Silo-Matic

GEMINI II SURFACE DRIVE

OPERATING INSTRUCTIONS & PARTS MANUAL

Valesco Manufacturing, Inc.
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(812) 636-6001
www.silo-matic.com

REVISION 10-2006

LIMITED WARRANTY

Valesco Mfg. Inc. (Silo-Matic) warrants new equipment of its manufacture to be free of defects in materials and workmanship under normal use and service.

This warranty applies only to the original purchaser of the equipment.

Under no circumstances will Silo-Matic be responsible for labor charges associated with Product warranty.

Silo-Matic will not be liable for any direct, incidental or consequential damages arising in connection with any use, inability to use, misuse or misapplication of this equipment.

Warranty Period
Silo-Matic will repair or replace, at its option, without charge any parts of the equipment found by Silo-Matic to be defective within (1) one year from sale or installation.

Owner's Obligation
To be covered by warranty, all new equipment must be properly registered with Silo-Matic within 30 days of original purchase date of sale. (A warranty registration card is provided in the Owner's Manual for each machine.)

It is the responsibility of the owner, at owner's expense, to transport the equipment to the place of business of an authorized Silo-Matic dealer or to alternately reimburse the dealer for any travel or transportation expense involved in fulfilling this warranty.

Exceptions
Electronic Scales, submersible pumps, tires, electrical components and motors are warranted by the respective manufacturer and not Silo-Matic. Due to uncontrollable conditions, auger knives and liners are not covered under this warranty.

Conditions that Void Warranty
This limited warranty shall not apply to equipment which:

*Has had unauthorized repair or modification, gearboxes that have had the covers removed.

*Has been subject to misuse, negligent handling, unproper adjustment, accident, fire damage, or other acts of God.

*Has had repair or replacement parts not manufactured, supplied or authorized by Silo-Matic.

THIS IS THE ONLY WARRANTY MADE BY SILO-MATIC AS TO THE EQUIPMENT. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTIES, EXPRESSED OR IMPLIED.

Supercedes previous subject matter
June 1, 1997

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INTRODUCTION

The Gemini II Silo Unloader, manufactured by Valesco Manufacturing, incorporates many features for safety, easy assembly and quick changeover from unloading to raising after the silo has been emptied. The Gemini II is available in sizes from 12'-24'. A 26" rotor is standard on all sizes to provide increased performance.

The instructions in this manual provide procedures for assembly and installation of the suspension, winch and unloader. It also contains information on safety suggestions, operation and repair parts.

A safety precaution section is included in this manual and safety precautions are stated throughout the manual. It is your responsibility to carefully read and understand these safety messages.

	This SAFETY ALERT SYMBOL indicates important safety messages. When you see this symbol, be alert to the possibility of PERSONAL INJURY or even DEATH.

Throughout this manual reference is made to front and rear, right and left. When related to rotation, front means leading in the direction of rotation and rear is trailing. The unloader travels counter clockwise around the silo. When not related to rotation, front means closest to the silo wall and rear is inward toward the silo center. Right and left is related to as viewed from the center of the silo and sighting along the augers toward the wall.

Some Common abbreviations used in this manual are as follows:

Assy	Assembly	LW	Lockwasher
Brkt.	Bracket	RH	Right Hand
Crg	Carriage	LH	Left Hand
Chl	Channel	Weld	Weldment
Frt.	Front	SS	Stainless Steel
Ang	Angle		

Read the instructions carefully to insure the best operation of you new Silo-Matic unloader. If you have any questions contact your dealer or the factory at the address that follows. For information concerning other dependable labor saving Silo-Matic equipment and customized feeding systems, see your nearest Silo-Matic Dealer or write to:

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Rev. 10-2006

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WARNINGS AND DANGERS ASSOCIATED WITH SILO UNLOADERS

Throughout this manual and on the silo unloader there are symbols used to show important safety messages. Please read these and understand their contents. Failure to follow these safety instructions could lead to Personal Injury, Death or severe damage to the silo unloader.

This SAFETY ALERT SYMBOL is found throughout this manual and indicates important safety messages. When you see this symbol, be alert to the possibility of PERSONAL INJURY or even DEATH.

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

WARNING: Indicates a potentially hazardous situation that if not avoided, could result in death or serious injury and alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury and alert against unsafe practices.

There are inherent hazards associated with silo unloading equipment. Proper caution will result in safe operation. Carefully read and understand the following safety suggestions. Become familiar with hazards of silo gas and exercise extreme caution whenever there is danger of exposure to this gas. Read "SILO GAS IS DEADLY" which is included in this manual.

WARNING!

This equipment can be hazardous in the hands of an unfamiliar, untrained, or careless operator. For your safety you must not operate, service, inspect, or otherwise handle this equipment unless you have read the owner's manual and have been properly trained in its intended usage.

1. Do not operate this machinery until all shields and guards are in place.

2. Never attempt to clean, adjust or lubricate machine while it is in motion.

3. Stop machine and lockout power source before adjusting and servicing. Keep hands, feet, and clothing away from moving parts.

4. Make certain everyone is clear of equipment before applying power.

5. Disconnect power before resetting motor overload.

6. Do not allow children to operate machine.

7. Require all personnel who will operate this machinery or perform service to read and understand the safe operating practices and safety precautions in this manual.

8. When going into the silo to make adjustments or change doors, turn the key switch to "OFF", remove the key and take it with you in the silo to prevent accidental starting of the unloader by someone else.

9. Never stand under a suspended silo unloader.

10. Never use a suspended silo unloader as a substitute for a scaffold.

11. Never go into a silo to work on a moving silo unloader.

12. Do not allow anyone in the silo when the unloader is being raised to the silo top or is being lowered from the top.

FAILURE TO HEED MAY RESULT IN DEATH OR PERSONAL INJURY.

⚠ DANGER SILO GAS IS DEADLY!

Silage fermentation produces several kinds of gas, including carbon dioxide and nitric oxide which in turn produces nitrogen dioxide. Carbon dioxide is non-poisonous, although it can cause suffocation. Nitrogen Dioxide (NO_2) is poisonous. It kills and injures people as well as livestock. Nitrogen Dioxide is a hazard on the farm because:

1. Exposure can be fatal.
2. Formation of Nitrogen Dioxide from Nitric Oxide may occur whenever silage is made.

WHAT IS THIS GAS?

The lethal gas is yellowish-brown and smells like some laundry bleaches. After more oxidation, it forms Nitric Oxide which then forms highly-corrosive Nitric acid when combined with water. Since oxidation may occur in the body, Nitrogen Dioxide can produce permanent lung damage.

WHERE DOES IT HIDE?

Since Nitrogen Dioxide is heavier than air, it remains beneath the air mass over the silage. It layers on top of the silage below the upper edge of the top door or settles down through the chute. It may also seep through the drain at the base of the silo. It often concentrates in the silo in the silo room and moves into the barn. It will leave a yellow stain on silage, wood or other materials it contacts.

HOW TO MINIMIZE THE DANGER:
While Growing the Crop:

1. Apply adequate Nitrogen, but don't over do. As a guide, corn needs 1.2 pounds of Nitrogen per bushel yield. Oats and/or sudangrass used for silage should have no more than 75 pounds of Nitrogen available for each harvest. Since this includes both Nitrogen in the soil and that applied, follow the recommendations on soil analysis reports.

2. After a drought rapid nitrate uptake occurs in plants following rain. So, harvest the crop before fall rains, or wait at least five days after a rain.

3. Plants damaged by hail or frost should be harvested immediately before they take up nitrates.

4. To reduce the amount of Nitrate going into silage, cut higher than normally (10-12".) Most nitrates are in the lower stalk.

While Filling the Silo:

1. Be on the alert for bleach-like odors and/or yellowish-brown fumes in or near the silo. Small amounts of the gas may not be visible or easily detected by smell, but are still dangerous. (Greatest danger is 12 to 60 hours after filling the silo.)

2. If you must enter the silo, run the silage blower for 15 to 20 minutes if the silo is full, longer if the silo is partially full. Never enter the silo alone during the danger period.

3. Remove upper chute doors down to settled silage allowing gases to escape through the chute and not collect in the silo. Be sure to run a blower and ventilate the chute well with fans.

4. Ventilate the silo room adequately for at least two weeks after filling. Open the windows and outside door of the silo room and use fans.

5. Keep the door between the silo room and barn closed to prevent Nitrogen Dioxide gas from killing livestock.

If you experience the slightest throat irritation or cough in the silo, get into fresh air quickly and stay away from the silo area as long as gas may be present. (If exposed to silo gas, call your doctor as soon as possible.)

⚠ REMOTE SAFETY SWITCH INSTRUCTIONS

ATTENTION: Your Silo-Matic unloader is equipped with a remote safety switch. For your protection, do not operate or permit anyone to operate the unloader without reading and understanding the following instructions. Failure to do so may lead to serious injury and/or death.

To operate the unloader, First make sure the unloader is free and clear of obstructions and that no one is in the silo or chute.

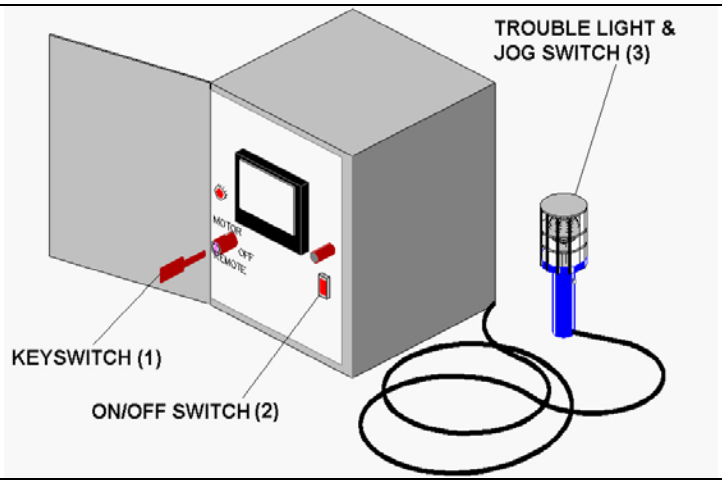
Turn the KEY SWITCH (1) clockwise to MOTOR. Push ON/OFF Switch (2) to ON.

To stop unloader, push ON/OFF Switch (2) to OFF. Turn Key Switch (1) to OFF and remove the key.

⚠WARNING! Before entering the silo to inspect or service the unloader, make sure the KEY SWITCH (1) is turned OFF. Take the key out of the switch and take it with you in the silo.

Do not return the key to the KEY SWITCH until:

1. All Shields are back in place.
2. The Machine is free and clear of obstructions.
3. No one is in the silo or silo chute.



To operate the remote Jog switch:
Make sure all shields are in place. Make sure the machine is free and clear of obstructions. Make sure no one is in the silo or silo-chute. Turn the KEY SWITCH (1) Counter-clockwise to REMOTE. Remove the key and take the key with you.

Take the Trouble Light/Jog Switch (3) with you in the silo.

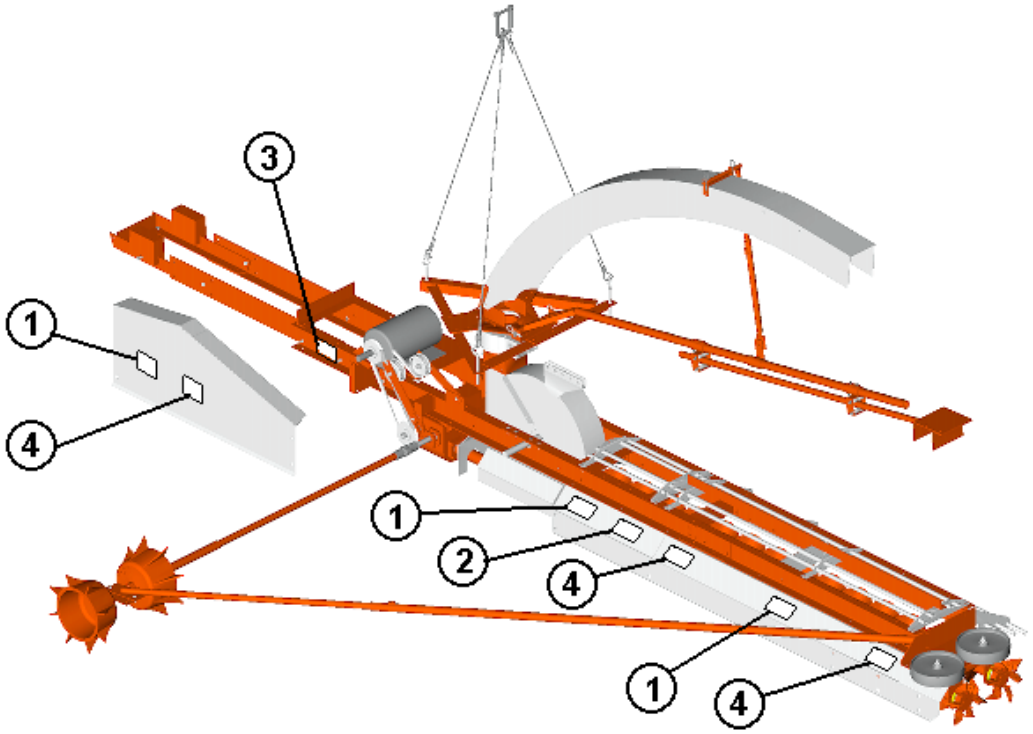
Before operating the remote jog switch:
Be aware that you Silo-Matic silo unloader will rotate counter-clockwise (looking down from the top of the silo.) Position yourself away from the front of the augers so that you will not get caught in any part of the machine.

Do not push the SAFETY REMOTE JOG SWITCH button (3) on the trouble light until:
1. All shields are back in place
2. The machine is free and clear of obstructions.
3. You or any one else can not get caught in the operating machine.

Remember that the Jog switch is not for operating the unloader for long periods of time.

⚠ Do not step on or ride the machine while running the silo unloader. Failure to do so could lead to injury and/or death.

PLACEMENT OF SAFETY STICKERS



① S0934

CAUTION

1. KEEP ALL SHIELDS IN PLACE.
2. DISCONNECT POWER SOURCE TO ADJUST OR SERVICE.
3. MAKE CERTAIN EVERYONE IS CLEAR OF EQUIPMENT BEFORE APPLYING POWER.
4. DISCONNECT POWER BEFORE RESETTING MOTOR OVERLOAD.
5. KEEP HANDS, FEET, AND CLOTHING AWAY FROM POWER DRIVEN PARTS IN MOTION.

FAILURE TO HEED MAY RESULT IN PERSONAL INJURY

S934

② S0933

KEEP OFF

③ S1035

④ S0935

WARNING

KEEP HANDS AND FEET AWAY FROM MOVING PARTS.

S935

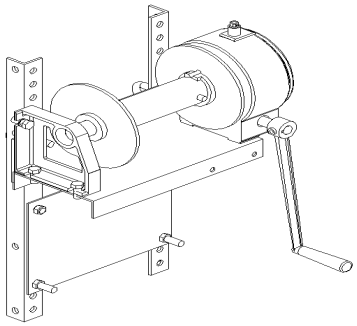
GEMINI II OPERATING INSTRUCTIONS

OPERATE THE WINCH

The silo unloader is raised and lowered by the winch. Winches are either manual requiring cranking; or are electric and operated by an electric motor. Crank the manual winch clockwise to raise the unloader. Approximately 5 cranks equal 1" of cable travel. To speed the unloader raising process, an electric drill adapter can be used in place of the crank. It is recommended that a 3/4" drill be used for raising.

The first layer of cable must be wound making sure all cable layers are wrapped evenly and tight.

IMPORTANT: Check oil level at oil level plug before raising. Otherwise check (4) times annually.
An optional electric winch enables remote controlled lowering and raising of the unloader at low speed.

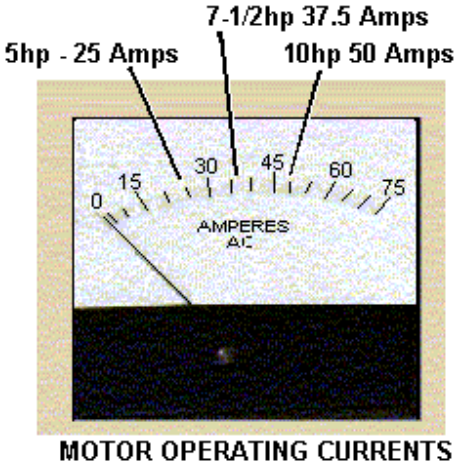


⚠ CAUTION: BE AWARE THAT WITH USING A HIGH SPEED DRILL, THE LARGER THE WRAP ON THE DRUM BECOMES THE GREATER THE LOAD ON THE WINCH BECOMES. THEREFORE AS THE UNLOADER NEARS THE TOP, CHECK THE GEARCASE AND IF IT BECOMES TOO HOT TO TOUCH (120 DEG. F) STOP OPERATION UNTIL IT COOLS DOWN.

OPERATING THE UNLOADER

Position the Torque Arm on the lower silo door sill opening. Put the gooseneck in position. When starting in any silo for the first time, the surface should be reasonably level. Allow the unloader to level off high spots before operating at full load.

Lower the unloader slowly until the silage flow is constant and the Ammeter "reading" becomes steady for about 3 minutes (one complete unloader revolution).



MOTOR OPERATING CURRENTS

The ammeter reading will normally fluctuate during operation and the average reading should be "read". Slowly lower the unloader until the "reading" corresponds to the figure at left.

For more exact amperage check the name plate on the specific motor installed.

⚠ WARNING: SHIELDS AND COVERS ARE FOR YOUR PROTECTION. BE SURE THAT THEY ARE IN PLACE BEFORE OPERATING. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

If using an electric winch, it is best to use a "count" or time system to regulate the winch. The ammeter should be referred to when setting the unloader cutting depth for proper performance of the unloader and to maintain a uniform unloading rate.

The ammeter is provided to help the operator prevent overloading the unloader motor and to aid in maintaining a uniform unloading rate. For maximum motor life, the ammeter reading should not exceed the total full load amperage rate of the motor, shown on the motor name plate.

Turn the unloader on and let the winch down one or two turns LESS than the number of turns it was raised at the end of the previous unloading. Usually the silage surface will "raise" between feedings.

When the amperage drops and silage flow lessens, lower the unloader. Experience will tell you about how often and how much lowering is required. Lowering rates should remain constant from one feeding to the next unless freezing weather or change in stored material occurs.

If the unloader stops discharging, shut it off immediately. Raise it and determine the cause. See the Trouble Shooting Section.

After unloading, raise the machine about 15 turns of the winch, or sufficiently high to lift it off the silage surface. Allow the machine to run a couple seconds to completely clear itself of silage and then turn the switch off. When the silo is empty, clear all silage accumulation off the machine and raise it off the silo floor.

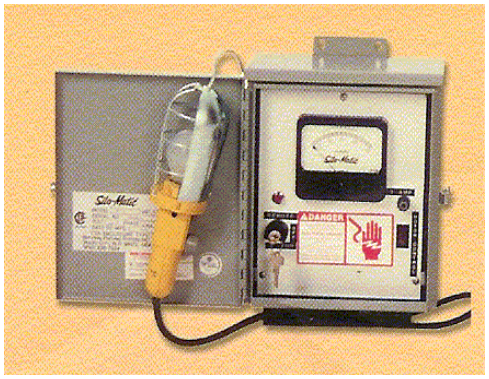
ATTENTION: Your Silo-Matic silo unloader is equipped with a Remote Safety Switch. For your protection, Do not operate or permit anyone to operate the unloader without reading and understanding the REMOTE SAFETY SWITCH instructions found in the safety section of this manual.

⚠WARNING: BEFORE ENTERING THE SILO FOR SERVICE OR MAINTENANCE PURPOSES FOLLOW THESE STEPS FOR YOUR PROTECTION.

Make sure the KEY SWITCH is turned OFF. Take the key out of the switch and take it with you in the silo. Do not return the key to the KEY SWITCH until:

1. All shields are back in place.
2. The machine is free and clear of obstructions.
3. No one is in the silo or silo chute.

FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.



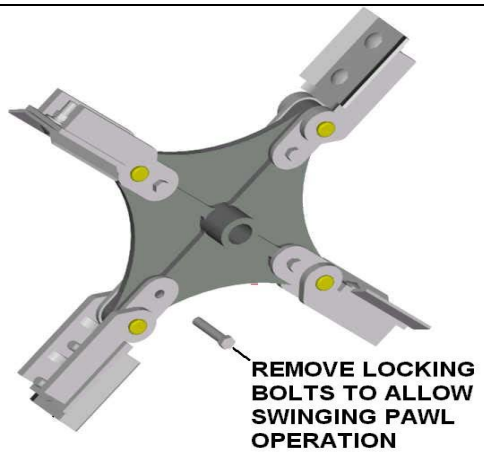
SETTING ROTOR BLADES FOR SWINGING OR FIXED BLADE MODE

The rotor blades can either be fixed as shipped from the factory or allowed to swing by removing the bolts securing the pawls to the rotor hub.

1. When maximum distance for throwing forage is required, keep them fixed.

2. If gumming or cold weather starting is a problem, then allow them to swing.

There may be conditions of forage where trial and error will be required to determine proper mode for best performance.



CHANGE SILO DOORS

Move the gooseneck down one door after every removal of 36" (typical of door and sill depth) of silage. Disconnect power plug at transition and unhook power cord hanger from gooseneck and re-hook in silo chute. Open or remove next silo door and move torque arm down to this door frame. Re-hook the power cord onto the gooseneck. IMPORTANT: Be sure there is enough slack in the power cord for the unloader to reach the next door change.

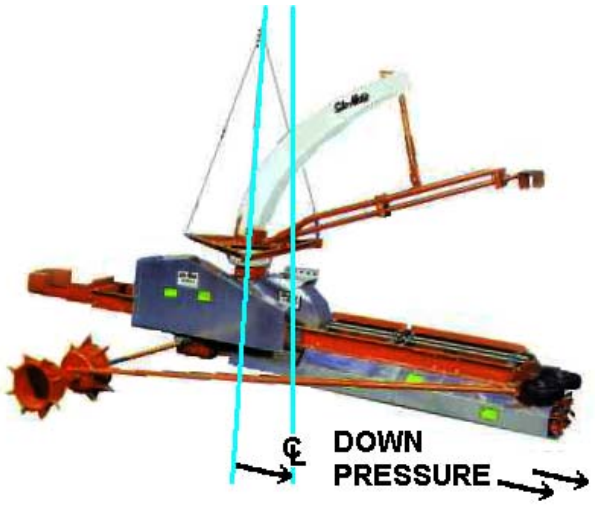
BALANCE

The balance of the unloader is the most important operating consideration. When the unloader is properly balanced the surface of the silage will be slightly coned. The counter-weights should be positioned on the extension rails and tie angle for proper balance and must be adjusted to compensate for variations of silage conditions, from soft unfrozen to hard-packed frozen or combinations. NOTE: Silos and silage conditions vary greatly so no set rule can be made for counterweight adjustment and balance. The main concern should be to position weights so the rotor shaft is parallel to the silage surface during operation. See Trouble Shooting Chart for remedies to particular balancing problems.

DOWN PRESSURE

Down pressure is a function of the suspension cable rather than the counterweights. The unloader is designed with the distance from the center to the outer end being greater than the radius of the silo resulting in constant outward pressure maintained against the wall.

As the silage level moves downward, the angle of the cable from the tripod to the unloader will become more vertical and the silage level will be less coned. If the silage is frozen on one side of the silo and soft at the opposite side and if the balance is correctly set, a proportional amount of down pressure will be exerted on the two different areas; heavier on the high side and lighter on the low side.



The center of the unloader is greater than the center of the silo diameter so downward pressure is exerted towards the silo wall.

IMPORTANT: Care must be taken to remove the counterweights from over the augers when unfrozen or soft conditions are encountered. An extremely uneven surface and severe coning can be the result if this precaution is not taken.

FROZEN AND HARD-PACKED SILAGE

More time and effort will be required to unload frozen and hard-packed silage then to unload unfrozen or loosely packed silage. More critical adjustment of counterweights may be necessary. Counterweights can be placed on the counterweight angles over the augers if necessary.

APPLICATION OF AUGER KNIVES

More knives are required at the wall end where frozen conditions occur. Space knives increasing further apart from the outer end toward the rotor.

DO NOT INSTALL KNIVES IN A STRAIGHT LINE, OR ROUGH OPERATION WILL RESULT!

SPECIAL KNIVING CONSIDERATIONS: FOR HAYLAGE OR HARD-PACKED/FROZEN SILAGE:
More knives are required if wads of silage form or if augers can not loosen hard-packed silage.
If frozen conditions exist, use knives on the augers for the same distance that frost extends in from wall. Do not install knives past forward edge of rotor.

FOLD UNLOADER TO RAISE

1. Unhook the gooseneck at the base from the transition. Release with release pin from transition.

2. Remove gooseneck from the upper support by removing hairpin and sliding off. Store the gooseneck on the bumper pipe assembly at the front of the augers.

3. Fold the gooseneck support back along the torque arm. Unhook the torque arm from the door sill and lower to rest on the lead auger wheel.

4. Remove the pin that secures the push rod to the drive hubs and fold the push rod tight along the rear frame channel. Secure in stored position.

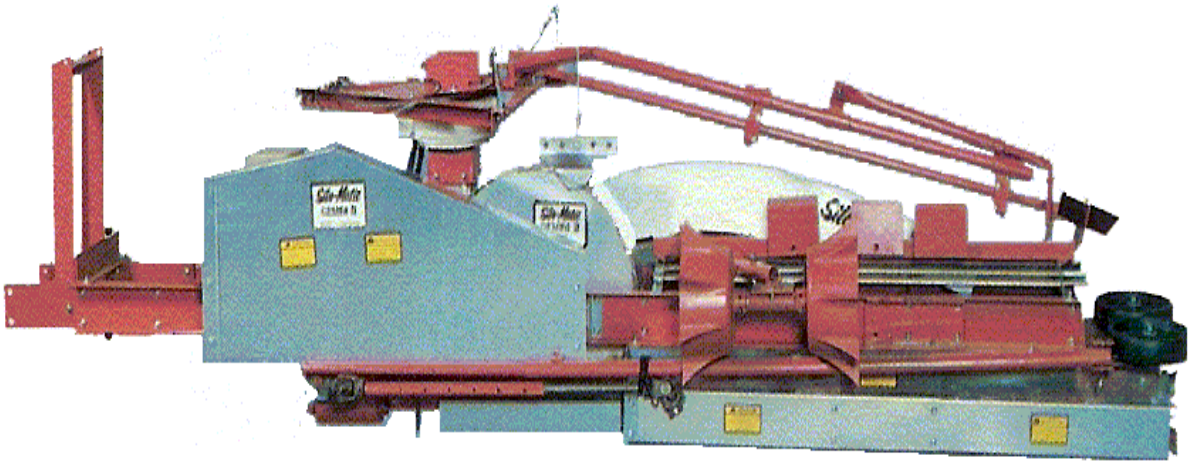
5. Pivot and Lift the drive hub assembly (still attached to the drive shaft) onto the counterweight angles of the augers. Secure in stored position.

6. Fold rear counterweight angles upwards toward the motor.

7. Without unhooking any cables, take the clevis joining the (3) hanger cables and lower it until it can be hooked to the hanger pin located on the rotor housing cover weldment.

8. Lift the unloader free of the surface. Position counterweights to obtain necessary level balance.

9. Check that all components are secured to the machine.



⚠WARNING: CHECK THAT ALL CABLE CONNECTIONS ARE SECURE AND THAT CABLE IS IN A SAFE SERVICEABLE CONDITION. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

10. Lower a rope from the top of the silo down the inside, tie the outer end of unloader. Use this rope if necessary to keep unloader from rotating during raising and twisting the cable.

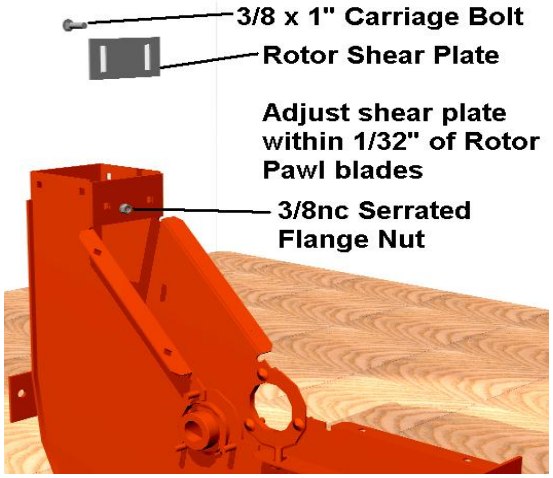
WARNING: LEAVE A MINIMUM OF 36" DISTANCE BETWEEN THE UNLOADER AND THE PEAK OF THE TRIPOD WHEN FULLY RAISED.

ADJUSTMENTS

WARNING: NEVER ATTEMPT TO CLEAN, ADJUST OR LUBRICATE MACHINE WHILE IT IS IN MOTION. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

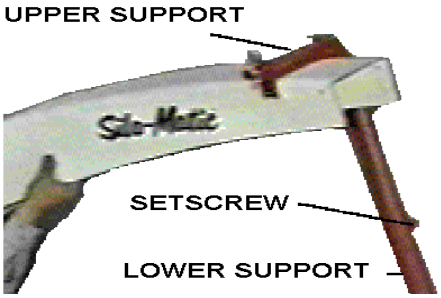
ADJUST ROTOR CUTOFF PLATE AND BLADES

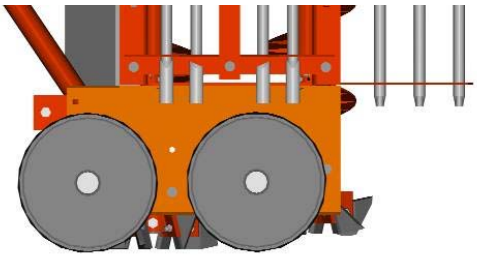
Remove the rotor housing cover and adjust each rotor blade to within 1/32" of the housing rim sheet. Before adjusting the cutoff plate, adjust the plates as described. The cutoff plate is adjusted by loosening the whiz nuts and moving the edge of the plate to within 1/32" of the rotor blades.



ADJUST THE GOOSENECK

When the gooseneck is lowered to the next open silo door, the height of the gooseneck should be adjusted by telescoping the upper and lower support so the material flow off the gooseneck just clears the upper door sill.





REAR WHEEL

Makes contact with the silo wall. Normally adjusted to hold wall cleaner blades 1/8" away from silo wall

LEAD WHEEL

Normally adjusted to only make contact when going across a flat silo door or other irregularity in the silo.

NOTE: Adjust the Leading Wheel after adjusting the Trailing Wheel.

ADJUST WALL WHEELS

The wall wheels are adjusted by loosening the 5/8" hex nut on the wheel bolt enough so the serrated washer will slide on the support bracket. Adjust the trailing wheel to hold the wall cleaner blades 1/2" to 1/4" from the silo wall during non-frozen conditions.

When freezing begins, move the trailing wheel back so the wall cleaner blades are 1/4" to 1/8" away from the wall. After the trailing wheel is adjusted, the leading wheel should be adjusted so it only makes contact when going across a flat silo door or other irregularity in the silo. Typically this wheel will be about 1/2" off the wall.

During operation if the wall cleaners interfere with the silo doors then the leading wheel must be moved closer to the wall until the cleaners clear the doors.

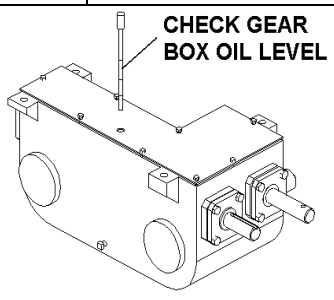
During freezing weather if frozen silage begins to build up at the edges of the doors or on the doors then it is likely that the leading wheel is too close to the wall and should be moved back.

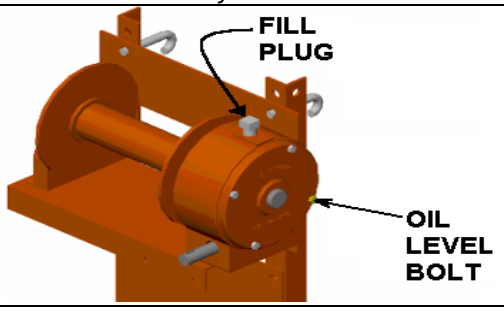
LUBRICATION

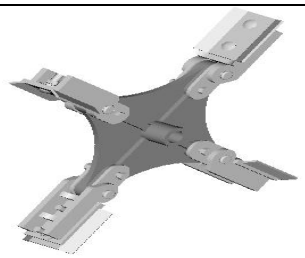
⚠ WARNING: NEVER ATTEMPT TO CLEAN, ADJUST OR LUBRICATE MACHINE WHILE IT IS IN MOTION. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Each time a silo door can be opened it is recommended that the entire unloader be checked over and greased. Before starting inspection or greasing, make a final check to be sure that the safety switch is set to REMOTE and you have the key with you in the silo. Check all bolts and screws for tightness and belts for proper tension. A cable clamp or clothespin can be fastened to the cable near the winch to mark the level of the unloader. The average silo door is approximately 30 inches high. Before operating the unloader for the first time, be sure to lubricate all grease fittings and fill the gearbox with motor oil as specified below.

Oil:	1. The oil level of the auger gearbox is checked by oil level stick. Use 10W-40 motor oil for summer and winter operations under normal conditions. NEVER use kerosene or distillate to thin oil. The gear housing should be flushed out and fresh oil put in at the end of each season.
	2. Check four times annually and prior to raising unloader, oil level in winch gearbox. Fill to level plug. Use No. 90 gear oil (WINCH ONLY).
	3. Annually pour motor oil on the suspension cable when it is wrapped on the winch drum. Lubricate the pulleys and wall roller of the tripod whenever the silo is full and the tripod can be reached.
	4. Lubricate the rotor pawls with oil annually.



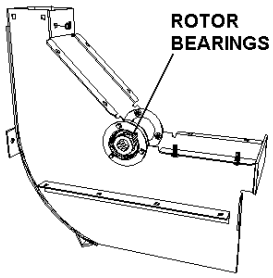




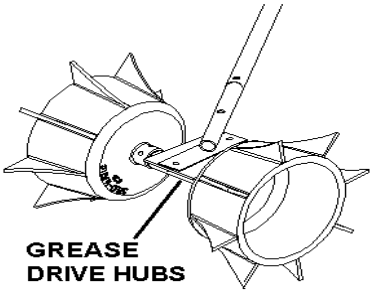
Lubricate Pawls with oil annually

Grease:	1. Grease the unloader about (4) times per season and when the unloading season is completed and the unloader will sit unused for a period of time. This will purge contaminants and moisture from bearings. 2. Transition assembly (2) places--1or 2 strokes only in each fitting. NOTE: When greasing the transition, take load off the cable. 3. Drive Hub drive shaft universal joints 4. Rotor Bearings

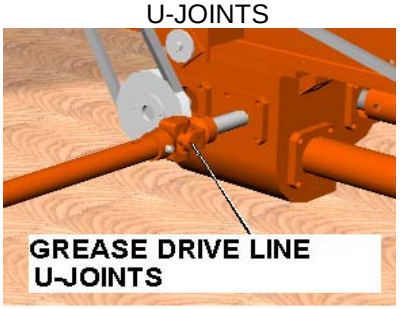
ROTOR BEARINGS



DRIVE HUBS



U-JOINTS



TROUBLE SHOOTING

⚠ WARNING: NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST MACHINE WHILE IT IS IN MOTION. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

TROUBLE	POSSIBLE CAUSE/REMEDY
Motor hums or does not start	Check fuses. Check & reset motor thermal protector. Check for loose electrical connections. Check for low voltage. Check unloader for jammed or frozen material.
Unloader rotates unevenly	Wall cleaners dull or installed incorrectly on augers. Knives installed on incorrect augers. Knives installed in a straight row on augers. Too many knives on front auger. See installation instructions. Silo not round or tripod not centered.
Silage build-up on walls	Wall cleaners dull or installed on incorrect augers. Wall wheels not adjusted. Counter weights not adjusted for proper cone. See adjustments, operation & installation instructions. Silo excessively out of round.
Silage build-up at edges or on doors	Wall wheels incorrectly adjusted. Silo out of round or tripod not installed on center.
Silage falls short at Gooseneck	Belts loose or in poor condition. Feeding too heavy, motor loses speed. Poorly cut or ensiled forage. Set rotor blades in fixed mode.
Plugging at rotor throat	Feeding to heavy. Motor losing speed. Belts loose or in poor condition. Poorly cut or ensiled forage. Change the current mode of the rotor blades.

Motor fails to reach full RPM	Defective motor. Motor improperly wired.
Loss of capacity	Belts loose or in poor condition. Low voltage. Knives turned wrong on augers or spaced in straight rows. Poorly cut or ensiled forage. Motor incorrectly wired. Bolts loose at transition to rotor throat connection (forage catches on loose bolt heads in throat).
Fuses burn out or circuit breakers kick off excessively	Feeding too heavy. Low voltage. Motor incorrectly wired.
Drive Hub digs down	Silo undersized. Feeding too heavy for conditions. Wall cleaners dull. Knives turned wrong, or too many on rear auger. Counter weights not adjusted properly.
Feeds unevenly at rotor Intake	Matted haylage. Knives installed incorrectly on augers. Too many knives on front auger.
Silage surface too low or Too high in center	Feeding too heavy. Poorly cut or ensiled forage. Counter weights not adjusted correctly for conditions.

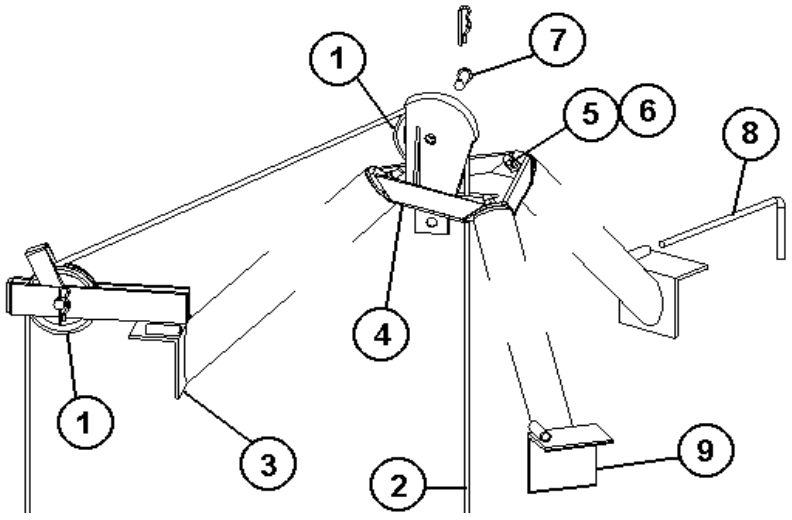
INSTALLATION INSTRUCTIONS

UNLOADER SUSPENSION

TRIPOD

1. Hoist the components to the top of the silo and assemble the pulleys (1) and the cable (2) in the cable leg (3) as shown in the following figure.

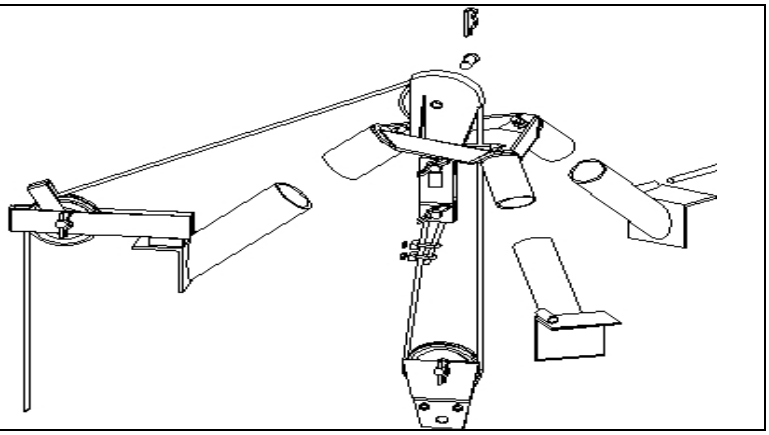
2. Assemble the tripod in the silo with the top plate (4), 1/2" hex nuts (5) and jam nuts (6).



3. Install safety hooks (8) in sleeves on the tripod feet (9) from the outside before raising tripod into place. NOTE: Choose a convenient location for mounting the winch on the silo wall before installing the cable leg (3) of the tripod on the silo wall. Cable leg and winch must be in line.

4. Install tripod with cable leg (8) in line with winch. Cable leg receives greater pressure than the other two legs and requires a good support. Set all 3 legs on full length staves at about 1/3 points around the silo rim. NOTE: Cable must hang in center of silo.

5. Locate tripod legs properly against the inside of the staves and bend inward protruding end of safety hooks (8) down to secure each leg to the stave.

DOUBLE CABLE (OPTIONAL) The double cable hanger bracket, pulley equipment and hookup for same is in the following figure.	

WINCH

1. Attach winch angles to winch assembly with two 1/2" x 1" HHCS, nuts and lock washers at the bottom and with two hook bolts at the top of vertical mounting plates on rear of winch.

2. Attach name plate to winch angles with four 1/2" x 1" HHCS, nuts and lockwashers.

3. If necessary, loosen two silo hoops enough to insert four hook bolts.

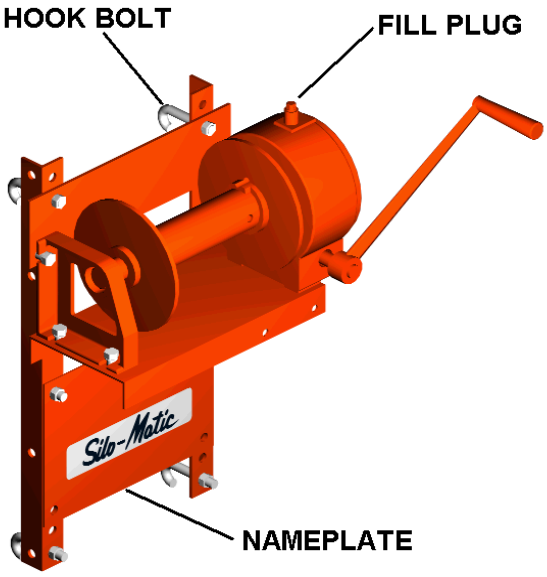
4. Attach winch assembly to silo hoops with hook bolts in the holes matching the silo hoop spacing. Hooks can be turned up or down as required.

NOTE: Make sure center of winch is located directly under pulley on tripod leg. Tighten all bolts securely.

5. A socket head capscrew located between the gearbox and right hand winch drum flange is provided to secure the end of the suspension cable. Loosen setscrew and thread cable end through hole in winch flange, then tighten setscrew to clamp cable end securely.

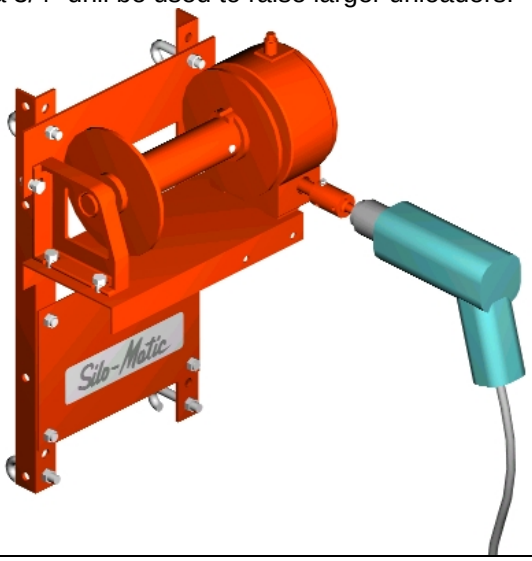
CAUTION: THE FIRST LAYER OF CABLE MUST BE WOUND MAKING SURE ALL CABLE LAYERS ARE WRAPPED EVENLY AND TIGHTLY.

6. Check oil level in winch gear housing at oil level plug. If necessary add No. 90 all-purpose gear lube oil until oil flows from oil level hole. Replace plugs making sure vent in filler plug is open.



ELECTRIC DRILL ADAPTER (OPTIONAL)

To speed the unloader raising process, an electric drill adapter can be used in place of the handle used for manual operation. It is recommended that a 3/4" drill be used to raise larger unloaders.



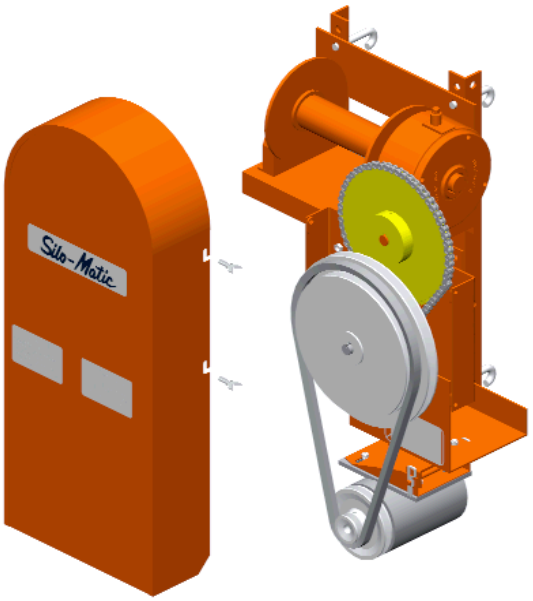
TWO SPEED POWER ATTACHMENT (OPTIONAL)

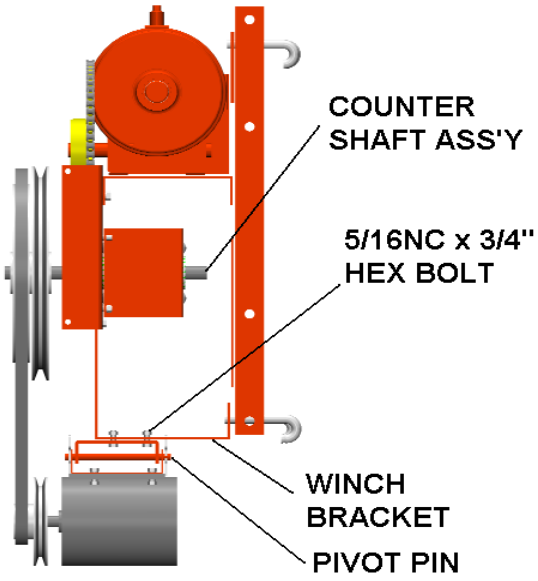
The following figure shows the optional 2-speed power attachment completely assembled on the winch.

1.) To install the unit, first bolt the mounting plate to the winch base with two 3/8" x 3/4" HHCS, Nuts & Lockwashers.

2.) Attach the counter shaft assembly to the mounting plate with four 5/16" x 3/4" Carriage bolts, nuts & lockwashers. Make sure notch in the front flange of the countershaft assembly is facing down.

3.) Attach bracket to mounting plate with four 5/16" x 3/4" HHCS, Nuts & Lockwashers.





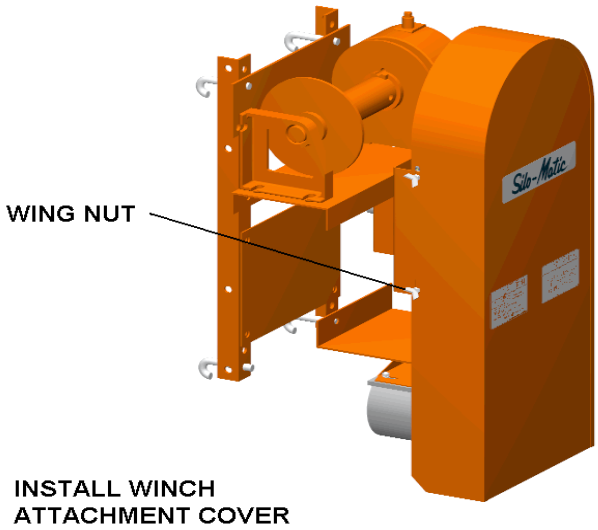
4.) Attach motor support bracket to bracket with two 5/16" x 3/4" HHCS, Nuts & Lockwashers.

5.) Attach the motor mount plate to the motor with four 5/16" x 3/4" HHCS, flat washers, lockwashers & Nuts. Tighten securely.

6.) Assemble the motor and mount plate assembly onto the motor support bracket with pin and (2) 1/8" x 1" cotter pins.

7.) Place the large diameter sprocket on the winch stub shaft with the hub in. Position the sprocket so that the face of the sprocket is flush with the end of the shaft. Tighten setscrew. Position the countershaft sheaves and motor sheaves as shown on figure. Install V-belt (outer sheaves for feeding, inner sheaves for raising).

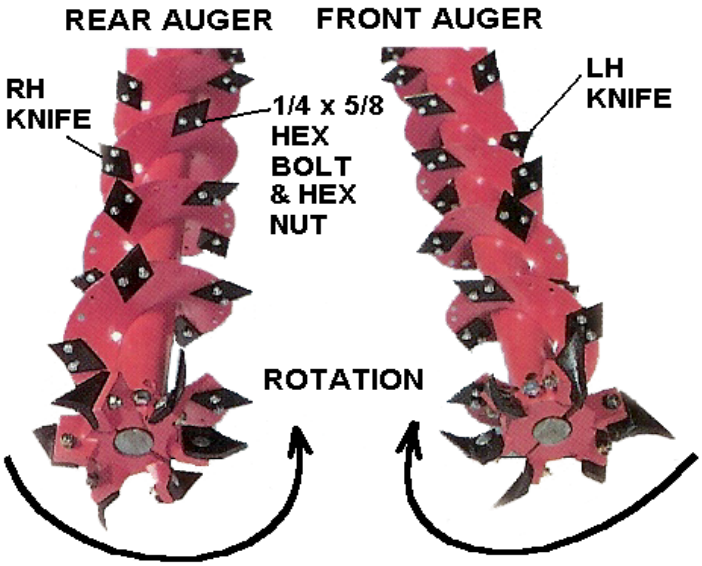
8.) Fasten shield to winch assembly with wing bolts as shown on the figure at right.



INSTALL AUGER KNIVES
Install the auger knives on the front and rear augers as shown.

NOTE: Different knives are used on the two augers!

Select the knives so that the beveled edge will lead in the direction of the auger rotation.



NOTE: DO NOT INSTALL KNIVES IN A STRAIGHT LINE OR ROUGH OPERATION OF THE SILO UNLOADER WILL RESULT!

ALTERNATE KNIVE SPACING TO HAVE A BALANCE OF KNIVES MAKING CONTACT WITH THE FEED THROUGHOUT AUGER ROTATION.

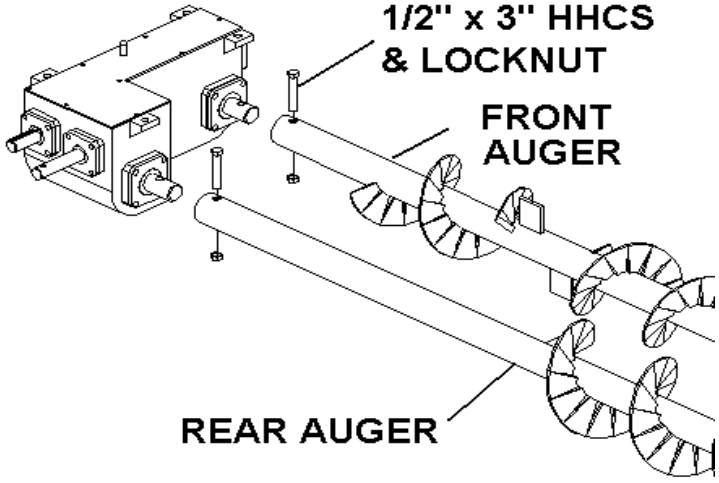
The front auger is the one with a short section of reverse flighting.

The rear auger is the one on which flighting does not extend all the way to the end.

Knives go on the side opposite of feed or on the wall side of the flighting. Bolt heads go on the flighting side.

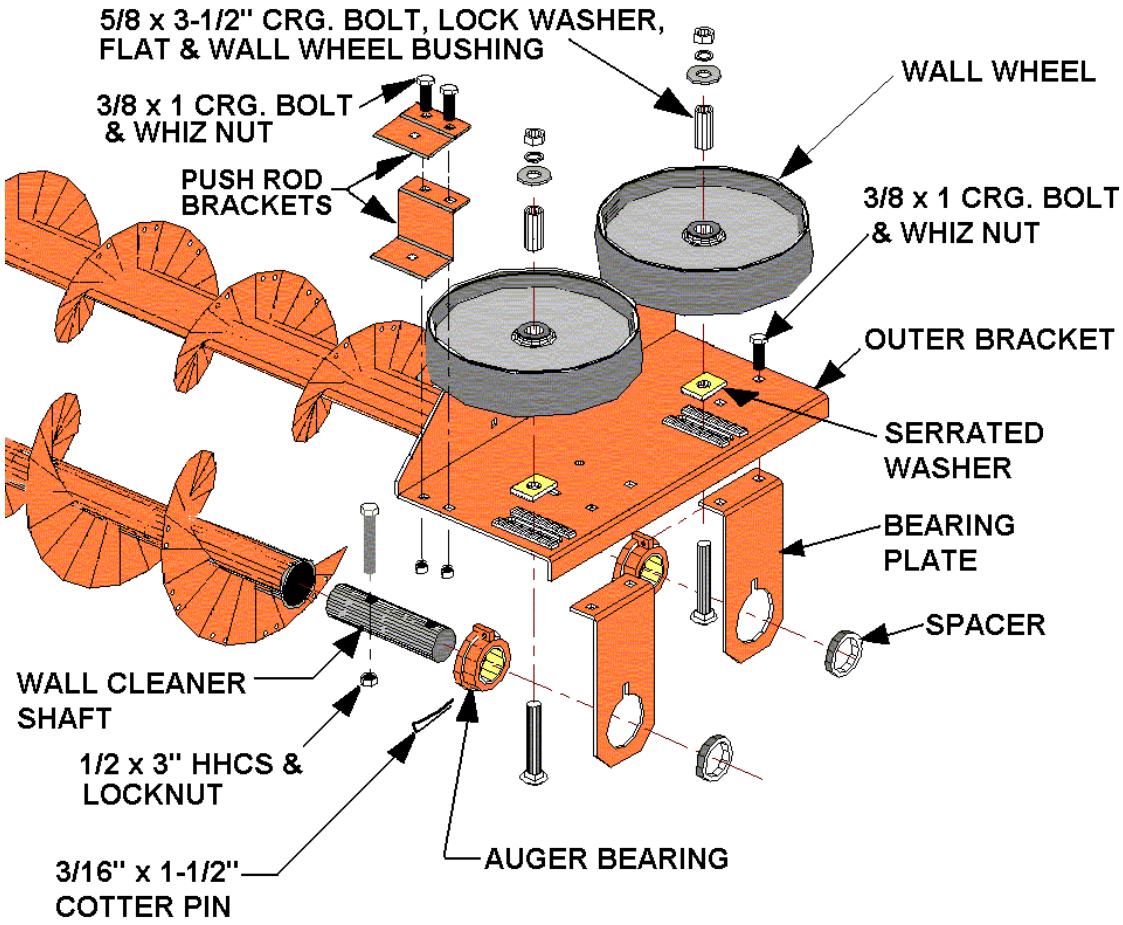
ASSEMBLE AUGERS, GEARBOX & OUTER END

1) Attach the front and rear augers to the appropriate output shafts of the auger gearbox. If the gearbox is placed on a silo door at the silo center it will steady it during the remaining assembly steps.



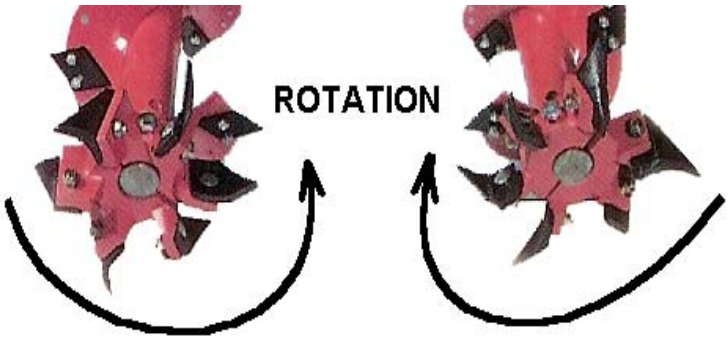
2) Assemble a wall cleaner shaft to the end of each auger (short end of shaft out).

3) Assemble an auger bearing to both bearing plates inserting bearing from the auger side. The flange on the bearing plates face the augers. Secure with cotter pin. Slide each of the bearing plate assemblies onto the auger shafts and then bolt the outer bracket to these plates.



4) Assemble the two wall wheels with serrated washer & wall wheel bushing as shown on the following figure.

5) Slide a wall cleaner spacer onto each wall cleaner shaft (see following figure) and install the front & rear wall cleaners. NOTE: Wall Cleaners are installed correctly when beveled edge of cutter blades lead in direction of auger rotation.



BEVELED EDGE OF WALL CLEANER CUTTER SHOULD LEAD IN DIRECTION OF AUGER ROTATION WHEN INSTALLED CORRECTLY.

INSTALL FRAME & BUMPER GUARD

1. Bolt a channel extension to the rear and front main frame channels. The bent legs on the spacer nearest the silo wall must point toward the auger gearbox. The spacer directly ahead of where the rotor will be assembled must point away from the rotor. Bolt the rotor housing mount bracket, which has a different hole and/or slot pattern than the other spacers, directly behind where the rotor will mount and with the legs pointing away from the rotor.

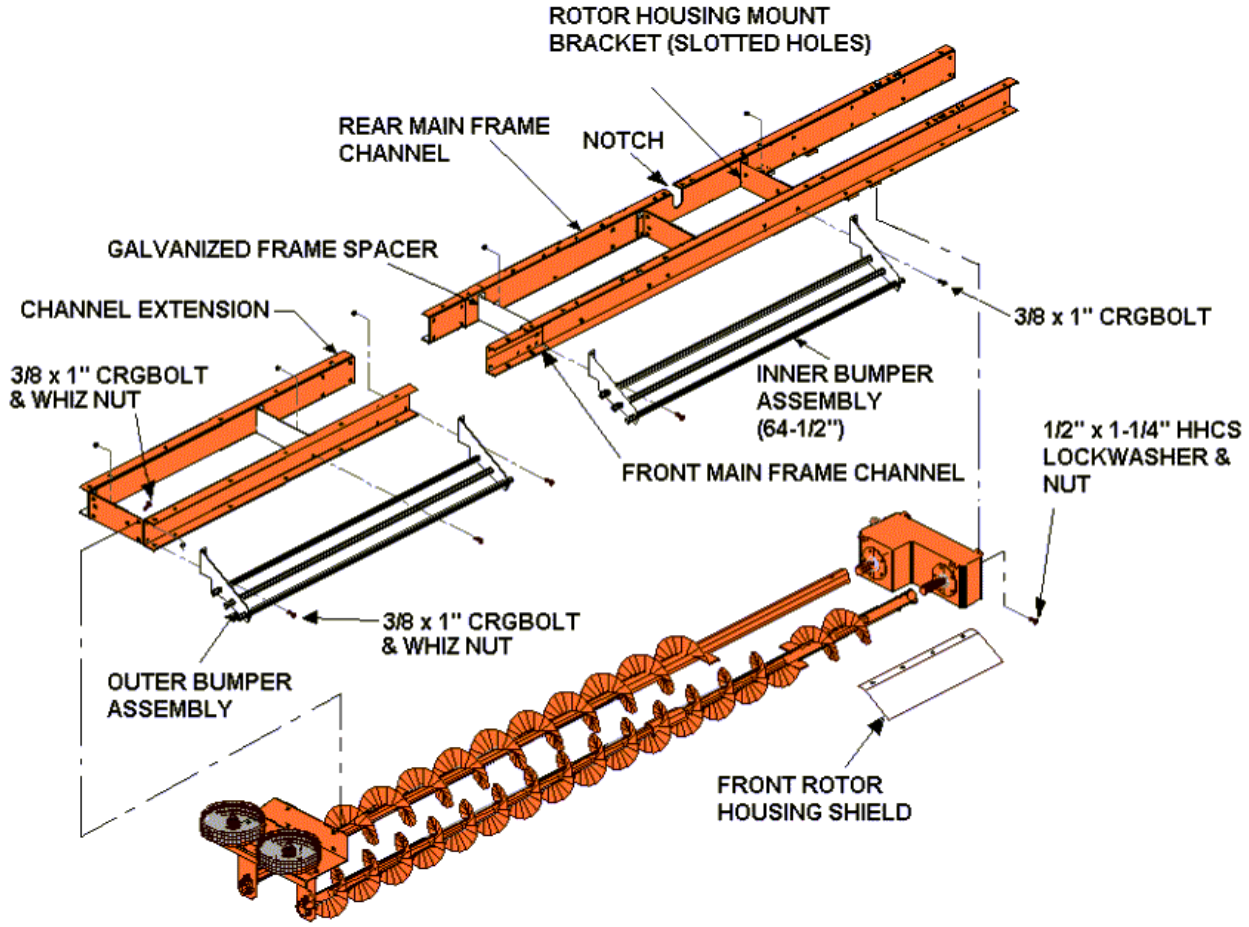
NOTE: The rotor housing is mounted off center, being closer to the rear (notched) channel.

Do not tighten any bolts until after the rotor is installed.

NOTE: Install bumper supports to the front channel. Some of these supports join to the front channel with bolts used to assemble the frame spacers and rotor housing mount bracket.

2. Slide the deflector over the two augers, ahead of the gearbox. Offset in deflector points from gearbox. Lay the front rotor housing shield over the front auger.

3. Position the assembled frame over the augers. Be sure that the deflector mounting flange is on the opposite side of the rotor mounting bracket from the rotor. Join the outer frame spacer to the outer wall wheel bracket. Bolt the auger gearbox to the lower flange of the frame channels under the (4) gearbox spacers.



INSTALL ROTOR ASSEMBLY AND AUGER SHIELDS

1. Lower the rotor assembly between the frame spacer and rotor mounting brackets. Bolt the assembly at the front to the frame spacer at the rear to the rotor mounting bracket. Be sure to bolt the deflector on the outside of the rotor mounting bracket when attaching the rotor.

2. Bolt the front rotor housing shield to the lower side of the attachment angle on the rotor housing. Assemble the rear rotor housing shield to the angle on the opposite side of the housing before installing the augers.

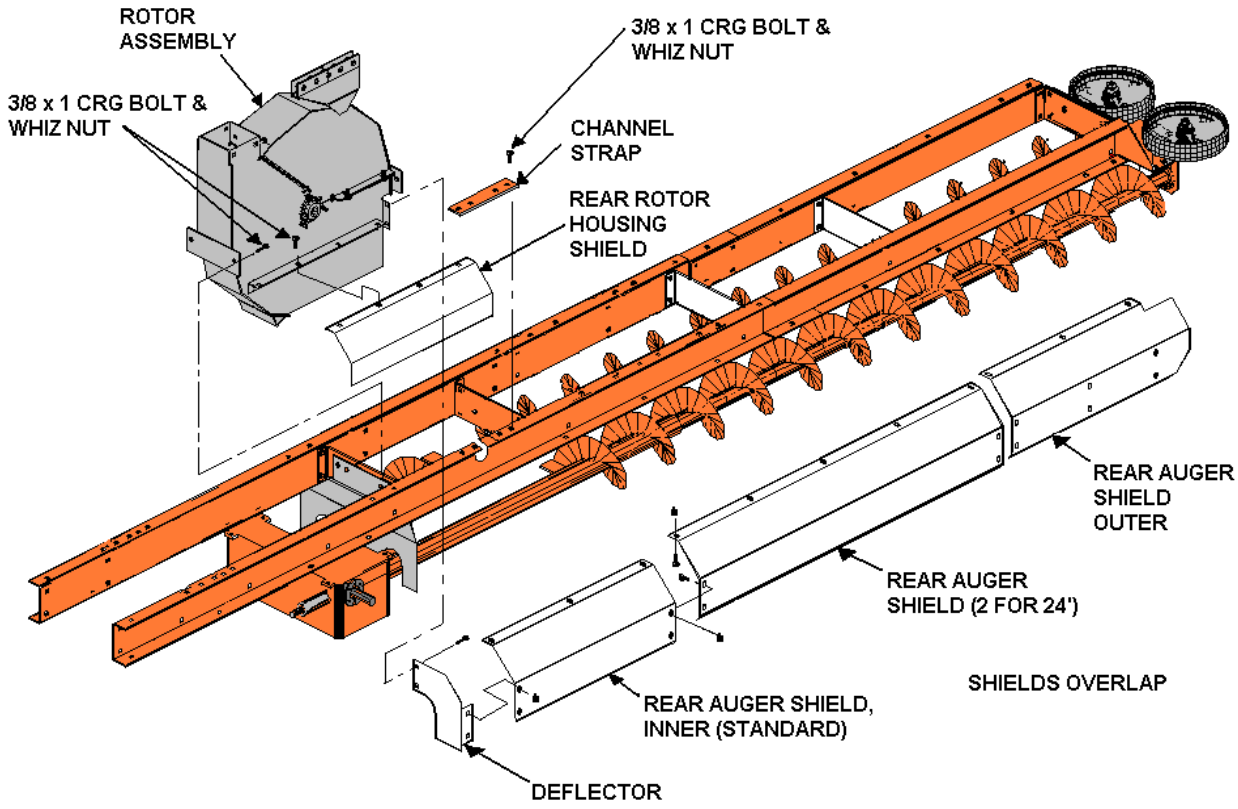
3. Bolt the channel strap over the notch in the rear frame channel.

4. Tighten all bolts on unloader assembly.

NOTE: The following installation for auger shields is illustrated and explained here, however, for convenience it is recommended that the suspension be connected and the unit be slightly raised first.

5. Bolt the auger deflector to the flange on the rotor housing and to the inner rear auger shield.

6. Starting at the outer end, bolt the rear auger shields to the lower flange of the rear frame channel. The outer shield is notched. Overlap each section over the outside of the last section as illustrated.

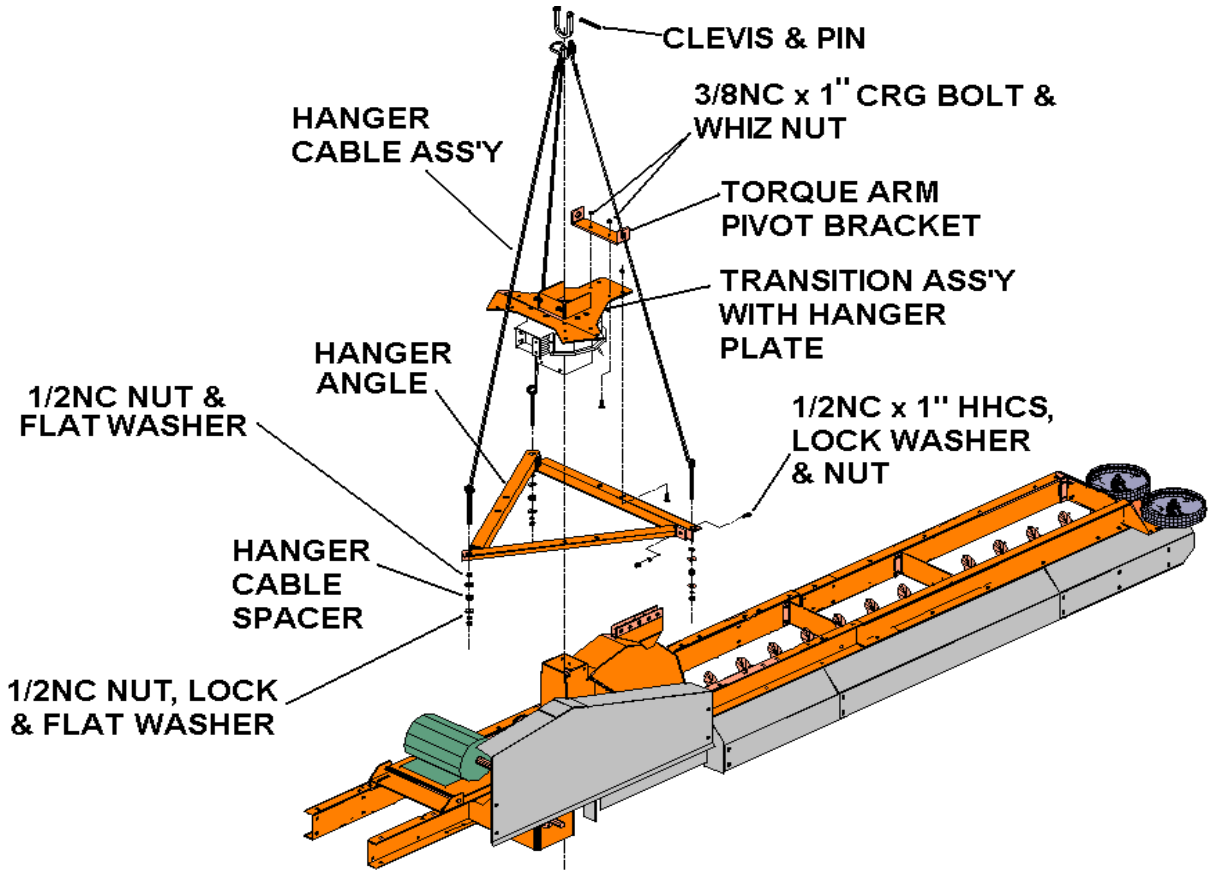


SUSPEND UNLOADER

1. Lower the transition assembly with the hanger plate over the throat of the rotor. Bolt together with (4) carriage bolts inserted from inside the rotor throat.

2. Loosely assemble the (3) hanger angles together forming a triangle and then bolt them to the lower surface of the transition hanger plate.

3. Assemble the eyebolt end of a hanger to each hanger ends using hex nuts, washers and spacer as illustrated. Tighten all bolts.



4. Connect the opposite ends of the (3) hanger cable to the clevis and attach the clevis to the main cable from the tripod or to the double cable hookup pulley bracket.

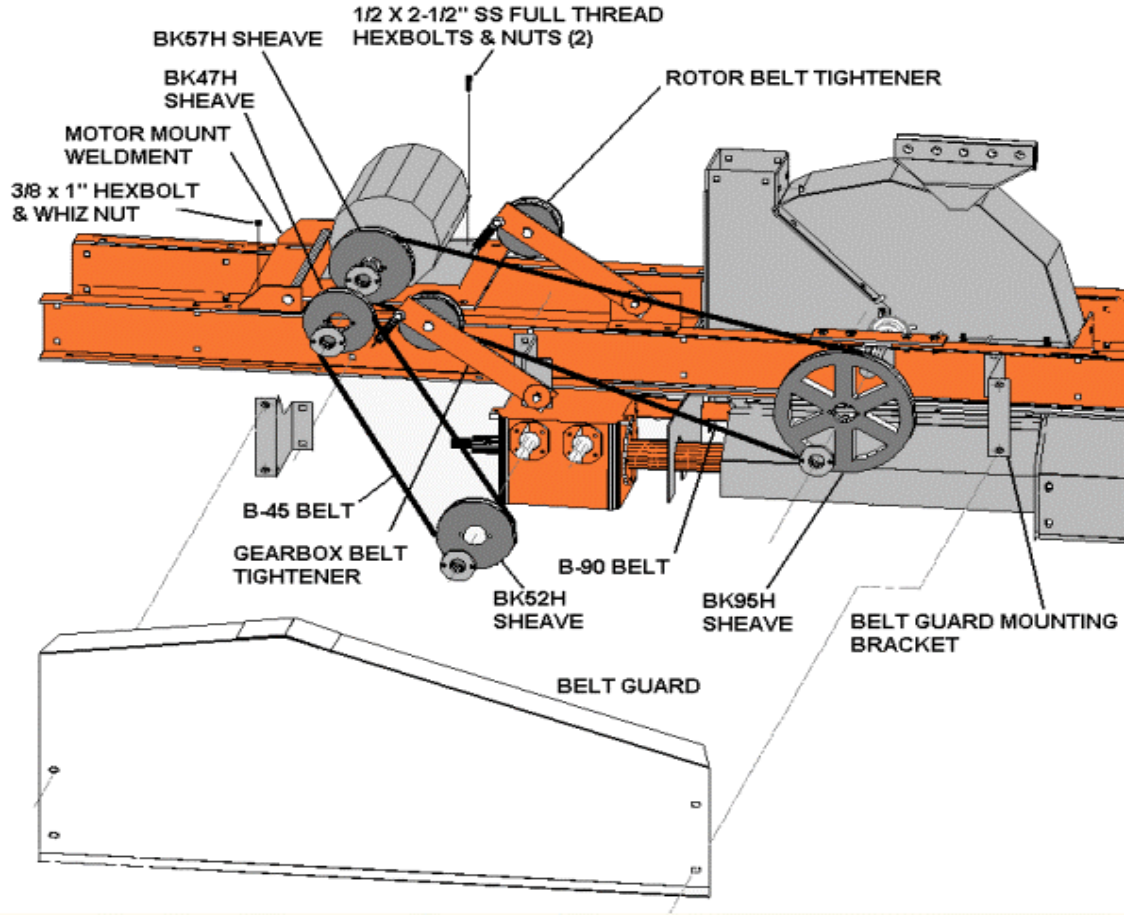
IMPORTANT: If attaching to main cable only, form a loop in the main cable around the correct size cable thimble and secure with (2) correct size cable clamps.

⚠WARNING: WHEN INSTALLING CABLE CLAMPS, ALWAYS PUT THE U-BOLT AROUND THE UNATTACHED END OF THE CABLE; THE SADDLE ON THE TENSION END OF THE CABLE. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

5. Lift the unloader assembly just high enough to tension the cable and to steady the assembly.

6. Bolt the torque arm pivot to the transition hanger plate and in line with the silo doors.

INSTALL MOTOR DRIVE



1. Bolt the motor mount weldment across the top of the frame channels. Thread a 1/2" x 2-1/2" full thread stainless bolt with (2) stainless nuts into the jam nut at the forward corners of this weldment. NOTE: There is (3) bolt down locations in the frame channels to accommodate various motor frame sizes. Normally you will use the center hole.

2. Bolt the rotor belt tightener assembly to the top flange of the rear frame channel.

3. Bolt the gearbox belt tightener assembly to web of the rear frame channel.

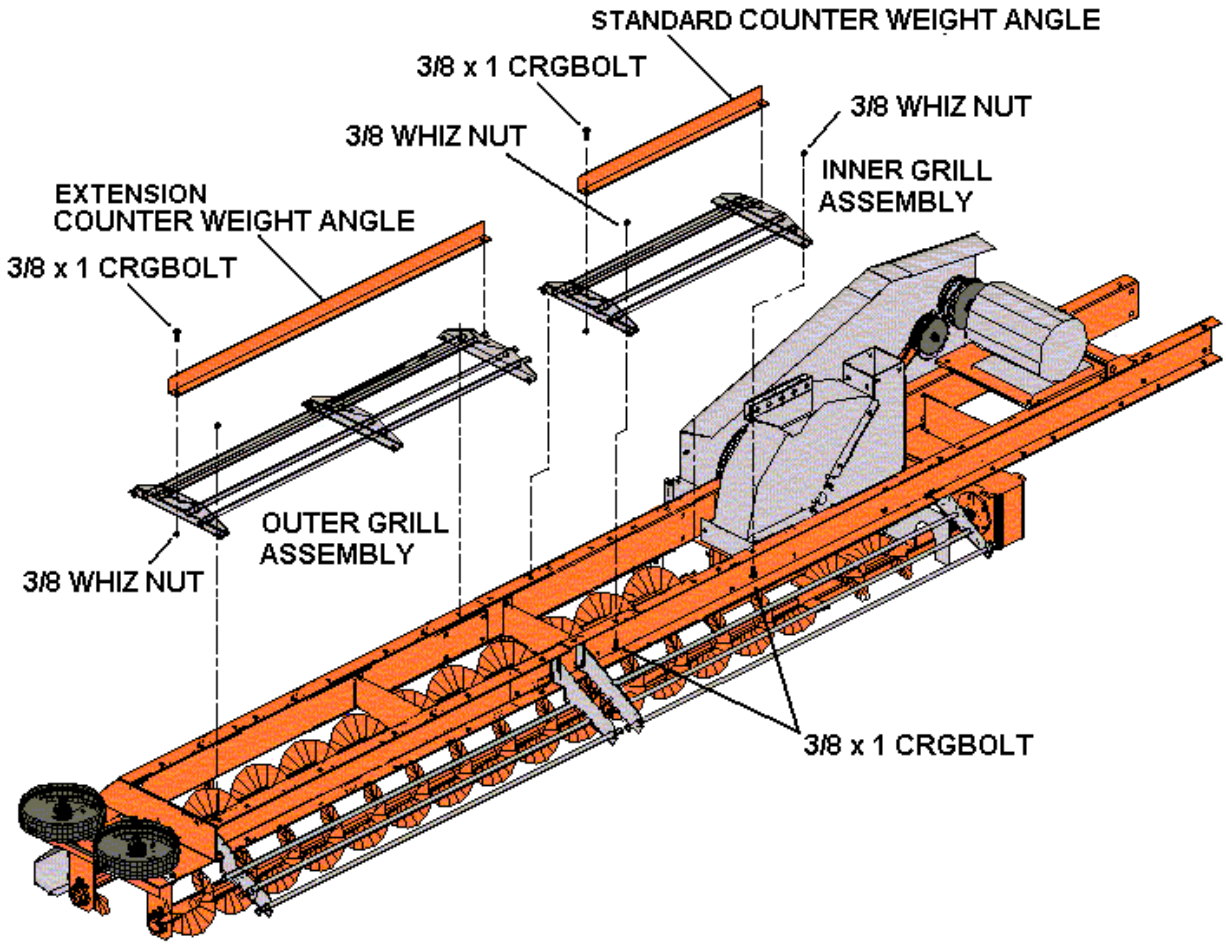
4. To the motor shaft assemble first a BK57H sheave and then a BK47H using taper hubs and keys. The inner sheave will drive the rotor and should align with the rotor belt tightener pulley. Likewise, the outer sheave drives the gearbox and should align with the pulley of that tightener.

5. Bolt (2) belt guard brackets to the rear frame channel.

6. Install a BK95H sheave on the rotor shaft with a taper hub and align it with the inside sheave on the motor. Likewise install a BK52H sheave on the gearbox shaft and align it with the outer sheave on the motor. Install a B-90 belt on the rotor drive and a B-45 belt on the gearbox drive. Position the appropriate tightener pulleys on the top side of each belt. Tension the rotor tightener spring by hooking it to an unused hole in the motor plate on the motor mount weldment. Hook the gearbox tightener spring to the lower hole of the rear belt guard mounting bracket.

7. Bolt the belt guard to the mounting brackets.

INSTALL GRILL COVER



1. At the end nearest the rotor assembly, bolt the grill assembly across the frame channels as shown.

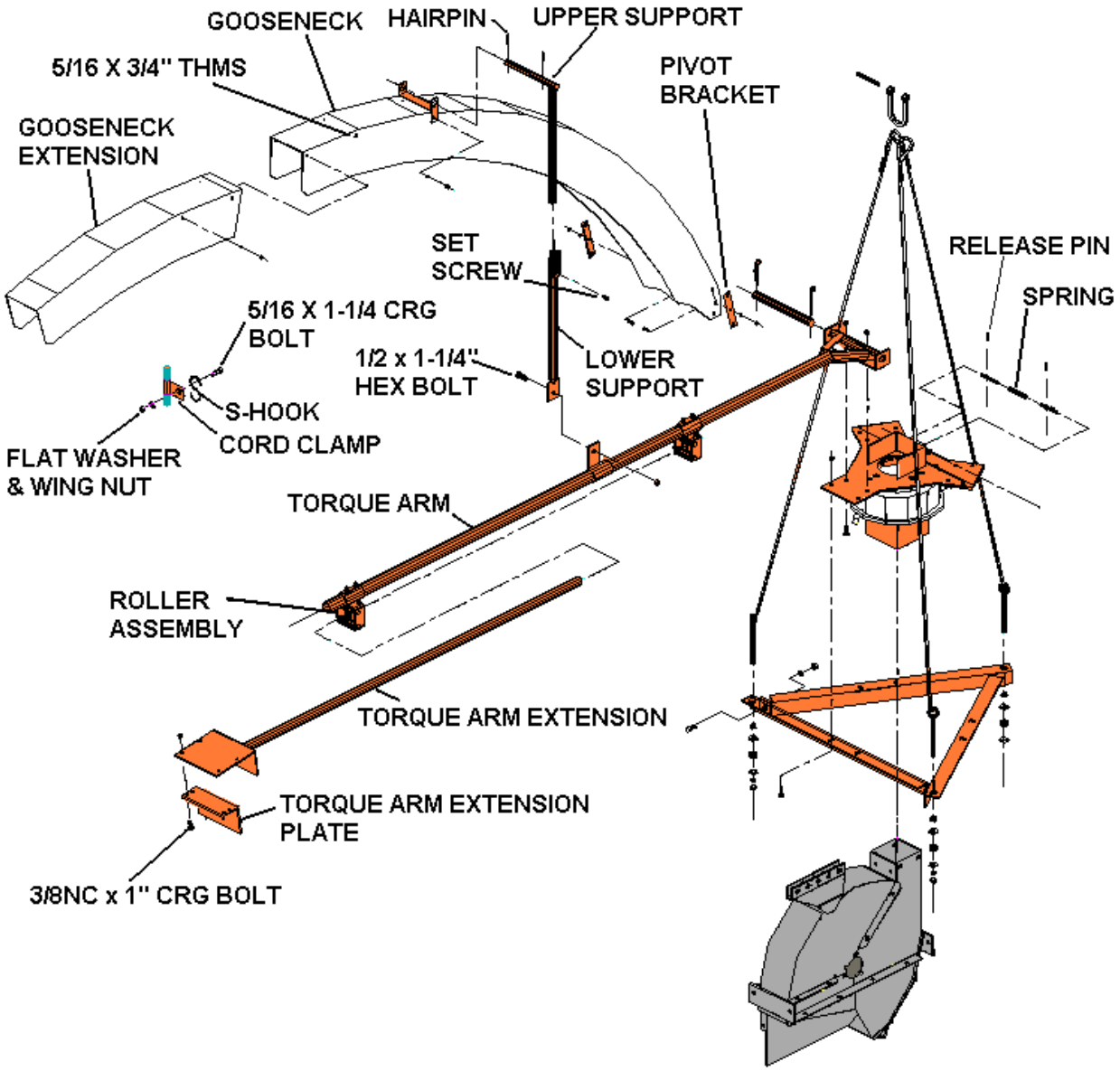
2. NOTE: On 24' unloaders a third grill support approximately at the midpoint on the outer grill pipes is used.

3. Bolt these grill supports across the frame channel extensions being sure to bolt the outermost support together with a grill stop.

4. Across the tops of the inner grill pipe supports bolt a standard counterweight angle.

5. Across the tops of the outer pipe grill supports bolt the counter weight extension angle.

ASSEMBLE TORQUE ARM AND GOOSENECK



1. Bolt the lower torque arm extension plate to the torque arm extension.

2. Slide the assembled torque arm extension through the rollers on the main torque arm. Hook the door end of assembly over a silo door sill.

3. Connect the torque arm to the torque pivot on the transition hanger plate with pivot pin and hair pins.

4. To each side of the base on the gooseneck attach a pivot bracket as shown (large hole in brackets is at bottom end).

5. Slide the Pivot Brackets on the gooseneck base over the ferrules on the back of the transition hanger plate and secure with spring release pins.

6. Bolt the support adapter to the end of the gooseneck at either set of holes provided. NOTE: For sizes 20' and larger, assemble a gooseneck extension at this connection with (4) 5/16" x 3/4" truss head screws.

7. Insert the upper support through the holes on the support adapter and secure with hairpin.

8. Telescope lower support over the upper support. Bolt flattened (lower) end of the lower support to support bracket on the torque arm with 1/2" x 1-1/4" bolt & locknut.

9. Clamp the (2) halves of the power cord clamp around the power cord. Bolt the large "S" hook to this same bolt. Locate the clamp on the power cord so that when the hook is hooked to the top of the upper gooseneck support the end of the power cord will reach to the plug connector at the transition.

10. Install a female connector plug to the end of the main power cord. Be sure to connect green conductor to the ground terminal in the connector.

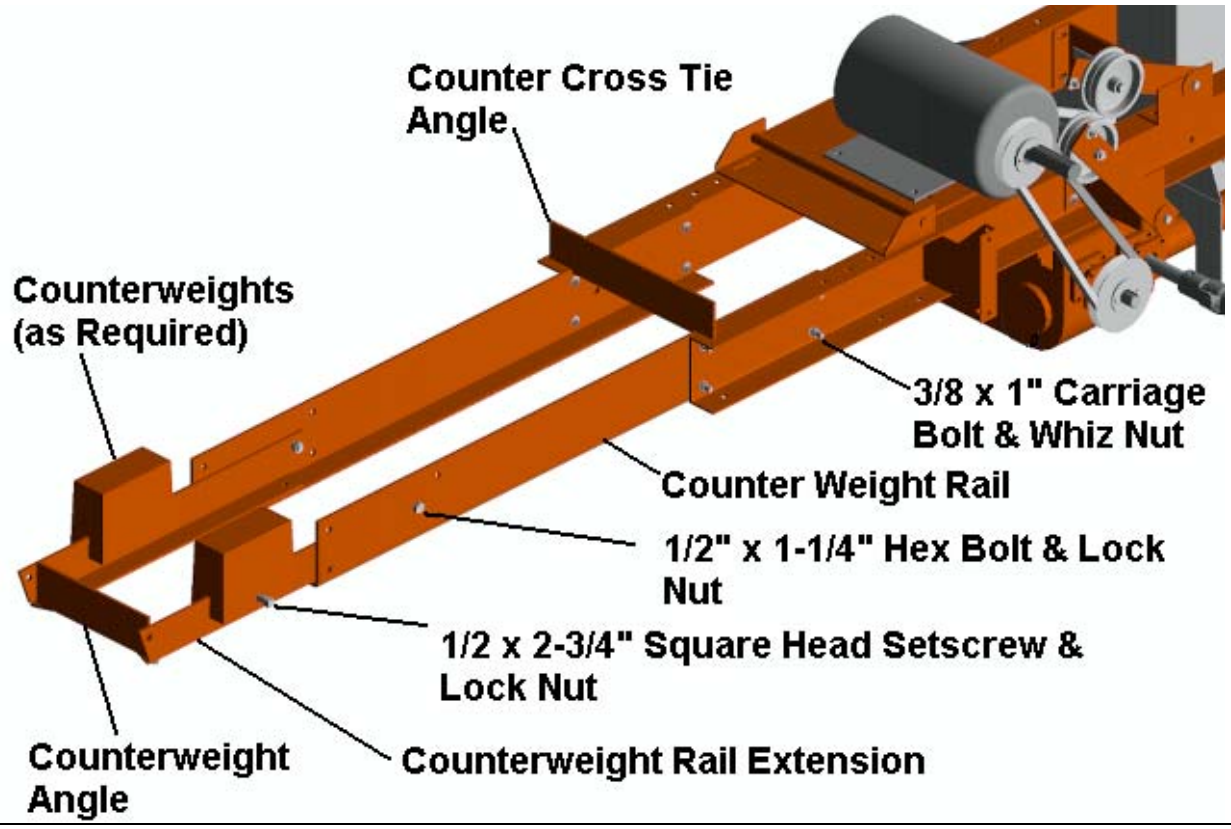
INSTALL COUNTER WEIGHTS

1. Bolt the rear counter weight rails to the frame channels. Bolt the counter weight extension cross tie across the top of the frame channels.

2. Hinge a counter weight rail extension to each rail with a 1/2" x 1-1/4" HHCS and lock nut.

3. Join the ends of the rail extensions together with the counter weight tie angle.

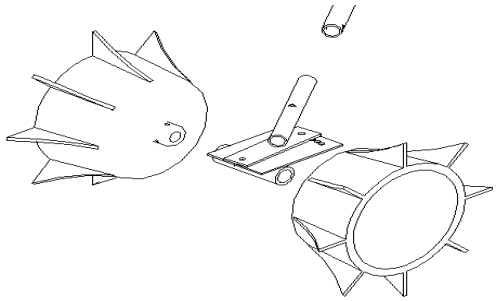
4. Counter weights slide onto the rail extensions as required, and are secured by a set screw.



INSTALL DRIVE HUBS

1. Slide the drive hub extension shaft into the inner drive shaft. Adjust length per table and secure with 5/16" x 2" HHMS and lock nut.

Silo Size	LENGTH
12 ft.	24"
14 ft.	36"
16 ft.	48"
18 ft.	60"
20 ft.	72"
22 ft.	84"
24 ft.	96"

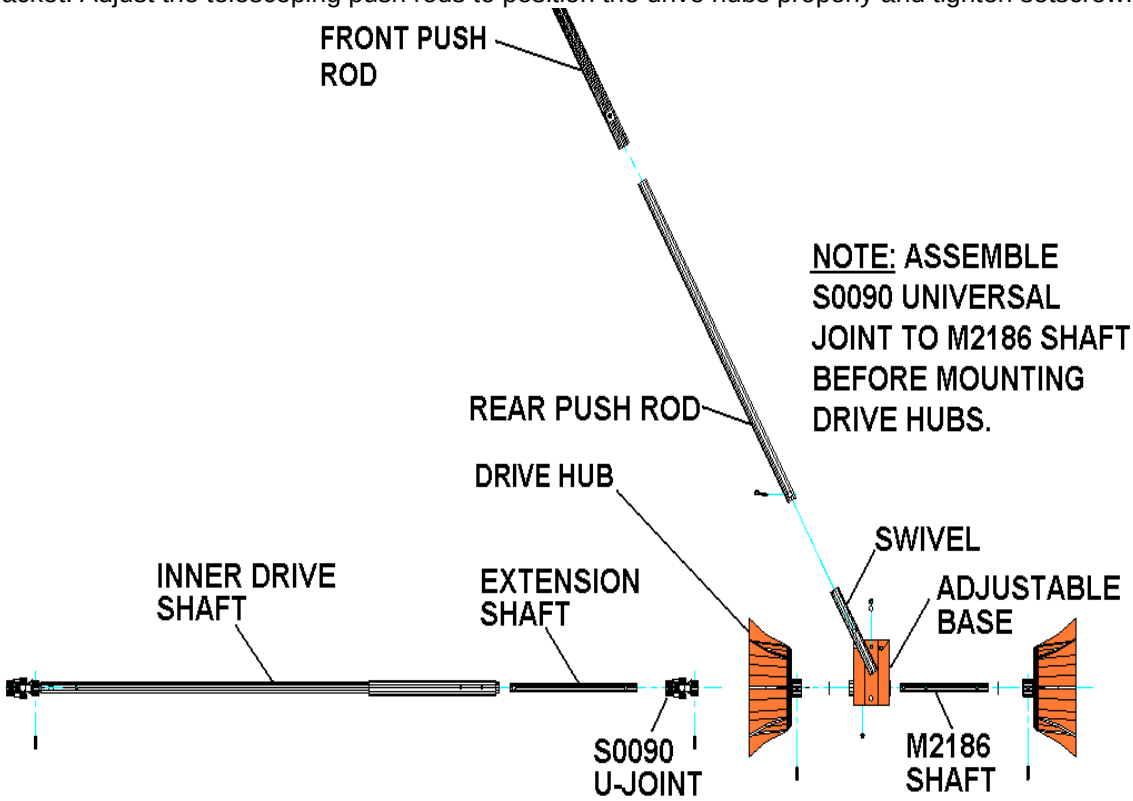


2. Assemble the universal joint to the inner drive shaft and secure with spring pin. Connect this universal joint to the gearbox output shaft and secure with 5/16" x 2" HHMS and lock nut.

3. Connect the drive hub assembly to the drive hub extension shaft with universal joint. Secure with spring pins.

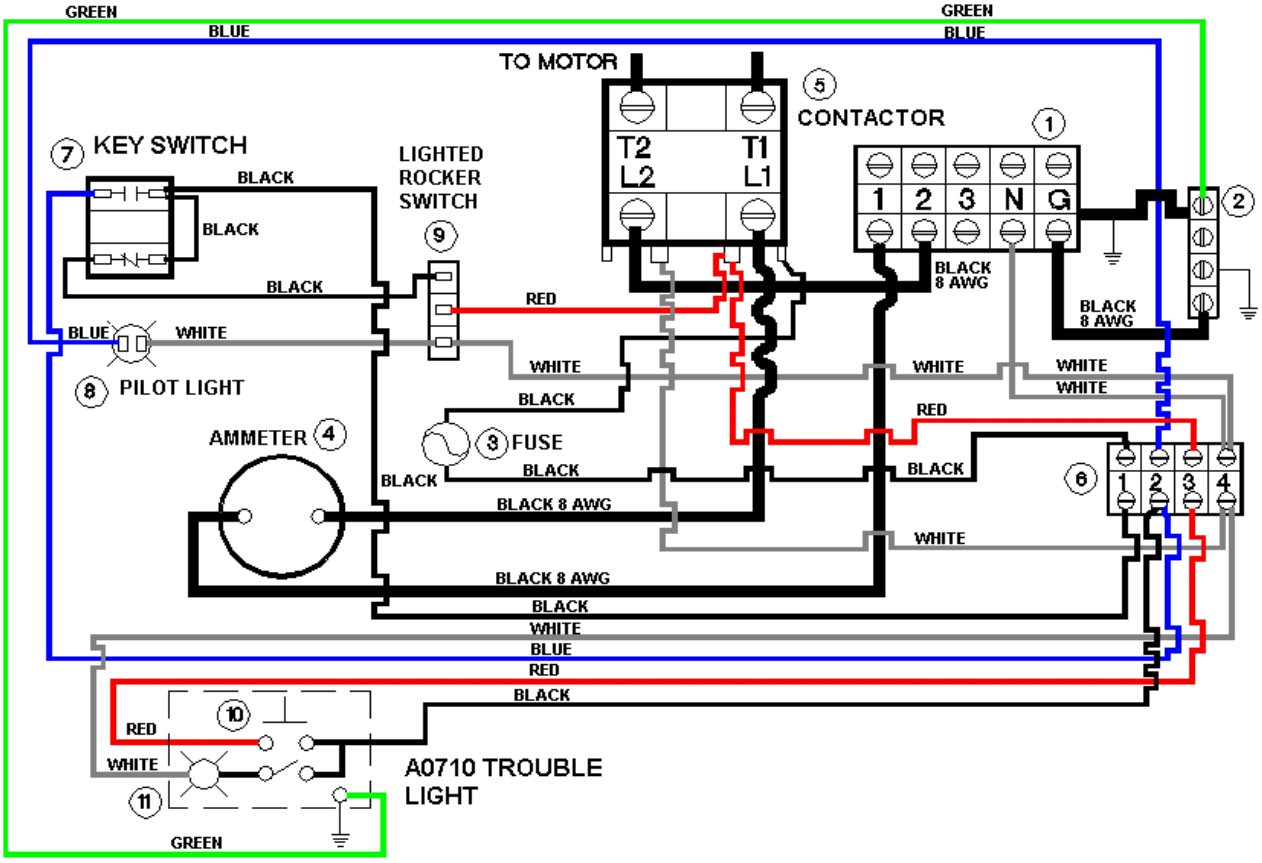
4. Connect the adjustable swivel to the center hole on the adjustable base of the drive hubs. Telescope the front push rod over the rear push rod.

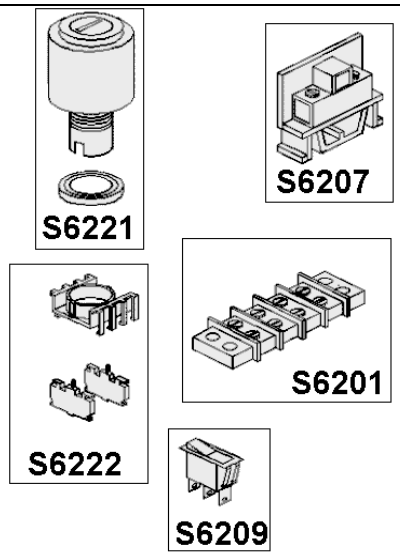
5. Slide the rear push rod into the swivel and secure with a drive shaft pin and hairpin. Connect front push rod with 1/2" x 4" hex bolt and lock nut to the push rod brackets assembled to the outer wall wheel bracket. Adjust the telescoping push rods to position the drive hubs properly and tighten setscrew.



REPAIR PARTS

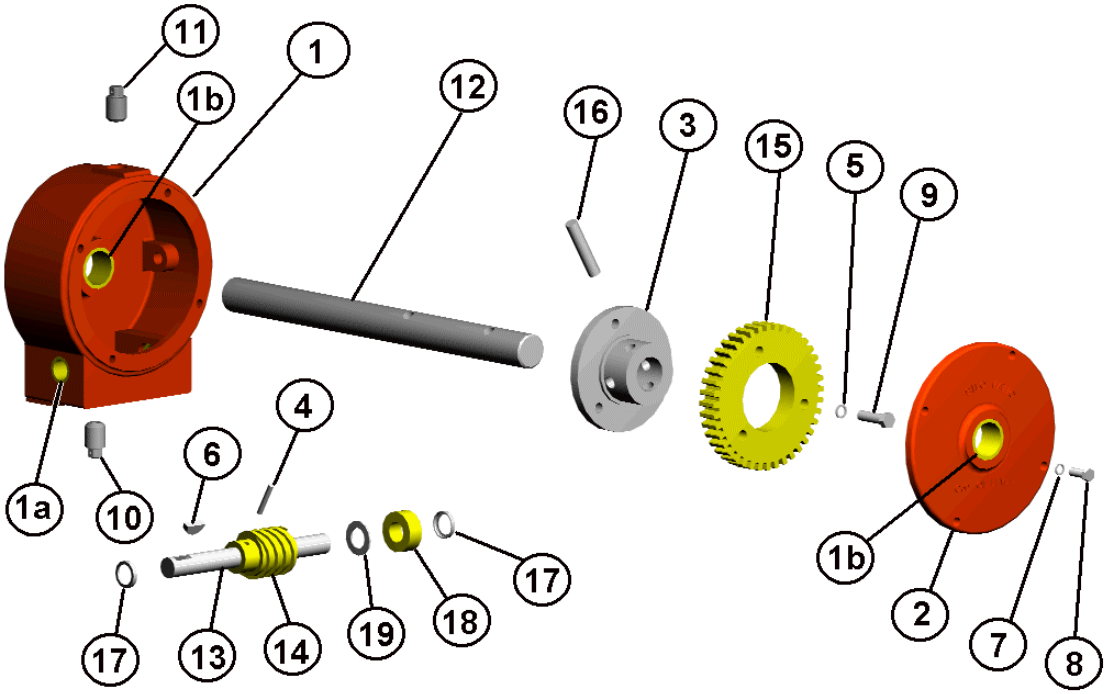
Silo-Matic WIRING DIAGRAM FOR CONTROL BOX\SAFETY SWITCH





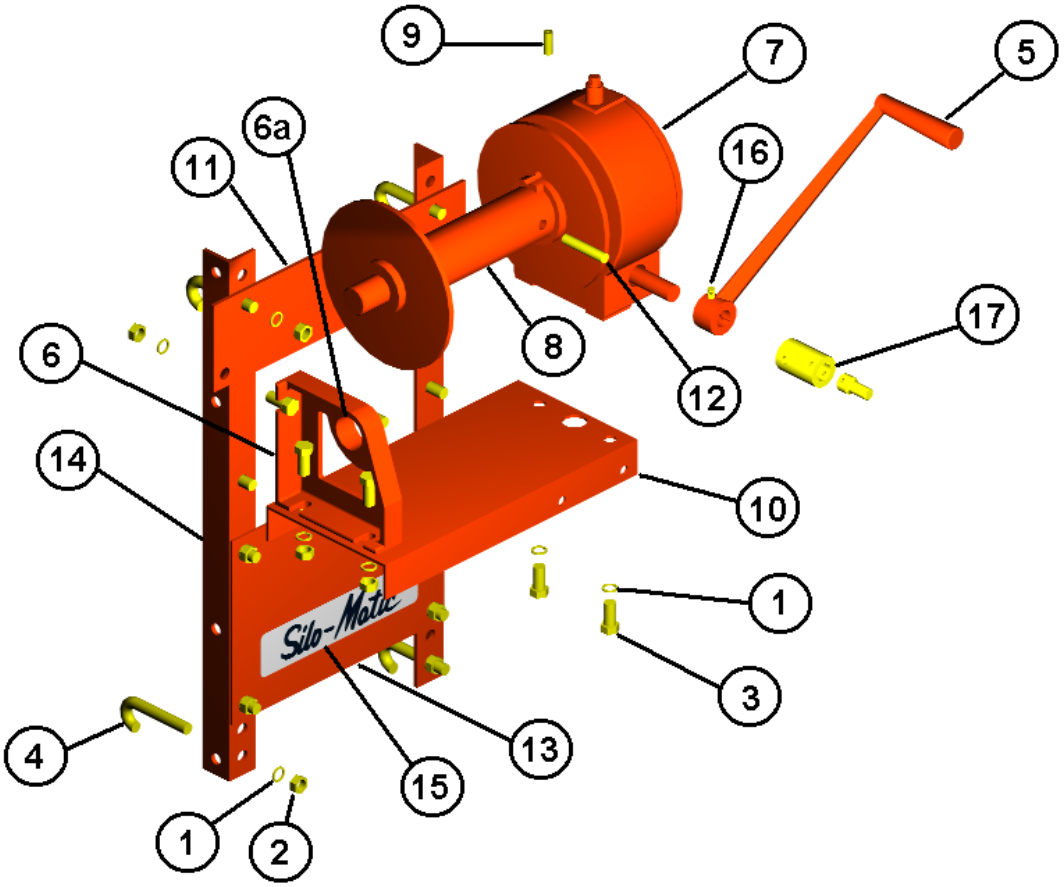
ITEM #	DESCRIPTION	PART #
1	Terminal Block #1	(5) S6207, (2) S6214, (1) S6215
2	Ground Bar	S0477
3	Fuse Holder	S0454
4	Ammeter	S0398
5	Contactor- 3 Phase Contactor- 1 Phase	S6201-02 S6201-01
6	Terminal Block #2	S1029
7	Keyed Switch	S6221
8	Pilot Light	S0397
9	Switch/Pilot Light	S6209
10	Momentary Switch Weatherproof Cover Guard	S6203 S6204 S6210
11	Trouble Light Handle Trouble Light Guard Enclosure	S6202 S6216 S6200

A0156 WINCH GEARBOX ASSEMBLY



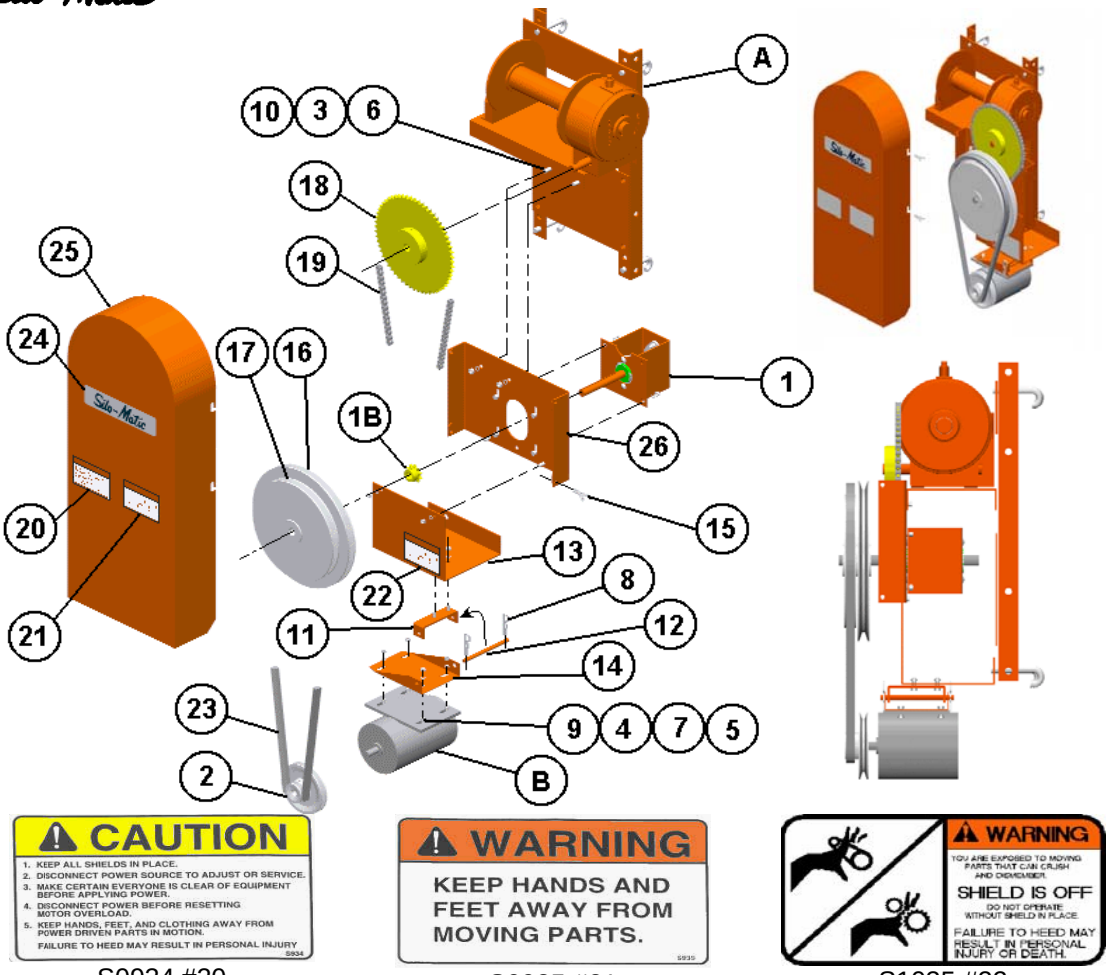
PC#	PART#	DESCRIPTION	QTY.
1	A0165	Gear Housing & Bushing	1
1A	S0225	Sleeve, .752 x 1.0025 x .750	2
1B	S0034	Bushing, 1.252 x 1.502 x 1"	2
2	A0166	Winch Housing Cover & Bushing	1
3	C0053	Worm Gear Hub-Oil Bath Winch	1
4	G273336	Spring Pin, 3/16" x 1-1/4"	1
5	G103321	Washer, Lock 3/8" ZP	3
6	G106751	Woodruff Key, #9 (3/16 x 3/4)	1
7	G120214	Washer, Lock 5/16" ZP	4
8	G180077	HHCS 5/16nc x 3/4 G5 ZP	4
9	G180124	HHCS 3/8nc x 1 1/4" G5 ZP	3
10	G444588	Plug, Pipe, Square 1/2" NPT	1
11	M0320	Vented Pipe Plug, 1/2"	1
12	M0394	Spool Shaft-Oil Bath Winch	1
13	M0397	Worm Shaft-Oil Bath Winch	1
14	S0076	Worm, RH, Single Thread	1
15	S0077	Worm Gear, RH Single Thread Winch	1
16	S0214	Spring Pin, 7/16 x 2 1/4	1
17	S0226	Seal, 3/4" Grease-Input	2
18	S0603	Bearing, Thrust 3/4"	1
19	S0059	Machinery Bushing	AR

Silo-Matic 1335X OIL BATH WINCH ASSEMBLY



PC#	PART#	DESCRIPTION	QTY
1	G103323	Washer, Lock 1/2" ZP	6
2	G120378	Nut, 1/2NC Hex ZP	10
3	G180173	HHCS 1/2NC x 1" G5 ZP	6
4	M0081	Bolt, "J" (Winch Mounting)	4
5	A0051	Crank	1
6	A0155	Winch End Bearing Assembly	1
6A	S0034	Bushing, 1-1/4 x 1-1/2 x 1"	1
7	A0156	Winch Gear Box-Oil Bath	1
8	C0051	Winch Spool-Oil Bath Winch	1
9	G102597	Setscrew, 3/8nc x 1" Socket	1
10	M0387	Main Support Channel-Oil Winch	1
11	M0388	Back Plate-Oil Bath Winch	1
12	S0214	Spring Pin, 7/16" x 2 ¼"	1
13	M0324	Winch Plate, Tie	1
14	M0386	Vertical Angle-Oil Bath Winch	2
15	S1195	Decal, Silo-Matic (3.25 x 11.5)	1
16	G102581	Setscrew, 5/16NC x 3/8" Socket	1
17	A0167	Electric Drill Adapter	1

1356X TWO-SPEED POWER WINCH ATTACHMENT



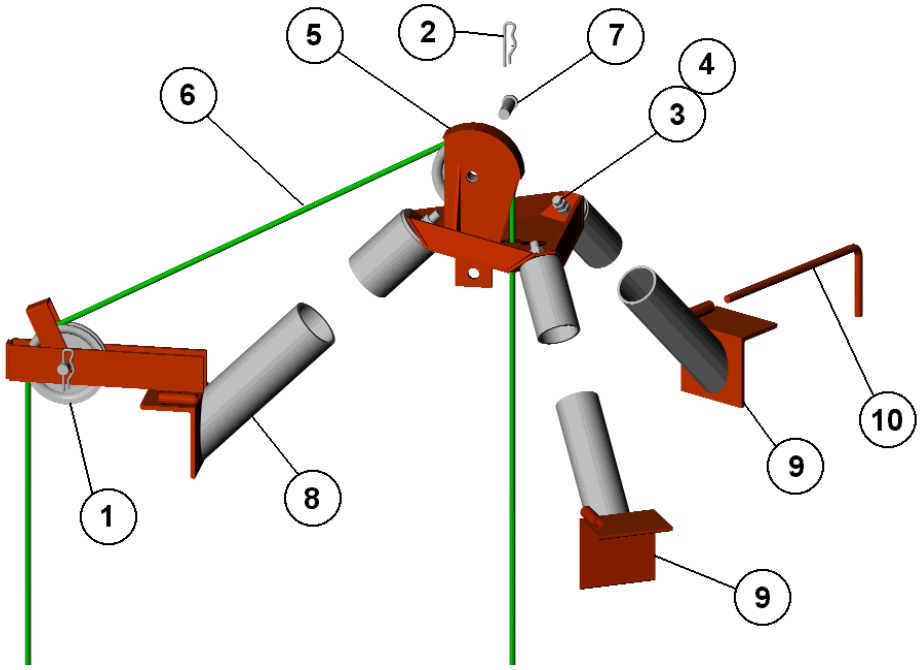
S0934 #20

S0935 #21

S1035 #22

PC	PART#	DESCRIPTION	Qt		PC	PART#	DESCRIPTION	Qt
1	A0160	Jackshaft Assembly	1		15	S0108	Thumb Screw, 1/4NC x 3/4"	4
1B	S0219	40B10 Sprocket, 3/4" Bore	1		16	S0215	Sheave, 12" OD 3/4" Bore	1
2	C0054	Sheave, 2 Groove	1		17	S0216	Sheave, 10" OD 3/4" Bore	1
3	G103321	Washer, Lock 3/8" ZP	2		18	S0222	40B60 Sprocket, Bore	1
4	G120214	Washer, 5/16" Lock	12		19	S0223	#40 Roller Chain	1
5	G120376	Nut, 5/16NC Hex	12		20	S0934	Decal: "Caution Keep"	1
6	G120377	Nut, 3/8NC Hex ZP	2		21	S0935	Decal, Keep Hands ...	1
7	G120393	Washer, 5/16" Flat	8		22	S1035	Decal: Shield Is Off	1
8	G137185	Cotter Pin, 1/8" x 1"	2		23	S1064	Belt	1
9	G180077	Bolt, 5/16NC x 3/4" Hex	8		24	S1195	Decal, Silo-Matic	1
10	G180120	HHCS 3/8NC x 3/4" G5 ZP	2		25	W0237	Drive Shield W/Decals	1
11	M1979	Motor Support Bracket	1		26	W0238	Mounting Plate	1
12	M1980	Motor Bracket Pin	1		A	1335X	Winch Gearbox (Ref.)	
13	M1981	Bracket, 2 Speed Drive	1		B		Electric Motor (Ref.)	
14	M1982	Motor Mount Plate	1					

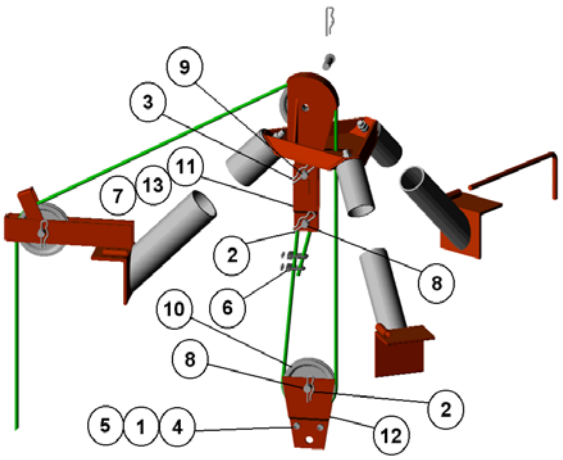
Silo-Matic TRIPOD & CABLE



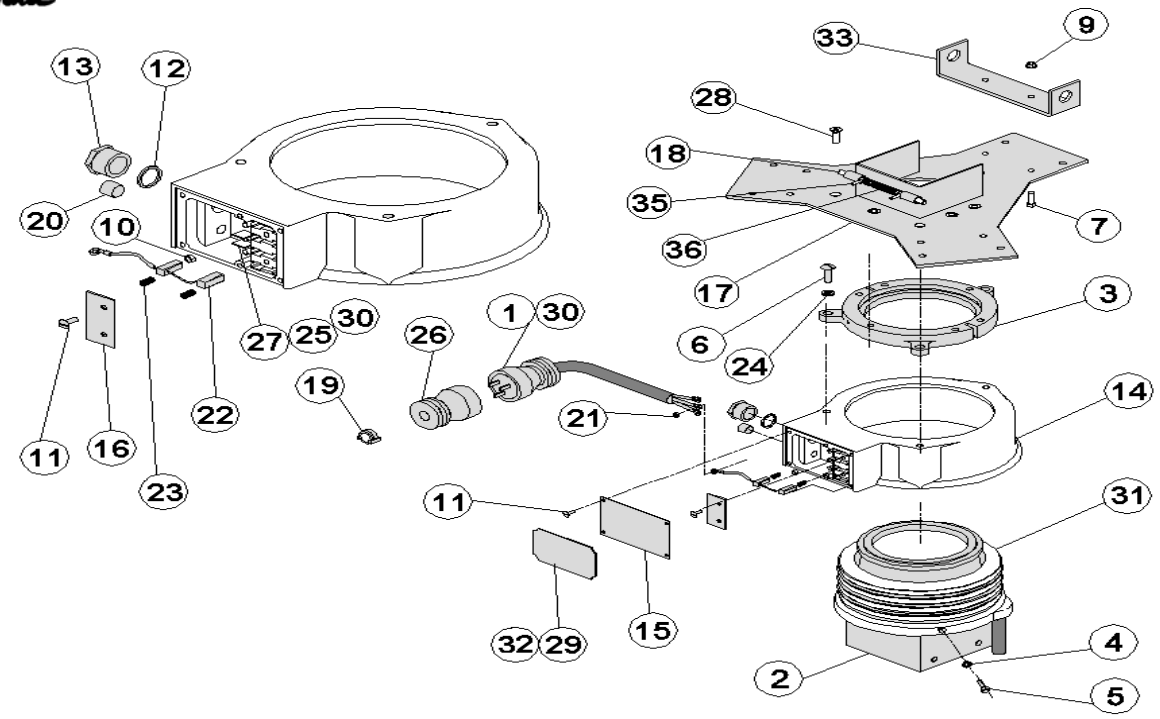
PC#	PART #	DESCRIPTION	QTY.
1	A0168	Cable Pulley	2
2	G103397	Cotter Pin, 5/32" x 1-1/4"	2
3	G120238	1/2NC Hex Jam Nut	3
4	G120378	1/2NC Hex Nut	3
5	W0977	Top Plate Weldment	1
6	RM30030	5/16" Aircraft Cable (Per Foot)	AR
7	S1267	Pin, 5/8 x 1-3/4"	2
8	W0979-XX	Tripod Leg, Cable (XX = Size)	1
9	W0978-XX	Tripod Leg, Plain (XX= Size)	2
10	M0096	Safety Hook	3

OPTIONAL DOUBLE CABLE SUSPENSION

PC	PART #	DESCRIPTION	QT
1	G103321	3/8" Lock Washer	2
2	G103397	Cotter Pin, 5/32" x 1-1/4"	2
3	G103409	Cotter Pin, 3/16" x 1-1/2"	1
4	G120377	3/8NC Hex Nut	2
5	G180120	HHCS 3/8NC x 3/4" G5 ZP	2
6	S0031	Cable Clamp	AR
7	S0166	Cable Thimble, 1/4"	1
8	S0484	Pin 5/8" x 1-1/4"	2
9	S1061	Pin, Clevis, 5/8 x 2"	1
10	A0168	Cable Pulley	1
11	M0358	Side Plate, Double Cable	1
12	M0370	Clevis Plate	2
13	W0681	Side Plate With Tab	1



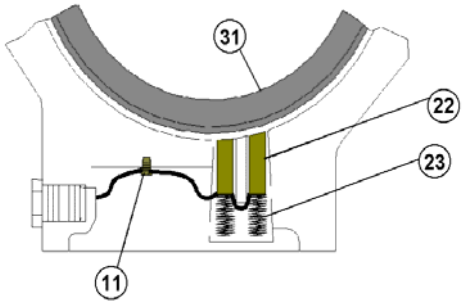
A0592 TRANSITION 1 PHASE & A0593 TRANSITION 3 PHASE



Note: The collector ring for single phase has 3 rings and the collector ring for 3 Phase has 4 copper rings. The Second ring from the bottom is internally grounded and marked "G." Green is the grounded connector throughout the unloader circuit.

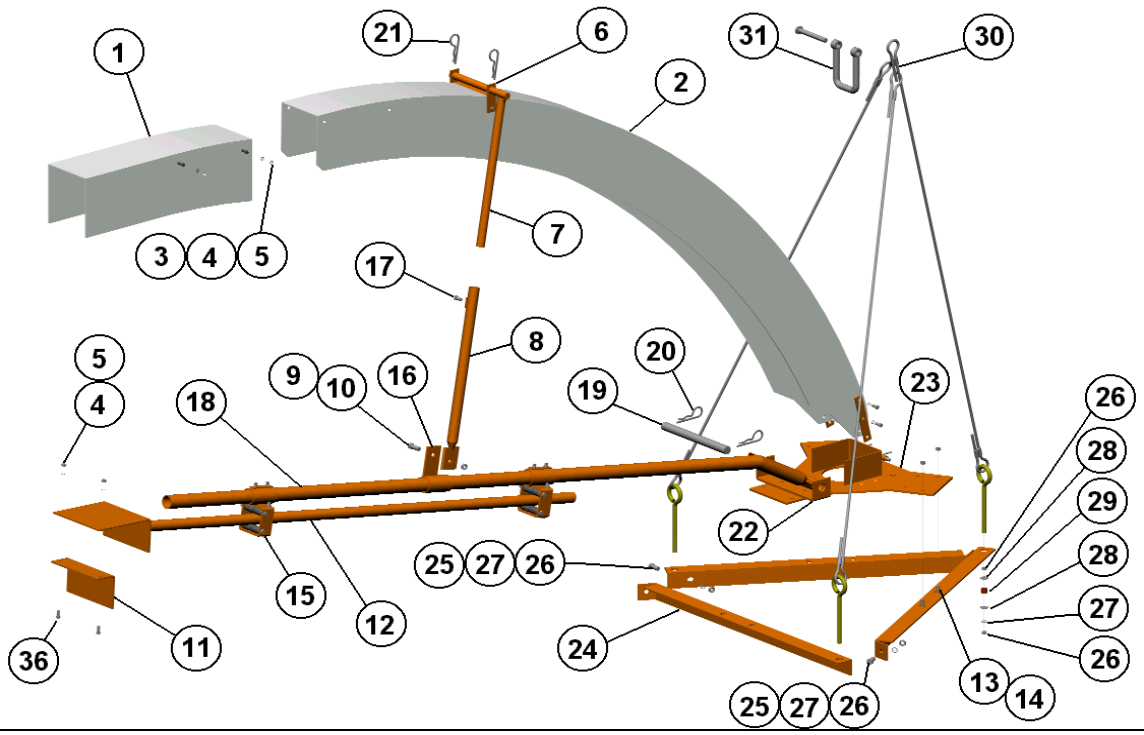
PC	PART #	DESCRIPTION	QT
1	A0713	Cord, Power Assembly, 1 Ph	1
2	C0010	Lower Transition	1
3	C0012	Support Ring	1
4	G120423	Washer, 1/4" Internal Tooth	6
5	G132281	MachScrew, 1/4-20 x 1-1/4"	3
6	G133167	MachScrew, 3/8NC x 1 1/4 RH	3
7	G180122	HHCS 3/8NC x 1" G5 ZP	6
8	G271291	Grease Fitting, 1/4-28	2
9	G9411507	Nut, 3/8NC Serrated Flange	2
10	G422976	Nut, 1/4NC Hex Jam Brass	3
11	G488325	10-24 x 5/8 Pan Phil Type	6
12	M0254	Rubber Washer,29/32	1
13	M0255	Bushing, 1.25", Special Alum.	1
14	M0336	Outer Collector Ring	1
15	M0351	Terminal Cover	1
16	M0352	Brush Cover, 1-5/16 x 2-5/8	1
17	W0875	Hanger Plate Weldment	1
18	M1848	Gooseneck Release Pin	3
19	S0052	Romex Connector, 1"	1
20	S0088	#8 Cap-Plug	1
21	S0137	Wire Nut, Blue	1
22	S0160	Dual Brush	3
23	S0180	Spring, #39	6
24	S0327	Washer, Rubber-Transition	3

PC	PART #	DESCRIPTION	QT
25	S0388	Wire Connector, Gray Ins	2
26	S0469	Connector Female 50A	1
27	S0576	Insulator Strip Transition	1
28	S0654	Socket CapScrew 3/8NC x 1"	6
29	S1188	Decal, Unloader Serial #	1
30	S1204	Decal Tag Green Ground	1
31	W0090-C W0090-D	Inner Collector Ring 1 Phase Inner Collector Ring 3 Phase	1
32	S1315	Decal, Serial #, Volt, Phase	1
33	M4632	Torque Arm Pivot	1
34	G103321	Washer, Lock 3/8" ZP	1
35	G273336	Pin, Spring 3/16" x 1-1/4"	1
36	S0411	Spring, #316 Stainless Steel	1



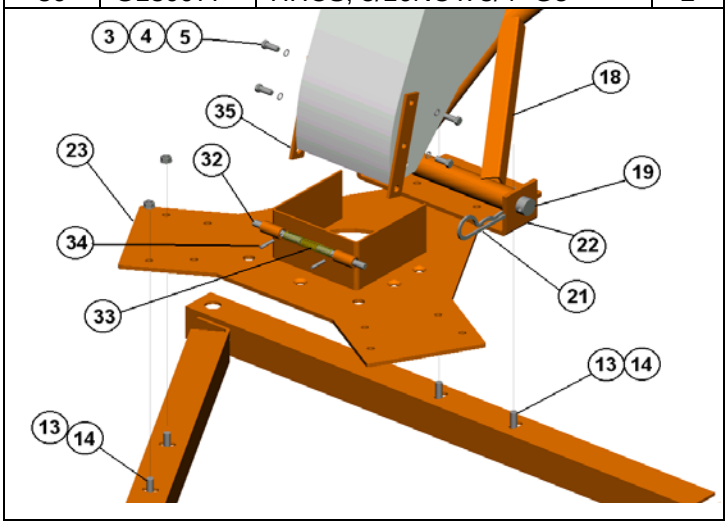
Silo-Matic

GEMINI II GOOSENECK & TORQUE ARM

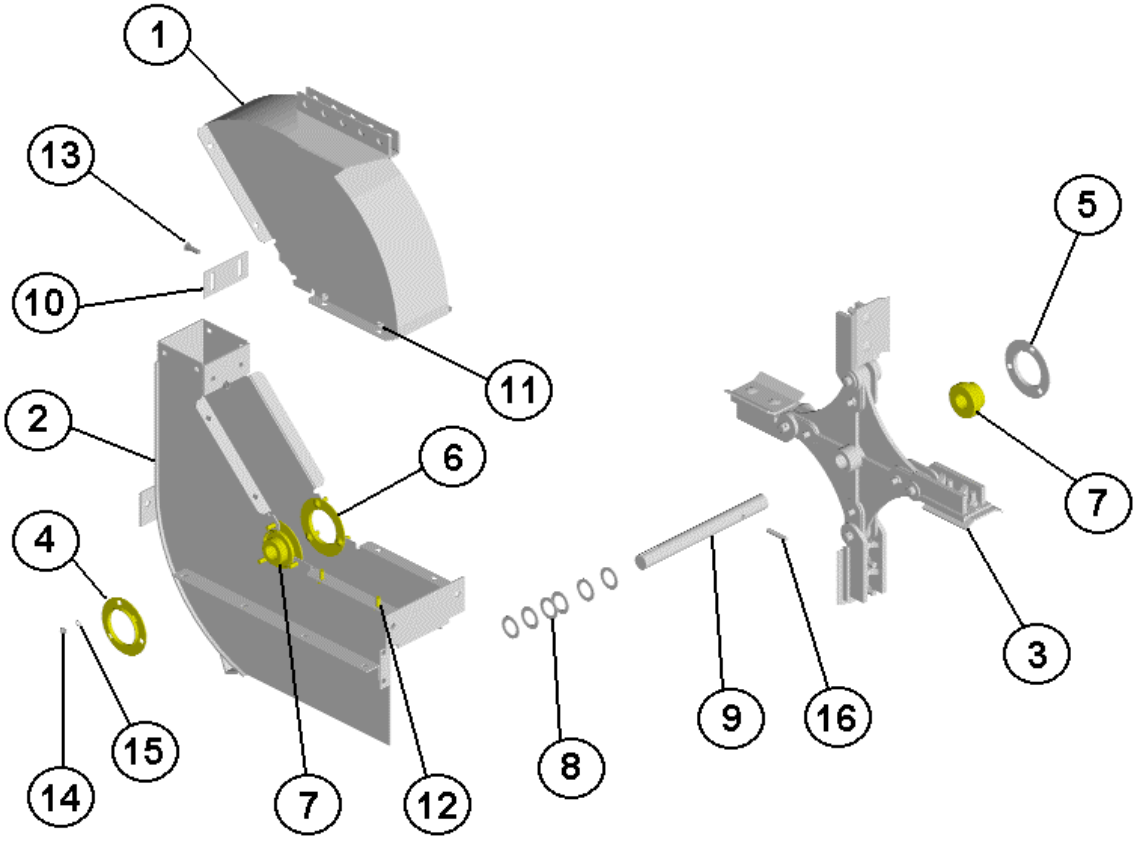


PC	PART #	DESCRIPTION	QT
1	M0492-36	36" Extension For 20' + 22'	1
	M0496-63	63" Extension For 24'	
	M0492-84	84" Extension	
2	M0443	Gooseneck 12'/14'	1
	M0462	Gooseneck 16'/24'	
3	G125655	THMS, 5/16NC x 3/4"	8
4	G120214	Washer, 5/16" Lock	13
5	G120376	Nut, 5/16" Hex	13
6	W0264	Adapter Support	1
7	W0265	Upper Support	1
8	W0267	Adjustable Support	1
9	G120426	Bolt, 1/2NC x 1-1/4" Hex	1
10	G9416450	Nut, 1/2NC Hex Lock	2
11	M2284	Lower Plate Torque Arm	1
12	W0618	Torque Arm Extension	1
13	G120915	Bolt, 3/8NC x 1" Carriage	6
14	G9411507	Nut, 3/8NC Serrated Flange	6
15	A0381	Roller Assembly	2
16	W0266	Lower Support	1
17	G102894	Sqr Hd Set Screw 3/8" x 3/4"	2
18	W0268-xx	Torque Arm (XX=Size)	1
19	M0445	Pivot Pin	1
20	G103409	Cotter Pin 3/16" x 1-1/2"	1
21	S0415	Hairpin, Cotter	1
22	M4632	Torque Arm Pivot	1
23	W0875	Hanger Plate	1
24	M4631	Hanger Angle	3

PC	PART #	DESCRIPTION	QT
25	G122408	Bolt, 1/2NC x 1" Hex	3
26	G120378	Nut, 1/2NC Hex	6
27	G103323	Washer, 1/2" Lock	3
28	G446229	Washer, 1/2" Flat	9
29	M4633	Spacer, Hanger Cable	3
30	A0588	Hanger Cable Assembly	3
31	S0803	Clevis	1
32	M1848	Gooseneck Release Pin	2
33	S0411	Hold Spring	2
34	G273336	Spring Pin, 3/16" x 1-1/4"	2
35	M1863	Gooseneck Pivot Bracket	2
36	G180077	HHCS, 5/16NC x 3/4" G5	2



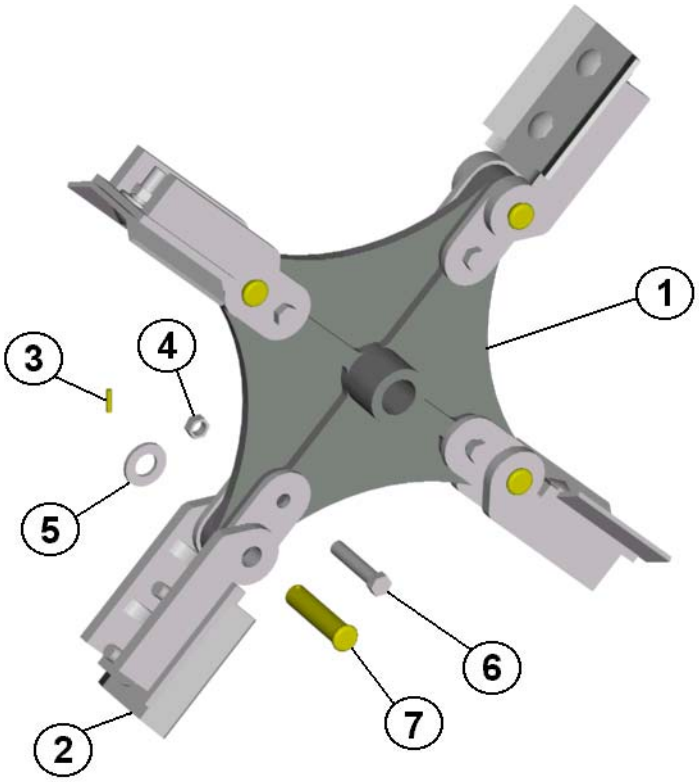
A0703 ROTOR HOUSING ASSEMBLY COMBINATION
5245X ROTOR HOUSING ASSEMBLY STAINLESS STEEL

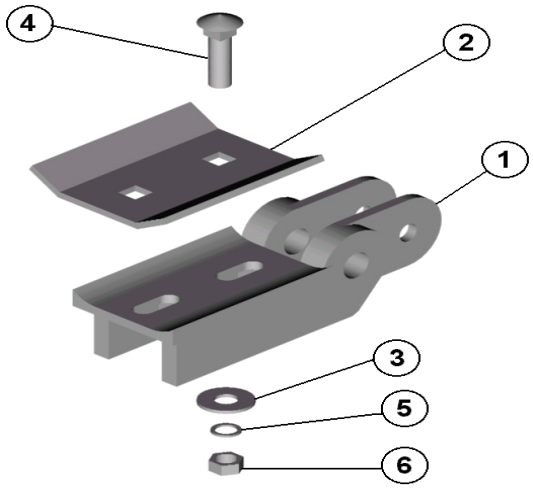


PC	PART #	DESCRIPTION	QT
1	W0891	Rotor Housing, Upper Stainless	1
	W0958	Rotor Housing, Upper, Combination	
2	W0873	Rotor Housing Lower, Stainless	1
	W0957	Rotor Housing Lower, Combination	
3	A0679	Rotor & Pawl Assembly	1
4	S0787-01	Bearing Flange With 45 Degree Grease Fitting	2
5	S0787	Bearing Flange With Grease Fitting	2
6	S0503	Bearing Flange	2
7	S0502	Bearing Assembly	2
8	S0061	Washer, 14 Gauge	8
9	M4645	Rotor Shaft	1
10	M4320	Shear Plate	1
11	G9411507	Nut, 3/8NC Hex , Serrated Flange	10
12	G126228	Carriage Bolt, 3/8NC x 3/4" Stainless Steel	6
13	G120915-S	Carriage Bolt, 3/8NC x 1" Stainless Steel	6
14	G120377	Nut, 3/8" Hex	6
15	G103321	Washer, 3/8 " Lock, ZP	6
16	S0224	Pin, 3/8" X 2" Roll Pin	1

Silo-Matic A0679 ROTOR & PAWL ASSEMBLY

PC #	PART #	DESCRIPTION	QTY
1	A0552	Rotor , 26" 4 Pawl With S0280 Bushings	1
2	A0553	Pawl Assembly, 26" 4 Pawl	4
3	G273336	Spring Pin, 3/16" x 1 1/4"	4
4	G9416450	Nut, 1/2NC Hex Centerlock	4
5	S0059	Bushing, Machine 3/4" x 18 gauge Narrow	4
6	S0804-01	HHCS 1/2NC x 2-1/2" Stainless Steel	4
7	S1056	Pin, Pawl 3/4 x 3-1/16"	4

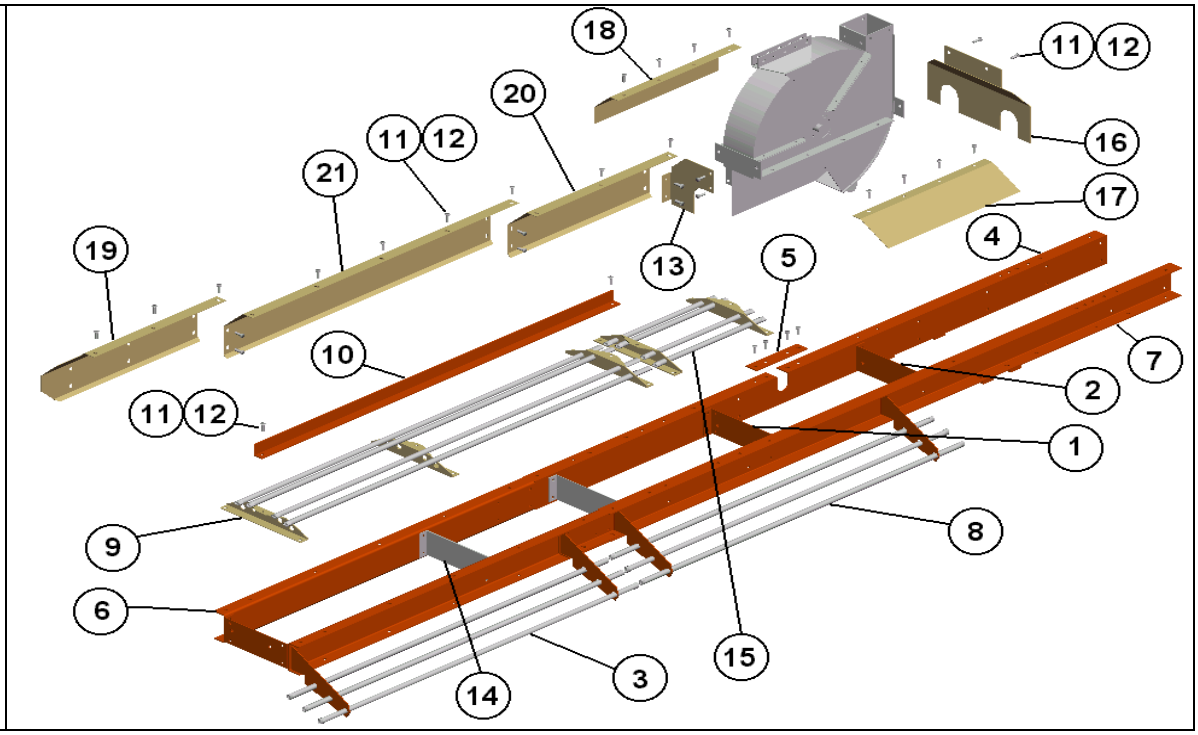




Silo-Matic A0553 PAWL ASSEMBLY			
PC	PART #	DESCRIPTION	QT
1	C0208	Pawl Casting	1
2	M4281	Pawl Face-R26	1
3	G120396	Washer, 1/2" Flat	2
4	G109136	Carriage Bolt, 1/2-13NC x 1 1/2" Stainless Steel	2
5	G103323	Washer, Lock 1/2" ZP	2
6	S0857	Nut, 1/2-13NC Stainless Hex	2

Silo-Matic

GEMINI II FRAME AND COVERS

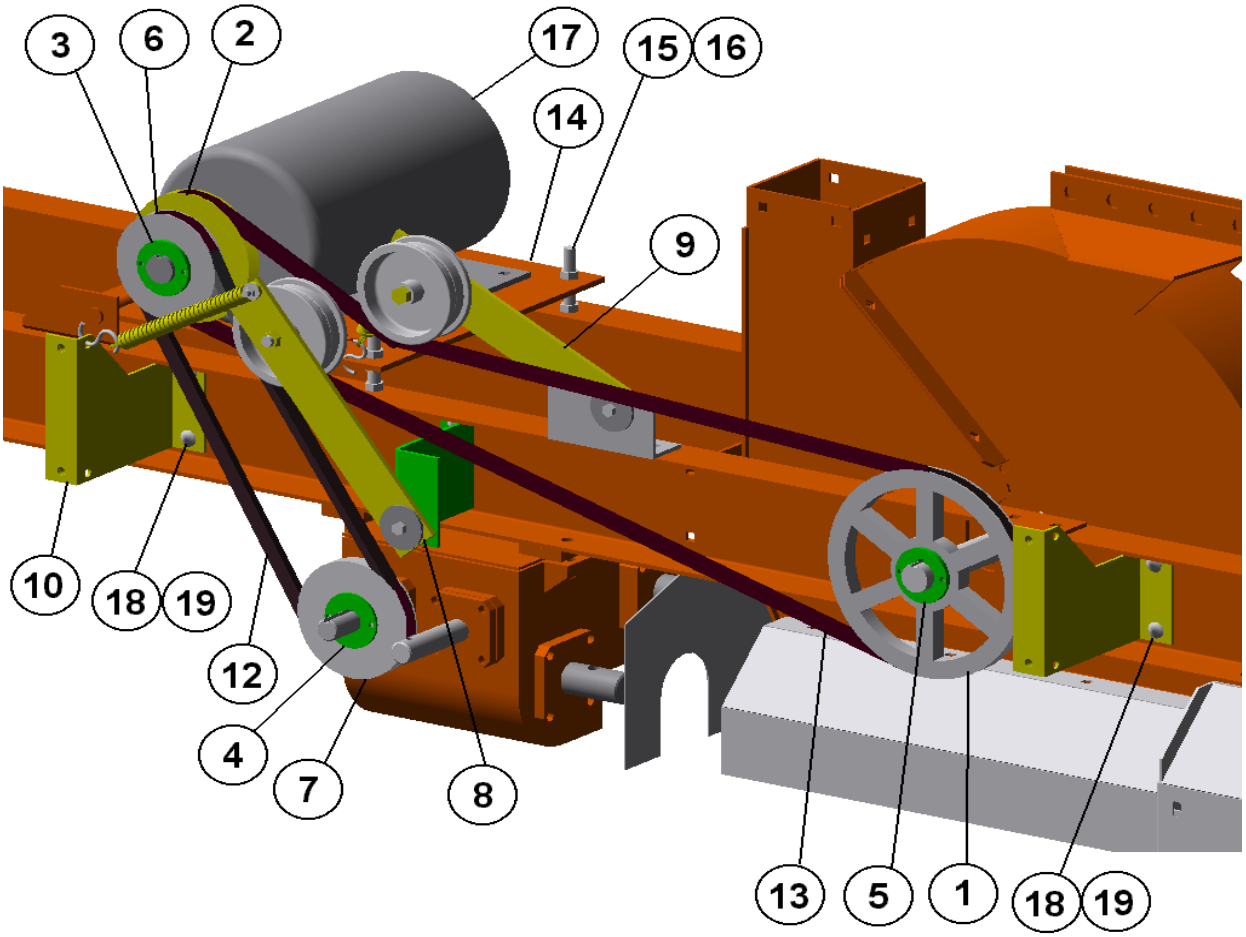


PC	PART	DESCRIPTION	QT
1	M4544	Frame Spacer	2
2	M4543	Rotor Housing Mount Brackt	1
3	A0630	12' Outer Bumper Assembly	1
	A0667	14' Outer Bumper Assembly	
	A0668	16' Outer Bumper Assembly	
	A0669	18' Outer Bumper Assembly	
	A0670	20' Outer Bumper Assembly	
	A0671	22' Outer Bumper Assembly	
	A0672	24' Outer Bumper Assembly	
4	W0872	Rear Main Frame Channel	1
5	M4537	Channel Strap	1
6	M4529	12' Channel Ext. 9.5"	2
	M4530	14' Channel Ext. 21.5"	
	M4531	16' Channel Ext. 33.5"	
	M4532	18' Channel Ext. 45.5"	
	M4533	20' Channel Ext. 57.5"	
	M4534	22' Channel Ext. 69.5"	
	M4535	24' Channel Ext. 81.5"	
7	W0871	Front Main Frame Channel	1
8	A0631	Inner Bumper Ass'y 59.75"	1
9	A0629	12' Outer Grill Pipe 19.5"	1
	A0661	14' Outer Grill Pipe 31.5	
	A0662	16' Outer Grill Pipe 43.5"	
	A0663	18' Outer Grill Pipe 55.5"	
	A0664	20' Outer Grill Pipe 67.5"	
	A0665	22' Outer Grill Pipe 79.5"	
	A0666	24' Outer Grill Pipe 91.5"	

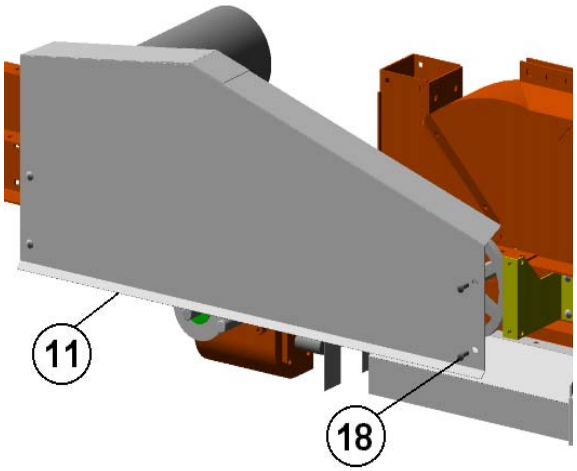
PC	PART	DESCRIPTION	QT
10	M4573	12' Ext Counter Wt Angle 18.5"	1
	M4574	14' Ext Counter Wt Angle 30.5"	
	M4575	16' Ext Counter Wt Angle 42.5"	
	M4576	18' Ext Counter Wt Angle 54.5"	
	M4577	20' Ext Counter Wt Angle 66.5"	
	M4578	22' Ext Counter Wt Angle 78.5"	
	M4579	24' Ext Counter Wt Angle 90.5"	
11	G120915	3/8NC x 1" Carriage Bolt	AR
12	G9411507	3/8NC Serrated Flange. Nut	AR
13	M4555	Auger Deflector	1
14	M4787	Frame Spacer, Galvanized	2
15	A0628	Inner Grill Assembly 20.25"	1
16	M4541	Deflector	1
17	M4644	Front Rotor Housing Shield	1
18	M4643	Rear Rotor Housing Shield	1
19	M4549	Outer Rear Shield	1
20	M4550	Std Rear Auger Shield	1
21	M4551	14' Rear Aug. Shield, 12"	1
	M4552	16' Rear Aug. Shield, 24"	1
	M4553	18' Rear Aug. Shield, 36"	1
	M4554	20' Rear Aug. Shield, 48"	1
	M4552	22' Rear Aug. Shield, 24"	1
	M4553	22' Rear Aug. Shield, 36'	1
	M4553	24' Rear Aug. Shield, 36"	2

Silo-Matic

MOTOR DRIVE ASSEMBLY

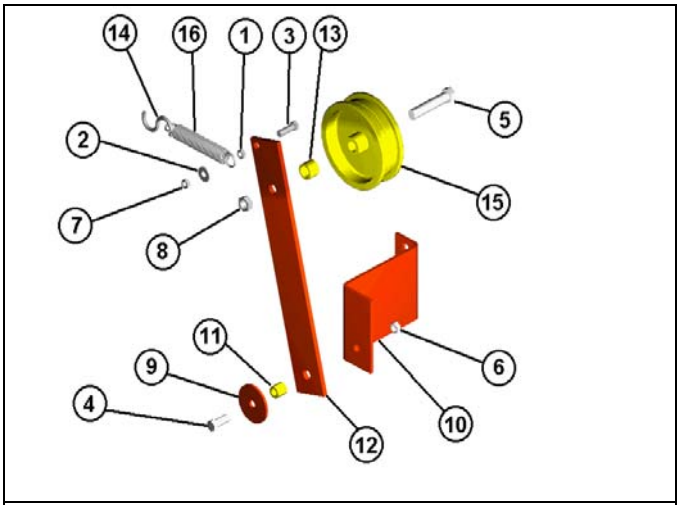


PC	PART#	DESCRIPTION	QT
1	S0281	Sheave BK95H	1
2	S0894	Sheave BK57H	1
3	S0263	Taper Hub (Specify Bore)	2
4	S0263-2	Taper Hub 1" Bore	1
5	S0263-4	Taper Hub 1-1/4" Bore	1
6	S0795	Sheave, BK47H	1
7	S0465	Sheave, BK52H	1
8	A0600	Gearbox Belt Tightener	1
9	A0601	Rotor Belt Tightener	1
10	A0595	Mounting Bracket, Belt Guard	2
11	W0900	Belt Guard	1
12	S1026	Belt, B-45	1
13	S0286	Belt, B-90	1
14	W0874	Motor Mount Weldment	1
15	S0804	Bolt,1/2NC x 2.50" Full Thread	2
16	G120378	1/2NC Hex Nut	4
17		Motor, 5 Hp - 7.5 Hp	1
18	G120915	3/8NC x 1" Carriage Bolt	16
19	G9411507	3/8NC Serrated Flange Nut	16



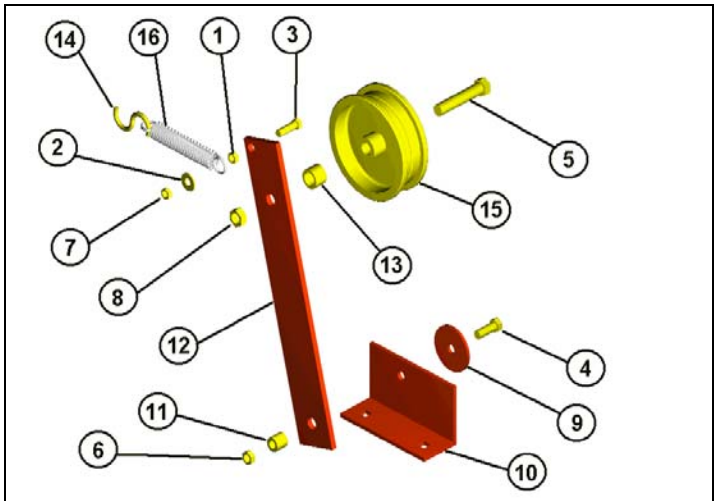
Silo-Matic

BELT TIGHTENER ASSEMBLIES



A0600 GEARBOX BELT TIGHTENER

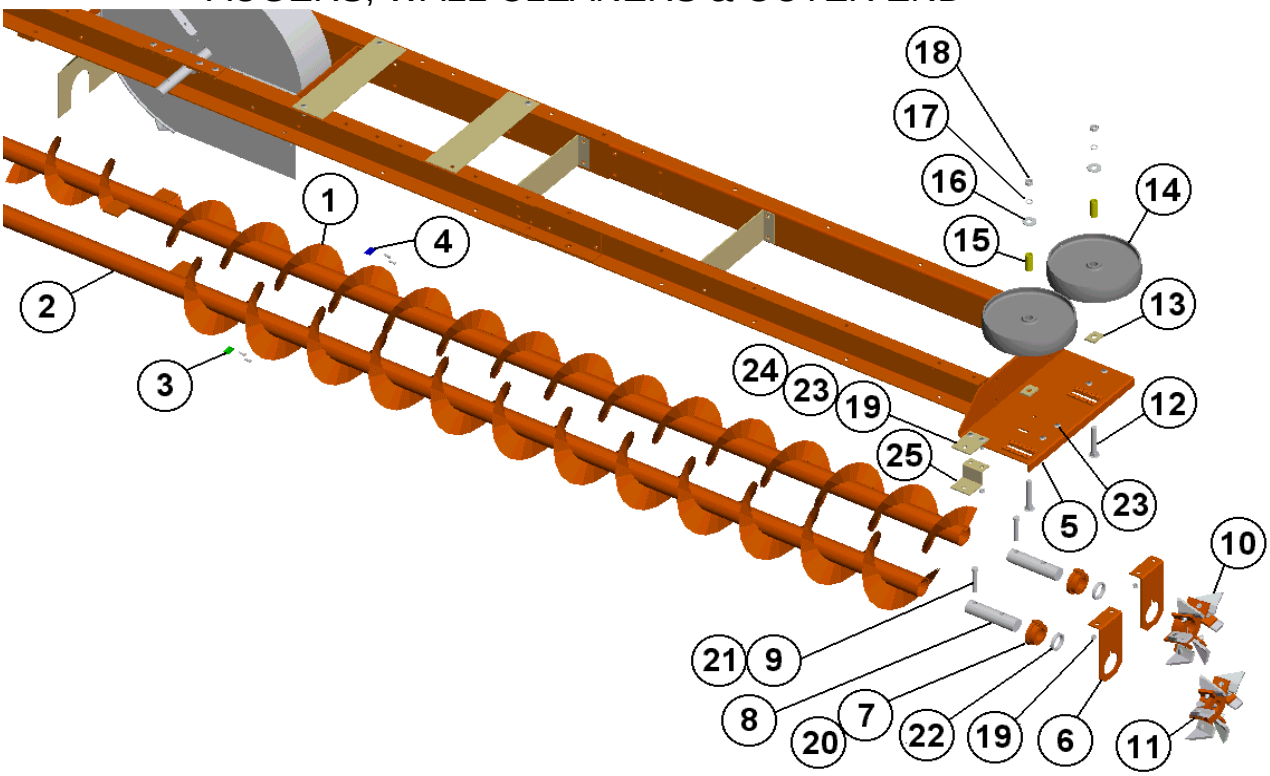
PC	PART #	DESCRIPTION	QT
1	G120376	Nut, 5/16NC Hex ZP	1
2	G120393	Washer, Flat 5/16" ZP	1
3	G122017	HHCS 5/16NC x 1" G5	1
4	G180122	HHCS 3/8NC x 1" G5 ZP	1
5	G180185	HHCS 1/2NC x 2 ½" G5	1
6	G9414201	Nut, 3/8NC Hex Centerlock	1
7	G9415987	Nut, 5/16NC Hex Centerlock	1
8	G9416450	Nut, 1/2NC Hex Centerlock	1
9	M4232	Washer, Belt Tightener	1
10	M4624	Mounting Bracket Gearbox	1
11	M4626	Spacer Bushing	1
12	M4627	Belt Tightener Strap	1
13	M4653	Spacer, Idler Bushing	1
14	S0089	S Hook #105	1
15	S0792	Pulley Idler	1
16	S0800	Spring, Belt Tightener	1



A0601 ROTOR BELT TIGHTENER

PC	PART #	DESCRIPTION	QT
1	G120376	Nut, 5/16NC Hex ZP	1
2	G120393	Washer, Flat 5/16" ZP	1
3	G122017	HHCS 5/16NC x 1" G5	1
4	G180122	HHCS 3/8NC x 1" G5 ZP	1
5	G180185	HHCS 1/2NC x 2 ½" G5	1
6	G9414201	Nut, 3/8NC Hex Centerlock	1
7	G9415987	Nut, 5/16NC Hex Centerlock	1
8	G9416450	Nut, 1/2NC Hex Centerlock	1
9	M4232	Washer, Belt Tightener	1
10	M4625	Belt Tightener Mounting	1
11	M4626	Spacer Bushing	1
12	M4627	Belt Tightener Strap	1
13	M4653	Spacer, Idler Bushing	1
14	S0089	S Hook #105	1
15	S0792	Pulley Idler	1
16	S0800	Spring, Belt Tightener	1

Silo-Matic AUGERS, WALL CLEANERS & OUTER END

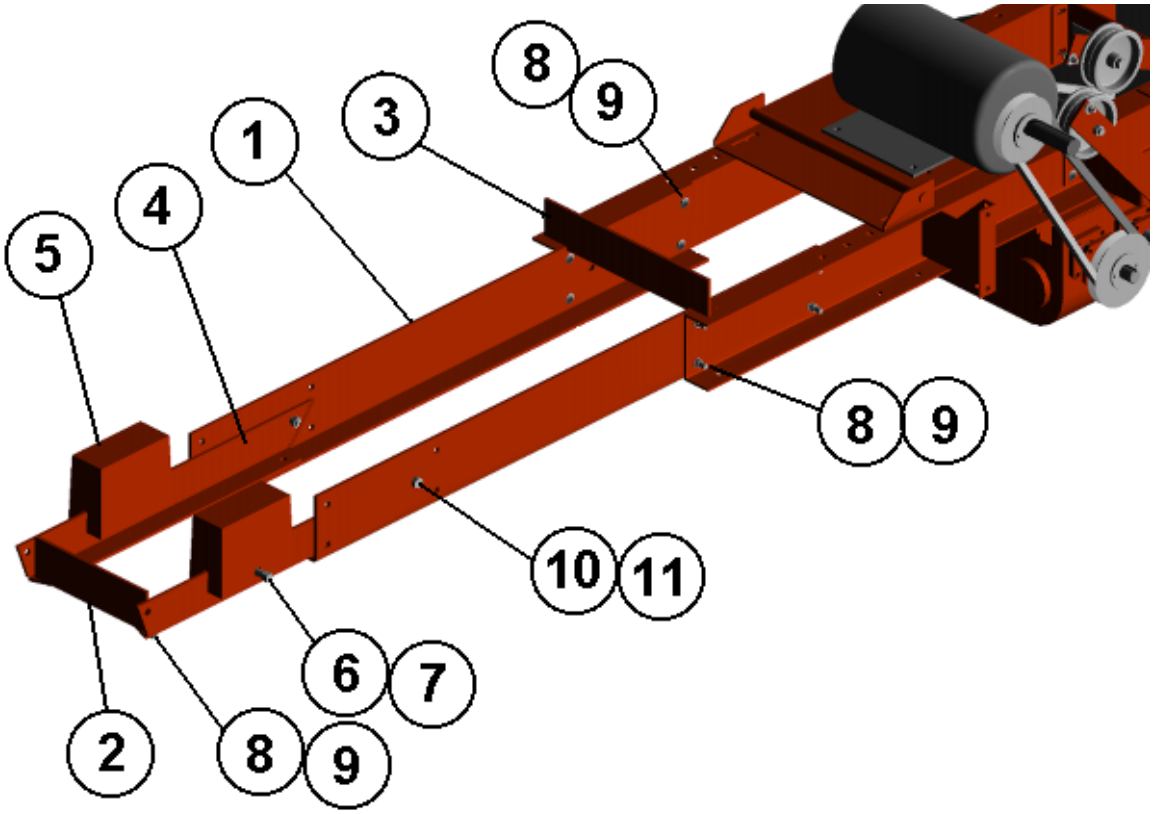


PC	PART #	DESCRIPTION	QT
1	W0883	12’ Front Auger 84-3/8”	1
	W0884	14’ Front Auger 96-3/8”	
	W0885	16’ Front Auger, 108-3/8”	
	W0886	18’ Front Auger 120-3/8”	
	W0887	20’ Front Auger 132-3/8”	
	W0888	22’ Front Auger 144-3/8”	
	W0889	24’ Front Auger 156-3/8”	
2	W0876	12’ Rear Auger 81-7/8”	1
	W0877	14’ Rear Auger 93-7/8”	
	W0878	16’ Rear Auger 105-7/8	
	W0879	18’ Rear Auger 117-7/8”	
	W0880	20’ Rear Auger 129-7/8”	
	W0881	22’ Rear Auger 141-7/8”	
	W0882	24’ Rear Auger 153-7/8”	
3	1007R	RH Auger Knive Kit (50)	1
4	1007L	LH Auger Knive Kit (50)	1
5	W0890	Outer Bracket	1
6	M4540	Bearing Plate	2
7	A0032	Auger Bearing With Oilite	2
8	M4623	Wall Cleaner Shaft	2

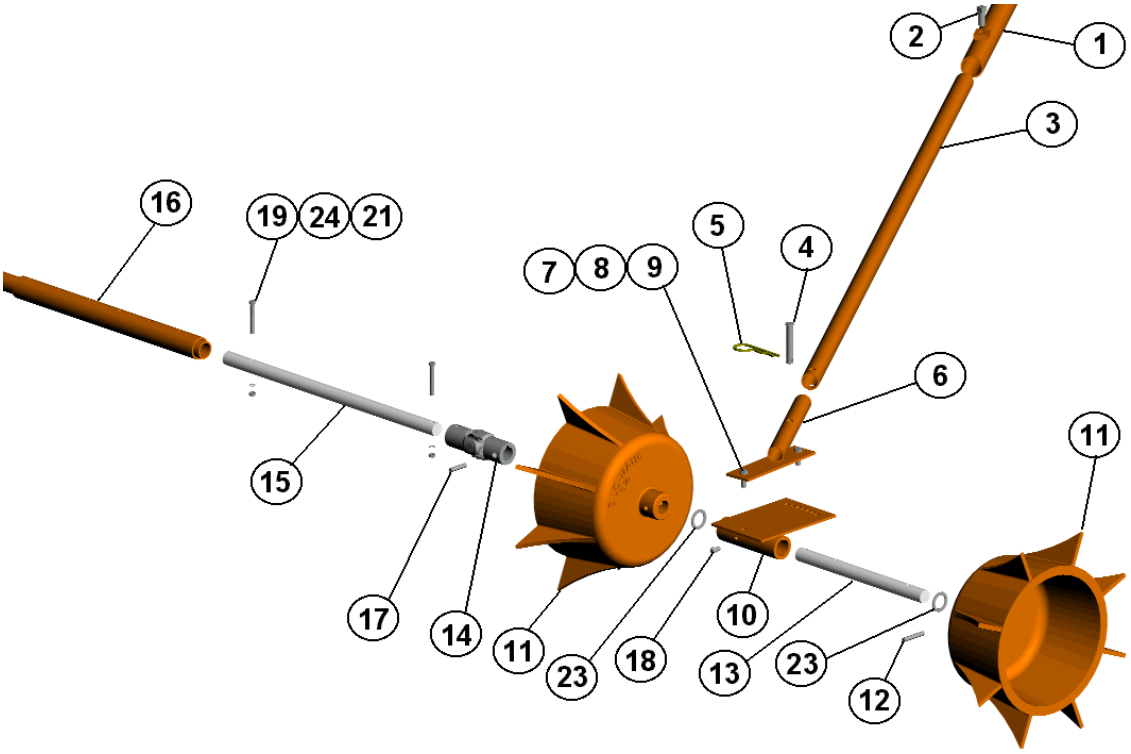
PC	PART #	DESCRIPTION	QT
9	G180190	1/2NC x 3” Hex Bolt Gr. 5	2
10	A0594	Wall Cleaner Lead	1
11	A0556	Wall Cleaner Rear	1
12	G126849	5/8NC x 3½ ” Carriage Bolt	2
13	M1875	Serrated Washer	2
14	M4194	Wall Wheel	2
15	M0078	Bushing, Wall Wheel	2
16	G130999	Washer, 5/8” Flat	6
17	G121574	Washer, 5/8” Lock	2
18	G124589	Nut, 5/8NC Hex	2
19	G9411507	3/8NC Serrated Flange Nut	4
20	G103409	Cotter Pin 3/16” x 1½ ”	2
21	G9416450	1/2NC Hex Locknut	2
22	M4622	Spacer, Wall Cleaner	2
23	G120915	3/8NC x 1” Carriage Bolt	4
24	M2093	Upper Push Rod Bracket	1
25	M2092	Lower Push Rod Bracket	1

Silo-Matic GEMINI COUNTERWEIGHTS

PC	PART#	DESCRIPTION	QT
1	M4580	14/16' Rear Counterweight Rail (22")	2
	M4581	18' Rear Counterweight Rail (34")	
	M4582	20' Rear Counterweight Rail (46")	
	M4583	22' Rear Counterweight Rail (58")	
	M4584	24' Rear Counterweight Rail (70")	
2	M4587	Tie Angle, Counterweight Rail	1
3	M4586	Counterweight Extension Cross Tie	1
4	M4585	Counterweight Rail Extension	1
5	C0034	Counterweight	AR
6	G110453	½ x 1¾" Square Head Setscrew	AR
7	G109527	Nut, ½" Square	AR
8	G120915	Carriage Bolt, 3/8NC x 1" ZP G2	10
9	G9411507	Nut, 3/8NC Serrated Flange ZP	10
10	G180175	HHCS 1/2NC x 1 ¼" G5 ZP	2
11	G9416450	Nut, 1/2NC Hex Centerlock	2

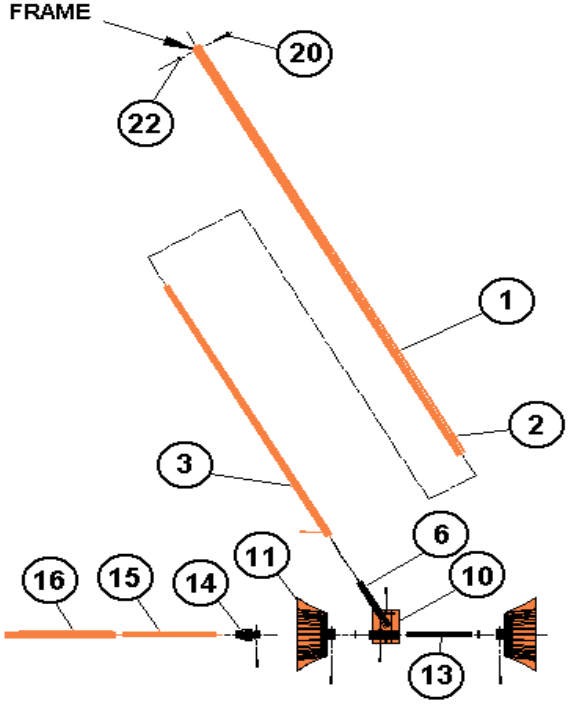


Silo-Matic DRIVE HUB & PUSH ROD

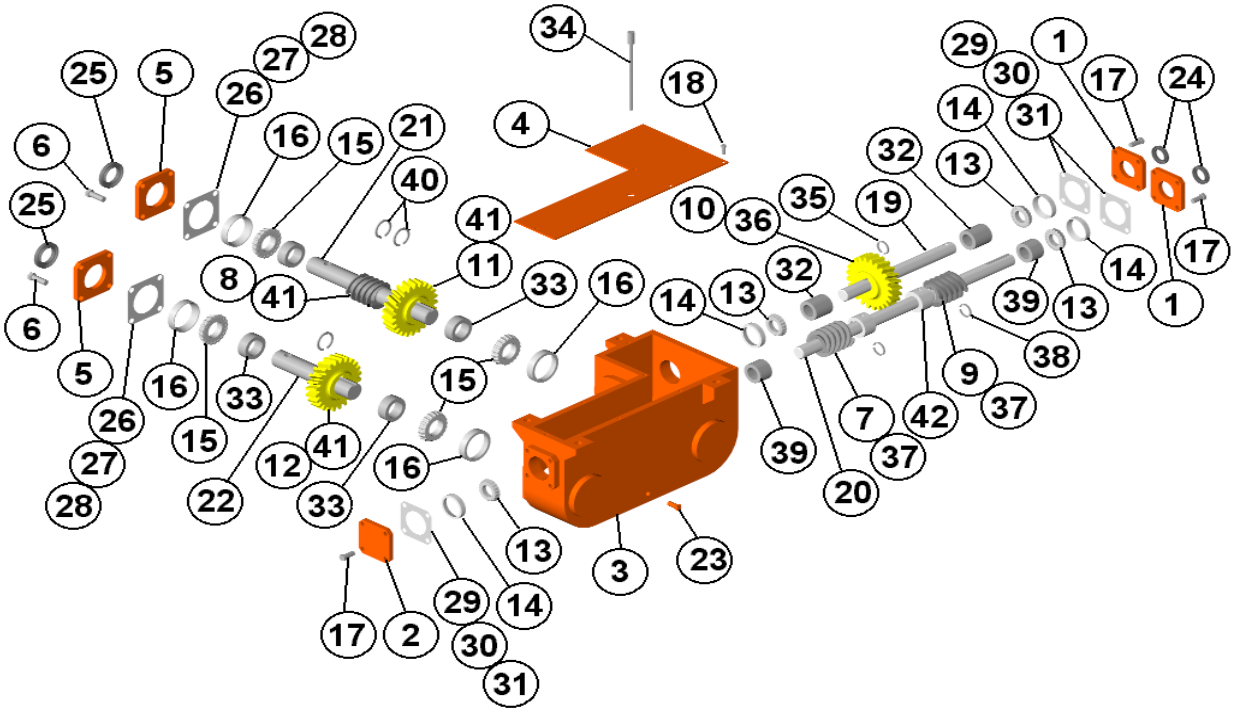


PC	PART#	DESCRIPTION	QT
1	W0314-XX	Front Push Rod (XX=Size)	1
2	G110450	Setscrew, Sq. Head ½" x 1"	1
3	M0470	Rear Push Rod, Adjustable	1
4	S1268	Clevis Pin	1
5	S0415	Hairpin, Cotter	1
6	W0589	Drive Hub Swivel Weld	1
7	G120233	HHCS 3/8NC x 1" G2	2
8	G103321	Lockwasher, 3/8NC	2
9	G120377	Hex Nut, 3/8NC	2
10	A0380	Adjustable Base Weld.	1
11	C0020	Drive Hub	2
12	G273921	Spring Pin, 5/16" x 2"	2
13	M2186	Shaft, Drive Hub	1
14	S0090	Universal Joint	1
15	M2373	Drive Hub Extension Shaft	1
16	W0052-XX	Drive Hub Extension(xx=Size)	1
17	G456396	Spring Pin 5/16" x 1-1/2"	1
18	G271291	Grease Fitting	1
19	G180089	HHCS 5/16NC x 2-1/4" G5 ZP	2
20	G180190	HHCS 1/2NC x 3" G5	1
21	G9415987	5/16NC Centerlock Hex	2
22	G9416450	1/2NC Centerlock Hex	1
23	S0116	Machine Bushing	2
24	G120214	5/16" Lockwasher	2

CONNECTS TO M2092/M2093 BRACKETS ON MAIN FRAME



Silo-Matic GEMINI SURFACE DRIVE MAIN GEARBOX, A0750 DURST



PC	PART	DESCRIPTION	QT	PC	PART	DESCRIPTION	QT
1	S1320	End Plate, Open	2	22	S1112	Output Shaft	1
2	S1321	End Plate, Closed	1	23	S1289	Drain Plug, 3/8-18NPT	1
3	S1319	Housing	1	24	S1331	Oil Seal	2
4	S1342	Cover	1	25	S1332	Oil Seal	2
5	S1322	Cover, Open	2	26	S1333	Shim, Gasket(.007)	AR
6	S1327	HHCS 7/16NC x 1-1/4"	8	27	S1334	Shim, Gasket(.010)	AR
7	S1100	Worm 6:1 LH	1	28	S1335	Shim, Gasket(.015)	AR
8	S1323	Worm 30:1	1	29	S1339	Shim, Gasket(.007)	AR
9	S1101	Worm 8:1 RH	1	30	S1340	Shim, Gasket(.010)	AR
10	S1324	Worm Gear 30t	1	31	S1341	Shim, Gasket(.015)	AR
11	S1102	Worm Gear 24t	1	32	S1300	Spacer	2
12	S1103	Worm Gear 24t	1	33	S1295	Spacer	4
13	S1104	Bearing Cone	4	34	S1115	Plug, Vent & Dipstick	1
14	S1105	Bearing Cup	4	35	S1325	Snap Ring	1
15	S0806	Bearing Cone	4	36	S1330	Key 1/4" x 1/4" x 1-3/8"	1
16	S0805	Bearing Cup	4	37	S1114	Key, 3/8 x 3/8 x 2"	2
17	S1326	HHCS 3/8NC x 7/8" Self Tap	12	38	S1109	Snap Ring	2
18	S1288	HHCS 1/4NC x 5/8" Self Tap	8	39	S1293	Spacer	2
19	S1328	Output Shaft	1	40	S1108	Snap Ring	3
20	S1110	Input Shaft	1	41	S1114	Key, 3/8 x 3/8" x 1-3/8"	3
21	S1329	Output Shaft	1	42	S1430	Lock Collar For Snap Rings	2

USED FROM 1993 TO PRESENT. GEARBOX DOES NOT HAVE END PLATES ON BACK SIDE