

1214 SERIES COMMERCIAL & INDUSTRIAL KLEAN SWEEP AUGERS with SWEEP TRACTOR

OWNER'S & OPERATOR'S MANUAL

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1214 Klean Sweep Models w/ 4:1 Gear Drive Reducer

BK14362SD6	BK14622SD6
BK14372SD6	BK14682SD6
BK14402SD6	BK14722SD6
BK14422SD6	BK14752SD6
BK14432SD6	BK14782SD6
BK14482SD6	BK14802SD6
BK14492SD6	BK14882SD6
BK14542SD6	BK14902SD6
BK14552SD6	BK14922SD6
BK14592SD6	BK141052SD6
BK14602SD6	

IMPORTANT!

The gearboxes are shipped **Without Oil**.
Oil must be added before operation.
Refer to the Lubrication Section in this manual.

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1214 SERIES KLEAN SWEEP

INTENDED USE

This product is intended to provide the mechanical means to remove the grain that remains in the bin or storage structure, after all grain that can be emptied through the center and intermediate wells has flowed out of the bin or storage structure.

This unit is designed to run at auger flight speeds of 232 RPM's. The flight speed of the sweep auger should never be altered from the way it has been originally provided.

Allowable capacities in bushels per hour (*metric tons per hour*) is also a factor of auger speed as shown in the table on page 7. Flow of the material being augered, must be regulated into the bin wells so that it does not exceed the recommended capacity of the unload unit.

Any use other than specified in this paragraph is not recommended by the manufacturer.

GENERAL SAFETY STATEMENT

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

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

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

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

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.

SAFETY ALERT SYMBOL

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

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

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

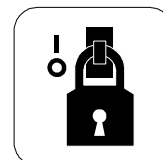


Operate Electric Motor(s) Properly

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

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

Disconnect power on electrical driven units before resetting motor overloads.



Lockout / Tagout



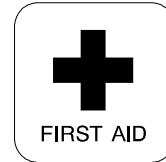
Electric Shock Hazard

Prepare for Emergencies

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

Keep a first-aid kit and fire extinguisher handy.

Be prepared if a fire starts



First Aid Equipment



Fire Extinguisher

Follow Safety Instructions

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

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

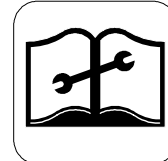
Learn how to operate the machine and how to use controls properly.

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

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



Read and Understand Manual



Understand Service Procedures



Keep Work Area Clean

Wear Proper PPE (Personal Protective Equipment)

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

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

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

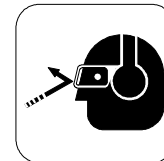
Wear steel toe boots to protect your feet from falling debris.

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

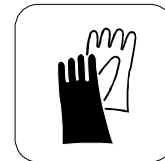
Use caution when working at elevations greater than four (4) feet (1.22 m) above the ground.

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

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



Eye & Hearing Protection



Gloves



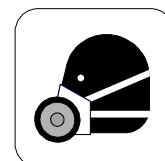
Steel Toe Boots



Hard Hat



Fall Protection

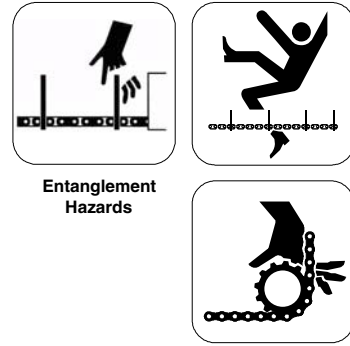


Respirator

SAFETY

Stay Clear of Moving Parts

Keep all shields, covers and safety devices in place at all times. Entanglement in moving chains, rotating impeller arms and sprockets will cause serious injury or death. Wear close fitted clothing. Keep hands, feet and clothing away from moving parts. Shutdown and lockout power source before making adjustments, cleaning or maintaining the equipment.



GRAIN BIN SAFETY

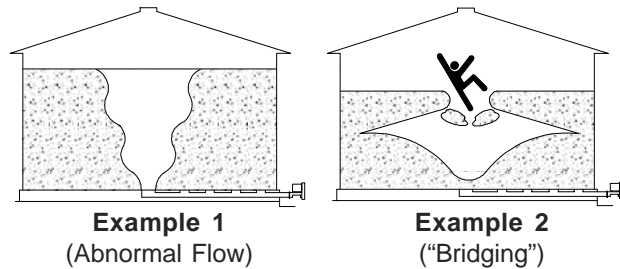
The Klean Sweep Auger is generally designed to remove the grain that remains in the bin or storage structure, after all grain that can be emptied through the center and intermediate wells has flowed out.

Be aware of the dangers inherent in grain bins.

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

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

Do Not enter the bin unless all power driven equipment has been shut down and locked out. Never enter the bin unless monitored by another person.



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.

Apply to Outside of Bin or Storage Structure

Applied to Back Side of All Sweeps

1002303-1
Rotating Flight Hazard

Danger Decal, Part No. 1002304-1
Keep Out of Bin While Sweep is in Operation

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

1. Some regulations specify that no one under the age of 16 may operate power machinery. This includes this conveyor. It is your responsibility to know what these regulations are in your area or situation.
2. Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in safe operation and servicing of all equipment with which the employee is, or will be involved." *
3. Unqualified persons are to stay out of the work area. See Page 9.
4. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.
5. Persons operating, servicing or repairing equipment that requires above ground work shall be properly secured with the use of "fall protection" equipment as set forth by OSHA guidelines and regulations.

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

SIGN OFF SHEET

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

<i>Training Sign-Off Sheet</i>		
Date	Employer Signature	Employee Signature

MACHINE INSPECTION

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

1. Check to see that all shields listed in the assembly instructions are in place, secured and functional.
2. Check all safety signs (decals) and replace any that are worn, missing or illegible. Safety signs may be obtained free of charge from your dealer or ordered from the factory.
3. Check **all** fasteners; nuts, bolts, set screws etc. for tightness.
4. Check oil level in gearboxes (See Lubrication section).

GENERAL AUGER INFORMATION

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



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



- Inspect the sweep before adding power and know how to **shutdown** in an emergency (See Page 9).
- During operation of your auger, one person shall be in a position to monitor the operation.
- Visually inspect the auger periodically during operation, be aware of all adjustments and checks which should be performed.
- Obtain any needed replacement parts from your dealer and install **before** using the machine.
- It is important to become familiar with the routine operating procedures before attempting start-up.

General Information (con't.)



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



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



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

OPERATING CAPACITIES

Capacities of screw conveyors and augers can vary greatly under diverse conditions. Different materials, moisture content, amounts of foreign matter, methods of feeding and flight speed all play a role in the performance of the auger.

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

BREAK-IN INFORMATION

Any screw type auger when it is new or after it sits idle for a season should go through a “break-in” period. The unload auger should be run at partial capacity until several hundred tons of grain have been augered to polish the flight and housing. Once this is accomplished, the unload auger can be run at full capacity.

Never operate the unload auger when empty for any length of time as excessive wear will result. If possible, do not stop or start the auger under load, especially before the flight and housing have become well polished, as this may cause the auger to freeze-up.

IMPORTANT: BEFORE FILLING BIN

Before filling the bin or storage structure with grain, make sure all slide gates on all wells are closed.

Shutdown and lockout sweep power source.

Klean Sweeps are **NOT** designed to remain in the bin during filling, storage or unloading for fill heights exceeding the height listed in the chart on Page 11. Leaving a sweep in the bin during these operations may cause severe damage to the sweep, center well or bin. Hutchinson|Mayrath will not be responsible for such damage.

ELECTRIC DRIVE POWER REQUIREMENTS



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 auger.

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

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



Make certain electric motor is grounded.

Disconnect power before resetting motor overloads.

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

The horsepower recommendations are based on clean, dry shelled corn or wheat. High moisture grain, above 15% will require greater power (the maximum possible capacity will be less with high moisture grain than with dry grain).

Always use a motor with the required power recommended in the chart below. Use a 60 Hz motor that operates at 1750 RPM (50 Hz @ 1460 rpm's).

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

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

The horsepower (*kw*) recommendations are based on clean, dry shelled corn or wheat. High moisture grain (above 15%) will require greater power.

The maximum possible capacity will be less with high moisture grain than with dry grain. Use the tables below to determine size of motor required. Capacity at sweep speed of 232 RPM is 6100 BPH (165 *mtph*).

**Horsepower (kw) Requirements and Sweep Auger Speeds for
1214 Series Commercial Klean Sweep used with 12” Bin Unloader**

Bin Diameter	H.P. (Electric)	Motor Pulley	Operating Flight Speed	Number of Belts
36 to 40 ft	7 1/2 HP (5.5 kw)	5.6” P.D. (14.2 cm)	232 RPM	2B
42 to 49 ft	10 HP (7.5 kw)	5.6” P.D. (14.2 cm)	232 RPM	3B
54 to 78 ft	15 HP (11 kw)	5.6” P.D. (14.2 cm)	232 RPM	3B
80 to 105 ft	20 HP (15 kw)	5.6” P.D. (14.2 cm)	232 RPM	3B

FLIGHT SPEED INFORMATION

Proper auger flight speed is important for efficient operation of the Klean Sweep.

1. If the flight speed is too fast, excessive wear will result.
2. If the flight speed is too slow and the auger flighting is permitted to “load-up”, high torque will be required to turn the auger flighting, this can result in damage to the auger. The slide gate in the center well should be left fully open during sweep operation.

Use the charts on the previous page for motor pulley size and horsepower (*kw*) to determine flight speed.

START-UP INFORMATION



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

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

Keep all safety shields and devices in place.



Keep hands, feet and clothing away from moving parts.

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

Never attempt to control operation of the sweep auger by pushing on the operating sweep auger with shovels, brooms or other devices.



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

During the operation of the auger, one person shall be in a position to monitor the operation. Inspect the drive before adding power and know how to shutdown in an emergency (See Shutdown/Lockout). Visually inspect the auger periodically during operation.

Ensure all fasteners are tight, and that all guards are in place.

TROUBLE SHOOTING

LOW CAPACITY

Sweep capacity may vary as the angle of sloping grain varies. Check horsepower (*kw*) requirements on Page 7 to determine correct operating speed and motor pulley size recommended for that speed. If a greater or lower capacity is desired it may be possible to change the motor pulley which will change the sweep flight speed.

Do Not attempt operation at speeds greater than 50 to 100 RPM above the standard recommended speed. Do Not operate a sweep that is overfeeding the unloading auger unit. The slide gate in the center well should be left fully open during sweep operation.

SWEEP FLIGHT & BACK SHIELD NOT MOVING

IMPORTANT! Klean Sweeps are NOT designed to remain in a bin during filling, storage or unloading. Leaving a sweep in the bin during these operations may cause severe damage to the sweep, center well, or bin. Hutchinson I Mayrath will not be responsible for such damage.

Check clearance between back shield and bin floor for excessive drag.

The grain may have gone out of condition due to moisture or insect activity and has become hard or caked. **Stop the sweep auger and shut down and lockout power source before entering bin** to correct this or any other difficulty.

DESIGNATED WORK AREA



WARNING! Under no circumstances should persons not involved in the operation be allowed to trespass into the work area.



It shall be the duty of all operator's to see that children and/or other persons stay out of the work areas. Trespassing into the work area by anyone not involved in the actual operation, or trespassing into a hazard area by anyone shall result in immediate shutdown by the operator.



It shall be the responsibility of the operator's to see that the work area has secure footing, is clean and free of all debris and tools which might cause accidental tripping, falling or other injuries.



It shall also be their responsibility to keep the work area clean and orderly during the operation.



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



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



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

Before starting the auger, a designated work area should be established and properly marked.

These areas shall be marked off with colored nylon or plastic rope or banners hung as portable barriers to define the designated work area.

All operator's shall know how to **shutdown and lock-out the equipment in the event of an emergency.**

ELECTRIC DRIVE SHUTDOWN/LOCKOUT



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



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

Emergency Shutdown

Should the auger be immediately shutdown under load, stop the flow of grain into the auger by closing the well gates. **Disconnect and lockout the power source.**

Clear as much grain from the auger as you can.

When as much grain as possible has been cleared, reconnect the power source and clear the grain gradually (it may be necessary to start and stop the auger to gradually empty itself).

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

Normal Shutdown

Stop the flow of grain into the unload auger and let unit empty itself out before stopping. **Before the operator leaves the work area, the power source shall be locked out** (See "Lockout" below).

Intermittent Shutdown

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

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

Lockout

The power source for electric units shall have a main disconnect box that can be locked only in the "Off" position. That is what "shutdown and lockout" refers to - Shut off the main power source and **lock the handle or breaker switch in the "Off" position.**

FULL LOAD OPERATION



WARNING! Observe the work area restrictions.

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

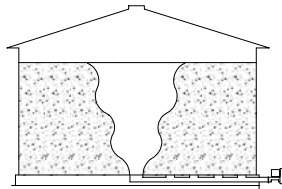


Do Not enter the bin if the grain has “Bridged” or has not flowed normally out of the bin, See illustrations below. The grain may suddenly break loose and bury resulting in suffocation.

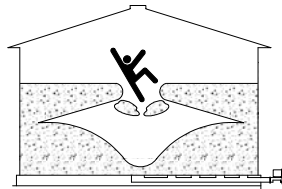


Do Not enter the bin unless all power driven equipment has been shutdown and locked-out.

Never enter the bin unless monitored by another person.



(Abnormal Flow)



(“Bridging”)



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

Klean Sweeps are **NOT** designed to remain in the bin during filling, storage or unloading for fill heights exceeding the height listed in the chart on Page 11. Leaving a sweep in the bin during these operations may cause severe damage to the sweep, center well or bin. Hutchinson|Mayrath will not be responsible for such damage.

To Start Auger Operation

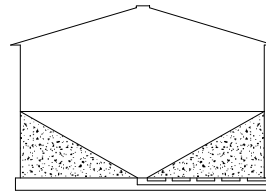
1. Start the motor for the unload auger/conveyor before augering grain.
2. With unload auger operating, open the center well gate until desired flow is established, it should not be necessary to open the gate more than 3” to 6” (76 to 152 mm) to acquire full load.

Do Not overload the unloading auger. This may result in damage to the auger.

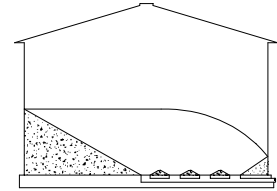
3. When the natural gravity-flow of grain to the center well stops, close the center well gate and allow the unload auger to run until it cleans itself out.
4. Start the unload auger and gradually open the center well **and** intermediate well gates until desired flow is established, it should not be necessary to open the gates more than 2” to 4” (51 mm to 102 mm) to achieve sufficient flow.

IMPORTANT! Intermediate wells should only be opened after grain has stopped flowing through the center well.

After all grain has been removed that will gravity-flow through the wells, close the well gates, let auger clean itself out then, **shut down and lockout power source.** The grain remaining in the bin should appear as shown in the illustration below.



Grain Flow Through Center Bin Well



Grain Flow Through Intermediate Wells

5. Ensure sweep and tractor are ready for operation. Clean as much of the grain from the sweep and tractor as you can. Check all electrical connections, and all fasteners. Check to ensure oil level is correct (See Lubrication and Maintenance Section).
Make sure guards and covers are secure and in place and that tractor tire pressure is correct (refer to the Lubrication & Maintenance Section).
6. Make sure everyone is out of bin and clear of work area. Start unload auger, open well gates and start sweep operation.
After the sweep has removed as much grain as possible, final cleanout can now be started (See Page 13 for final cleanout procedures).

FULL LOAD OPERATION (con't.)

**Bin Fill Height Chart
as determined by bin diameter**

Bin Diameter	Max. Peak Fill Height*	Bin Diameter	Max. Peak Fill Height*	Bin Diameter	Max. Peak Fill Height*
36' (10.97 m)	120' (36.58 m)	54' (16.46 m)	92' (28.05 m)	75' (22.86 m)	77' (23.47 m)
37' (11.28 m)	120' (36.58 m)	55' (16.76 m)	91' (27.74 m)	78' (23.77 m)	76' (23.17 m)
40' (12.19 m)	120' (36.58 m)	59' (17.98 m)	87' (26.52 m)	80' (24.38 m)	76' (23.17 m)
42' (12.80 m)	120' (36.58 m)	60' (18.29 m)	86' (26.22 m)	88' (26.82 m)	73' (22.26 m)
43' (13.11 m)	117' (35.67 m)	62' (18.90 m)	84' (25.61 m)	90' (27.43 m)	73' (22.26 m)
48' (14.63 m)	102' (31.09 m)	68' (20.73 m)	81' (24.69 m)	92' (28.04 m)	72' (21.95 m)
49' (14.94 m)	100' (30.49 m)	72' (21.95 m)	79' (24.08 m)	105' (32.00 m)	70' (21.34 m)

*The Side Wall fill height will be less than the Peak fill height.
A 23 degree angle of repose can be used for calculations.

OPERATING PROCEDURES

CONNECT POWER



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

Keep out of bin while sweep auger is in operation. The sweep will move rapidly around the bin when the bin is nearly empty.

The intermediate well gates should be closed to prevent accidentally stepping into the well(s).



Never attempt to control the operation of the sweep auger by pushing on the operating sweep with brooms, shovels or other devices.

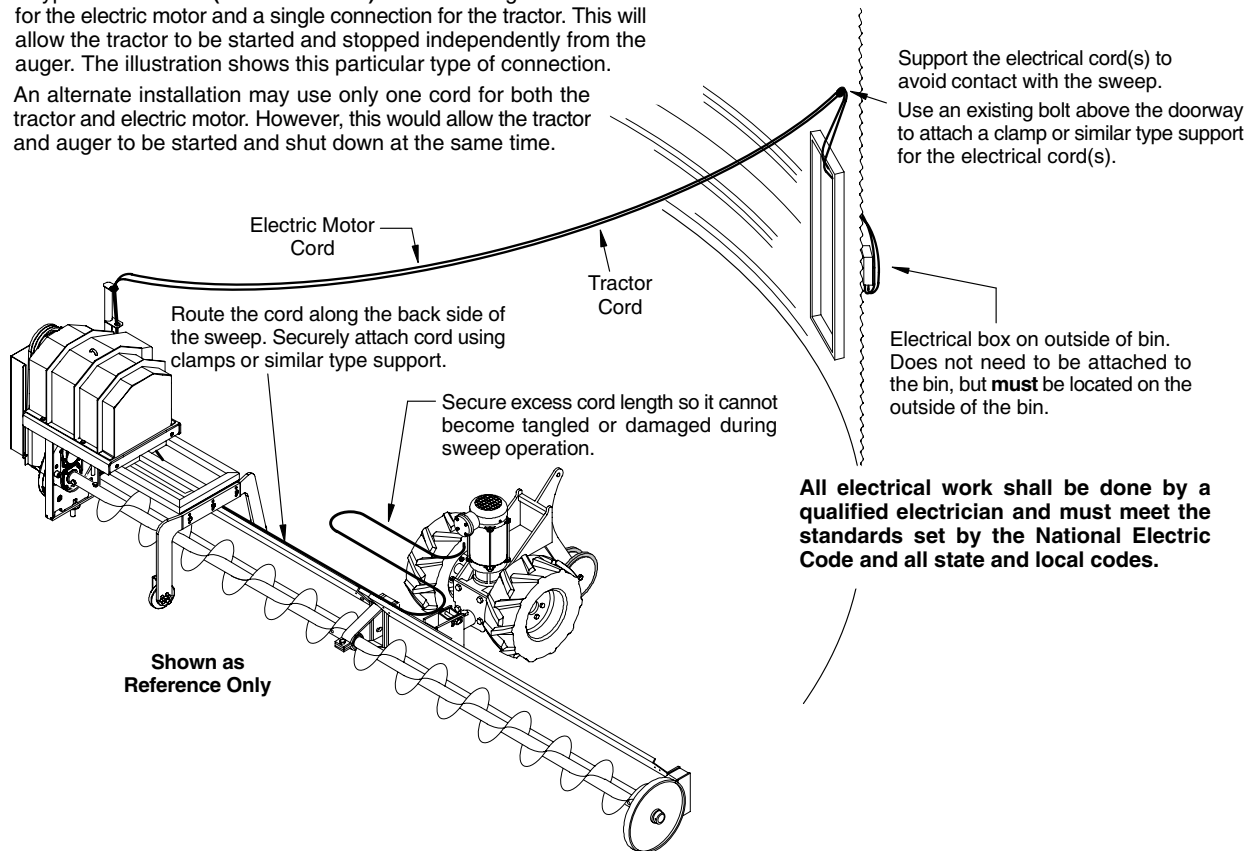
Do Not attempt to restrain movement of the sweep auger by attaching ropes, bars, or other devices to be held by the operator.

IMPORTANT! Electric motors 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.

Attach suitable electric wiring to the motor in a manner that will permit the sweep to rotate several times about the bin. The motor starting controls must be located outside the bin. They must never be installed on the sweep auger inside the bin. Locate the controls outside the bin, but near the bin door so the operator has full view of the operation inside the bin.

A typical installation (**recommended**) will use a single connection for the electric motor and a single connection for the tractor. This will allow the tractor to be started and stopped independently from the auger. The illustration shows this particular type of connection.

An alternate installation may use only one cord for both the tractor and electric motor. However, this would allow the tractor and auger to be started and shut down at the same time.



FINAL CLEANOUT

The following procedures are recommended for cleaning the floor of the bin after the sweep auger has removed as much grain as possible.



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



Keep out of bin while sweep auger is in operation. The sweep will move rapidly around the bin when the bin is nearly empty.

The intermediate well gates should be closed to prevent accidentally stepping into the well(s).

1. With the power source shut down and locked out, clean (scoop and sweep by hand) the outer area of the floor into a circular pile towards the center of the bin (See Fig. 1).

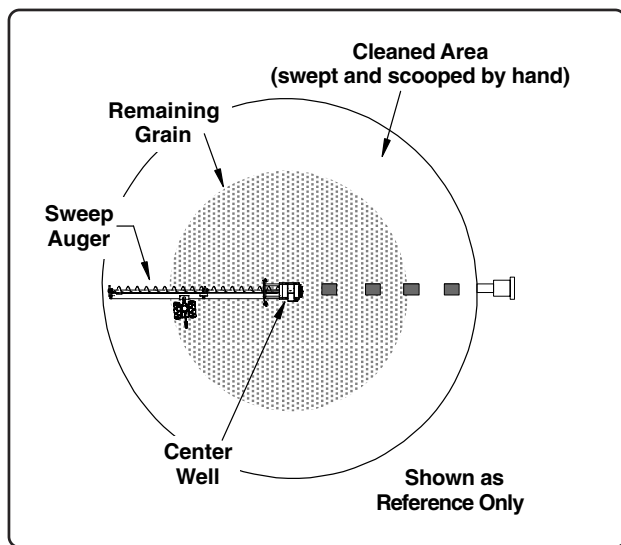


Fig. 1

2. Clear everyone out of the bin. After making sure everyone is outside the bin and clear of the equipment, restore power to unload auger and sweep. In a short time, the circular pile towards the center of the bin will have been reduced.

3. Shut down and lockout the power source to the unload auger and sweep auger. Clean (scoop and sweep by hand) the remaining floor area into a circular pile towards the center of the bin (See Fig. 2).
4. Clear everyone out of the bin making sure everyone is outside the bin and clear of the equipment. Restore the power source to the unload auger and sweep. In a few rotations the circular pile will have been reduced again. Repeat Steps 1 thru 4 until all grain has been removed from the bin.

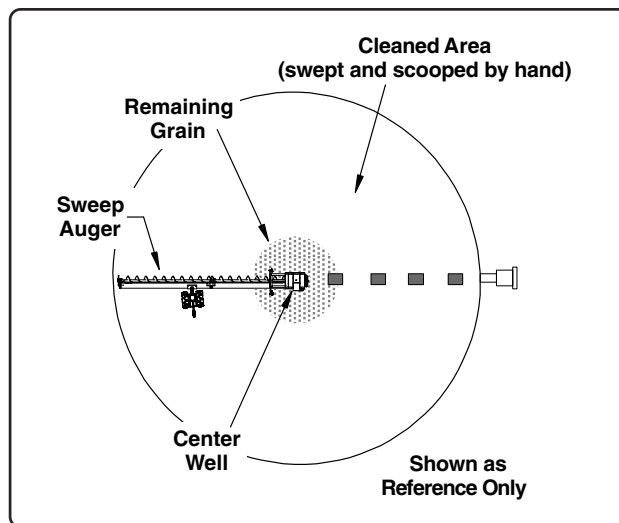


Fig. 2

GENERAL MAINTENANCE INFORMATION



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



Keep hands, feet and clothing away from moving parts.

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



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

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

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

GUARDS

Check the guards to see if they are properly adjusted and securely fastened. Guards should not contact any moving parts and should be kept closed and in place during auger operation.

Immediately replace any guard that has become worn or damaged.

BELT ADJUSTMENT



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 auger.



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

Check belts frequently for fraying, cracking or other damage. Replace as necessary,

Check belts for proper tension. Belts should deflect approximately **9/16" (14 mm)** when firmly pressed in the center of the span between the two sheaves.

To adjust belt tension, loosen the 3/4" nuts on the threaded adjustment rods located beneath the motor mount plate (See Fig. 3). Adjust the threaded rods until proper belt tension has been achieved, retighten 3/4" nuts to lock adjustment rods into place.

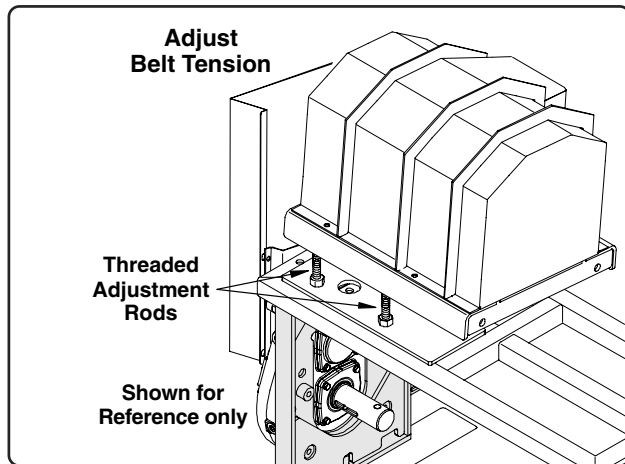


Fig. 3

BEARING STAND BRONZE BUSHING

The bearing stands have a bronze bushing that the sweep fight connecting stubs pass through. Although these bushings require no lubrication, they can begin to wear over time.

This can cause the bushing to become oval shaped, or the bushing may begin to spin within the bearing support. If necessary, remove the worn bushing and press in a new one.

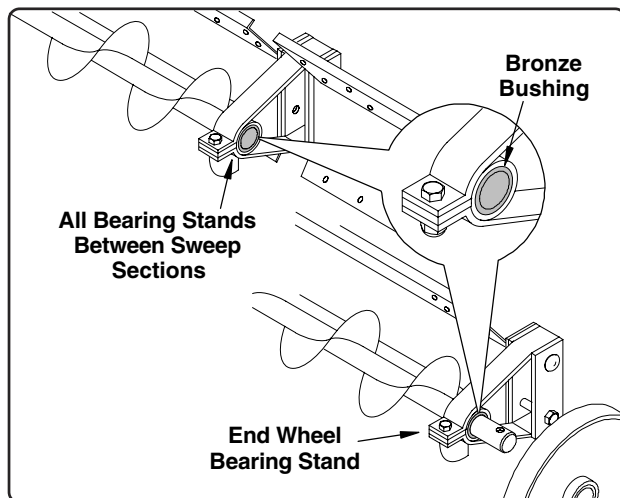


Fig. 4

4:1 REDUCER



WARNING! Never attempt to clean, adjust or lubricate a machine that is in operation.



Always shutdown and lockout the power source to all power driven equipment before servicing, repairing or maintaining any auger components.

IMPORTANT! The 4:1 reducer gearbox is shipped without oil. Oil needs to be added before operation.

Even under normal working conditions, oil still has a tendency to dissipate. Periodically check oil level and maintain proper level.

1. With the gearbox in the upright position, remove the level check plug shown in Fig. 5 below.

Remove one of the plugs from the top of the gearbox, this will be used as the fill opening.

Add approx. **32 oz. (9.6 ml)** of an **SAE 80W90** weight oil through the plug opening on the top of the gearbox (a small funnel, pipe nipple or syringe type tool can be used to add the oil).

Watch the oil level check opening. When oil begins to leak from the opening stop adding oil. Do Not overfill. Additional oil may damage the seals or be forced through the vent plug.

Replace the level check plug once oil level has been established.

2. Discard the plug removed from the top of the gearbox fill opening and install the vent plug shipped separately with the gearbox (See Fig. 5).

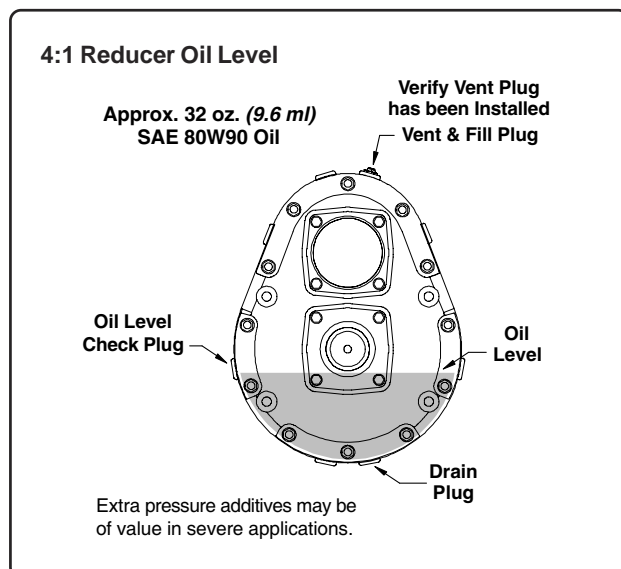


Fig. 5

SWEEP TRACTOR

- Check that all fasteners and wheel lug bolts are tight.
- Make sure electrical cord is not damaged and ensure electrical connections are tight.
- Ensure weights (if applicable) are properly hung and secured to the main frame.
- Maintain proper tire pressure. Maximum tire pressure is **23 PSI (159 kPa)**.

SWEEP MAINTENANCE



WARNING! Observe all designated work area restrictions.

Make certain everyone is clear before operating the equipment.



Never attempt to control the operation of the sweep auger by pushing on it with brooms, shovels or other devices.



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

Stay clear of the under-floor unloading auger at the bin wells. The unloader is exposed at these locations in the bin floor.

- Before each use, check to ensure all fasteners are tight and all guards are in place and secured.
- Inspect all electrical cords for damage, replace as necessary. Check all electrical connections to ensure they are tight and properly connected.

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

- Check sweep carriers and truss systems for damage, loose hardware, proper cable tension.

ASSEMBLY INSTRUCTIONS

GEARBOX TO PIVOT MOUNT ASSEMBLY



WARNING! Some components are heavy, use assistance when working with these parts. Wear proper PPE during all phases of the assembly process. Keep work area clean and orderly and free of all debris and tools that may cause accidental tripping, falling or other serious injuries.

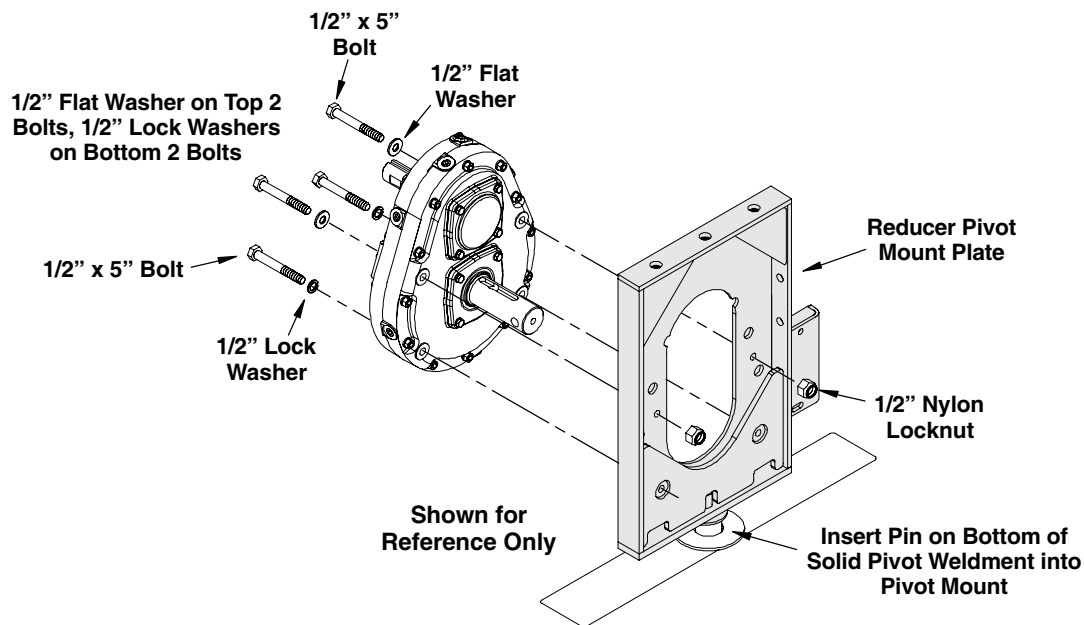
Install Gearbox

If using the Adjustable Pivot Mount assembly for the center well pivot point, refer to the instructions shipped with the pivot mount for proper installation instructions. Otherwise, insert mount pin on bottom of pivot mount plate into existing center well pivot tube.

The gearboxes are shipped with oil already installed. It is recommended to check oil level before assembly to ensure level is correct. See "Lubrication & Maintenance" Section in this manual for instructions on checking and adding oil to the gearboxes.

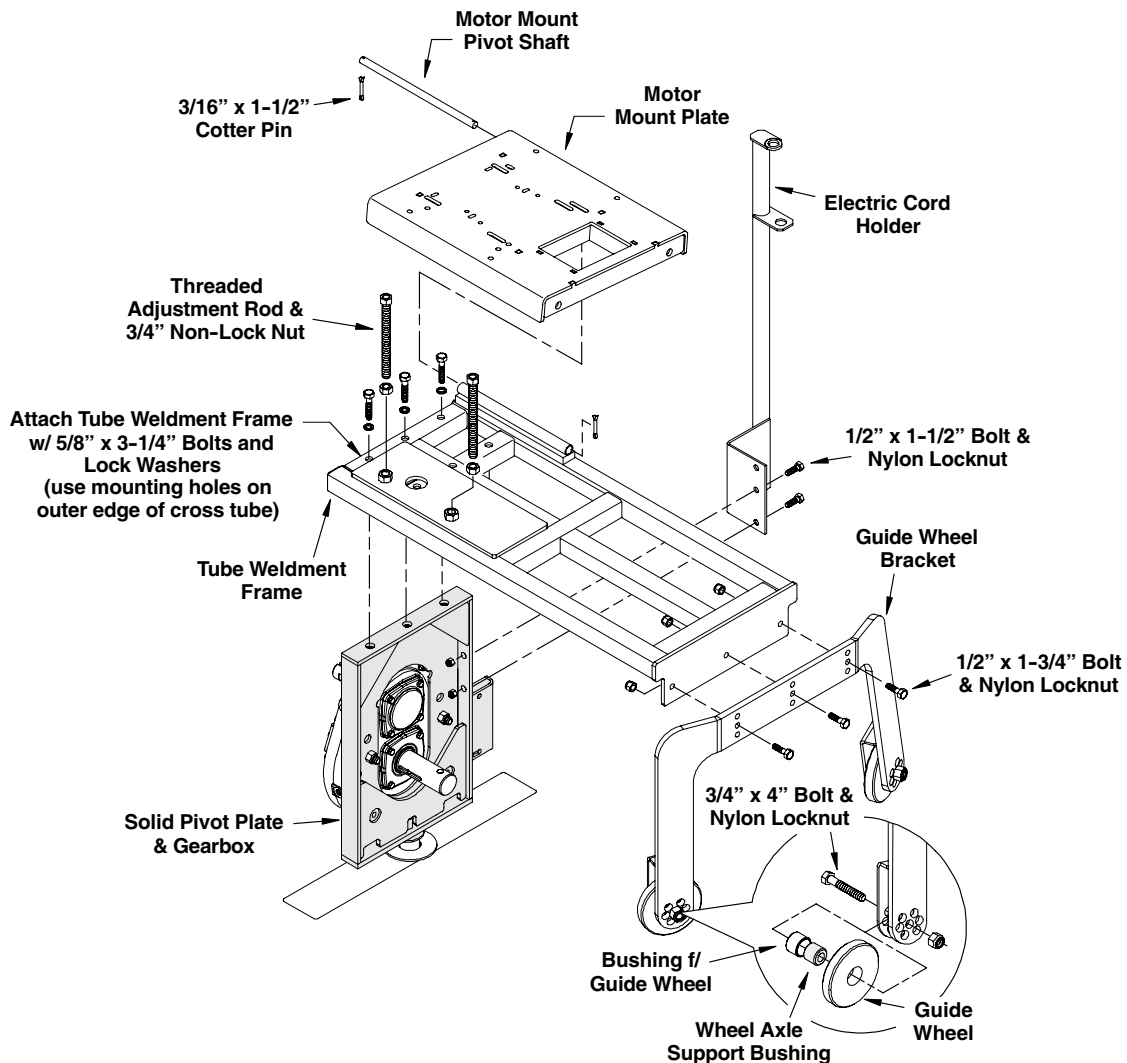
1. Insert the solid pivot weldment frame into the mounting pipe in the center well.
2. Install a 1/2" flat washer onto two of the 1/2" x 5" bolts. Position the gearbox as shown in the illustration below and using the two top mounting holes in the gearbox, fasten it to the solid pivot mount using 1/2" nylon locknuts (these bolts will be loosened to allow the belt guard to be slid behind the bolt heads and washers, just snug up the bolts for now).

Install a 1/2 lock washer onto the remaining two 1/2" x 5" bolts. Install them into the lower two mounting holes in the gearbox and secure.



MOTOR MOUNT ASSEMBLY

1. Loosely attach the tube weldment frame to the top of the solid pivot plate using three 5/8" x 3-1/4" bolts and lock washers. (use the three mounting holes on the outer cross tube as shown below).
2. Assemble the guide wheel, bushing and axle support bushing together and install into each end of the guide wheel bracket as shown below. Secure each wheel using the 3/4" x 4" bolt and nylon locknut provided.
3. Attach the guide wheel bracket to the tube weldment frame using three 1/2" x 1-3/4" bolts and nylon locknuts (See illustration below). **Note: To ensure the weldment frame and solid pivot plate assembly remains level, there are various mounting holes on the guide wheel bracket for adjustment of the guide wheels, as well as an up-and-down adjustment on the mounting holes of the wheel bracket.** Use any of these adjustments alone or in combination with each other as needed to ensure the assembly is level.
4. Thread a 3/4" non-lock nut onto each end of the threaded adjustment rods. Install the adjustment rods into the nuts welded to the tube weldment frame until there is approximately 2" (51 mm) of the threaded rods protruding above the weldment frame (See illustration below).
5. Position the motor mount plate above the weldment frame and install the pivot shaft as shown below. Secure the pivot shaft using two 3/16" x 1-1/2" cotter pins.
6. Attach the electric cord holder to the side of the solid pivot plate using 1/2" x 1-1/2" bolts and nylon locknuts (See illustration below).



ASSEMBLY INSTRUCTIONS

BELT GUARD & DRIVE ASSEMBLY

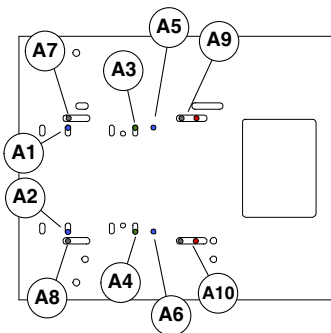
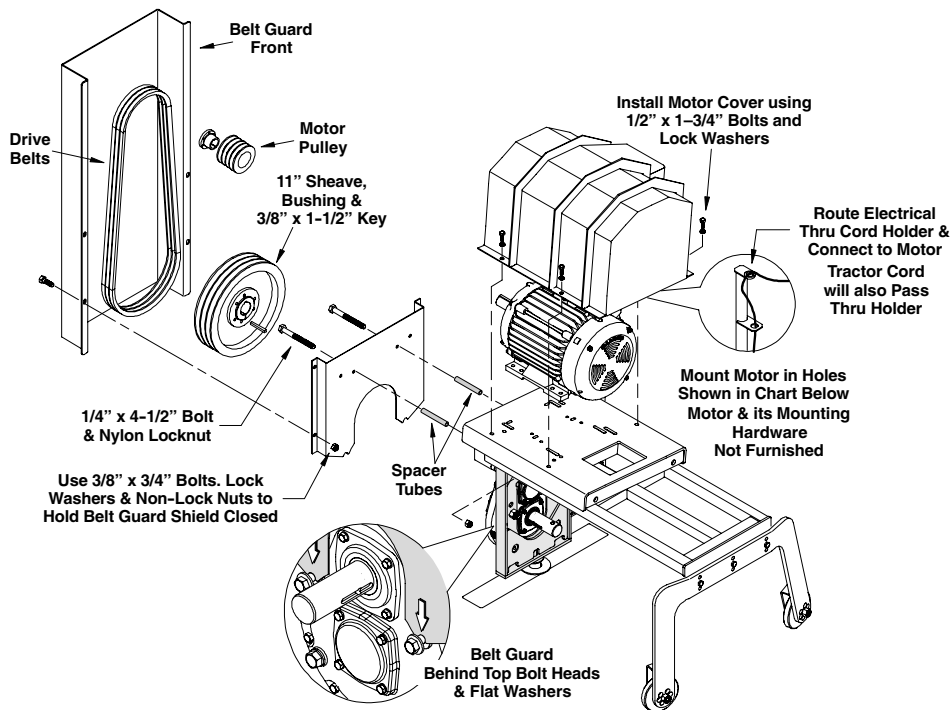
1. Loosen the two top bolts securing the gearbox to the pivot stand (bolts have the flat washers). Loosen only enough to slide the belt guard behind the washers (See illustration below). Snug the bolts to hold the belt guard in place and insert two spacer tube in between the belt guard and pivot stand (See illustration below). Secure the tubes using the 1/4" x 4-1/2" bolts and nylon locknuts provided. Tighten all belt guard hardware.
2. Install the 11" driven sheave, bushing and 3/8" x 1-1/2" sq. key onto the gearbox shaft. Slide the sheave as close to the back of the belt guard as possible without contacting the guard. Secure sheave into place.
3. Using the chart below, mount the electric motor into the appropriate mount holes as determined by the motor's horsepower (*kw*) rating. Install motor pulley and using a straight edge on the face of the pulleys, align both pulleys and secure into place.

Install drive belts. Adjust belt tension as detailed in the Maintenance Section of this manual.

4. Use two 3/8" x 3/4" bolts, lock washers and non-lock nuts to secure the belt guard door in the closed position.
5. Route the electrical cord through the cord holder and connect cord to motor. Refer to Page 12 for more information on routing the cord to the power source.

IMPORTANT! Electric motors 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.

6. After motor has been properly connected, install motor cover. Secure to motor mount plate using 1/2" x 1-3/4" bolts and lock washers.



Bin Dia.	Motor Size HP (kW)	Motor Frame Size	Bolt Dia. Req'd.	Mount in Holes Marked (•)											
				A1	A2	A3	A4	A5	A6	A7	A8	A9	A10		
36' to 40'	7.5 hp (5.5 kW)	213T	3/8"	•	•	•	•								
42' to 49'	10 hp (7.5 kW)	215T	3/8"	•	•			•	•						
54' to 78'	15 hp (11 kW)	254T	3/8"								•	•	•	•	
80' to 105'	20 hp (15 kW)	256T	1/2"								•	•	•	•	

SWEEP FLIGHT AND BACK SHIELD

ASSEMBLY

The Commercial Klean Sweep is made up of several sections of sweep flight and back shields. The length and number of sections will vary depending on bin size. **The chart below shows the appropriate flight and shield lengths required for various bin sizes.**

The sweep flight with the cutback must be attached to the drive assembly. The remaining sections should be assembled in the order shown in the chart below.

If a sweep auger with four or more sweep sections was selected, a truss assembly is included. The truss should be used anytime four or more sections are assembled together.

If the truss cable you have is for a greater number of sweep sections than what you are assembling, be sure to either tie off, or cut off the extra cable length so it cannot become entangled in the sweep flight.

IMPORTANT! The sweep shields will need to have a “crown” created at the midway point of the length of the sweep. Make sure the hardware securing the sweep shields is loose, this includes the hardware securing the shield to the pivot mount stand, and the hardware securing the end wheel mount bracket to the shield.

See Page 27 for instructions and crown locations.

Sweep Flight and Sweep Shield Section Chart

Catalog No.	Bin Dia.	1st Section (with Cutback) Attached to Drive Unit	2nd Section from Drive Unit	3rd Section from Drive Unit	4th Section from Drive Unit	5th Section from Drive Unit	6th Section from Drive Unit
BK1436SD6	36'	9'-9 3/4" (2.99 m)	6'-7 1/2" (2.02 m)				
BK1437SD6	37'	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)				
BK1440SD6	40'	9'-9 3/4" (2.99 m)	8'-7 1/2" (2.63 m)				
BK1442SD6	42'	9'-9 3/4" (2.99 m)	9'-3 1/2" (2.83 m)				
BK1443SD6	43'	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)				
BK1448SD6	48'	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)	5'-3 1/2" (1.52 m)			
BK1449SD6	49'	9'-9 3/4" (2.99 m)	8'-10" (2.69 m)	3'-9 1/2" (1.16 m)			
BK1454SD6	54'	9'-9 3/4" (2.99 m)	8'-10" (2.69 m)	6'-7 1/2" (2.02 m)			
BK1455SD6	55'	9'-9 3/4" (2.99 m)	8'-10" (2.69 m)	7'-1 1/2" (2.17 m)			
BK1459SD6	59'	9'-9 3/4" (2.99 m)	9'-3 1/2" (2.83 m)	8'-7 1/2" (2.63 m)			
BK1460SD6	60'	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	8'-7 1/2" (2.63 m)			
BK1462SD6	62'	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	9'-3 1/2" (2.83 m)			
BK1468SD6	68'	9'-9 3/4" (2.99 m)	6'-7 1/2" (2.02 m)	8'-10" (2.69 m)	6'-7 1/2" (2.02 m)		
BK1472SD6	72'	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)		
BK1475SD6	75'	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)	9'-3 1/2" (2.83 m)	9'-3 1/2" (2.83 m)		
BK1478SD6	78'	9'-9 3/4" (2.99 m)	9'-3 1/2" (2.83 m)	9'-3 1/2" (2.83 m)	8'-7 1/2" (2.63 m)		
BK1480SD6	80'	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	8'-7 1/2" (2.63 m)		
BK1488SD6	88'	9'-9 3/4" (2.99 m)	6'-7 1/2" (2.02 m)	8'-10" (2.69 m)	6'-7 1/2" (2.02 m)	9'-9 3/4" (2.99 m)	
BK1490SD6	90'	9'-9 3/4" (2.99 m)	3'-9 1/2" (1.16 m)	9'-9 3/4" (2.99 m)	9'-3 1/2" (2.83 m)	9'-9 3/4" (2.99 m)	
BK1492SD6	92'	9'-9 3/4" (2.99 m)	7'-1 1/2" (2.17 m)	8'-10" (2.69 m)	8'-10" (2.69 m)	8'-10" (2.69 m)	
BK14105SD6	105'	9'-9 3/4" (2.99 m)	5'-3 1/2" (1.52 m)	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	9'-9 3/4" (2.99 m)	5'-3 1/2" (1.52 m)

ASSEMBLY INSTRUCTIONS

SWEEP FLIGHT & BACK SHIELD ASSEMBLY (con't.)

ATTACH SWEEP SHIELDS & FLIGHT

Pre-Assemble Bearing Stands

The bearing stands will be used at each of the shield-to-shield connections and at the end with the sweep end-wheel assembly.

If the bearing stands have not already been assembled, follow the procedures below to pre-assemble the bearing stands and temporarily set them aside.

1. Position the bearing holder to the inside of the bearing stand as shown in Fig. 6. Secure using one 7/16" x 1 1/2" bolt and nylon locknut.

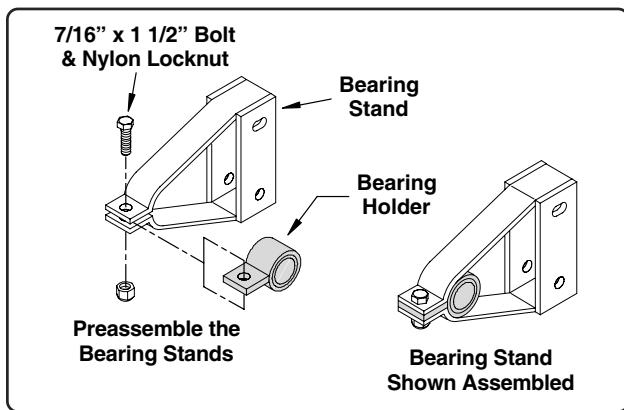


Fig. 6

ASSEMBLE FLIGHT AND SWEEP SHIELDS

Note the ends on the longer (or longest) sweep flight and shield section from the kit. One end of the flight has a small portion of auger cutback, this is the end that connects to the output shaft on the reducer gearbox (See Fig. 7).

One end of the sweep shield also has a cutback on it, this end will be attached to the shield mount bracket on the solid pivot stand (See Fig. 7).

1. Apply anti-seize compound to the output shaft on the gearbox. Bolt the sweep flight (with cutback) to the shaft and secure using two 5/8" x 4" bolts and nylon locknuts.
2. Attach the first sweep shield (with cutback) to the mount bracket located on the side of the solid pivot stand. Secure the shield using 3/8" x 1 1/2" bolts, flat washers, lock washers and non-lock nuts (flat washers are used over the slotted holes).

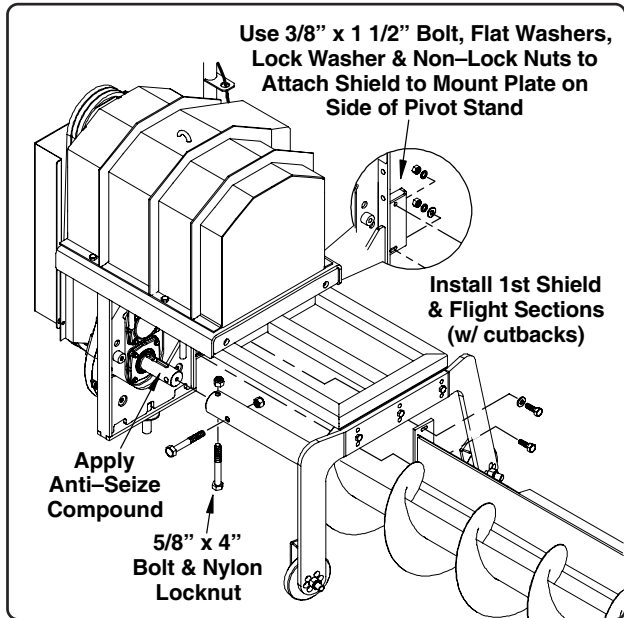


Fig. 7

3. Support the flight and shield with a wood block or similar item. Position a bearing stand assembly at the end of the shield and install the next section of sweep shield (the bearing stand will be sandwiched between the shields, See Fig. 8).
4. Secure the bearing stand using one 3/8" x 3" carriage bolt, flat washer, lock washer and non-lock nut through the slotted holes, and one 3/8" x 3" bolt, lock washer and non-lock nut through the bottom holes.

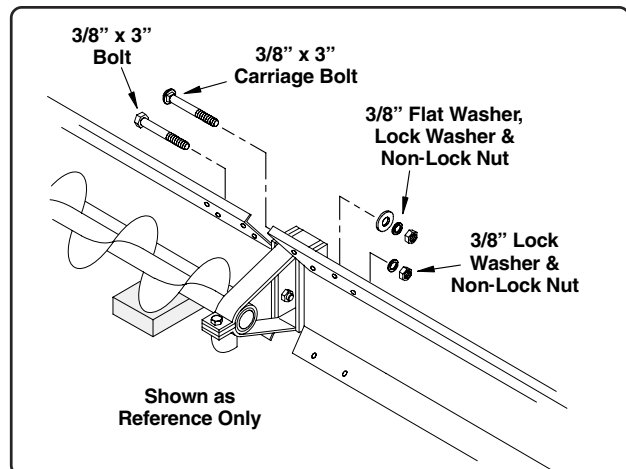


Fig. 8

SWEEP FLIGHT & BACK SHIELDS (con't.)

- Attach the splice plates to the back of the sweep shield. Use eight 5/16" x 3/4" bolts and nylon locknuts on the upper splice plate (larger plate) and use four 5/16" x 3/4" bolts and nylon locknuts on the lower splice plate (small plate).
- Apply anti-seize compound to the stub on the end of the next flight section. Slide the stub through the bearing holder and into the first section of flight previously installed. Secure the flight sections using two 5/8 x 4" bolts and nylon locknuts.

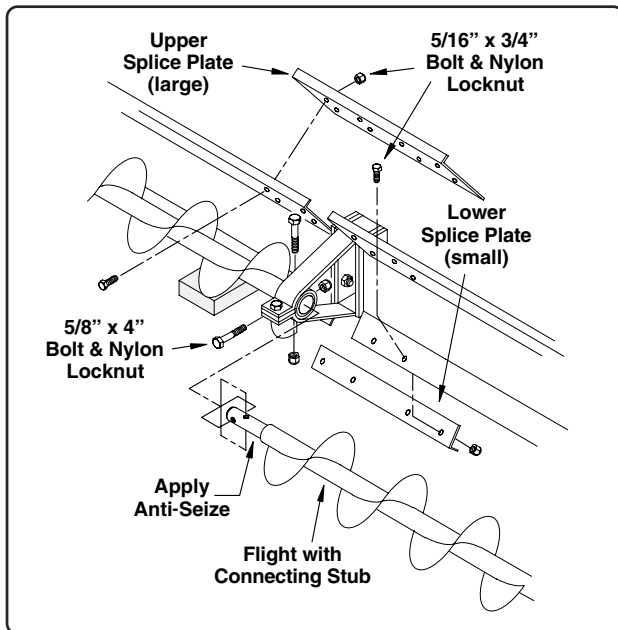


Fig. 9

NOTE: the sweep flights are indexed to achieve a "timed" connection (a "timed" connection is where the flight pitch does not change across the connection from one flight to the next). When bolting timed flight sections together, position flight ends as shown in Fig. 10.

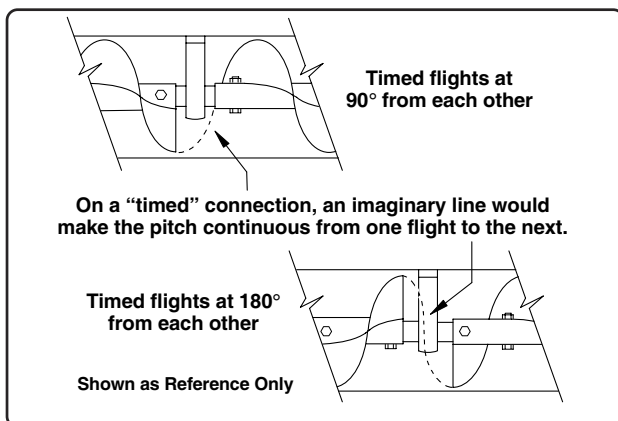


Fig. 10

- Repeat the procedures from Steps 3 thru 5 for additional sweep flight and shield add-ons. Once the last section of flight and shield has been installed, the end wheel and collar can be mounted (if using 4 or more flight sections do not mount end wheel at this time, see the instructions for truss and carrier assembly beginning on Page 22).
- Position a bearing stand onto the end of the last shield and secure with the 3/8" x 3" carriage bolt and standard bolt as before (See Fig. 11). Apply anti-seize compound to the end wheel connecting stub. Insert the stub into the flight and secure using one 5/8 x 4" bolt and nylon locknut.

Slide the end wheel and collar onto the stub and secure the collar using one 1/2" x 3 1/4" bolt and nylon locknut.

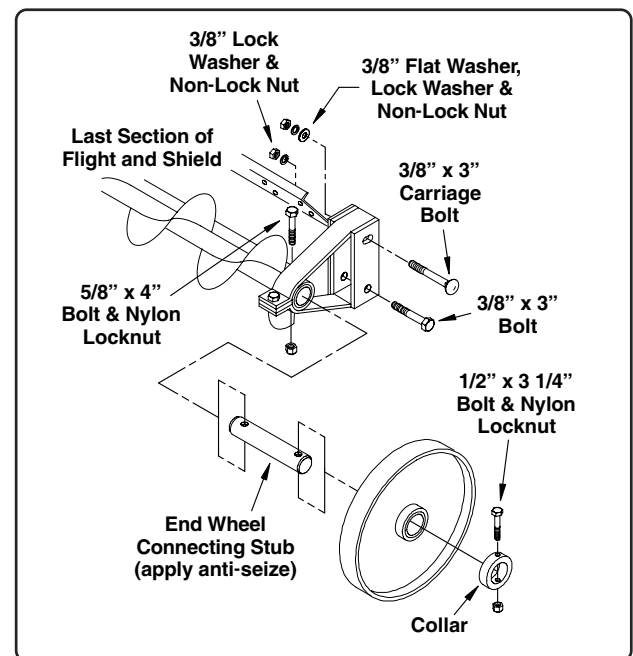


Fig. 11

After the sweep has been assembled, the "crown" at the midway point can now be created (See Page 27 for information on crown location).

If using 3 or less flight sections, the sweep tractor can now be installed. Refer to Page 24 for sweep tractor assembly and installation.

If using 4 or more flight sections, continue with the following procedures.

FLIGHT, SHIELD and TRUSS ASSEMBLY **for Units with 4 or More Flight Sections**

On units that use four or more sections of flight, a cable truss stand and carrier are provided.

With the 4, 5 and 6 section units the carrier and truss stand will be installed between the 2nd and 3rd flight sections.

The illustrations on Page 28 give an overall view of each flight section unit. You can refer to them to help locate the carrier and cable anchor bracket during the assembly process.

After installation of the first two flight sections (previously outlined on Pages 20 to 21 in Steps 1 thru 6) the carrier, truss stand and cable anchor bracket can be installed.

For units using 4, 5 & 6 sections, install a carrier and truss stand between the 2nd & 3rd flight sections.

1. The carrier needs to have a bearing stand inserted between the mounting angles before the shields can be attached (See Fig. 12).

Insert the bearing stand and position the stand and carrier at the end of the flight section. Attach the next shield section and secure the shields to the carrier and bearing stand using two 3/8" x 3 1/2" bolts, flat washers, lock washers and non-lock nuts.

2. Attach the truss stand to the carrier (See Fig. 12) and secure using four 3/8" x 1" bolts, lock washers and non-lock nuts.

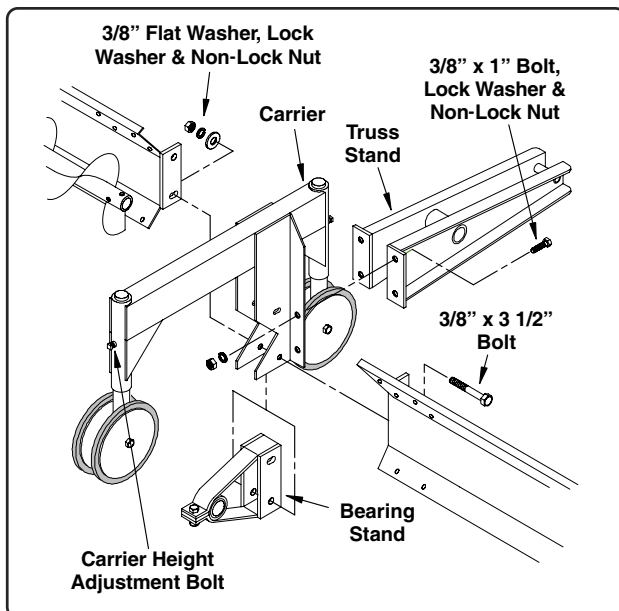


Fig. 12

3. Apply anti-seize compound to the stub on the next section of flight. Install the flight, sliding the stub end through the bearing holder and into the section of flight previously installed. Secure the flight sections using two 5/8" x 4" bolts and nylon locknuts. (See Fig. 9 on the previous page).
4. Install a bearing stand onto the end of the flight and shield section. Position the fourth shield and the cable anchor bracket (See Fig 13) against the bearing stand and secure using two 3/8" x 3 1/2" bolts, flat washers, lock washers and non-lock nuts.

On units using 4, 5 or 6 sweep sections, a cable anchor bracket will be attached with the shield to the bearing stand.

This anchor may be located at the splice of either the 3rd & 4th sections, or at the splice of the 4th & 5th sections.

Refer to the illustrations on Page 28 for location of the cable anchor.

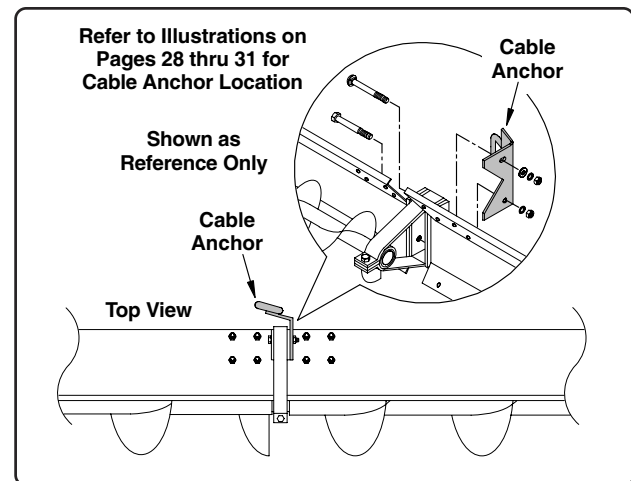


Fig. 13

5. Install the end wheel as outlined in Step 8 and shown in Fig. 11 on the previous page (Page 21).
6. Attach splice plates to the sweep shield where necessary (See Fig. 9 on Page 21 for reference). Use eight 5/16" x 3/4" bolts and nylon locknuts on the upper splice plate (the larger plate) and use four 5/16" x 3/4" bolts and nylon locknuts on the lower splice plate (small plate).

Continue with the truss cable assembly on the following page.

INSTALL TRUSS CABLE

1. Attach one end of the cable to the loop on the cable anchor bracket previously installed at the sweep shield splice (See Fig. 14). Secure the cable using two 5/16" cable clamps.

IMPORTANT! Make sure the u-bolt portion of the clamp is against the loose end of the cable.

2. Route the cable through the small hole at the rear of the truss stand to the cable anchor bracket on the side of the gearbox frame (See Fig. 15).

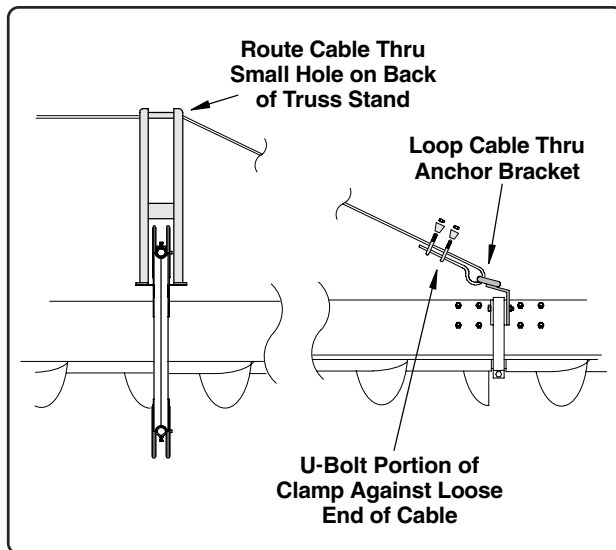


Fig. 14

3. Attach the 5/8" x 11" eyebolt to the cable anchor bracket on the side of the gearbox frame (part of the drive assembly in center well). Secure the eyebolt using one flat washer and two non-lock nuts (See Fig. 15).

Insert the cable thru the eyebolt, pull the cable snug and secure cable with the cable clamps provided.

IMPORTANT! When clamping the cable, position the u-bolts against the loose end of the cable.

4. Tighten the cable by adjusting the nuts on the eyebolt (cable should be reasonably tight). Once tight, tighten the bottom nut against the top nut to secure into place.

Make sure to tie back or cut off any excess cable so it cannot become entangled while the sweep is traveling around the bin.

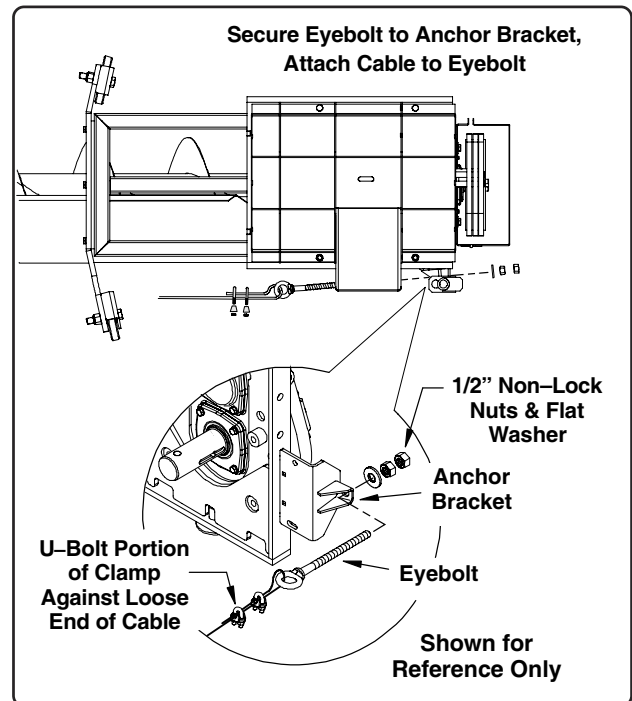


Fig. 15

Check the assembled sweep sections. Make sure all hardware is tight, and all Safety Decals are in place and legible.

If a decal cannot be read or is missing, they can be obtained free of charge from your Hutchinson/Mayrath dealer or ordered directly from the factory.

SWEEP TRACTOR ASSEMBLY

WARNING! Do Not enter the bin unless all power driven equipment has been shutdown and locked out. Never enter the bin when the sweep is in operation.



All start and stop controls (electrical circuit box) must be installed outside the bin, Never on the inside of the bin. Be cautious of electrical hazards.



Keep work area clean and free from tools and objects that may cause accidental tripping or falling.



Some of the components are heavy. To avoid personal injury, use assistance when lifting these parts.

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

- The sweep tractor will attach to different shields depending on the number of sweep sections used. There may be six prepunched holes in the shield that the tractor will bolt to, if there are no holes for tractor, use tractor's shield attachment as a template, mark and drill 11/32" dia. mounting holes.

Refer to the Sweep Flight Section illustrations on (Page 28) for recommended tractor location.

IMPORTANT! Before installing the tractor, check the location of the intermediate bin wells to ensure they are not in the direct path of the tractor as it travels around the bin.

If so, the tractor will have to be moved and new holes drilled in the shield for mounting the tractor.

If the tractor does require being moved, try to keep it as close to its intended location as possible.

- If the sweep auger is being installed in a 60' to 105' dia. bin, the sweep tractor is provided with a weight kit for greater traction.
- Two 50 lb. (22.7 kg) weights have been supplied for 60' to 80' dia. bins, and four 50 lb. (22.7 kg) weights have been supplied for 88' to 105' dia. bins.

This is the recommended amount of weight. Additional weight can be added if desired, though max. weight should not exceed 400 lbs. (181 kg).

- Mount the tractor gearbox to the main frame as shown in Fig. 16. Secure using four (4) 1/2" x 2" bolts and nylon locknuts.
- Mount the electric motor to the top of the gearbox and secure using four (4) 3/8" x 1" bolts and lock washers (the bolts will screw into the bottom side of the motor, See Fig. 16).
- Slide a wheel hub onto each of the shafts located on the sides of the gearbox. Secure each hub with one (1) 3/8" x 2 1/2" bolt and nylon locknut.

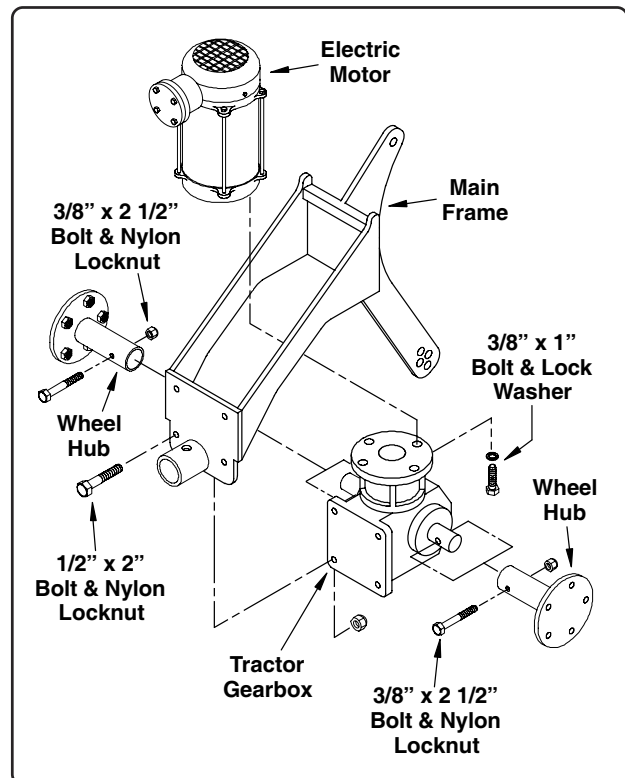


Fig. 16

SWEEP TRACTOR ASSEMBLY (con't.)

4. Assemble the rubber disc, the retainer disc's and 3/8" thick spacer as shown below (one retainer disc, the rubber disc with 3/8" thick spacer and the second retainer disc).

Insert the spacer bushing for the main frame leg in the second lowest hole in leg and install a rubber disc assembly onto each side of the leg. Secure the disc assemblies to the main frame leg using one (1) 3/8" x 3" bolt and nylon locknut.

Note: There are four holes in the lower leg where the rubber disc assemblies mount, each hole indicating 1/2" increments.

The lower two holes will give the tractor more "digging" power, where as the two upper holes allow for better traction.

Grain consistencies vary ranging from heavier moist grain, to light dry grain. Some of the heavier grain may cause the sweep tractor to climb the grain instead of extracting it. Using the lower holes will give the tractor more digging capabilities and help alleviate the problem of climbing. If the tractor still tries to climb, install disc's in the bottom hole.

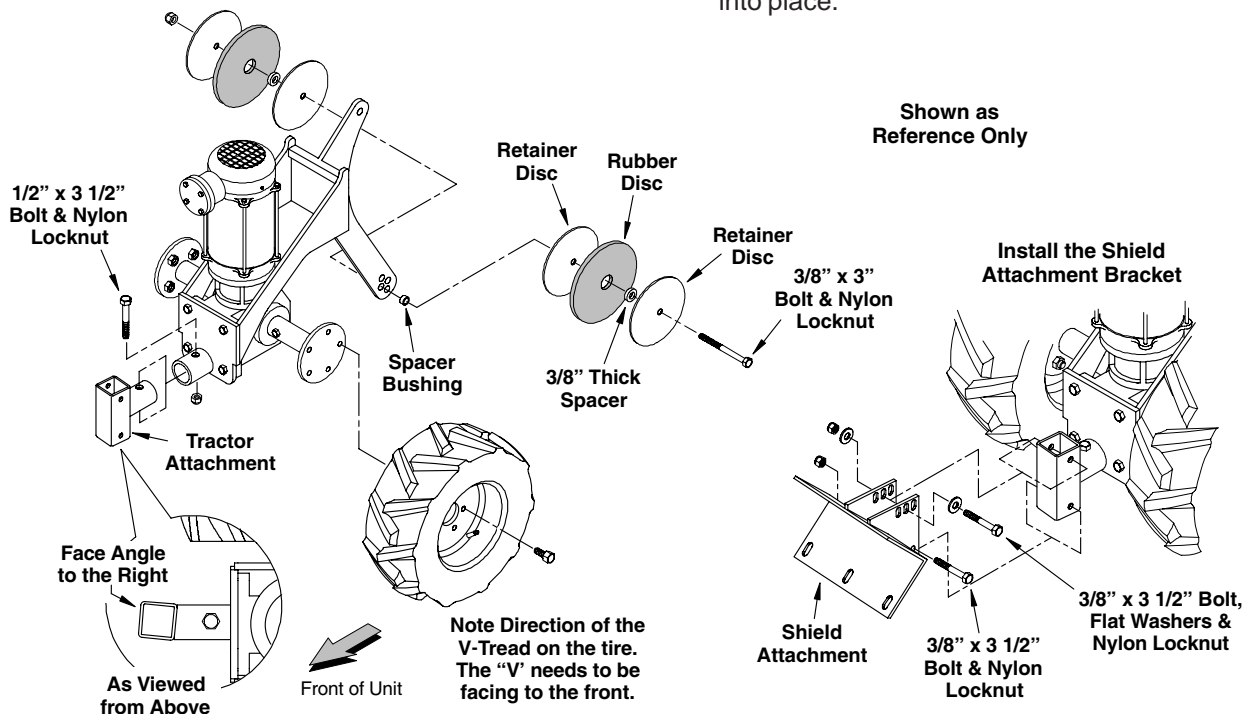
5. Mount the left and right side tire and wheel assemblies. Note the V-shaped tire tread, the "V" needs to be facing to the front of the unit as shown in the illustration below.

6. Install the sweep tractor attachment bracket to the front of the main frame and secure using one (1) 1/2" x 3 1/2" bolt and nylon locknut. **Note the angle of the square tube on front of the attachment bracket, the angle needs to be facing the right side as shown in the illustration below.**

7. Secure the shield attachment bracket to the front of the tractor assembly. Use one (1) 3/8" x 3 1/2" bolt, two (2) flat washers and one (1) nylon locknut on the upper slotted holes.

Use one (1) 3/8" x 3 1/2" bolt and nylon locknut on the lower holes.

Depending on which hole is used to mount the wheels (rubber disc assemblies) onto the main frame leg, it may be necessary to adjust the attachment bracket to keep the sweep section level. Pivot the bracket to the appropriate slot and secure into place.



The shield attachment bracket can be adjusted to match the height and angle of the sweep assembly.

Use the adjustment holes as needed to help keep the sweep assembly aligned and level.

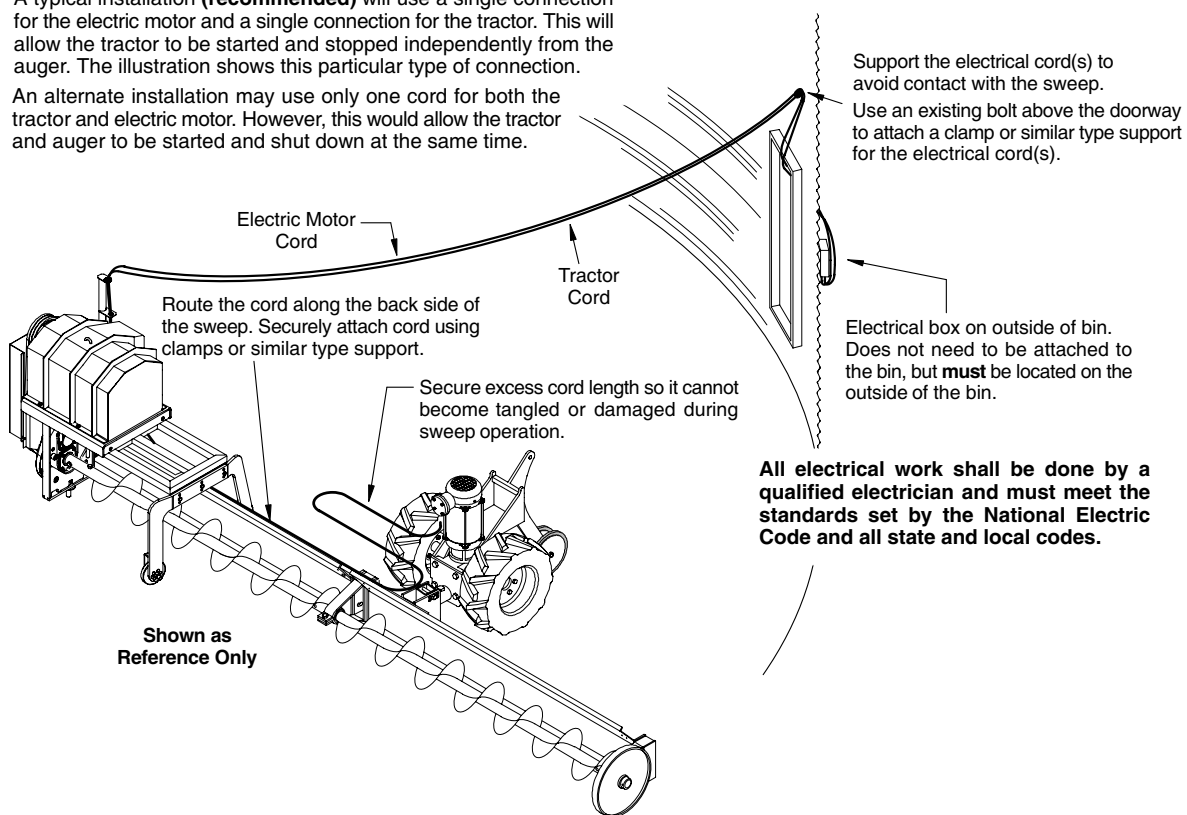
ASSEMBLY INSTRUCTIONS

SWEEP TRACTOR ASSEMBLY (con't.)

8. Connect the electrical wiring to the tractor motor. The wiring may either be connected on a separate circuit so the tractor can be started and stopped independently (**recommended**) or it can be connected to the same circuit as the sweep motor, which would allow the tractor to turn on and off with the sweep auger.
Electric motors and controls shall be installed by a qualified electrician and must meet the standards set by the National Electric Code and all local and state codes.
9. Run the electrical wiring for the tractor over the top of the shield sections, to the cord holder attached to the drive motor assembly (make sure to support the cord to the shields so it cannot become entangled in the auger when the sweep is in operation).
10. Insert the cord thru the clamp on the lower ring of the cord holder and thru the upper ring of the holder. Route the cord to the power source making sure to keep it high enough so it cannot become entangled in the sweep as it travels around the bin. Attach the cord above the doorway in the same manner as the electric cord from the drive motor was attached.
The start and stop controls (electrical circuit box) must be installed outside the bin, never on the inside. The controls do not have to be mounted onto the bin, but must be located so the operator has full view of the entire operation.
11. Make certain any excess length of cord is properly secured to the tractor and/or to the shields.

A typical installation (**recommended**) will use a single connection for the electric motor and a single connection for the tractor. This will allow the tractor to be started and stopped independently from the auger. The illustration shows this particular type of connection.

An alternate installation may use only one cord for both the tractor and electric motor. However, this would allow the tractor and auger to be started and shut down at the same time.



SWEEP TRACTOR ASSEMBLY (con't.)

12. Hang the weights onto the upper portion of the main frame as shown in Fig. 17 (weights should be distributed equally on both sides of the support arm). Secure the weights using the weight retaining bolt, 3/4" flat washers and 3/4" nylon locknuts.

Two weights of 50 lbs. (23 kg) each are supplied for 60' to 80' diameter bins, and four weights have been supplied for 88' to 105' diameter bins. These are the recommended weights for bins of their respective size.

Additional weights can be added for a total of up to eight weights, however it is recommended not to exceed a total of 400 lbs (181 kg).

13. Check that all tools, materials or other objects are picked up and out of the bin. Ensure all sweep and tractor hardware is tight, and all electrical cords are properly supported and cannot become entangled during sweep operation.

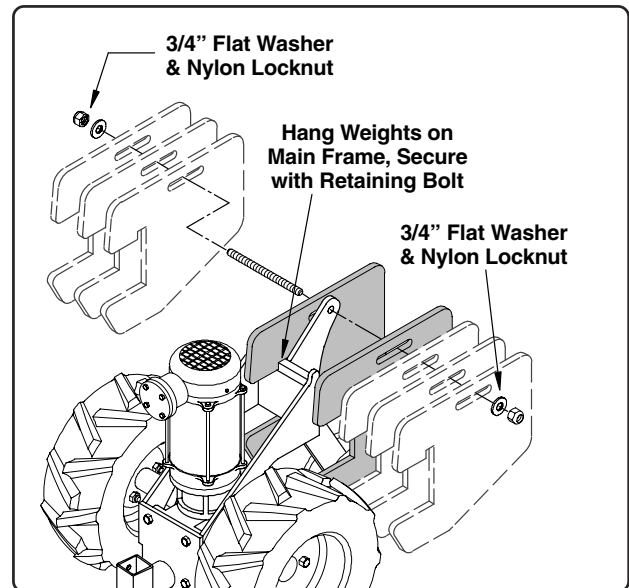
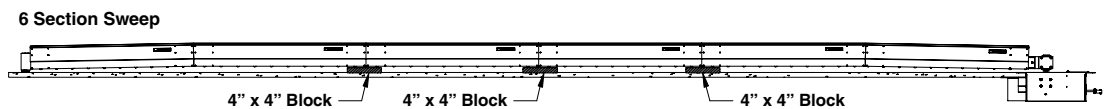
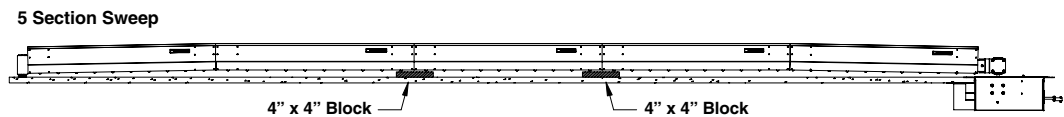
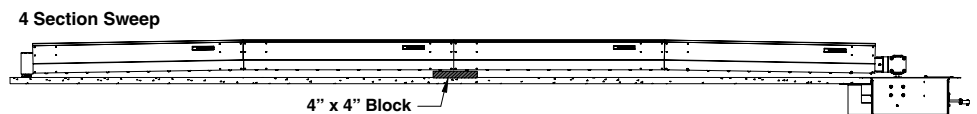
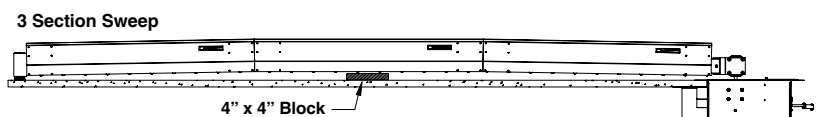
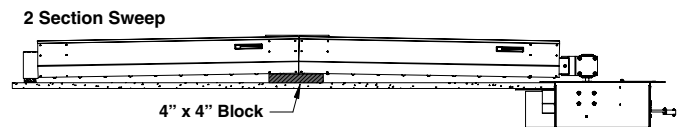


Fig. 17

The sweep shields will need to have a “crown” created at the midway point of the length of the sweep. Make sure the hardware securing the sweep shields is loose, this includes the hardware securing the shield to the center well gearbox, the pivot bracket, and the hardware securing the end wheel mount bracket to the shield.

1. Place a short length of 4" x 4" block under the shield at the location(s) shown in the illustration below. Tighten all hardware.

The following illustrations are shown as a reference for block location only. Your sweep drive assembly may differ in appearance.



ASSEMBLY INSTRUCTIONS

SWEEP FLIGHT SECTION ASSEMBLIES

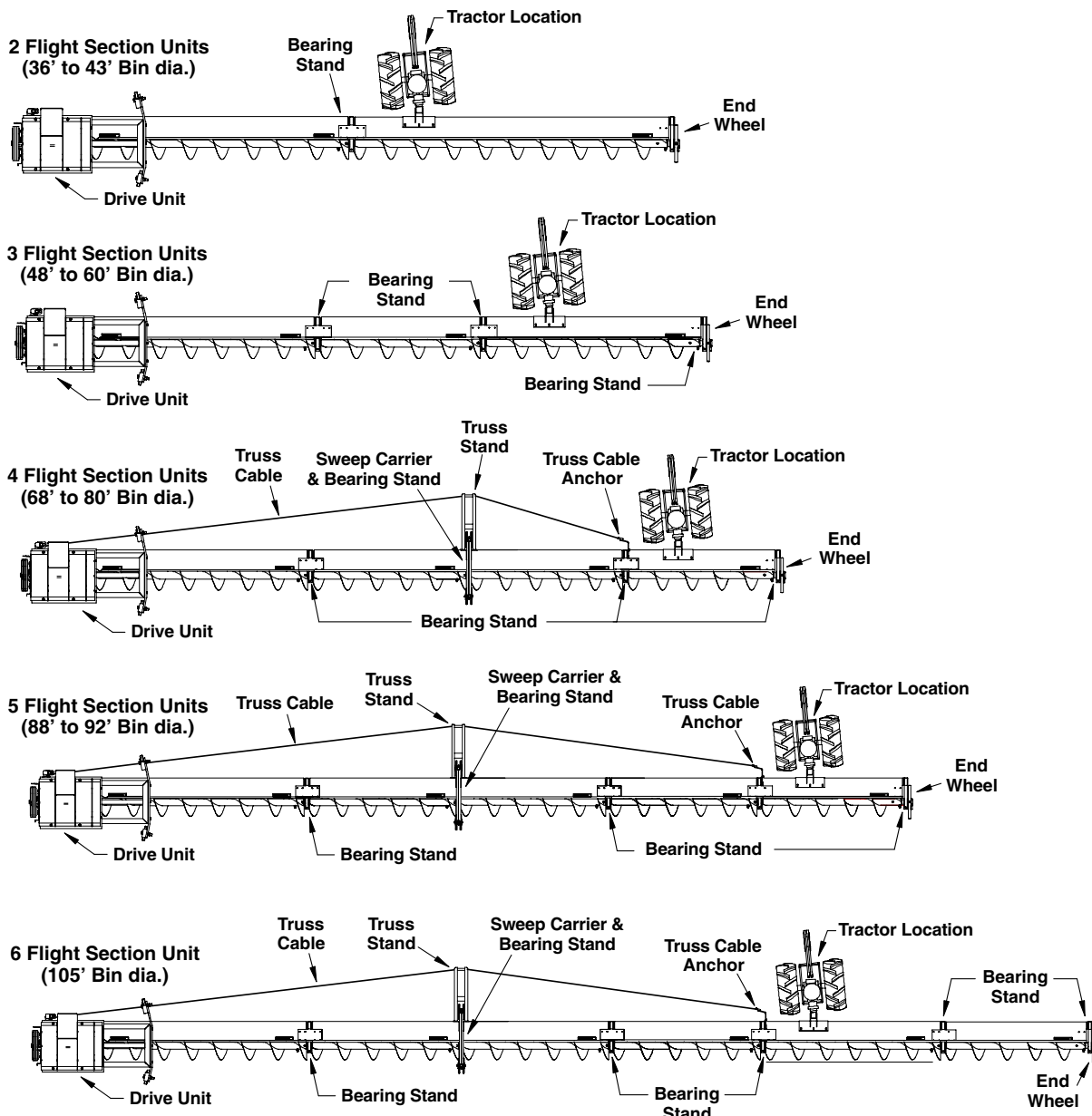
The following illustrations show recommended locations of the sweep tractor and carriers. Use these to help determine locations of intermediate wells during bin erection.

Make sure to locate the intermediate wells so they are not in the direct path of the tractor or carriers as they travel around the bin.

If the sweep is being installed in a bin that has existing intermediate wells, use the tractor location to help determine the path of the tractor. If the wells are in the path, the tractor will need to be moved and new holes drilled for attaching the tractor to the shield (keep tractor as close to the original position as possible).

The carriers are installed between the flight sections and cannot be repositioned. Therefore, if the existing wells are in the path of the carrier, a thin, narrow metal plate (or similar item) should be placed over the well opening to allow the carrier to travel over it.

The following illustrations show approximate locations of tractors and carriers. Tractor location can vary depending on bin well locations.



PARTS LIST TABLE of CONTENT

1214 Series Commercial Klean Sweep Auger

Decals & Safety Signs P-1

Drive Components P-2 to P-3

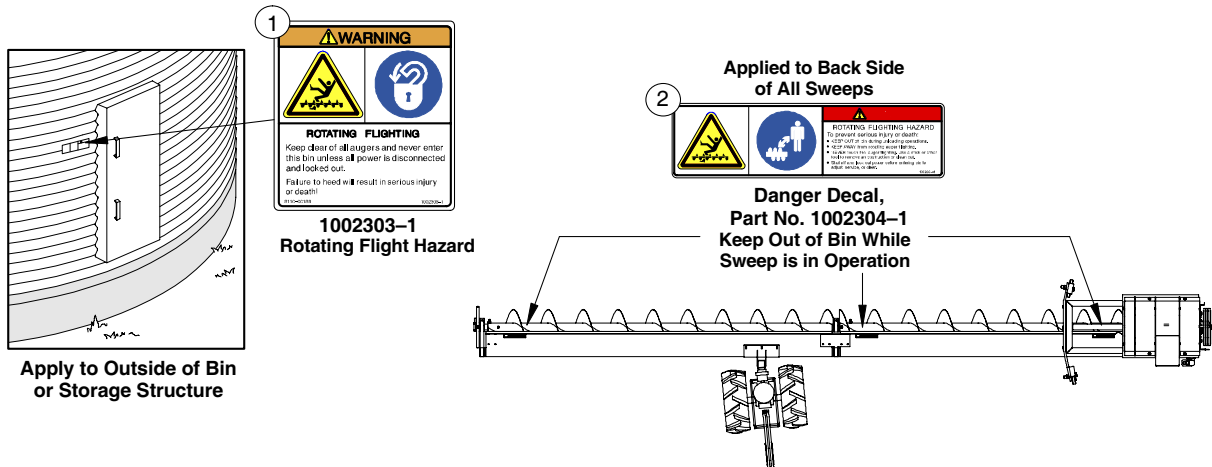
Sweep Carrier P-4

Sweep Tractor Components P-5

Sweep Shields, Flights and Truss Assembly's P-6 to P-9

Torque Chart P-10

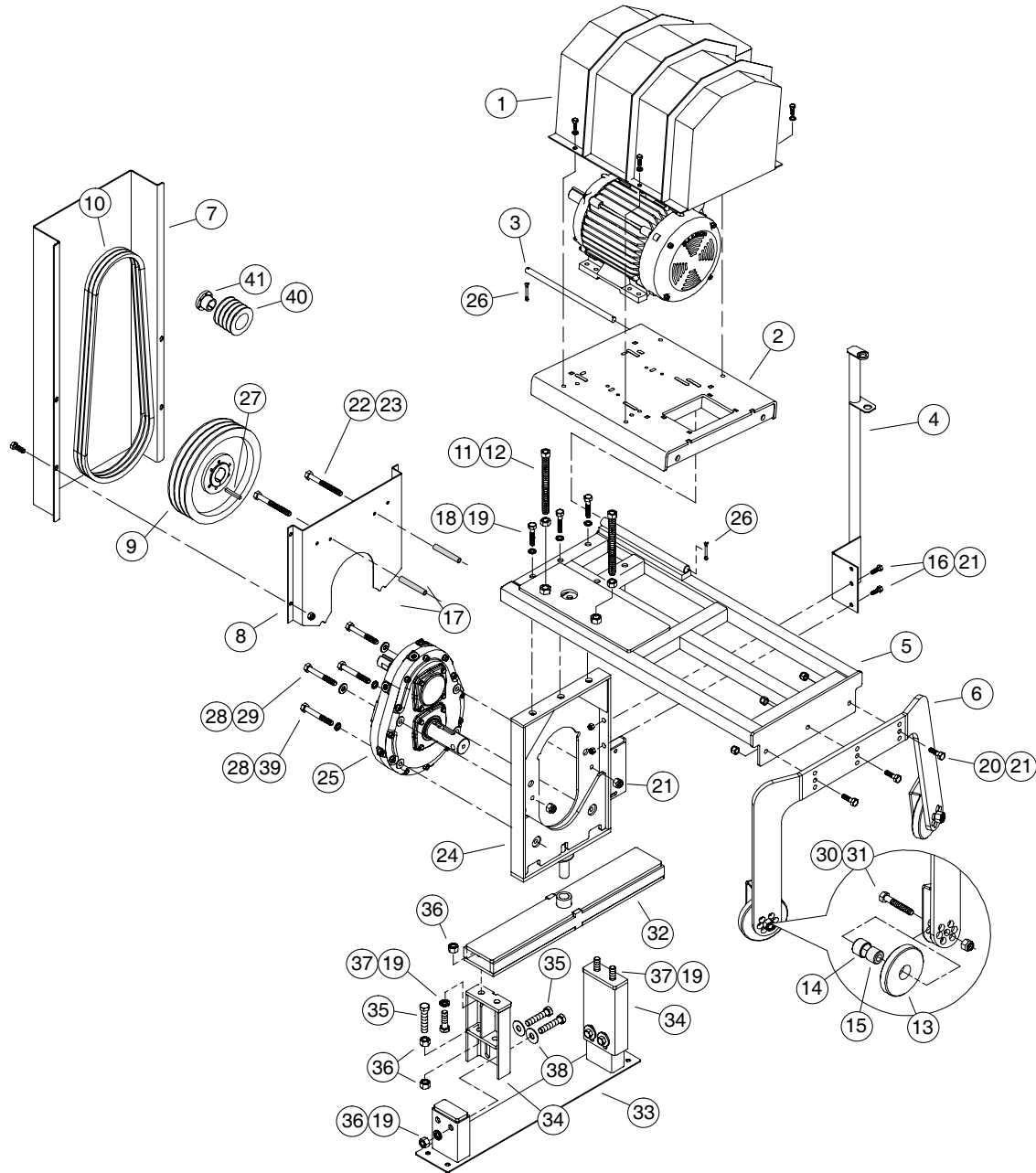
SAFETY DECALS



Ref. No.	Part No.	Description
1	1002303-1	Decal: Danger, Rotating Flighting...
2	1002304-1	Decal: Danger, Keep Out of Bin...

PARTS LIST

4:1 RATIO GEAR DRIVE REDUCER DRIVE COMPONENTS for 1214 SERIES COMMERCIAL KLEAN SWEEP



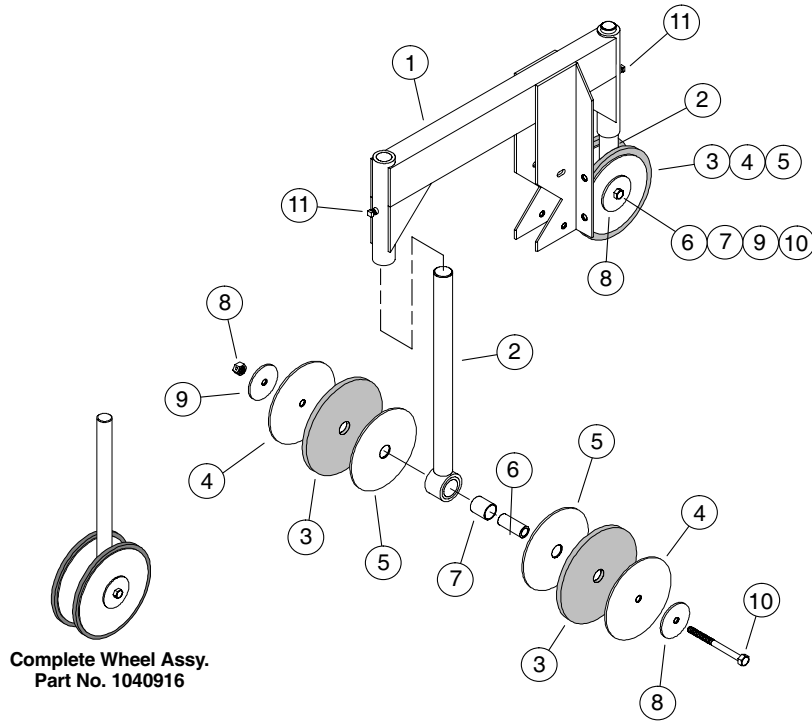
PARTS LIST

4:1 RATIO GEAR DRIVE REDUCER
DRIVE COMPONENTS for
1214 SERIES COMMERCIAL KLEAN SWEEP

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1050112	Cover, Motor, f/ 1214 Klean Sweep	20	33247	Bolt, 1/2-13 x 1-3/4 G5 PLT
2	1051518	Plate, Motor Mount	21	33138	Nut, 1/2-13 Nylon Lock PLT
3	1018789	Pivot Shaft f/ Motor Mount Plate	22	1002211	Bolt, 1/4-20 x 5" G5 PLT
4	1018804	Holder, Electric Cord	23	4003	Nut, 1/4" Nylon Lock PLT
5	1052015	Tube Weldment f/ Klean Sweep w/ Solid Pivot	24	1052007	Solid Pivot Weldment (f/ 1214 Klean Sweep)
6	1052018	Wheel Bracket f/ Klean Sweep	25	1025519-1	Reducer, 4:1 Gear Drive
7	1052172	Belt Guard, Front (f/ 1214 Klean Sweep)	26	3337A1	Cotter Pin, 3/16" x 1 1/2" long
8	1052171	Belt Guard, Back (f/ 1214 Klean Sweep)	27	4049A1	Key, 3/8" sq. x 1*1/2" long
9	3271A1	Sheave, 3B QD 11"	28	4917	Bolt, 1/2-13 x 5" G5 PLT
10	40125	Belt, B-68	29	33025	Washer, 1/2" Flat PLT
11	6676A1	Rod, Threaded Adjustment	30	33250	Bolt, 3/4-10 x 4" G5 PLT
12	D1152	Nut, 3/4-10 Non-Lock	31	33140	Nut, 3/4-10 Nylon Lock PLT
13	BU-0500263	Guide Wheel f/ Klean Sweep	32	1051941	Mount, Upper Klean Sweep Pivot
14	BU-0500265	Bushing, 1.75" O.D. x 1.25" long	33	1051935	Base f/ Adjustable Pivot
15	1051706	Wheel Axle Support	34	1051984	Adjustable Weldment f/ Pivot Mount
16	1002227	Bolt, 1/2-13 x 1-1/2" G5 PLT	35	1002235	Bolt, 5/8-11 x 3" G5 PLT
17	1011901	Spacer Tube, 3-3/4" long (f/ 1214 Klean Seep)	36	D1170	Nut, 5/8-11 Non-Lock PLT
18	33278	Bolt, 5/8-11 x 3-1/4" G5 PLT	37	33244	Bolt, 5/8-11 x 2" G5 PLT
19	D1171	Washer, 5/8" Lock PLT	38	33026	Washer, 5/8" Flat PLT
			39	D1143	Washer, 1/2" Lock PLT
			40	3267A1	Sheave, 5.6" P.D. 3B
			41	3089A1	Bushing SD 1.625"

PARTS LIST

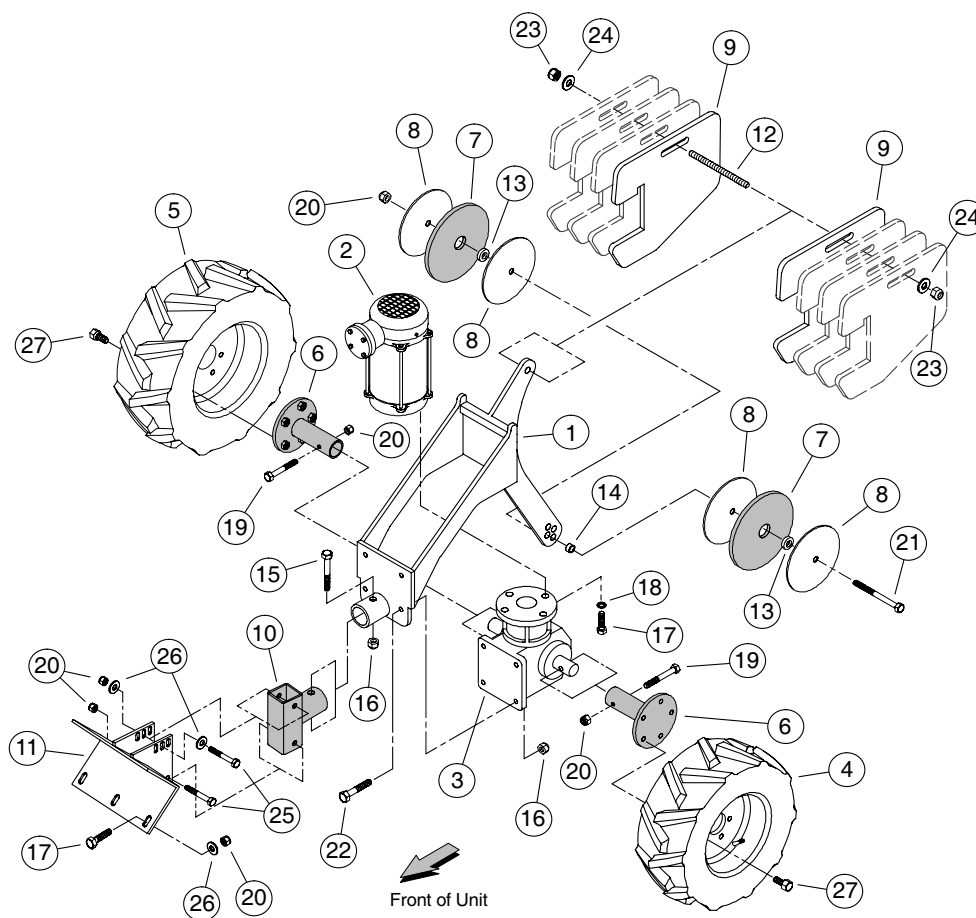
SWEEP CARRIER COMPONENTS



The spindle and wheels can also be ordered as a complete assembly. This assembly includes items 2 thru 10.
Order Part No. 1040916

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1018724	Frame, Sweep Carrier	7	53924	Bushing f/ Sweep Carrier 1 1/4" O.D. x 1 5/8" long
2	1018731	Spindle, f/ Sweep Carrier	8	1040672	Washer, Retainer f/ Rubber Wheel
3	5305H	Rubber Disc f/ Carrier Wheel	9	1005127	Nut, 1/2-13 Side Depress Lock PLT
4	1040671	Retainer Disc (outer)	10	1002230	Bolt, 1/2-13 x 4" G5 PLT
5	1040670	Retainer Disc (inner)	11	33173	Setscrew, sq. hd 3/8" x 3/4"
6	1040915	Bushing, f/ Sweep Carrier 5/8" I.D. x 1" O.D. x 2 3/4" long			

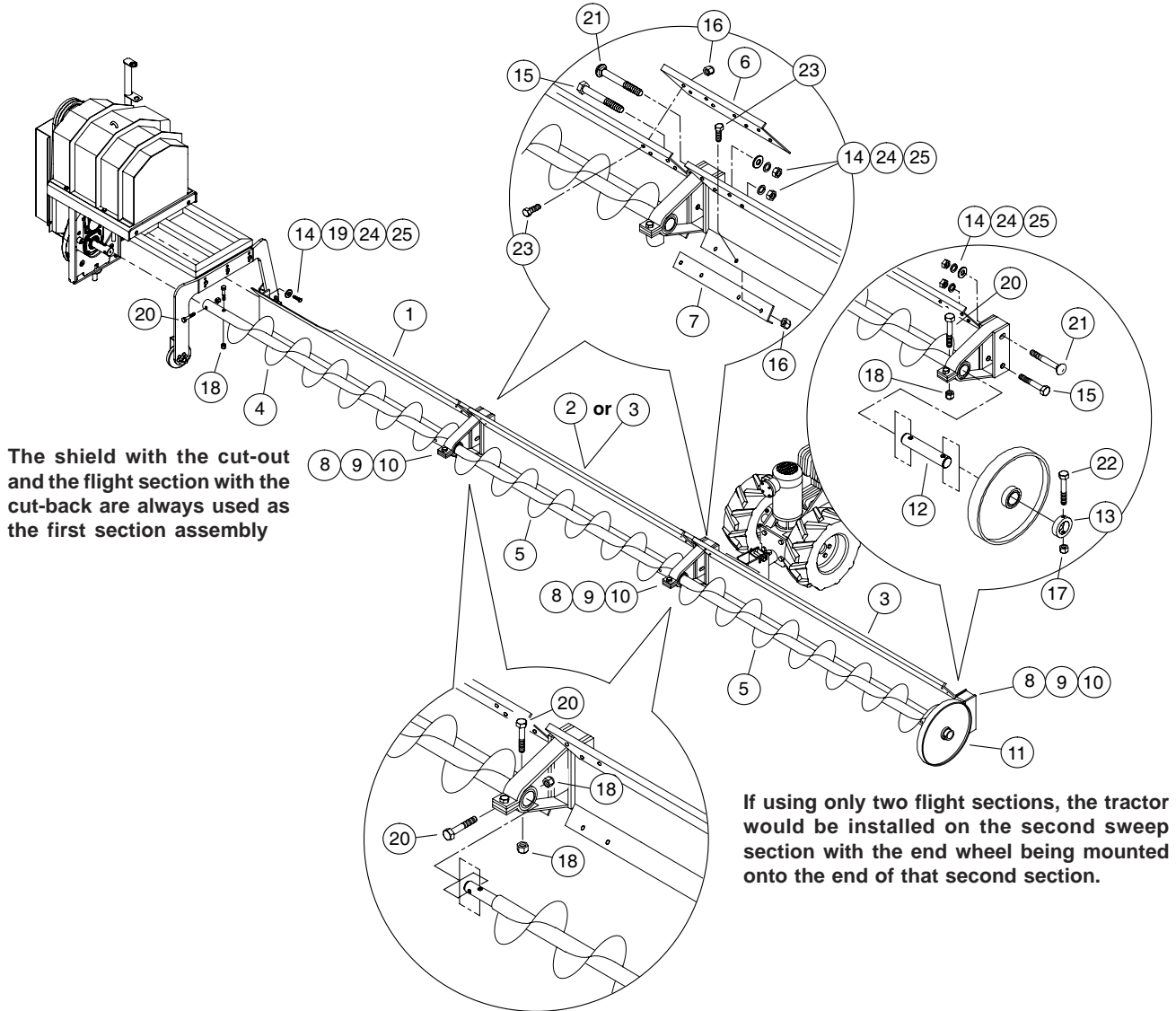
SWEEP TRACTOR COMPONENTS



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1026665	Frame, Sweep Tractor Main	12	1026662	Bolt, Weight Retaining
2	1026654	Motor, Electric, 1.5 hp 230/460 v, 60hz exp. proof	13	1040936	Spacer, 3/8" thick
(2)	1027063	Motor, Electric, 1.5 hp 230/460 v, 50hz exp. proof	14	1022801	Spacer Bushing f/ Wheels
(2)	1027064	Motor, Electric, 1.5 hp 230/460 v, 60hz	15	4911	Bolt, 1/2-13 x 3 1/2" G5 PLT
3	1026652	Gearbox, 240:1 Reduction	16	1011182	Nut, 1/2-13 Nylon Lock PLT
4	1026653	Wheel & Tire, 20 x 8 4-ply (RH)	17	33060	Bolt, 3/8-16 x 1" G5 PLT
5	1026676	Wheel & Tire, 20 x 8 4-ply (LH)	18	D1150	Washer, 3/8" Lock PLT
6	1026633	Hub, Wheel	19	33375	Bolt, 3/8-16 x 2 1/2" G5 PLT
7	5305H	Rubber Disc f/ Wheel	20	33136	Nut, 3/8-16 Nylon Lock PLT
8	1040935	Retainer Disc f/ Wheel	21	33068	Bolt, 3/8-16 x 3" G5 PLT
9	1022554	Weight, 50 lbs. (23 kg)	22	1002228	Bolt, 1/2-13 x 2" G5 PLT
10	1026693	Attachment, Sweep Tractor	23	D1152	Nut, 3/4-10 Nylon Lock PLT
11	1016928	Attachment, Tractor to Shield	24	33027	Washer, 3/4" Flat PLT
			25	33068	Bolt, 3/8-16 x 1" G5 PLT
			26	33024	Washer, 3/8" Flat PLT
			27	106241	Bolt, Wheel Lug

PARTS LIST

SWEEP FLIGHTS & SWEEP SHIELD COMPONENTS
for UNITS WITH 2 & 3 FLIGHT SECTIONS
(36' TO 62' Bin Dia's.)



The shield with the cut-out and the flight section with the cut-back are always used as the first section assembly

If using only two flight sections, the tractor would be installed on the second sweep section with the end wheel being mounted onto the end of that second section.

PARTS LIST

SWEEP FLIGHTS & SWEEP SHIELD COMPONENTS

for UNITS WITH 2 & 3 FLIGHT SECTIONS

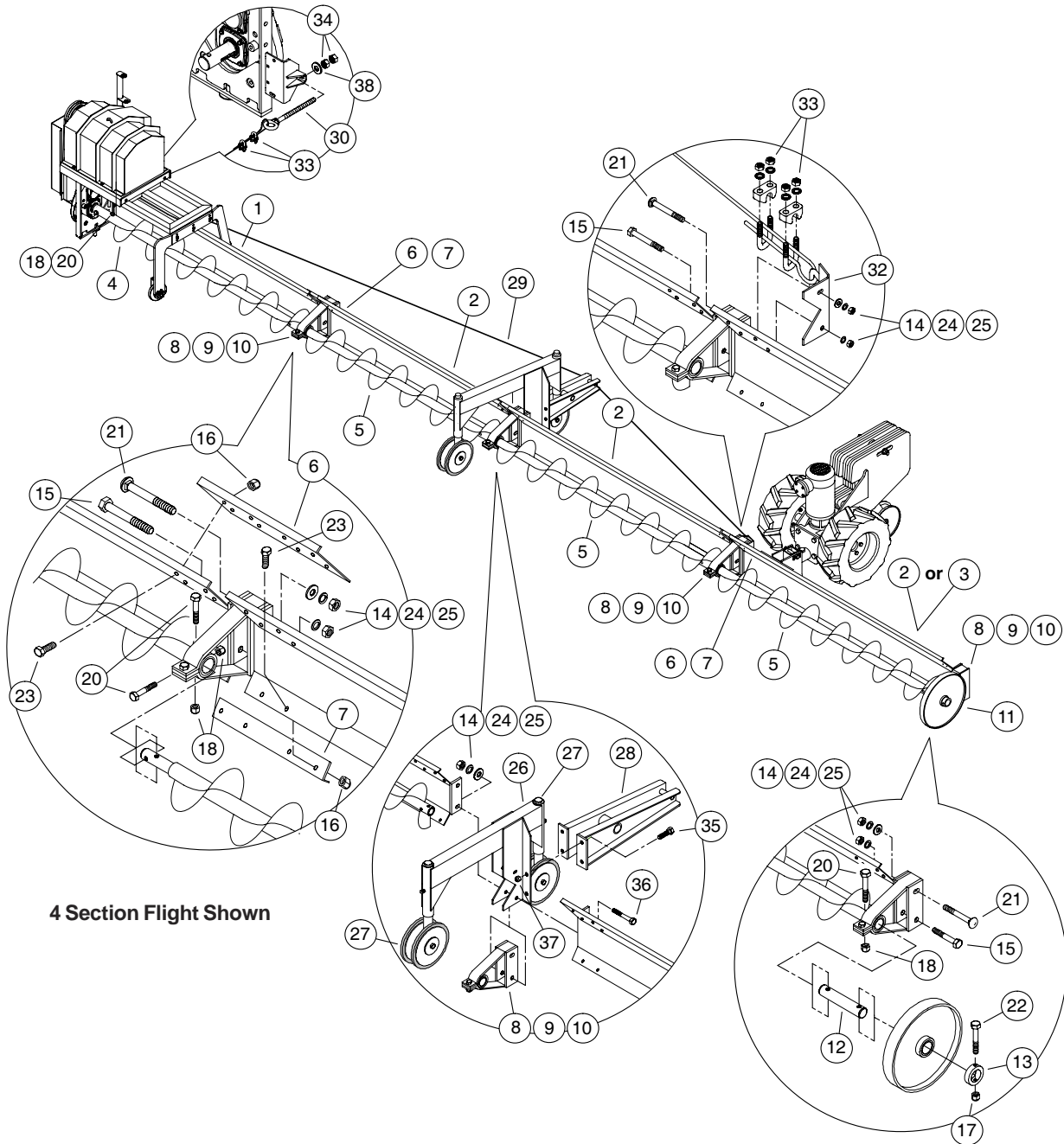
(36' TO 62' Bin Dia's.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1011885	Sweep, Back Shield w/ Cutout (9'-9 3/4" long, f/ 36' to 62' bin dia's.)	(5)	1011948	Flight Section, 5'-3 1/2" long
2	1011932	Sweep Back Shield, Solid Back (6'-7 1/2" long)	(5)	1011949	Flight Section, 6'-7 1/2" long
(2)	1011933	Sweep Back Shield, Solid Back (7'-1 1/2" long)	(5)	1011950	Flight Section, 7'-7 1/2" long
(2)	1011934	Sweep Back Shield, Solid Back (8'-7 1/2" long)	(5)	1011951	Flight Section, 8'-7 1/2" long
(2)	1011935	Sweep Back Shield, Solid Back (8'-10" long)	(5)	1011952	Flight Section, 8'-10" long
(2)	1011936	Sweep Back Shield, Solid Back (9'-3 1/2" long)	(5)	1011953	Flight Section, 9'-3 1/2" long
(2)	1011875	Sweep Back Shield, Solid Back (9'-9 3/4" long)	(5)	1011880	Flight Section, 9'-9 3/4" long
3	1018837	Sweep Back Shield w/ Tractor Mounting Holes (3'-9 1/2" long)	6	1011861	Splice Plate, Upper Shield
(3)	1018836	Sweep Back Shield w/ Tractor Mounting Holes (5'-3 1/2" long)	7	1011862	Splice Plate, Lower Shield
(3)	1018831	Sweep Back Shield w/ Tractor Mounting Holes (6'-7 1/2" long)	8	1012349	Bearing Stand, Standard
(3)	1018832	Sweep Back Shield w/ Tractor Mounting Holes (7'-1 1/2" long)	9	1011869	Bearing Holder w/ 2" I.D. Bronze Bearing
(3)	1018833	Sweep Back Shield w/ Tractor Mounting Holes (8'-7 1/2" long)	10	1254D	•Bronze Bearing (2" I.D.)
(3)	1018834	Sweep Back Shield w/ Tractor Mounting Holes (9'-3 1/2" long)	11	1016927	End Wheel
4	1011879	Flight Section w/ Cutback (9'-9 3/4" long, f/ all bin diameters)	12	1016920	Stub, End Wheel
5	1011947	Flight Section, 3'-9 1/2" long	13	1016921	Collar, End Wheel
			14	33024	Washer, 3/8" Flat PLT
			15	33068	Bolt, 3/8-16 x 3" G5 PLT
			16	33135	Nut, 5/16-18 Nylon Lock PLT
			17	33138	Nut, 1/2-13 Nylon Lock PLT
			18	33139	Nut, 5/8-11 Nylon Lock PLT
			19	33229	Bolt, 3/8-16 x 1 1/4" G5 PLT
			20	1002204	Bolt, 5/8-11 x 4" G5 PLT
			21	1002249	Bolt, Carriage 3/8-16 x 3" G5 PLT
			22	1007473	Bolt, 1/2-13 x 3 1/4" G5 PLT
			23	4701-1	Bolt, 5/16-18 x 3/4" G5 PLT
			24	D1149	Nut, 3/8-16 Non-lock PLT
			25	D1150	Washer, 3/8" Lock PLT

•Indented Parts Names Indicate these Parts are Included in the Previous Assembly.

PARTS LIST

SWEEP FLIGHTS & SWEEP SHIELD COMPONENTS
for UNITS WITH 4 to 6 FLIGHT SECTIONS
(68' TO 105' Bin Dia's.)



PARTS LIST

SWEEP FLIGHTS & SWEEP SHIELD COMPONENTS

for UNITS WITH 4 to 6 FLIGHT SECTIONS




(68' TO 105' Bin Dia's.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	1011885	Sweep, Back Shield w/ Cutout (9'-9 3/4" long, f/ 36' to 78' bin dia's.)	6	1011861	Splice Plate, Upper Shield
(1)	1033884	Sweep, Back Shield w/ Cutout (9'-9 7/8" long, f/ 80' to 120' bin dia's.)	7	1011862	Splice Plate, Lower Shield
2	1011930	Sweep Back Shield, Solid Back (3'-9 1/2" long)	8	1012349	Bearing Stand, Standard
(2)	1011931	Sweep Back Shield, Solid Back (5'-3 1/2" long)	9	1011869	Bearing Holder w/ 2" I.D. Bronze Bearing
(2)	1011932	Sweep Back Shield, Solid Back (6'-7 1/2" long)	10	1254D	•Bronze Bearing (2" I.D.)
(2)	1011933	Sweep Back Shield, Solid Back (7'-1 1/2" long)	11	1016927	End Wheel
(2)	1011934	Sweep Back Shield, Solid Back (8'-7 1/2" long)	12	1016920	Stub, End Wheel
(2)	1011935	Sweep Back Shield, Solid Back (8'-10" long)	13	1016921	Collar, End Wheel
(2)	1011936	Sweep Back Shield, Solid Back (9'-3 1/2" long)	14	33024	Washer, 3/8" Flat PLT
(2)	1011875	Sweep Back Shield, Solid Back (9'-9 3/4" long)	15	33068	Bolt, 3/8-16 x 3" G5 PLT
3	1018837	Sweep Back Shield w/ Tractor Mounting Holes (3'-9 1/2" long)	16	33135	Nut, 5/16-18 Nylon Lock PLT
(3)	1018836	Sweep Back Shield w/ Tractor Mounting Holes (5'-3 1/2" long)	17	33138	Nut, 1/2-13 Nylon Lock PLT
(3)	1018831	Sweep Back Shield w/ Tractor Mounting Holes (6'-7 1/2" long)	18	33139	Nut, 5/8-11 Nylon Lock PLT
(3)	1018832	Sweep Back Shield w/ Tractor Mounting Holes (7'-1 1/2" long)	19	33229	Bolt, 3/8-16 x 1 1/4" G5 PLT
(3)	1018833	Sweep Back Shield w/ Tractor Mounting Holes (8'-7 1/2" long)	20	1002204	Bolt, 5/8-11 x 4" G5 PLT
(3)	1018838	Sweep Back Shield w/ Tractor Mounting Holes (8'-10" long)	21	1002249	Bolt, Carriage 3/8-16 x 3" G5 PLT
(3)	1018834	Sweep Back Shield w/ Tractor Mounting Holes (9'-3 1/2" long)	22	1007473	Bolt, 1/2-13 x 3 1/4" G5 PLT
(3)	1018835	Sweep Back Shield w/ Tractor Mounting Holes (9'-9 3/4" long)	23	4701-1	Bolt, 5/16-18 x 3/4" G5 PLT
4	1011879	Flight Section w/ Cutback (9'-9 3/4" long, f/ all bin diameters)	24	D1149	Nut, 3/8-16 Non-lock PLT
5	1011947	Flight Section, 3'-9 1/2" long	25	D1150	Washer, 3/8" Lock PLT
(5)	1011948	Flight Section, 5'-3 1/2" long	26	1018811	Sweep Carrier (See Page P-13)
(5)	1011949	Flight Section, 6'-7 1/2" long	27	1040916	Spindle Assembly f/ Carrier (See Page P-13 for Parts List)
(5)	1011950	Flight Section, 7'-7 1/2" long	28	1018733	Truss Stand
(5)	1011951	Flight Section, 8'-7 1/2" long	29	862066	Truss Cable, 5/16" x 34'-6" (f/ 4 section units)
(5)	1011952	Flight Section, 8'-10" long	(29)	1007896	Truss Cable, 5/16" x 43' (f/ 5 section units)
(5)	1011953	Flight Section, 9'-3 1/2" long	(29)	1011324	Truss cable, 5/16" x 41'-6" (f/ 6 section units)
(5)	1011880	Flight Section, 9'-9 3/4" long	30	866015-1	Eyebolt, 5/8-10 x 11"
			31	1012361	Bracket, Cable Anchor (3:1 units only)
			32	1018743	Cable Anchor
			33	3153A91	Clamp, 5/16" Cable
			34	D1170	Nut, 5/8-10 Non-Lock PLT
			35	33060	Bolt, 3/8-16 x 1" G5 PLT
			36	4827	Bolt, 3/8-16 x 3 1/2" G5 PLT
			37	33136	Nut, 3/8-16 Nylon Lock PLT
			38	33026	Washer, 5/8" Flat

• Indented Parts Names Indicate these Parts are Included in the Previous Assembly.

TORQUE CHART

TORQUE CHART

General Torque Specification Table Use the Following Torques When Special Torques Are Not Given Note: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.													
SAE Grade No.		SAE 2				SAE 5				SAE 8*			
Bolt head identification marks as per grade Note: Manufacturing marks will vary													
		Torque		Torque		Torque		Torque					
Bolt Size		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters	
Inches	Millimeters	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	20.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1 1/8	25.58	----	----	----	----	800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1 1/4	31.75	----	----	----	----	1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1 3/8	34.93	----	----	----	----	1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1 1/2	38.10	----	----	----	----	1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4

*Thick nuts must be used with Grade 8 bolts

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