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

OWNER’S & OPERATOR’S MANUAL

Effective May 5, 2009 **Publication No. 1014023**

THIS MANUAL IS FOR UNITS WITH SERIAL NUMBERS OF 906815 OR HIGHER.

Hutchinson/Mayrath

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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.
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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.

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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.

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.

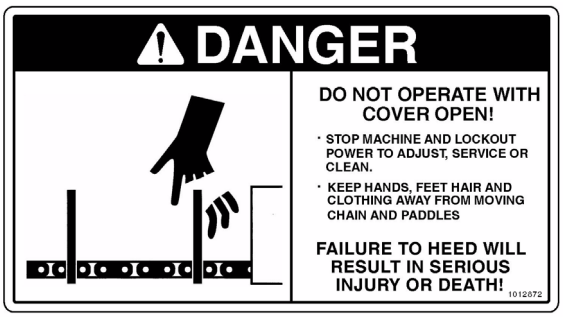
SAFETY ALERT SYMBOL

The symbol shown below is used to call your attention to instructions concerning your personal safety.

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

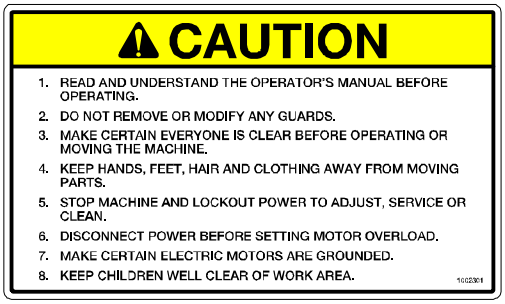
SAFETY DECALS

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.



Danger Decal No. 1012872

Two located on take-up corner
One located on drive corner
Two located on 90° Corner



Decal No. 1002301

One located on take-up corner
One located on drive corner

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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 auger. We include this sign off sheet for your convenience and personal record keeping.

DATE	EMPLOYER SIGNATURE	EMPLOYEE SIGNATURE

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 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, the operator 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 which the employee is, or will be involved with.”*
3. Unqualified persons are to stay out of the work area. See page 4.
4. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.

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

MACHINE INSPECTION

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

After delivery of your new conveyor and/or completion of assembly and before each use, inspection of the machine is mandatory. 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 on Page 1 of this manual and can be obtained free of charge from your dealer or ordered directly from the factory.
7. Check that the belt guard is installed and the door latch 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.

DESIGNATED WORK AREA

Before starting the conveyor, a designated work area should be established around the conveyor and bin during the unloading operation.

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 the operator 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 shut down by the operator.

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

START-UP and BREAK-IN OPERATION

WARNING! Keep all safety shields and devices in place.

Keep hands, feet and clothing away from moving parts.

The operator shouls have a full view of the Work Area and check that all personnel are out of Hazard 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.

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”.

START-UP and BREAK-IN OPERATION (con’t.)

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.

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

ELECTRIC DRIVE MOTOR 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 tha 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, adjusting or servicing the conveyor.

Always use a motor with required H.P. as calculated on page 9. Use a motor that operates at 1750 RPM.

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.

FULL LOAD OPERATING PROCEDURES

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.**

WARNING! Observe the work area restrictions.

Make certain everyone is clear of the area *before* operating the equipment.

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

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

Never enter the bin unless monitored by another person.

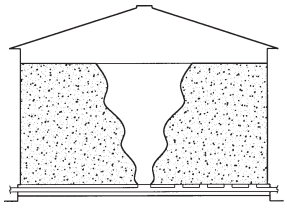


Fig. 1
(Abnormal Flow)

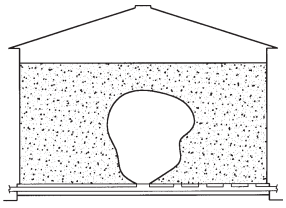


Fig. 2
("Bridging")

A sweep auger may be placed in the bin after all the grain has been removed that will gravity-flow through the center well. The grain remaining should appear as in Fig. 3. **Shut down and lock out the Grain Pump before installing the sweep auger.**

If intermediate bin wells are being used, they should be opened ***after*** grain has stopped flowing into the center well and before the sweep auger is placed in the bin. See Fig. 4. **Shut down and lock out the Grain Pump before installing the sweep auger.**

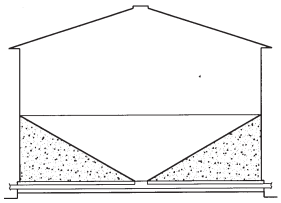


Fig. 3
Grain Flow Through Center Bin Well

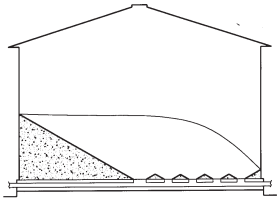


Fig. 4
Grain Flow Through Intermediate Wells

NORMAL SHUTDOWN

1. Close flow controls in bin wells and allow the conveyor to empty before stopping the unit.
2. Before the operator leaves the work area, t**he power source shall be shut down and locked out.**
   .

EMERGENCY SHUTDOWN

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

1. Should the machine need to be immediately shut down under full load, disconnect and lock out 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.
2. Never attempt to restart when full. Starting the unit under full load may result in damage. Such damage is considered abuse of the equipment.

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 the handle or breaker switch in the "Off" position.

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

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

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. See page 19.

(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. See page 21.

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. See page 21.

(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.

LUBRICATION & MAINTENANCE

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 4 for guidelines.

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

WARNING! Never lubricate, adjust or clean a machine that is in operation. Keep all safety shields and devices in place.

SPROCKET SHAFT BEARING

The sprocket shaft 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 SAE multipurpose type grease.** 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 cam end of the inner ring of the bearing. Rotate the 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.

AUTO TAKE-UP CORNER

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

The inspection corner's sprocket carriage assembly will go through an up/down cycle when the conveyor is in operation; 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. (See "Conveyor Chain" for proper chain tension).

CONVEYOR CHAIN

WARNING! Use extreme caution, keep away from moving chain and paddles.

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 the grain flow to the unit and shut down after the unit has emptied. Lockout the power source.

To check conveyor chain tension, open the inspection door, grasp one of the paddles and attempt to rotate it up toward the chain. See Fig. A on page 19. Proper chain tension should allow only minimum rotation of the paddle, approximately 10°.

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.

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

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. The setscrews in the sprocket hub should secure the sprocket to the shaft.

DRIVE BELTS

The drive belt tension should be checked regularly. To tighten belts, turn the 3/4" nuts on the motor mount rods to raise the motor mount assembly. Raise all the rods the same distance so the motor mount assembly is parallel with top of conveyor trunking.

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 the sheave taper-lock bushings are tight.

Replace damaged or worn belts.

GEAR REDUCERS

IMPORTANT! The gear reducer is shipped without oil. It is necessary to add oil *before* operating the conveyor system.

For proper filling and checking procedures, follow the instructions on the reducer name plate, warning tags, and in the installation manual.

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

Use a high grade petroleum base, rust and oxidation inhibiting (R & D) gear oil.

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 to its proper level with new lubricant.

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

CONVEYOR HORSEPOWER INFORMATION

HORSEPOWER INFORMATION

The height and length of a loop system are limited by the combined horsepower required to move grain those distances. The vertical component requires greater horsepower per foot, 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 one or two gear reducer drives to be driven by one or two electric motors. There are maximum horsepower limits for each drive, but when greater horsepower than can be provided by one drive is needed, a second drive can often be added. Drives are always located at upper corners. A single drive must always be located at the down stream end toward which the upper horizontal loop portion is moving.

Overfeeding a grain pump loop may cause plugging. The intake rate should not exceed the capacity of the loop being used. Hutchinson recommends the loading rate be monitored by an amp meter on the electric motor drive. The Grain Pump will operate more smoothly, move more grain and last longer if loaded 90% of fill or less, instead of an uncontrolled approach

CONVEYOR HORSEPOWER INFORMATION

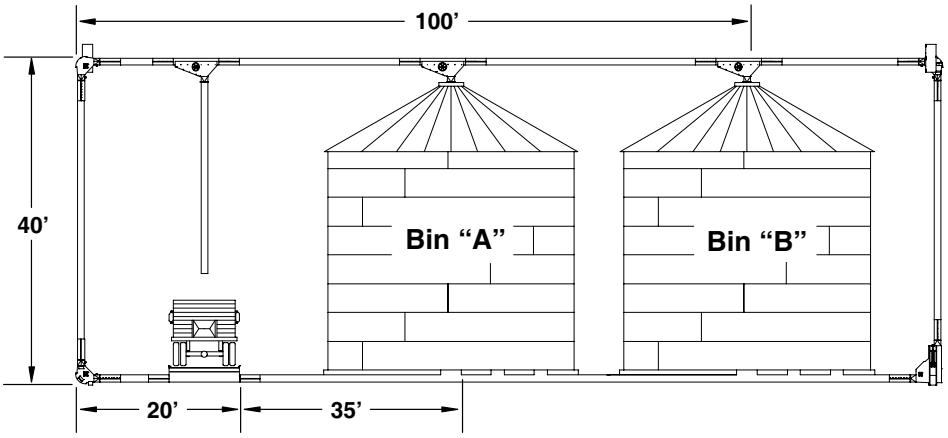
HOW TO CALCULATE TOTAL HORSEPOWER

NOTE: The horsepower recommendations are for conveying reasonably dry grain at approximately 45 lbs. per cu. ft. High moisture grain (above 15%) will require greater power and maximum possible capacity could be less.

Step 1. Determine the vertical height of the system (usually the peak height of the tallest bin plus 3'). Multiply the vertical height by the vertical HP factor to determine the vertical horsepower requirement.

Step 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 horsepower calculation. Multiply the total horizontal length by the horizontal HP factor to determine the horizontal horsepower requirement.

Step 3. Add the vertical and horizontal horsepower together to find the total system horsepower required.



In the example shown in the illustration, there is 40 ft. of vertical conveyor and 120 total ft. of horizontal conveyor that will contain grain (20' from truck to vertical and 100' from vertical to Bin B = 120' horizontal). Use the HP Factors given below to calculate the correct horsepower requiremnet for your application.

Pump Dia.	Vertical (per foot)	Horizontal (per foot)
6"	HP Factor - .20	HP Factor - .05
8"	HP Factor - .35	HP Factor - .08
10"	HP Factor - .50	HP Factor - .11

In the example shown below for the 6" pump; take 40' (vertical ft.) x .20 (hp factor) = 8, then take 120' (horizontal ft.) x .05 (hp factor) = 6, add the 6 and 8 together = 14, you'll need a 15 hp motor.

			6"	8"	10"
Vertical Horsepower Requirement	40' x HP Factor	=	8	14	20
Horizontal Horsepower Requirement	120' x HP Factor	=	6	9.6	13.2
Total Horsepower Vertical + Horizontal		=	14	23.6	33.2
Electric Motor size required			15 hp	25 hp	40 hp

If there were 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 factor) = 1.75. Add that to the total of the 40' & 120' calculation (1.75 + 14 = 15.75)

	35' x HP Factor	=	1.75	2.8	3.85
Total Horsepower Vertical +Horizontal		=	15.75	26.4	37.05
Electric motor size required			20 hp	30 hp	40 hp

INSTALLATION INFORMATION

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.

LAYOUT

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.

Dimensional information of components is found on pages 26-46.

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 (BPH).
C. Location and amount of material fed into system.
D. Location and number of outlets.
E. How will the conveyor be supported?
F. Further expansion. Will more bins be added and if so, where?
G. The direction of grain flow.

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.

LAYOUT CONSIDERATIONS (con’t.)

- 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.
- Grain Pump Systems are usually installed around rows of storage structures, 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.
- 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 an 8 ft. long section of tubular conveyor housing that must be fit within other tubular conveyor so the discharge is located properly.
- The inlet dump hoppers include a length of tubular conveyor housing that must be fit within other tubular conveyor 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.

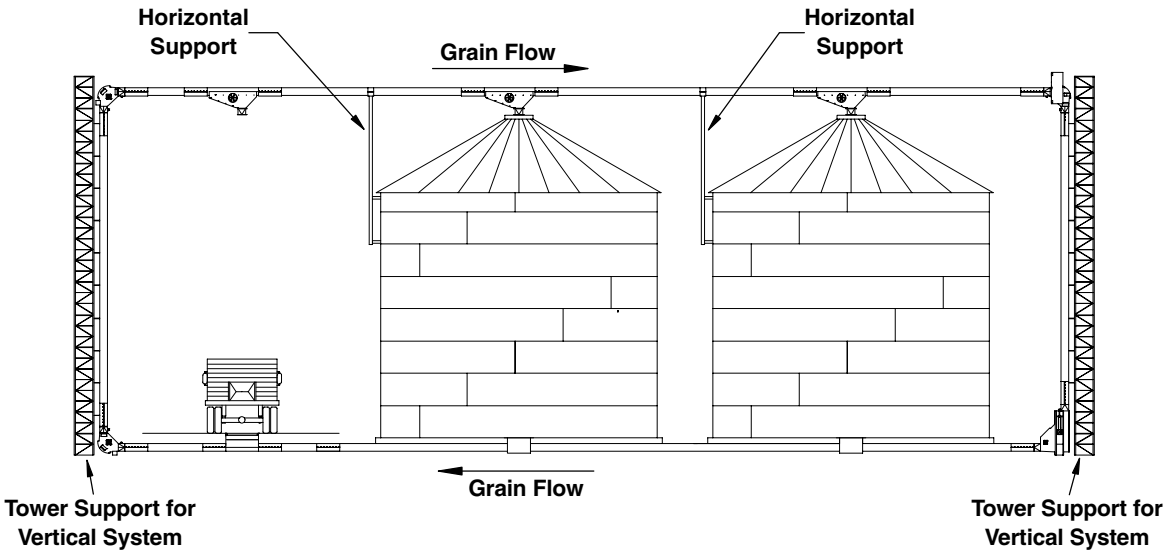
GRAIN FLOW AND DRIVE CORNER LOCATION

Grain Pump Loop Systems will include one or two drive corners. The drive corner, on systems with one, 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.



SYSTEM SUPPORT INFORMATION

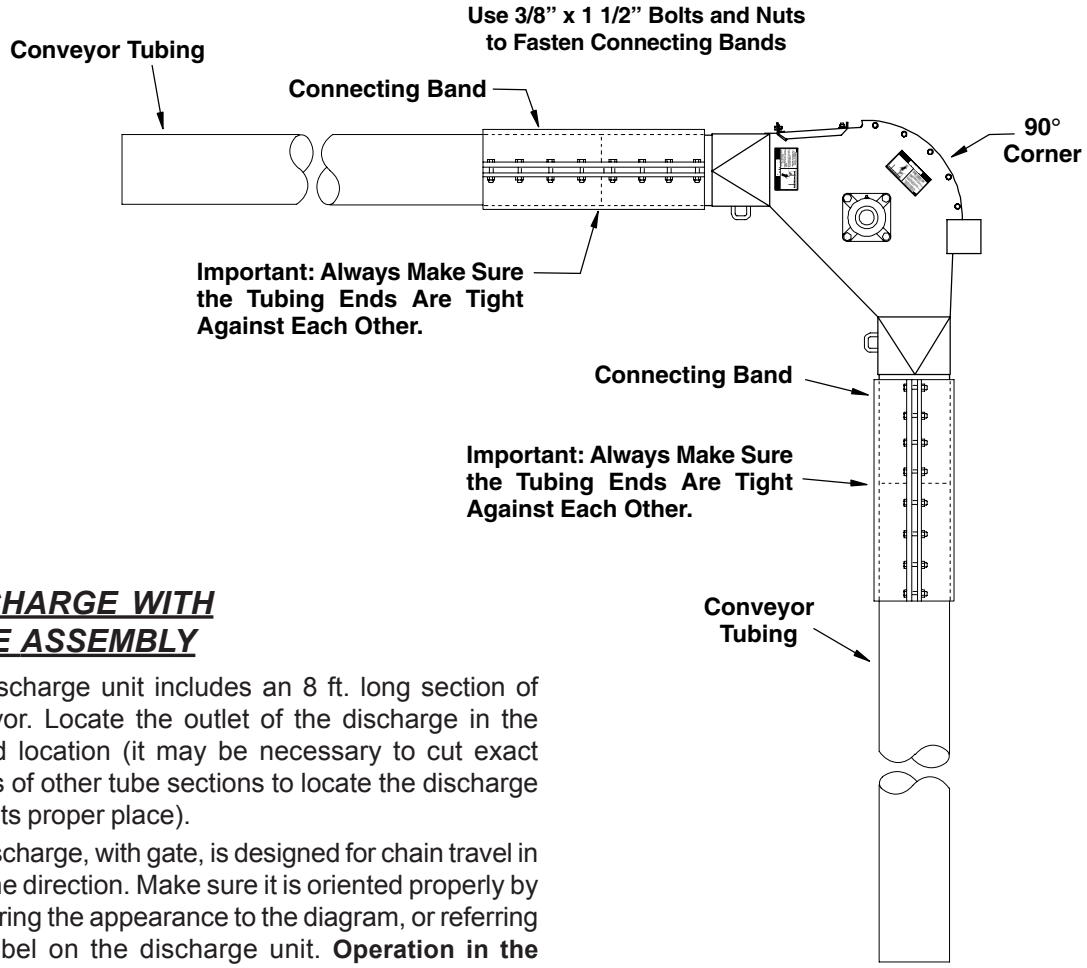
Towers or other adequate supports are needed to hold the vertical ends of the Grain Pump System in position. Consider the weight per foot of fully loaded tubular conveyor. The individual corners and other components, particularly the ones with drives weigh considerably more. The horizontal tubular conveyor should be supported at 20 ft. to 30 ft. 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 of fully loaded tubular conveyor: 6" = 20 lbs. per foot
8" = 29 lbs. per foot
10" = 40 lbs. per foot

TUBE AND CORNER ASSEMBLY

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

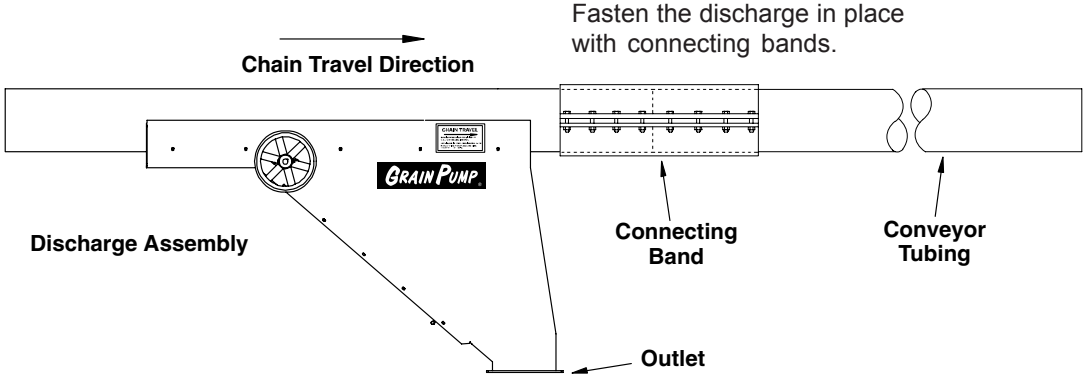
When cutting tubes to exact length, the ends must be cut square and any burrs on the ends removed. Join tube and corner components together with connecting bands. Slide the tube sections tight together and space the connecting band in equal amounts on both parts of the connection. Tighten the bolts in the band (the connecting band uses 3/8" x 1 1/2" bolts and non-lock nuts).



DISCHARGE WITH GATE ASSEMBLY

The discharge unit includes an 8 ft. long section of conveyor. Locate the outlet of the discharge in the desired location (it may be necessary to cut exact lengths of other tube sections to locate the discharge unit in its proper place).

The discharge, with gate, is designed for chain travel 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.**



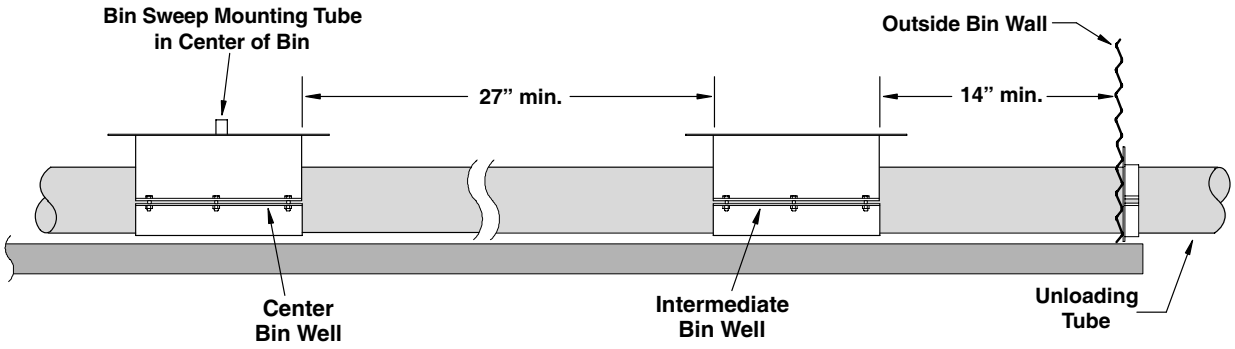
BIN WELL ASSEMBLY

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, Use the connecting bands to attach 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 diagram below), make sure the control gate is in a direction taht can be pulled by the control rods.

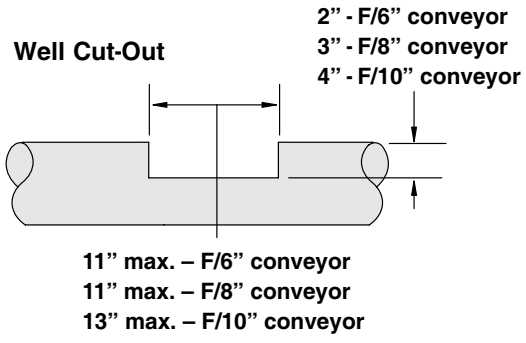
The intermediate wells will be positioned between the center well and the bin wall. The illustration below shows the minimum spacing allowed between the wells and the bin wall (refer to the chart included with the Control Rod Kit for proper spacing of the intermediate wells as determined by the diameter of the bin). Use the chart as a guideline, 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 a well should be moved, keep it as close to the intended measurement as possible). Also note that it may be necessary to reposition an intermediate well because of the location of the connecting band attachng the tubes together.

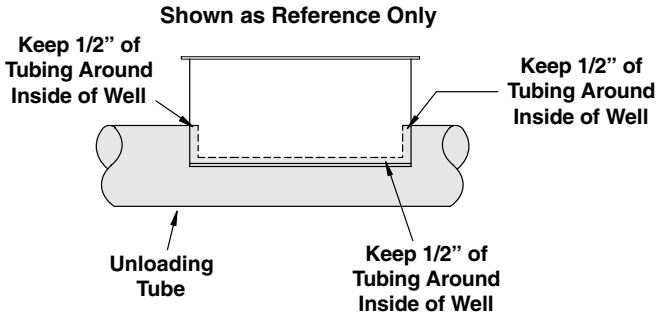
Intermediate wells should also be positioned on the conveyor tube so the gates open when control pipes are pulled.



When well locations are determined on the conveyor tube, mark around the inside of the well leaving a lip of at least 1/2" around the inside of the well (grain will leak if the opening is cut too large). Cut the opening into the tube using the measurements for maximum openings as shown below. **IMPORTANT! Do Not cut the tube openings when the chain and paddles are inside the tube. Damage to the chain and/or padlles can occur.**

Once the openings have been cut, attach the bin wells to the conveyor tube using the provided clamp bands and 5/16" x 1 1/2" bolts and non-lock nuts. Place suitable support under each well. The supports used should be of a material that will not deteriorate ie., brick, treated 2x4, etc. Make sure the tops of all bin wells are level.





CONTROL PIPE KIT ASSEMBLY

A control pipe kit may be ordered from the factory. Follow the specifications given if the control pipes are provided locally.

For the center well use 1/2 inch schedule. 40 pipe (about 7/8" O.D.). For the intermediate well(s) use 1 inch Sch. 40 pipe (about 1 3/8" O.D.). The control pipe for the center well will slide inside the control pipe for the intermediate well(s).

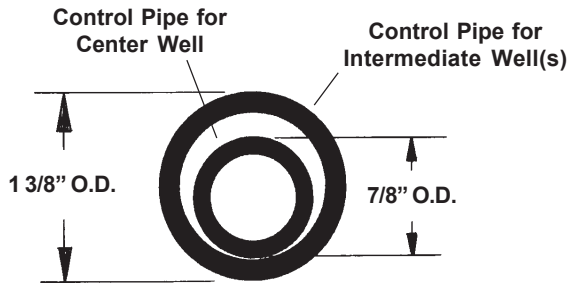


Fig. 2

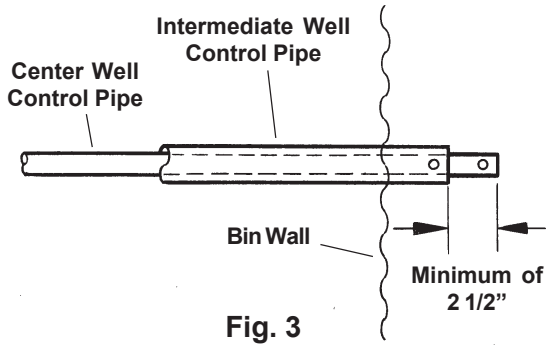


Fig. 3

It will be necessary to support the bin well(s) and/or conveying tube from below with blocks or other material.

The extending flange at the top of the bin wells is intended to lay on top of the bin floor. Consult the manufacturer of the bin floor for direction on cutting openings in the floor for bin wells, for sealing around bin wells and for proper support of the floor around the bin wells and conveying tube.

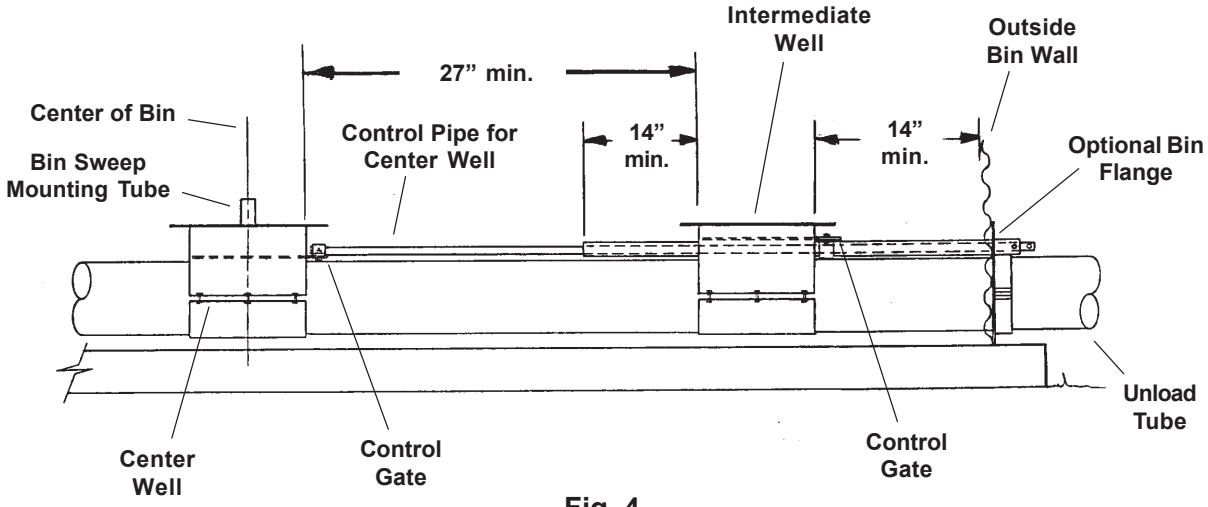


Fig. 4

BAND-ON INTERMEDIATE WELL CONTROL GATE ASSEMBLY

Attach the intermediate bin well gate(s) to 1 3/8" O.D. control pipe (See diagram below).

A. Shut the intermediate bin well gate(s).

B. Check length of control pipe by sliding it into place. Be sure there is at least 14" of control pipe extending past the back end of the last intermediate well, so when the gate is opened the end of the control pipe will not be drawn into the well (See diagram below).

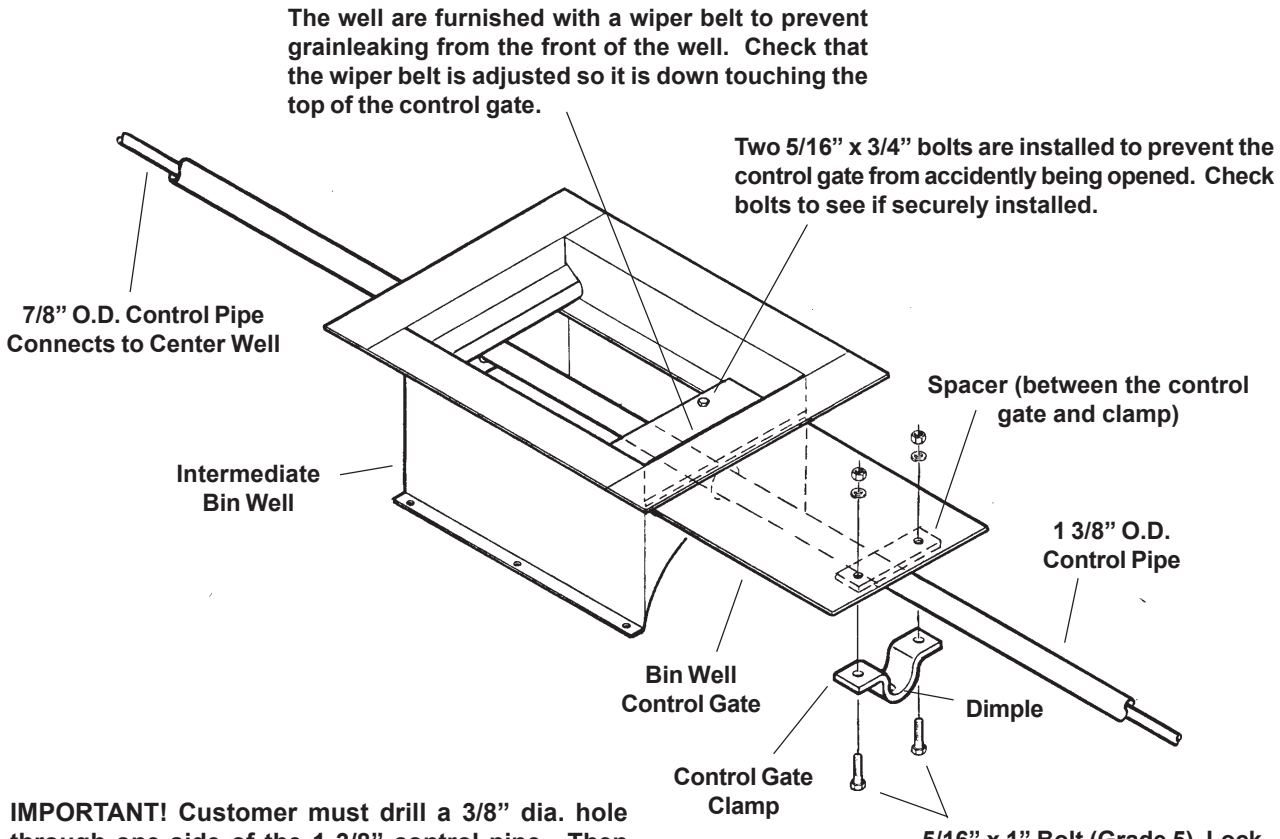
C. Drill a 3/8" dia. hole through one side of the 1 3/8" O.D. control pipe. The dimple of the control gate clamp will fit into this hole when clamped to the control gate. Determine the hole location by seeing where the dimple will hit the control pipe when it is bolted in place.

D. Fasten the control gate clamp to the control gate and control pipe. Secure using two 5/16" x 1" long (grade 5) bolts, lockwashers and non-lock nuts.

Keep the amount of control pipe extending outside the bin short. This will permit opening the bin well gates without the control pipe striking another bin or structure. If you are using a factory control pipe kit, it may be necessary to shorten the center control pipe and redrill the holes depending on exact bin size.

Configure the control pipe ends as shown in Fig. 3 when all bin well gates are closed. The intermediate well(s) is opened by placing a bolt through the intermediate control end and the center control and then operating the center well control pipe. Intermediate wells should not be opened until the bin has emptied to where grain will no longer flow into the center well.

Check gate operation by separately pulling on the control pipes, control gates should slide freely.



IMPORTANT! Customer must drill a 3/8" dia. hole through one side of the 1 3/8" control pipe. Then position the dimple that is on the gate clamp into the 3/8" dia. hole.

BAND-ON CENTER WELL CONTROL GATE ASSEMBLY

Attach the center well gate to 7/8" O.D. control pipe (see illustration below).

A. Shut the center control gate.

B. Drill a 3/8" dia. hole through the 7/8" O.D. control pipe 5/8" from the end.

C. Check length of control pipe by sliding it through the control pipe of intermediate well(s). When the control pipe is fastened to the control gate clamp, the center well control pipe should extend past the end of the intermediate well control pipe a minimum of 2 1/2". See Fig. 3 on Page 14.

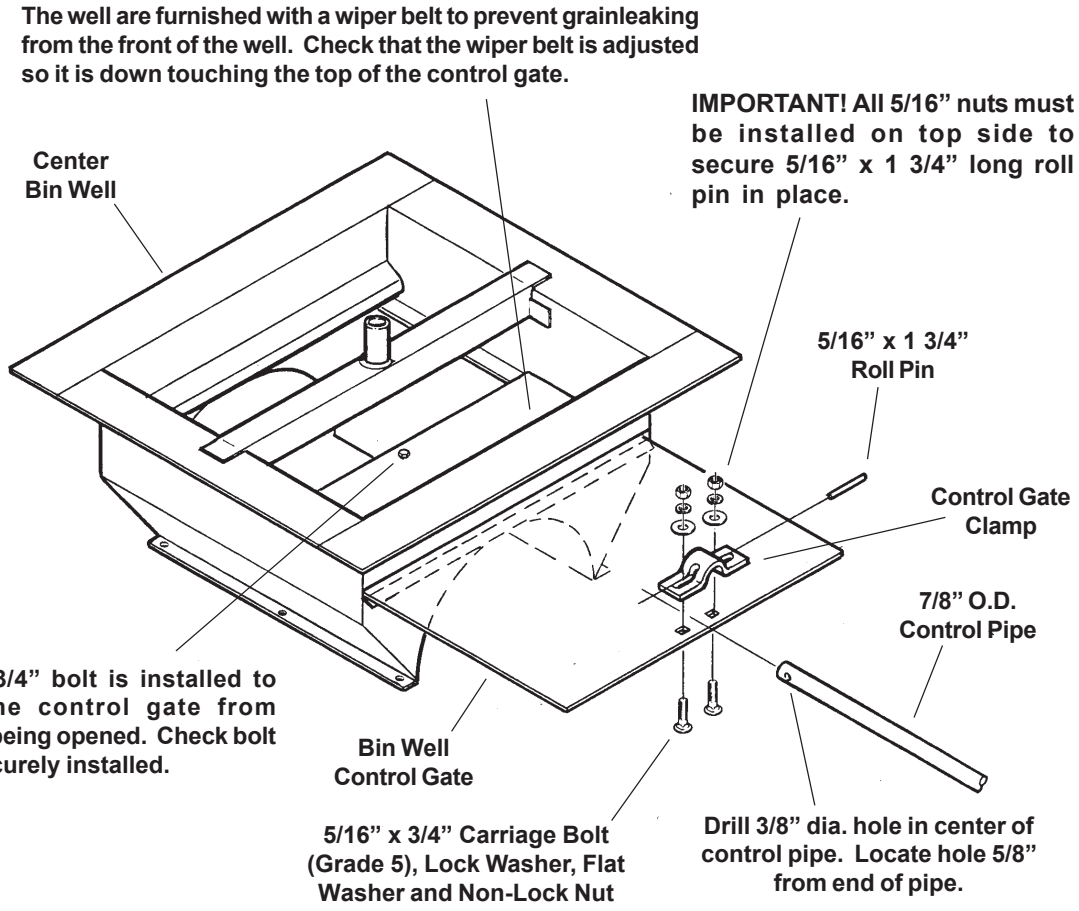
D. Attach control gate clamp to control pipe by sliding 5/16" x 1 3/4" long roll pin through clamp and control pipe.

E. Fasten clamp to top side of control gate by using two 5/16" x 3/4" long (grade 5) carriage bolt, flat washers, lockwashers and nuts. Install nuts so they secure the 5/16" x 1 3/4" long roll pin in place.

Keep the amount of control pipe extending outside the bin short. This will permit opening the bin well gates without the control pipe striking another bin or structure. If you are using a factory control pipe kit, it may be necessary to shorten the center control pipe and redrill the holes depending on exact bin size.

Configure the control pipe ends as shown in Fig. 3 when all bin well gates are closed. The intermediate well(s) is opened by placing a bolt through the intermediate control end and the center control and then operating the center well control pipe. Intermediate wells should not be opened until the bin has emptied to where grain will no longer flow into the center well.

Check gate operation by separately pulling on the control pipes, control gates should slide freely.



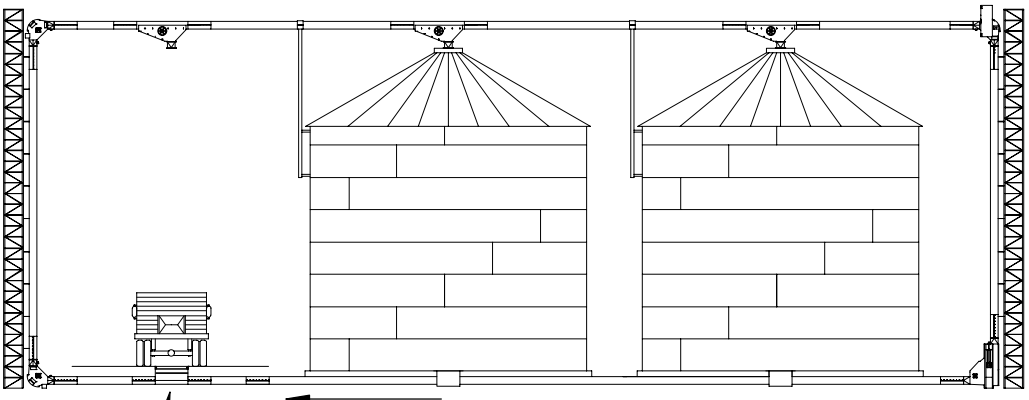
INLET DUMP HOPPER ASSEMBLY

The dump hopper will include a length of tubular conveyor from 6 ft. to 11 ft. depending on the length of dump hopper selected. It will also include a top safety screen or drive over grating.

There is a grain flow control inside the hopper that is adjustable using chains mounted at each end.

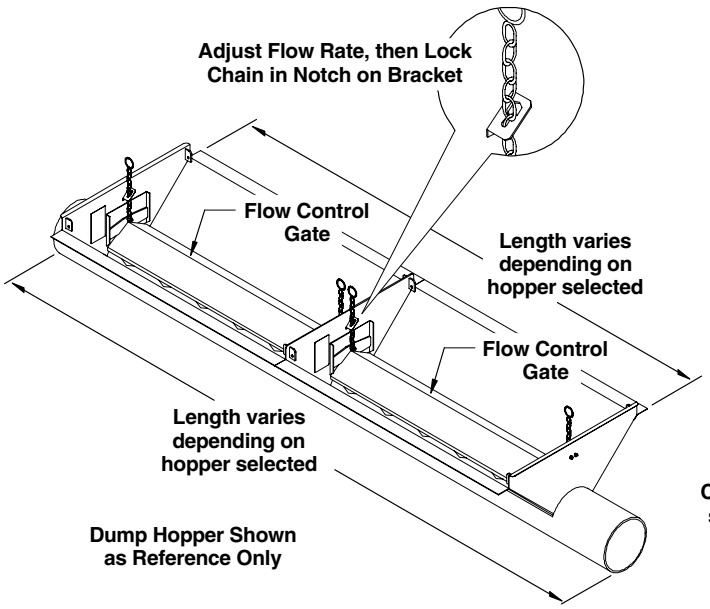
A dump hopper is to receive grain into the Grain Pump Loop System and should be located at a point along the bottom conveyor portion. Usually dump hoppers are located near the standard corner where the chain and paddles turn to carry grain up.

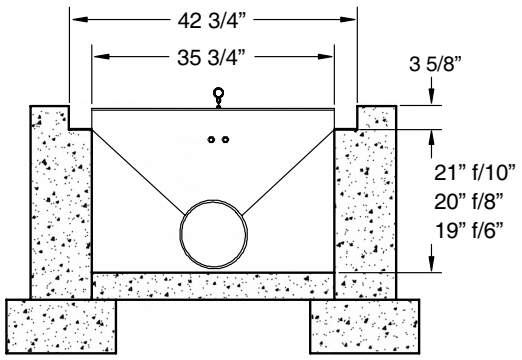
For drive over systems the grate must be supported by a concrete structure, such as shown below.



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."

Fasten the Inlet Dump Hopper Assembly in place within the tubular conveyor with connecting bands.





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

Conveyor tubing (attaches to loop system using connecting bands)

CONVEYOR CHAIN AND PADDLE ASSEMBLY

The paddles may be bolted to the chain before installation of the chain into the system or after.

There are access doors on each corner that can be utilized for paddle assembly. See the assembly diagram for correct paddle to chain assembly.

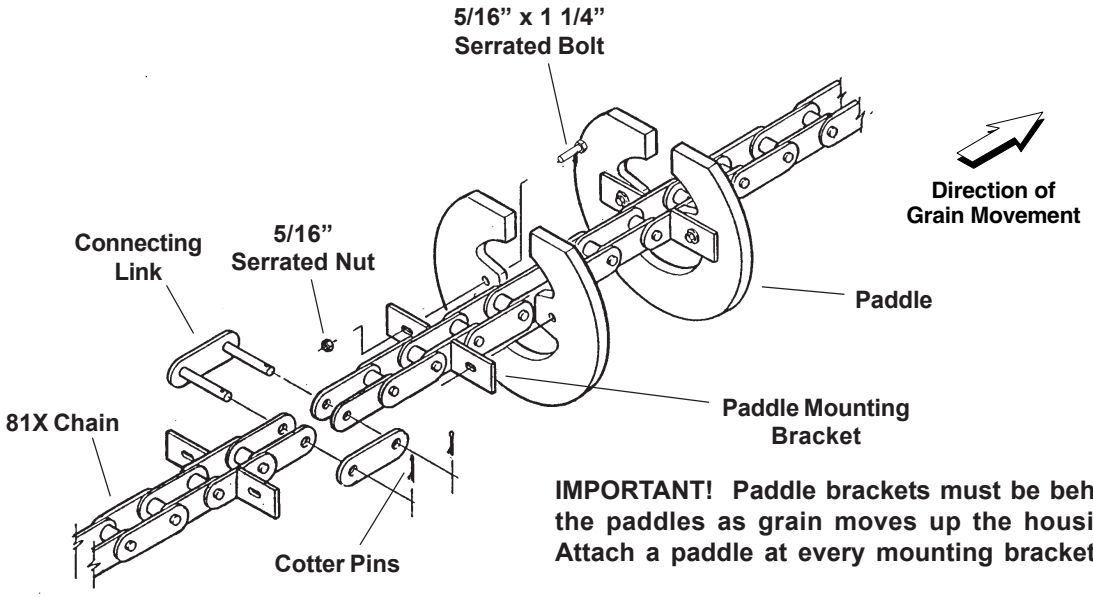
To string the chain in the conveyor tube sections it will be necessary to use an electrical fish tape, wire or rope to pull the chain through. Use access doors at each corner unit as necessary to accomplish this task.

IMPORTANT! Make certain the chain does not become twisted between corners. On long horizontal runs it is possible for the chain to rotate 360° during pull through between corners. Use inspection doors at discharge gates and openings into bin wells to observe the chain position along the length of conveyor.

After installing the chain through the tubular housing and around the corner sprockets connect the chain ends at the inspection corner. Make sure the inspection corner sprocket is adjusted all the way up.

Join chain ends with a connecting link. Pull as much slack from the chain as possible before making the connection.

Adjust the inspection corner sprocket down to increase conveyor chain tension. To adjust, loosen the jam nuts at the top connection of the adjusting screws and turn the screws so the bearing slide moves down. Turn the adjusting screws on each side in equal amounts so the shaft and sprocket will be square inside the inspection corner. Check by measuring the relative position of the bearing on each side to see they are the same.



IMPORTANT! Paddle brackets must be behind the paddles as grain moves up the housing. Attach a paddle at every mounting bracket.

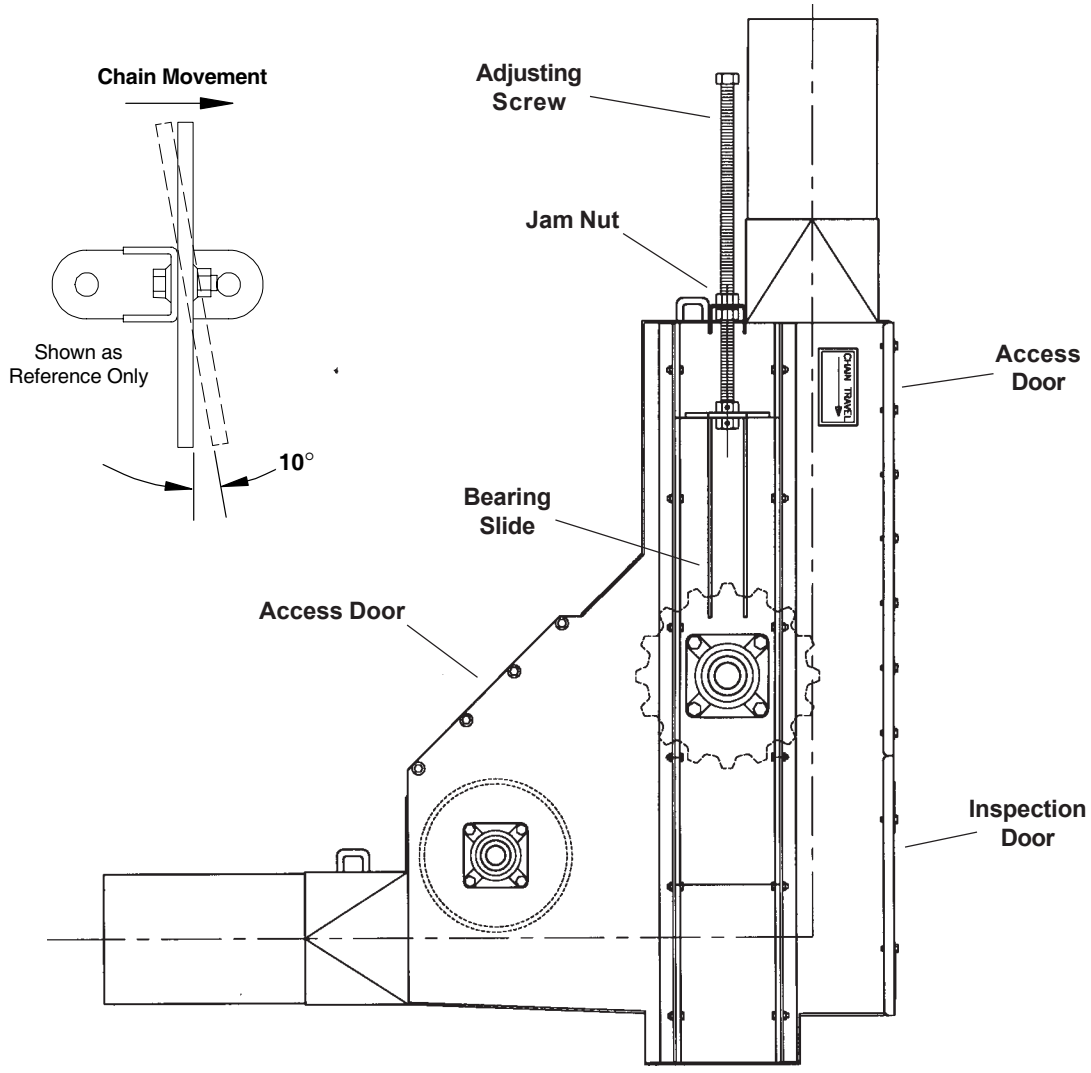
CONVEYOR CHAIN AND PADDLE ASSEMBLY - CONT.

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

To check conveyor chain tension, open the inspection door, grasp one of the paddles and attempt to rotate it toward the chain (see Fig. A). Proper chain tension should allow only minimum rotation of the paddle, approximately 10°.

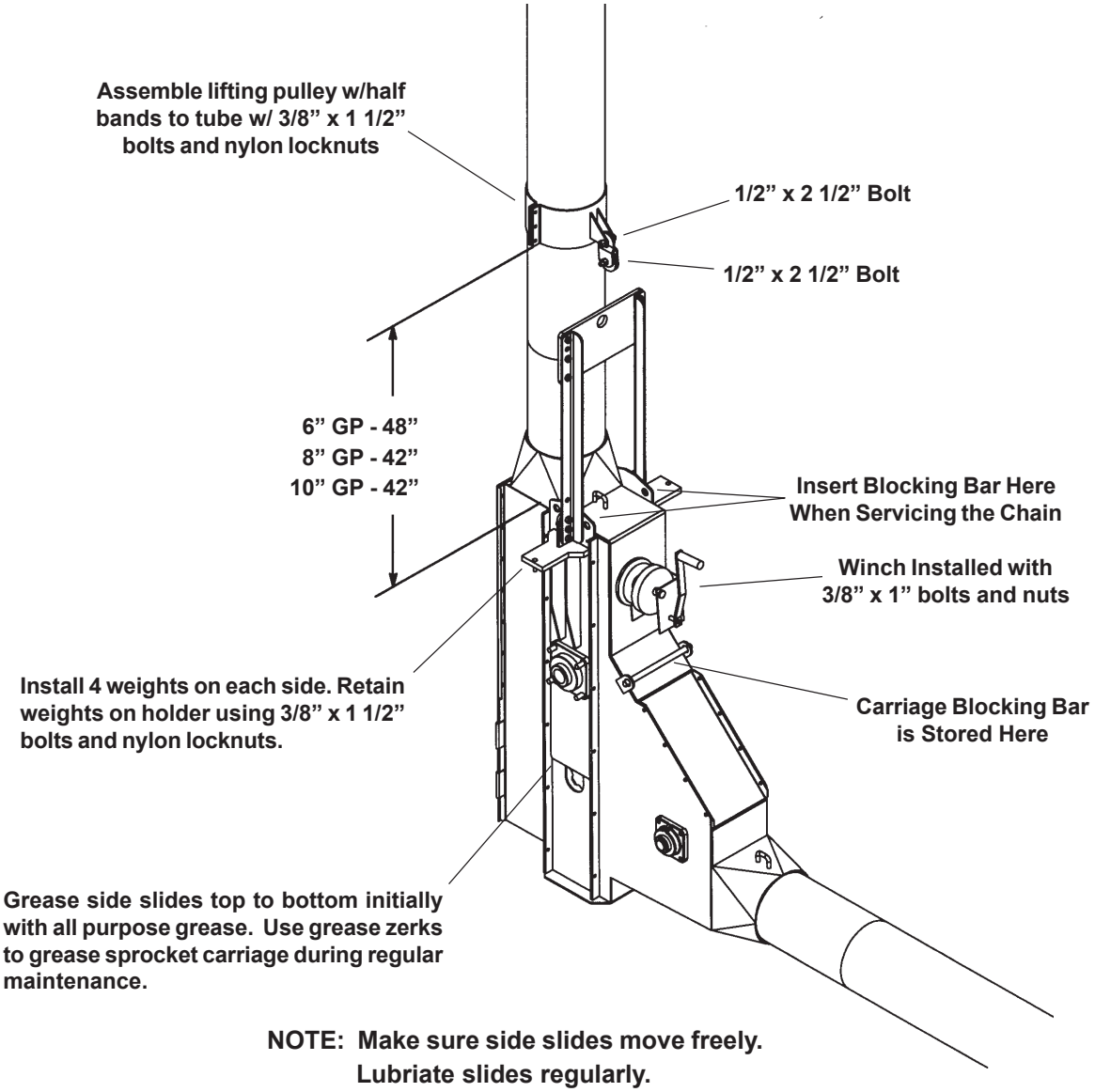
If the chain is still too loose after adjusting the inspection corner sprocket full down, it may be necessary to remove one or more links from the chain.

When adjustment of chain tension is complete, tighten the jam nuts at the top of the adjusting screws.



AUTO TAKE-UP CORNER (OPTIONAL)

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



NOTE: Make sure side slides move freely. Lubriate slides regularly.

DRIVE ASSEMBLY

The Grain Pump conveyor is powered by electric motor. Use 1750 RPM motor.

IMPORTANT: Use the proper size and speed motor to ensure satisfactory conveyor operation. Too small of a motor will not supply the horsepower required to achieve capacity and possible damage to the motor will occur.

Too large of a motor may cause high stress on conveyor components resulting in shorter life for those components. See page 9 for motor size specifications.

IMPORTANT: Use the motor sheave furnished. If other size sheave is used or substituted, improper chain speed and unsatisfactory conveyor operation will result.

Mount the sheaves as close to the belt guard back as possible. Align sheaves by using a straight edge, placed across the outer faces of both sheaves. Secure in place using taper lock bushing. Be sure drive keys are properly installed. Check sheave alignment again after sheaves are secured to shafts.

WARNING! Keep all safety shields and devices in place.

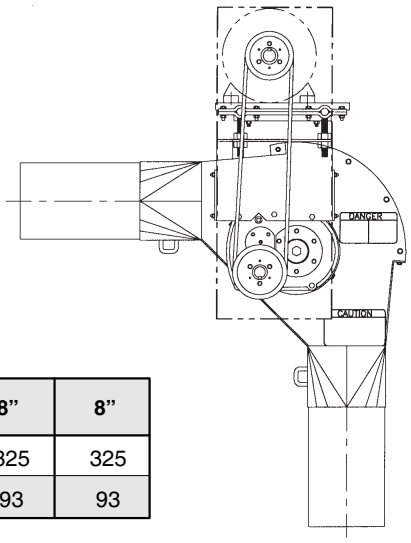
Install the belts onto the sheaves and set belt tension. To tighten belts, turn the 3/4" nuts on the motor mount rods to raise the motor mount assembly. Raise all the rods the same distance so the motor mount assembly is parallel with top of conveyor.

Check all fasteners to see that they are tight. Close and latch belt guard.

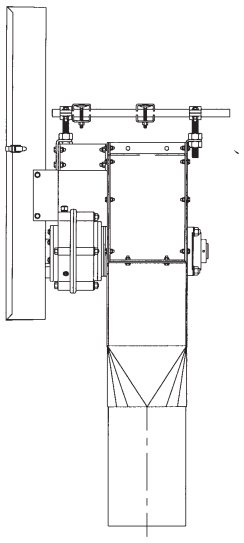
T**he gear reducer is shipped without oil. It is necessary to add the proper amount of oil before running.** Use a high grade petroleum base, rust and oxidation inhibited R & O) gear oil. Follow the instructions on the reducer name plate, warning tags and in the installation manual attached to the reducer.

CAUTION! Too much oil will cause overheatong. Too little oil will result in gear failure. Check oil level regularly.

Unit Size	6”	8”	8”
Recommended Chain Speed	325	325	325
Corner Shaft RPM	124	93	93



SIDE VIEW



END VIEW

DISCHARGE WITH GATE CONTROLS

Location of the discharge controls and routing on control cables or ropes should have been determined before ordering.

Controls must be located inline with conveyor tube so control cable or rope will track properly on the control wheels.

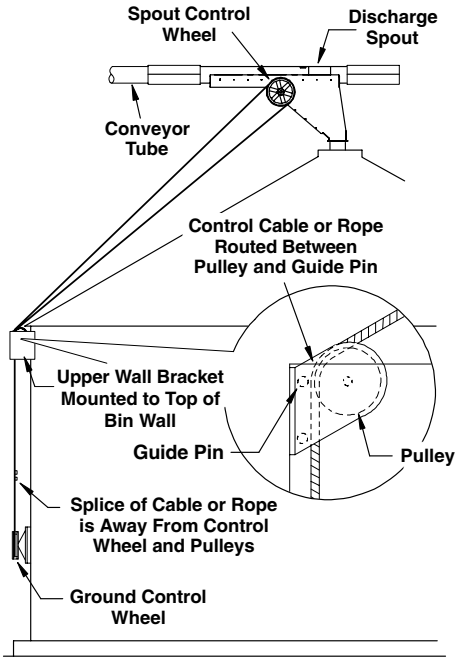
NOTE: Control cable or rope must be anchored to both upper and lower wheels to provide positive control and prevent the control cable or rope from slipping on the control wheels.

The brackets are designed to be mounted directly to grain bin wall.

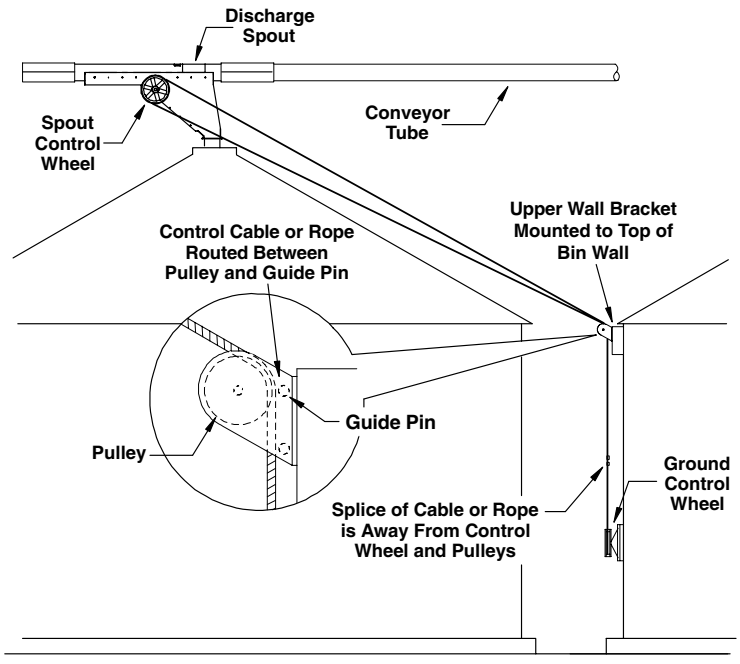
Locate the ground control wheel about 5' off the ground (or at a height that is easy and convenient to reach).

Locate the upper wall bracket at the top of the bin wall so the control cable or rope will clear the eave of roof or other over hanging structures.

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



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 WITH GATE CONTROLS (con't.)

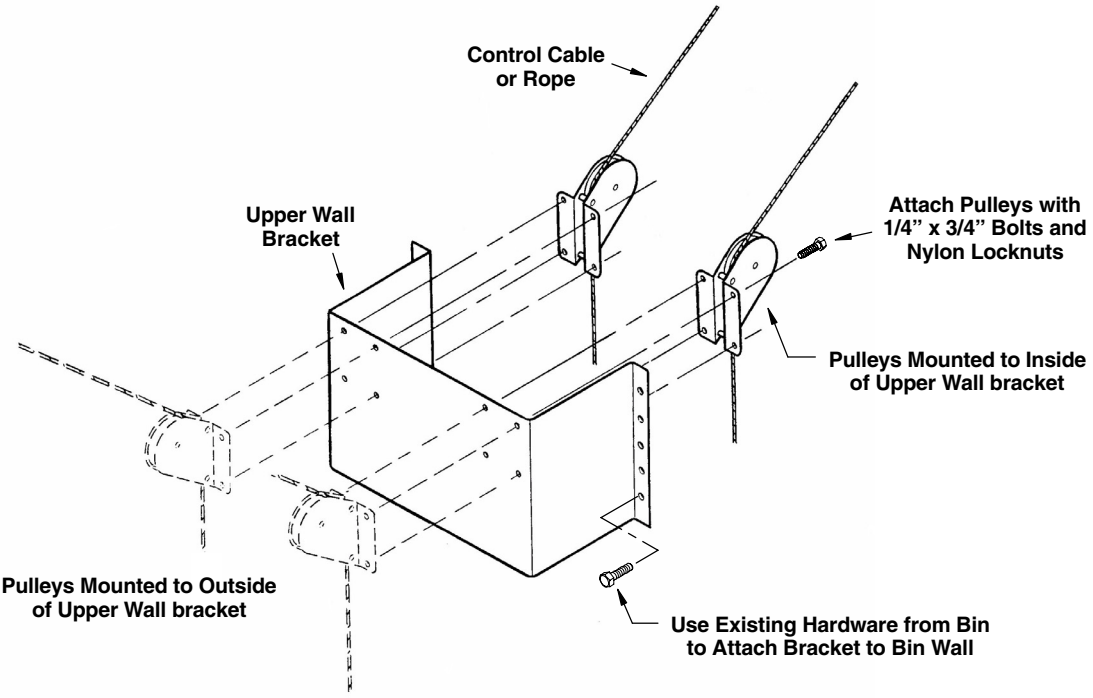
Step 1. Attach the two pulleys to upper wall bracket, using four 1/4" x 3/4" long (grade 5) hex head capscrews and nylon locknut per each pulley.

NOTE: Mount the pulleys so <u>both</u> of them are either on the inside or on the outside of upper wall bracket.

A. If the controls are mounted on the same bin that the spout is attached to (shown in Example 1 on Page 22), then mount the pulleys on the inside of the upper wall bracket.

B. If the controls are mounted to the adjacent bin (shown in Example 2 on Page 22), then mount the pulleys on the outside of upper wall bracket.

Step 2. Attach the upper wall bracket to top of bin wall so control cable or rope are clear of the eave. Locate the wall bracket so it is in line with the spout control wheel, so control cable or rope will properly track onto the spout control wheel.



DISCHARGE WITH GATE CONTROLS (con't.)

Step 3. Fasten each wall plate to the wheel bracket with two 3/8" x 1" long (grade 5) hex head capscrews, four 3/8" flat washers and two 3/8" nylon locknuts. Be sure to use a flat washer over each slot.

Step 4. Securely anchor wall plates to bin wall so the wheel bracket can be adjusted vertically.

Step 5. Slide a 1" flat washer over wheel shaft of the wheel bracket, before sliding the control wheel on. Use another 1" flat washer and 3/16" x 1 3/4" cotter pin to secure the control wheel to the wheel shaft.

Step 6. Route control cable or rope through pulleys on wall bracket, then up to spout.

NOTE: The control cable or rope must be routed through the pulley so it is captured and will not accidentally jump out of the pulley groove.

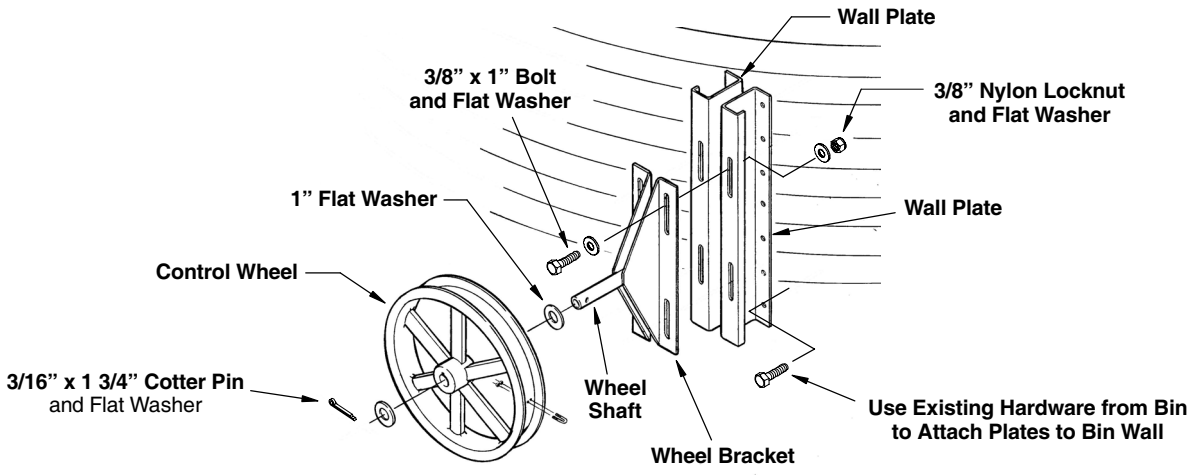
Examples 1 and 2 on Page 22 show how the control cable or rope is routed between the pulley wheel and guide pin. This should prevent the control cable or rope from jumping out of the pulley groove.

Plan where the splice(s) in the control cable or rope is to be located. Avoid splicing where the splice will be pulled onto a control wheel or through a pulley when the gate is being opened or shut.

Step 7. Anchor control cable or rope to upper control wheel on the spout assembly. A 3/16" cable clamp is provided with the spout to secure the control cable or rope to the spout's control wheel. You only need the u-bolt and nuts provided with clamp to hold the control cable in place (see illustration below). The cast base can be discarded.

NOTE: The gate moves 30" to fully open, which is 2 1/2 turns of the control wheel.

Place at least 3 1/2 wraps of cable around the control wheel in a manner that will allow the gate to fully open and fully close with cable operation. Do not use more wraps than necessary, as cable build up on the wheel can slide off the edge.



DISCHARGE WITH GATE CONTROLS (con't.)

Step 8. Loosen the bolts that hold the wheel bracket to the wall plates. Slide the wheel bracket all the way up in the slots, so when the control cable or rope is attached to the control wheel, the wheel bracket can be slid down tightening control cable or rope.

Step 9. Anchor the control cable or rope to lower control wheel mount to side of the bin. A 3/16" cable clamp is provided to secure the control cable or rope to the control wheel. You only need to use the u-bolt and nuts provided with clamp to hold the control cable in place. (See Fig. 3.) The cast base portion of the cable clamp can be discarded.

NOTE: The gate moves 30" to fully open, which is 2 1/2 turns of the control wheel.

Place at least 3-1/2 wraps of cable around the control where in a manner that will allow the gate to fully open and fully close with cable operation. Do not use more wraps than necessary, as cable build up on the wheel can slide off the edge.

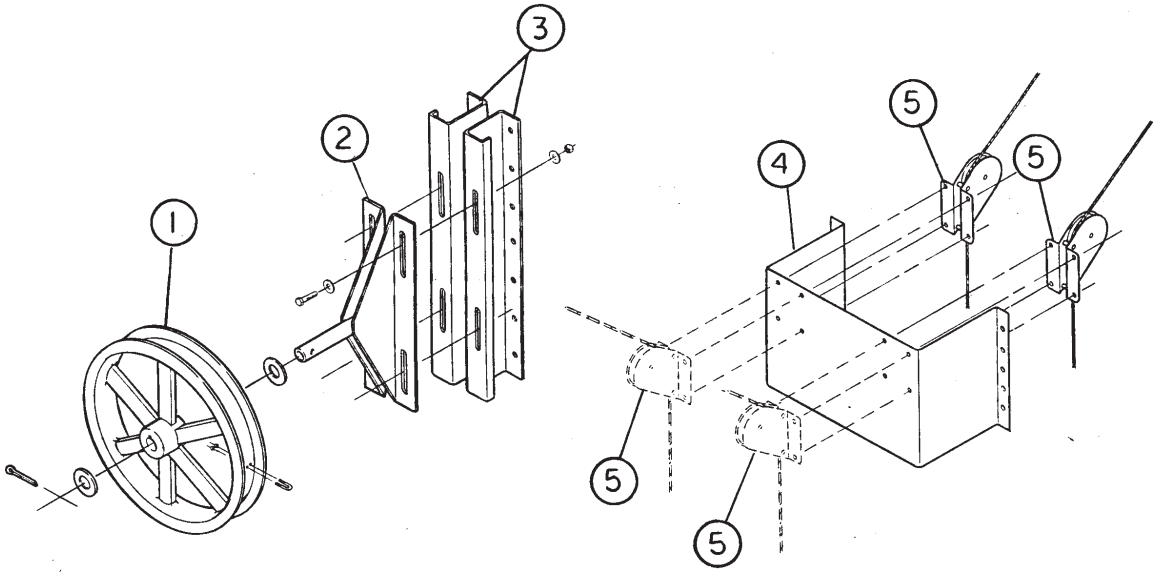
Step 10. Splice the control cable or rope together. Be sure that the splice will not wrap onto the control wheel when the wheel is turned to open the gate.

Step 11. Slide the wheel bracket to tighten the control cable or rope. (The control cable or rope should be tight enough to prevent it from unwrapping off the control wheel.) When the control cable or rope is tight, then secure the wheel bracket in place by tightening the bolts holding it to the wall plates.

OPERATION NOTES:

The controls should be clearly marked as to what 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. The lower control wheel has two setscrews in the hub that can be locked down to prevent the controls from accidentally vibrating open or shut.

PARTS LIST



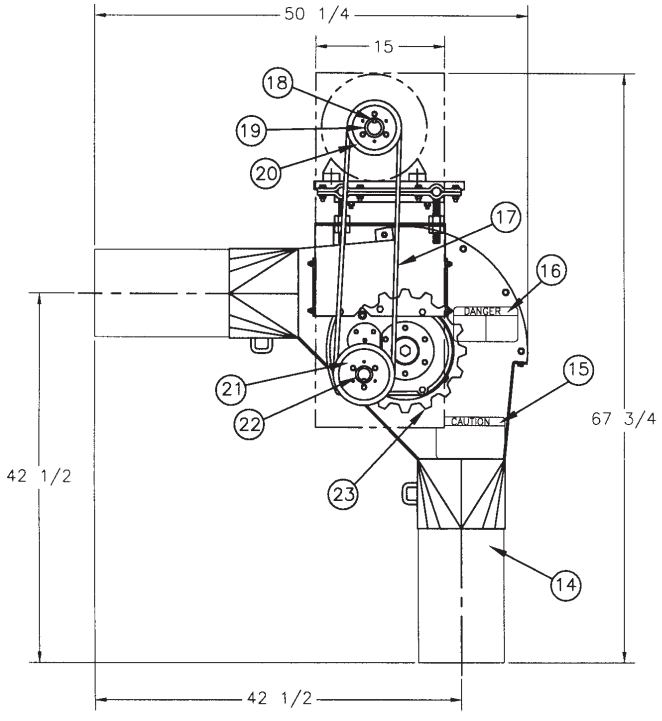
REF. NO.	PART NO.	DESCRIPTION
1	1011771	12" O.D. Control Wheel (1" Bore)
2	1011745	Wheel Bracket
3	1011743	Bin Wall Plates
4	1011742	Upper Wall Brackets
5	1006876	Hot House Pulley

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

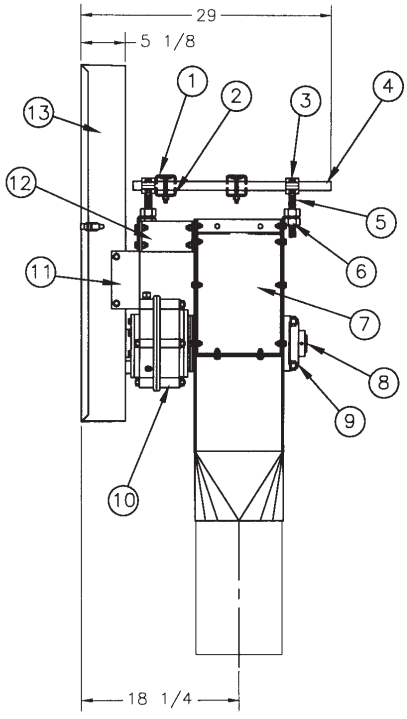
6" DRIVE CORNER

REF. NO.	PART NO.	DESCRIPTION
1	50435A1	Mounting Top Strap
2	50434A1	Mounting Bottom Strap
3	2139C	Top Strap
4	50859A1	Mounting Shaft
5	2136C	Rod and Strap
6	D1152	Nut, 3/4"
7	1014088	Inspection Door
8	553431	Corner Shaft, 5 HP
8	553432	Corner Shaft, 7-1/2, 10 HP
8	1014282	Corner Shaft, 15, 20, 25 HP
9	1010A	Bearing, 1 1/2" Bore
10	3138A91	Reducer, SCXT 115 for 5 HP
10	3141A91	Reducer, SCXT 415 for 15, 20 & 25 HP
10	3139A91	Reducer, SCXT 215 for 7-1/2, 10 HP
11	1014245	Bracket Support for Motor, 5 HP
11	1014182	Bracket Support for Motor, 15, 20, 25 HP
11	1014111	Bracket Support for Motor, 7-1/2, 10 HP
12	1014246	Stabilizer Bracket, 5 HP
12	1012885	Stabilizer Bracket, 15, 20, 25 HP
12	1014118	Stabilizer Bracket, 7-1/2, 10 HP
13	130258	Belt Guard
14	1014074	Corner Weldment
15	1002301	Safety Sign, Caution
16	1012872	Safety Sign, Danger
17	40125	Drive Belt, B-68, 5, 7-1/2, 10, 20, 25 HP
17	40127	Drive Belt, B-75, 15 HP
17	40123	Drive Belt, B-64, 20 HP

REF. NO.	PART NO.	DESCRIPTION
18	4045A1	1/4" x 2" long Square Key, 5 HP
18	4048A1	5/16" x 2" long Square Key, 7-1/2, 10 HP
18	1038D	3/8" x 2" long Square Key, 15 & 20 HP
18	4050A1	1/2" x 2" long Square Key, 25 HP
19	3188A1	1-1/8" Bore SK Bushing, 5 H
19	3087A1	1-3/8" Bore SDS Bushing, 7-1/2, 10 HP
19	3192A1	1-5/8" Bore SK Bushing, 15 HP
19	3089A1	1-5/8" Bore SD Bushing, 20 HP
19	3280A1	1-7/8" Bore SD Bushing, 25 HP
20	3235A1	2B 7.4 PD Sheave, 5 HP
20	3266A1	2B 6.8 PD Sheave, 10 HP
20	3259A1	1B 6.4 PD Sheave, 7-1/2 HP
20	3075A1	2B 9.4 PD Sheave, 15 HP
20	3242A1	3B 6.0 PD Sheave, 20 HP
20	3249A1	4B 6.0 PD Sheave, 25 HP
21	3266A1	2B 6.8 PD Sheave, 5 HP
21	3259A1	1B 6.4 PD Sheave, 7-1/2 HP
21	3234A1	2B 6.6 PD Sheave, 10 HP
21	3090A1	2B 8.6 PD Sheave, 15 HP
21	3267A1	3B 5.6 PD Sheave, 20 HP
21	420079	4B 5.6 PD Sheave, 25 HP
22	3182A1	3/4" Bore SDS Bushing, 5 HP
22	3077A1	1-1/8" Bore SDS Bushing, 7-1/2, 10 HP
22	3191A1	1-7/16" Bore SK Bushing, 15 HP
22	3312A1	1-15/16" Bore SD Bushing, 20 HP
22	3278A1	1-7/16" Bore SD Bushing, 25 HP
23	1005566	Sprocket - 12 Tooth, 1-1/2" Bore



SIDE VIEW

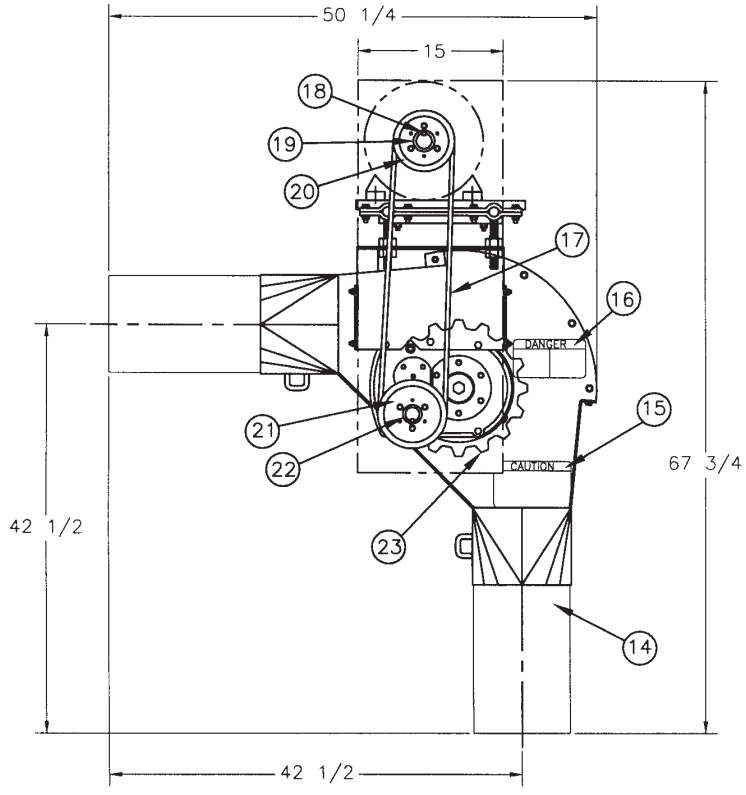


END VIEW

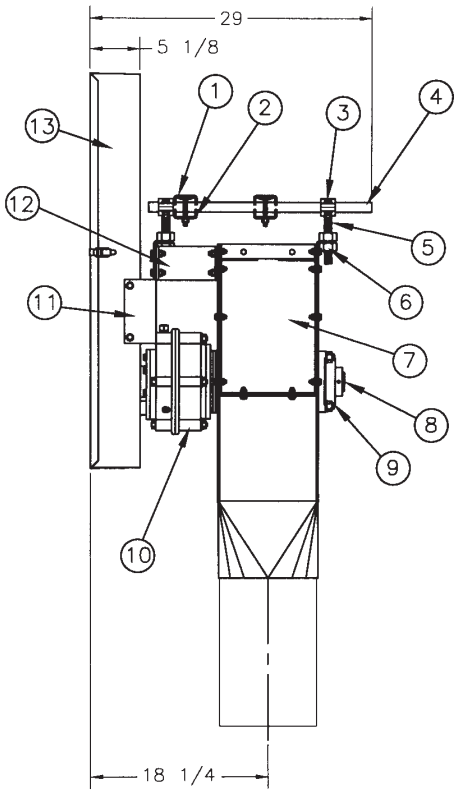
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

8" DRIVE CORNER

REF. NO.	PART NO.	DESCRIPTION
1	50435A1	Mounting Top Strap
2	50434A1	Mounting Bottom Strap
3	2139C	Top Strap
4	2137C	Mounting Shaft
5	2136C	Rod and Strap
6	D1152	Nut, 3/4"
7	1013969	Inspection Door
8	1014123	Corner Shaft, 20 & 25 HP
8	1017121	Corner Shaft, 30 HP
9	2214C	Bearing, 2" Bore
10	3141A91	Reducer, SCXT 415 for 20 & 25 HP
10	3142A91	Reducer, SCXT 515 for 30 HP
11	1013990	Bracket Support for Motor, 20 & 25 HP
11	1014193	Bracket Support for Motor, 30 HP
12	1012885	Stabilizer Bracket, 20 & 25 HP
12	1012895	Stabilizer Bracket, 30 HP
13	1012886	Belt Guard
14	1013961	Corner Weldment
15	1002301	Safety Sign, Caution
16	1012872	Safety Sign, Danger
17	1009129	Drive Belt, B-73, 20 HP
17	40127	Drive Belt, B-75, 25 H
17	40340	Drive Belt, B-81, 30 HP
18	1038D	3/8" x 2" long Square Key, 20 HP
18	4050A1	1/2" x 2" long Square Key, 25 & 30 HP
19	3089A1	1-5/8" Bore SDS Bushing, 20 HP
19	3280A1	1-7/8" Bore SDS Bushing, 25 & 30 HP
20	3242A1	3B 6.6 PD Sheave, 20 HP
20	3269A1	3B 6.8 PD Sheave, 25 & 30 HP
21	3244A1	3B 7.4 PD Sheave, 20 HP
21	3270A1	3B 8.6 PD Sheave, 25 & 30 HP
22	3191A1	1-7/16" Bore SK Bushing, 20 HP
22	3191A1	1-7/16" Bore SK Bushing, 25 HP
22	3194A1	1-15/16" Bore SK Bushing, 30 HP
23	420092	Sprocket - 16 Tooth, 2" Bore



SIDE VIEW

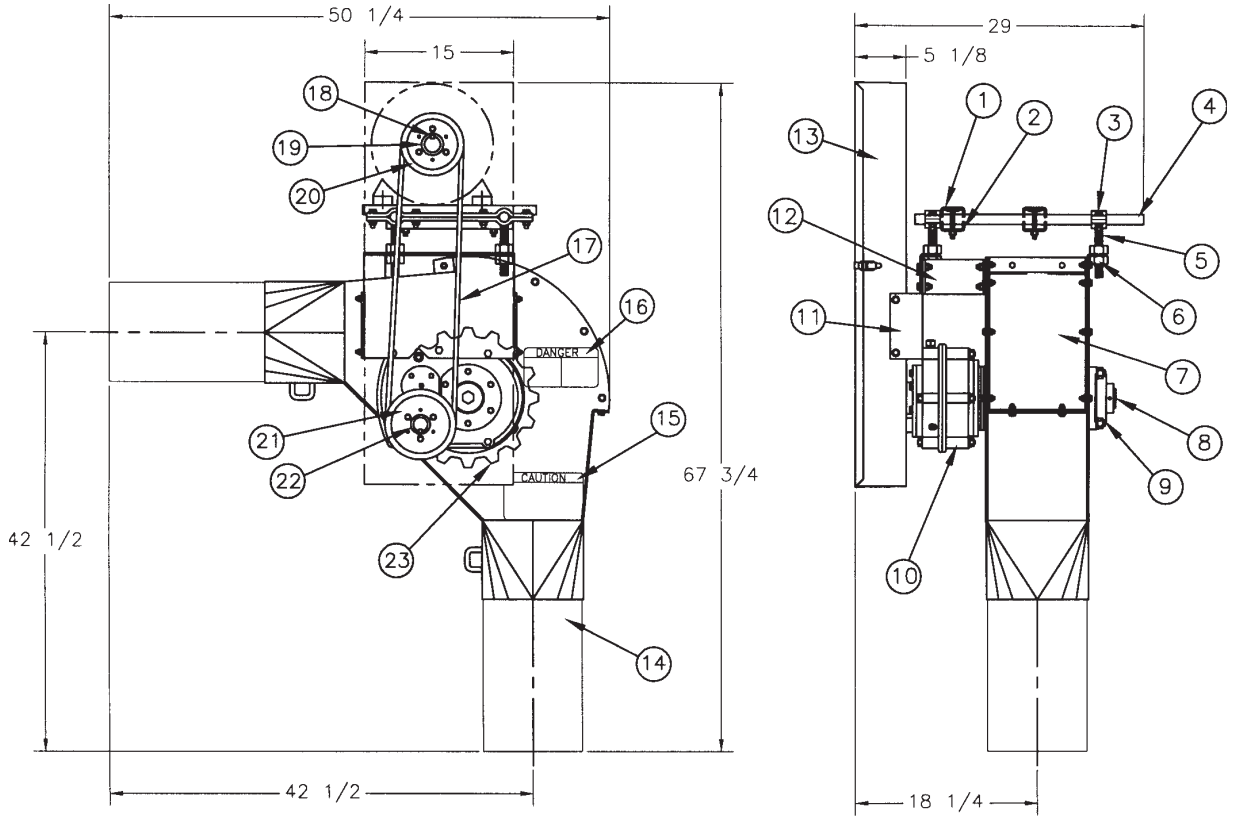


END VIEW

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

10" DRIVE CORNER

REF. NO.	PART NO.	DESCRIPTION
1	50435A1	Mounting Top Strap
2	50434A1	Mounting Bottom Strap
3	2139C	Top Strap
4	2137C	Mounting Shaft
5	2136C	Rod and Strap
6	D1152	Nut, 3/4"
7	1013008	Inspection Door
8	1012629	Corner Shaft, 15, 20 & 25 HP
8	1012630	Corner Shaft, 30 HP
9	2214C	Bearing, 2" Bore
10	3141A91	Reducer, SCXT 415 for 15, 20 & 25 HP
10	3142A91	Reducer, SCXT 515 for 30 HP
11	1012633	Bracket Support for Motor, 15, 20 & 25 HP
11	1012634	Bracket Support for Motor, 30 HP
12	1012885	Stabilizer Bracket, 15, 20 & 25 HP
12	1012895	Stabilizer Bracket, 30 HP
13	1012886	Belt Guard
14	1012689	Corner Weldment
15	1002301	Safety Sign, Caution
16	1012872	Safety Sign, Danger
17	40127	Drive Belt, B-75, 15 HP
17	40128	Drive Belt, B-78, 20 HP
17	40340	Drive Belt, B-81, 25 & 30 HP
18	1038D	3/8" x 2" long Square Key, 15 & 20 HP
18	4050A1	1/2" x 2" long Square Key, 25 & 30 HP
19	3183A1	1-5/8" Bore SDS Bushing, 15 HP
19	3089A1	1-5/8" Bore SD Bushing, 20 HP
19	3280A1	1-7/8" Bore SD Bushing, 25 & 30 HP
20	3233A1	2B 6.0 PD Sheave, 15 HP
20	3242A1	3B 6.0 PD Sheave, 20 HP
20	3269A1	3B 6.8 PD Sheave, 25 & 30 HP
21	3235A1	2B 7.4 PD Sheave, 15 HP
21	3244A1	3B 7.4 PD Sheave, 20 HP
21	3270A1	3B 8.6 PD Sheave, 25 & 30 HP
22	3191A1	1-7/16" Bore SK Bushing, 15, 20 & 25 HP
22	3194A1	1-15/16" Bore SK Bushing, 30 HP
23	1012624	Sprocket - 16 Tooth, 3" Bore

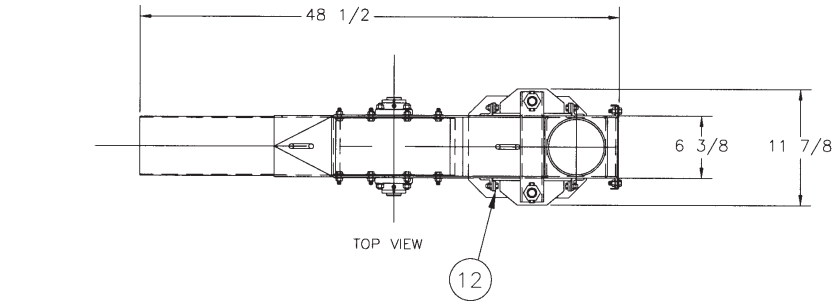


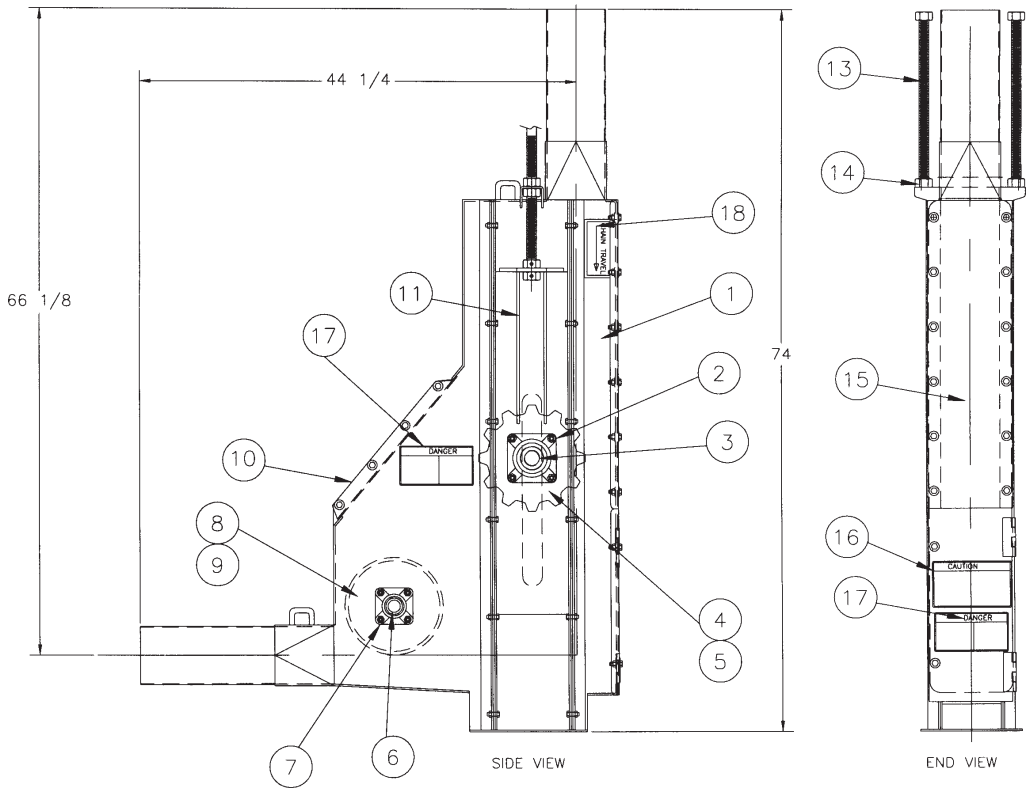
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

6" INSPECTION CORNER

REF. NO.	PART NO.	DESCRIPTION
1	1014076	Corner Weldment
2	1010A	Bearing, 1 1/2" Bore
3	553240	Corner Shaft
4	1005566	Sprocket
5	4073A1	Square Key, 3/8"
6	1014150	Idler Shaft
7	8341D	Bearing, 1" Bore
8	1014146	Idler Wheel
9	8371C	Square Key, 1/4"

REF. NO.	PART NO.	DESCRIPTION
10	1014092	Inspection Door
11	1014105	Slide for Take-up
12	1014106	Guide Bar
13	1012632	Take-up Screw
14	D1158	Nut, 1"
15	1014096	Access Door
16	1002301	Safety SIgn, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel



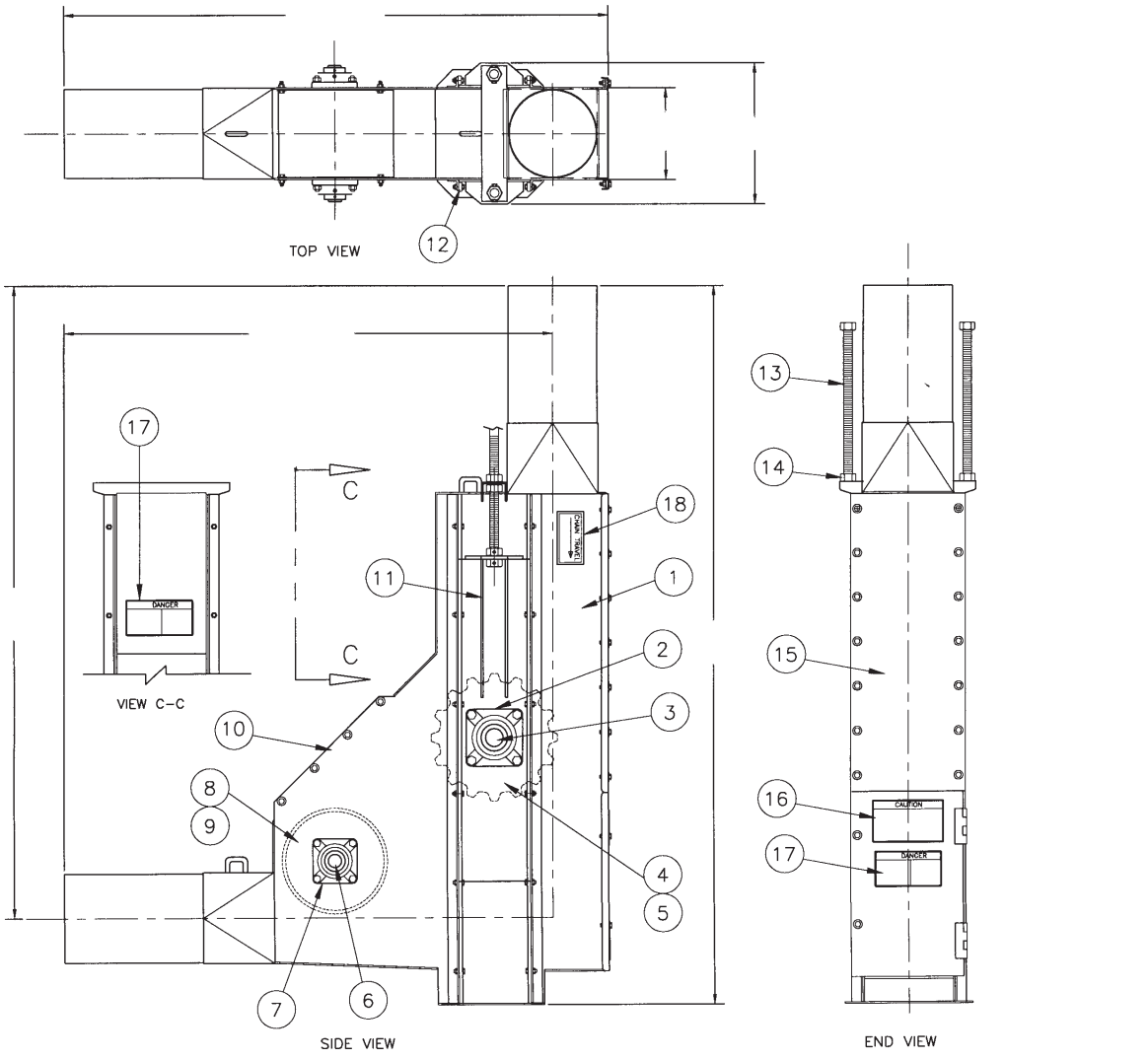


COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

8" INSPECTION CORNER

REF. NO.	PART NO.	DESCRIPTION
1	1013963	Corner Weldment
2	1010A	Bearing, 1-1/2" Bore
3	553092	Corner Shaft
4	420092	Sprocket
5	4021L1	Square Key, 1/2"
6	553316	Idler Shaft
7	1010A	Bearing, 1-1/2" Bore
8	631191	Idler Wheel
9	4021L1	Square Key, 1/2”

REF. NO.	PART NO.	DESCRIPTION
10	1013996	Inspection Door
11	1014011	Slide for Take-up
12	1014012	Guide Bar
13	1012632	Take-up Screw
14	D1158	Nut, 1"
15	1013999	Access Door
16	1002301	Safety SIgn, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel

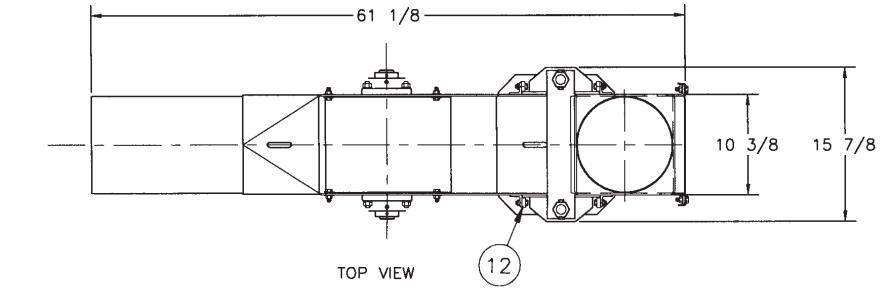


COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

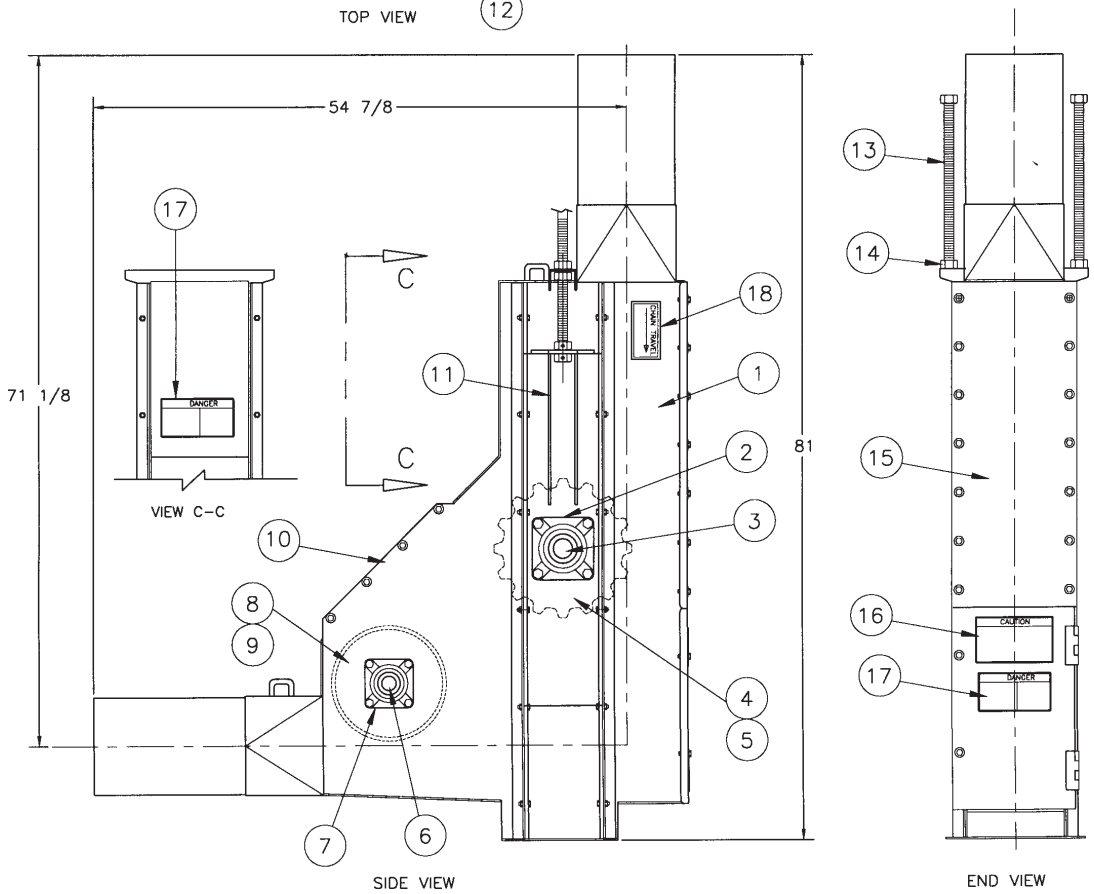
10" INSPECTION CORNER

REF. NO.	PART NO.	DESCRIPTION
1	1012618	Corner Weldment
2	2214C	Bearing, 2" Bore
3	1022382	Corner Shaft
4	420065	Sprocket
5	53060	Square Key, 3/4"
6	1012628	Idler Shaft
7	1010A	Bearing, 1 1/2" Bore
8	631191	Idler Wheel
9	4021L1	Square Key, 1/2"

REF. NO.	PART NO.	DESCRIPTION
10	1012875	Inspection Door
11	1012979	Slide for Take-up
12	1012596	Guide Bar
13	1012632	Take-up Screw
14	D1158	Nut, 1"
15	1012602	Access Door
16	1002301	Safety SIgn, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel



TOP VIEW

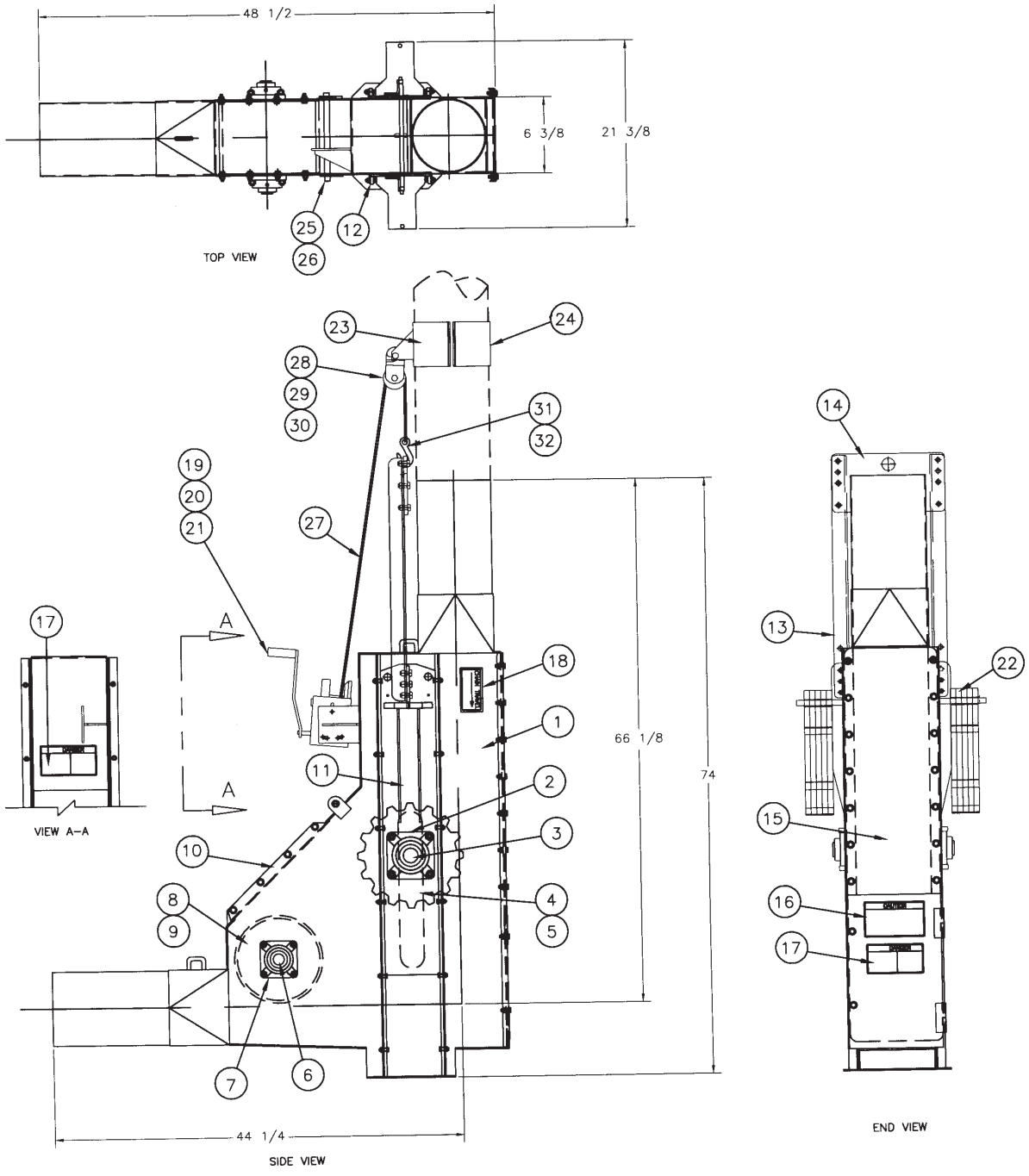


SIDE VIEW

END VIEW

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

6" INSPECTION CORNER - AUTO TAKE-UP



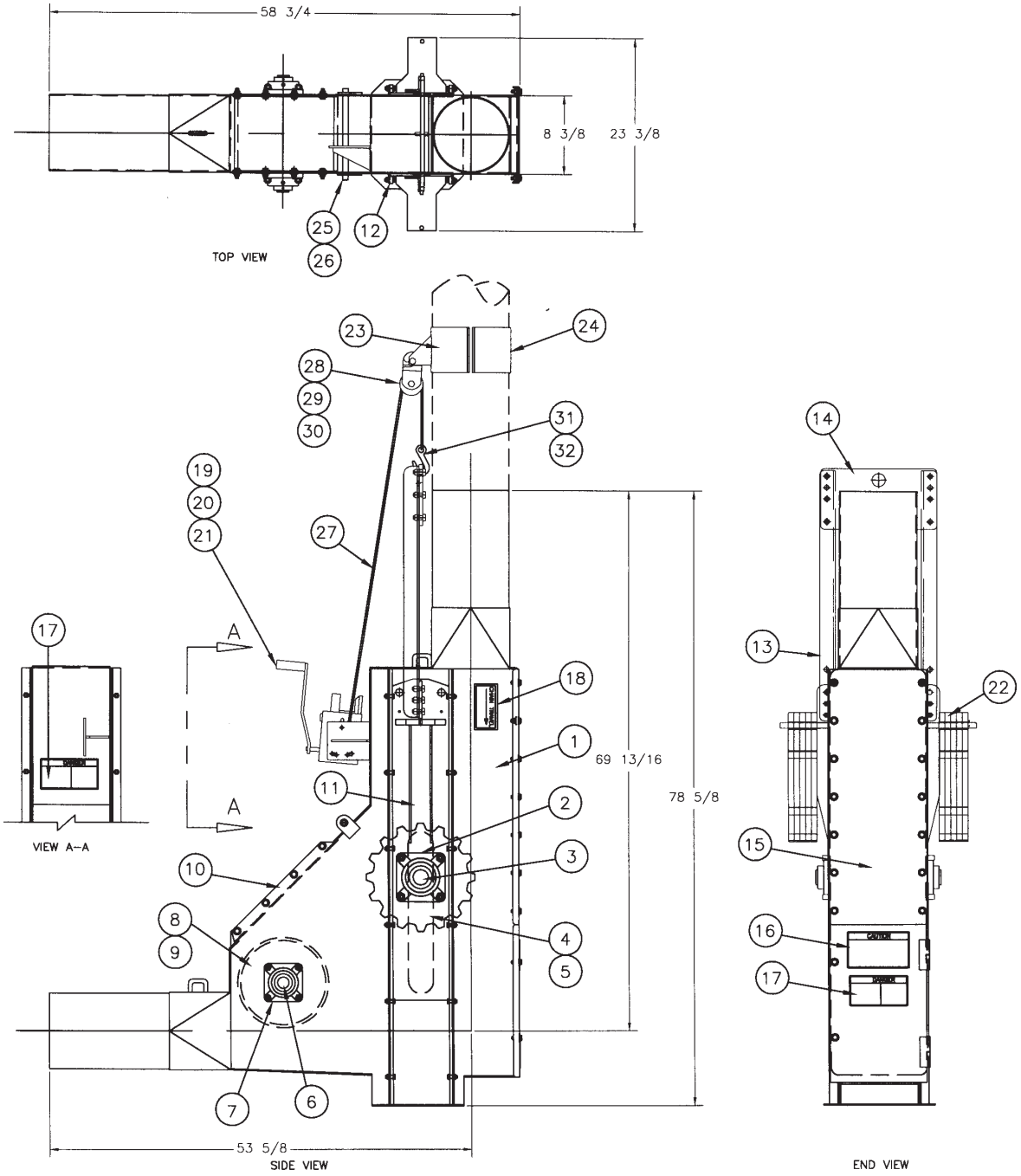
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

6" INSPECTION CORNER - AUTO TAKE-UP

ITEM NO.	PART NO.	DESCRIPTION
1	1026170	Corner Weldment
2	1010A	Bearing, 1 1/2" Bore
3	553240	Corner Shaft
4	1005566	Sprocket
5	4073A1	Square Key, 3/8"
6	1014150	Idler Shaft
7	8341D	Bearing, 1 1/2" Bore
8	1014146	Idler Wheel
9	8371C	Square Key, 1/4"
10	1014092	Inspection Door
11	1026172	Side Slide for Take-up
12	1026169	Guide Bar
13	1025946	Slide Lift Angle
14	1026174	Lift Plate
15	1014096	Access Door
16	1002301	Safety Sign, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel
19	3335A1	Winch Assembly
20	41595	Winch Handle
21	41600	Cable Keeper f/Winch
22	1022554	Weights - 50 lbs.
23	1024131	Lift Pulley Weldment
24	5046A1	Half Clamp
25	1026173	Block Out Bar
26	635164	Hair Pin Cotter
27	1011852	Lift Cable 1/4" x 19’ lg
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley
30	50079A1	Bushing Hardened
31	106411	Hook w/Safety Clip
32	6369C	Cable Clamp 1/4"

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

8" INSPECTION CORNER - AUTO TAKE-UP



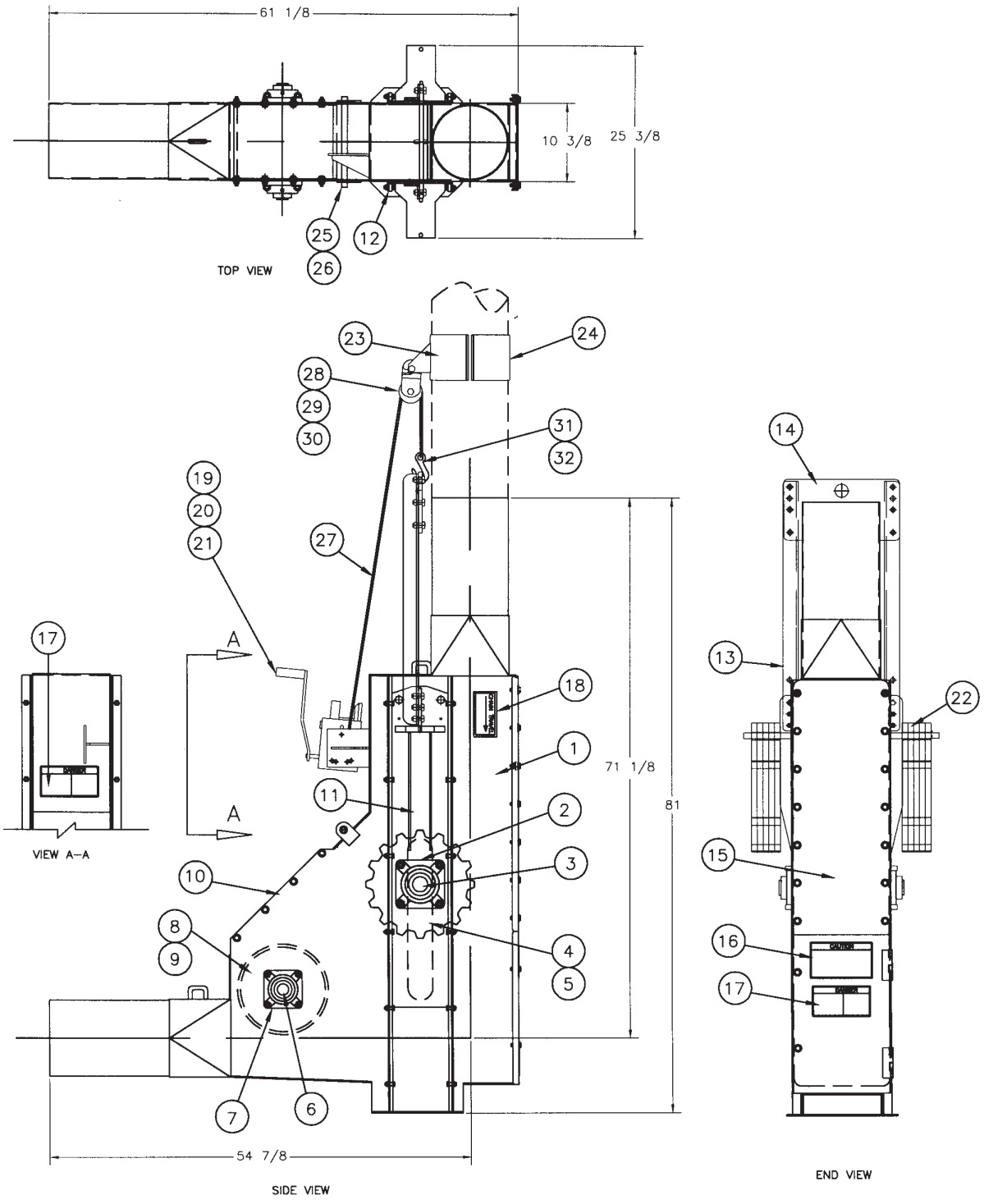
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

8" INSPECTION CORNER - AUTO TAKE-UP

ITEM NO.	PART NO.	DESCRIPTION
1	1026121	Corner Weldment
2	1010A	Bearing, 1 1/2" Bore
3	553092A	Corner Shaft
4	420092	Sprocket
5	4021I1	Square Key, 3/4"
6	553316	Idler Shaft
7	1010A	Bearing, 1 1/2" Bore
8	631191	Idler Wheel
9	4021I1	Square Key, 1/2"
10	1013996	Inspection Door
11	1026127	Side Slide for Take-up
12	1026126	Guide Bar
13	1025946	Slide Lift Angle
14	1026137	Lift Plate
15	1013999	Access Door
16	1002301	Safety Sign, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel
19	3335A1	Winch Assembly
20	41595	Winch Handle
21	41600	Cable Keeper f/Winch
22	1022554	Weights - 50 lbs.
23	1025230	Lift Pulley Weldment
24	5042A1	Half Clamp
25	1026136	Block Out Bar
26	635164	Hair Pin Cotter
27	1011852	Lift Cable 1/4" x 19' lg
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley
30	50079A1	Bushing Hardened
31	106411	Hook w/Safety Clip
32	6369C	Cable Clamp 1/4"

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

10" INSPECTION CORNER - AUTO TAKE-UP

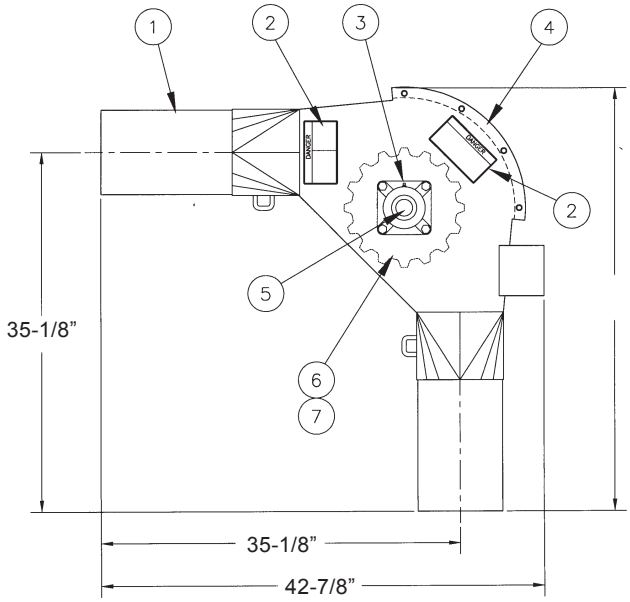


COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

10" INSPECTION CORNER - AUTO TAKE-UP

ITEM NO.	PART NO.	DESCRIPTION
1	1025953	Corner Weldment
2	2214C	Bearing, 2" Bore
3	1022382	Corner Shaft
4	420065	Sprocket
5	53060	Square Key, 3/4"
6	1012628	Idler Shaft
7	1010A	Bearing, 1 1/2" Bore
8	631191	Idler Wheel
9	4021l1	Square Key, 1/2"
10	1012875	Inspection Door
11	1025931	Side Slide for Take-up
12	1026057	Guide Bar
13	1025946	Slide Lift Angle
14	1025950	Lift Plate
15	1012602	Access Door
16	1002301	Safety Sign, Caution
17	1012872	Safety Sign, Danger
18	1012785	Instructional Sign, Chain Travel
19	3335A1	Winch Assembly
20	41595	Winch Handle
21	41600	Cable Keeper f/Winch
22	1022554	Weights - 50 lbs.
23	1022979	Lift Pulley Weldment
24	106207-1	Half Clamp
25	1025952	Block Out Bar
26	635164	Hair Pin Cotter
27	1011852	Lift Cable 1/4" x 19’ lg.
28	1007890	Cable Pulley Side
29	1008195	Cable Pulley
30	50079A1	Bushing Hardened
31	106411	Hook w/Safety Clip
32	6369C	Cable Clamp 1/4"

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

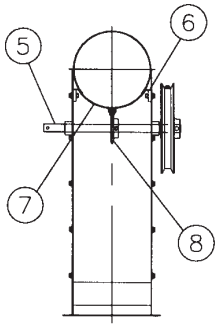


6" STANDARD CORNER

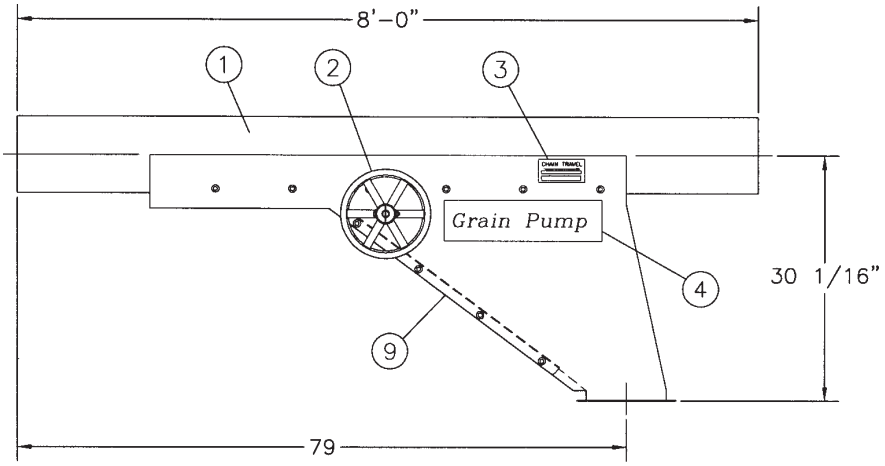
REF. NO.	PART NO.	DESCRIPTION
1	1014072	Corner Weldment
2	1012872	Safety Sign, Danger
3	1010A	Bearing, 1 1/2" Bore
4	1014088	Inspection Door
5	553240	Corner Shaft
6	1005566	Sprocket
7	4073A1	Square Key, 3/8"

6" 90° DISCHARGE WITH GATE

REF. NO.	PART NO.	DESCRIPTION
1	1015157	Discharge Assembly (Includes all parts except control wheel)
2	1011771	Control Wheel
3	1012785	Instructional Sign, Chain Travel
4	34349	Label, Grain Pump
5	1011795	Shaft
6	1012653	Rail for Gate
7	1014058	Slide Gate
8	6376C	Sprocket
9	1012817	Access Panel



END VIEW

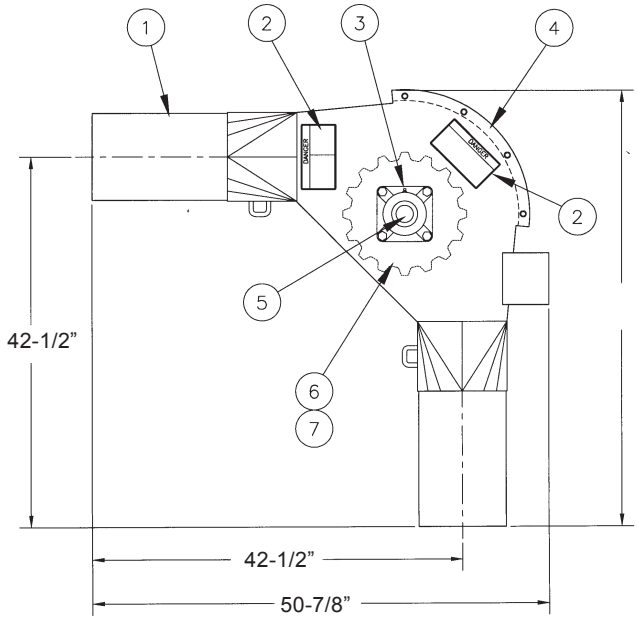


SIDE VIEW

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

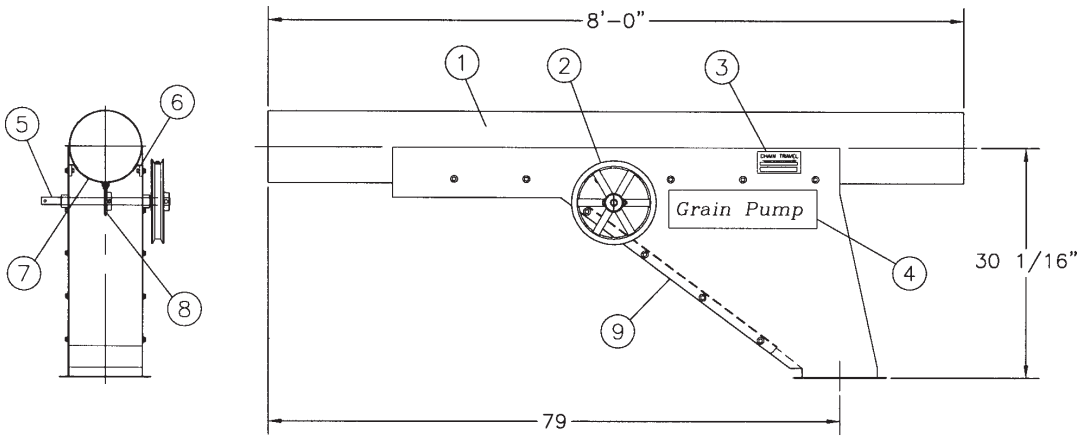
8" STANDARD CORNER

REF. NO.	PART NO.	DESCRIPTION
1	1013959	Corner Weldment
2	1012872	Safety Sign, Danger
3	1010A	Bearing, 1 1/2" Bore
4	1013969	Inspection Door
5	553316	Corner Shaft
6	420092	Sprocket
7	4021L1	Square Key, 1/2"



8" 90° DISCHARGE WITH GATE

REF. NO.	PART NO.	DESCRIPTION
1	1015153	Discharge Assembly (Includes all parts except control wheel)
2	1011771	Control Wheel
3	1012785	Instructional Sign, Chain Travel
4	34349	Label, Grain Pump
5	1011782	Shaft
6	1012653	Rail for Gate
7	1011784	Slide Gate
8	6376C	Sprocket
9	1012809	Access Panel



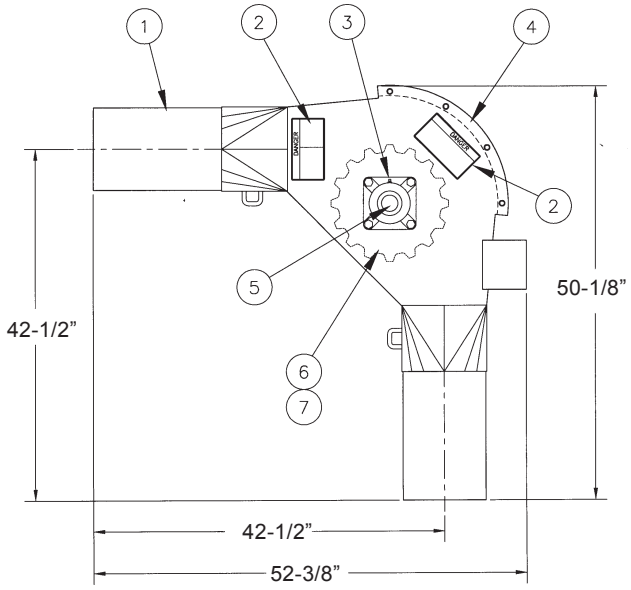
END VIEW

SIDE VIEW

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

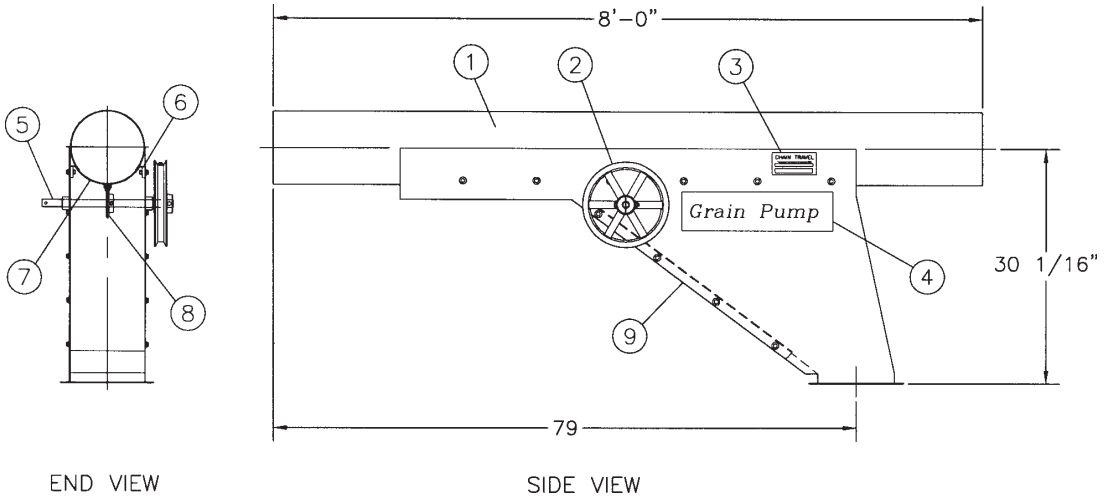
10" STANDARD CORNER

REF. NO.	PART NO.	DESCRIPTION
1	1012621	Corner Weldment
2	1012872	Safety Sign, Danger
3	2214C	Bearing, 2" Bore
4	1013008	Inspection Door
5	1012626	Corner Shaft
6	1012624	Sprocket
7	553512	Square Key, 3/4"

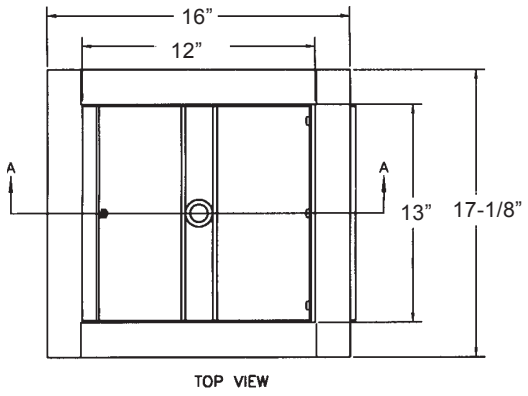


10" 90° DISCHARGE WITH GATE

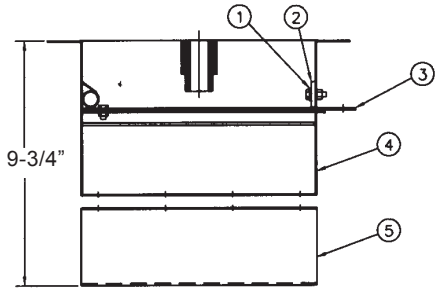
REF. NO.	PART NO.	DESCRIPTION
1	1015143	Discharge Assembly (Includes all parts except control wheel.)
2	1011771	Control Wheel
3	1012785	Instructional Sign, Chain Travel
4	34349	Label, Grain Pump
5	1012649	Shaft
6	1012660	Rail for Gate
7	1012648	Slide Gate
8	6376C	Sprocket
9	1012652	Access Panel



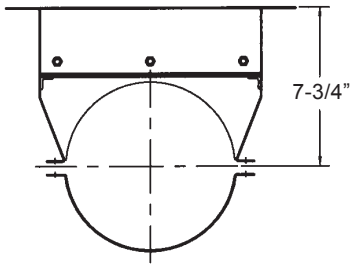
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST



TOP VIEW



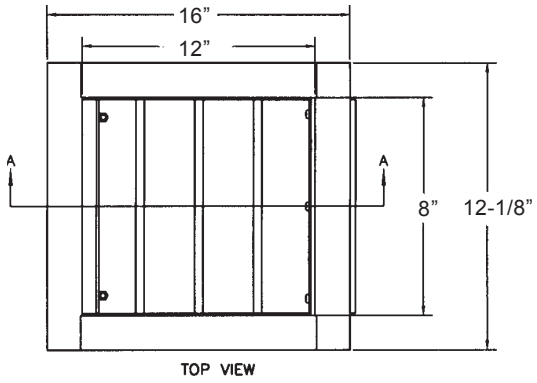
SECTION VIEW AA



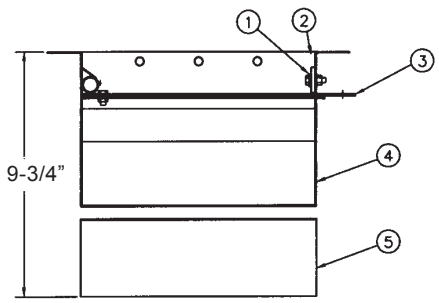
FRONT END VIEW

6" CENTER BIN WELL

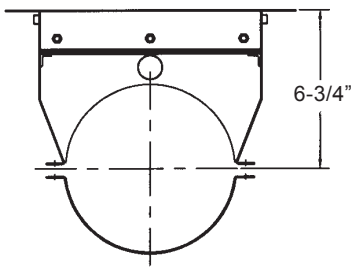
REF. NO.	PART NO.	DESCRIPTION
1	1011673	Strap Support for Wiper
2	1011672	Rubber Wiper for Gate
3	1011683	Gate for Center Well
4	1011836	Center Well Weldment
5	50544A1	Clamp Band



TOP VIEW



SECTION VIEW AA

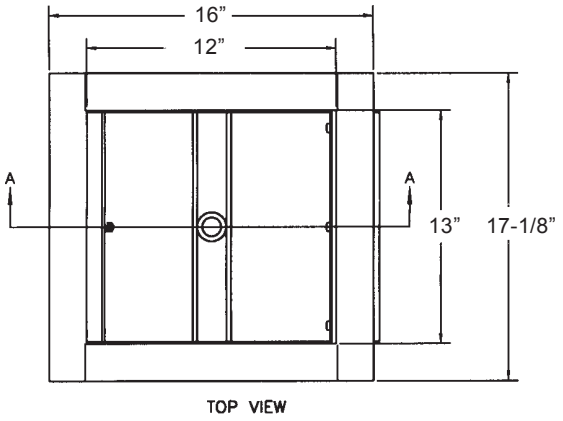


FRONT END VIEW

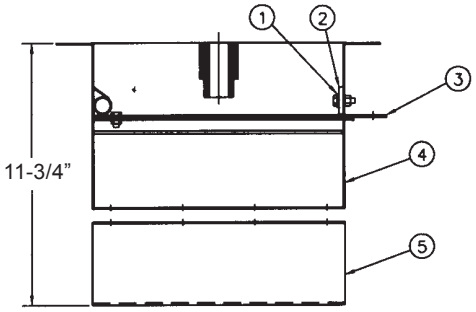
6" INTERMEDIATE BIN WELL

REF. NO.	PART NO.	DESCRIPTION
1	1011679	Strap Support for Wiper
2	1011678	Rubber Wiper for Gate
3	1011684	Gate for Intermediate Well
4	1011835	Intermediate Well Weldment
5	50544A1	Clamp Band

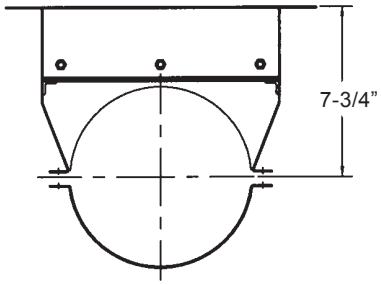
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST



TOP VIEW



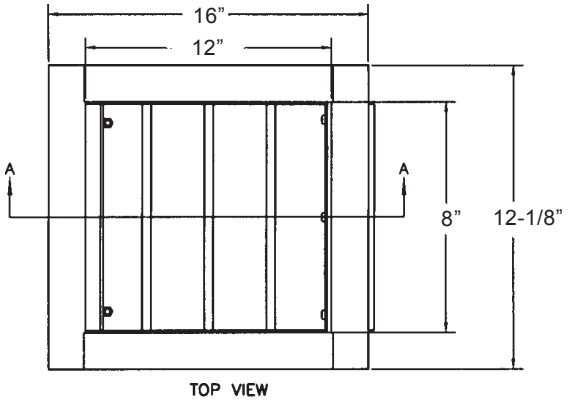
SECTION VIEW AA



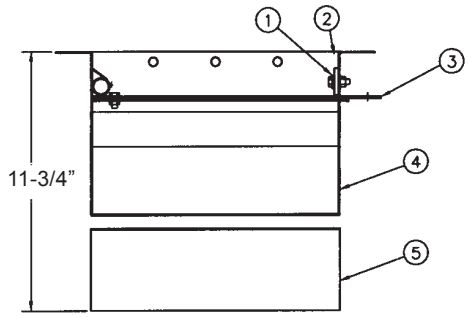
FRONT END VIEW

8” CENTER BIN WELL

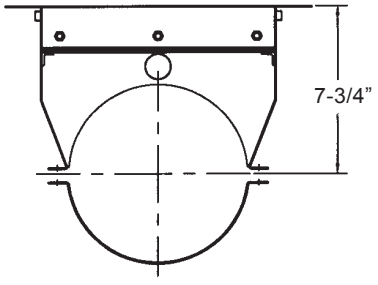
REF. NO.	PART NO.	DESCRIPTION
1	1011673	Strap Support for Wiper
2	1011672	Rubber Wiper for Gate
3	1011683	Gate for Center Well
4	1011666	Center Well Weldment
5	50545A1	Clamp Band



TOP VIEW



SECTION VIEW AA

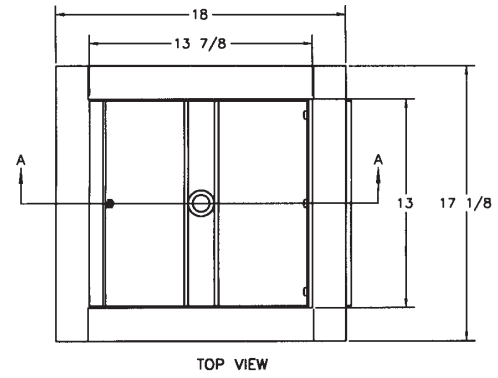


FRONT END VIEW

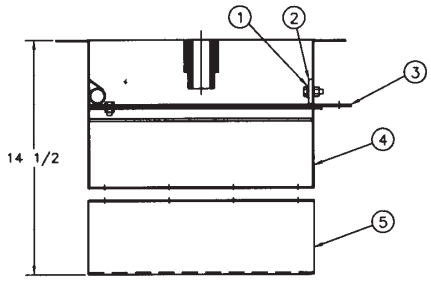
8” INTERMEDIATE BIN WELL

REF. NO.	PART NO.	DESCRIPTION
1	1011679	Strap Support for Wiper
2	1011678	Rubber Wiper for Gate
3	1011684	Gate for Intermediate Well
4	1011667	Intermediate Well Weldment
5	50545A1	Clamp Band

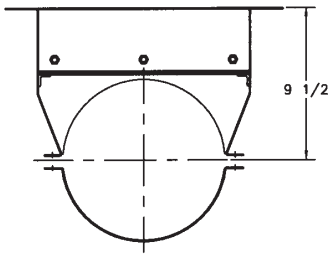
COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST



TOP VIEW



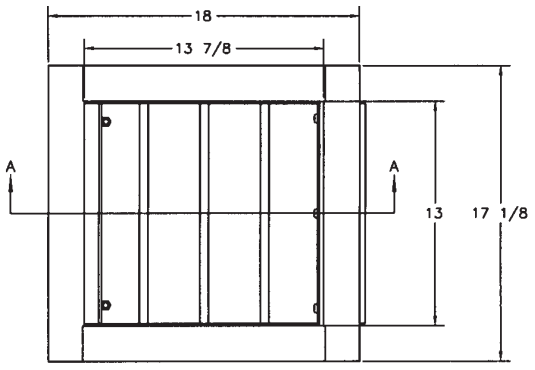
SECTION VIEW AA



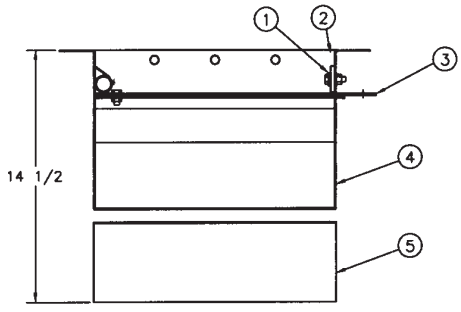
FRONT END VIEW

10" CENTER BIN WELL

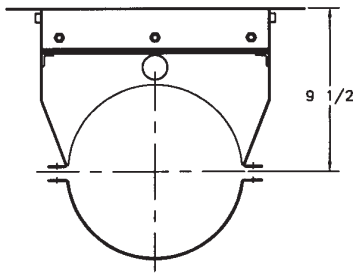
REF. NO.	PART NO.	DESCRIPTION
1	1011673	Strap Support for Wiper
2	1011672	Rubber Wiper for Gate
3	1012685	Gate for Center Well
4	1012663	Center Well Weldment
5	50005A1	Clamp Band



TOP VIEW



SECTION VIEW AA



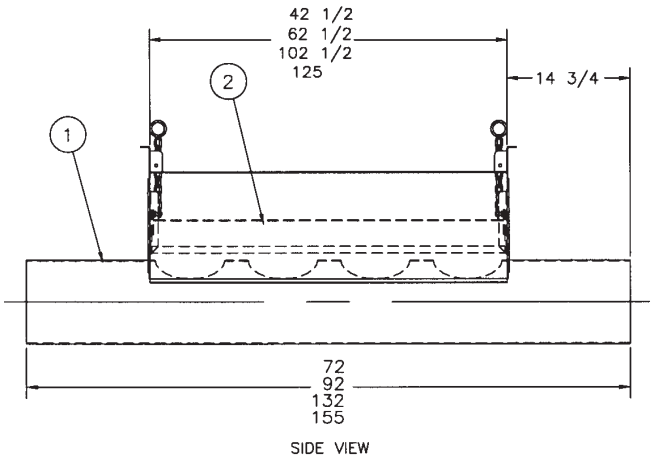
FRONT END VIEW

10" INTERMEDIATE BIN WELL

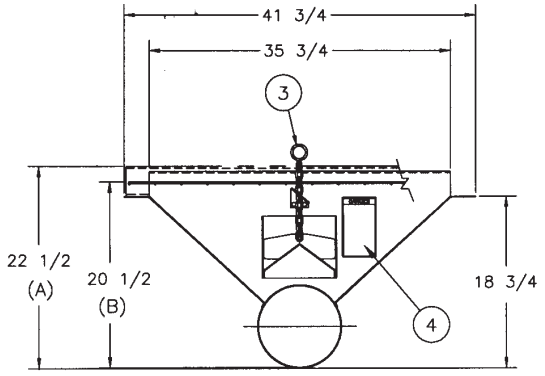
REF. NO.	PART NO.	DESCRIPTION
1	1011673	Strap Support for Wiper
2	1011672	Rubber Wiper for Gate
3	1012686	Gate for Intermediate Well
4	1012750	Intermediate Well Weldment
5	50005A1	Clamp Band

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

6" INLET DUMP HOPPER



SIDE VIEW



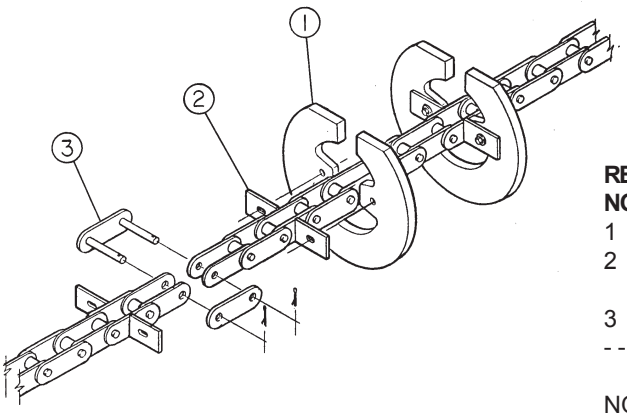
END VIEW

A – HEIGHT OF HOPPER WITH GRATING INSTALLED

B – HEIGHT OF HOPPER WITH SCREEN INSTALLED

REF. NO.	PART NO.	DESCRIPTION
1	1013071	Hopper Weldment, 42 1/2" Hopper
1	--	Hopper Weldment, 62 1/2" Hopper
1	1013077	Hopper Weldment, 102 1/2" Hopper
2	--	Control Gate, 42 1/2" Hopper
2	--	Control Gate, 62 1/2" Hopper
2	--	Control Gate, 102 1/2" Hopper
3	1012466	Chain Control
4	1002310	Safety Sign, Danger
--	1012507	Screen Cover for 42 1/2" Hopper
--	1012485	Screen Cover for 62 1/2" Hopper
--	1012883	Screen Cover for 102 1/2" Hopper
--	E1221	Grating Section, 20

CHAIN AND PADDLES FOR 6"

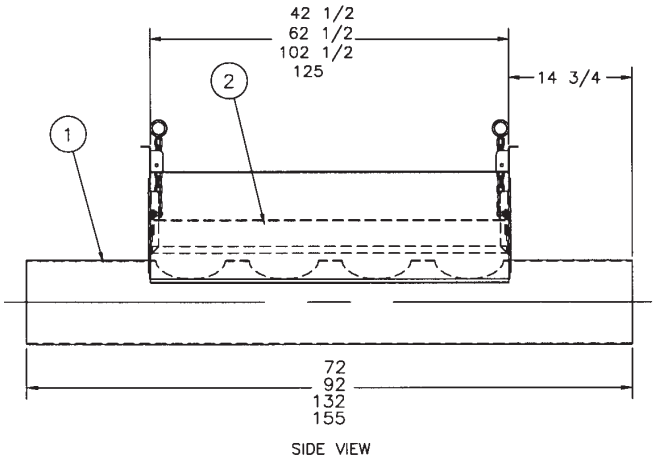


REF. NO.	PART NO.	DESCRIPTION
1	1005590	Conveyor Paddle
2	1005572	Conveyor Chain, Roll 10'-10 1/2" long - Includes 10 mounting brackets for paddles
3	420154	Chain Connecting Link
--	420200	Chain Offset Link

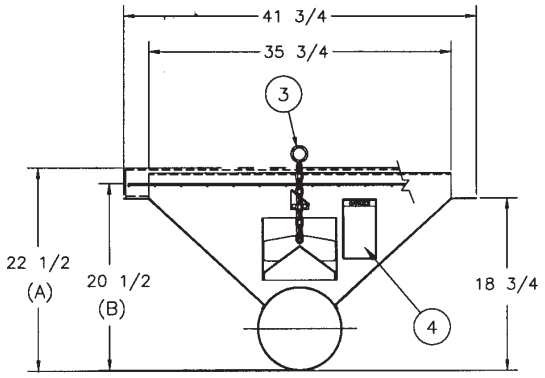
NOTE: Paddles connect to chain using (2) No. 1024812 5/16" x 1 1/4"serrated head bolts and (2) No. 1024813 5/16" serrated nuts.

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

8" INLET DUMP HOPPER



SIDE VIEW



END VIEW

A – HEIGHT OF HOPPER WITH GRATING INSTALLED

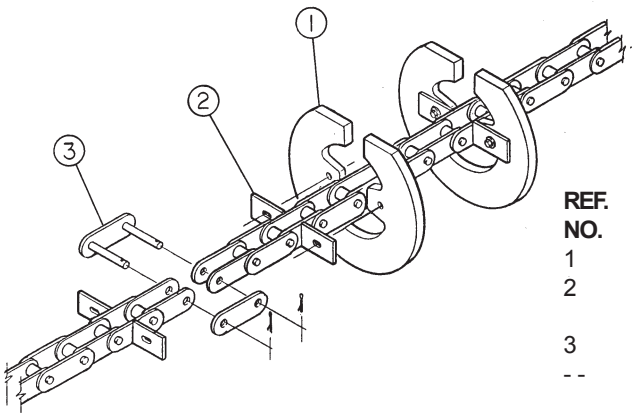
B – HEIGHT OF HOPPER WITH SCREEN INSTALLED

REF. NO.	PART NO.	DESCRIPTION
1	1013234	Hopper Weldment, 42-1/2" Hopper
1	1013089	Hopper Weldment, 62-1/2" Hopper
1	1012830	Hopper Weldment, 102-1/2" Hopper
- -	1012712	Hopper Weldment, 125" Hopper
2	1012474	Control Gate, 42-1/2" Hopper
2	1012475	Control Gate, 62-1/2" Hopper*
2	1012831	Control Gate, 102-1/2" Hopper

*2 required for 125" Hopper

REF. NO.	PART NO.	DESCRIPTION
3	1012466	Chain Control
4	1002310	Safety Sign, Danger
- -	1012507	Screen Cover for 42-1/2" Hopper
- -	1012485	Screen Cover for 62-1/2" Hopper*
- -	1012883	Screen Cover for 102-1/2" Hopper
- -	E1221	Grating Section, 20"

CHAIN AND PADDLES FOR 8"

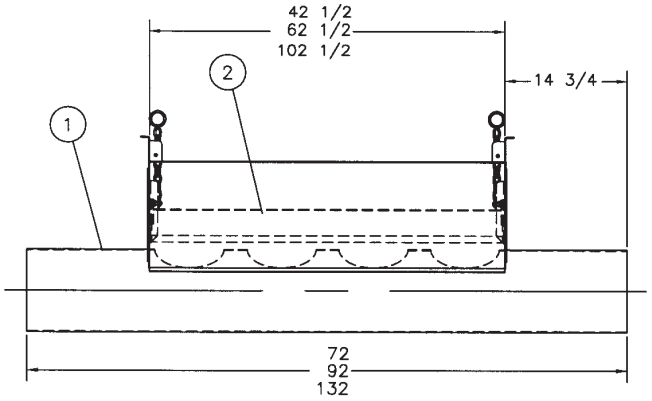


REF. NO.	PART NO.	DESCRIPTION
1	1005589	Conveyor Paddle
2	1005570	Conveyor Chain, Roll 10'-10 1/2" long - (Includes 10 mounting brackets for paddles)
3	420154	Chain Connecting Link
- -	420200	Chain Offset Link

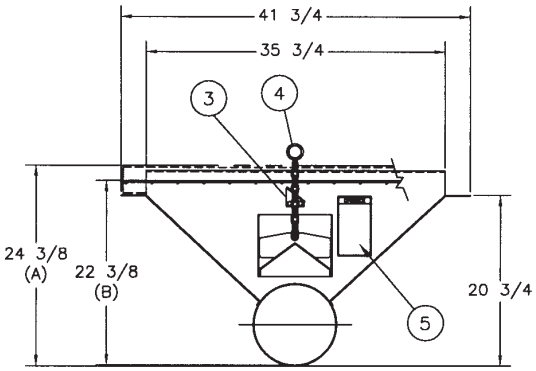
NOTE: Paddles connect to chain using (2) No. 1024812 5/16" x 1-1/4" serrated head bolts and (2) No. 1024813 5/16" serrated nuts.

COMPONENT DIMENSIONAL INFORMATION AND PARTS LIST

10" INLET DUMP HOPPER



SIDE VIEW



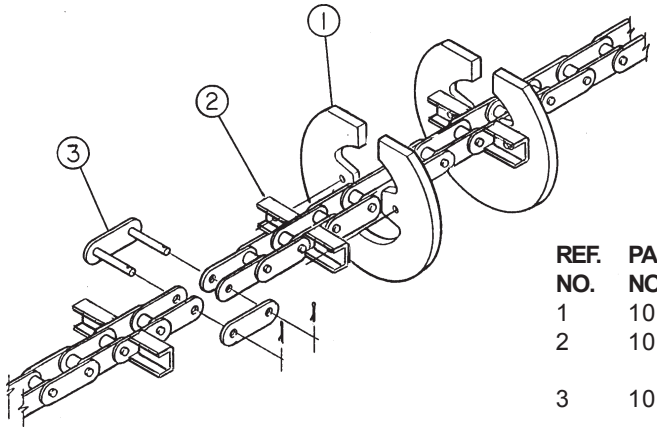
END VIEW

A – HEIGHT OF HOPPER WITH GRATING INSTALLED

B – HEIGHT OF HOPPER WITH SCREEN INSTALLED

REF. NO.	PART NO.	DESCRIPTION
1	1012664	Hopper Weldment, 42-1/2" Hopper
1	1012951	Hopper Weldment, 62-1/2" Hopper
1	1012952	Hopper Weldment, 102-1/2" Hopper
2	1012670	Control Gate, 42-1/2" Hopper
2	1012953	Control Gate, 62-1/2" Hopper
2	1012954	Control Gate, 102-1/2" Hopper
3	1012669	Chain Bracket
4	1012466	Chain Control
5	1002310	Safety Sign, Danger
- -	1012507	Screen Cover for 42-1/2" Hopper
- -	1012485	Screen Cover for 62-1/2" Hopper
- -	1012883	Screen Cover for 102-1/2" Hopper
- -	E1221	Grating Section, 20"

CHAIN AND PADDLES FOR 10"



REF. NO.	PART NO.	DESCRIPTION
1	1012495	Conveyor Paddle
2	1016973	Conveyor Chain 81XHH, Roll 10'-10 1/2" long - (Includes 10 mounting brackets for paddles)
3	1017077	Chain Connecting Link

NOTE: Paddles connect to chain using (2) No. 1024812 5/16" x 1-1/4" serrated head bolts and (2) No. 1024813 5/16" serrated nuts.

Hutchinson/Mayrath

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