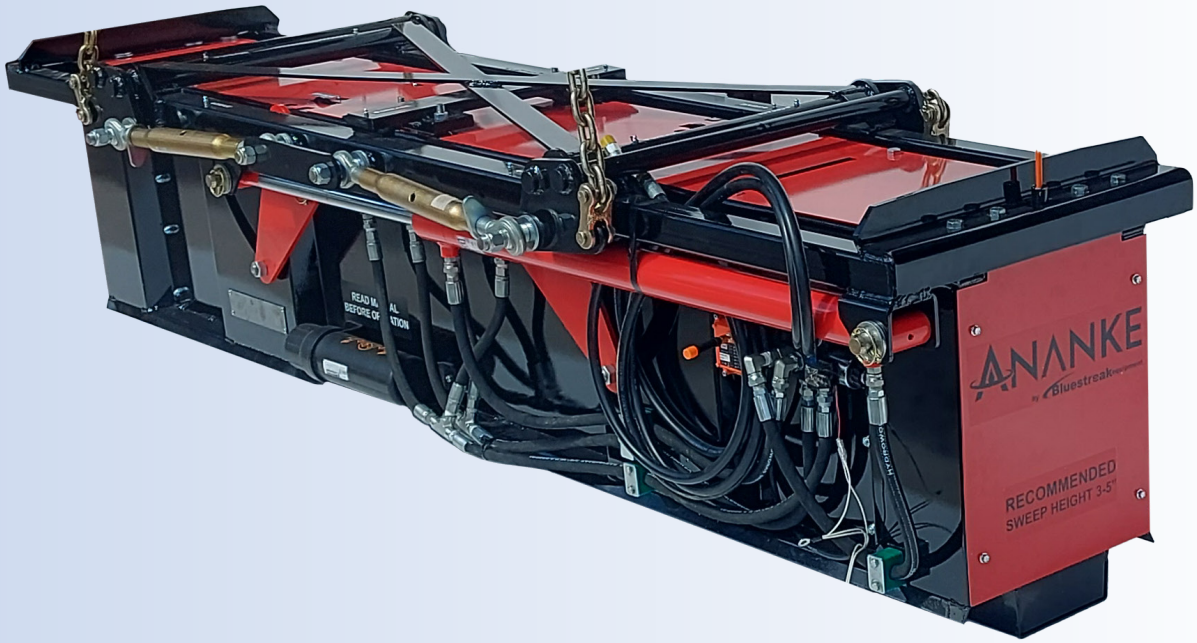
Assembly Installation Operating and Maintenance Instructions

ANANKE



Bluestreak equipment MAGNETICS
APPLICATION DRIVEN DESIGN

Bluestreak Equipment
1645 Hwy #3, Delhi, Ontario, Canada N4B 2W6

Table of Contents

Importance of Safety

Accidents can be very costly to human life and property. The operator is the #1 safety device on all types of vehicles or equipment, it is important that the operator read, learn and know all safety recommendations for this product. The user is responsible to their family, friends and co-workers to operate in a safe manner. Ensure that everyone who operates or assists in the operation or maintenance of this product read and understand all the elements required to safely operate this piece of equipment. This attachment has moving parts that include additional dangers.

Operator Safety Training Tips

- It is the responsibility of the operator using this attachment to be acquainted with the safe operation. In addition to reading this manual, it is important that the operator read the motor grader or other primary mover operation manual and follow its manufacturer's recommendations!
- Before lifting, lowering or tilting the attachment, make sure the area is clear of bystanders or objects.
- Machinery parts sometimes have sharp edges. Wear work gloves.
- Never use drugs or alcoholic drinks when operating or servicing this piece of equipment.
- Always wear the proper personal protection equipment when servicing or operating this piece of equipment. Never service or operate this attachment with bare feet, sandals, or other light footwear.
- Always use eye protection during operation.
- Speed Kills! Operate this attachment at a safe working speed. When transporting the attachment, keep a safe speed to avoid losing control of the attachment or prime mover.
- Keep proper clearance between the attachment and objects (utilities, tree stumps, large rocks, buildings, etc.). Contacting these objects with the attachment or prime mover could cause a loss of control or damage to the attachment or property.
- Before each operation of this attachment, check all hardware (bolts, nuts, pins, etc.) for their proper location and tightness.
- Stop the engine on the prime mover and set the brake to avoid the attachment rolling forward or backwards while you are exiting the prime mover.
- Store this attachment in an area not frequented by children.
- Allow no riders on this attachment. Keep all bystanders clear of attachment during operation.
- Always replace worn, torn or missing safety decals before operating.
- Never operate the attachment when bystanders are within 10 feet (3 m) of the work area.
- Operate only during daylight or if underground with a well-lit artificial light.
- If working on public roadway, display a Slow Moving Vehicle emblem per your State & Local regulations. Turn your flashers on.

Prime Mover Requirements (Motor grader, etc..)

This attachment must be connected to a Prime Mover with adequate horsepower and weight to provide satisfactory results. The dry weight of the Ananke 95 magnetic sweeper in total is 1064 lbs. +/- alone, or 1414 lbs +/- with the hydraulic side shift bracket.

A motor grader with a structural mounting surface on the rear of the vehicle is required.

One auxiliary hydraulic circuit is required for operation of the Ananke magnetic sweeper. Additionally, these auxiliary hydraulics must have in cab controls to allow the operator to clean off, and/or side shift the magnet while operating the prime mover.

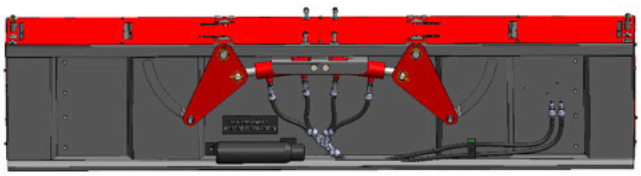
Make sure your prime mover is in good working condition. Follow the operating instructions found in the manual that accompanied your prime mover. Failure to do so could result in minor or serious injury.

Assembly Instructions

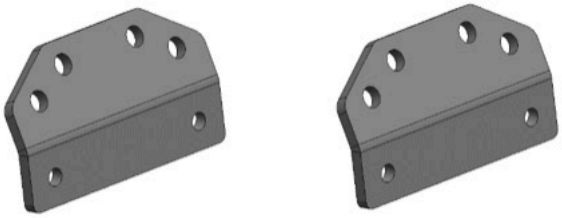
Step 1. Unpacking Your Shipment

Ananke as shipped on pallet - remove the shrink wrap and banding.

Step 2. What's on the Pallet

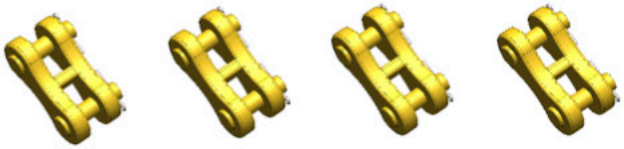


Ananke Sweeper x1



Steel Hanging Plate x2

Grade 70 Hanging Chain x4
w/ quick links

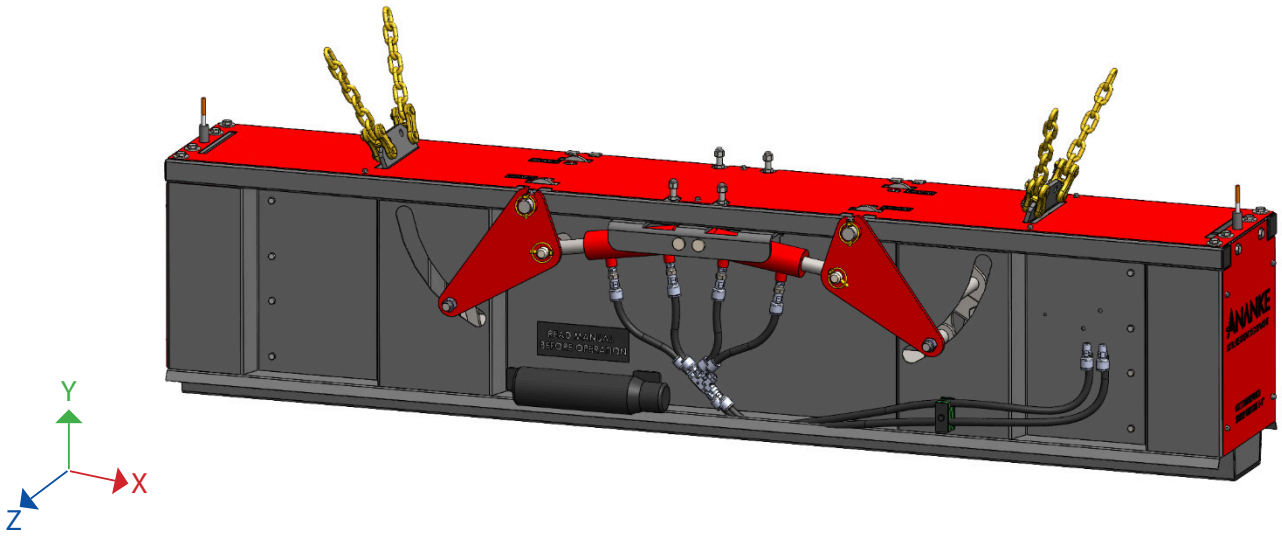


Grade 70 Twin Clevis x4

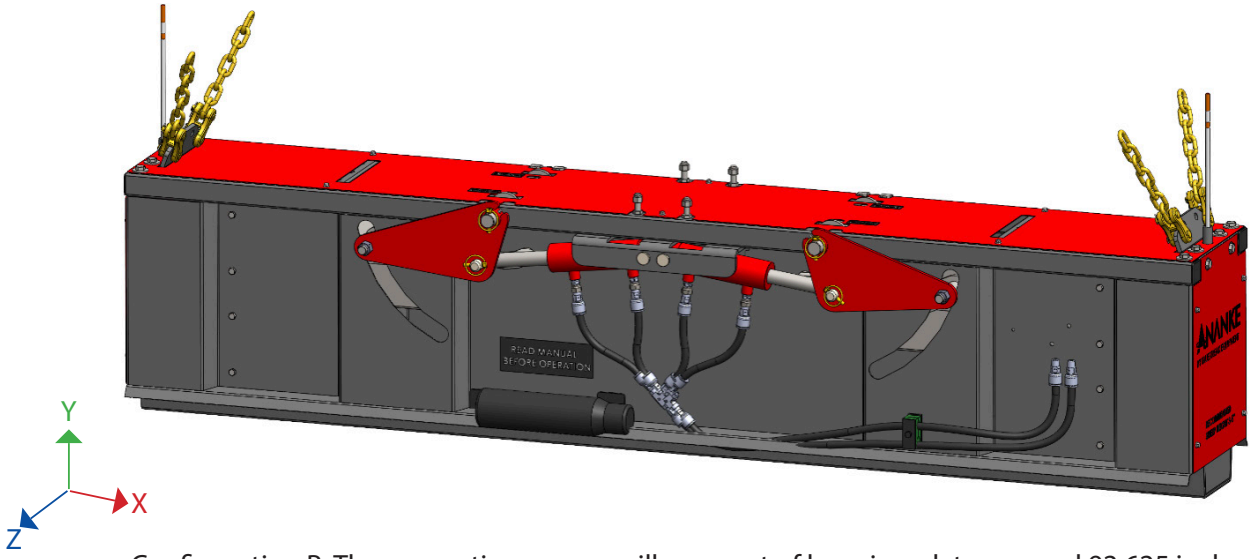
Hanging Plate Bolts
0.625" x 3.0" Hex Bolts x4
0.625" Nyloc Nuts x4

Step 3. – Determine How the Sweeper will Mount to the Vehicle

Note: If you purchased a hanging bracket or a side shift bracket, you may skip steps 3-7.



Configuration A: The magnetic sweeper will use a set of hanging plates spaced a 59.25 inches apart from each other and hang from transport chain and a twin clevis. Each chain is on an angle outward away from the center of the sweeper in all directions.

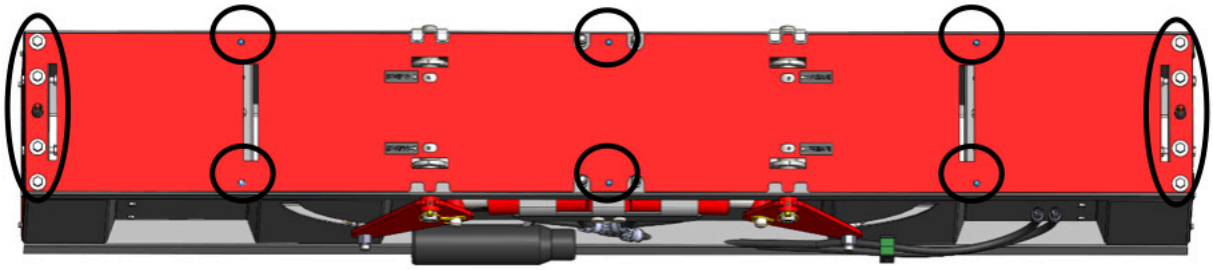


Configuration B: The magnetic sweeper will use a set of hanging plates spaced 92.625 inches apart from each other and hang from transport chain and a twin clevis. The chains point inward (xy plane) and outward (yz plane) from the center of the sweeper so that they do not extend outside the limits of the sweeper.

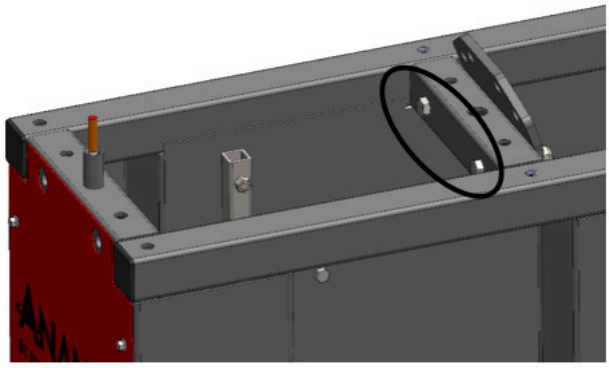
It is recommended to mount the sweeper to a structural part of the vehicle to avoid damage and subsequent injury. Utilize a configuration that works best for your vehicle.

Step 4. Install the Hanging Plates on the Sweeper.

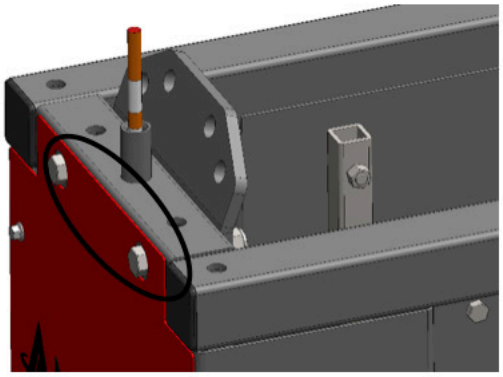
Note: if a side shift bracket is purchased you may skip this step.



Remove the 6pcs ¼" flange bolts on the top of the sweeper and the 8pcs ½" hex bolts with washers to remove the red lid. Set the hardware and the lid aside.



Configuration A

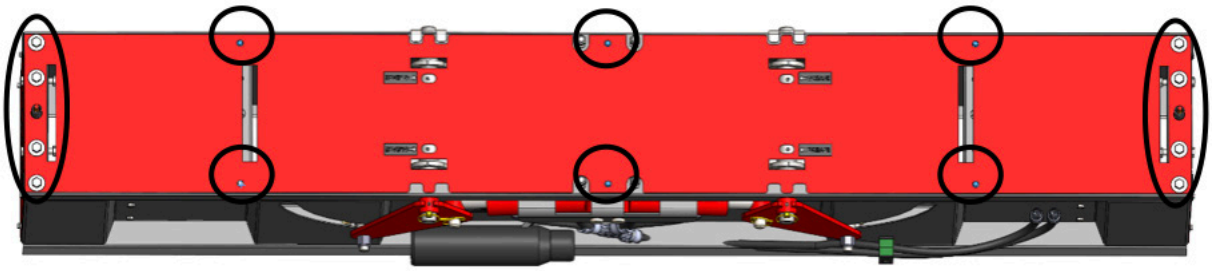


Configuration B

Mount the hanging plates to the main frame as desired. Place the hex bolts through the holes in the top of the steel frame, with the hanging plate and nyloc nuts on the alternate side of the square tube. Repeat for the other side.

Step 5. Re-install the Lid on the Sweeper

Note: if a side shift bracket is purchased you may skip this step.

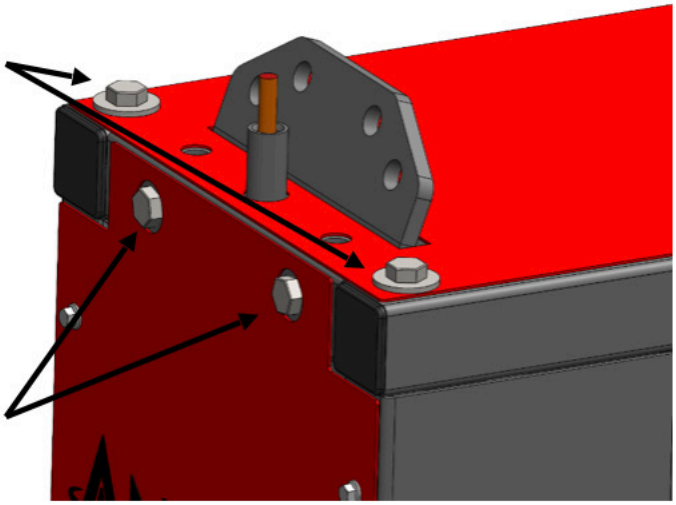


Install the lid and fasten with the 6pcs ¼" flanged hex bolts and the ½" hex bolts.

Note: If configuration B is used, only four of the eight hex bolts with washers are used on the ends of the sweeper. See illustration below.

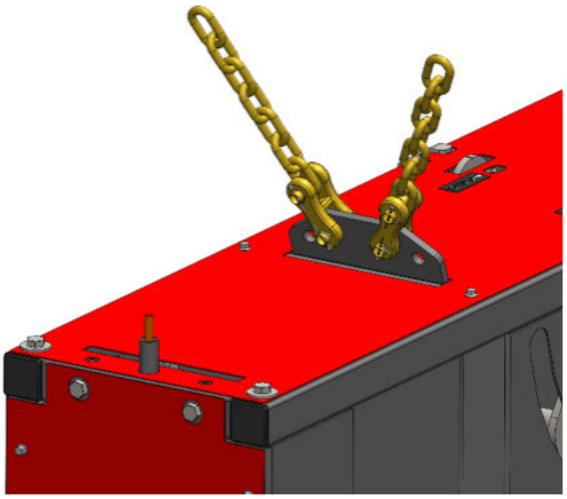
½" x 2.5" long hex bolt with washer

½" x 3.0" long hex bolt

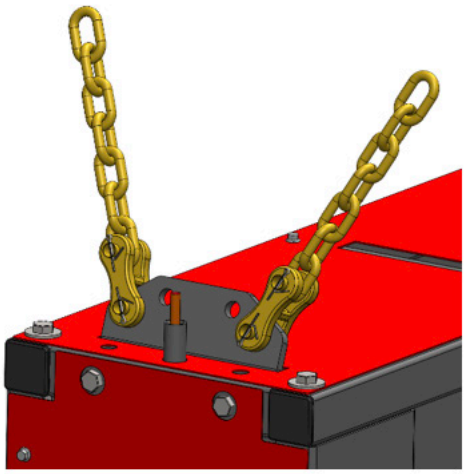


Step 6. Install the Hanging Chain on the Hanging Plates

Note: If a side shift bracket is purchased you may skip this step.



Configuration A



Configuration B

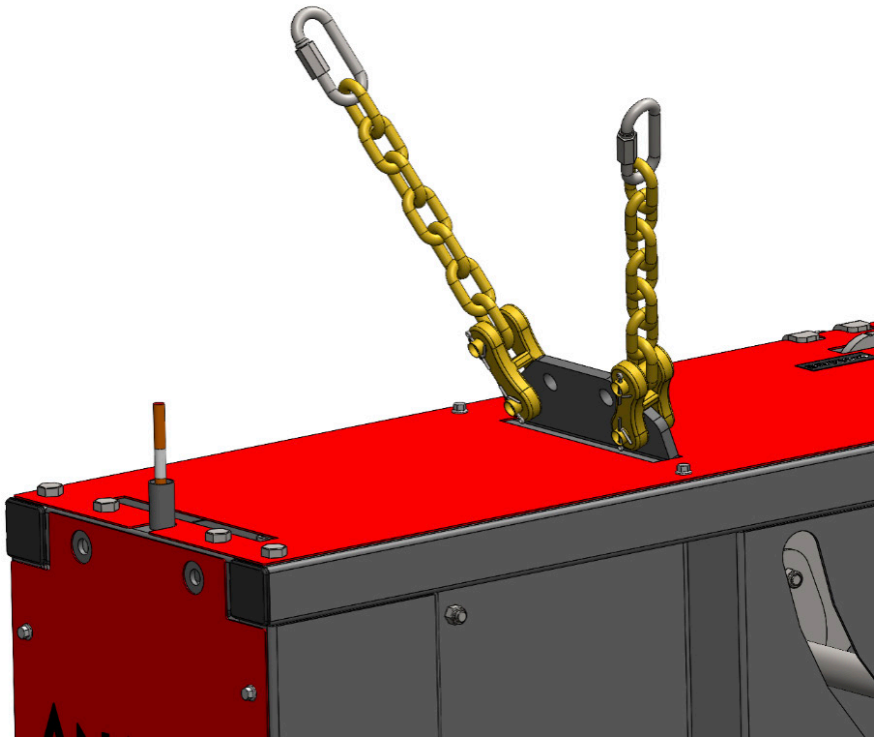
Shown above are the twin clevis' and hanging chain attached to the hanging plates that were previously installed. Ensure at least one of the cotter pin legs on each pin are bent back to ensure the clevis does not come loose.

Note: Any two of the four holes can be used for mounting. It is recommended to keep the chain at an angle to increase stability when hanging. Links can be cut to shorten the assembly height, but it is not recommended to add links as this can cause excess swinging.

Pages to follow will outline considerations for hanging the sweeper as well as key dimensions for each configuration.

Step 7. Install the 3/8" Quick Link on the 3/8 Chain

Note: If a side shift bracket is purchased you may skip this step.



Loosen the nut on a quick link and install it in the highest link of the 3/8" chain. Repeat this procedure for all four chain links. This quick link on the highest link, but It is recommended to install it on this for preliminary measurements and test fitting of the sweeper on the vehicle.

The following page will outline some considerations and dimensions to consider when creating an attachment for the sweeper on the vehicle.

Installation Instructions

Step 1. Considerations Before Attaching the Sweeper to the Primary

Overview:

The Ananke Magnetic sweeper is intended for rear-mount applications and must be mounted to a structural part of the prime mover. The Ananke Magnetic Sweeper requires a bracket of some form to connect the sweeper to the prime mover it will be used with. A Universal Hanging Bracket does not come standard with the Ananke, however one can be purchased as an accessory that can be modified to suit the prime mover.

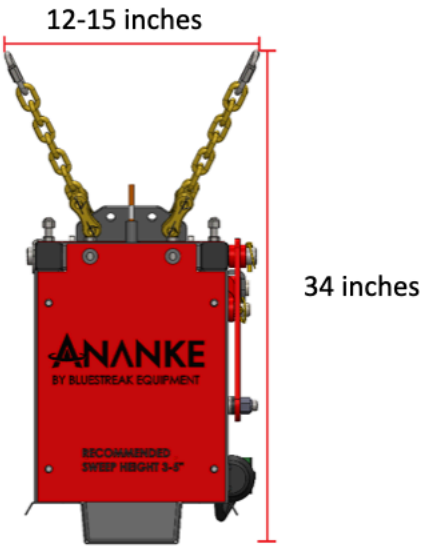
Purchasing a Universal Hanging Bracket is recommended as it allows for quicker and easier installs with less custom fabrication time. Firstly, the steel frame of the bracket maintains the position of the hanging chain for any of the hanging plate configurations, and the side shift bracket configuration. Second, the bracket offers a base to which steel parts can be welded on, to adapt to the prime mover. This saves time regarding custom fabrication from pin, frame, bash bar or other mounts that are different in each application.

The Ananke magnetic sweeper also requires use of an auxiliary hydraulic circuit on the rear of the prime mover to allow controlled collection and deposition of material from the magnet. It is recommended to remove accessories such as rippers/scarifiers, blades or other hydraulic attachments when installing the Ananke Magnetic sweeper. This prevents un-necessary damage and allows safe controlled operation.

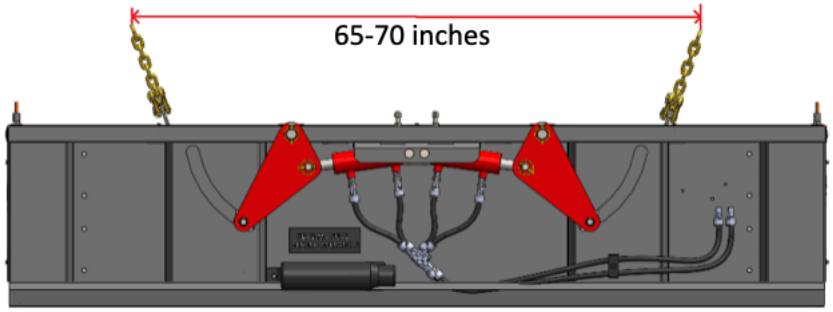
Remove Accessories (if present)

Step 2. Fabrication Considerations for Attachment of the Sweeper to the Primary Vehicle

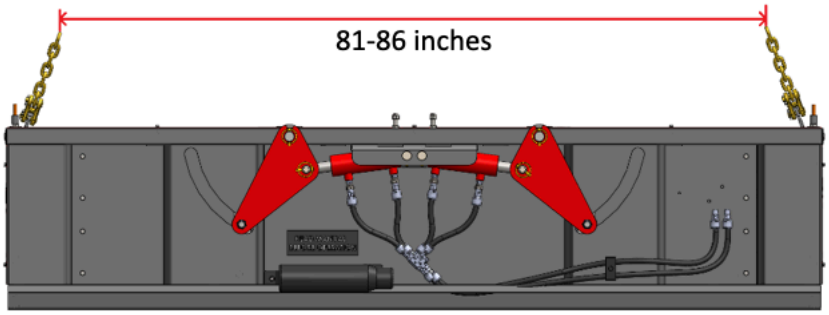
It is recommended to have the sweeper mounted to a solid, structural part of the vehicle with four points of contact. Below dimensions can be used as a guideline for ensuring the sweeper is mounted in a stable manner. Keep these dimensions in mind when making any custom brackets.



Side View – Ananke configuration A/B



Front View – Ananke configuration A

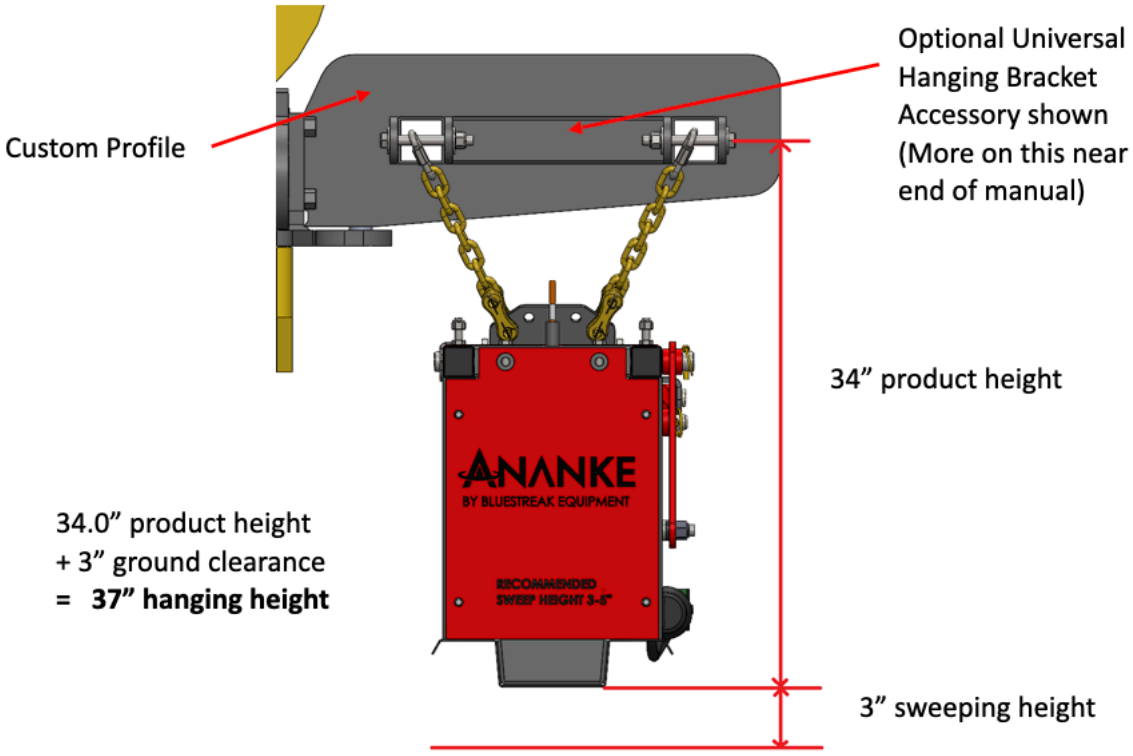


Front View – Ananke configuration B

Step 2. Fabrication Considerations for Attachment of the Sweeper to the Primary Vehicle

The Ananke magnetic sweeper is most effective in the 2-5" sweeping range. When considering solutions for a hanging bracket, keep in mind the dimensions on the previous page. When determining the height for the hanging bracket the sweep height should be added to the overall height dimension to obtain an appropriate sweeping height.

For example, the illustration below shows a 3" sweep height for the Ananke magnetic sweeper. The overall height the bracket system should be hung at with respect to the ground, is the product height plus the desired sweeping height.



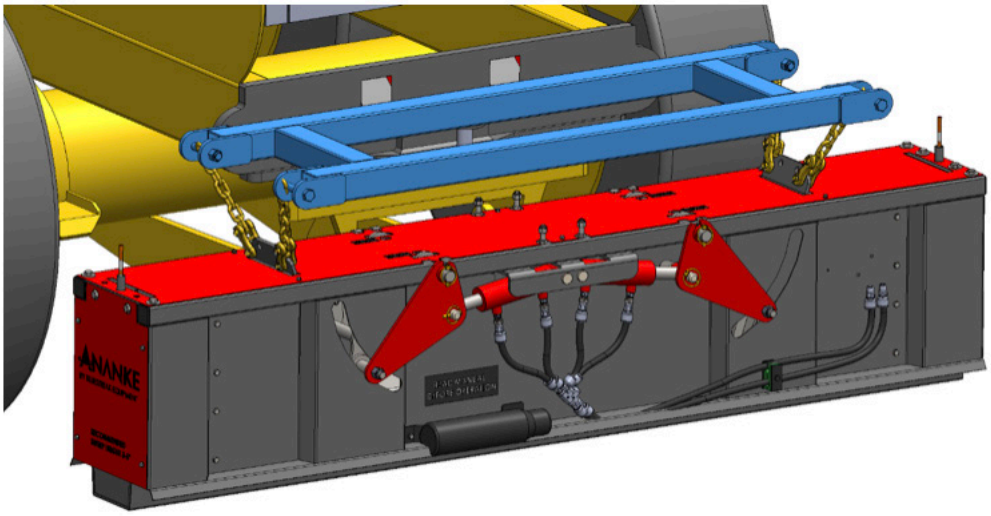
Once a bracket system is fabricated or the Universal Hanging Bracket is modified, you will want to double check the measurements from the ground to confirm it will sit as desired.

If the sweep height is lower than the desired height (by 1 inch or more) , the assembly can be raised up. Simply lift the assembly to take the weight off the bracket and move each of the quick links down 1 link. There is about 2-3" maximum adjustment within the chain links which covers the range of recommended sweep height.

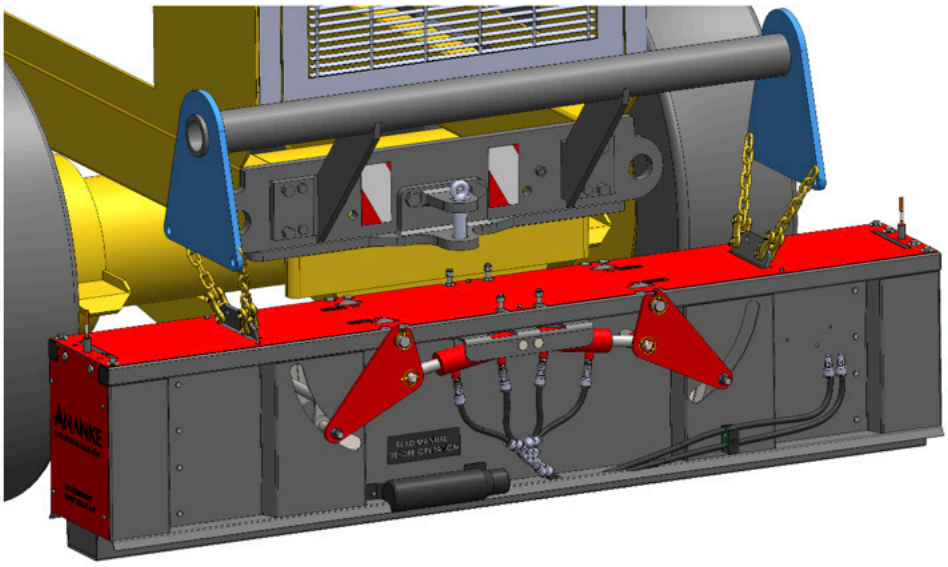
If the sweep height is higher than the desired height (by 1 inch or more), the assembly can be lowered by purchasing additional quick or substituting the chain with a longer link assembly. It is recommended to not extend the links more than 2" as this will increase the swinging effect when sweeping/travelling with the sweeper attached.

Step 2. Exemplary Mounting Illustrations for Motor Grader Applications

The following images are some exemplary configurations of various brackets used to mount the Ananke magnetic sweeper to the vehicle. With different vehicle dimensions and manufacturing methods, one solution that may work for one vehicle, may not work for another.



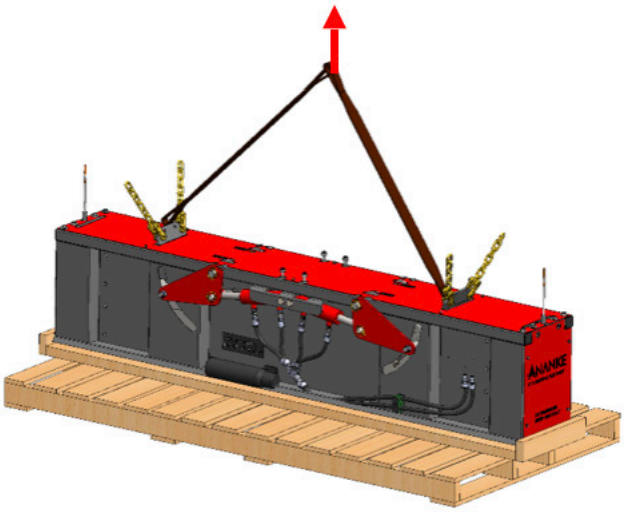
Example 1: Universal Hanging Bracket with some fabricated steel parts to allow mounting to the rear chassis of a motor grader. The bracket is fixed in place and the sweeper is only removable by loosening the bolts on the hanging bracket. Refer to the accessories part of this manual for more information regarding the Universal Hanging Bracket.



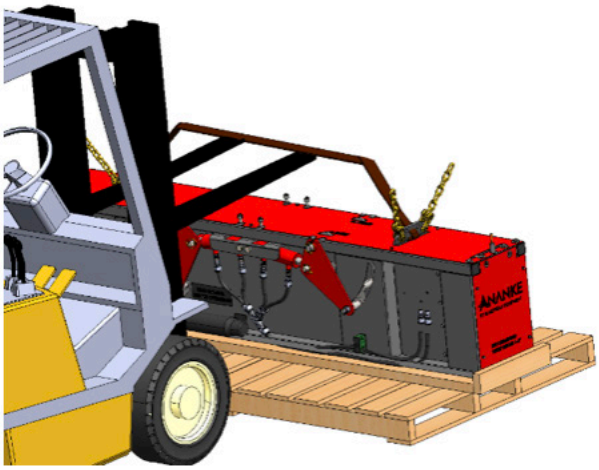
Example 2: Custom fabricated bash bar with steel plates added on the ends to allow chain to be attached and removed as needed. In this example, the bash bar is also removable. Quick links or other hardware would be required to mount the chain to the steel plates.

Step 3. Remove the Sweeper from the Pallet

Lift the sweeper off the pallet with a forklift, crane or other lifting device with a set of straps and clevis or hook, utilizing the extra holes in the hanging plates. It is recommended to have multiple people that can observe and signal the operator of the lifting device. It is not recommended to lift the sweeper using the pallet as there will be no effective way to remove the pallet once attached to the prime mover. It is also not recommended to use the hanging chains on the sweeper to lift, as they will be required in the following steps.



Using Crane or Hoist

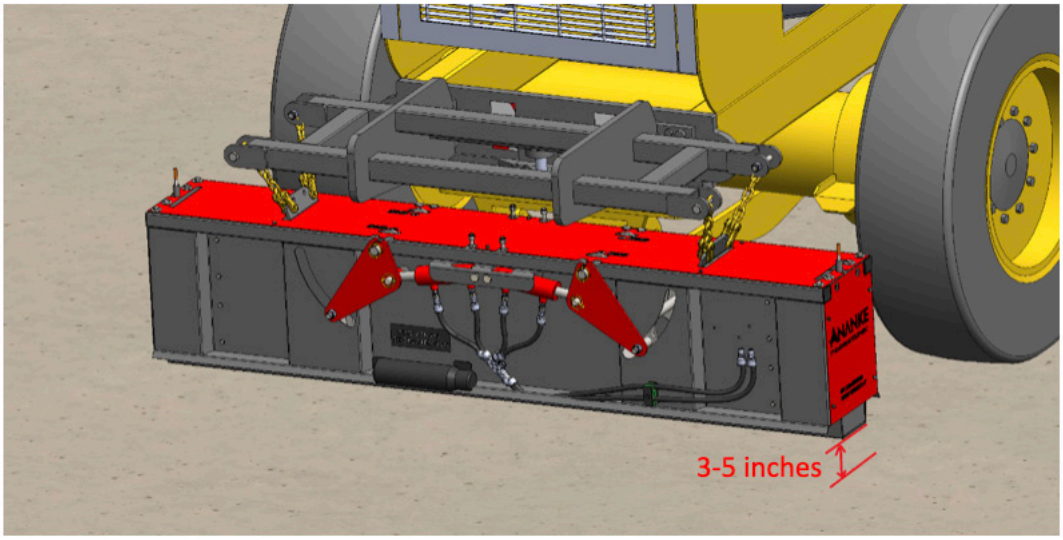


Using Forklift

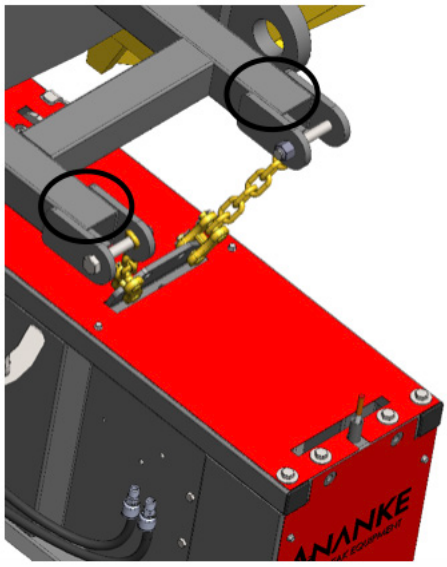
Once the Ananke is off the pallet, it can be brought towards the back of the prime mover to prepare for installation.

Step 4. Attach the Sweeper to the Hanging Bracket on the Prime Mover

Lift the sweeper to the desired sweep height. It is recommended to keep the height between 3-5inches for maximum performance. With the help of additional people, lift the chain on each corner of the sweeper and pull towards the mounting location. Line up the correct loop of chain with the mounting bracket bolts.



Raise the sweeper and secure the appropriate loop of chain (based on desired height that was determined in the last step) on each corner of the assembly. Once the chain is attached it can be lowered and the sweeper should hang freely. If the sweeper is too low or too high, you will have to reposition the assembly using the quick links. This is easily done by raising the sweeper using a forklift, repositioning the quick links as desired, and then lowering the forks so that the sweeper is suspended by the chain.

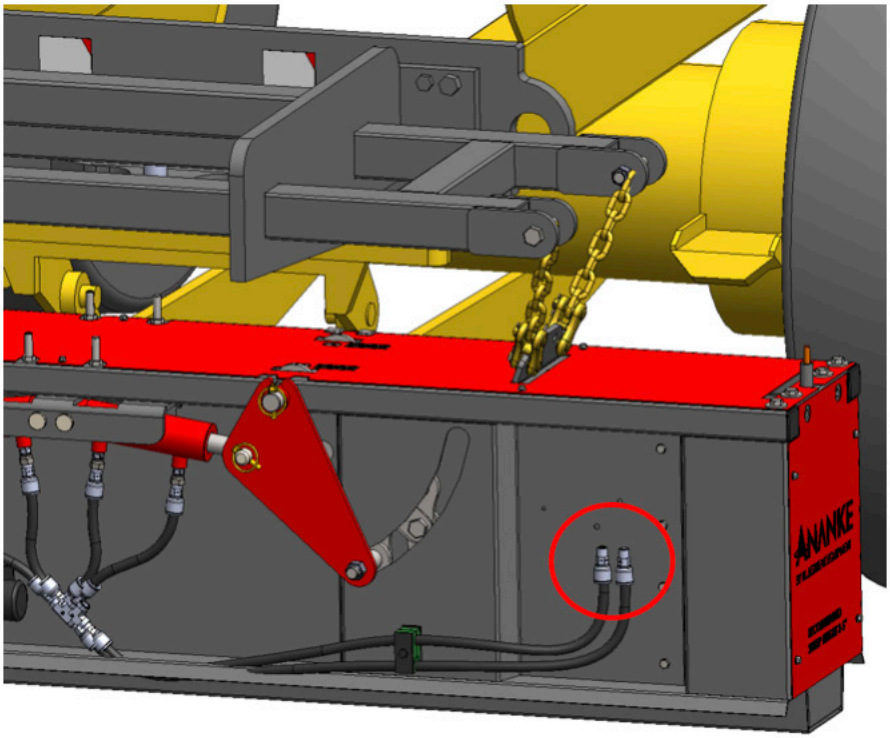


Step 5. Take Measurements for Hydraulic Hose

The Ananke magnetic sweeper does not come with hydraulic hose for connection to the prime mover. You will need to obtain fittings for connection to your auxiliary system (quick couplers or other attachment methods), hydraulic hose and 3/8" NPT fittings.

The Ananke has a set of two 3/8" male NPT fittings that must be connected to the auxiliary system. An illustration is presented below for reference. You will require fittings and hydraulic hose that runs from the 3/8" male NPT fittings to the vehicle's auxiliary couplers on the main frame. It is important to leave some slack in these lines and tie back any loose hose to the sweeper, bracket or chassis of the vehicle. It is not important which hose goes to which port on the auxiliary hydraulics, as the motion of the joystick or switch will simply be reversed.

Ensure PTFE sealant tape is used on all NPT connections to avoid leaks and potential damage to components.



Operating Instructions

Step 1. Operational Overview of Attachment

Pre-Operation Walk-around Inspection

Before every use, it is important to perform a short inspection and certain maintenance on your Ananke Magnetic Sweeper.

- Check that all hanging chain is fixed in place and not damaged
- Look for loose bolts and tighten them if necessary
- Check that all decals are in place and can be read. Replace them if necessary
- Check for oil leaks or damaged hydraulic hose and repair or replace them if necessary

The Ananke magnetic sweeper requires hydraulic connection for the clean off cycle of the magnet. Additionally, if a side shift bracket is purchased the side shift function taps into the same hydraulic connection using an on-board hydraulic fluid diverter. The primary function in both situations is the clean off function, which is controlled using the control handles of your machine. Consult your prime mover's operator's manual for precise instructions regarding these functions.

Your prime mover may have a "float" function on the lowering circuit. DO NOT USE THE FLOAT FUNCTION for the magnetic sweeper attachment.

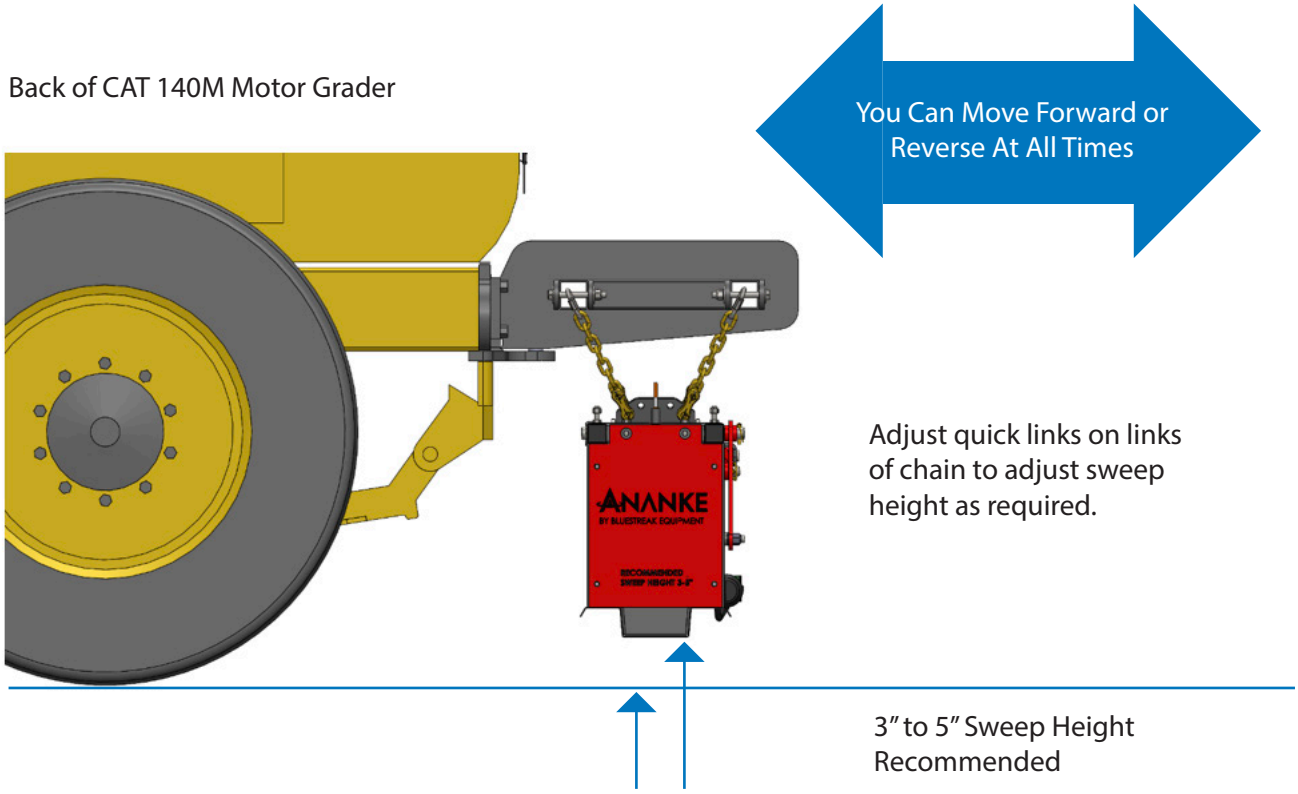
When operating this attachment, set the prime mover throttle at a speed that will produce the required machine operational performance desired to operate the machine and its hydraulic functions. Set engine speed as you feel comfortable when operating the equipment.

If the side shift accessory is purchased, be carefully to not violently shift the assembly either left or right. There is no need for shock loading of the bracket which could cause unnecessary damage.

To begin with, learn what the attachment looks like in a level position when you are seated in the prime mover. Knowing what the attachment looks like in the rear-view mirrors as well as on the ground will help you with your attachment operation and ensuring there is no damage to the equipment or the prime mover.

The correct ground speed for using this attachment will depend on the type and size characteristics of the material being collected. Although the Ananke magnet is very strong, slow speeds and low sweep heights will always produce the best results. Ensure the attachment is not operating at a height where it is consistently getting struck by the ground or debris it is collecting.

Step 2. Operating the Attachment

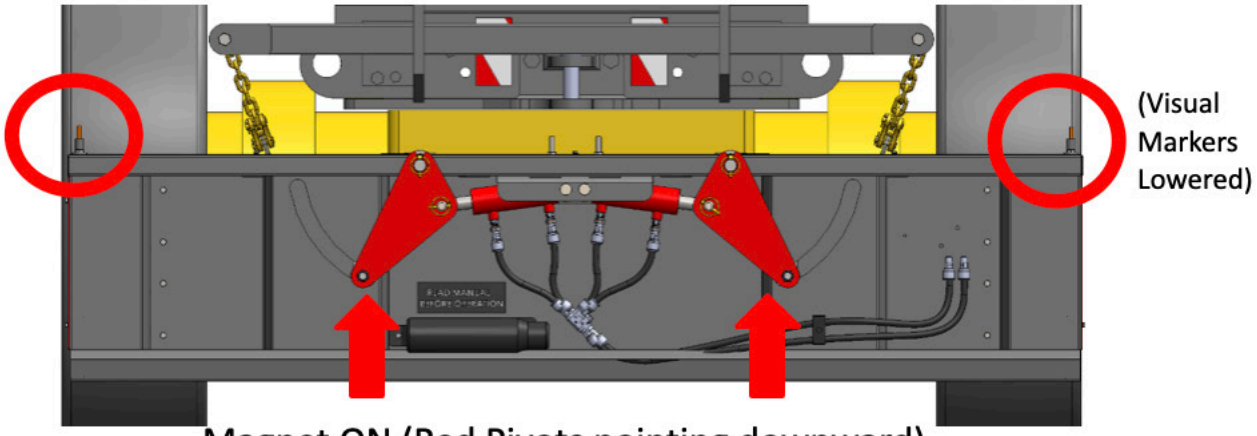


The sweeper should be operated as low to the ground as possible (for best performance) but not contacting it. The bottom of the sweeper should be level (or close to) when operating. Keep in mind the sweeper will pick up nails from 10.75" when stationary, so if you are at 3", 4" or even 5" sweeping height you will still have exceptional performance.

During normal operation, if you notice that debris is mainly collected on the trailing edge of the magnet surface this may indicate the sweeper is contacting the ground frequently. The magnet was designed to have wrap around technology on the leading and trailing edges so that when occasional ground strikes occur, the debris collected does not get wiped off. Occasionally inspect the bottom of the sweeper for large dents which could indicate the sweeper needs to be raised to avoid excess damage

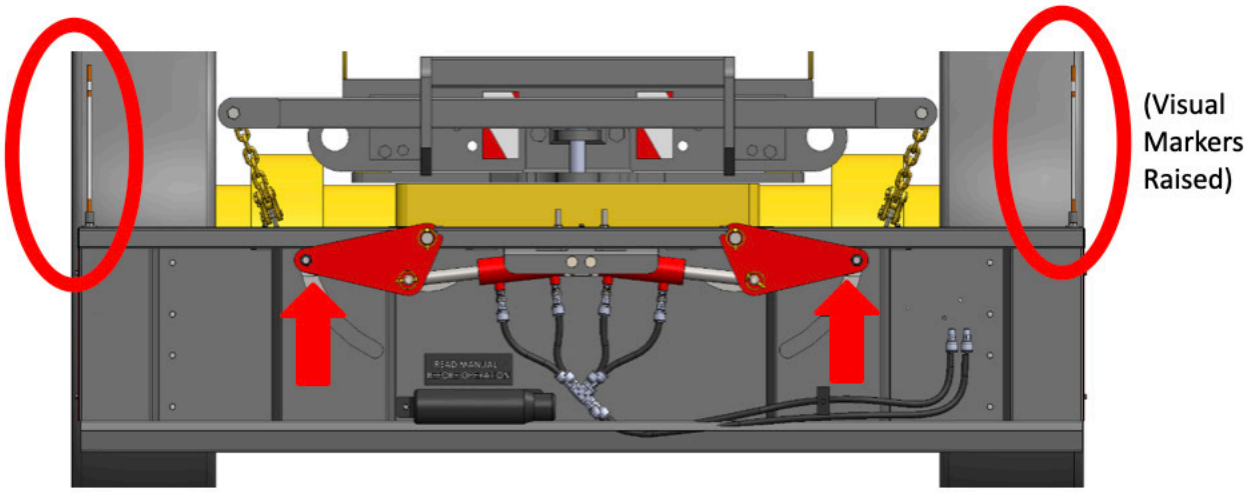
To raise or loser the sweeper, it must be lifted so that the weight of the sweeper is not on the hanging bracket. The height adjustment is via each independent link of chain corresponding to approximately 1" increments. This method of height adjustment is not ideal for quickly changing the height of the sweeper and is intended for applications that do not have rough terrain or obstacles along frequented paths. If faster adjustment and more fine tuning of sweep height is desired, it is recommended to purchase the side shift bracket accessory.

Step 3. Release Metal Debris Collected From Magnet



Magnet ON (Red Pivots pointing downward)

When it is time to clean off the magnet, the in-cab controls for the auxiliary hydraulic circuit will be used. Using the in-cab button or joystick slowly actuate the hydraulics to raise the magnet.



Magnet OFF (Red Pivots pointing Left/Right)

Once the Ananke is in a raised position the collected debris will fall to the ground beneath the magnet surface. Verify that the visual markers can be seen during normal operation, and if they can't, they may need to be extended in length.

Once magnet is cleaned off actuate the sweeper back to a sweeping position using the joystick or button controls. Although the Ananke has a very strong magnet, cleaning it off often will provide best performance. Metal Debris attached to the magnet will consume magnet power available from picking up more debris.

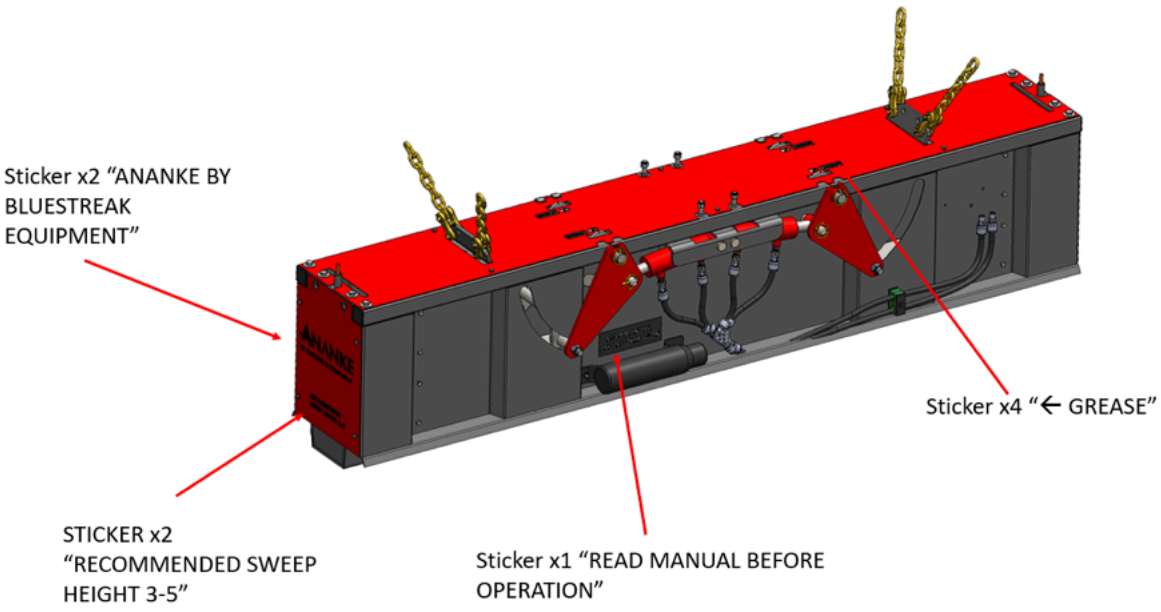
Maintenance Instructions

Before Every Use

- Check that all fasteners (nuts, bolts, pins, keepers) are in their right place and are tight.
- Inspect and replace any worn, torn or missing safety decals.
- Grease Pivot points as indicated by the grease stickers.

Every Month

- Inspect the attachment for any loose or worn parts that may need to be replaced prior to the next season.
- Visually inspect the hydraulic fittings and hydraulic hoses. Replace, if necessary.
- Clean, sand & repaint any area that looks worn or scratched to prevent further rusting. Use an equipment paint found at your local hardware store or building center.
- Replace any stickers that have been lost or damaged.
- Store your attachment in a shed or cover with a water-proof tarp to protect it from the weather. Store in an area not frequented by children.



Optional Accessory Side Shift Bracket Assembly Instructions

Step 1. Unpacking Your Shipment

Ananke side shift bracket as shipped on pallet - remove the shrink wrap and banding.

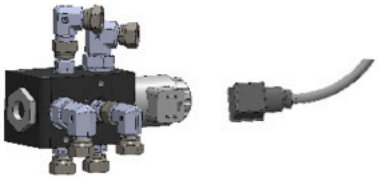
Step 2. Unpacking Your Shipment

If the side shift bracket accessory is purchased at the time of purchasing the sweeper, it may come installed on the Ananke Magnetic sweeper. You can skip to the installation instructions on page 33 of this manual.

If it is not connected from factory, the following set of instructions will guide you on how to install the side shift bracket on to the Ananke magnetic sweeper

1x steel side shift frame

1x steel side shift slider



1x flow diverter valve with fittings and power plug

1x wireless remote

1x wireless receiver

2x 3/8" hydraulic hoses

2x 3/8" NPT swivel fittings

1x Hardware Bag with

8x -1/2" x 3.5" bolts

16x – 5/8" flat washers

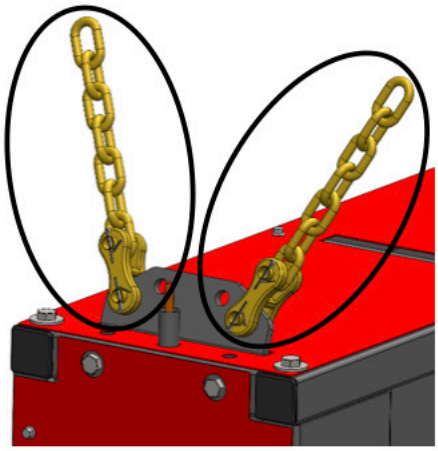
1x Hardware Bag with

2x 0.25" x 3.0" Hex bolts with hardware

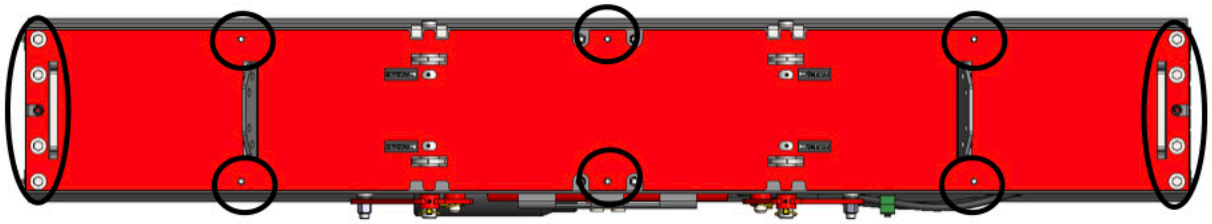
2x single hose clamp

Step 3. Removing Ananke Parts to Prepare for Assembly of the Side Shift Bracket

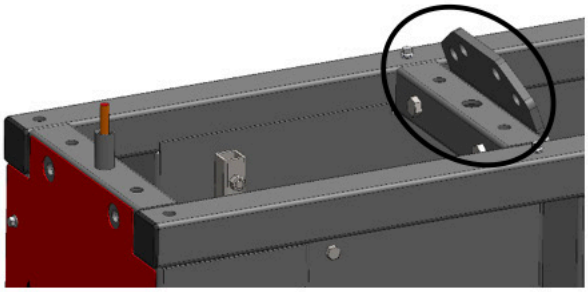
Remove the twin clevis' and hanging chain from the hanging plates on the sweeper if they are installed. Set them aside.



Remove the Ananke sweeper lid by removing the 6pcs ¼" flange bolts and 6 or 8pcs (depending on configuration) ½" x 2.5"L bolts on the top lid. Set the bolts aside for re-installation later.

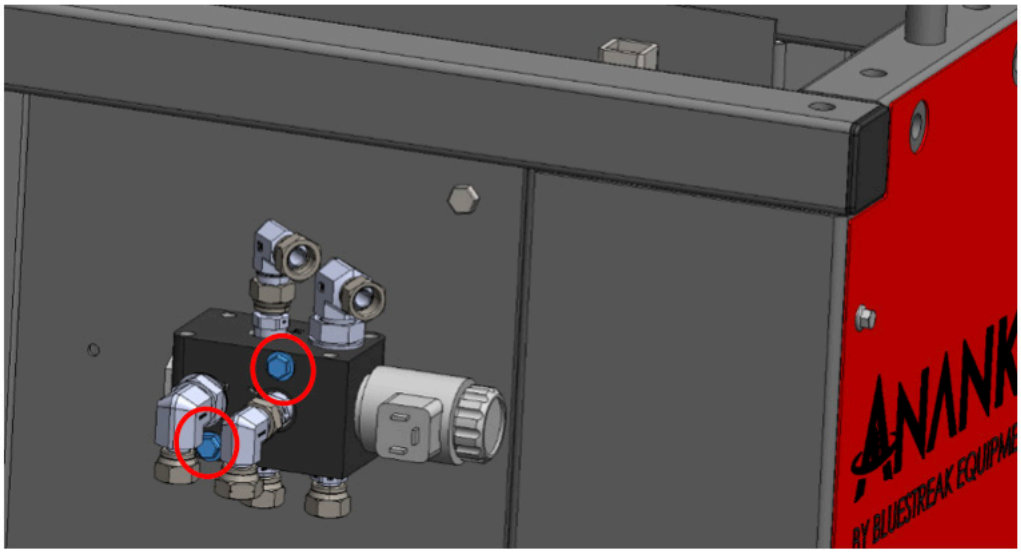


Remove the Ananke sweeper lid by removing the 6pcs ¼" flange bolts and 6 or 8pcs (depending on configuration) ½" x 2.5"L bolts on the top lid. Set the bolts aside for re-installation later.

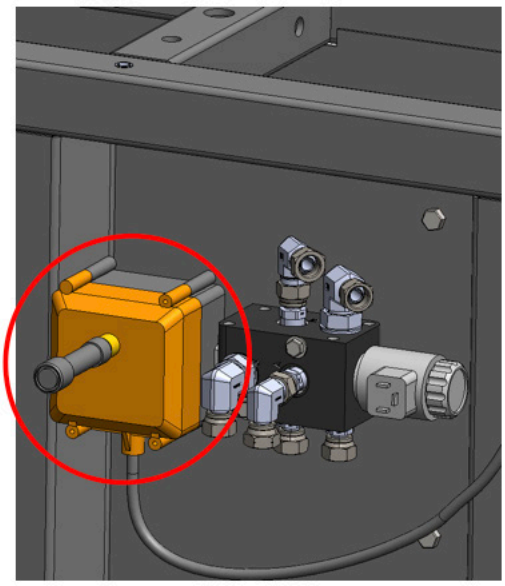


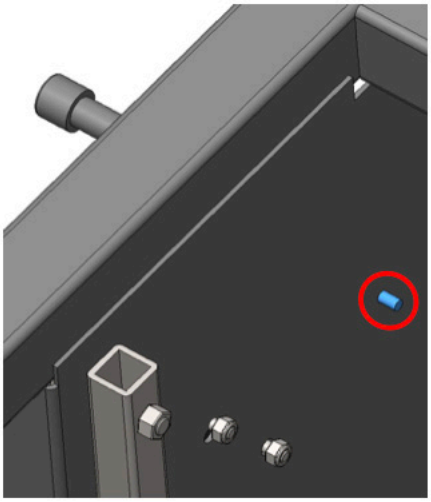
Step 4. Install the Hydraulic Diverter and the Wireless Receiver

Install the hydraulic diverter with the 2pcs ¼" x 3.0" L hex bolts, washers and nyloc nuts as illustrated in the image below. Tighten the hex bolts fully. The hydraulic fitting will have already been connected from the factory. You may need to slightly loosen one fitting to allow the bolt to pass through. Verify that these connections are tight after mounting the assembly to the main frame.



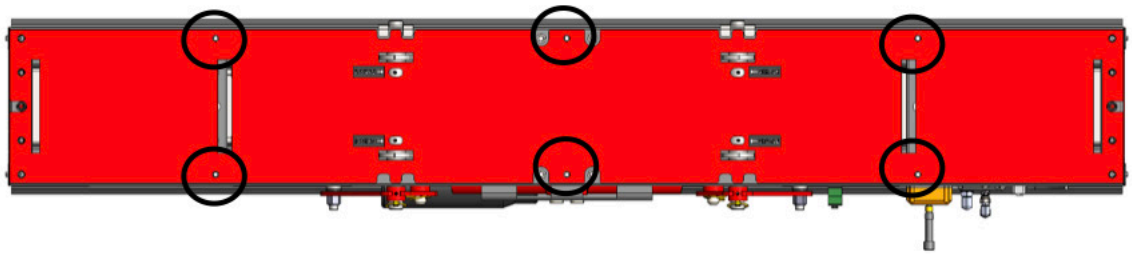
Install the wireless receiver on to the main frame of the sweeper. The rubber damper stud should pass through the steel corrugated panel of the main frame and be secured using the hex nut on the inside of the assembly.



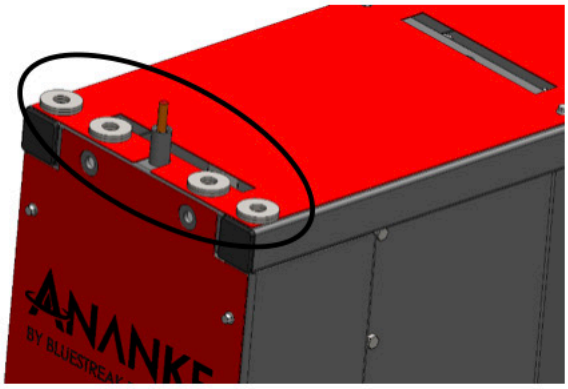


Step 5. Re-Install the Lid and Prepare the Sweeper for Attaching the Mounting Bracket

Place the lid back over the assembly and fasten back into place the 6pcs 0.25" flange bolts. Do not install any of the 0.5"x 2.5" bolts on the ends of the sweeper.

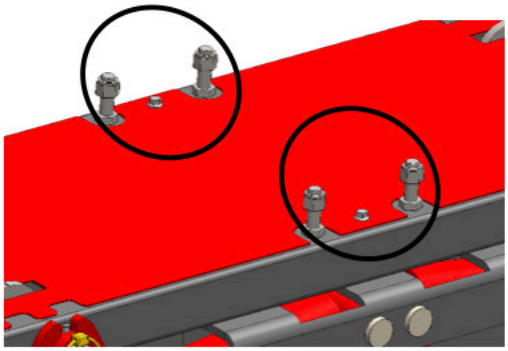


Place stacks of 2 washers on top of the lid over each of the open holes on the ends of the sweeper. There should be 8pcs on each side of the sweeper



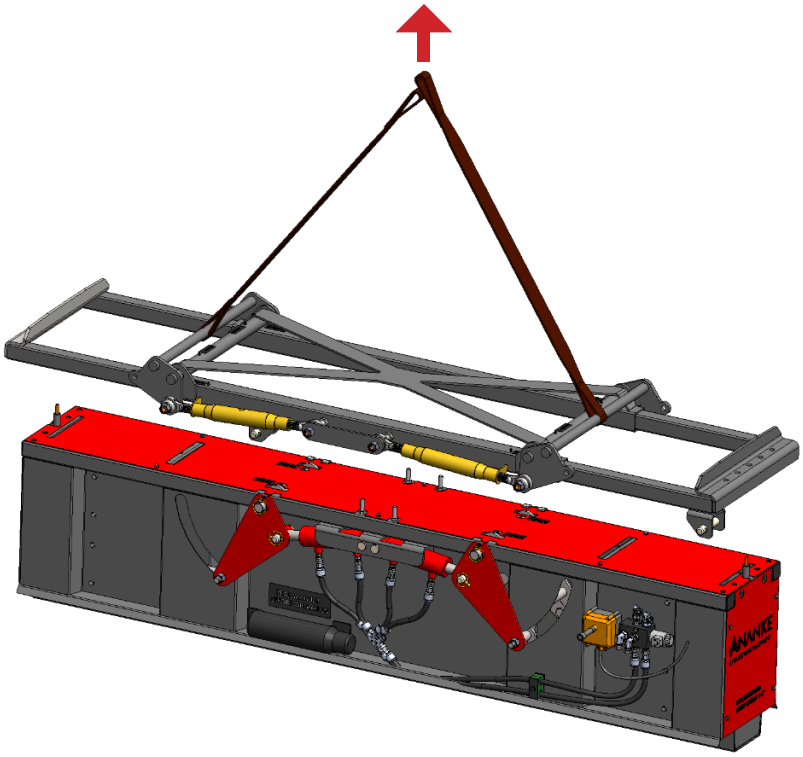
Repeat on both sides.

Remove the 4pcs nyloc nuts that are on the main frame and set aside. These will be reinstalled later.



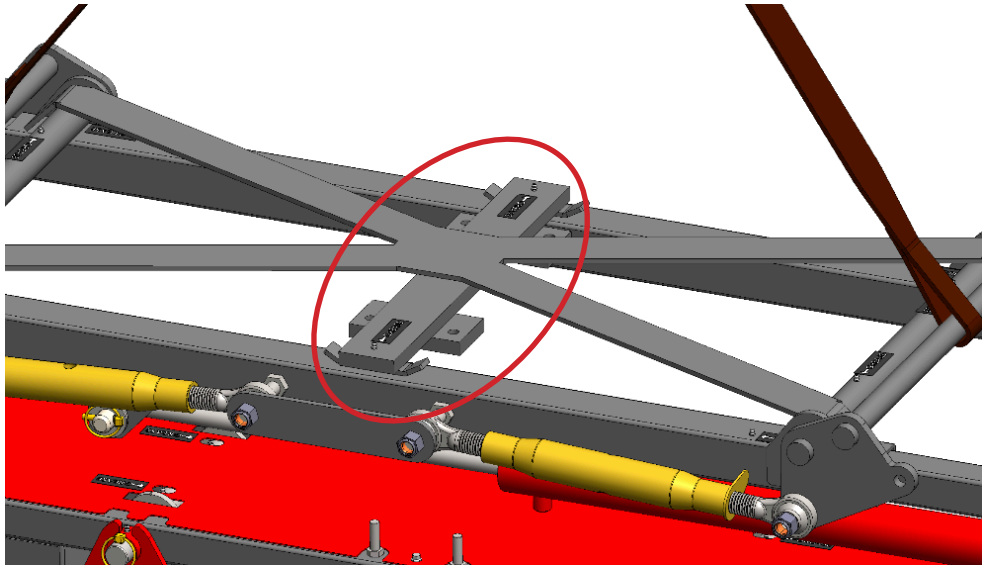
Step 6. Attaching the Mounting Bracket to the Sweeper

Using a set of lift straps, lift the hanging bracket assembly by the steel pivot joints. It should be lifted to a position over the Ananke magnetic sweeper and oriented as shown.



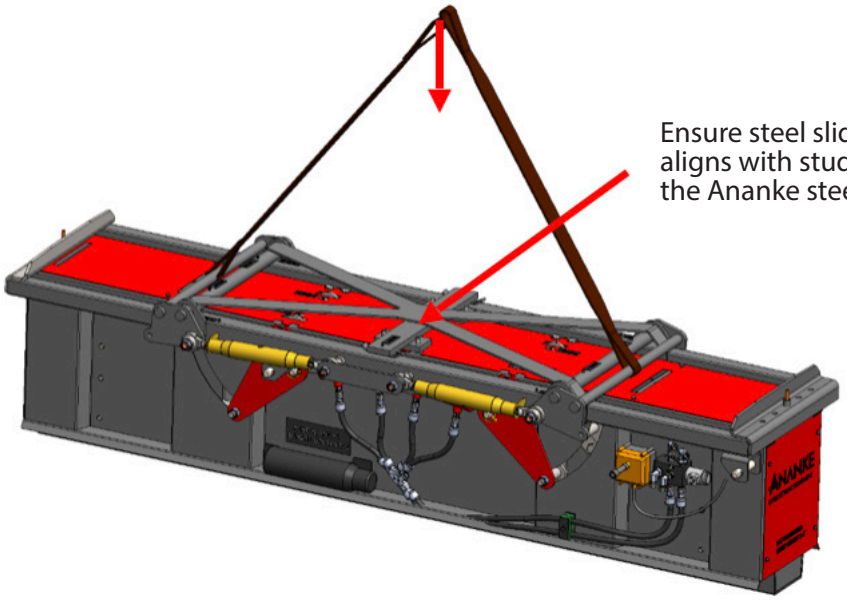
Lift side shift bracket over Ananke sweeper

Place the steel slider in the middle of the side shift bracket. Center it both width wise and length wise. It is not crucial to get it exact until it is lowered into place.

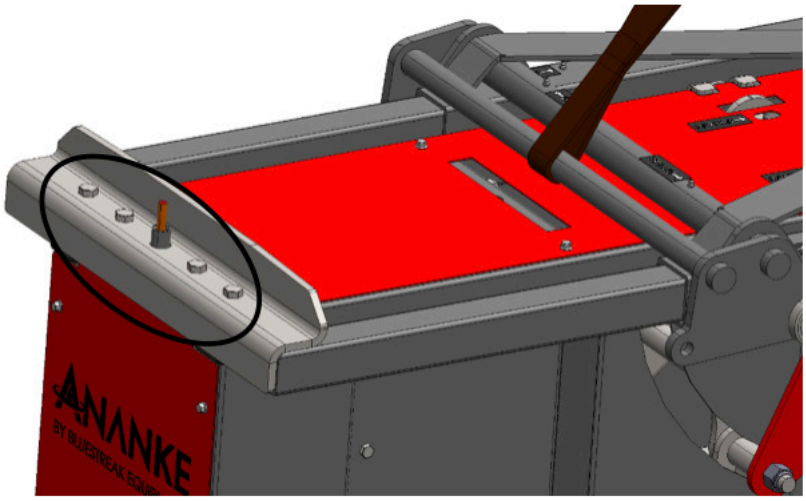


Step 7. Set the Side Shift Bracket on to the Ananke Sweeper

Lower the hanging bracket on to the main frame. It is best to do this with three people. One person can guide each side, and one can line up the center steel slider.

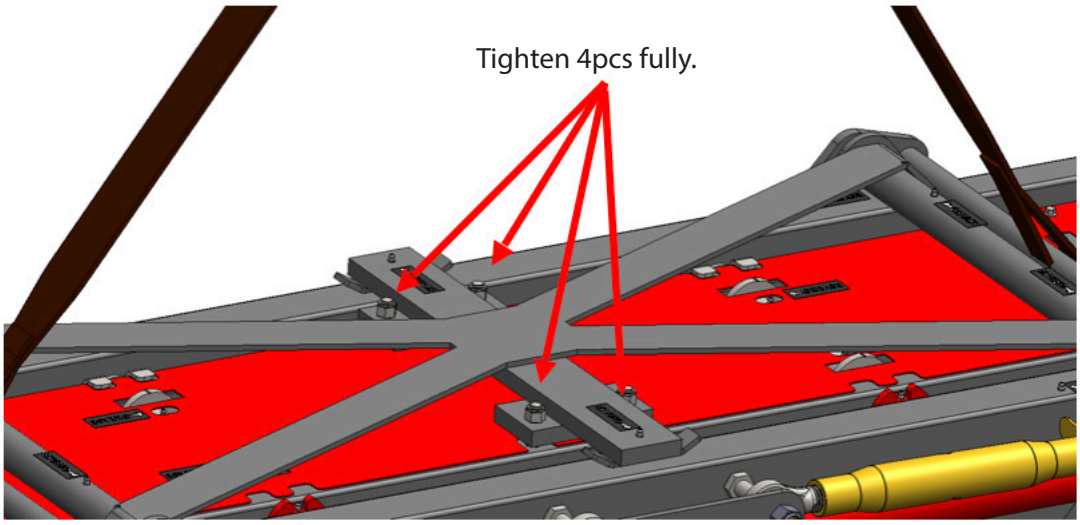


Place 8pcs 0.5" x 3.5" hex bolts into the ends of the sweeper to secure the side shift bracket to the Ananke sweeper frame. Tighten these bolts fully once they are all started. If one or more of the washers are out of position, use a small screwdriver through the center to re-align the washers with the holes of the side shift bracket.

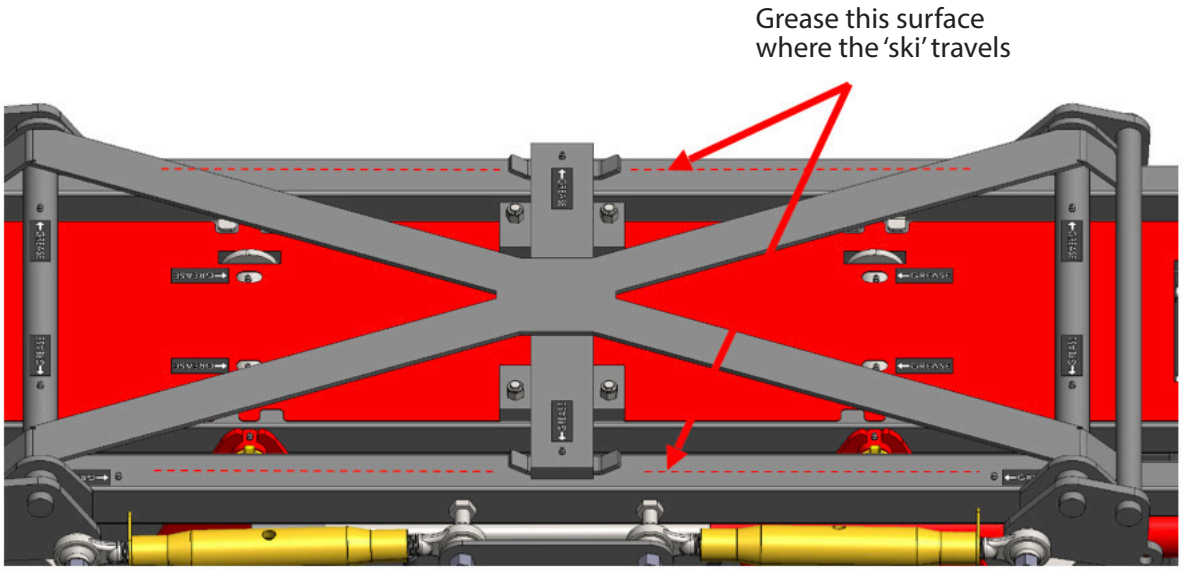


Step 8. Fix the Slider in Position

Install the 4pcs 0.5" nyloc nuts on the studs of the main frame to secure the slider in place.



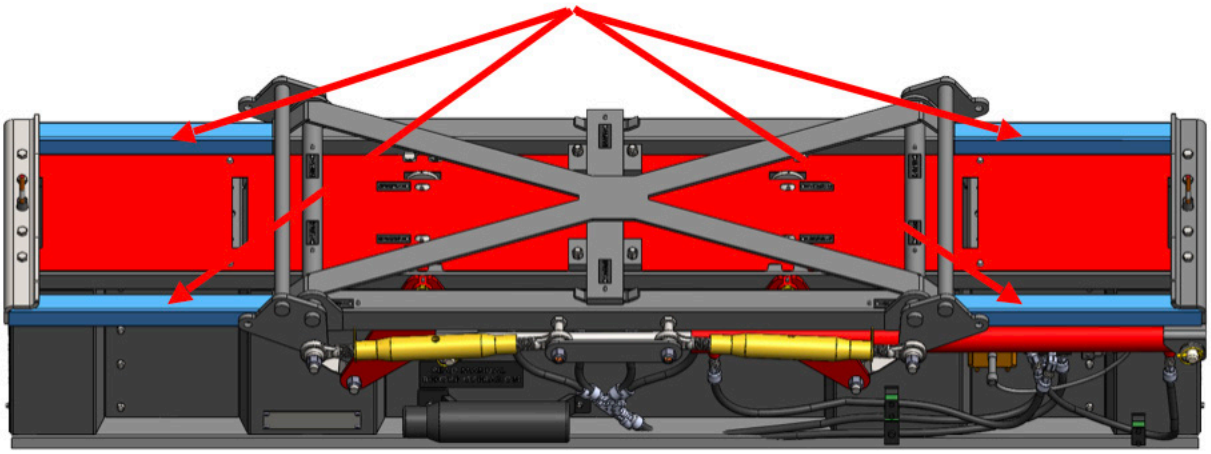
Pump grease into the grease fittings wherever a grease sticker is labelled. There are 10 locations on the side shift bracket, with an additional 4 locations on the sweeper itself. Also grease the track of the steel slider lightly. The slider travels 40" from end to end, so this distance should have a light film of grease on it before operating.



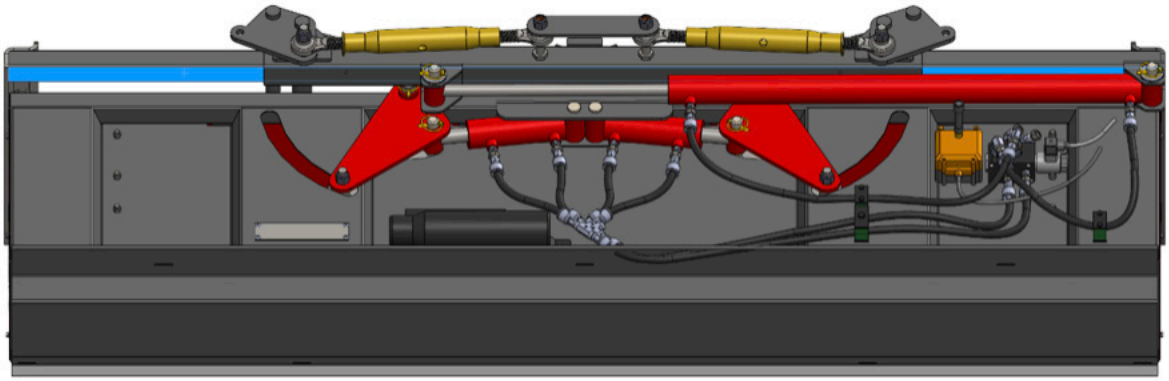
Step 9. Set the Side Shift Bracket on to the Ananke Sweeper

Additionally, apply a thin film of grease around all sides of the square steel tube (shown in blue) on the outside of the side shift bracket slider frame. This will prevent running the attachment dry during the first few cycles of the side shift accessory.

Grease all four sides fully.

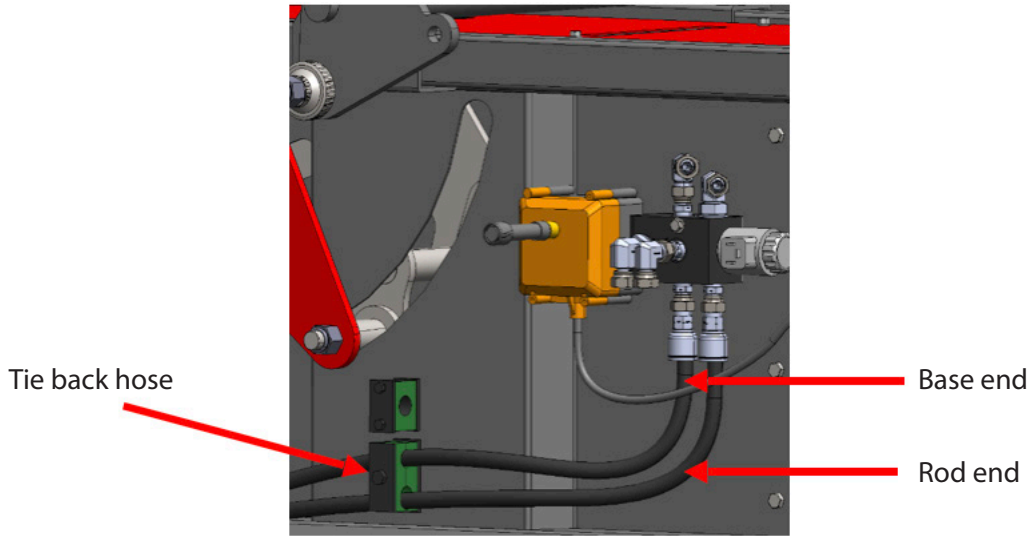


Note: . If during a routine visual inspection there is a lack of grease on the bottom of the steel tube, you may have to apply grease by hand to this surface. Ensure that there is adequate grease applied to the bottom face of the tube to prevent steel on steel contact when cycling the attachment.

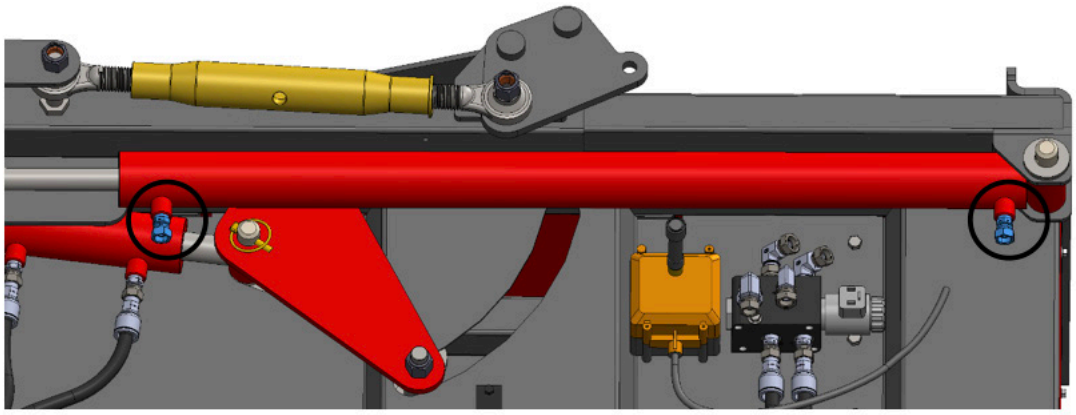


Step 10. Connect the Hydraulic Lines to the Diverter

Connect the hydraulic cylinder base end of the lift cylinders to port D on the diverter. Connect the hydraulic cylinder rod end of the lift cylinder to port C on the diverter. Use PTFE sealant tape on all connections to ensure there are no leaks in the connections.

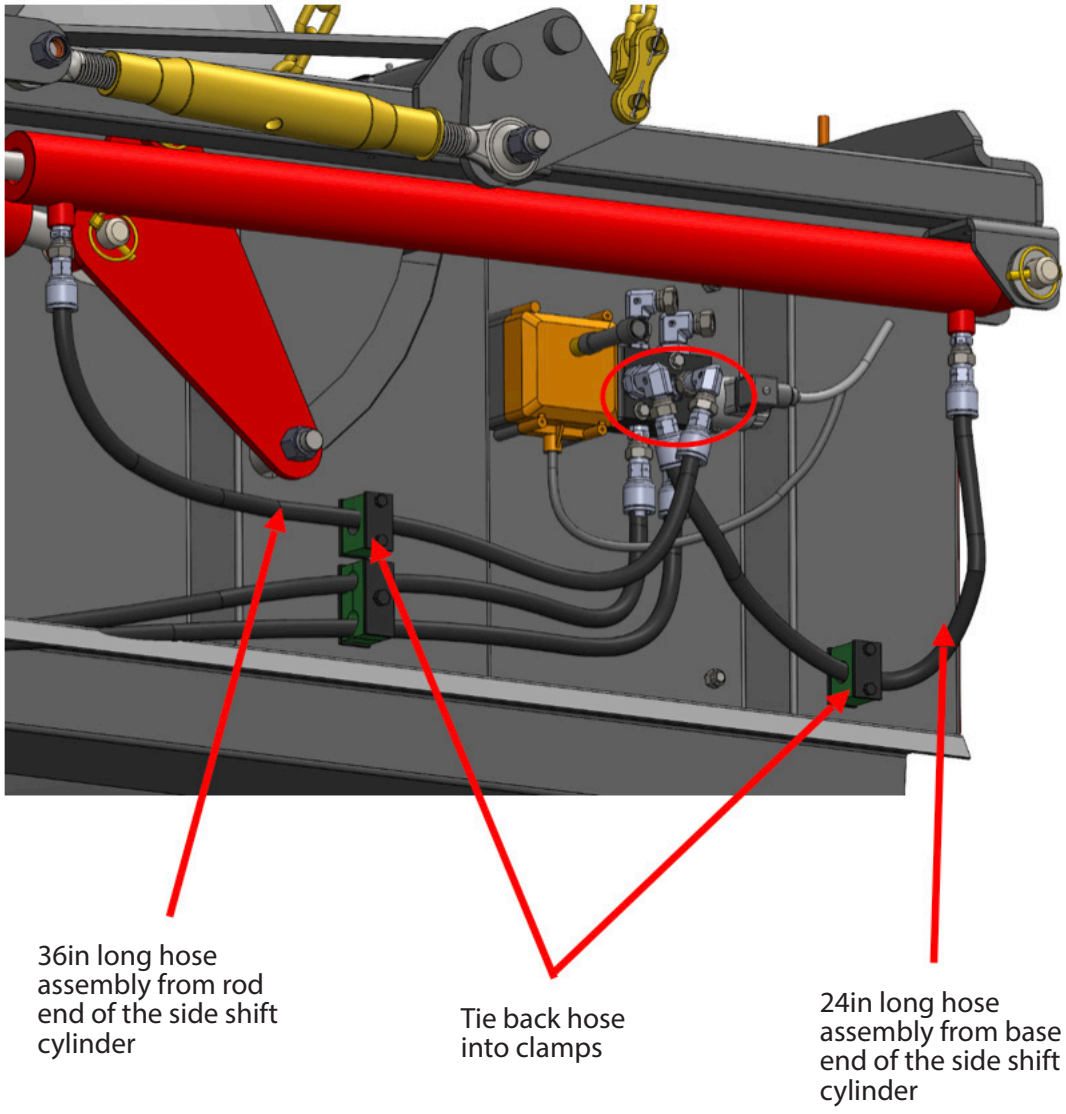


Undo the 6ORB port plugs on the rod end of the cylinder using a hex wrench. Install 2pcs 6ORB to 3/8" NPT swivel fittings into the open ports of the side shift cylinder. Note: PTFE tape should not be used on the ORB connections.



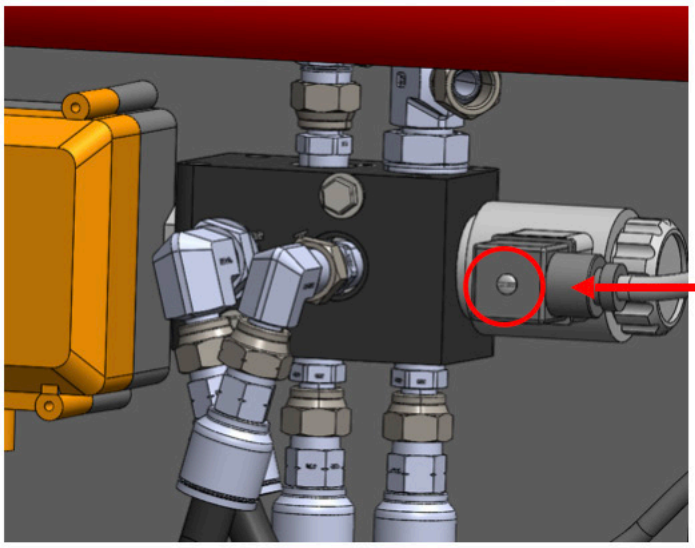
Step 11. Connect the Hydraulic Lines to the Diverter

Connect the 36in long hose from the rod end of the side shift cylinder to port A on the diverter. Connect the 24in long hose from the cylinder base end to port B on the diverter. Use PTFE sealant tape on all connections to ensure there are no leaks. Tie back the loose hose using the 3/8 hose clamp on the main frame.



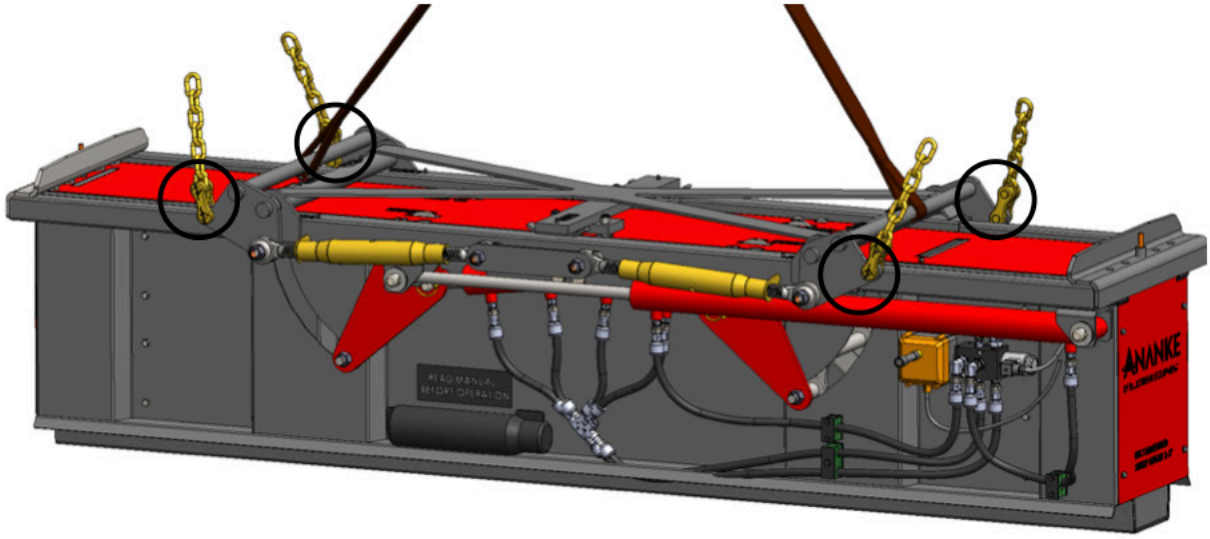
Step 12. Connect the Remaining Parts to the Side Shift Bracket

Connect the DIN Plug to the diverter by lining up the prongs. Tighten down the screw on the DIN plug to prevent it from falling off. Connect the male spades from the DIN plug to the corresponding female spades on the receiver end. It does not matter which spade goes to which connector.



Tighten screw fully. Do not overtighten.

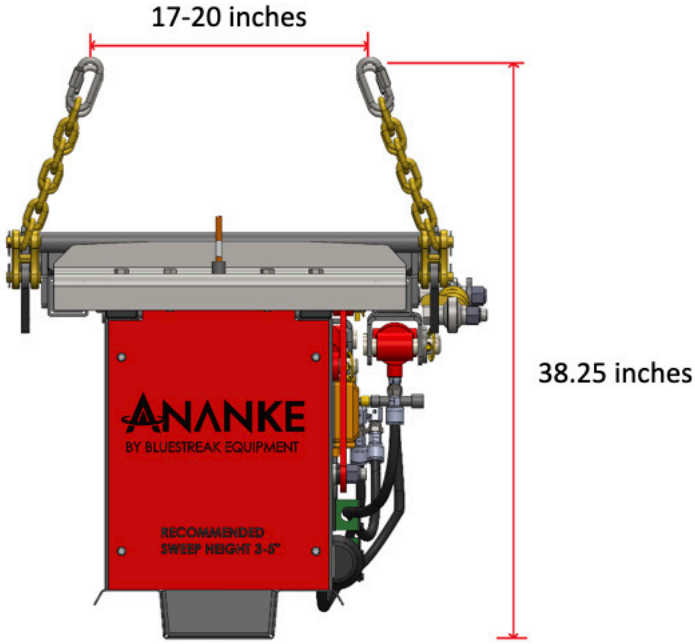
Connect the twin clevis' and the hanging chain to the pivots on the side shift bracket. It is best to have the cotter pins facing outward to allow them to be removed easily. If the holes are not easily accessible, adjust the top links so that the pivots raise to gain access.



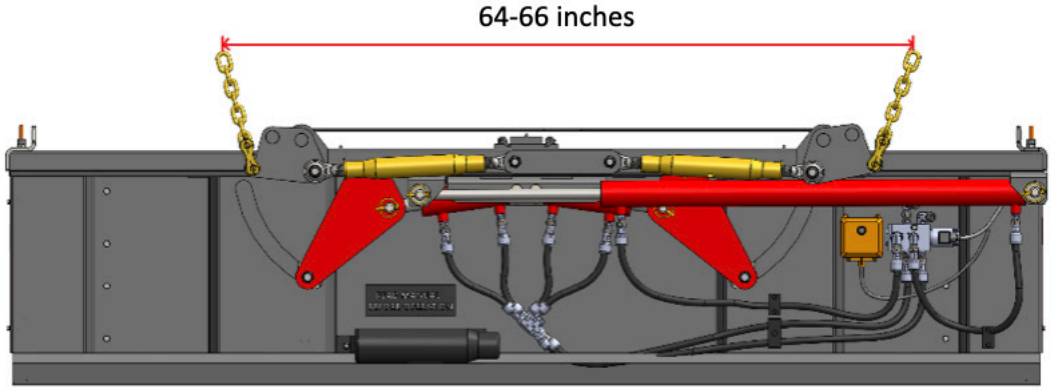
Optional Accessory Side Shift Bracket Installation Instructions

Step 1. Attach the Sweeper to the Prime Mover

A hanging bracket system must be used to suspend the Ananke sweeper with the side shift bracket. If the Universal hanging bracket was not purchased, custom fabrication is required. Key dimensions are presented below which should be kept in mind when fabricating a mount for the sweeper.



Side View – Ananke with side shift bracket

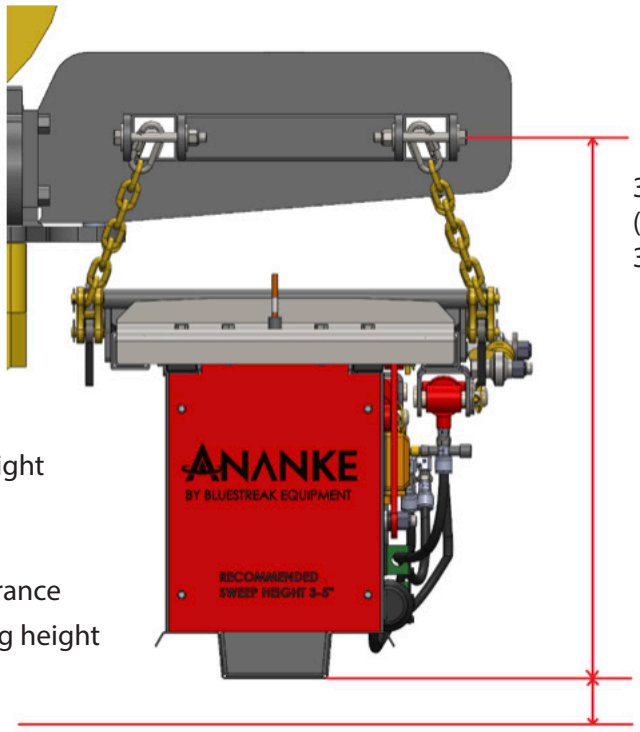


Front View – Ananke with side shift bracket

Step 2. Fabrication Considerations for Attachment of the Sweeper to the Primary Vehicle

The Ananke magnetic sweeper is most effective in the 2-5" sweeping range. Ranges or 3"-5" are suggested if larger chunks of debris or long studs, pins, or bolts are being collected. When considering solutions for a hanging bracket, keep in mind the dimensions on the previous page. When determining the height for the hanging bracket the sweep height should be added to the overall height dimension to obtain an appropriate sweeping height.

For example, the illustration provided below shows a 2" desired sweep height. The overall height that the bracket system should be from the ground is the sum of the product height, adjustable height and the desired sweep height.



38.25" product height
(when fully lowered)
33.0" + 5.25" = 38.25"

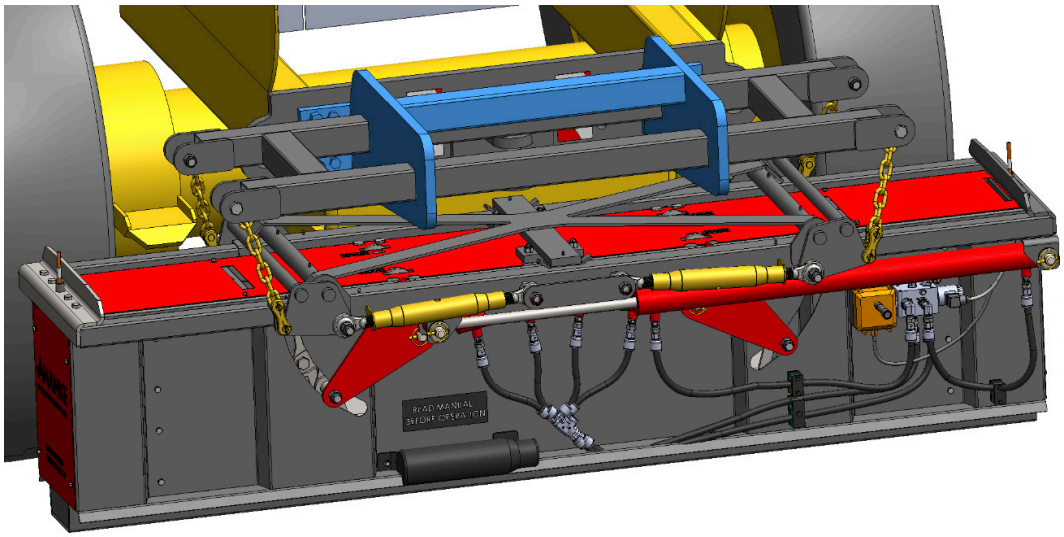
33.0" product height
+ 5.25" height adjustment
+ 2" ground clearance
= 40.25" hanging height

2" sweep height

In the illustration above, 2" sweep height is the lowest setting of the sweeper. With the height adjustment feature on the side shift bracket, it is possible to raise the sweeper 5.25" so that is sits 7.25" off the ground. This feature would best be used when the sweeper is not in use, allowing it to remain attached to the prime mover without potentially interfering with the terrain as it would in sweeping position. This feature also aims to avoid ground strikes which causes un-necessary damage when moving over rough terrain or at a high rate of speed.

The following page shows an illustration of the side shift bracket and an exemplary hanging bracket configuration.

Step 3. Exemplary Mounting Illustrations for Motor Grader Applications



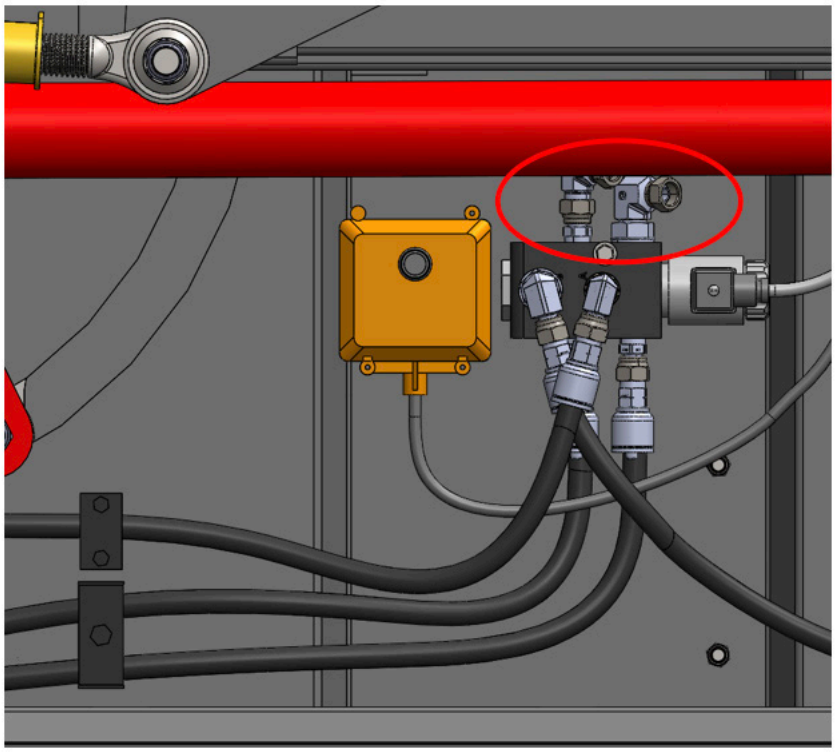
Example: Side shift bracket and universal hanging bracket with a custom steel attachment (shown in blue) which allows the bracket and the sweeper to be removed as needed.

Once a bracket system has been fabricated or modified, it is ready to be mounted to the primary vehicle. The weight of the Ananke magnetic sweeper with the side shift bracket is 1414lbs. Ensure that the bracket is connected in a secure manner such that it will not fail. Also ensure that all bolts (if used) are tight before proceeding with next steps.

Step 4. Take Measurements for Hydraulic Hose

The Ananke magnetic sweeper with side shift bracket does not come with hydraulic hose for connection to the prime mover. You will need to obtain fittings for connection to your auxiliary system, hydraulic hose and 3/8" NPT fittings to connect to the Ananke Flow Diverter valve.

You will be connecting to a set of 3/8" female NPT fittings that are located on the top side of the flow diverter valve (shown in red circle). You will require fittings and hydraulic hose that runs from the 3/8" female NPT fittings to the vehicle's auxiliary couplers. As this bracket allows for up to 36 inches of side-to-side motion, it is a requirement to have at least 36 inches of slack in the hydraulic hose. It is a recommendation to take a rough measurement from the auxiliary hydraulics to the diverter and add 36" to it. The loose hose is recommended to be tied back on the hanging bracket and the main frame so that it does not catch or snag during normal operation (more on this on the following page).



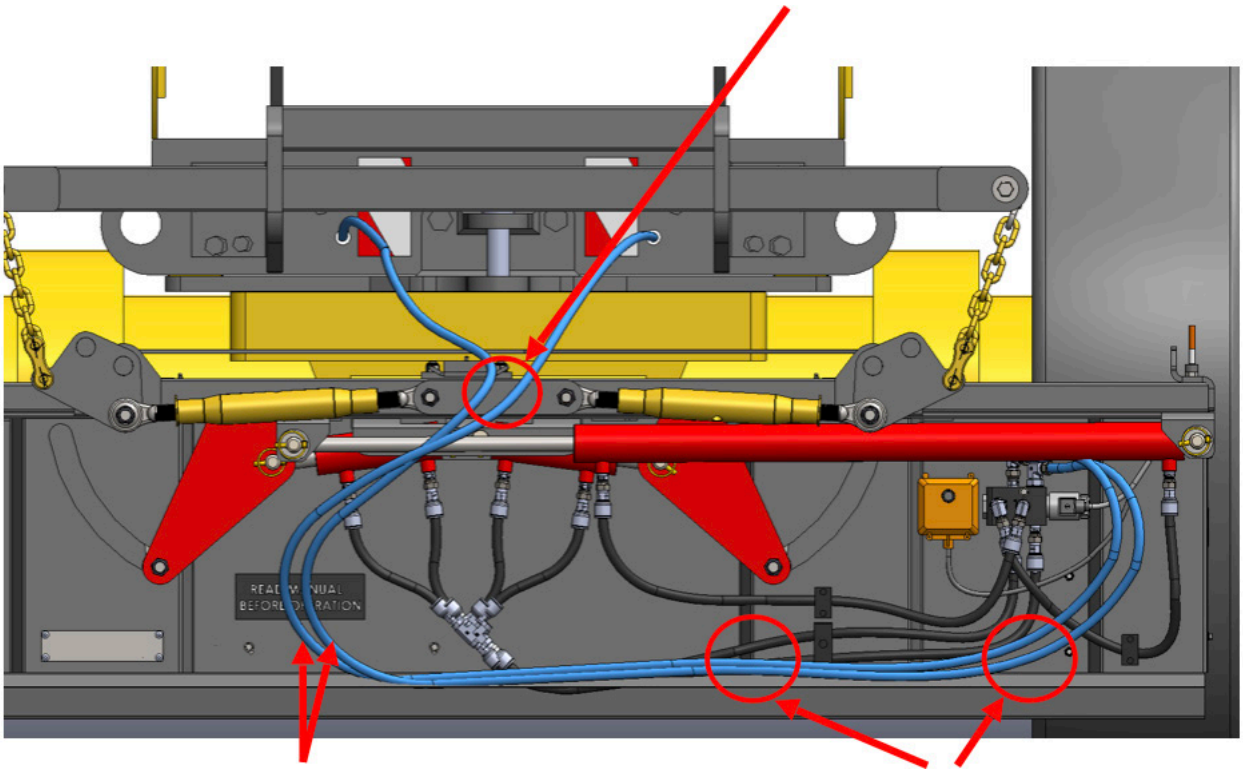
When connecting male NPT ends, ensure Teflon tape or other sealant tape is used to prevent leaks. When it comes time to operate the attachment, if the in-cab controls are providing operation which is opposite from what is expected, the two lines from the motor grader to the flow diverter valve can be swapped. This is easily done at the auxiliary connections on the prime mover.

Do not swap any of the lines running to and from any cylinders on this attachment.

Step 4. (Continued). Take measurements for Hydraulic Hose

The illustration below shows a sample routing for the hydraulic hose connecting the auxiliary circuit on the prime mover to the flow diverter valve. The steel part connecting the top links may be used as a location to hold the hose. Small holes may be drilled in this part to allow ties, or hose clamps to be attached.

Example of tie back location on accessory bracket



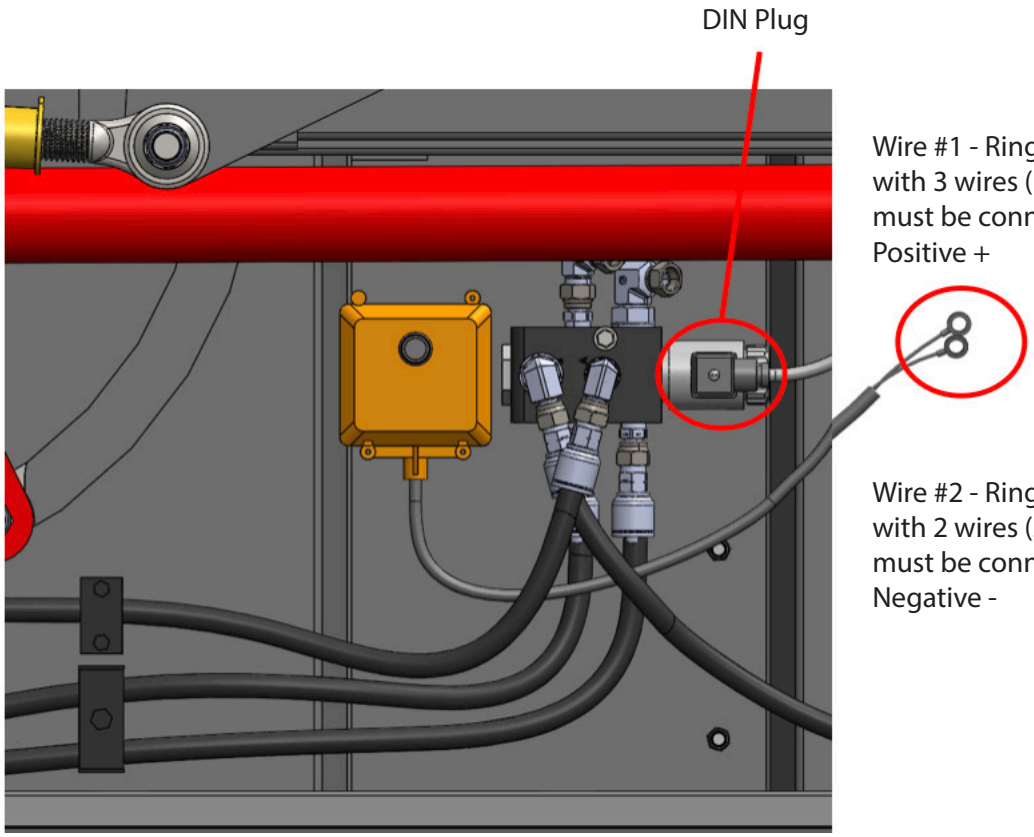
Minimum 36" of loose hose between tie off points (for each hose assembly)

Example of tie back locations on Ananke Sweeper

You will need to secure the hose coming off the flow diverter valve to prevent the hose from touching the ground. You may drill holes in the stainless steel flange on the bottom of the sweeper to tie back the loose hose if needed. It is best that all tie off points are not overly tight; they just need to support the hose and allow for some small movement when the side shift bracket is cycled.

Step 5. Connect 12V DC Battery Supply to the Attachment

Locate the vehicles battery. The attachment is designed to work on 12V DC power. You will have to connect two power leads (ring terminal ends) on the sweeper to the power source from the prime mover. You may also replace the connectors with other quick connect/disconnect connectors. The two leads are located off the receiver that is mounted on the front of the main frame. It is recommended to run these power lines long the hydraulic hose that was installed in the previous step, tying back the cables every couple feet. Ensure the terminals never contact one another.



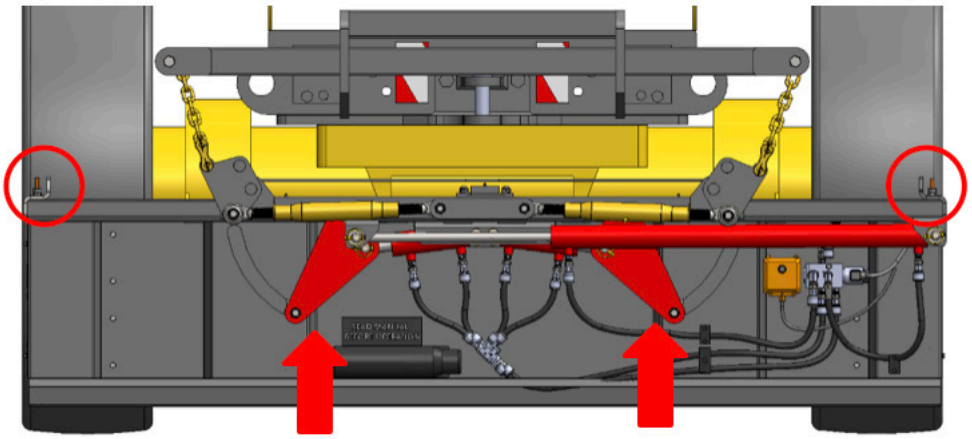
Additionally, the DIN plug must be connected to the diverter valve if it is not already done from factory.

Once these connections have been performed, it is time to test the functionality of the attachment. It is recommended to have the operator and at least one other individual who can visually inspect the functionality of the hydraulics from the rear of the prime mover. Pay attention to any hydraulic hose that may get caught or snagged on any part of the sweeper or hanging bracket. The following pages will outline operating instructions for your hydraulic attachment.

Optional Accessory Side Shift Bracket Operating Instructions

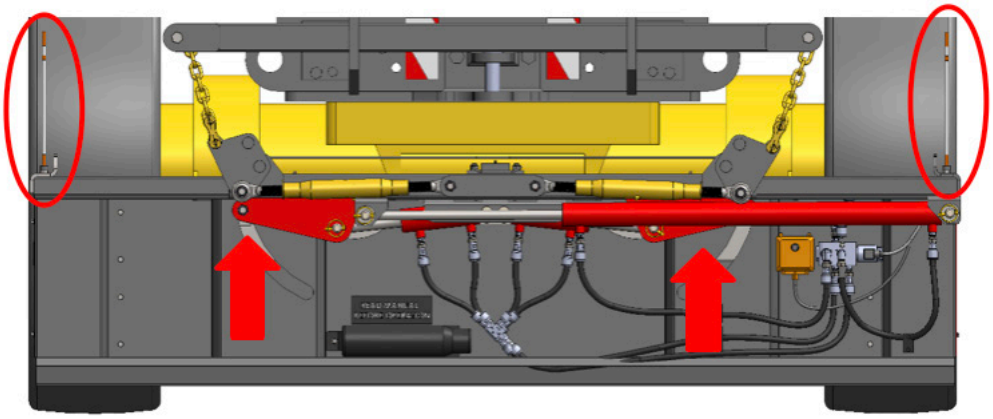
Step 1. Operating Your Automatic Clean Off Function

The Ananke magnetic sweeper with the side shift bracket accessory features both an automatic clean off and a side shift function. The primary function of cleaning off the magnet is controlled via in-cab controls. You will use the joystick or switch that controls the auxiliary hydraulic circuit to lift and lower the magnet inside the sweeper to turn the magnet ON and OFF. Collected debris falls to the ground beneath the sweeper when the magnet is raised into its clean off position. It is recommended that operators have a designated area where metal debris can be dropped. Once cleaned off, the operator should move forward approximately 3-5ft before returning the magnet to an ON sweeping position. This ensures that the debris that was released does not get picked up by the strong magnetic field. Visual markers are present on the Ananke magnetic sweeper, however they may not be able to be seen from the cab of the vehicle. It is recommended to replace these visual indicators with longer ones so that the operator can visually see when the sweeper is in a raised position. These can be easily replaced by removing the side red steel covers.



(Visual Markers Lowered)

Magnet ON (Red Pivots pointing downward)



(Visual Markers Raised)

Magnet OFF (Red Pivots pointing left/right)

Step 2. Operating Your Hydraulic Side Shift Function

The Ananke magnetic sweeper with the side shift bracket accessory features up to 36" of side shift ability. To gain control of the side shift function, use the included wireless remote. You will notice there are three labelled buttons on the remote; an emergency stop, start, and an on/off button. The remote wirelessly controls the solenoid on the frame of the sweeper, which diverts the hydraulic fluid flow allowing the in-cab controls to be used for the side shift function. Up to 18" of side shift ability to the left or right is possible when mounted centered on the vehicle. This function is best utilized for collecting metal debris that is outside the track width of the vehicle.

To use the side shift function, follow the set of steps below:

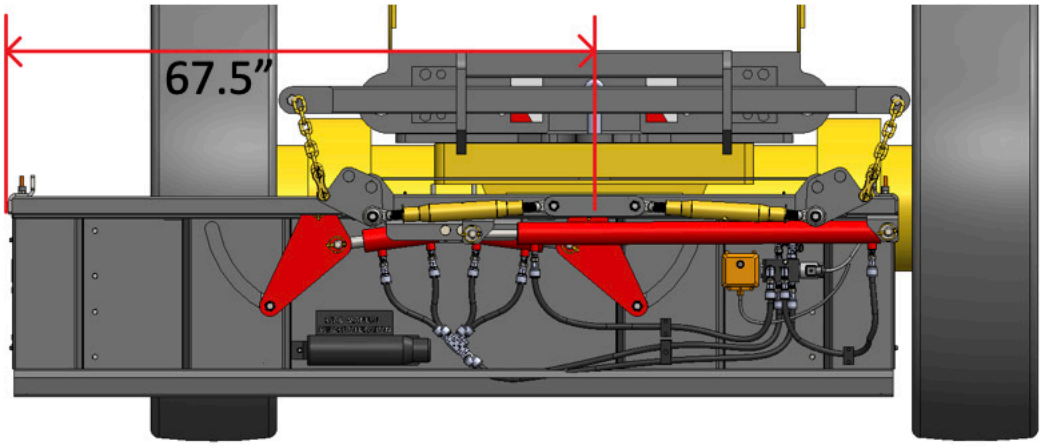
1. Turn on or open your pressure release valve to alleviate any built-up pressure in the auxiliary lines. Turn off or close the valve following this.
2. Ensure the emergency stop button is in a raised position on the handheld remote.
3. Press the START button to turn on the remote and connect with the receiver that is on the Ananke.
4. Press the ON Button once. The LED on the remote should blink green, and the DIN plug should stay on, indicated by the Red LED.
5. Use the in-cab joystick or switch to actuate the side shift cylinder. This will push or pull the sweeper left or right as needed.
6. If there is no motion, press the START button again before trying to actuate the side shift cylinder. This will be the case if there is a lengthy period of inactivity.
7. You may keep this function on until it is time to clean off the magnet, or turn it off. Although there are no status LED's on the remote, the side shift function will continue to work until the ON button is pressed again

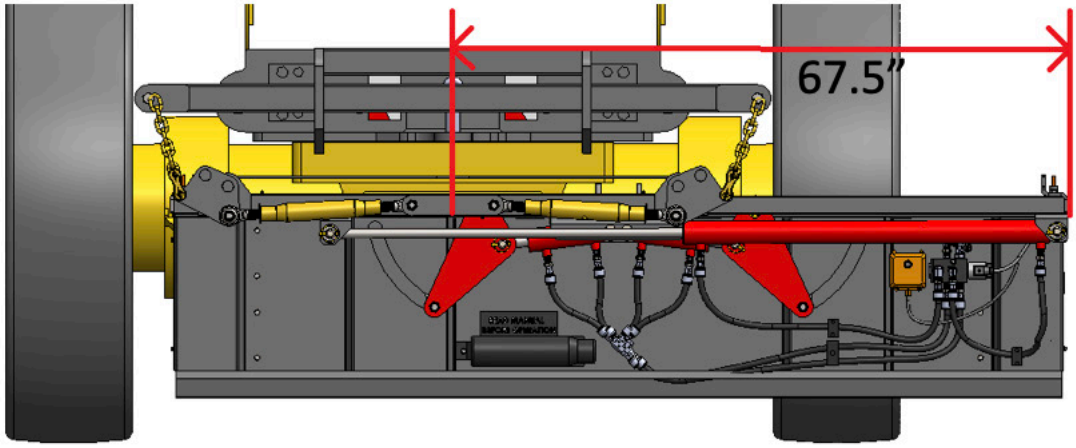
    1. To regain control of the clean off function first turn the pressure relief valve on the prime mover on and then off again to alleviate any built-up pressure.
    2. Press ON button once to turn off the diverter and return control to the clean off function.
    3. Use the in-cab joystick or switch to actuate the lift cylinders to clean off the magnet

Note: It is recommended and best practice to turn on and off the pressure relief valve before pressing the ON button any time. This will relieve built-up pressure in any of the auxiliary lines ensuring there is no abrupt transfer of high pressure hydraulic fluid between circuits.

Step 3. Understanding Physical Limits of the Magnetic Sweeper

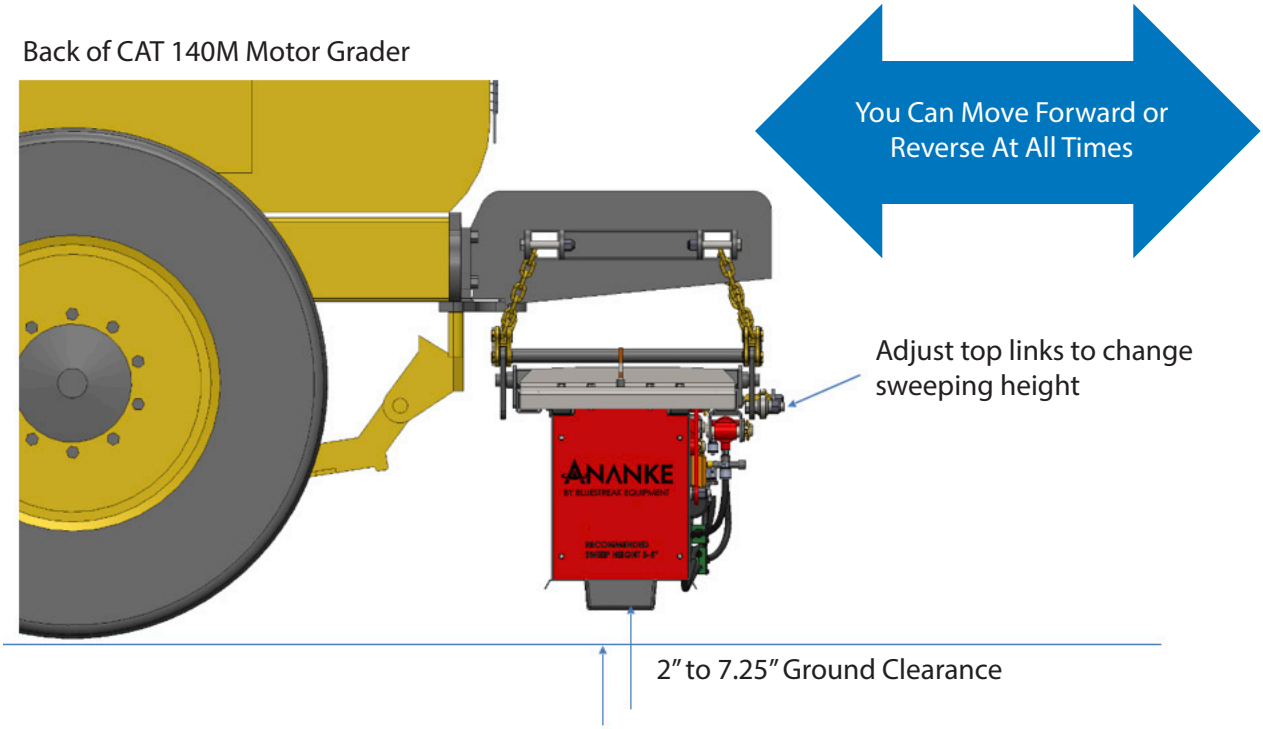
The illustration below shows the Ananke when full shifted left or right. The sweeper is 98.75" wide. When mounted centered on the vehicle, it reaches 67.5" either left or right. The back end of the motor grader shown is a CAT 140M. In this specific example, the Ananke magnetic sweeper can reach 17.5" outside the track width of the motor grader. It is recommended to fully understand the physical limits of the sweeper when in either position to avoid any accidental damage to the prime mover or sweeper itself.





It is possible to mount the sweeper offset from center, allowing greater shift one way over the other. This may be beneficial for prime movers that are concerned with pickup of metallic debris from one side of the prime mover over the other. If this is a scenario that applies to you, it is not recommended to have more that 24" of shift in any one direction (mounted 6" off center from the vehicle). In any case, it is always recommended to adjust the sweeper so that it is within the physical limits of the prime mover when travelling at a higher rate of speed or when the vehicle is inoperable.

Step 4. Operating the Attachment (applies to the sweeper with a side shift bracket accessory)



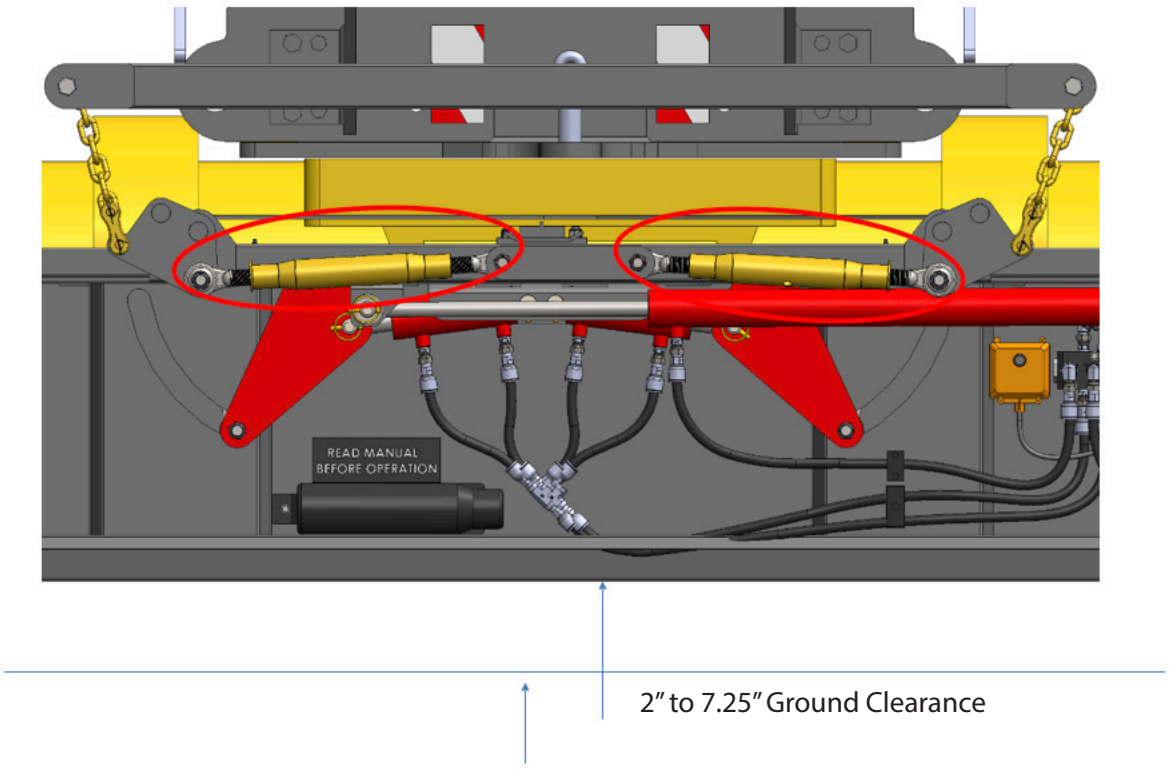
With the side shift bracket attached to the Ananke Magnetic Sweeper there is up to 5.25" of height adjustment. This means it can operate close to the ground when sweeping for metallic debris, and can be raised up out of the way when traversing rougher terrain, or travelling at a higher rate of speed. The sweeper should be operated as low to the ground as possible (for best performance) but not contacting it. The bottom of the sweeper should be level (or close to) when operating. Keep in mind the sweeper will pick up nails from 10.75" high when stationary, so if you are at 3", 4" or even 5" sweeping height you will still have exceptional performance.

During normal operation, if you notice that debris is being collected on the trailing edge of the magnet surface this may indicate the sweeper is contacting the ground frequently. The magnet was designed to have wrap around technology on the leading and trailing edges so that when occasional ground strikes occur, the debris collected does not get wiped off. Occasionally inspect the bottom of the sweeper for large dents which could indicate the sweeper needs to be raised.

The following page outlines how to adjust the height of the Ananke when paired with a side shift accessory bracket.

Step 5. Adjusting the Sweep Height (Applies to the sweeper with a side shift bracket accessory)

Back of CAT 140M Motor Grader

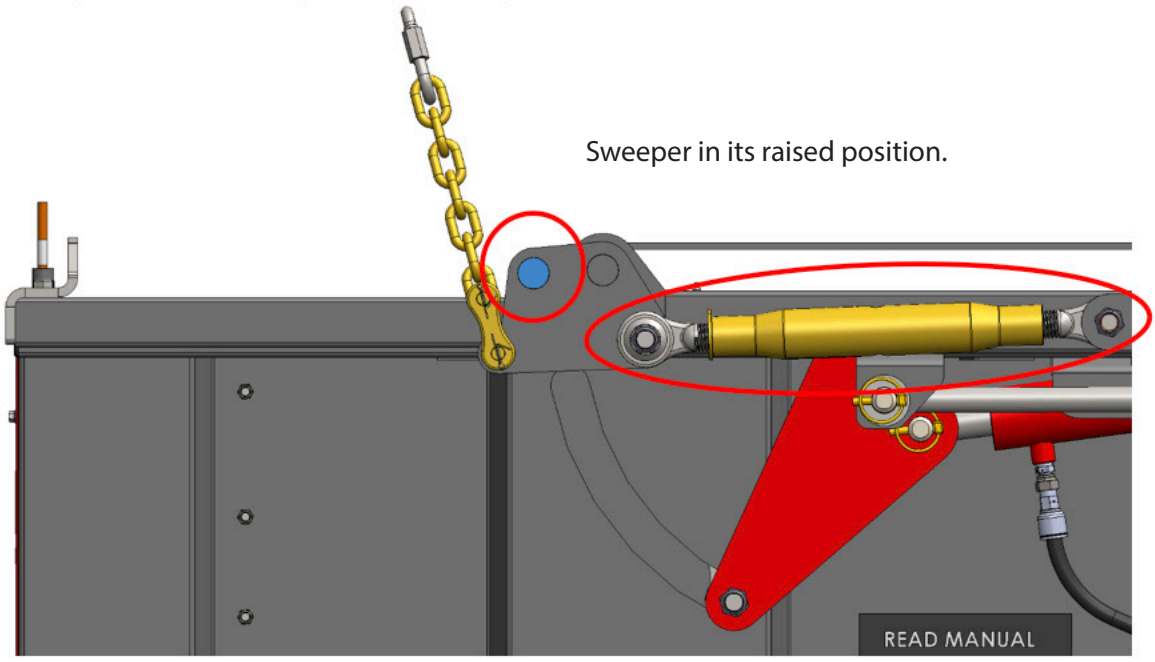


With the side shift bracket attached to the Ananke Magnetic Sweeper there is up to 5.25" of height adjustment. There is a top link for controlled height adjustment on each side of the Ananke magnetic sweeper. To adjust the height, follow the steps below.

1. Retrieve the top link bar from the plastic manual holder
2. Turn each top link either clockwise or counter-clockwise to raise or lower the sweeper. You will need to back off the small threaded jam nut in order to perform adjustment. You should keep the jam nut within ½" of the top link body at all time when performing height adjustment. This ensures it does not get stuck in a position where it cannot be fully rotated.
3. Measure the ground height after adjustment to ensure the sweeper is in a level position. Ensure that there is not a substantial difference in the sweep height from either side as this will affect pickup performance.
4. Tighten down the threaded jam on each top link so that the height is fixed in position.
5. Return the top link wrench to the plastic manual holder so that it does not get lost.

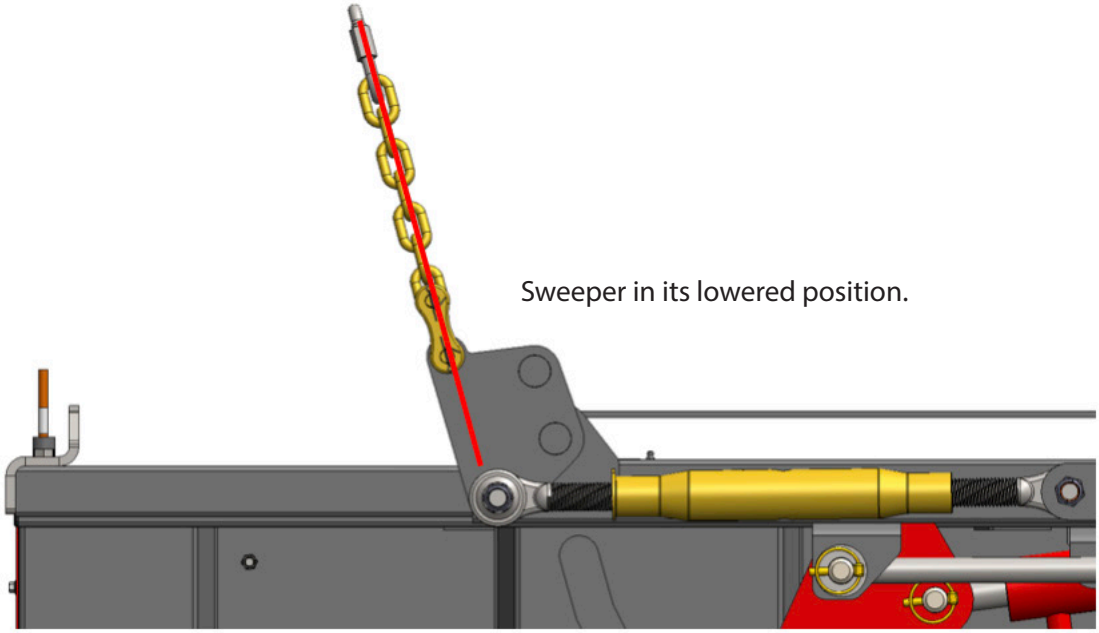
Step 5. Sweep Height Adjustment Limitation

Sweeper in its raised position.



When raising the sweeper, threading in the top link will raise the sweeper. The steel brace of the pivot (shown in blue) will bottom out on the side shift bracket when it in a fully raised position. There are still threads exposed on the top link however do not try and force it past this position.

Sweeper in its lowered position.



When lowering the sweeper, unthreading the top link will lower the sweeper. The position illustrated above shows the chain parallel to the bottom of the pivot. Unthreading the top link past this position will not provide any more height adjustment for the sweeper. Do not try and extend it past this position as this will only raise the sweeper.

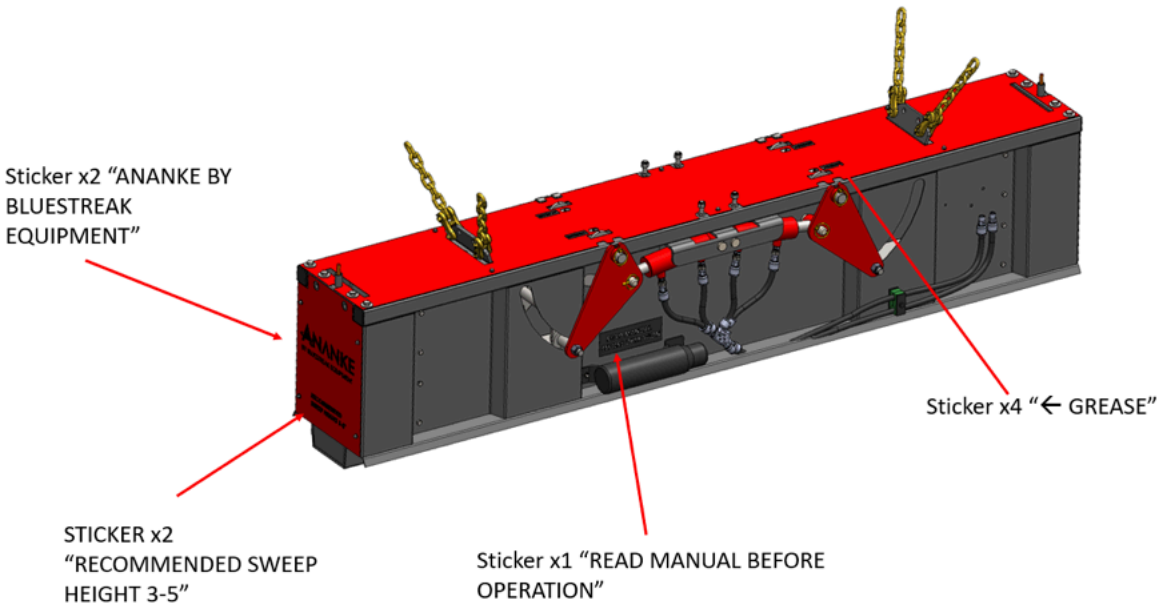
Maintenance Instructions

Before Every Use

- Check that all fasteners (nuts, bolts, pins, keepers) are in their right place and are tight.
- Inspect and replace any worn, torn or missing safety decals.
- Grease Pivot points as indicated by the grease stickers.

Every Month

- Inspect the attachment for any loose or worn parts that may need to be replaced prior to the next season.
- Visually inspect the hydraulic fittings and hydraulic hoses. Replace, if necessary.
- Clean, sand & repaint any area that looks worn or scratched to prevent further rusting. Use an equipment paint found at your local hardware store or building center.
- Replace any stickers that have been lost or damaged.
- Store your attachment in a shed or cover with a water-proof tarp to protect it from the weather. Store in an area not frequented by children.

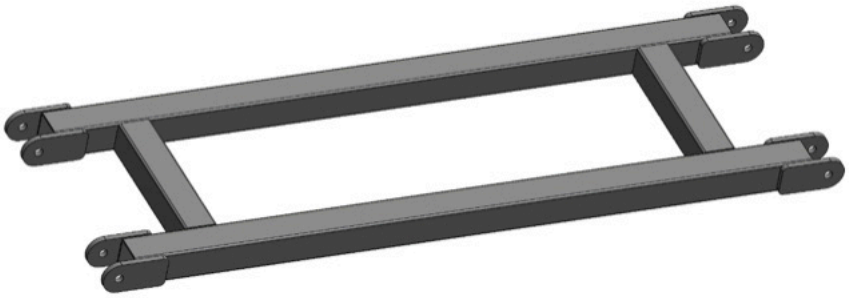


Optional Accessory Universal Hanging Bracket Installation Instructions

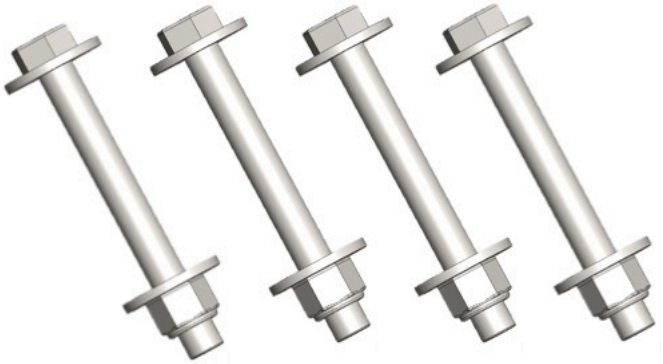
Step 1. Unpacking Your Shipment

Ananke side shift bracket as shipped on pallet - remove the shrink wrap and banding.

Step 1. Unpacking Your Shipment

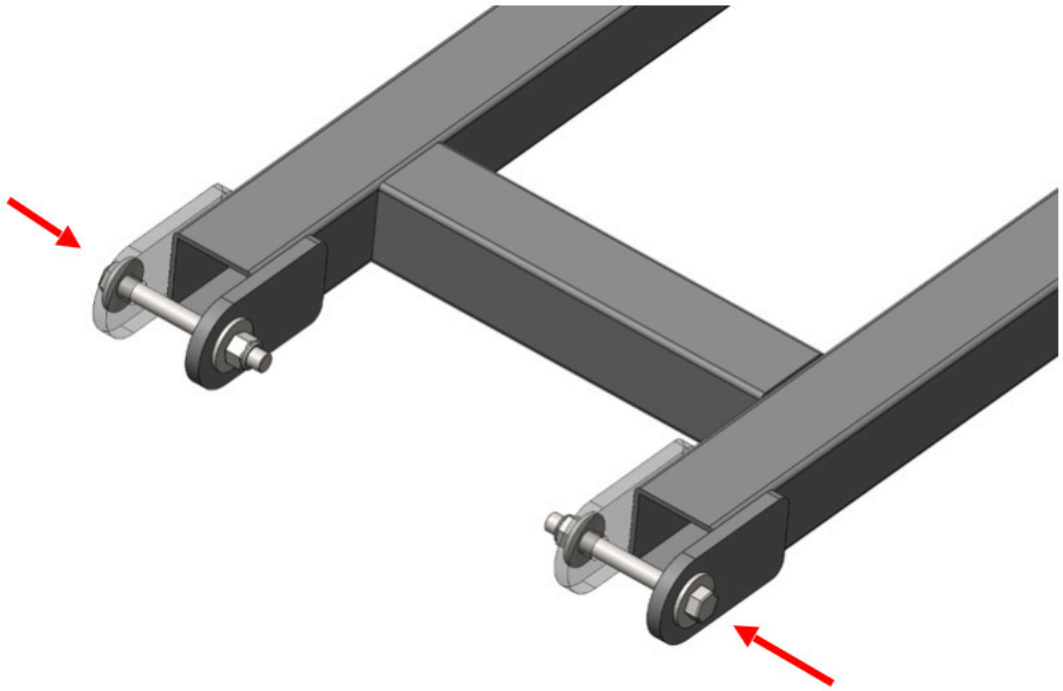


1x steel frame



1x Hardware Box with
4x -5/8" x 5.5" hex bolts
4x – 5/8" nyloc nut
8x 5/8" flat washer

Step 2. Attach the Hardware to the Bracket

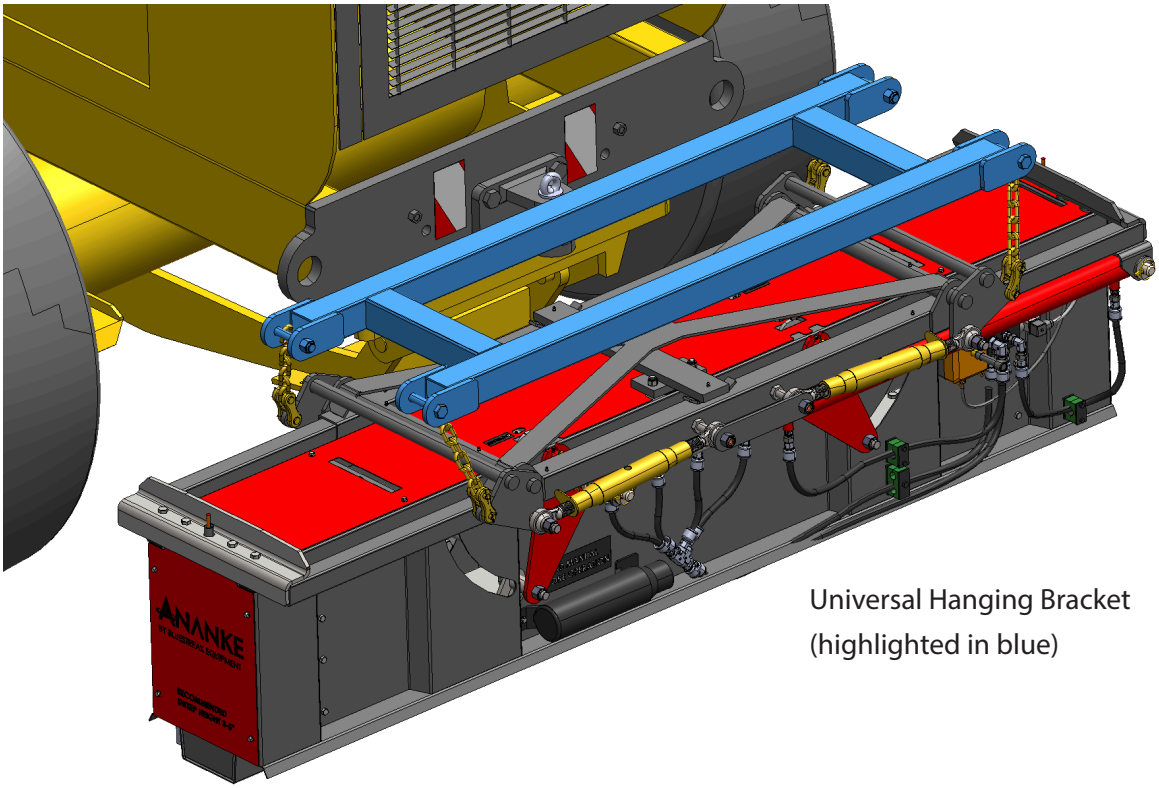


Place a washer over the 5/8" x 5.500" long hex bolt and insert it from the outside of the frame inward. Place another washer on the inside face and secure the bolt in place using the 5/8" nyloc nut. Repeat this procedure for all four corners.

You will need to remove these bolts later to install the chain, however installing them will aid in fabrication of a custom attachment.

You may also consider using quick links for easy attachment and removal of the sweeper. It is recommended to keep the hex bolt in place instead of removing it and hooking directly to a single hole in one of the ends. When supplementing any hardware for mounting, keep in mind the the weight of the sweeper is 1064lbs +/- (base sweeper) or 1414lbs +/- (with side shift bracket installed).

Step 3. Determine a Hanging Configuration for your Prime Mover



Universal Hanging Bracket
(highlighted in blue)

The Universal Hanging Bracket from Bluestreak is intended as a basis for custom fabrication. It is offered as a solution to maintain the correct hanging point position, while offering geometrical profiles that can easily be welded on. The square steel tube making up the main frame is ideal for adding steel plate to it, which can be made to adapt to each vehicle.

The Universal Hanging bracket is symmetrical in all aspects. There is no specific top/bottom, left/right, front or back.

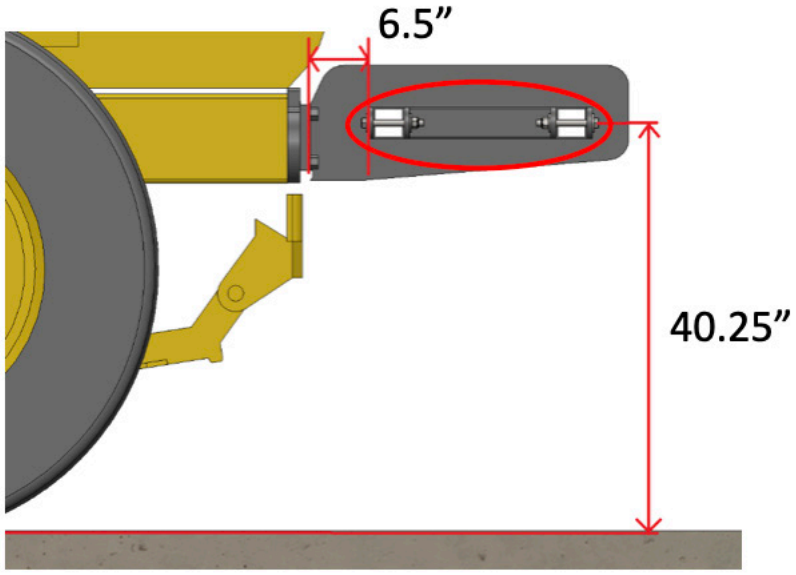
The following page illustrates act a brief guide to help you connect the Ananke Universal Hanging Bracket to to your prime mover (motor grader of other heavy equipment etc.).

This task must be performed by a competent fabricator who is experienced in welding, grinding, fitting, measuring and clearly understands and is confident and capable of performing this task.

It should be noted that this is not an engineering guide or step by step process for your machine. This is simply a few tips we are highlighting based on our experience of making the other brackets we have made for demo's.

Step 4. Critical Dimensions to Keep in Mind

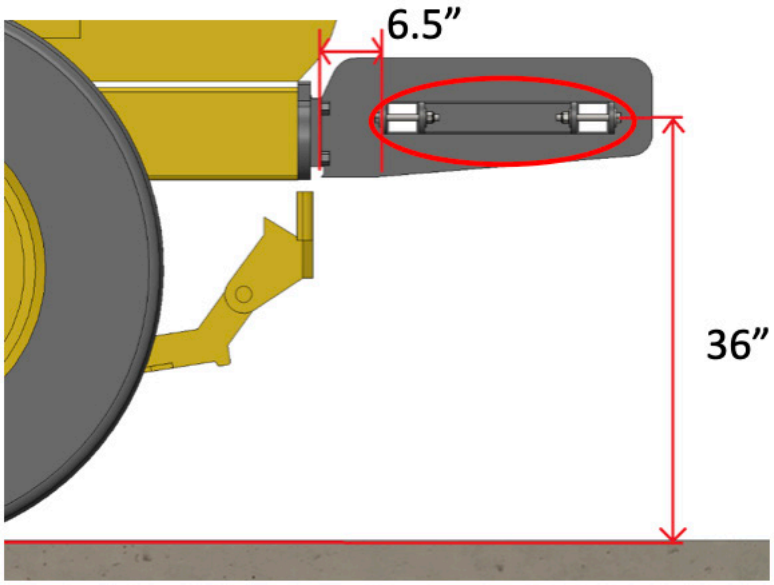
Dimensions when the Ananke is being mounted with a side shift bracket accessory:



Universal Hanging Bracket (circled)

The center of the bolts on the hanging bracket should be 40.25” off the ground when used in combination with the side shift bracket. The bracket should not be closer than 6.5” to the back of the prime mover.

Dimensions when just the Ananke is being mounted (without side shift bracket):



Universal Hanging Bracket (circled)

The center of the bolts on the hanging bracket should be 36” off the ground for use with the Ananke sweeper (without side shift bracket). The bracket should not be closer than 6.5” to the back of the prime mover.

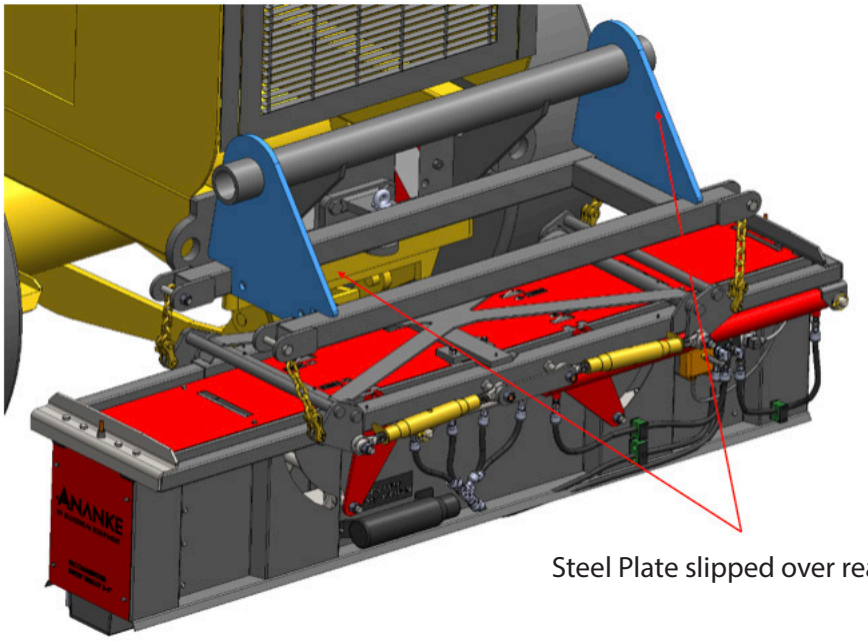
There are several ways to connect the Universal Hanging Bracket to the vehicle;

Option A. Weld steel tube from the main chassis of your prime mover to the tube from the Universal Hanging Bracket. This is a near permanent solution where the bracket is fixed on the vehicle for as long as the sweeper will be used. The sweeper can be removed, but the bracket will remain on the vehicle

Option B. Design and obtain laser cut profiles that adapt to existing structural parts of the prime mover. These profiles can have holes for bolted connections which allows the hanging bracket to be a nonpermanent attachment that can be removed. The bracket will need to be prepped for any welding operations or drilled for any bolted connections. An Example is presented below for reference.

Option C. Fabricate your own custom mount that is either permanent or removable. The hanging bracket can be cut and welded as required to suit your vehicles needs.

Example of Option B:



Steel Plate slipped over rear bash bar

Once the bracket is altered and hanging from the prime mover, the four included bolts can be used to hang the sweeper from the grade 70 hanging chain.

Maintenance Instructions

Before Every Use

- Check that all fasteners (nuts, bolts, pins, keepers) are in their right place and are tight.
- Inspect and replace any worn, torn or missing safety decals.
- Grease Pivot points as indicated by the grease stickers.

Every Month

- Inspect the attachment for any loose or worn parts that may need to be replaced prior to the next season.
- Visually inspect the hydraulic fittings and hydraulic hoses. Replace, if necessary.
- Clean, sand & repaint any area that looks worn or scratched to prevent further rusting. Use an equipment paint found at your local hardware store or building center.
- Replace any stickers that have been lost or damaged.
- Store your attachment in a shed or cover with a water-proof tarp to protect it from the weather. Store in an area not frequented by children.

There are no stickers to be replaced on this attachment.