NexGen
Sweep Tractor
Installation Instructions
Applicable Models:
NexGen 2000 And 3000 Series Klean Sweeps

Pre-Installation Instructions

Important
This tractor is designed for use with the NexGen 2000 Series & 3000 Series Klean Sweep units and is not intended for use on smaller power sweep units. Doing so may result in damage to the equipment and would void all applicable warranties of said equipment.

• Familiarize yourself with all the required hardware. and parts related to this assembly before proceeding to the installation.

• Arrange all items from the kits for easy access and ensure all parts are accounted for..

Note
If the Tru-Klean Chain & Paddle Drag option has been purchased for installation with this power sweep equipment, the drag system needs to be installed BEFORE installation of the tractor(s).

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

Assemble Gearbox to Tractor Frame

The assembly of the tractor should be done as near its sweep location as possible (See Section – Sweep Tractor Locations on page 9).

1. Refer to Figure 1, position gearbox upright on a level surface and verify oil level by removing the fill/level plug (gearbox is shipped with oil already installed).

   Oil should begin to leak from the opening when plug is removed, if not, refer to the service & maintenance section in these instructions on proper filling procedures. Replace plug. Remove the sealing plug from the vent at the top of the gearbox.
Figure 1. Assemble Gearbox to Tractor Frame

![Diagram of Gearbox and Tractor Frame Assembly]

**Important**
To prevent build-up of excessive pressure, sealed vents must be activated prior to gearbox operation.

2. Slide a spacer plate onto each of the gearbox axle shafts and install the wheel hubs securing each hub with one 5/8” x 3” bolt and lock washer.

3. Using 5/8” x 2 1/2” bolts and nylon locknuts, secure the tractor frame to the gearbox.

**Install Electric Motor to Gearbox**

More detailed installation and maintenance instructions can be obtained. Record the serial number from the gearbox and go to: www.nord.com/docs to download the appropriate operating instructions.

The gearbox is supplied with a coupler. This coupler will be installed onto the motor shaft prior to mounting the motor to the gearbox (See Section – Mount Tires & Rims on page 4). The location of the coupler on the motor shaft will be referred to as the “Coupling Placement Distance.”

1. Refer to **Figure 2**. Use the provided template to properly locate the coupler onto the motor shaft. Slide the coupler onto the motor shaft and position the template as shown in the illustration below. Make sure the coupler is contacting the template and tighten setscrew to lock coupler into place. **It is recommended that the key be bonded (Loctite) in place to help keep the key from vibrating out**

2. With the coupler locked into place, take measurements of the couplers placement distance and record those dimensions (See **Figure 2** below). Should it ever be necessary to relocate the coupler and the template is not available, the equation below can be used to properly locate the coupler.
3. After the coupler is properly installed onto the motor shaft, position the motor onto the gearbox and secure motor using 3/8” x 1 1/2” bolts and 3/8” lock washers (Note the orientation of the motor shown in Figure 4).

4. Install the tractor attachment arm to the front of the tractor frame and secure using the tractor mounting pins and hair pin clips (See Figure 4).

**Figure 2. Install Electric Motor to Gearbox**

*Use Template to Locate Coupling*

**Figure 3. Coupling Placement Distance Measurement**

*Dimensions used for “Coupling Placement Distance” Equation*

**Coupling Placement Distance Equation**

1. First measure the distance from the face of the input adapter of the gearbox to the edge of the gearbox flange as shown in Figure 3, Record this measurement as “A”.

2. Measure the depth of the “coupling engagement zone” and record this measurement as “B”.

3. Use the Table 1 to determine coupling placement distance. Add “A” + “B” together and subtract 0.080” (2 mm) from that distance (this needs to be done so that the coupling will not be preloaded after installation).

**Table 1. Coupling Placement Distance Calculation**

<table>
<thead>
<tr>
<th>Measured Distances (M)</th>
<th>Subtract Distance (S)</th>
<th>Coupling Placement Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A + B</td>
<td>0.08” (2 mm)</td>
<td>M – S</td>
</tr>
</tbody>
</table>

Measuring from the flat surface of the motor mounting flange, position the front edge of the coupling at that distance (coupling place distance) and tighten the setscrew to lock the coupling in place (see Figure 3).
Mount Tires & Rims

For **NexGen 2000 Series**: Refer to Figure 4

**Note**

- The NexGen 2000 Series tractors will only have a single set of tires.
- There is a right hand and a left hand tire. The rim is offset farther on one side than on the other.

1. Mount the tires with the wider offset side of the rim facing to the inside (towards gearbox).
2. Secure tire & rims using the lug nuts provided. Make sure the V-shaped tread is facing in the direction of travel.

For **NexGen 3000 Series**: Refer to Figure 5

**Note**

- The NexGen 3000 Series tractors will have a set of dual tires. It requires installation of a wheel adapter for mounting the dual set of tires.
- When installing the outer set of tires, mount one right hand tire onto the left side wheel adapter, and mount one left hand tire to the right side wheel adapter. Mounting the tires in this way allows the wider offset side of the rims to be facing to the outside.

1. Locate the dual wheel adapters from the box of parts. Install a 5/8” x 1 1/2” bolt through the middle hole of each adapter and secure with a 5/8” nylon locknut (this bolt is used only to prevent grain from entering the opening in the adapter).
2. Place the first set of tires onto the wheel hubs (wider offset side of rim to the inside). Install the dual wheel adapters and secure the adapters and tires to the wheel hubs using the provided lug nuts.
3. Install the second set of tires onto the mounting studs of the wheel adapter. Make sure the V-shape tread is facing in the direction of travel.
**Figure 4. Install Single Tire on Tractors (Used with NexGen 2000 Series Sweeps)**

- **Tractor Attachment Arm**
- **Tractor Mounting Pin**
- **Lug**
- **Nut**
- **Direction of Travel (wider offset side of rim to inside)**

Install Single Tire on Tractors used with NexGen 2000 Series Sweeps

- Secure Electric Motor to Gearbox using 3/8” x 1 1/2” Bolts and Lock Washers
- Coupling Included w/ Gearbox
- Install to Motor Shaft Prior to Mounting Motor to Gearbox

**Figure 5. Install Dual Set of Tire on Tractors (Used with NexGen 3000 Series Sweeps)**

- **Dual Wheel Adapter**
- **Lug Nut**
- **Direction of Travel**

Install Dual Set of Tires on Tractors used with NexGen 3000 Series Sweeps

- Use Right Hand Tire on Left Side When Installing Outer Dual (wider offset side of rim to outside)
- (wider offset side of rim to inside)
- 5/8” x 1 1/2” Bolt & Nylon Locknut used only to plug hole in center of the adapter
- Use Left Hand Tire on Right Side When Installing Outer Dual (wider offset side of rim to outside)
Mount Tractor to Sweep Shield

1. Install the tractor mount bracket to the rear side of the sweep shield (see Figure 6).
2. Secure the bracket using six (6) 1/2” x 5” bolts and nylon locknuts (do not tighten at this time).
   
   For NexGen 2085 Series, continue with Step 3 — Step 5.
   
   For NexGen 3150 Series go to Step 6.
3. Install the channel support mount brackets to the sweep shield as shown in Figure 7 and secure the mount brackets using 3/8” x 1 1/4” bolts and nylon locknuts.
4. Position the channel mount on top of the brackets and loosely secure the bracket using 3/8” x 1 1/4” bolts, flat washers and nylon locknuts (see Figure 7).
5. Reposition the bracket that was installed in the first step so it is centered between the two channel support mount brackets and tighten hardware. Position the channel mount so it is centered between the sweep shield frame and tighten hardware.
   
   Note
   The Channel Mount Support will not be used on units for 36’, 42’ & 43’ diameter bins.
6. Position the ears of the tractor attachment arm to the inside of the tractor mount bracket previously installed (see Figure 8). Secure the attachment arm using the 10 3/4” long tractor mounting pin and hair pin clip.

Figure 6. Secure Mount Bracket
Figure 7. **Install Channel Mount Bracket**

Install Channel Support Brackets w/ 3/8” x 1 1/4” Bolts, Flat Washers & Nylon Locknuts

Install Channel Mount w/ 3/8” x 1 1/4” Bolts, Flat Washers & Nylon Locknuts

For 2085 Series with Bin Dia. Larger than 43’ Only

Channel Mount Installed

Figure 8. **Connect Tractor Attachment Arm**

Tractor Mounting Pin

Connect Tractor Attachment Arm to Mount Bracket

Hair Pin Clip
Install Motor Covers

**WARNING**
Do Not enter the bin unless all power driven equipment has been shut down and locked out.
A main power disconnect switch that can be locked only in the “Off” position shall be used.
This shall be locked whenever work is being done to any of the power driven equipment.

**Important**
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.

Refer to Figure 9.

1. Locate the left side and right side motor cover plates from the box of parts (there should be an “L” and a “R” scribed on each of the side covers to help distinguish the appropriate side). Loosely attach the side covers to the tractor frame using 3/8” x 1 1/2” bolts, flat washers and lock washers (use the bottom three holes of the side covers to attach to frame).

2. Install the front and the rear covers using 3/8” x 1 1/4” bolts, flat washers and lock washers. These covers (can be installed loosely at this time) will attach directly to the side covers.

   **Note**
   The front cover can be left off at this time until the electrical wiring has been completed.

3. Place the top cover into position and secure using 3/8” x 1 1/4” bolts, flat washers and lock washers.

   **Note**
   The sides of the top cover will overlap the left and right side motor covers. The front and rear portions of the top cover will be positioned to the inside of the front & rear motor covers.

4. After the motor covers have been assembled, tighten all hardware.

5. Install the weights onto the rear of the tractor frame. The weights should be mounted so there is an equal amount on each side of the tractor.

6. After the tractor has been fully assembled, the electrical wiring connections can be made.
Figure 9. Install Motor Cover

Motor Cover (left side)
Bottom 3 Bolts (3/8” x 1 1/2")
on Left Side Motor Cover
Attach to Tractor Frame

3/8” x 1 1/4” Bolts, Lock
Washers & Flat Washers

Motor Cover (back side)

3/8” x 1 1/4” Bolts, Lock
Washers & Flat Washers

Motor Cover (top)

3/8” x 1 1/2” Bolts, Lock
Washers & Flat Washers

Motor Cover (front side)
Front Cover can be Left Off Until
Electrical Wiring has been Connected

Motor Cover (right side)

3/8” x 1 1/2” Bolts on Right
Side Motor Cover Attach
to Tractor Frame

Tractor
Weights

Sweep Tractor Locations

<table>
<thead>
<tr>
<th>Sweep Model</th>
<th>Bin Diameter</th>
<th>No. of Tractor(s) to be Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>NexGen 2085</td>
<td>80’ — 92’</td>
<td>1 or 2 (Optional)</td>
</tr>
<tr>
<td></td>
<td>105’</td>
<td>2</td>
</tr>
<tr>
<td>NexGen 3150</td>
<td>88’</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>90’ and Up</td>
<td>2</td>
</tr>
</tbody>
</table>

1. For 36’ — 92’ bins with single tractor:
   a. Measure 4’ (1.22 m) from end of bearing support to center of tractor clamp. See Figure 10 and Figure 12.

   Important
   • Do Not allow the tractor to drive over any intermediate well. Move the tractor location towards the center of the bin to pass by the well.
   • If intermediate well is far enough away from bin wall to allow tractor to be moved towards bin wall, relocate tractor but keep a minimum distance of 4’ from the bin wall. It’s possible the weights or the rear of the tractor could strike the bin wall as it travels around the bin if the tractor is located too close to the wall.
Figure 10. Tractor Distance from End of Bearing Support

Figure 11. Relocate Tractor to Pass by Well
Figure 12. Tractor Locations For 36’ — 92’ Bins

36’ - 59’ Bins (Units with 3 Flight and Shield Sections)

60’ - 80’ Bins (Units with 4 Flight and Shield Sections)

88’ - 92’ Bins (Units with 5 Flight and Shield Sections)

Note
The illustrations are shown for reference only. Some flight and shield layouts will differ from what is shown.

b. For 36’, 42’ and 43’ bins only: 36’, 42’ and 43’ diameter bins do not use the Channel Mount Support as shown in Figure 7 on page 7, therefore, if necessary, the tractor can be installed next to a bearing support on the 36’, 42’ and 43’ bins only.

c. For 80’ — 92’ bins only: option of adding a second tractor. Determine the location of the second tractor similar to Figure 13.

2. For 105’ — 150’ bins:

a. Measure 4’ (1.22 m) from end of bearing support to center of tractor clamp. This is the location of the tractor next to the bin wall.

b. Measure from the center of the bin to the center of tractor clamp.

c. Divide overall measurement into thirds and locate second tractor near the two–thirds location. See Figure 13. Do not attach tractor in the open area on either side of the bearing support, relocate as necessary keeping it nearest the two–thirds location as possible.
Figure 13. Tractor Locations For 105’ — 120’ Bins

When installing channel mount support for tractor location, DO NOT attach on either side of the bearing support. Relocate if necessary.

Units with 6 Flight and Shield Sections

![Diagram of tractor locations for 105' - 120' bins]

Note
The illustrations are shown for reference only. Some flights and shield layouts will differ from what is shown.

Figure 14. Tractor Locations For 132’ — 136’ bins.

Units with 7 Flight and Shield Sections

![Diagram of tractor locations for 132' - 136' bins]

Determine second tractor location by measuring from center of bin to center of clamp on tractor nearest the bin wall. Divide overall measurement into thirds and locate second tractor near the two-thirds location.

After 4’ (1.22 m) has been determined, divide remaining sweep length into thirds

Figure 15. Tractor Location For 150’ Bins

Units with 8 Flight and Shield Sections

![Diagram of tractor location for 150' bin]

Install Wear Tracks:

Note
If installing the sweep and tractor(s) on aeration bin floors or bins with tunnels, it is recommended that wear tracks be installed for the sweep wheels and tractor tires to ride over.

- Install the wear tracks as shown in Figure 16 so sweep and tractor(s) pass over the tracks in the sweeps direction of travel. Drill pilot holes as necessary for screw installation.
Figure 16. Installing Wear Tracks

Wear Track

Drill pilot holes as necessary for screws during installation.

Sweep Travel Direction

Wear Tracks to be installed over aeration floors or tunnels for sweep and tractor tires.
Maintenance

Maintenance Safety

**WARNING**
- Keep components in good condition. Follow the maintenance procedures.
- Ensure the service area is clean, dry, and has sufficient lighting.
- Do not modify any components without written authorization from the manufacturer. Modification can be dangerous and result in serious injuries.
- Never attempt to clean, adjust or lubricate a machine that is in operation.
- Shut down and lock out power before maintaining equipment.
- Never enter the bin unless all power driven equipment has been Shut/Down and Locked Out.
- Never attempt to control the operation of the sweep by pushing, or pulling on it with brooms, shovels, boards or any other device.
- After maintenance is complete, replace all guards, service doors, and/or covers.
- Use only genuine Hutchinson | Mayrath replacement parts or equivalent. Use of unauthorized parts will void warranty. If in doubt, contact Hutchinson | Mayrath or your local dealer.

Maintenance Procedures

For more detailed instructions related to the gearbox, visit [www.nord.com/docs](http://www.nord.com/docs) and use the serial number of the gearbox to download the appropriate operating instructions (see Figure 17 below).

Figure 17. Serial Number Location (Figure is for Reference Only)
Check Oil Level:

**Important**

The gearbox is shipped with oil already installed. Even under normal working conditions, oil still has a tendency to dissipate. Periodically check oil level and maintain proper level.

<table>
<thead>
<tr>
<th>Oil Type</th>
<th>ISO Viscosity VG220</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIN-EP Mobilgear 600XP220</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>32°F to 104°F (0°C to 40°C)</td>
</tr>
<tr>
<td>Capacity</td>
<td>Approx. 8.5 qts. (8.04 L)</td>
</tr>
</tbody>
</table>

1. With the gearbox in the upright position, remove the level check/fill plug shown in Figure 18.
2. Oil should begin to leak from the opening to indicate the oil level is correct. Replace plug.
3. If oil does not leak out, add oil through the opening until oil begins to leak out indicating oil level is correct (a small funnel, pipe nipple or syringe type tool can be used to add the oil). Replace plug.

**Note**

Do Not overfill. Additional oil may damage the seals or be forced through the vent plug.

**Figure 18. Check Oil Level (Figure is for Reference Only)**

At Least Every 6 months:

1. Perform a visual inspection. Check all fasteners for tightness.
2. Ensure electrical wiring and connections are tight and not damaged.

At Least Every 2 Years:

1. Clean and/or replace the vent plug.
2. Change gearbox oil (double the interval if filled with synthetic products)
3. Replace shaft sealing rings if worn.

**Important**

Dispose of used oil responsibly. Follow all local regulations for proper handling and disposing of used oil.
Parts List

Figure 19 and Table 2 is the parts list for NexGen Sweep Tractor for NexGen 2000 & 3000 Klean Sweeps.

Figure 19. Parts List

Items 18 & 19 used on NexGen 2085TK Series with Bins Greater than 36’ Only
<table>
<thead>
<tr>
<th>Ref.</th>
<th>Part No.</th>
<th>Description</th>
<th>Ref.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1049947</td>
<td>Tractor Frame Weldment</td>
<td>19</td>
<td>1050370</td>
<td>Mount Bracket f/ Channel Support</td>
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<tr>
<td>2</td>
<td>1050227</td>
<td>Tractor Attachment Arm</td>
<td>20</td>
<td>1002235</td>
<td>Bolt, 5/8-11 x 3” G5 PLT</td>
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<tr>
<td>3</td>
<td>1050054</td>
<td>Gearbox, Helical 352.25:1</td>
<td>21</td>
<td>D1171</td>
<td>Lock Washer, 5/8” PLT</td>
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<tr>
<td>4</td>
<td>1049943</td>
<td>Electric Motor, 1 hp, 3 ph, 460v, 60 hz</td>
<td>22</td>
<td>33276</td>
<td>Bolt, 5/8-11 x 1 1/2” G5 PLT</td>
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<tr>
<td></td>
<td>(4) 1050552</td>
<td>Electric Motor, 1 hp, 3 ph, 380v, 50 hz</td>
<td>23</td>
<td>33139</td>
<td>Nut, 5/8-11 Nylon Lock PLT</td>
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<td>5</td>
<td>1049984</td>
<td>Wheel Hub</td>
<td>24</td>
<td>1002234</td>
<td>Bolt, 5/8-11 x 2 1/2” G5 PLT</td>
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<tr>
<td>6</td>
<td>1043598</td>
<td>Tire &amp; Rim, RH (5.7-12-22”)</td>
<td>25</td>
<td>107235</td>
<td>Lug Nut, 1/2-20</td>
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<td>7</td>
<td>1043599</td>
<td>Tire &amp; Rim, LH (5.7-12-22”)</td>
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<td>D1166</td>
<td>Hair Pin Clip</td>
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<td>8</td>
<td>1022554</td>
<td>Counter Weight</td>
<td>27</td>
<td>32229</td>
<td>Bolt, 3/8-16 x 1 1/4” G5 PLT</td>
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<tr>
<td>9</td>
<td>1049974</td>
<td>Top Motor Cover</td>
<td>28</td>
<td>D1150</td>
<td>Lock Washer, 3/8” PLT</td>
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<tr>
<td>10</td>
<td>1049983</td>
<td>Back Motor Cover</td>
<td>29</td>
<td>33024</td>
<td>Washer, 3/8” Flat PLT</td>
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<td>11</td>
<td>1049978</td>
<td>Left Side Motor Cover</td>
<td>30</td>
<td>33310</td>
<td>Bolt, 3/8-16 x 1 1/2” G5 PLT</td>
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<td>12</td>
<td>1049982</td>
<td>Front Motor Cover</td>
<td>31</td>
<td>33136</td>
<td>Nut, 3/8-16 Nylon Lock PLT</td>
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<td>13</td>
<td>1049980</td>
<td>Right Side Motor Cover</td>
<td>32</td>
<td>4917</td>
<td>Bolt, 1/2-13 x 5” G5 PLT</td>
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<td>14</td>
<td>1049965</td>
<td>Plate, Sweep Shield Mount</td>
<td>33</td>
<td>33138</td>
<td>Nut, 1/2-13 Nylon Lock PLT</td>
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<tr>
<td>15</td>
<td>1050178</td>
<td>Mount Brkt., Tractor to Sweep</td>
<td>34</td>
<td>10395</td>
<td>Wear Track</td>
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<tr>
<td>16</td>
<td>1049990</td>
<td>Dual Wheel Adapter</td>
<td>35</td>
<td>1048856</td>
<td>Screw, #14 x 1 1/4” Self Drilling</td>
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<td>17</td>
<td>1050172</td>
<td>Tractor Attachment Pin</td>
<td>36</td>
<td>1050752</td>
<td>Template, Motor Coupling Distance</td>
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<tr>
<td>18</td>
<td>1050369</td>
<td>Channel Mount Support</td>
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