Attach the two rollers to the upper wall bracket using four (4) 3/8" x 1" bolts and nylon locknuts for each pulley (See illustration below).
   - If the controls are mounted on the same bin that the discharge spout is attached to, mount the pulleys on the inside of the wall bracket as shown in Example 3 on Page 28.
   - If the controls are mounted to an adjacent bin, mount the pulleys on the outside of the wall bracket as shown in Example 4 on Page 28.
3. Locate the wall bracket and rollers so they are in-line with the discharge spout control sprocket (this will allow the chain to track properly onto the spout control sprocket). Attach the wall bracket to the top of the bin wall in a position that allows the chain to clear the eave of the roof.



Install Chain Ground Control Components (con't.)

4. Attach each wall plate to the lower chain mount as shown in illustration below. Secure each bracket using two (2) 3/8" x 1" bolts, four (4) flat washers and two (2) nylon locknuts. Slide the chain mount up so the bolts are at the bottom of the chain mount slots, but at the top of the wall plate slots (See illustration below).
5. Determine the location of the lower chain mount and attach the wall plates to the bin wall (use the existing hardware from the bin to mount the wall plates).

   The bottom of the wall plates should be approximately 2' to 3' *(61.0 cm to 91.4 cm)* off the ground.



6. Route the control chain through one of the rollers on the wall bracket and up to the discharge spout control sprocket (make sure the chain is positioned between the roller and the guide bolt). **The chain can be clamped to the wall bracket to keep it from slipping through the bracket and roller while it is being routed up and around the control sprocket.**
   - Leave a good portion of the chain hanging below the roller on the wall bracket. This will be the end of the chain that will be spliced **[this location is only a reference, it does not mean the splice has to be at this location. Just keep in mind that the splice (splices if more than one chain is used) need to be far enough away so it cannot be pulled onto the control sprocket.**
7. Route the chain down and behind the remaining roller on the wall bracket and down to the lower chain mount (make sure the chain is engaged with the teeth on the sprocket).

   Keeping the chain fairly taut, route the end of the chain to the portion of chain left hanging below the wall bracket roller. Connect the two ends of chain together using one (1) 3/16" threaded chain coupler. **The lower chain mount has adjustment slots to tighten the chain after it has been installed. If you determine that the chain is still too long, even after this adjustment has been made, cut off the excess chain length and *then* connect the ends together with the threaded coupler.**

Install Chain Ground Control Components (con't.)

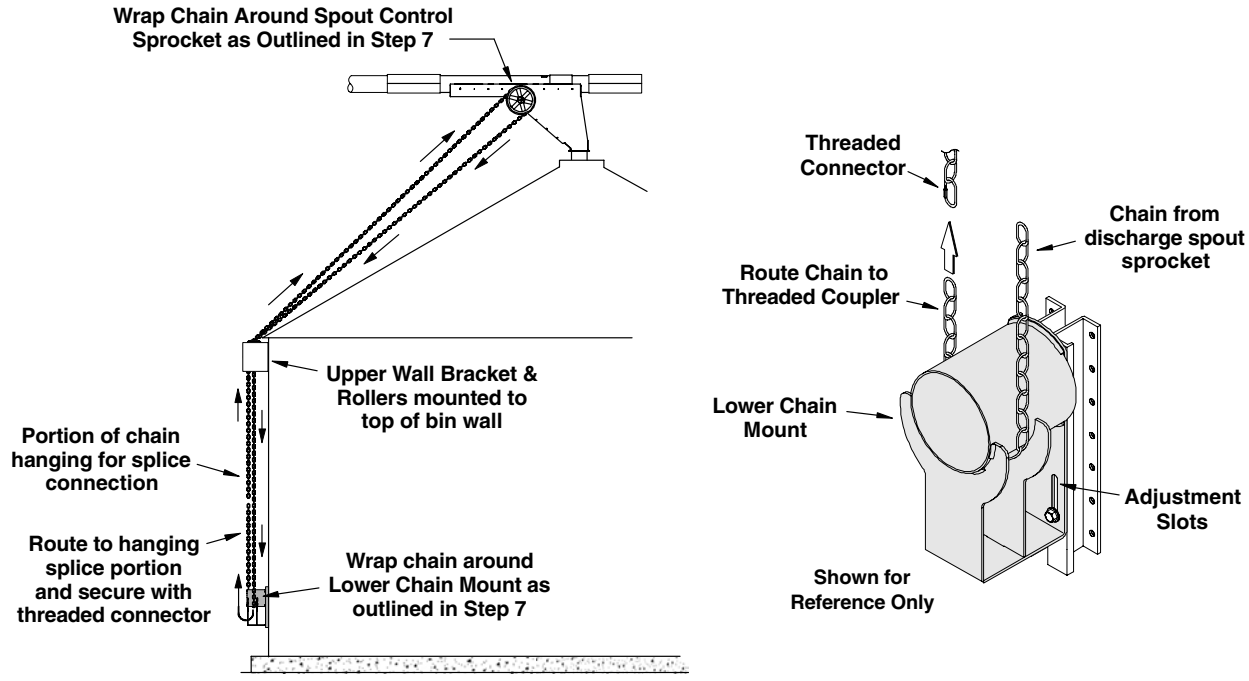
8. Loosen the bolts securing the lower chain mount to the wall plates. Slide the chain mount down to tighten the chain. Retighten the bolts securing the lower chain mount into place.

   Note: 120' *(36.58 m)* of chain is included with this kit. If more chain is required for your application, keep in mind that the splices cannot be pulled onto the control sprocket. Determine splice locations accordingly.

Operation Notes:

The controls should be clearly marked as to which spout they control to prevent accidently discharging grain into the wrong bin.

Controls should be marked to indicate when a spout is open or closed.



BAND-ON INLET HOPPERS

Inlet hoppers can be used within the loop system for various applications. They can be positioned in the conveyor system as extra inspection doors, or can be used in hard-to-reach places for clean-out purposes.

The hoppers can also be used as an alternative inlet hopper for allowing grain to enter into the loop system at locations other than the dump hopper.

The inlet hoppers are installed as detailed below.

1. After location for the hopper has been determined, remove the cover and safety screen from the hopper.

   Place the hopper on top of the conveyor tube and mark the conveyor tube from the inside of the hopper, leaving a minimum of 1/2" *(13 mm)* of tubing around all four sides of the hopper (See illustration below).

2. Verify the marks do not extend past the sides of the hopper (grain will leak out of the hopper if the opening is too large).

3. Cut and remove the section of conveyor tube previously marked, making sure to remove all pieces of cut material from inside the tube. Ensure cut edges of tubing are filed smooth so as not to cause interference with the paddles.

   Note: *Do Not* cut openings in the conveyor tube when the chain and paddles are inside the tube. Damage to the chain and/or paddles can occur.

4. Secure the hopper to the conveyor tube using the back band and mounting hardware provided.

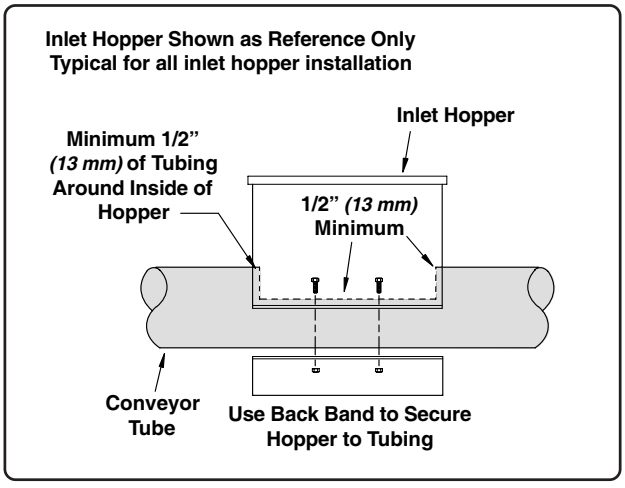


Fig. 14

BAND-ON INLET HOPPERS (con't.)

Figure 15 below shows typical inlet hoppers available for the loop system.

All inlet hoppers are equipped with a safety screen. Make sure the screen is always in place and properly secured during system operation.

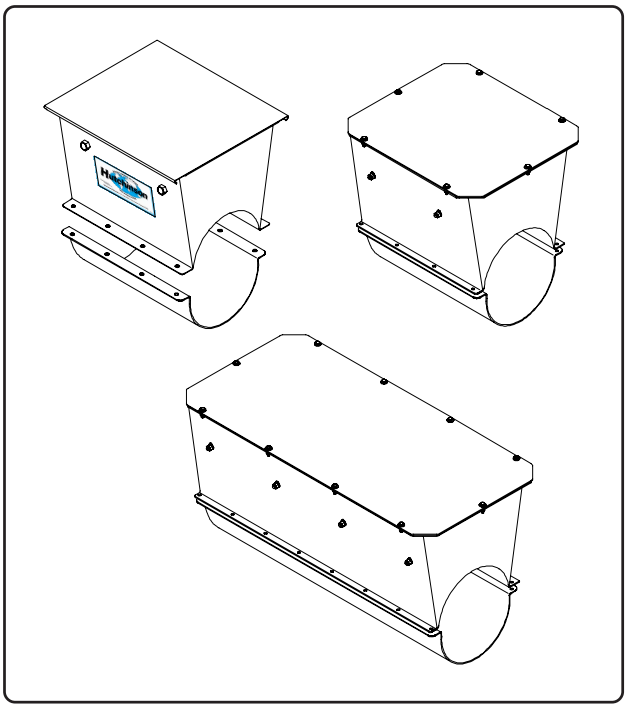


Fig. 15

CHAIN MAINTENANCE ACCESS HOPPER

Chain maintenance access sections are available for use on the horizontal tubes only.

The access sections are typically installed between the drive-over pit and first corner section, but can be installed anywhere in the loop system as long as they are installed on the horizontal tubes.

1. After location for the access section(s) has been determined, connect to the conveyor tubes using the connecting bands provided. Tighten connecting bands as shown below.

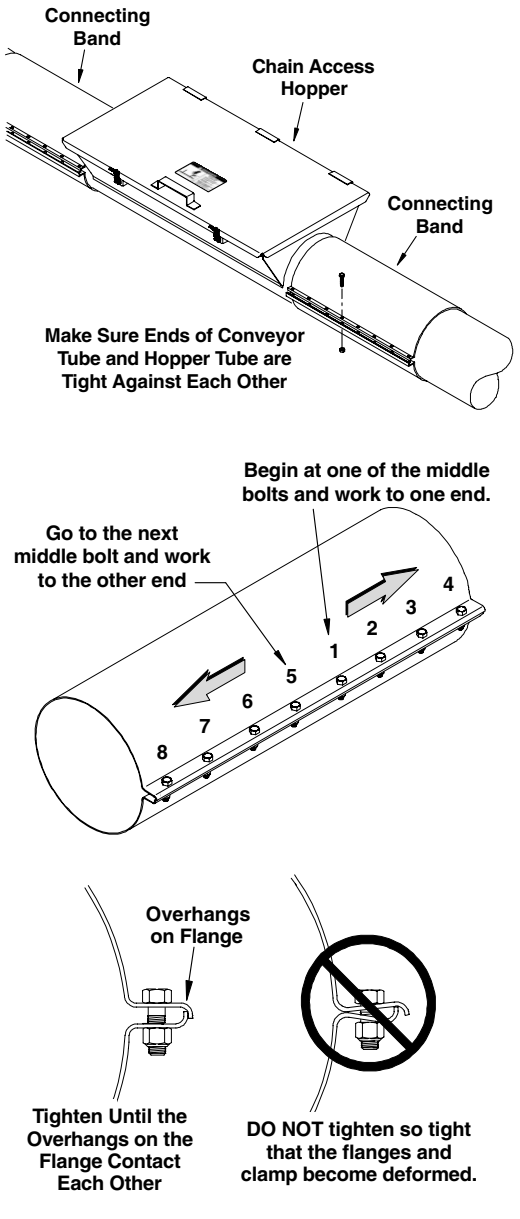


Fig. 16

INSPECTION PORTS w/ BACKBANDS and CONNECTING BAND

Various inspection ports are also available for use with the loop system.

The inspection ports are typically installed after each grain bin (or structure) and between the dump hopper and first corner section, but can be installed anywhere in the loop system as long as they are installed on the horizontal tubes.

The purpose of the inspection ports is to allow a safe alternative for visual grain flow within the system as well as checking for paddle and/or chain damage.

1. After location for the inspection port(s) has been determined, the conveyor tubing will need to be cut.

   Open the door on top of the inspection port and mark the inside of the port opening onto the conveyor tube. Cut and remove the section of conveyor tube previously marked, making sure to remove all pieces of cut material from inside the tube. Ensure cut edges of tubing are filed smooth so as not to cause interference with the paddles.

   For inspection port with safety screen, place the hopper on top of the conveyor tube and mark the conveyor tube from the inside of the hopper, leaving a minimum of 1/2" *(13 mm)* of tubing around all four sides of the hopper (See Fig. 14 on Page 32).

2. After tubing has been cut, secure the inspection port with the hardware provided (secure with back bands if so equipped).

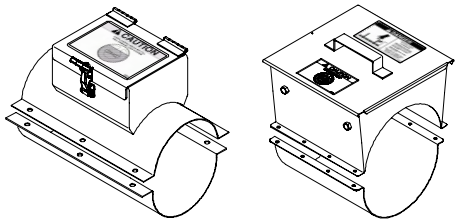


Fig. 17

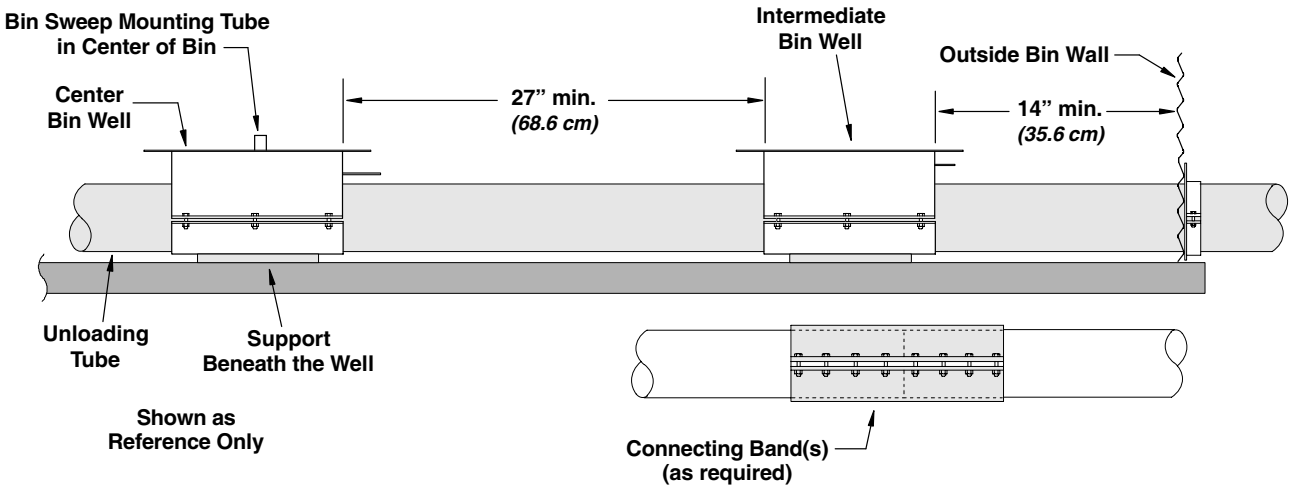
BIN WELL ASSEMBLY

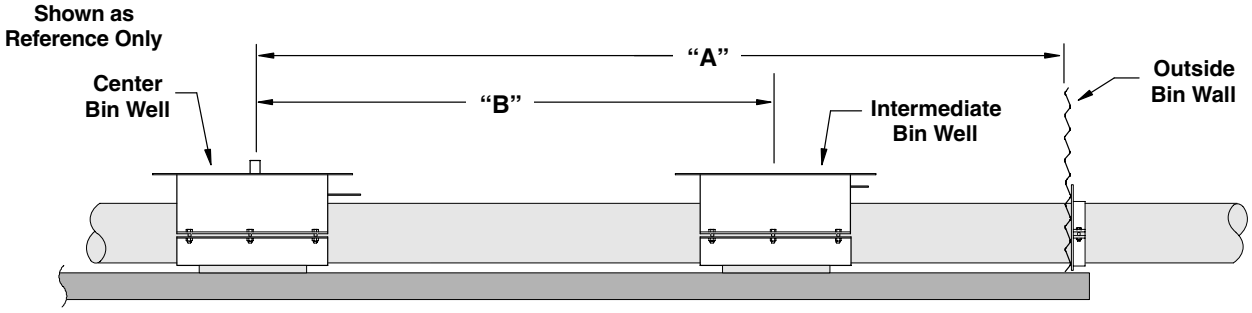
(6", 8" & 10" Standard Bin Wells)

Lay the sections of conveyor tubing in the bin according to your particular application (for example: will tubing be passing through the bin below a floor, or through a concrete trough under the bin). Whatever method is used, the tubing needs to pass exactly through the center of the bin. If applicable, cut opening(s) in bin wall to allow tubing to pass through (there are bin flanges available for use on the outside of the bin). Use connecting bands to attach the tubing together.

Position the center bin well on top of the conveyor tube so the bin sweep mounting tube is in the exact center of the bin (See illustration below), **make sure the flow control gate is in a direction that can be pulled by the control rods.**

The intermediate wells will be positioned between the center well and the bin wall. The first illustration below shows the minimum spacing allowed from the center well to the intermediate well and from the intermediate wells in relation to each other. Use the second illustration below and the chart on page 35 as a guideline for well spacing as determined by bin diameter, but keep in mind if a sweep tractor is to be used, you do not want the tractor to travel over the top of a well, so it may be necessary to position an intermediate well in a location other than the recommended spacing (if the well does have to be moved, keep it as close to the intended measurement as possible). Also, note that it may be necessary to reposition an intermediate well from its intended position because of the location of the connecting band attaching the tubes together.





Use this illustration with the chart on Page 35 (reference "A" and "B" in chart).

BIN WELL ASSEMBLY

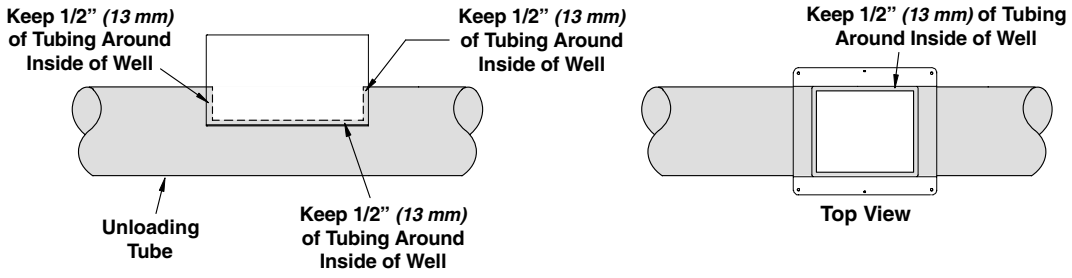
6", 8" & 10" Standard Bin Wells (con't.)

Bin Diameter	Number of Intermediate Wells	Distance from Center of Bin to Wall (A)	Distance Between Wells (B)	Length of Int. Well Control Pipe (C)	Length of Center Well Control Pipe (D)
14 – 15 ft 17 – 19 ft	1 1	7' to 7'-6" 8'-6" to 9'-6"	3'-9" 4'-6"	5'-6" 6'-3"	8'-4 1/2" 9'-10"
20 – 22 ft 23 – 25 ft 26 – 28 ft	2 2 2	10'-11" 11'-6" to 12'-6" 13' to 14'	3'-6" 4'-0" 4'-6"	8'-9" 9'-9" 10'-9"	11'-4" 12'-10" 14'-4"
29 – 31 ft 33 ft 36 ft	2 3 3	14'-6" to 15'-6" 16'-6" 18'	5'-0" 4'-2" 4'-6"	11'-9" 14'-1 1/2" 15'-3"	15'-10" 17'-4" 18'-10"
42 ft 48 ft	4 4	21' 24'	4'-3" 5'-2"	18'-3" 18'-3"	19'-4" & 2'-6" 21' & 2'-6"

When well locations are determined on the conveyor tubing, cut an opening in the tube for each well. There should be about a minimum of 1/2" *(13 mm)* of tube left all around the inside of the well (See illustration below). Grain will leak if the opening is cut too large.

NOTE: *DO NOT* cut the tube openings when the chain and paddles are inside the tube. Damage to the chain and/or paddles can occur.

Well Cut–Out
(Shown as Reference Only)



Secure the bin wells to the tubing using the back bands and hardware provided. Be sure the tops of the wells are level after they have been attached to the conveyor tube. Place suitable support beneath the wells to hold into position. **The supports used should be of a material that will not deteriorate, ie. brick, treated 2x4, etc.**

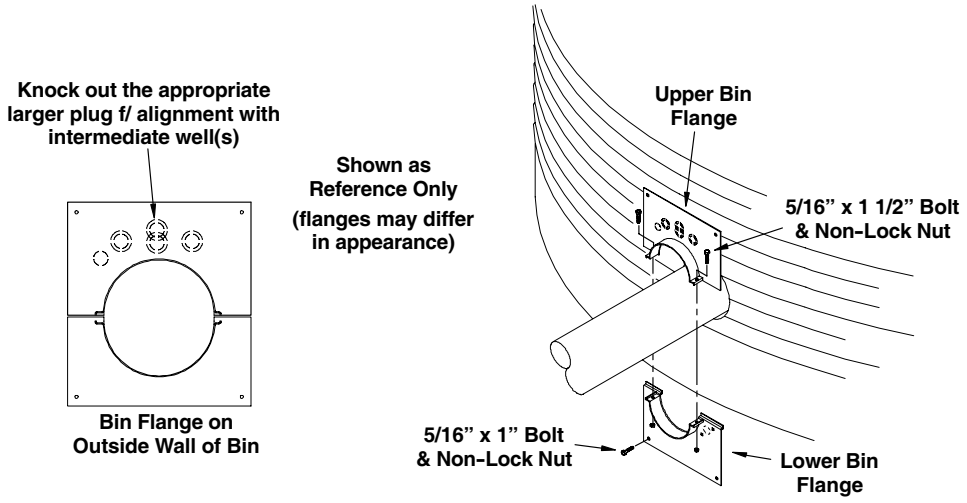
BIN WELL ASSEMBLY,

6", 8" & 10" Standard Bin Wells (con't.)

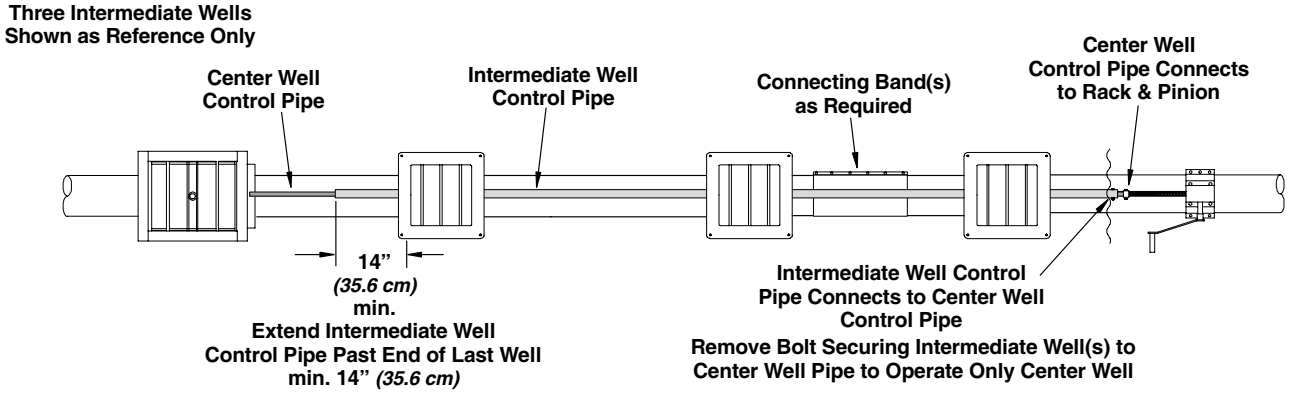
An optional bin flange is available to help support the unload tube that extends out past the bin wall. The bin flange is attached to the outside bin wall. An extra set of bin flanges can also be used on the opposite bin wall that will not have the control pipes passing through, this not only helps support the unload tubing, but also allows for a better seal around the opening cut for the tubing. If used on the opposite bin wall, the holes for the control pipes do not need to be punched out.

To install the bin flanges: Position the upper and lower bin flange to the conveyor tubing on the outside of the bin wall. Knock out the appropriate hole(s) for the intermediate well(s) on the upper bin flange (See illustration below). Reposition the upper and lower flanges onto the unload tube. Using the flange as a template, mark and cut the holes for the control pipes and the four corner mounting holes [drill an 11/32" *(9 mm)* dia. hole for the four mounting holes].

After the holes have been cut/drilled, apply some type of sealing material in the gap(s) around the unload tube and bin wall. Attach the bin flanges and decal plate to the bin wall using four 5/16" x 1" bolts and non-lock nuts. Secure the bin flanges to the unload tube using four 5/16" x 1 1/2" bolts and non-lock nuts.



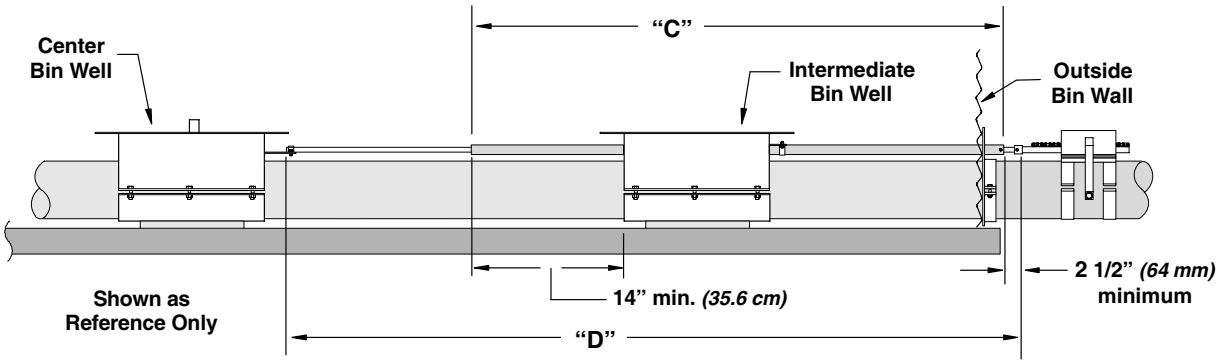
After the bin wells have been installed, the control pipes can be assembled and installed. The control pipes are installed to open and close the bin well gates. Depending on bin diameter, the number of wells will vary. The illustration below shows an example of how a bin with three intermediate wells may look like.



BIN WELL ASSEMBLY,
6", 8" & 10" Standard Bin Wells (con't.)

Install Control Pipes

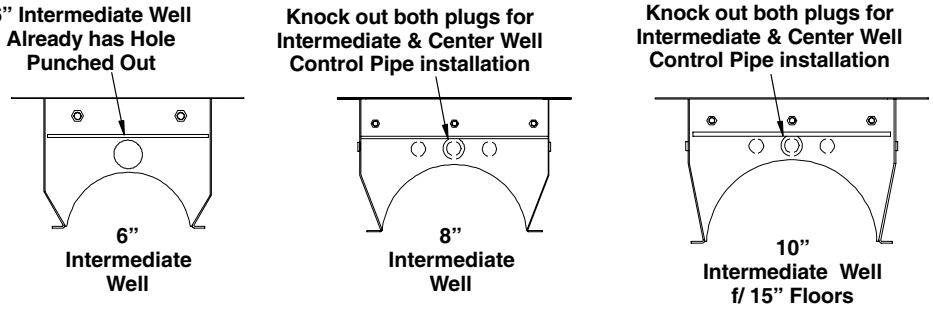
Use the following illustration and chart for control pipe lengths as determined by bin diameter.



Reference "C" and "D" for control pipe lengths

Bin Diameter	Number of Intermediate Wells	Distance from Center of Bin to Wall (A)	Distance Between Wells (B)	Length of Int. Well Control Pipe (C)	Length of Center Well Control Pipe (D)
14 – 15 ft	1	7' to 7'-6"	3'-9"	5'-6"	8'-4 1/2"
17 – 19 ft	1	8'-6" to 9'-6"	4'-6"	6'-3"	9'-10"
20 – 22 ft	2	10'-11"	3'-6"	8'-9"	11'-4"
23 – 25 ft	2	11'-6" to 12'-6"	4'-0"	9'-9"	12'-10"
26 – 28 ft	2	13' to 14'	4'-6"	10'-9"	14'-4"
29 – 31 ft	2	14'-6" to 15'-6"	5'-0"	11'-9"	15'-10"
33 ft	3	16'-6"	4'-2"	14'-1 1/2"	17'-4"
36 ft	3	18'	4'-6"	15'-3"	18'-10"
42 ft	4	21'	4'-3"	18'-3"	19'-4" & 2'-6"
48 ft	4	24'	5'-2"	18'-3"	21' & 2'-6"

The intermediate wells will need to have the appropriate knock-out holes punched out for control pipe installation.



BIN WELL ASSEMBLY, 6", 8" & 10" Standard Bin Wells

Install Control Pipes (con't.)

Intermediate Well Control Pipe

1. Install the 1 3/8" dia. (1" sch.) control pipe so it passes through the outside bin wall and through all intermediate wells. Extend the control pipe a minimum of 14" *(35.6 cm)* past the end of the last intermediate well (this is so the pipe will not become pulled inside the well when the gate is being opened).
2. With all intermediate well gates closed, position a gate clamp below each well gate and mark the pipe where the dimple on the clamp would be located.

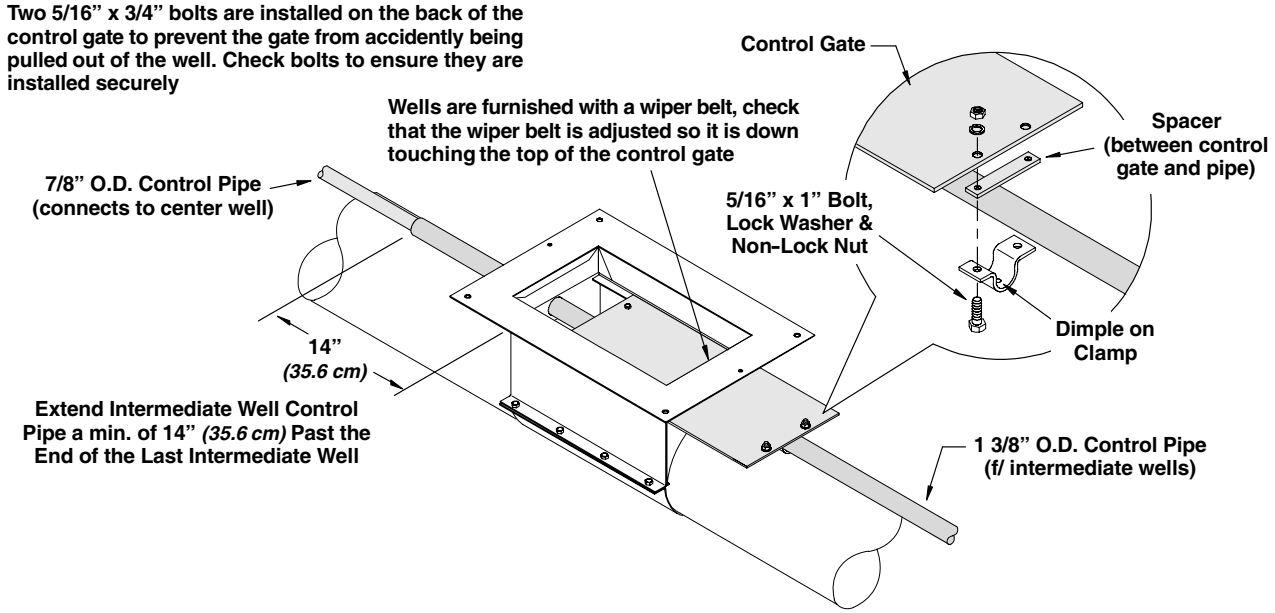
   You may want to mark and drill all holes for the gate clamps at one time prior to assembly, this will allow the pipe to be slid back only one time for drilling the holes.
3. Drill a 3/8" (10 mm) hole through only one wall of the pipe at each of the marked locations (the dimple on the clamp will fit in this hole when it is bolted into place).
4. Once all holes have been drilled, reposition the control pipe. Place a spacer between the gate and control pipe, position the dimple on the clamp in the previously drilled hole and secure the pipe clamp to the gate using two 5/16" x 1" bolts , lock washers and non-lock nuts (See illustration below).

   Continue securing any remaining gates to the control pipe until all gates have been attached.
5. Wells are furnished with a wiper belt at the front of each well to help prevent grain from leaking out of the well. Check that the wiper belt is contacting the top of the well gate. Adjust as necessary.
6. Check well gate operation by pulling the control pipe to open and close the gate(s). Gates should slide freely and should all close completely at the same time.

   The intermediate well(s) are opened and closed with the rack and pinion control. A bolt will be inserted through the intermediate and center well control pipes at the rack and pinion connection. Intermediate wells should not be opened until all grain that can flow through the center well has been stopped flowing. When grain flow through the center well has stopped, leave the center well gate open and gradually open intermediate well gates to desired flow [3" to 6" *(7.6 to 15.2 cm)* is usually sufficient].

   ***Do Not* open intermediate well(s) until all flow has stopped through the center well.** Plugging of the conveyor and excessive stress to the bin walls can occur, thus creating dangerous situations and possible damage to the conveyor system.

   Note: There are two 5/16 x 3/4" bolts at the back side of the well gates. These are installed to prevent the gate from accidentily being pulled out of the well. Ensure these bolts are tight.



BIN WELL ASSEMBLY, 6", 8" & 10" Standard Bin Wells

Install Control Pipes (con't.)

Center Well Control Pipe

Some sections of the 7/8" O.D. (1/2" sch.) control pipes will have a 3/8" *(10 mm)* dia. hole pre-drilled in one end. This control pipe is typically used for the center well gate. In applications where more than one length (section) of pipe is used, a threaded connector will be used to attach the control pipe sections together (some control pipes may have both ends already tapped).

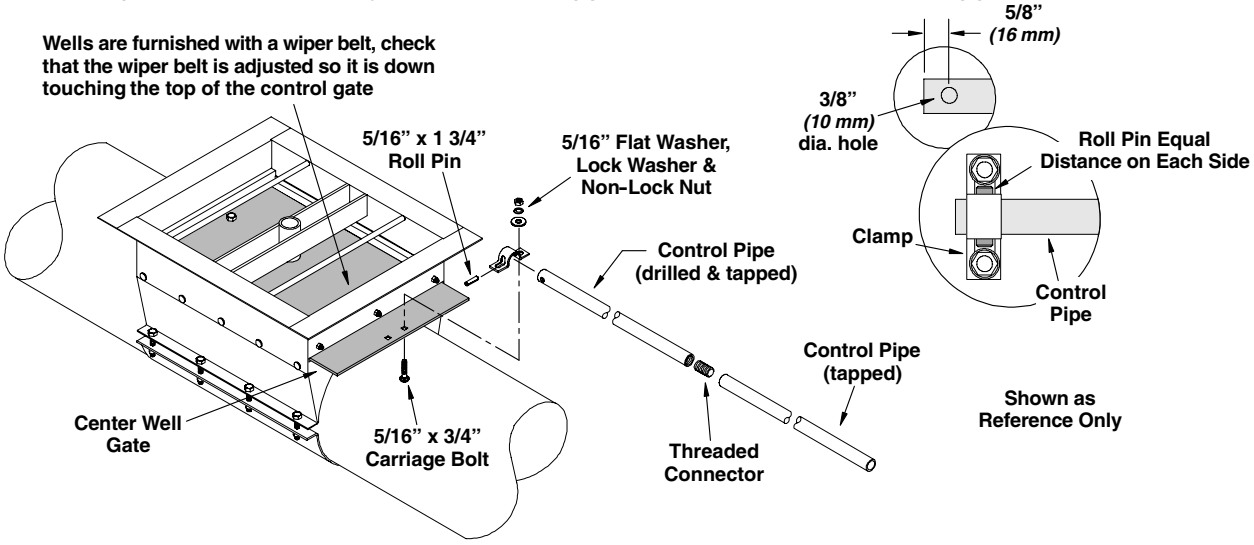
1. Insert the center well contol pipe through the larger intermediate well pipe (the center well pipe may have one end already drilled, position this end towards the center well). If more than one length of pipe is used, assemble the lengths with the threaded connectors as they are being slid into the larger pipe.
2. Position the pre-drilled end of the control pipe onto the top side of gate and align the clamp with the mounting holes in the gate.
3. Place the clamp into position aligning the slots in the clamp with the predrilled hole in the pipe (if necessary, drill a 3/8" *(10 mm)* dia. hole as shown in the illustration below. Insert the 5/16" x 1 3/4" roll pin through the clamp and hole in the control pipe so there is an equal amount of the roll pin extending past the sides of the clamp.
4. Secure the clamp to the gate using two 5/16" x 3/4" carriage bolts, flat washers, lock washers and non-lock nuts (insert bolts from the bottom side of the gate (See illustration below). The mounting hardware will be used to keep the roll pin in place.
5. Wells are furnished with a wiper belt at the front of each well to help prevent grain from leaking out of the well. Check that the wiper belt is contacting the top of the well gate. Adjust as necessary.
6. Check well gate operation by pulling the control pipe to open and close the gate. Gate should slide freely and should close completely.

   The center well gate is opened and closed with the rack and pinion control. A bolt will be inserted through the center well control pipe at the rack and pinion connection. When unloading the bin or storage structure, start unload conveyor and open center well gradually until desired flow is obtained [3" to 6" *(7.6 to 15.2 cm)* is usually sufficient].

   When grain flow through the center well has stopped, leave the center well gate open and gradually open intermediate well gates to desired flow [3" to 6" *(7.6 to 15.2 cm)* is usually sufficient].

   Note: There are two 5/16 x 3/4" bolts at the back side of the well gates. These are installed to prevent the gate from accidentily being pulled out of the well. Ensure these bolts are tight.

Though most control pipes are predrilled and tapped, it may be necessary to drill a hole in the control pipe for insertion of roll pin. If so, drill a 3/8" *(10 mm)* dia. hole in center of pipe and locate it 5/8" *(16 mm)* from end of pipe.



A 5/16" x 3/4" bolt is installed on the back of the control gate to prevent the gate from accidently being pulled out of the well. Check bolt to ensureit is installed securely

BIN WELL ASSEMBLY, 6", 8" & 10" Standard Bin Wells

Install Control Pipes (con't.)

Rack & Pinion Connection

It may be necessary to assemble the rack & pinion controller. Use the assembly instructions that are included with the rack & pinion kit for proper assembly procedures.

1. Make sure all bin wells are completely closed. Temporarialy position the rack & pinion control at the desired location on the unload tube outside the bin wall. Rotate the handle on the rack & pinion control so that the pinion shaft is in the full forward position (reposition the controller, if necessary, so the control pipe lengths will be able to be connected to the controller).).

   Note: It may be necessary to cut-off the intermediate and/or the center well control pipes to proper length to fit the location of the rack & pinion control. It may also be necessary to drill a 3/8" *(10 mm)* hole through the control pipes for proper gate operation.

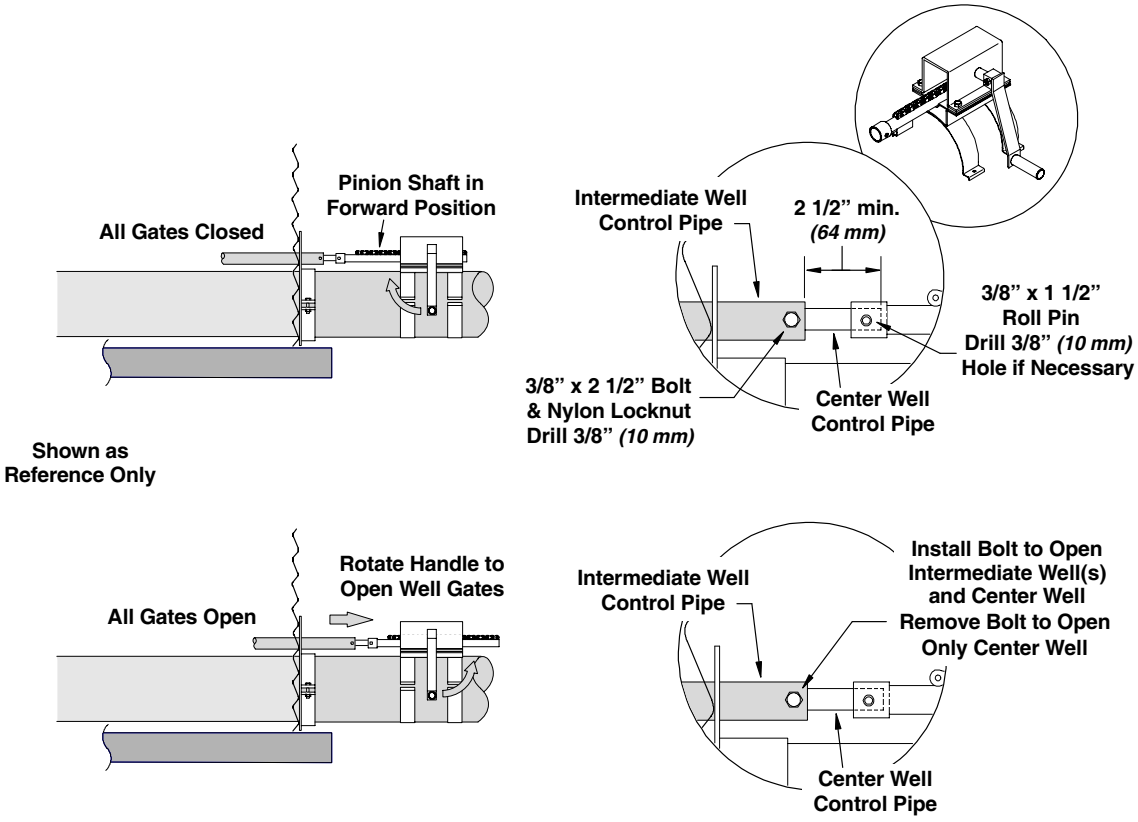
2. Begin by connecting the center well control pipe to the rack & pinion. Some center well control pipes may already have a hole drilled through this end and are of the correct length. If it is necessary to drill a hole through the control pipe, use the hole in the rack & pinion shaft as a template and drill a 3/8" *(10 mm)* hole through the control pipe.

   Secure the center well contol pipe to the rack & pinion shaft using one 3/8" x 1 1/2" roll pin.

3. Position the intermediate well control pipe a minimum of 2 1/2" *(64 mm)* from the end of the rack & pinion shaft. Drill a 3/8" *(10 mm)* hole through both control pipes. Secure the intermediate well control pipe to the center well control pipe using one 5/16" x 2 1/2" bolt and nylon locknut (See illustration below).

4. Check for proper operation of the rack & pinion. **When the bolt connecting the intermediate well control pipe is inserted,** the center well **and** the intermediate well gates will all open. Pull rack & pinion handle back to ensure all well gates are open, adjust rack & pinion location if needed so all gates are opening properly.

   To open only the center well gate, remove the bolt securing the intermediate well(s) control pipe to the center well control pipe. Rotate handle to open center well gate.



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PARTS LIST

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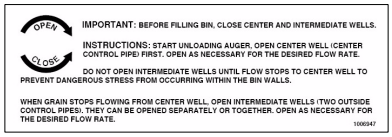

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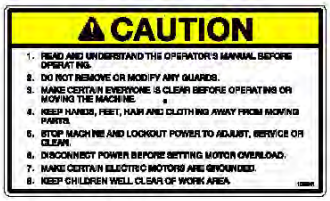

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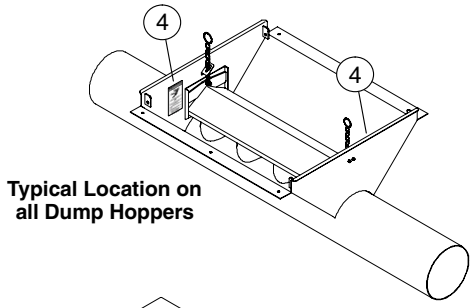
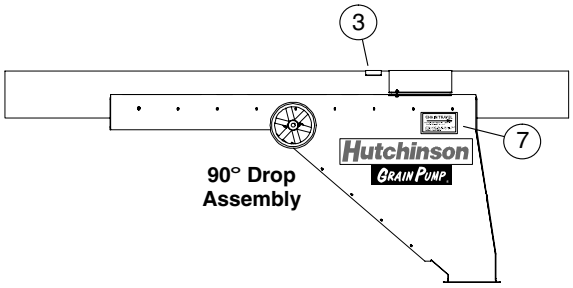
Ref. No.	Part No.	Description
1	1001985	Danger, Rotating Auger
2	1006947	Rack & Pinion Controls
3	1012872	Danger, Moving Chain Hazard
4	1002310	Danger, Do Not Operate with Cover Open
5	1002305	Danger, Keep Out of Bin...
6	1001128	Decal, Hutchinson Globe
7	1012785	Decal, Chain Travel
8	1001127	Decal, Hutchinson (rectangle)
9	1033033	Caution, Grain Pump Loop Fill
10	1002301	Caution, General Statement
11	1041833	Decal, Made in America
12	34349	Decal, Grain Pump

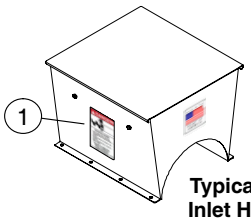
SAFETY DECAL LOCATIONS on SYSTEM COMPONENTS



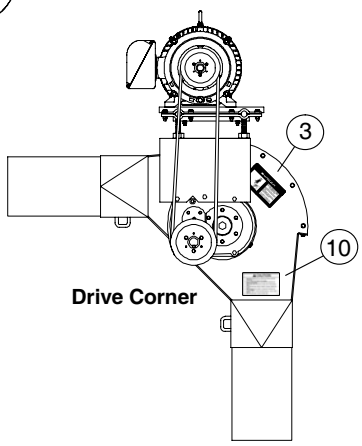
Typical Location on all Dump Hoppers



90° Drop Assembly

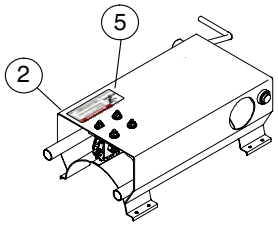


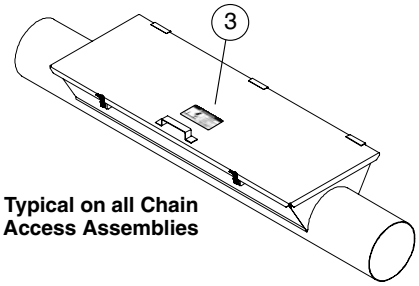
Typical on all Inlet Hoppers



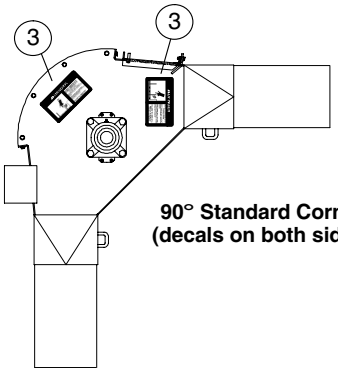
Drive Corner

Rack & Pinion Control

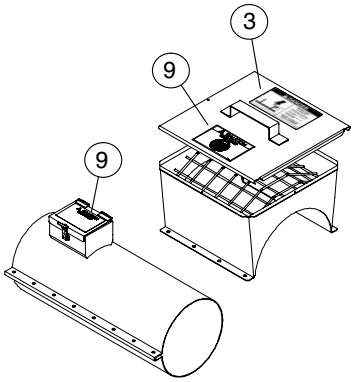




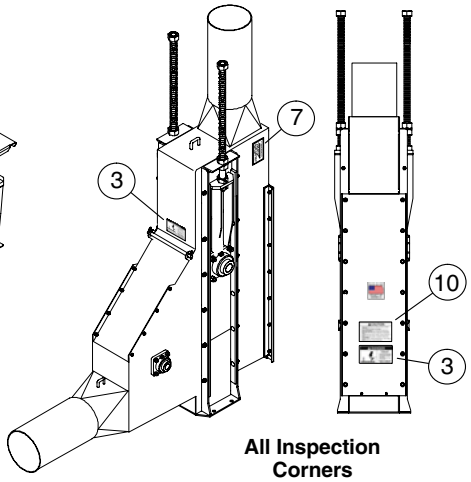
Typical on all Chain Access Assemblies



90° Standard Corner (decals on both sides)



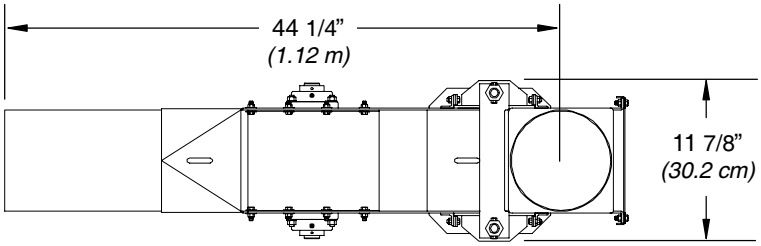
Inspection Ports

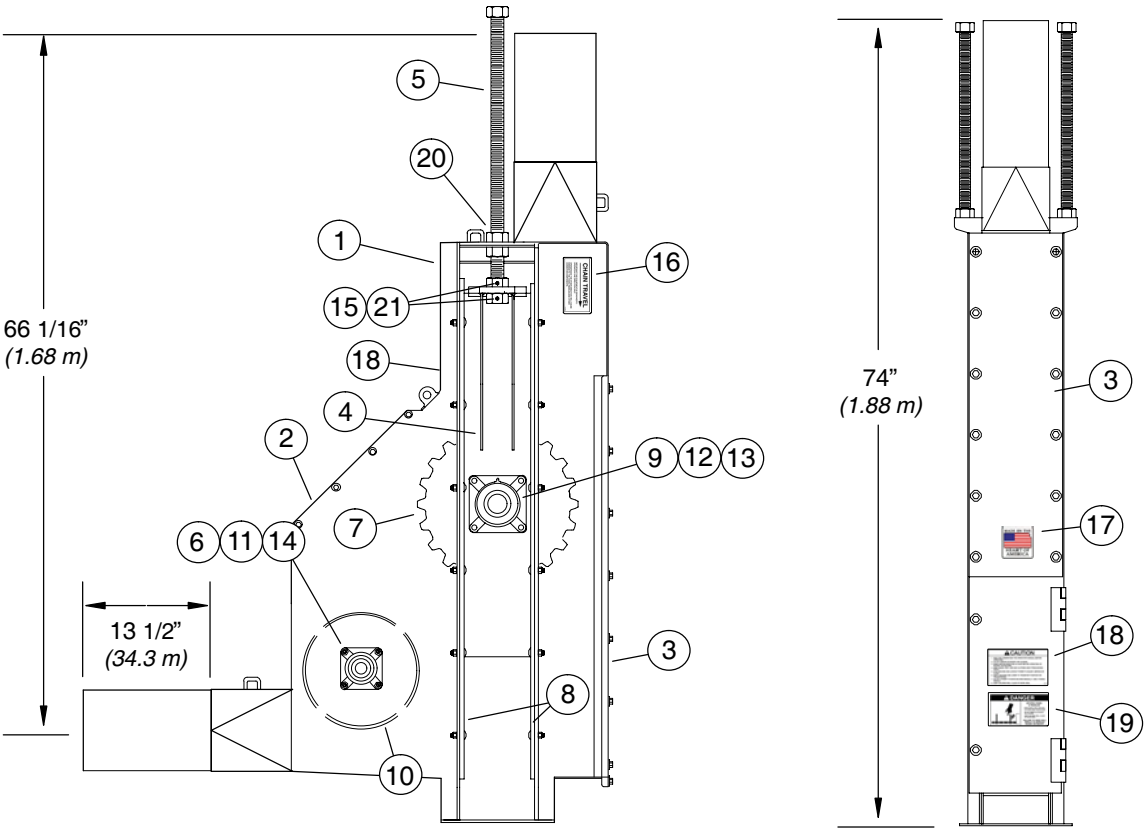


All Inspection Corners

PARTS LIST

6” MANUAL TAKE-UP CORNER
(INSPECTION CORNER)

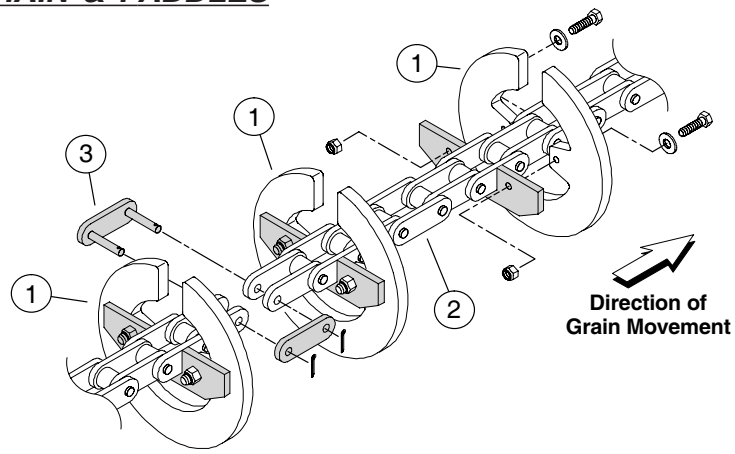


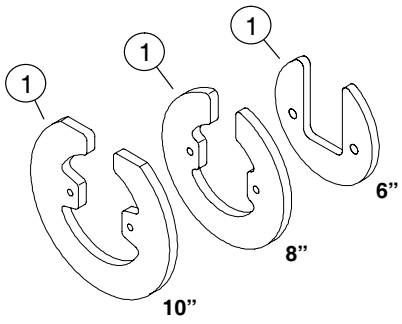


6" MANUAL TAKE-UP CORNER (INSPECTION CORNER)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1014076	Manual Take-Up Corner Weldment	12	553240	Shaft, Inspection Corner Sprocket
2	1014092	Cover, Inside Panel	13	4073A1	Key, 3/8" sq. x 3" long
3	1014095	Inspection Door (rear)	14	8371C	Key, 1/4" sq. x 1 1/2" long
4	1014105	Slide Weldment	15	4713-1	Bolt, 5/16-18 x 1 3/4"
5	1012632	Rod, Threaded Adjustable	16	1012785	Decal, Chain Travel
6	8341D	Bearing, 4-Bolt Flange, 1" bore	17	1002301	Decal, Caution, General Operator
7	1005566	Sprocket, 12 tooth	18	1012872	Decal, Danger, Do Not Operate...
8	1014106	Guide Strap f/ Slide Weldment	19	1041833	Decal, Made in America
9	1010A	Bearing, 4-Bolt Flange, 1 1/2" bore	20	D1158	Nut, 1" - 8, Non-Lock
10	1014146	Wheel, Traction	21	1004782	Nut, 5/16-18 Oval Lock
11	1014150	Shaft, Idler Sprocket			

CHAIN & PADDLES





Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1005590	Paddle f/ 6" Models	3	420154	Connecting Link f/ 81X Chain (f/ 6" Models)
(1)	1038222	Paddle f/ 8" Models			
(1)	1012495	Paddle f/ 10" Models	- -	420200	Offset Link f/ 81X chain (not shown)
2	1038006	Chain, 81X - 48 pitch, f/ 6"	(3)	1017077	Connecting Link f/ 81XHH Chain (f/ 8" & 10" Models)
(2)	1038007	Chain, 81XHH - 48 pitch, f/ 8"			
(2)	1038008	Chain, 81XHH - 48 pitch, f/ 10"	- -	1034495	Offset Link f/ 81XHH Chain (not shown)

All chain lengths are shipped in rolls of 125 7/32" (3.18 m) long

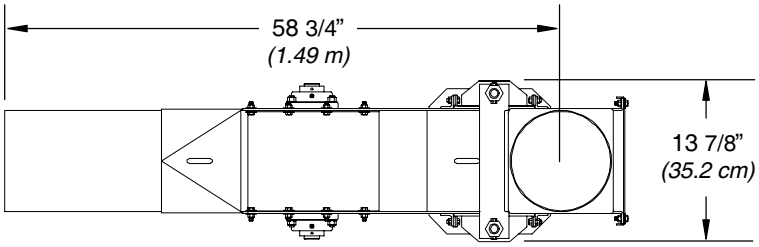
The 8" & 10" chain lengths can be ordered with paddles already attached: 8" Part No. 1042400, 10" Part No. 1042403

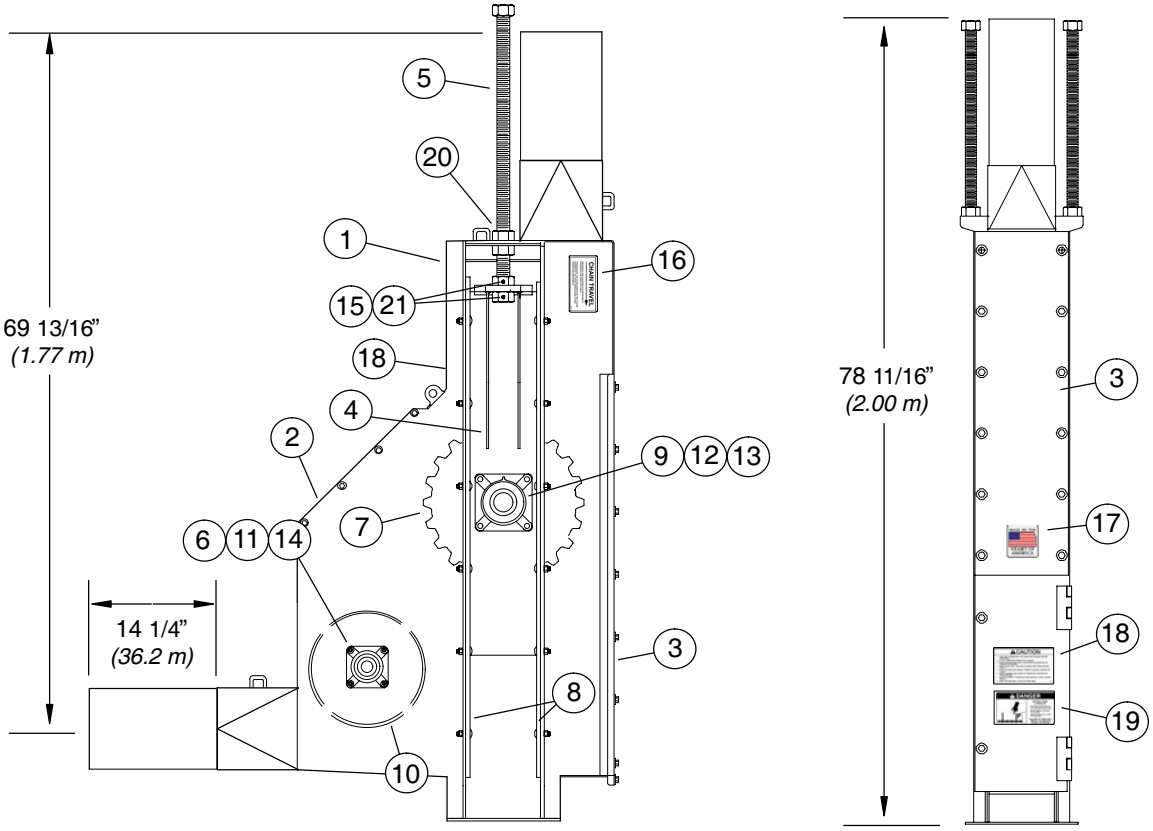
NOTE: Paddles f/ 8" & 10" connect to chain using two (2) 5/16" x 1-1/2" bolts (Part No. 4736), two (2) 5/16" lock nuts (Part No. 33135) and two (2) 5/16" flat washers (Part No. 33023).

Paddles f/ 6" connect to chain using two (2) 5/16" x 1-1/4" bolts (Part No. 4727-1), two (2) 5/16" lock nuts (Part No. 33135) and two (2) 5/16" flat washers (Part No. 33023).

PARTS LIST

8" MANUAL TAKE-UP CORNER
(INSPECTION CORNER)

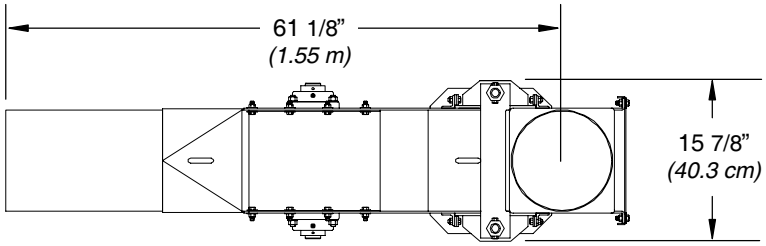


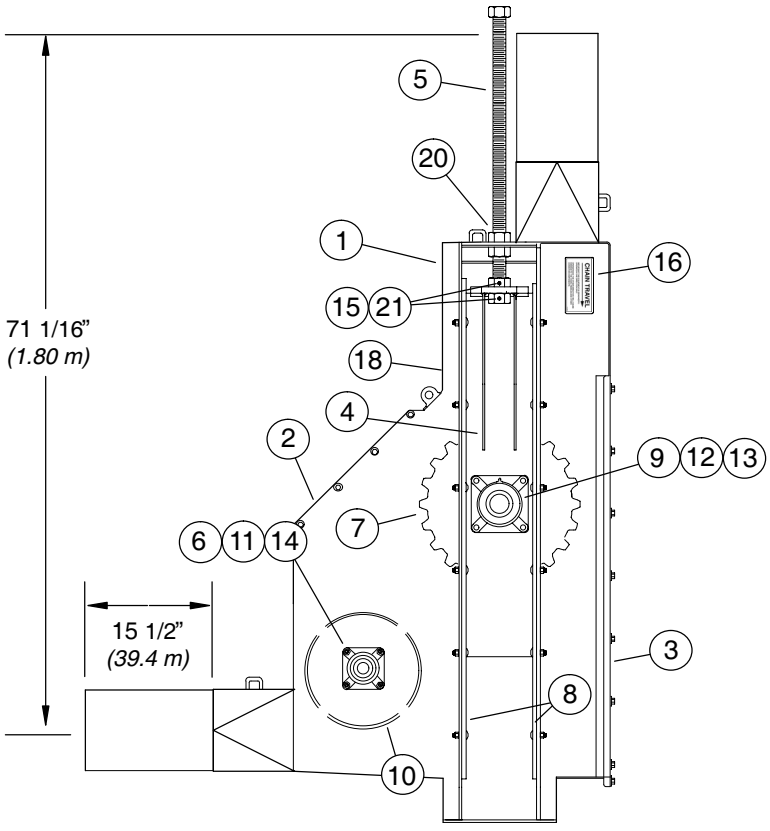


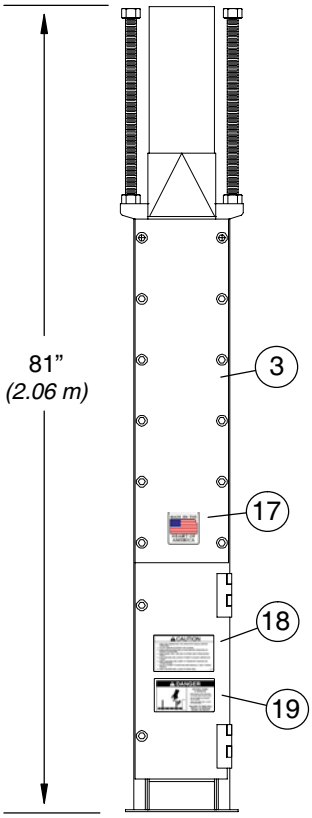
8” MANUAL TAKE-UP CORNER (INSPECTION CORNER)

Ref. No.	Part No.	Description
1	1013963	Manual Take-Up Corner Weldment
2	1013995	Cover, Inside Panel
3	1013999	Inspection Door (rear)
4	1014011	Slide Weldment
5	1012632	Rod, Threaded Adjustable
6	1010A	Bearing, 4-Bolt Flange, 1 1/2” bore
7	1029514	Sprocket, 14 tooth
8	1014012	Guide Strap f/ Slide Weldment
9	1010A	Bearing, 4-Bolt Flange, 1 1/2” bore
10	1038224	Wheel, Traction
11	553316	Shaft, Idler Sprocket
12	553092	Shaft, Inspection Corner Sprocket
13	4021L1	Key, 1/2” sq. x 2 3/4” long
14	4021L1	Key, 1/2” sq. x 2 3/4” long
15	4713-1	Bolt, 5/16-18 x 1 3/4”
16	1012785	Decal, Chain Travel
17	1002301	Decal, Caution, General Operator
18	1012872	Decal, Danger, Do Not Operate...
19	1041833	Decal, Made in America
20	D1158	Nut, 1” - 8, Non-Lock
21	1004782	Nut, 5/16-18 Oval Lock

10” MANUAL TAKE-UP CORNER (INSPECTION CORNER)



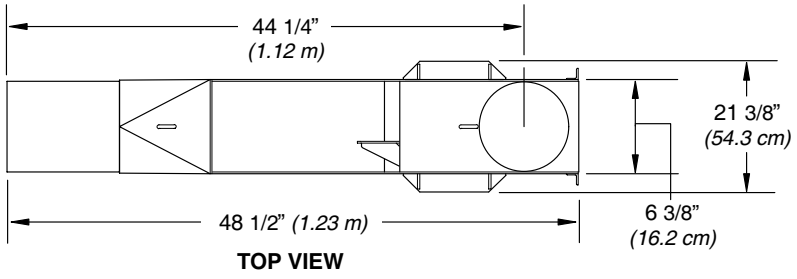




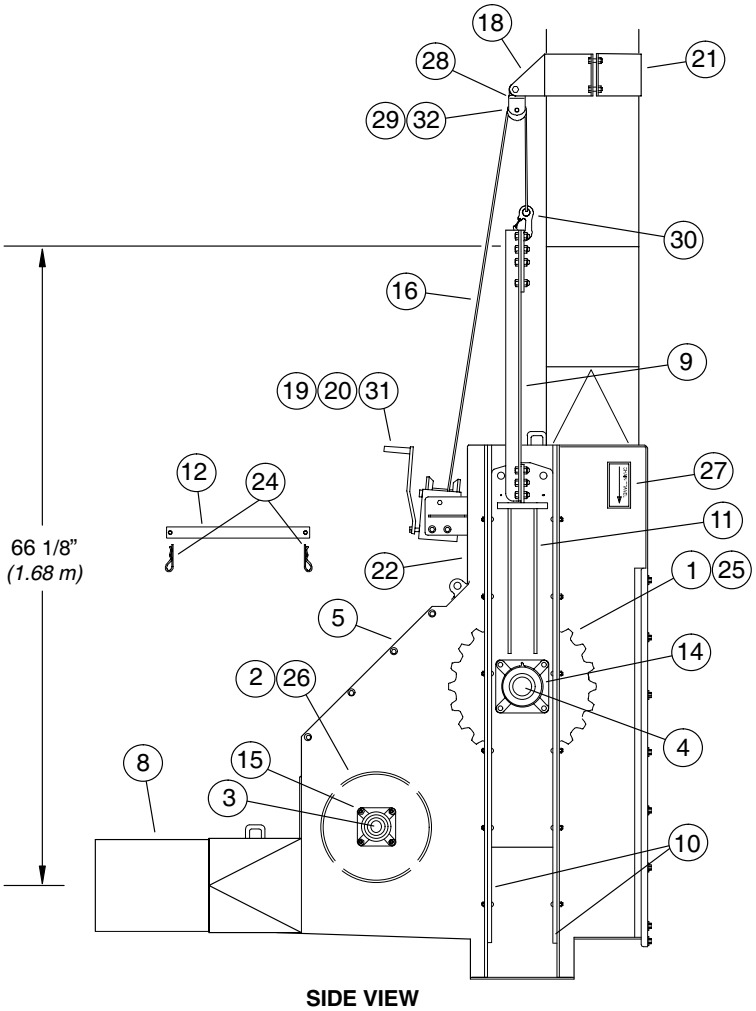
10” MANUAL TAKE-UP CORNER (INSPECTION CORNER)

Ref. No.	Part No.	Description
1	1012618	Manual Take-Up Corner Weldment
2	1012875	Cover, Inside Panel
3	1012602	Inspection Door (rear)
4	1012979	Slide Weldment
5	1012632	Rod, Threaded Adjustable
6	1010A	Bearing, 4-Bolt Flange, 1 1/2” bore
7	420065	Sprocket, 16 tooth, 2 7/16” bore
8	1012596	Guide Strap f/ Slide Weldment
9	2214C	Bearing, 4-Bolt Flange, 2” bore
10	631191	Wheel, Traction
11	1012628	Shaft, Idler Sprocket
12	1022382	Shaft, Inspection Corner Sprocket
13	53060	Key, 5/8” sq. x 3 3/4” long
14	4021L1	Key, 1/2” sq. x 2 3/4” long
15	4713-1	Bolt, 5/16-18 x 1 3/4”
16	1012785	Decal, Chain Travel
17	1002301	Decal, Caution, General Operator
18	1012872	Decal, Danger, Do Not Operate...
19	1041833	Decal, Made in America
20	D1158	Nut, 1” - 8, Non-Lock
21	1004782	Nut, 5/16-18 Oval Lock

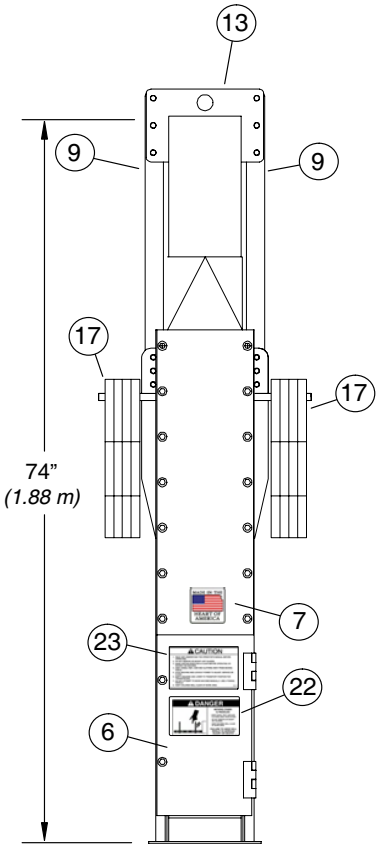
AUTO TAKE-UP CORNER ASSEMBLY
f/ 6" MODELS



TOP VIEW



SIDE VIEW



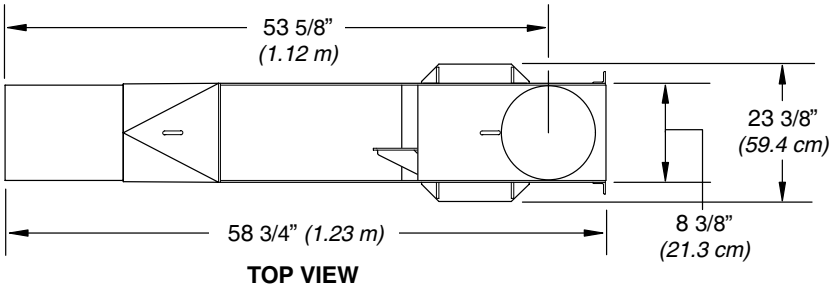
END VIEW

AUTO TAKE-UP CORNER ASSEMBLY f/ 6" MODELS

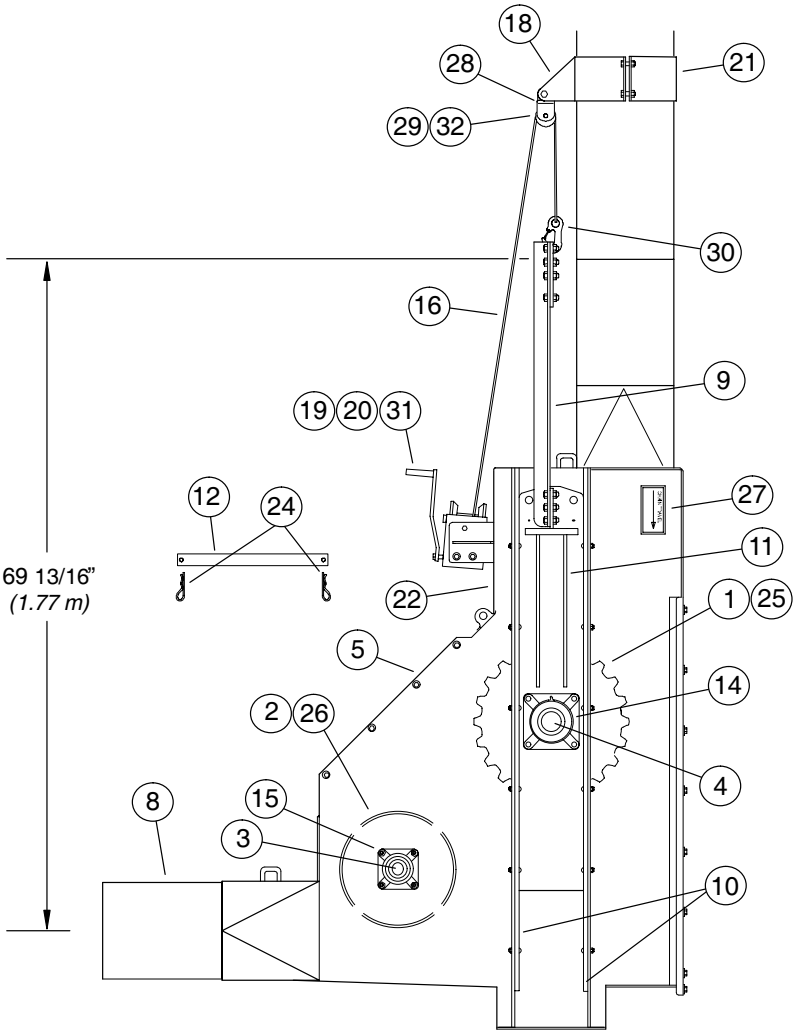
Ref. No.	Part No.	Description
1	1005566	Sprocket, 12T, 1 1/2" Bore
2	1014146	Traction Wheel
3	1014150	Shaft, Idler Sprocket
4	553240	Shaft, Inspection Corner
5	1014092	Top Cover, Inspection Corner
6	1014095	Inspection Door (rear)
7	1041833	Decal, Made In America
8	1026170	Inspection Corner w/ATU
9	1025946	Side Lift Angle, for 6" ATU
10	1026169	Slide Guide Strap
11	1026172	Slide Weldment
12	1026173	Block Out Bar
13	1026174	Lifting Plate, for 6" ATU
14	1010A	Bearing, 4-hole flange, 1-1/2" Bore
15	8341D	Bearing, 4-hole flange, 1" Bore
16	1011852	Cable, .250" dia. x 19'-0" long
17	1022554	Weights, 50 lbs. each
18	1024131	Pulley Bracket Weldment
19	3335A1	Winch Assembly, K1550
20	41595	Winch Handle, K1550
21	5046A1	Half Band, 6" x 4" wide
22	1012872	Safety Sign, Danger
23	1002301	Safety Sign, Caution
24	635164	Hair Pin, .094" dia. x 2" long
25	4073A1	Key, 3/8" sq. x 3" long
26	8371C	Key, 1/4" sq. x 1-1/2" long
27	1012785	Decal, Chain Travel
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley, 1/4" x 3" O.D.
30	106411	Hook with Safety Clip
31	41600	Keeper Kit for Winch
32	50079A1	Bushing, 1" O.D.x 5/8" long

PARTS LIST

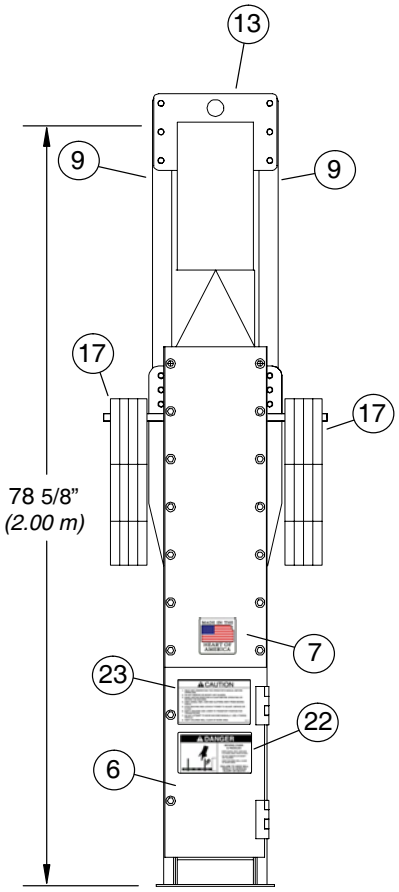
AUTO TAKE-UP CORNER ASSEMBLY
f/ 8" MODELS



TOP VIEW



SIDE VIEW



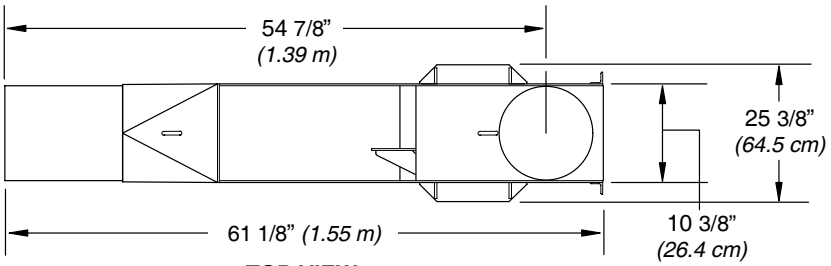
END VIEW

AUTO TAKE-UP CORNER ASSEMBLY f/ 8" MODELS

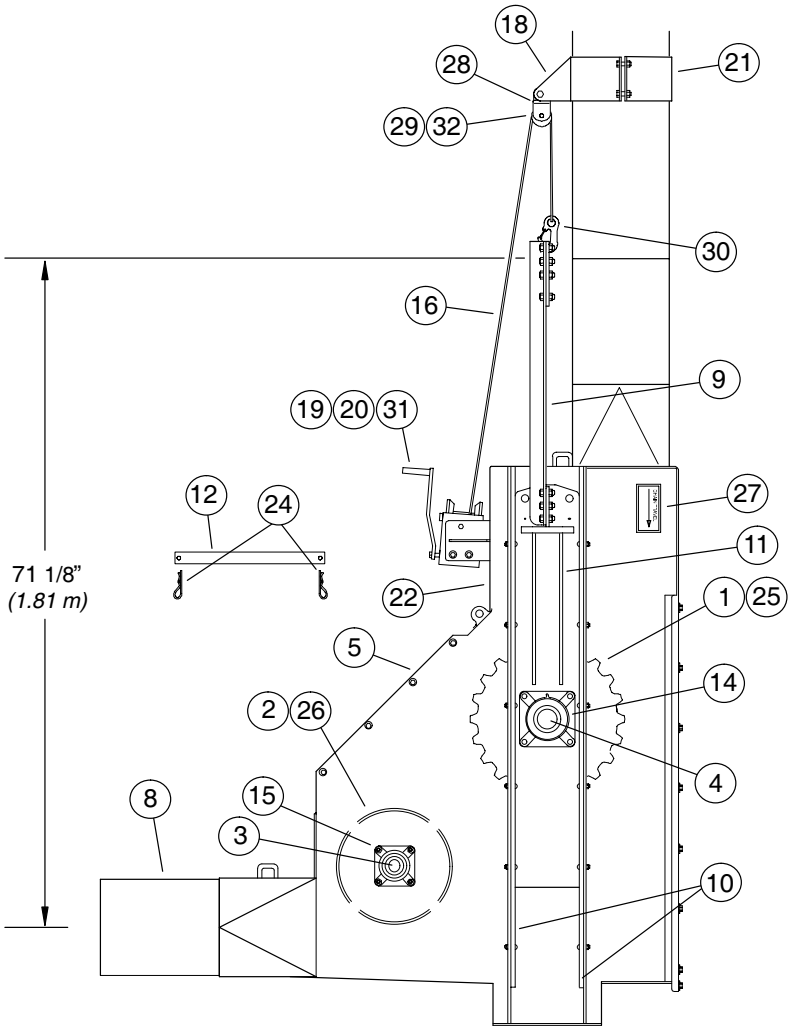
Ref. No.	Part No.	Description
1	1029514	Sprocket, 14T, 1 1/2" Bore
2	1038224	Traction Wheel
3	553316	Shaft, Idler Sprocket
4	553092	Shaft, Inspection Corner
5	1013996	Top Cover, Inspection Corner
6	1013999	Inspection Door (rear)
7	1041833	Decal, Made In America
8	1026121	Inspection Corner w/ATU
9	1025946	Side Lift Angle, for 8" ATU
10	1026126	Slide Guide Strap
11	1026127	Slide Weldment
12	1026136	Block Out Bar
13	1026137	Lifting Plate, for 8" ATU
14	1010A	Bearing, 4-hole flange, 1-1/2" Bore
15	1010A	Bearing, 4-hole flange, 1 1/2" Bore
16	1011852	Cable, .250" dia. x 19'-0" long
17	1022554	Weights, 50 lbs. each
18	1025230	Pulley Bracket Weldment
19	3335A1	Winch Assembly, K1550
20	41595	Winch Handle, K1550
21	5042A1	Half Band, 8" x 4" wide
22	1012872	Safety Sign, Danger
23	1002301	Safety Sign, Caution
24	635164	Hair Pin, .094" dia. x 2" long
25	4021L1	Key, 1/2" sq. x 2 3/4" long
26	4021L1	Key, 1/2" sq. x 2 3/4" long
27	1012785	Decal, Chain Travel
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley, 1/4" x 3" O.D.
30	106411	Hook with Safety Clip
31	41600	Keeper Kit for Winch
32	50079A1	Bushing, 1" O.D.x 5/8" long

PARTS LIST

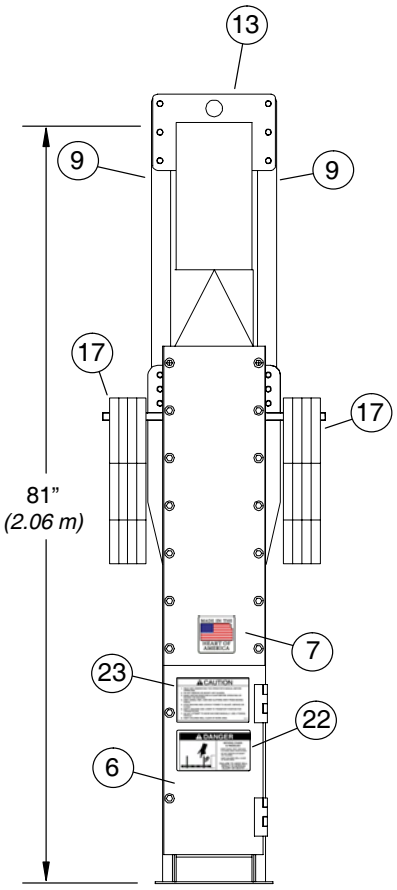
AUTO TAKE-UP CORNER ASSEMBLY
f/ 10" MODELS



TOP VIEW



SIDE VIEW



END VIEW

AUTO TAKE-UP CORNER ASSEMBLY f/ 10" MODELS

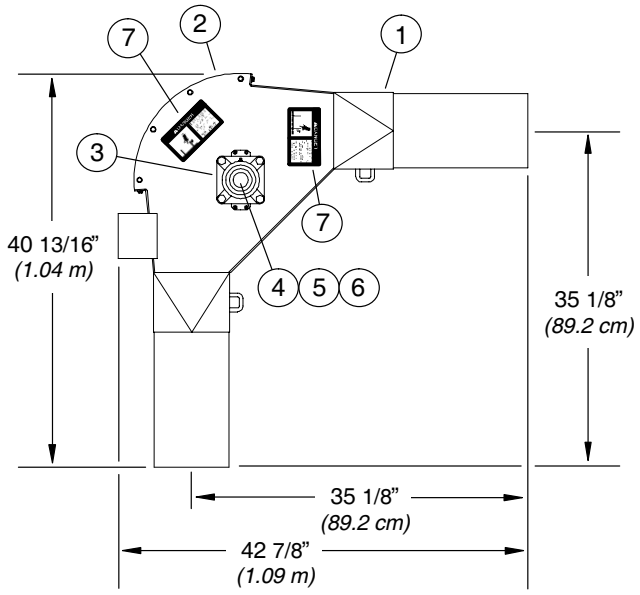
Ref. No.	Part No.	Description
1	420065	Sprocket, 16T, 2 7/16" Bore
2	631191	Traction Wheel
3	1012628	Shaft, Idler Sprocket
4	1022382	Shaft, Inspection Corner
5	1012875	Top Cover, Inspection Corner
6	1012602	Inspection Door (rear)
7	1041833	Decal, Made In America
8	1025953	Inspection Corner w/ATU
9	1025946	Side Lift Angle, for 10" ATU
10	1026057	Slide Guide Strap
11	1025931	Slide Weldment
12	1025952	Block Out Bar
13	1025950	Lifting Plate, for 10" ATU
14	2214C	Bearing, 4-hole flange, 2" Bore
15	1010A	Bearing, 4-hole flange, 1 1/2" Bore
16	1011852	Cable, .250" dia. x 19'-0" long
17	1022554	Weights, 50 lbs. each
18	1022979	Pulley Bracket Weldment
19	3335A1	Winch Assembly, K1550
20	41595	Winch Handle, K1550
21	106207-1	Half Band, 10" x 4" wide
22	1012872	Safety Sign, Danger
23	1002301	Safety Sign, Caution
24	635164	Hair Pin, .094" dia. x 2" long
25	53060	Key, 5/8" sq. x 3 3/4" long
26	4021L1	Key, 1/2" sq. x 2 3/4" long
27	1012785	Decal, Chain Travel
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley, 1/4" x 3" O.D.
30	106411	Hook with Safety Clip
31	41600	Keeper Kit for Winch
32	50079A1	Bushing, 1" O.D.x 5/8" long

PARTS LIST

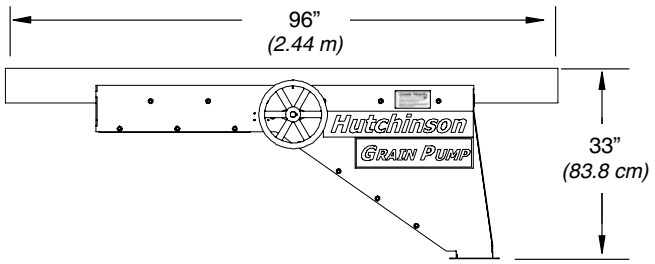
90° CORNER ASSEMBLY f/ 6" MODELS

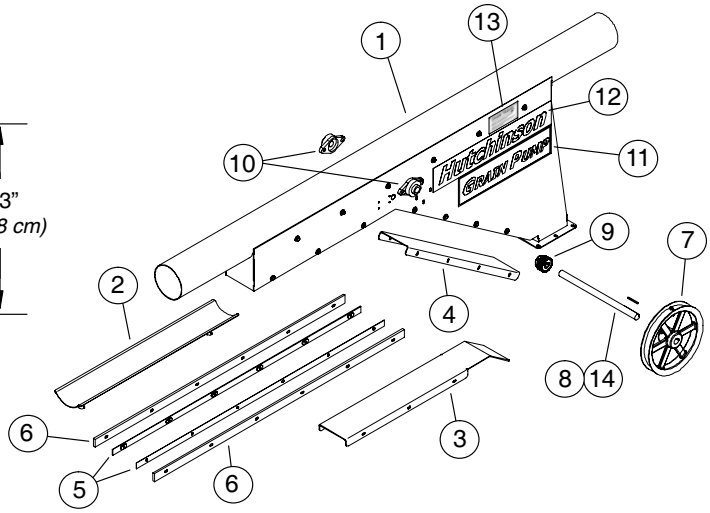
Ref. No.	Part No.	Description
1	1014072	Corner Weldment, 90°
2	1014088	Inspection Door
3	1010A	Bearing, 1 1/2" Bore
4	1005566	Sprocket, 12 tooth, 2" bore
5	553240	Shaft f/ Corner Sprocket
6	4073A1	Key, 3/8" sq. x 3" long
7	1012872	Decal, Danger: Do Not Operate..

The complete corner assembly can be obtained by ordering Part No. 1014073.



90° DISCHARGE w/ GATE ASSEMBLY f/ 6" MODELS





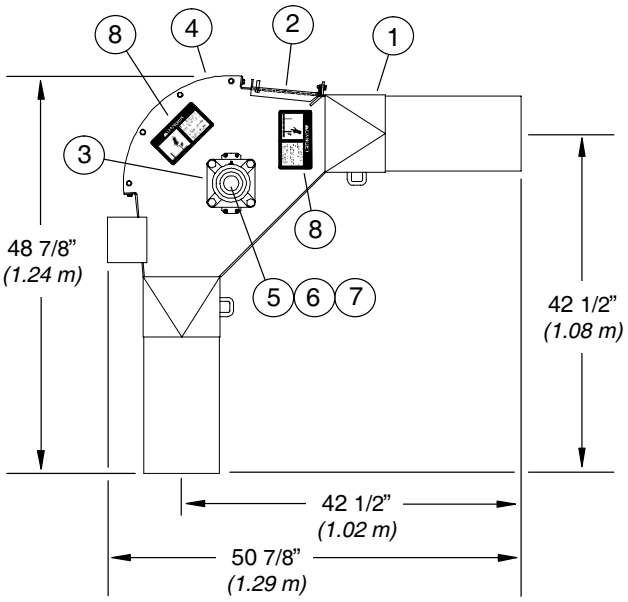
Ref. No.	Part No.	Description
1	1037643	Discharge Spout Weldment
2	1037645	Slide Gate
3	1038955	Door, Upper Access
4	1015248	Panel, Access
5	1038901	Shim f/ Gate Guide Rail
6	1037755	Rail, Gate Guide
7	1011771	Control Wheel
8	1038987	Shaft f/ 90° Discharge
9	1023294	Spur Gear, 22T x 10DP
10	6818D	Bearing, 1", 2 Hole Flange
11	34349	Decal, Grain Pump Logo
12	1001125	Decal, Hutchinson
13	1012785	Decal, Chain Travel
14	4046A1	Key, 1/4" sq. x 3" long

The complete corner assembly can be obtained by ordering Part No. 1037642

90° CORNER ASSEMBLY f/ 8" MODELS

Ref. No.	Part No.	Description
1	1013959	Corner Weldment, 90°
2	1017635	Access Door
3	1010A	Bearing, 1 1/2" Bore
4	1013959	Cover Door
5	1029514	Sprocket, 14 tooth, 2" bore
6	553316	Shaft f/ Corner Sprocket
7	4021L1	Key, 1/2" sq. x 2 3/4" long
8	1012872	Decal, Danger: Do Not Operate..

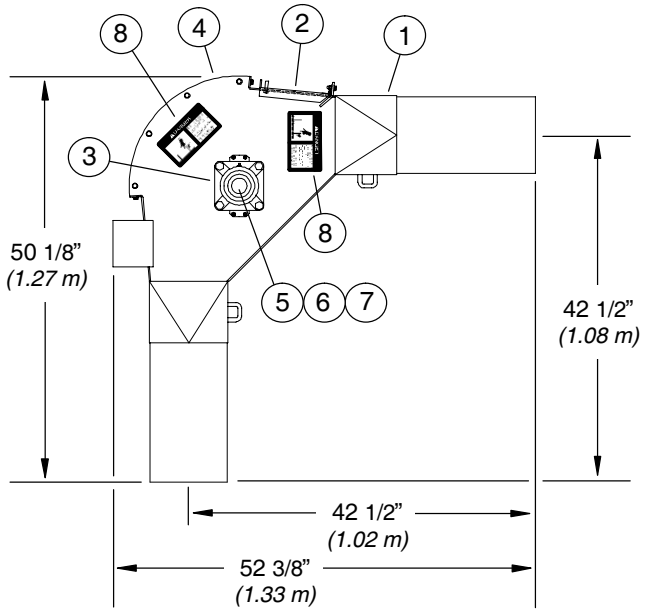
The complete corner assembly can be obtained by ordering Part No. 1038973.



90° CORNER ASSEMBLY f/ 10" MODELS

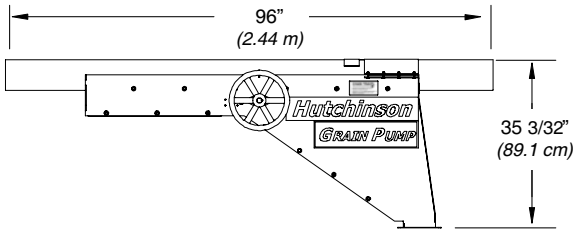
Ref. No.	Part No.	Description
1	1012621	Corner Weldment, 90°
2	1017556	Access Door
3	1029183	Bearing, 2" Bore
4	1013008	Cover Door
5	1012624	Sprocket, 16 tooth, 3" bore
6	1012626	Shaft f/ Corner Sprocket
7	553512	Key, 3/4" sq. x 3 1/2" long
8	1012872	Decal, Danger: Do Not Operate..

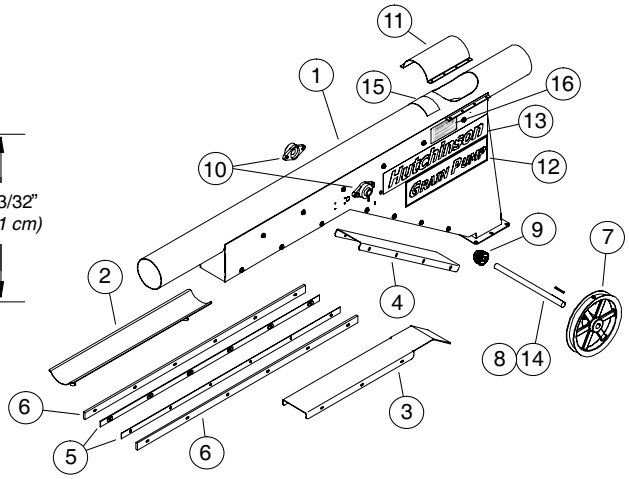
The complete corner assembly can be obtained by ordering Part No. 1012870.



PARTS LIST

90° DISCHARGE w/ 29" GATE f/ 8" MODELS

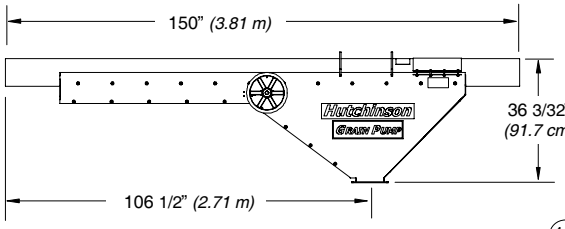


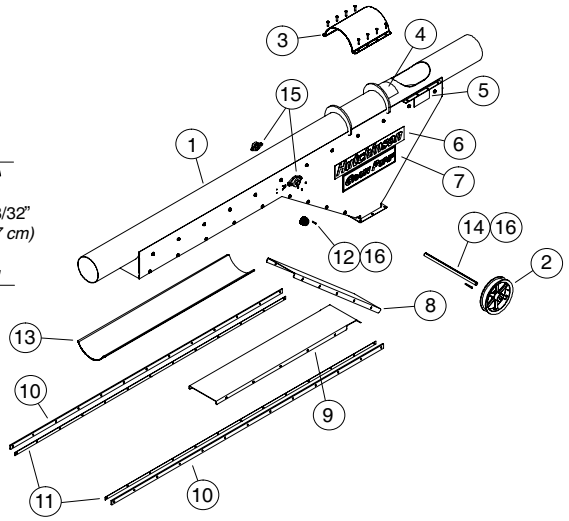


The complete corner assembly can be obtained by ordering Part No. 1037717

Ref. No.	Part No.	Description
1	1037718	Discharge Spout Weldment
2	1037720	Slide Gate
3	1038956	Door, Upper Access
4	1015249	Panel, Access
5	1038901	Shim f/ Gate Guide Rail
6	1037755	Rail, Gate Guide
7	1011771	Control Wheel
8	1038988	Shaft f/ 90° Discharge
9	1023294	Spur Gear, 22T x 10DP
10	6818D	Bearing, 1", 2 Hole Flange
11	1024421	Cover, Inspection Hole
12	34349	Decal, Grain Pump Logo
13	1001125	Decal, Hutchinson
14	4046A1	Key, 1/4" sq. x 3" long
15	1012872	Decal, Danger: Do Not Operate...
16	1012785	Decal, Chain Travel

90° DISCHARGE w/ 54" GATE f/ 8" MODELS

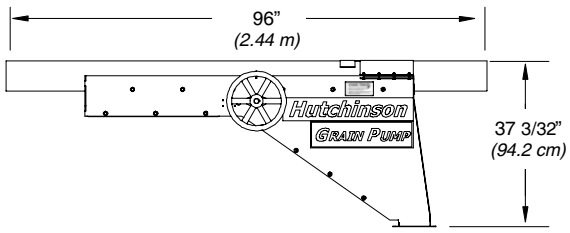


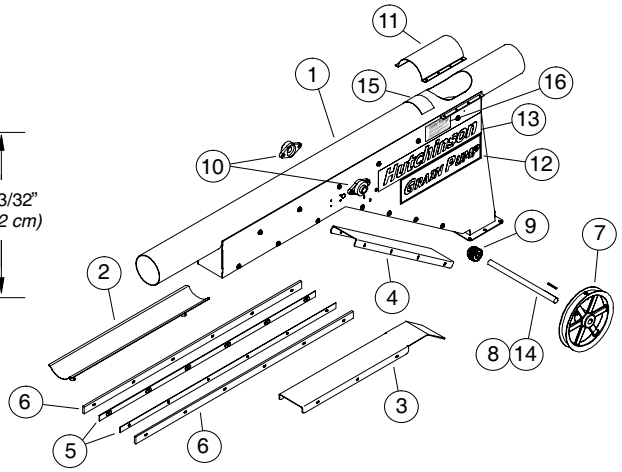


The complete corner assembly can be obtained by ordering Part No. 1037493

Ref. No.	Part No.	Description
1	1037494	Discharge Spout Weldment
2	1034255	Control Wheel
3	1024421	Cover, Inspection Hole
4	1012872	Decal, Danger: Do Not Operate..
5	1012785	Decal, Chain Travel
6	1001125	Decal, Hutchinson
7	34349	Decal, Grain Pump Logo
8	1037503	Panel, Access
9	1038957	Door, Upper Access
10	1038946	Rail, Gate Guide
11	1038952	Shim f/ Gate Rail Guide
12	1023294	Spur Gear, 22T x 10DP
13	1037500	Slide gate
14	1038988	Shaft f/ 90° Discharge
15	6818D	Bearing, 1", 2 Hole Flange
16	4046A1	Key, 1/4" sq. x 3" long

90° DISCHARGE w/ 29" GATE f/ 10" MODELS

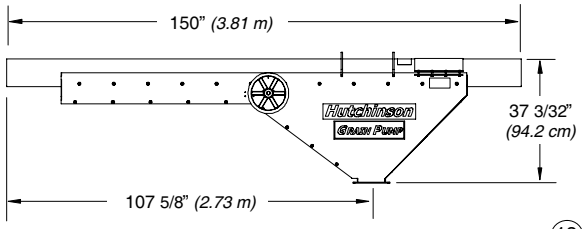


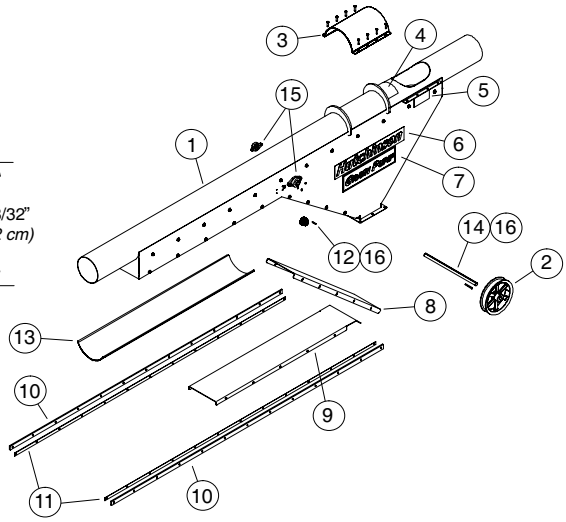


The complete corner assembly can be obtained by ordering Part No. 1037684

Ref. No.	Part No.	Description
1	1037685	Discharge Spout Weldment
2	1037687	Slide Gate
3	1038958	Door, Upper Access
4	1015250	Panel, Access
5	1038901	Shim f/ Gate Guide Rail
6	1037755	Rail, Gate Guide
7	1011771	Control Wheel
8	1038989	Shaft f/ 90° Discharge
9	1023294	Spur Gear, 22T x 10DP
10	6818D	Bearing, 1", 2 Hole Flange
11	50005A1	Cover, Inspection Hole
12	34349	Decal, Grain Pump Logo
13	1001125	Decal, Hutchinson
14	4046A1	Key, 1/4" sq. x 3" long
15	1012872	Decal, Danger: Do Not Operate...
16	1012785	Decal, Chain Travel

90° DISCHARGE w/ 54" GATE f/ 10" MODELS



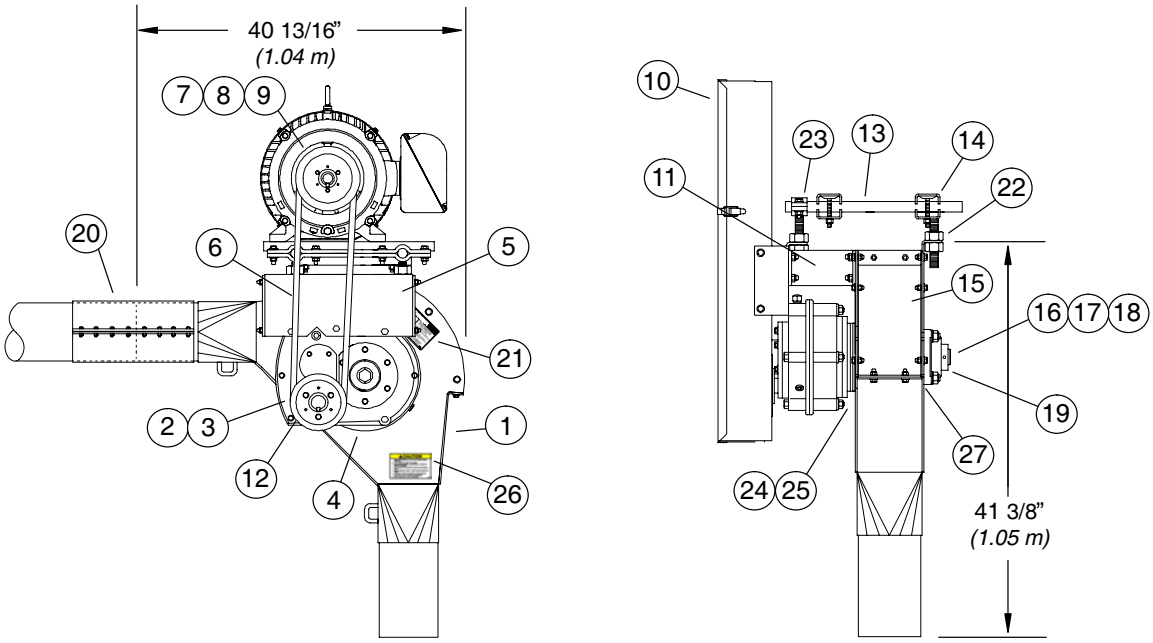


The complete corner assembly can be obtained by ordering Part No. 1037493

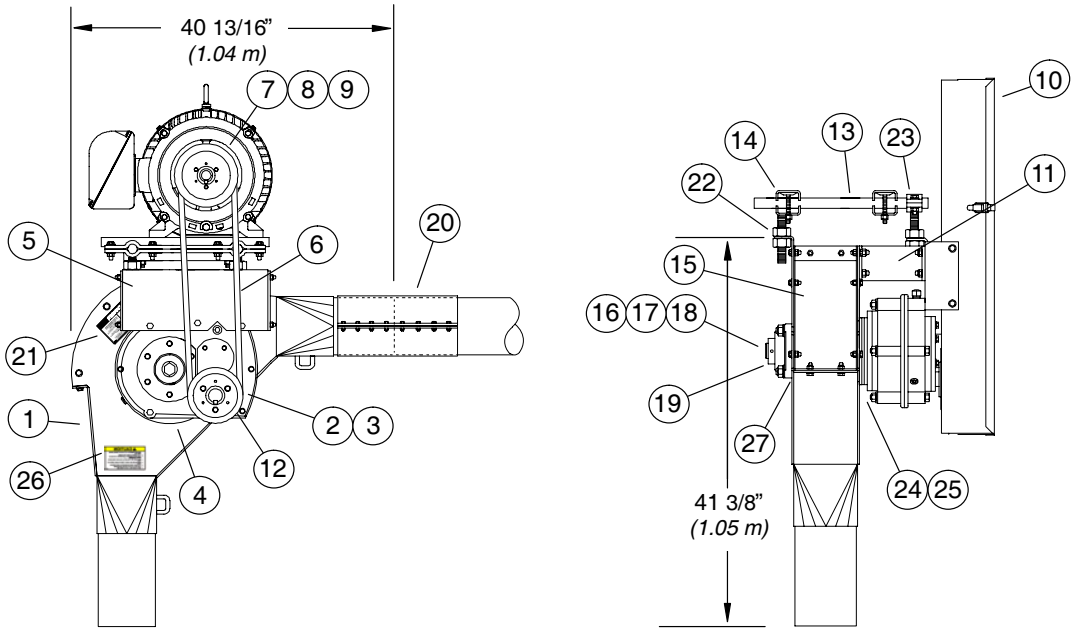
Ref. No.	Part No.	Description
1	1035648	Discharge Spout Weldment
2	1034255	Control Wheel
3	50005A1	Cover, Inspection Hole
4	1012872	Decal, Danger: Do Not Operate..
5	1012785	Decal, Chain Travel
6	1001125	Decal, Hutchinson
7	34349	Decal, Grain Pump Logo
8	1036836	Panel, Access
9	1038959	Door, Upper Access
10	1038946	Rail, Gate Guide
11	1038952	Shim f/ Gate Rail Guide
12	1023294	Spur Gear, 22T x 10DP
13	1035646	Slide gate
14	1038989	Shaft f/ 90° Discharge
15	6818D	Bearing, 1", 2 Hole Flange
16	4046A1	Key, 1/4" sq. x 3" long

DRIVE CORNER ASSEMBLY f/ 6" MODELS

Drive Corner (Standard)



Drive Corner (Reversed)



If two drive corners are used (15 hp only), the reversed drive corner would take the place of the upper 90° Standard Corner located above the lower Standard Corner that is nearest the dump hopper.

To obtain the reversed Drive Corner for the 15 hp system, order: Part No. 1028373-REV

DRIVE CORNER ASSEMBLY f/ 6" MODELS

All items are used on all 6" Drive Corners unless otherwise noted

Ref. No.	Part No.	Description
1	1024797	Drive Corner Weldment f/ 5, 7 1/2 & 10 hp
(1)	1028374	Drive Corner Weldment f/ 15 hp (1028374-REV see Page P-20)
(1)	1014074	Drive Corner Weldment f/ 20, 25 & 30 hp
2	3259A1	Sheave, 6.4" 1B f/ 5 & 7 1/2 hp
(2)	3234A1	Sheave, 6.6" 2B f/ 10 hp
(2)	3090A1	Sheave, 8.6" 2B f/ 15 hp
(2)	3267A1	Sheave, 5.6" 3B f/ 20 hp
(2)	420079	Sheave, 5.6" 4B f/ 25 & 30 hp
3	3077A1	Bushing, SDS 1 1/8" Bore f/ 5, 7 1/2 & 10 hp
(3)	3072A1	Bushing, SK 1 1/4" Bore f/ 15 hp
(3)	3278A1	Bushing, SD 1 7/16" Bore f/ 20, 25 & 30 hp
4	3139A91	Reducer, SCXT 215 f/ 5, 7 1/2 & 10 hp
(4)	3140A91	Reducer, SCXT 315 f/ 15 hp
(4)	3141A91	Reducer, SCXT 415 f/ 20, 25 & 30 hp
5	1014111	Bracket, Reducer f/ 5, 7 1/2 & 10 hp
(5)	553383	Bracket, Reducer f/ 15 hp
(5)	1014182	Bracket, Reducer f/ 20, 25 & 30 hp
6	40125	Belt, B-68 f/ 5, 7 1/2, 25 & 30 hp
(6)	1009128	Belt, B-70 f/ 10 hp
(6)	40126	Belt, B-71 f/ 15 hp
7	3259A1	Sheave, 6.4" 1B f/ 5 & 7 1/2 hp
(7)	3266A1	Sheave, 6.8" 2B f/ 10 hp
(7)	3075A1	Sheave, 9.4" 2B f/ 15 hp
(7)	3242A1	Sheave, 6.0" 3B f/ 20 hp
(7)	3249A1	Sheave, 6.0" 4B f/ 25 & 30 hp
8	3077A1	Bushing, QD SDS, 1 1/8" bore f/ 5 hp
(8)	3087A1	Bushing, QD SDS 1 3/8" bore f/ 7 1/2 & 10 hp
(8)	3192A1	Bushing, QD SK 1 5/8" bore f/ 15 hp
(8)	3089A1	Bushing, QD SD 1 5/8" bore f/ 20 hp
(8)	3280A1	Bushing, QD SD 17/8" bore f/ 25 & 30 hp
9	4048A1	Key, 5/16" sq. x 2" long f/ 5, 7 1/2 & 10 hp
(9)	1038D	Key, 3/8" sq. x 2" long f/ 15 & 20 hp
(9)	4050A1	Key, 1/2" sq. x 2" long f/ 25 & 30 hp
10	130258	Belt Guard
11	1014118	Bracket, Support, f/ 5, 7 1/2 & 10 hp
(11)	1028883	Bracket, Support, f/ 15 hp
(11)	1012885	Bracket, Support, f/ 20, 25 & 30 hp
12	41884	Cooling Fan, f/ 20, 25 & 30 hp
13	50859A1	Mounting Rod. Motor
14	50435A1	Strap, Top Mounting
15	1014088	Inspection Door
16	1005565	Sprocket, 12T 2" bore
17	1014301	Shaft, Drive Corner Sprocket f/ 5, 7 1/2 & 10 hp
(17)	1028880	Shaft, Drive Corner Sprocket f/ 15 hp
(17)	1014282	Shaft, Drive Corner Sprocket f/ 20, 25 & 30 hp
18	4021L1	Key, 1/2" sq. x 2 3/4" long
19	1010A	Bearing, 4 Hole 1 1/2" bore
20	6309A	Connecting band, 6" x 24"
21	1012872	Decal, Danger: Do Not Operate...
22	D1152	Nut, 3/4"-10 Non-Lock
23	2139C	Strap, Top
24	553345	Plate, Spacer f/ 5, 7 1/2 & 10 hp
(24)	553366	Plate, Spacer f/ 15 hp
(24)	553355	Plate, Spacer f/ 20, 25 & 30 hp
25	1022752	Seal, UHMW f/ 5, 7 1/2 & 10 hp
(25)	1028881	Seal, UHMW f/ 15 hp
(25)	1022753	Seal, UHMW f/ 20, 25 & 30 hp
26	1002301	Decal, Caution: General Operator
27	10022754	Seal, UHMW

For *50 hz* Drive Corners the following belts, sheaves and bushings need to be used:

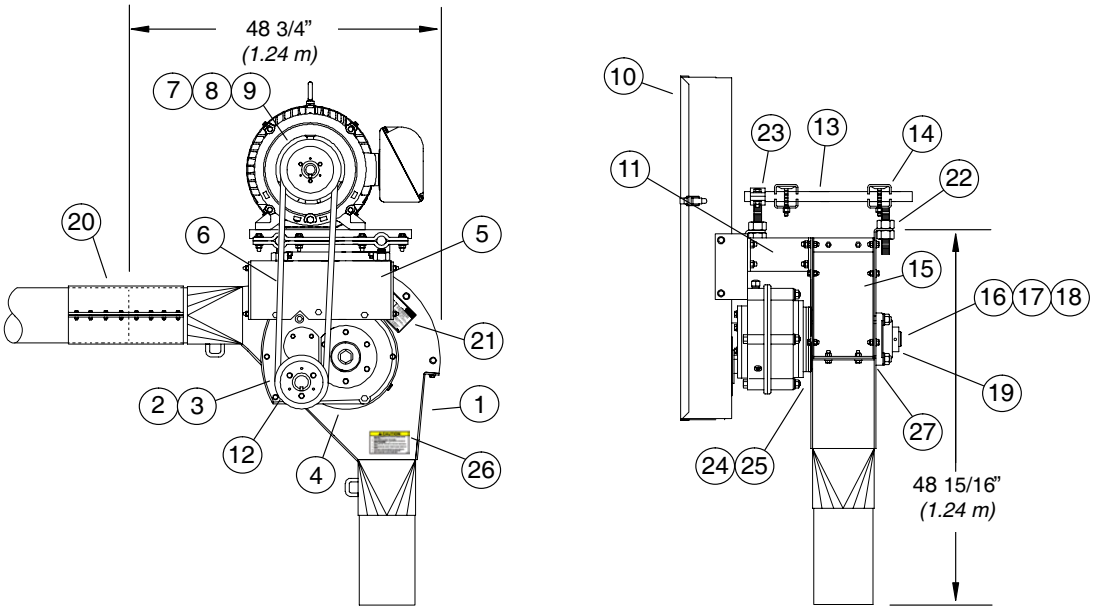
20 hp *(15 kw)*
Item 2, Sheave 3267A1, 5.6 3B
Item 3, Bushing 3278A1, QD SD 1 7/16" bore
Item 6, Belt 40124, B-66
Item 7, Sheave 3244A1, 7.4 3B
Item 8, Bushing 3192A1, QD SK 1 5/8" bore

25 hp *(18.5 kw)*
Item 2, Sheave 420079, 5.6 4B
Item 3, Bushing 3278A1, QD SD 1 7/16" bore
Item 6, Belt 1009128, B-70
Item 7, Sheave 3250A1, 7.4 4B
Item 8, Bushing 3193A1, QD SK 1 7/8" bore

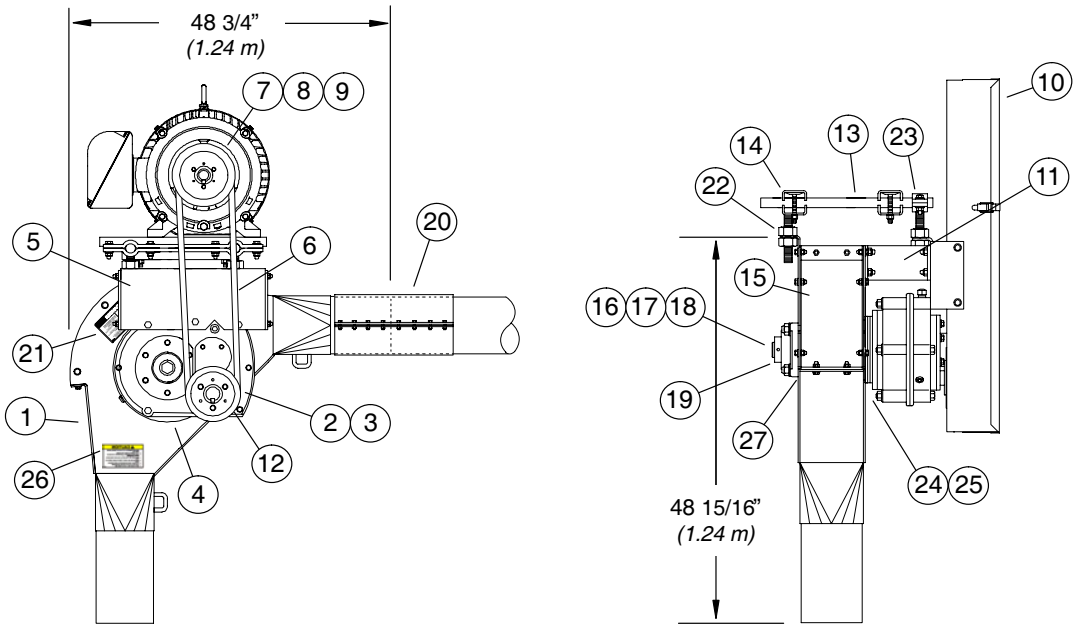
30 hp *(22 kw)*
Item 2, Sheave 420079, 5.6 4B
Item 3, Bushing 3278A1, QD SD 1 7/16" bore
Item 6, Belt 1009128, B-70
Item 7, Sheave 3250A1, 7.4 4B
Item 8, Bushing 1029784, QD SK 48 mm bore

DRIVE CORNER ASSEMBLY f/ 8" MODELS

Drive Corner (Standard)



Drive Corner (Reversed)



If two drive corners are used, the reversed drive corner would take the place of the upper 90° Standard Corner located above the lower Standard Corner that is nearest the dump hopper.

To obtain the reversed Drive Corner for the system, order: Part No. 1038967-REV f/ 15 hp; Part No. 1038968-REV f/ 20 hp and Part No. 1038969-REV f/ 30 hp

DRIVE CORNER ASSEMBLY f/ 8" MODELS

All items are used on all 8" Drive Corners unless otherwise noted

Ref. No.	Part No.	Description
1	1013961	Drive Corner Weldment f/ 15, 20 & 30 hp (See Page P-22 for Reverse Drive Corners)
(1)	1028221	Drive Corner Weldment f/ 40 hp
2	3265A1	Sheave, 6.8" 2B f/ 15 hp
(2)	3269A1	Sheave, 6.8" 3B f/ 20 & 30 hp
(2)	3080A1	Sheave, 9.4" 3B f/ 40 hp
3	3277A1	Bushing, SDS 1 7/16" bore f/ 15 hp
(3)	3278A1	Bushing, SD 1 7/16" bore f/ 20 hp
(3)	3312A1	Bushing, SD 1 15/16" bore f/ 30 hp
(3)	3048L1	Bushing, SK 2 3/16" bore f/ 40 hp
4	3141A91	Reducer, SCXT 415 f/ 15 & 20 hp
(4)	3142A91	Reducer, SCXT 515 f/ 30 hp
(4)	3143A91	Reducer, SCXT 615 f/ 40 hp
5	1013990	Bracket, Reducer f/ 15 & 20 hp
(5)	1014193	Bracket, Reducer f/ 30 hp
(5)	1027692	Bracket, Reducer f/ 40 hp
6	40126	Belt, B-71 f/ 15, 20 & 30 hp
(6)	40130	Belt, B-88 f/ 40 hp
7	3265A1	Sheave, 6.4" 2B f/ 15 hp
(7)	3268A1	Sheave, 6.4" 3B f/ 20 & 30 hp
(7)	3270A1	Sheave, 8.6" 3B f/ 40 hp
8	3277A1	Bushing, SDS, 1 7/16" bore f/ 15 hp
(8)	3278A1	Bushing, SD 1 7/16" bore f/ 20 hp
(8)	3312A1	Bushing, SD 1 15/16" bore f/ 30 hp
(8)	3048L1	Bushing, SK 2 3/16" bore f/ 40 hp
9	1038D	Key, 3/8" sq. x 2" long f/ 15 & 20 hp
(9)	- - -	Key furnished w/ Bushing f/ 30 & 40 hp
10	1012886	Belt Guard f/ 15, 20 & 30 hp
(10)	1017737	Belt Guard f/ 40 hp
11	1014118	Bracket, Support, f/ 5, 7 1/2 & 10 hp
(11)	1028883	Bracket, Support, f/ 15 hp
(11)	1012885	Bracket, Support, f/ 20, 25 & 30 hp
12	41884	Cooling Fan, f/ 20, 25 & 30 hp
13	2137C	Mounting Rod. Motor
14	50435A1	Strap, Top Mounting
(14)	50434A1	Clip, Bottom Mounting
15	1013969	Inspection Door
16	1029514	Sprocket, 14T 2" bore
17	1014123	Shaft, Drive Corner Sprocket f/ 15 hp
(17)	1014408	Shaft, Drive Corner Sprocket f/ 20 hp
(17)	1027691	Shaft, Drive Corner Sprocket f/ 30 hp
(17)	1014123	Shaft, Drive Corner Sprocket f/ 40 hp
18	4021L1	Key, 1/2" sq. x 2 3/4" long
19	2214C	Bearing, 4 Hole 2" bore
20	8309A	Connecting band, 8" x 27"
21	1012872	Decal, Danger: Do Not Operate...
22	D1152	Nut, 3/4"-10 Non-Lock
23	2139C	Strap, Top
24	553355	Plate, Spacer f/ 15 & 20 hp
(24)	553362	Plate, Spacer f/ 30 hp
(24)	1017743	Plate, Spacer f/ 40 hp
25	1022753	Seal, UHMW f/ 15, 20 & 30 hp
(25)	1022755	Seal, UHMW f/ 40 hp
26	1002301	Decal, Caution: General Operator
27	10022754	Seal, UHMW

For *50 hz* Drive Corners the following belts, sheaves and bushings need to be used:

15 hp *(11 kw)*
Item 2, Sheave 3235A1, 7.4 2B
Item 3, Bushing 3191A1, QD SK 1 7/16" bore
Item 6, Belt 40127, B-75
Item 7, Sheave 3090A1, 8.6 2B
Item 8, Bushing 1031684, QD SK 42 mm bore

20 hp *(15 kw)*
Item 2, Sheave 3244A1, 7.4 3B
Item 3, Bushing 3191A1, QD SK 1 7/16" bore
Item 6, Belt 40127, B-75
Item 7, Sheave 3250A1, 7.4 3B
Item 8, Bushing 1031684, QD SK 42 mm bore

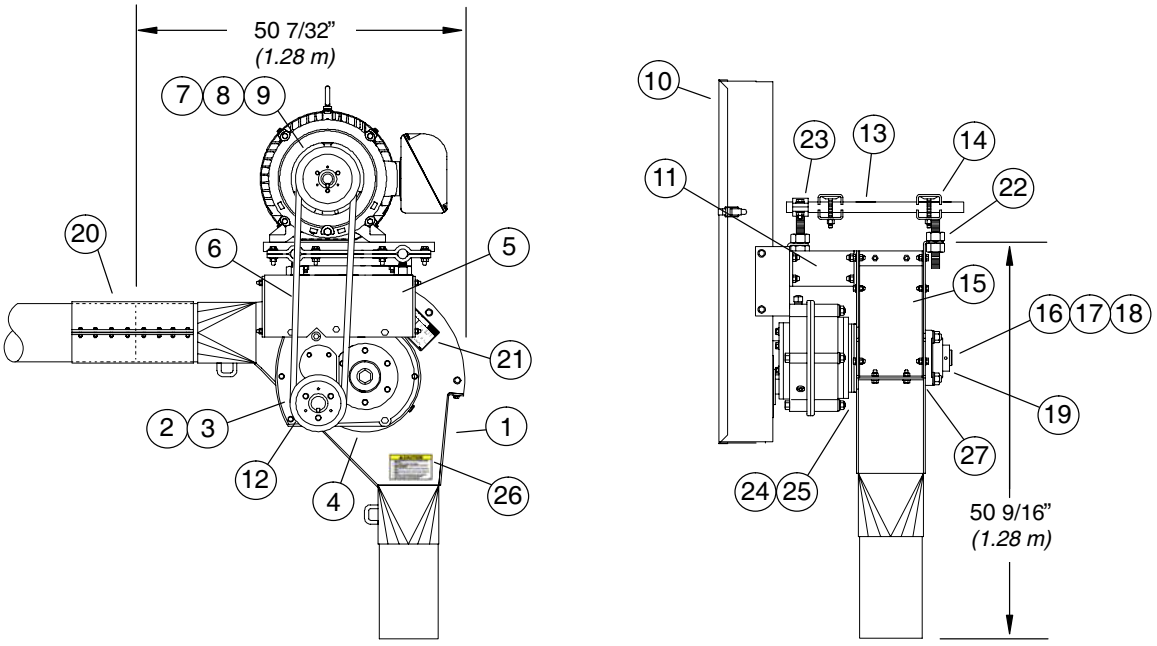
30 hp *(22 kw)*
Item 2, Sheave 3244A1, 7.4 3B
Item 3, Bushing 3194A1, QD SK 1 15/16" bore
Item 6, Belt 40217, B-75
Item 7, Sheave 3270A1, 8.6 3B
Item 8, Bushing 1029784, QD SK 48 mm bore

40 hp *(30 kw)*
Item 2, Sheave 3250A1, 7.4 4B
Item 3, Bushing 3048L1, QD SK 2 3/16" bore
Item 6, Belt 1023084, B-84
Item 7, Sheave 3273A1, 8.6 4B
Item 8, Bushing 1026803, QD SK 55 mm bore

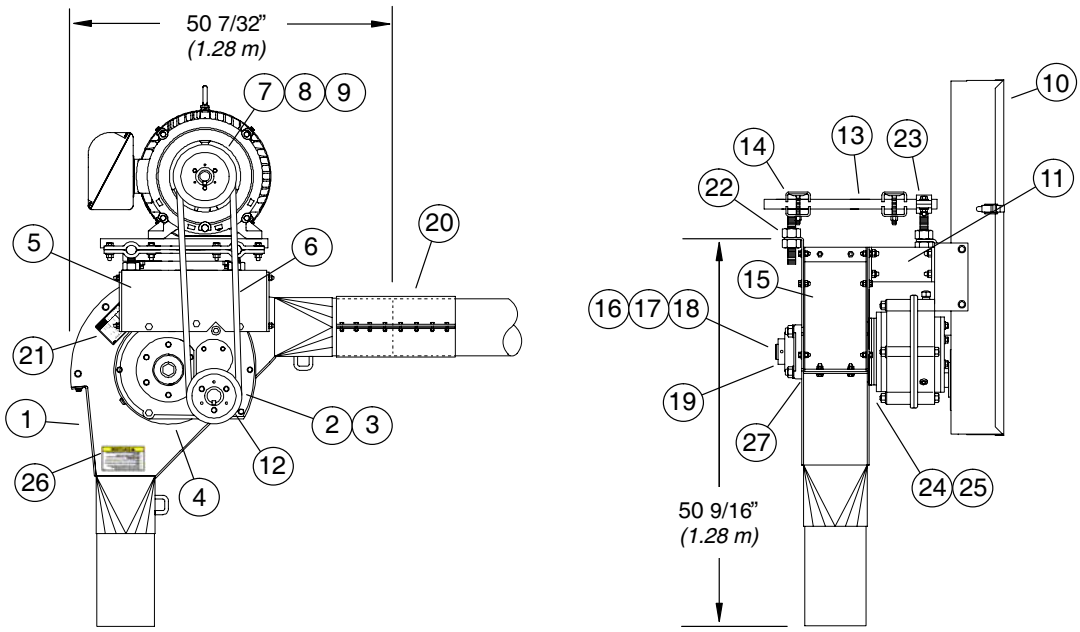
PARTS LIST

DRIVE CORNER ASSEMBLY f/ 10" MODELS

Drive Corner (Standard)



Drive Corner (Reversed)



If two drive corners are used, the reversed drive corner would take the place of the upper 90° Standard Corner located above the lower Standard Corner that is nearest the dump hopper.

To obtain the reversed Drive Corner for the system, order: Part No. 1012892-REV f/ 20 hp; Part No. 1012894-REV f/ 30 hp; Part No. 1017716-REV f/ 40 hp and Part No. 1028550-REV f/ 50 hp

DRIVE CORNER ASSEMBLY f/ 10" MODELS

All items are used on all 10" Drive Corners unless otherwise noted

Ref. No.	Part No.	Description
1	1012689	Drive Corner Weldment f/ 20 & 30 hp (See Page P-24 for Reversed Drive Corners)
(1)	1017715	Drive Corner Weldment f/ 40 & 50 hp (See Page P-24 for Reversed Drive Corners)
2	3244A1	Sheave, 7.4" 3B f/ 20 hp
(2)	3270A1	Sheave, 8.6" 3B f/ 30 hp
(2)	3271A1	Sheave, 11" 3B f/ 40 & 50 hp
3	3191A1	Bushing, SK 1 7/16" bore f/ 20 hp
(3)	3194A1	Bushing, SK 1 15/16" bore f/ 30 hp
(3)	3048L1	Bushing, SK 2 3/16" bore f/ 40 & 50 hp
4	3141A91	Reducer, SCXT 415 f/ 20 hp
(4)	3142A91	Reducer, SCXT 515 f/ 30 hp
(4)	3143A91	Reducer, SCXT 615 f/ 40 & 50 hp
5	1012633	Bracket, Reducer f/ 20 hp
(5)	1012634	Bracket, Reducer f/ 30 hp
(5)	1017732	Bracket, Reducer f/ 40 & 50 hp
6	1001929	Belt, B-73 f/ 20 hp
(6)	40125	Belt, B-68 f/ 30 hp reversed
(6)	40128	Belt, B-78 f/ 30 hp & 50 hp reversed
(6)	40131	Belt, B-90 f/ 40 hp
(6)	1016262	Belt, B-93 f/ 50 hp
7	3242A1	Sheave, 6.0" 3B f/ 20 hp
(7)	3269A1	Sheave, 6.8" 3B f/ 30 hp
(7)	3270A1	Sheave, 8.6" 3B f/ 40 hp
(7)	3080A1	Sheave, 9.4" 3B f/ 50 hp
8	3089A1	Bushing, SD, 1 5/8" bore f/ 20 hp
(8)	3280A1	Bushing, SD 1 7/8" bore f/ 30 hp
(8)	3281A1	Bushing, SK 2 1/8" bore f/ 40 & 50 hp
9	1038D	Key, 3/8" sq. x 2" lg f/ 20 hp
(9)	4050A1	Key, 1/2" sq. x 2" lg f/ 30, 40 & 50 hp
10	1012886	Belt Guard f/ 20 & 30 hp
(10)	1017737	Belt Guard f/ 40 & 50 hp
11	1012885	Bracket, Support, f/ 20 hp
(11)	1012895	Bracket, Support, f/ 30 hp
(11)	1017728	Bracket, Support, f/ 40 & 50 hp
12	41884	Cooling Fan, f/ 20, 25 & 30 hp
13	2137C	Mounting Rod. Motor
14	50435A1	Strap, Top Mounting
(14)	50434A1	Clip, Bottom Mounting
15	1013008	Inspection Door
16	1012624	Sprocket, 16T 3" bore
17	1012629	Shaft, Drive Corner Sprocket f/ 20 hp
(17)	1012630	Shaft, Drive Corner Sprocket f/ 30 hp
(17)	1027691	Shaft, Drive Corner Sprocket f/ 30 hp
(17)	1017727	Shaft, Drive Corner Sprocket f/ 40 & 50 hp
18	553512	Key, 3/4" sq. x 3 1/2" long
19	1029183	Bearing, 4 Hole 2" bore
20	1012D	Connecting Band, 10" x 30"
21	1012872	Decal, Danger: Do Not Operate...
22	D1152	Nut, 3/4"-10 Non-Lock
23	2139C	Strap, Top
24	553355	Plate, Spacer f/ 20 hp
(24)	553362	Plate, Spacer f/ 30 hp
(24)	1017743	Plate, Spacer f/ 40 & 50 hp
25	1022753	Seal, UHMW f/ 20 & 30 hp
(25)	1022755	Seal, UHMW f/ 40 & 50 hp
26	1002301	Decal, Caution: General Operator
27	10022753	Seal, UHMW

For *50 hz* Drive Corners the following belts, sheaves and bushings need to be used:

20 hp *(15 kw)*
Item 2, Sheave 3269A1, 7.4 3B
Item 3, Bushing 3194A1, QD SD 1 15/16" bore
Item 6, Belt 1009129, B-73
Item 7, Sheave 3269A1, 6.8 3B
Item 8, Bushing 3089A1, QD SD 1 5/8" bore

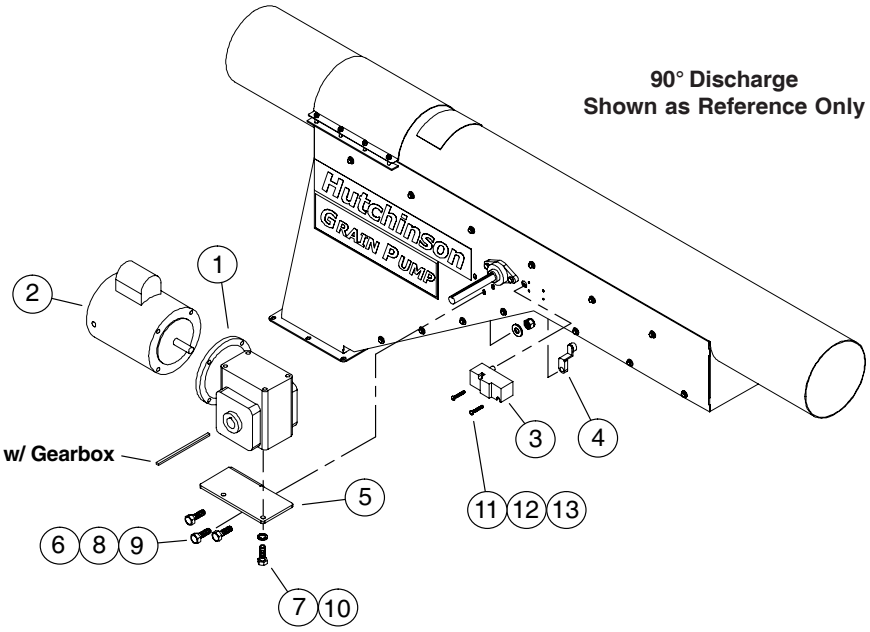
30 hp *(22 kw)*
Item 2, Sheave 3249A1, 7.4 3B
Item 3, Bushing 3194A1, QD SK 1 15/16" bore
Item 6, Belt 40128, B-78
Item 7, Sheave 1006114, 8.0 3B
Item 8, Bushing 1029784, QD SK 14 mm bore

40 hp *(30 kw)*
Item 2, Sheave 3270A1, 8.6 3B
Item 3, Bushing 3048L1, QD SK 2 3/16" bore
Item 6, Belt 40130, B-88
Item 7, Sheave 3270A1, 8.6 3B
Item 8, Bushing 3281A1, QD SK 2 1/8" bore

50 hp *(37 kw)*
Item 2, Sheave 3080A1, 9.4 3B
Item 3, Bushing 3048L1, QD SK 2 3/16" bore
Item 6, Belt 40131, B-90
Item 7, Sheave 3080A1, 9.4 4B
Item 8, Bushing 3281A1, QD SK 2 1/8" bore

PARTS LIST

90° DISCHARGE
ELECTRIC CONVERSION KIT

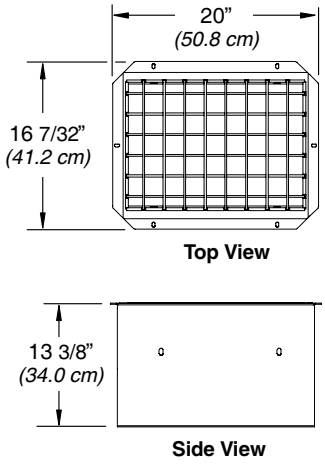


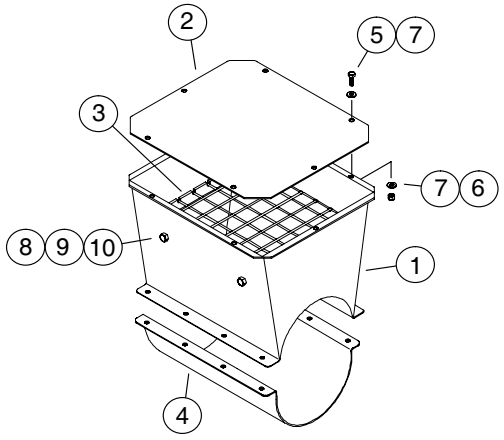
The Complete Conversion Kit can obtained by ordering Part No. 1039040. Specify motor when ordering.

Ref. No.	Part No.	Description
1	1023415	Gearbox w/ 1" bore, Leeson (HMQ621-60-H-56C-16)
2	1026527	Motor, Electric 1/2 HP (115-208/230V 60HZ 1PH)
(2)	1033296	Motor, Electric 1/2 HP (220V 50HZ 1PH)
(2)	1023414	Motor, Electric 1/2 HP (575V 60HZ 3PH)
(2)	1026526	Motor, Electric 1/2 HP (208-230/460V 60HZ 3PH)
(2)	1026529	Motor, Electric, Explosion Proof (1/2 HP, 115-208/230V 60HZ 1PH)
(2)	1026528	Motor, Electric, Explosion Proof (1/2 HP, 208-230/460V 60HZ 3PH)

Ref. No.	Part No.	Description
3	1017007	Limit Switch, 9007 Series A (C68T10)
4	1017199	Lever Arm f/ Limit Switch
5	1038994	Motor Mount Plate (right)
(5)	1038995	Motor Mount Plate (left)
6	33046	Bolt, 5/16"-18 x 1" G5 PLT
7	33060	Bolt, 3/8"-16 x 1" G5 PLT
8	33023	Washer, 5/16" Flat PLT
9	33135	Nut, 5/16"-18 Nylon Lock PLT
10	D1150	Washer, 3/8" Lock PLT
11	1017092	Bolt, 3/16" x 1 1/2" Stove
12	33142	Washer, 3/16" Lock
13	33149	Nut, 3/16" Non-Lock

HEAVY DUTY INLET HOPPER
18" long, f/ 10" MODELS

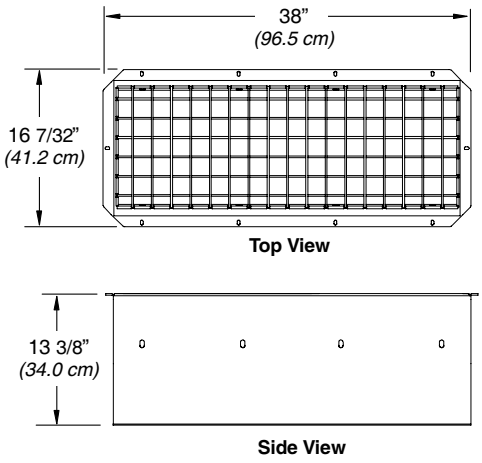


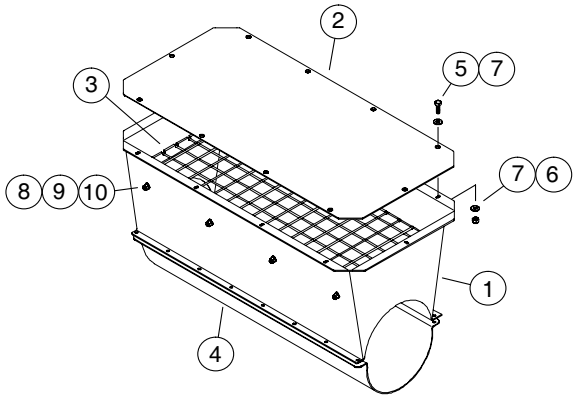


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1039839	Inlet Hopper, 18" long f/ 10"	6	4003	Nut, 1/4-20 Nylon Lock
2	1039842	Cover Panel f/ 18" Hopper	7	33022	Washer, 1/4" Flat
3	1039846	Safety Screen f/ 18" Hopper	8	33060	Bolt, 3/8-16 x 1"
4	2806D	Back Band, 10" x 18" long	9	D1150	Washer, 3/8" Lock
5	4618-1	Bolt, 1/4-20 x 1"	10	D1149	Nut, 3/8" Non-Lock

The complete hopper can be obtained by ordering: Part No. 1039838

HEAVY DUTY INLET HOPPER
36" long, f/ 10" MODELS



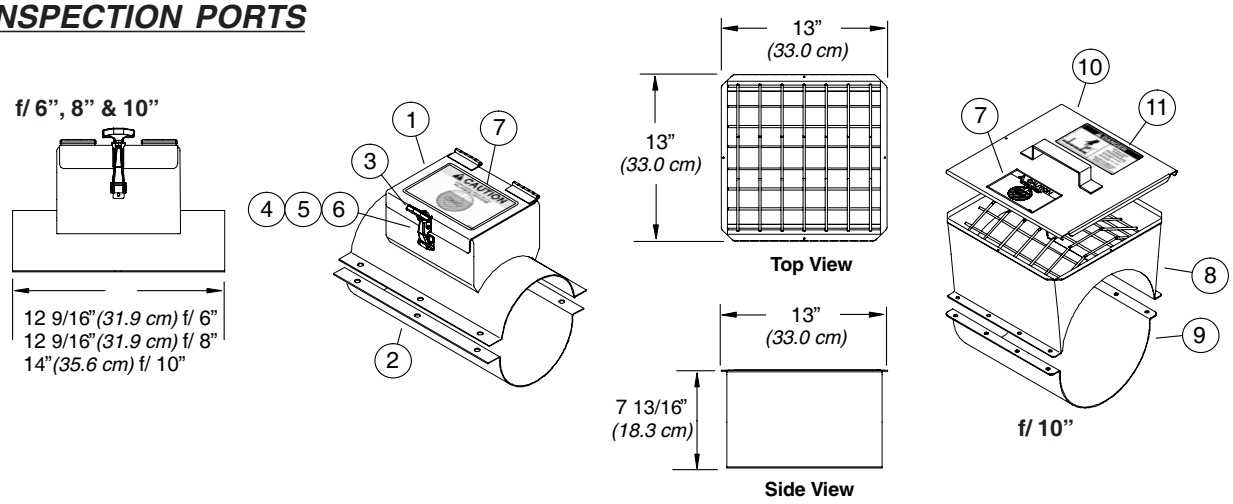


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1042159	Inlet Hopper, 36" long f/ 10"	6	4003	Nut, 1/4-20 Nylon Lock
2	1042160	Cover Panel f/ 36" Hopper	7	33022	Washer, 1/4" Flat
3	1042162	Safety Screen f/ 36" Hopper	8	33060	Bolt, 3/8-16 x 1"
4	2151C	Back Band, 10" x 36" long	9	D1150	Washer, 3/8" Lock
5	4618-1	Bolt, 1/4-20 x 1"	10	D1149	Nut, 3/8" Non-Lock

The complete hopper can be obtained by ordering: Part No. 1042158

PARTS LIST

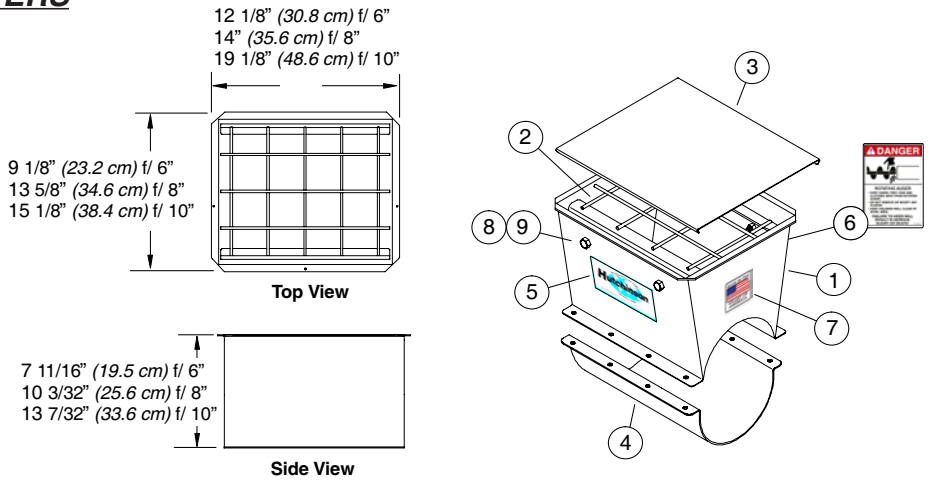
INSPECTION PORTS



Ref. No.	Part No.	Description
1	1034172	Inspection Port, f/ 6"
(1)	1034170	Inspection Port, f/ 8"
(1)	1034168	Inspection Port, f/ 10"
2	50544A1	Half Band, f/6"
(2)	50545A1	Half Band, f/8"
(2)	50005A1	Half Band, f/ 10"
3	1018308	Rubber Latch
4	1018271	Screw, #6 x 3/8"

Ref. No.	Part No.	Description
5	1018272	Lock Washer, #6
6	1018273	Nut, #6 Non-Lock
7	1033033	Decal, Caution: Overloading...
8	1037750	Inspection Port w/ Screen (f/ 10")
9	1037743	Back Band f/ 10", 12" long
10	1037754	Cover f/ 10" Inspection Port
11	1012872	Decal, Danger: Do Not Operate...

INLET HOPPERS



Ref. No.	Part No.	Description
1	60043A1	Inlet Hopper, f/ 6"
(1)	60044A1	Inlet Hopper, f/ 8"
(1)	60045A1	Inlet Hopper, f/ 10"
2	1042073	Safety Screen, f/6"
(2)	1042012	Safety Screen, f/8"
(2)	1041972	Safety Screen, f/ 10"
3	1625A	Cover, Hopper f/ 6"
(3)	1825A	Cover, Hopper f/ 8"
(3)	2025A	Cover, Hopper f/ 10"

Ref. No.	Part No.	Description
4	50279A1	Back Band f/ 6"
(4)	8806D	Back Band f/ 8"
(4)	2806D	Back Band f/ 10"
5	1001128	Decal, Hutchinson w/ Globe
6	1001985	Decal, Danger: Rotating Auger
7	1041833	Decal, Made In USA
8	33046	Bolt, 5/16-18 x 1"
9	33135	Nut, 5/16-18 Nylon Lock

Hutchinson/Mayrath

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