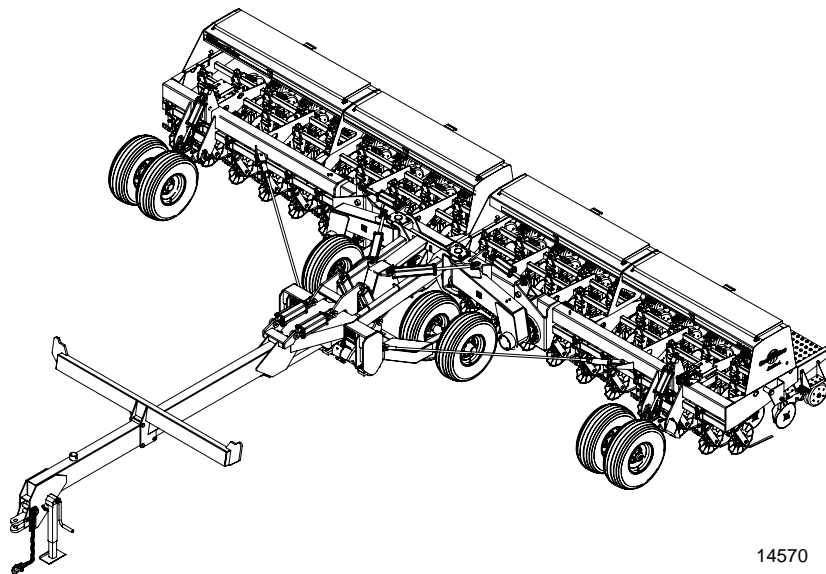


Pre-Delivery Manual

2N-2410 and 2N-3010
Folding, No-Till Drill



Read the pre-delivery manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



14570

Illustrations may show alternate spacings and/or optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS



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Printed 9/5/17

196-202M



Table of Contents

Important Safety Information.....	1	Setup.....	11
Introduction.....	3	Bleed Transport-Lock Hydraulics	12
Using This Manual.....	4	Bleed Lift-to-Fold Hydraulics	13
Definitions.....	4	Bleed Fold Hydraulics	14
Preparation and Assembly	5	Level the Drill.....	15
Assemble Drill Frame and Boxes	6	Align Boxes	16
Plumb Field-Lift Hydraulics.....	8	Make Folding Adjustments	17
SMV Installation.....	9	Appendix	18
Lighting Installation.....	9	Torque Values Chart	18

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Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.



Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



Prepare for Emergencies

- ▲ *Be prepared if a fire starts*
- ▲ *Keep a first aid kit and fire extinguisher handy.*
- ▲ *Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.*



Be Familiar with Safety Decals

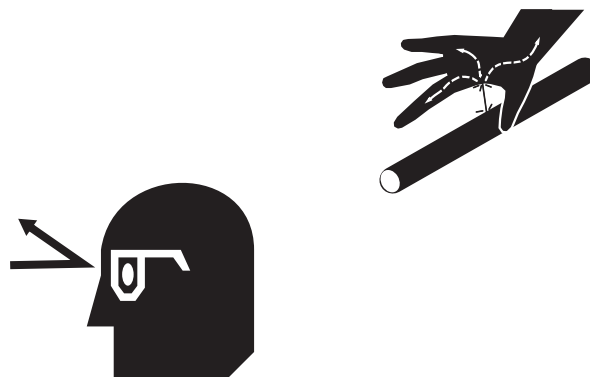
- ▲ *Read and understand "Safety Decals" in Operator manual.*
- ▲ *Read all instructions noted on the decals.*
- ▲ *Keep decals clean. Replace damaged, faded and illegible decals.*



Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury.

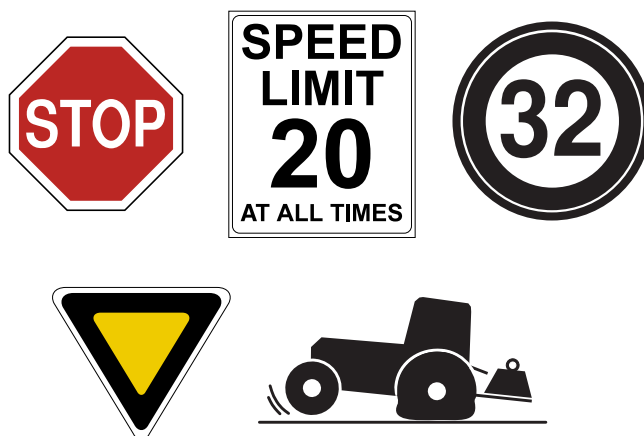
- ▲ *Avoid the hazard by relieving pressure before disconnecting hydraulic lines.*
- ▲ *Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.*
- ▲ *Wear protective gloves and safety glasses or goggles when working with hydraulic systems.*
- ▲ *If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.*



Transport Machinery Safely

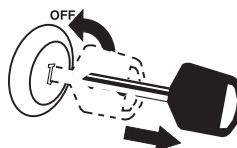
Maximum transport speed for air drill is 20 mph (32 kph). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

- ▲ *Do not exceed 20 mph (32 km/h). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.*
- ▲ *Comply with state and local laws.*
- ▲ *Do not tow an air drill unless the towing vehicle is rated for, and ballasted for, the weight of the air drill.*
- ▲ *Carry reflectors or flags to mark air drill in case of breakdown on the road.*
- ▲ *Do not fold or unfold the air drill while the tractor is moving.*



Practice Safe Maintenance

- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Lower the air drill, put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all system pressure is relieved.*
- ▲ *Inspect all parts. Make sure parts are in good condition and installed properly.*
- ▲ *Remove buildup of grease, oil or debris.*
- ▲ *Remove all tools and unused parts from air drill before operation.*





Introduction

Great Plains Manufacturing wants you to be satisfied with any new machine delivered by the Great Plains Trucking network. To ease the assembly task and produce a properly working machine, read this entire manual before assembling or setting up new equipment.

Description of Unit

The 2-section, no-till, folding drill is a towed seeding implement for no- or minimum-till soil conditions. The drill is equipped with two hydraulic circuits. One is used to raise and lower the drill for field operations. The second circuit is electro-hydraulic and used to lift, lock and fold the implement for transport. An in-cab control console allows the operator to switch between functions on the electro-hydraulic circuit. The drill is outfitted with no-till coulters and double-disk openers. Press wheels follow the opener disks to firm the seedbed and control seeding depth.

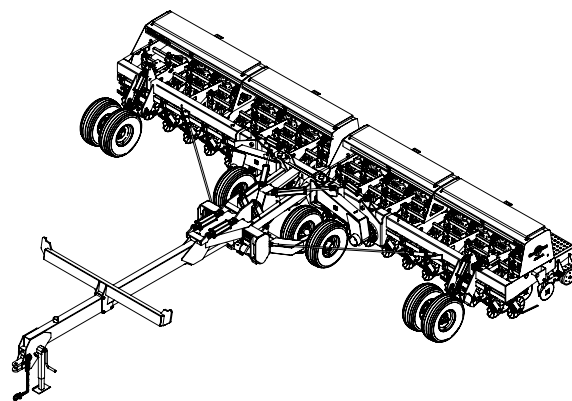
Models Covered

2N-2410	38-Row, 7-1/2" spacing
	28-Row, 10" spacing
2N-3010	48-Row, 7-1/2" spacing
	36-Row, 10" spacing

Document Family

2N-2410 and 2N-3010

196-126M	Operator Manual
196-126P	Parts Manual
196-202M	Pre-Delivery Manual (this document)
196-126B	Material Rate Manual



14570

Using This Manual


This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and set up. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup. Read and understand “**Important Safety Information**” in the operator’s manual before assembling the machine. For your safety and better understanding of the machine, also read the operator’s manual before assembling.

The information in this manual was current at printing. Some parts may change to assure best performance.

Definitions

Right and left as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated.

IMPORTANT: A crucial point of information related to the preceding topic. For safe and correct operation, read and follow the directions provided before continuing.

 NOTE: Useful information related to the preceding topic.

Further Assistance

For additional help with understanding these assembly instructions or for any other assembly or setup related questions, please contact our service department at the following address:

**Great Plains Service Department
1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060**

Or call us at **(800) 270-9302** to speak over the phone with a service representative.

Copies of this machine’s operator manual are available by mail or online. Please visit **www.greatplainsag.com** and follow the product link for information on your machine, or use the QRC code below to view our online publications.



Preparation and Assembly


This section covers dealer requirements for assembly. As the dealer, it is your responsibility to unload, assemble and prepare the drill for use.

The drill is shipped via flat bed truck. It is not fully assembled. Unload all equipment before beginning assembly. Do not attempt any assembly work while the drill is on the truck.

The following are step-by-step instructions for assembling the drill. Each heading is a step in the assembly process. Begin with *Tools Required* and *Pre-Assembly Checklist* to ensure you have all necessary parts and equipment at hand. Then proceed with *Hook Up Drill Control Console*. Follow each step to make the job as quick and safe as possible and produce a properly working machine.

Tools Required

- Forklift or overhead hoist with 8,000-lb. capacity
- A tractor with at least 135 horsepower with 2 sets of hydraulic remotes.
- General hand tools, jack stands or blocks and lifting chain

 **NOTE:** You will need about 10 gallons of hydraulic oil to refill the tractor hydraulic reservoir after initial bleeding and cycling of the hydraulic systems.

Pre-Assembly Checklist

- ☐ Read and understand “**Important Safety Information**” on page 1 before assembling.
- ☐ Have at least two people on hand while assembling.
- ☐ Make sure the assembly area is level and free of obstructions (preferably an open concrete area).
- ☐ Make sure the assembly area is large enough for the assembled drill. Final assembled width will be 24 or 30 ft.
- ☐ Have all major frame components.
- ☐ Have all fasteners and pins shipped with drill.

IMPORTANT: If a pre-assembled part or fastener is temporarily removed, remember where it goes. Keep the parts separated.

- ☐ Have a copy of the drill parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
- ☐ Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- ☐ Inflate tires to recommended pressure as listed on the *Tire Inflation Chart* in the “**Appendix**” on page 18.
- ☐ Tighten wheel bolts as specified on *Torque Values Chart* on the “**Appendix**” on page 18.

Hook Up Drill Control Console

To properly assemble the drill, the control console must be mounted in a tractor with suitable hydraulic capacity so the drill can be lifted. When setup is complete, remove the console for installation in the customer tractor.

1. Mount the control box at a convenient location in the tractor cab. Connect the 12-ft. extension cable to the pin connector on the back of the control box. Route the cable to the tractor drawbar area. Secure the cable to avoid damage.
2. Connect the power cord to a 12-volt power source on the tractor. The polarity of the power supply is very important to prevent circuit damage. The red wire of the power cord must be connected to the + positive battery terminal and the white wire to the - negative battery terminal.

Assemble Drill Frame and Boxes

Refer to 11.Chain forklift to one of the drill boxes. Raise, lower or shift the box to align the box mount (5) with the pivot hub (6) on the tool bar. Leaving the bolts in place, remove the nuts and lock washers from the box mount..

1. Position the main frame (1) in a clear, level area. With the transport cylinders (2) collapsed allow the frame to rest on the dual transport wheels. Block the frame in a safe, level position.
2. Remove the jack from the storage stob on top of the tongue. Attach jack (3) to stob on left side of tongue as shown in 11.. Raise tongue with forklift, then crank jack until it is supporting tongue high enough for tractor hook-up.
3. Position the two drill boxes in line, end to end, with the gauge wheels on the outside. The boxes should be spaced 4 in. apart at the lower end panels (4).

CAUTION

This drill has negative tongue weight when unfolded and raised. Be certain that the drill is hitched securely to your tractor drawbar and the hitch safety chain is securely attached to the drill and tractor before raising or unfolding the drill.

4. Hitch a tractor of suitable size and hydraulic capacity to the tongue and main frame. Refer to *Tools Required* on page 5. Crank the jack until tongue weight is on tractor drawbar.

5. Plug control console cable to drill harness.
6. Unpin the jack from the hitching stob. Pin jack to stob on top of the tongue.

WARNING

Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene will result.

7. Connect hoses from electro-hydraulic circuit to tractor remotes.
8. Bleed the lift-to-fold and fold hydraulics. Follow the proper bleeding procedures for these systems on page 14.
9. Select the fold system on the control console. Using the tractor hydraulics, unfold the tool bars.
10. Select the lift-to-fold system on the control console. Using the tractor hydraulics, raise the main frame.
11. Chain forklift to one of the drill boxes. Raise, lower or shift the box to align the box mount (5) with the pivot hub (6) on the tool bar. Leaving the bolts in place, remove the nuts and lock washers from the box mount.

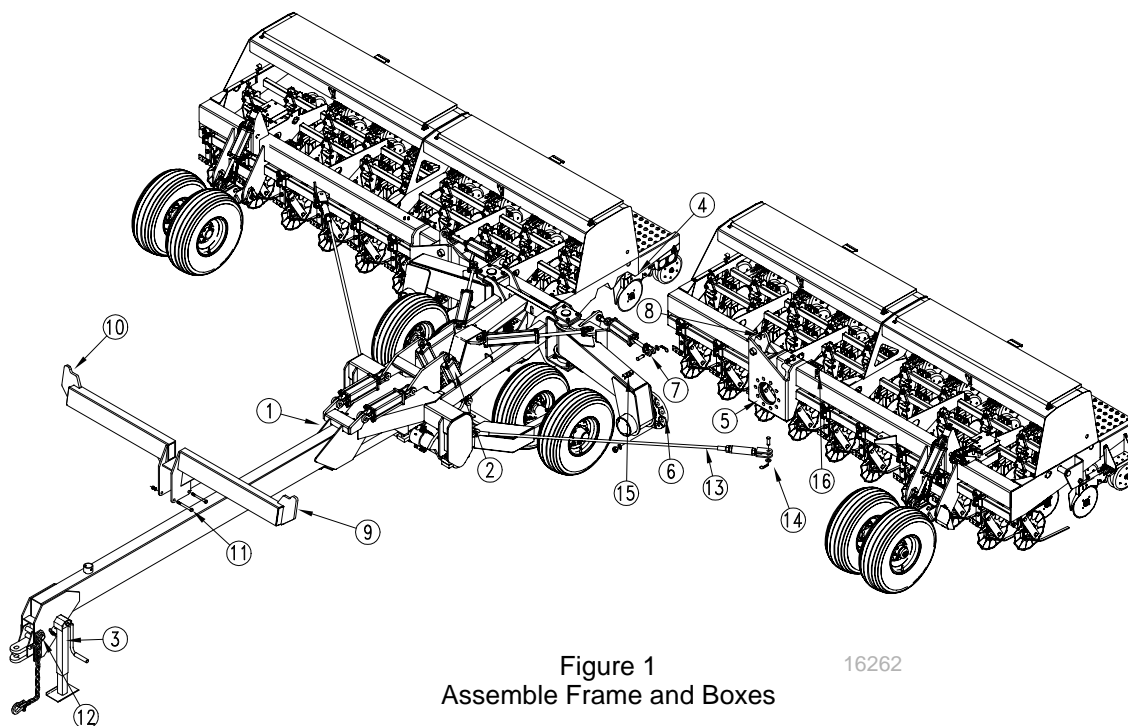


Figure 1
Assemble Frame and Boxes

16262

12. Using the tractor hydraulics, raise or lower the mainframe to set the tool-bar height with the box-mount height. Rotate the tool-bar pivot hub until it aligns with the box-mount bolts. Back the main frame up until the tool-bar pivot has nested in the box mount. Replace the lock washers and nuts on the box-mount bolts and tighten.
13. Repeat steps 11. and 12. for the other box.
14. Attach the rod end of the tool-bar cylinders (7) to the floating link plates (8).
15. Install wing transport carriers (9 and 10) on the tongue. Position the carriers so that center of the front bolt (11) is 103 in. from the center of the hitch mounting bolts (12). Leave the carrier bolts loose for repositioning when the drill is first folded.

NOTICE

There are left and right transport carriers. They must be installed correctly. When standing to one side of the drill, the top of the carrier tube should lean toward the rear of the drill.

16. Route the pull cables from their shipped position and pin the adjusting-end clevis to the drill using hardware supplied.
17. The pull cables need to be twisted to allow for proper movement during folding and unfolding operations. To do this, face towards the left hand box frame and remove the pin from the adjustable clevis on the pull cable. Taking the adjustable clevis and pull cable as one, turn or twist this end of the cable one complete turn towards the center of the machine and pin the clevis.
18. Face toward the right hand box frame and remove the pin from the adjustable clevis on the pull cable. Take the adjustable clevis and pull cable as one, then turn or twist this end of the cable one complete turn towards the center of the machine and pin the clevis.
19. Once both pull cables have been properly twisted, carefully fold and unfold the drill.
20. Tighten all bolts as specified on the 'Torque Values Chart' on page 18.



Figure 2
Adjusting the Pull Cable

38167



Figure 3
Twisting the Pull Cable

38169

Plumb Field-Lift Hydraulics

1. Untie and uncoil the field-lift hydraulic hoses from the drill tool bars. Remove the double-female, 3/4-in. O-ring union from the circuit. Route the hoses to the wing gauge-wheel cylinders through the clamps on the box frame and holes in the box panels behind the frame tube.
2. Complete the plumbing by following the schematic in Figure 4. The base-end and rod-end hoses must be identified and plumbed correctly.
3. Allow 48 in. of hose between the hose clamp on the tool bar (Figure 1, 15) and the hose clamp on the box (Figure 1, 16).

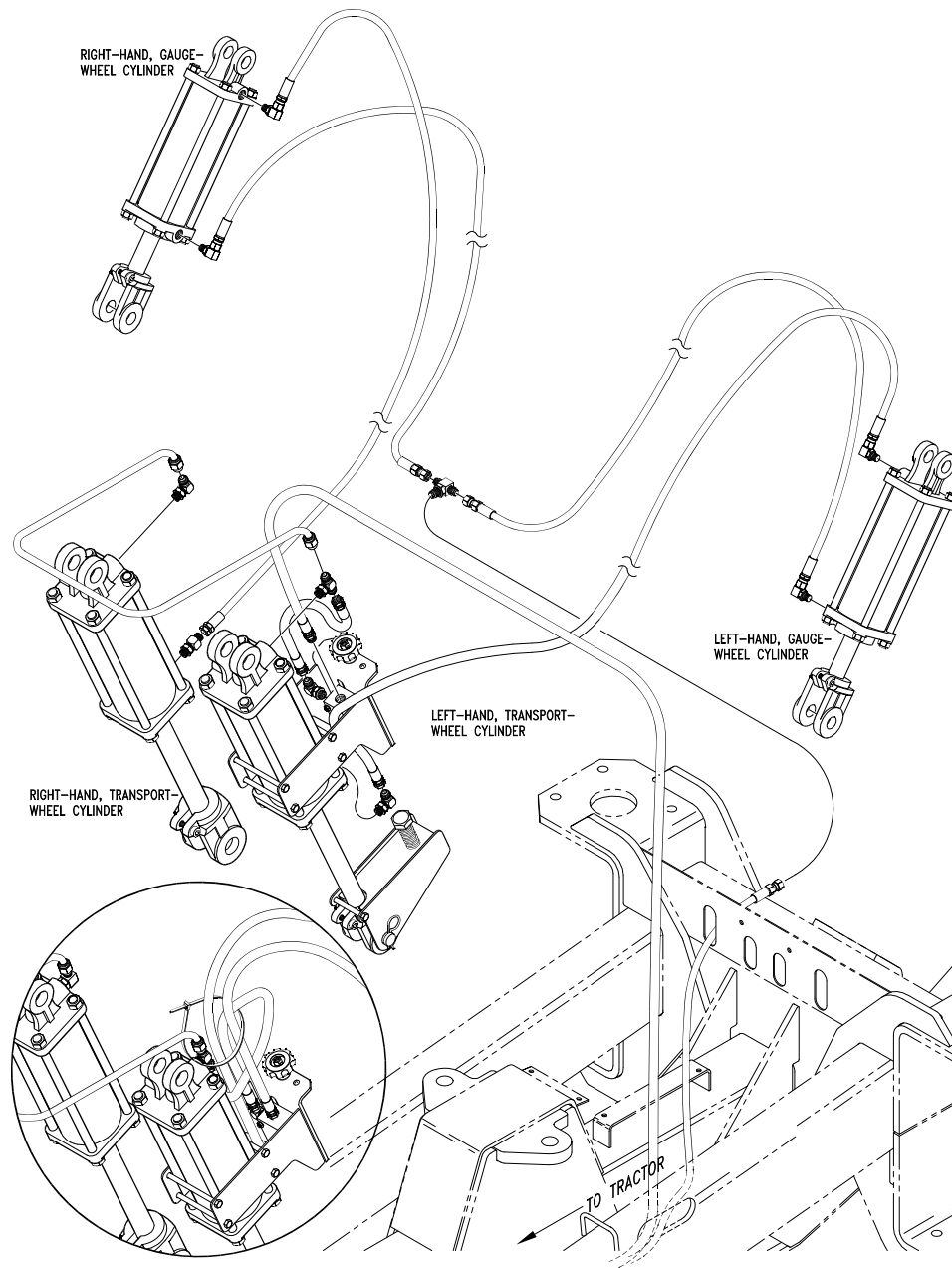


Figure 4
Field-Lift Hydraulics Diagram

SMV Installation

1. Install the blade (1) to the mainframe (2) as shown in Figure 5. Use two each of 5/16-18x3/4 RHSNB (3), spring lock washers (4), and 5/16-18 nuts (5).
2. Fasten the SMV plate (6) to the blade. Use two each 1/4-20x5/8 round head screws (7), spring lock washers (8), 1/4-20 nuts (9).

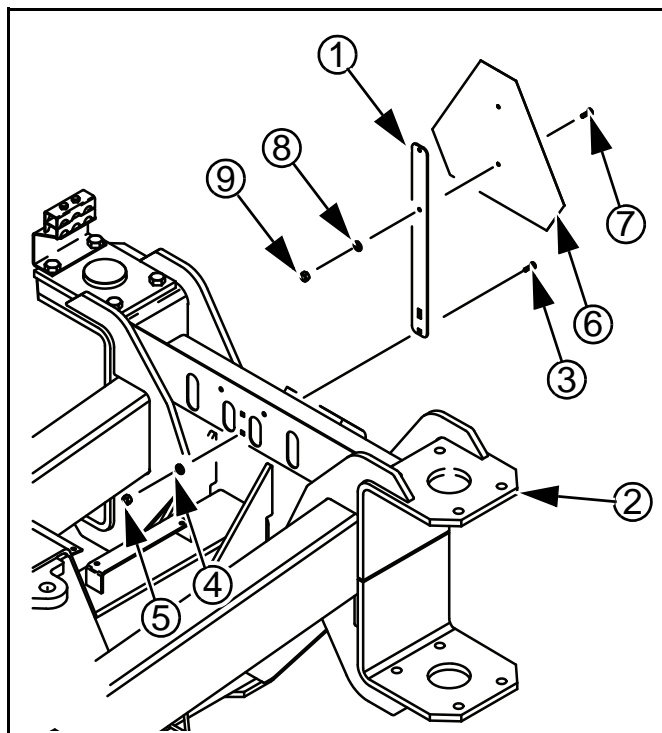


Figure 5
SMV Installation

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Lighting Installation

The lights are installed on the inner ends (1) of the seed boxes to face rearward when the drill is folded.

The illustration shows lights being installed on the inner end of the right-hand seed box.

1. Install the red lamp (2) to the frame (3) as shown in Figure 6. Use two 1/4-20x3/4 self-tapping screws (4).
2. Install the two bracket (5) on the bottom of the walkboard frame (6). Use two 3/8-16x1 1/4 HHCS (7), flat washers (8), spring lock washers (9), and 3/16 nuts (10).
3. Fasten the amber lamp (11) to the bracket. Use two 1/4-20x3/4 self-tapping screws (12).
4. Install the lights on the left-hand seed box.

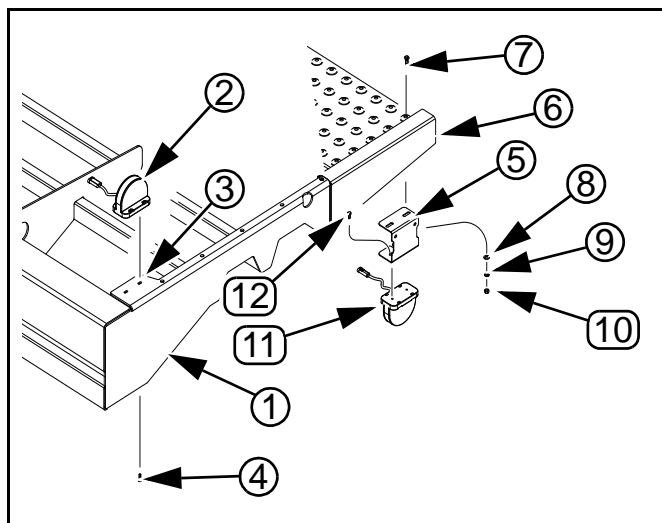


Figure 6
Light Installation - Right-Hand
Seed Box

68485

5. Fasten the enhance lighting module (1) to mainframe. Use the two far right-hand holes in the top rear flange (2) as shown in Figure 7. Use two 1/4-20x1 1/2 HHCS (3) and two 1/4-20 flange head lock nuts (4).

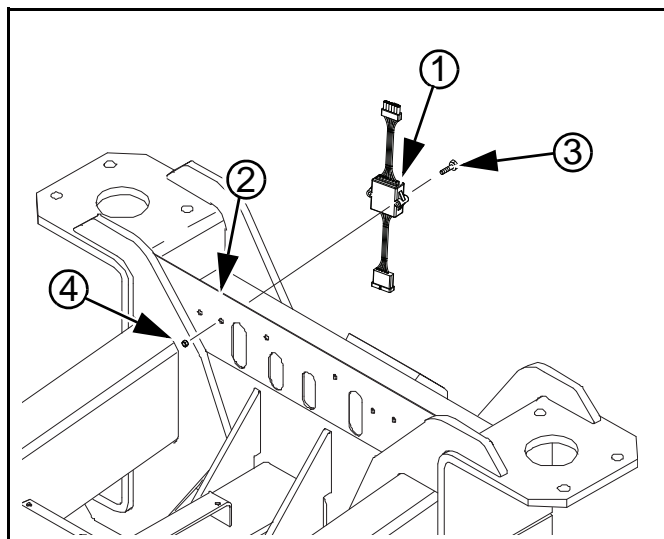




Figure 7
Lighting Enhance Module
Installation

68486

6. Connect the wishbone lighting harness (1) shown Figure 8 to the lighting enhance module installed earlier.

 **NOTE:** The wishbone lighting harness may already be connected to the lights on one side of the drill. If so, the wishbone lighting harness will be rolled up and fastened to the wingframe.

7. Connect the wishbone lighting harness to all of the lights.
8. Use the wire ties and cord clips (3) to fasten the wishbone lighting harness to the drill.
9. Route the front harness through the tongue.
-  **NOTE:** The front harness may already have been routed through the tongue prior to shipping.
10. Connect the front lighting harness (2) to the enhance lighting module.

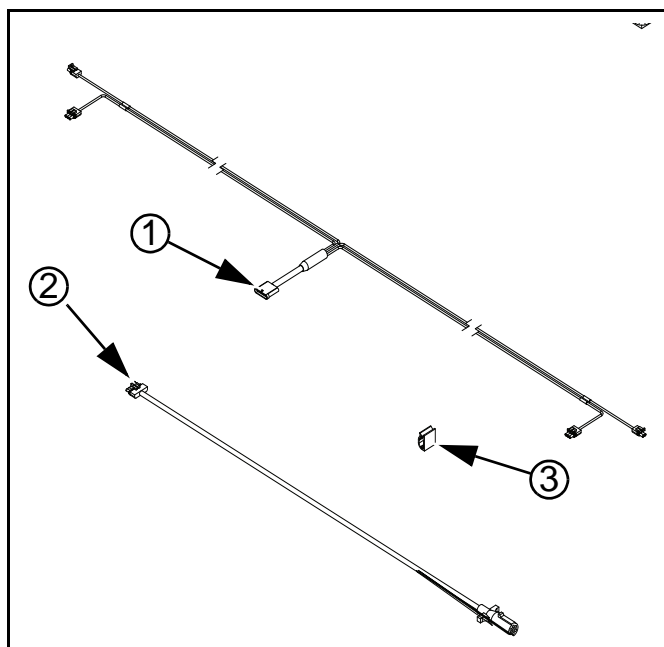


Figure 8
Lighting Harness Installation

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This section covers dealer requirements for drill setup. This section includes instructions for bleeding air from the hydraulics and adjusting the frame and boxes.

You should have already bled the lift-to-fold and fold hydraulics while assembling the drill. Bleed the field-lift and transport-lock systems before leveling the frame and adjusting the boxes.

Bleed Field-Lift Hydraulics

The field-lift system is equipped with four rephasing hydraulic cylinders. These rephasing cylinders require a special procedure for bleeding air from the system. Read and follow the procedure carefully. Air in the system will cause uneven seeding across the drill. Do not loosen hose fittings in order to bleed air from this system.

Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene will result.

This drill has negative tongue weight when unfolded and raised. Be certain that the drill is hitched securely to your tractor drawbar and the hitch safety chain is securely attached to the drill and tractor before raising or unfolding the drill.

Never allow anyone under the drill when fittings are opened. Escaping fluid may allow the drill to suddenly drop.

1. Check that the tractor reservoir is filled to the proper level. You will need about 4 gallons to charge the field-lift circuit.
2. Put the tractor in park and set the parking brake. If your tractor does not have these features, block wheels to prevent tractor from rolling.

IMPORTANT: To prevent trapped air pockets, the rod end must be higher than any other part of the cylinder during the bleeding operation.

3. Raise and support the main frame and outside ends of boxes just high enough to take the weight off all four field-lift cylinders.
4. With the drill blocked and supported, unpin both ends of all four field-lift cylinders. The field-lift cylinders are located on the wing gauge wheels and the main-frame transport wheels. Remove and safely position the cylinders so the rod end is higher than the base end. Check that there is enough room for the cylinder rods to fully extend without contacting anything.
5. With the tractor at idle hold the lift circuit remote lever on. When the cylinders for both wing boxes have completely extended, hold the remote lever on for one minute.
6. Retract the cylinder rods. Extend the rods again and hold the remote lever on for one more minute. Repeat this step two more times to completely bleed the system.
7. Retract and reattach the hydraulic cylinders.
8. Check the tractor reservoir level and add clean fluid as necessary.



Bleed Transport-Lock Hydraulics

The transport-lock cylinders are not rephasing. The two transport-lock cylinders are on each side of the main frame above the transport axel pivot tubes. Follow these steps to properly bleed the fold hydraulics.

1. Check that the tractor reservoir is filled to the proper level. You will need about 0.07 gallons to charge the transport-lock circuit.
2. Raise the drill to field position and support the main frame.
3. Select the locks system on the control console. Retract the lock cylinders completely.
4. Loosen the connection between the hose and base-end tee fitting on the left lock cylinder. With the tractor at idle slowly work the remote lever to feed oil to the base end of the lock cylinders. Stop when oil is seen coming from around the fitting. Do not attempt to fully extend the lock cylinders when bleeding the base ends. Tighten the hose fitting on left, base-end tee on left lock cylinder.
5. With the cylinders completely extended, repeat step 4 for the rod-end fitting.
6. Check the tractor reservoir level and add clean fluid as necessary.
7. Retract and extend the lock cylinders several times to expel most air from the system. The remaining air will gradually be expelled during day-to-day operations.
8. Check the tractor reservoir level and add clean fluid as necessary.


Bleed Lift-to-Fold Hydraulics

The lift-to-fold cylinders are double acting but not rephasing. There are four cylinders in the lift-to-fold system. Two are on the tool bar, and two are on the tongue. Follow these steps to properly bleed the lift-to-fold hydraulics.

1. Check that the tractor reservoir is filled to the proper level. You will need about 3.4 gallons to charge the lift-to-fold circuit.
 2. Select the lift-to-fold system on the control console.
 3. Check that the drill is unfolded and resting safely on the ground.
 4. Disconnect the rod-end clevis of both tool-bar cylinders and both tongue cylinders. Support the cylinders so the rods may extend and retract freely.
 5. Retract the tongue cylinders completely. This will also fully extend the tool-bar cylinders.
 6. Loosen the hose-end fitting coming into the tee on the base end of the left tongue cylinder.
-  Do not attempt to bleed an O-Ring fitting or O-Ring damage may occur.
7. Slowly work the remote lever to feed oil to the base end of the tongue cylinders. Stop when oil is seen coming from around the fitting. Do not attempt to extend the tongue cylinders while bleeding the base ends.
 8. Loosen the hose-end fittings at the tee on rod ends of the tool-bar cylinders. Slowly work remote lever which feeds oil to the rod end of the tool-bar cylinders. Stop when oil is seen coming from around the fittings. Do not attempt to retract the tool bar cylinders while bleeding the rod ends. Tighten hose-end fittings at the tee on cylinder base ends.
 9. Fully extend the tongue cylinders and retract the tool bar cylinders.
 10. Loosen the hose-end fitting at the tee on the rod end of the left tongue cylinder.
-  Do not attempt to bleed an O-Ring fitting or O-Ring damage may occur.
11. Slowly work the remote lever in the opposite direction to feed oil to rod end of the tongue cylinders. Stop when oil is seen coming from around the fitting. Do not attempt to retract the tongue cylinders while bleeding the rod ends. Tighten hose-end fittings at the tee on rod ends of tool-bar cylinders.
 12. Loosen the hose-end fittings at the tee coming from the base ends of the tool-bar cylinders. Slowly work the remote lever to feed oil to the base end of the tool bar cylinders. Stop when oil is seen coming from around the fittings. Do not attempt to extend the tool bar cylinders while bleeding the base ends. Tighten hose-end fittings at the tee on the base ends of tool-bar cylinders.
 13. Extend and retract the cylinders several times to expel most air from the system. The remaining air will gradually be pushed to the tractor during day-to-day operations.
 14. Pin the tongue and tool-bar cylinders. Raise and lower the wings several times to check for proper operation. If movement is erratic, repeat bleeding operation.
 15. Check the tractor reservoir level and add clean fluid as necessary.

Bleed Fold Hydraulics

The fold cylinders are not rephasing. The two fold cylinders connect the main frame and drill boxes. Follow these steps to properly bleed the fold hydraulics.

-  Check that the transport-lock and lift-to-fold systems are bled and completely operational before working with the fold circuit.
- 1. Make sure the tractor reservoir is filled to the proper level. You will need about 1.75 gallons to charge the fold circuit.
- 2. With the boxes unfolded unpin the rod-end clevis and support the fold cylinders so they can be extended and retracted.
- 3. Select the fold system on the control console. Retract the fold cylinders completely.
- 4. Loosen the connection between the hose-end and base-end tee fitting on the left fold cylinder.
- 5. With the tractor at idle slowly work the tractor remote lever to feed oil to the base end of the fold cylinders. Stop when oil is seen coming from around the fitting. Do not attempt to extend the fold cylinders when bleeding base ends. Tighten hose-end fitting on base end tee on left fold cylinder.
- 6. With cylinders completely extended, repeat the procedure for the hose connection at the rod end. Tighten hose-end fitting on the rod end.
- 7. Retract and extend the cylinders several times to expel most air from this system. The remaining air will gradually be pushed to the tractor during day-to-day operations.
- 8. Check the tractor reservoir level and add clean fluid.

Level the Drill

Equal coulter depth across the drill can be maintained only if the drill is level. The distance from the ground to the box frame should be the same on both ends of the drill. Be certain all hydraulic systems have been bled before proceeding.

1. Begin the leveling process. Locate the threaded eye bolt at the base end of a gauge-wheel cylinder shown in Figure 9. The eye bolt is locked in place by a jam nut on each side of a tube (1) welded to the cylinder lug. Observe the amount of thread exposed above the upper nut and below the lower nut. If the exposed threads are roughly equal above and below the jam nuts, no initial adjustment is needed. Go to step 3.

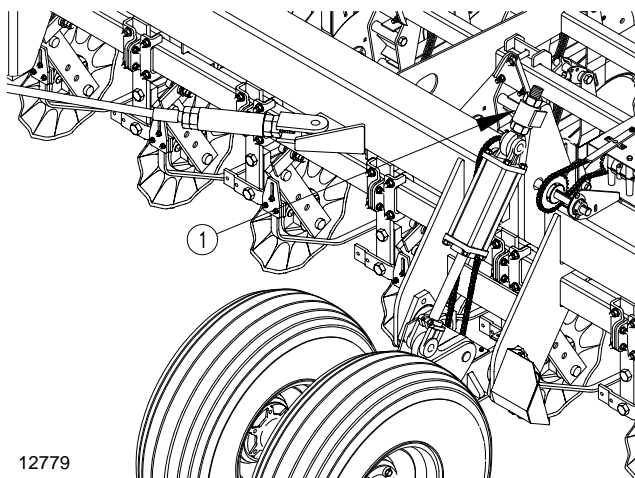



Figure 9
Gauge-Wheel Eye-Bolt
Adjustment

2. If the exposed threads above and below the jam nuts are not equal, loosen and adjust until the exposed threads are equal to within 3/8 in. Repeat for eye bolt on other gauge-wheel cylinder.
 3. Move the drill to a level area. With the drill unfolded, check that the tool-bar cylinders are completely extended. Raise the drill to its highest position with the field-lift cylinders. Keeping the tractor at an idle, rephase the cylinders by holding the remote lever on for an additional 30 seconds. Immediately lower the boxes until the coulters and openers are just ready to touch the ground.
 4. Move the gauge-wheel eye bolts in or out until the outer openers are the same height as the center openers.
-  **NOTE:** Eye-bolt adjustments are easier if the drill is first lowered to the ground to remove some of the force on the cylinders.
5. Repeat the steps until the drill is level end-to-end.

Align Boxes

By string lining along the back of the drill, you will make sure each box is square with the tongue. To be square, the outside ends of each box should be 1 to 1 1/2 in ahead of the inside ends.

1. With the drill unfolded and lowered pull forward a few feet with the openers in the ground.
2. Extend a string line to the outer ends of the wing boxes as shown in Figure 10. Measure from the

string line to each box as shown. For each box, measurement A should be 1 to 1 1/2-in. greater than measurement B.

3. If adjustment is needed, write down how many inches the box should be moved to be within the 1 to 1 1/2-in. tolerance mentioned above. Also note the direction you need to move the outside end of the box—forward or back.

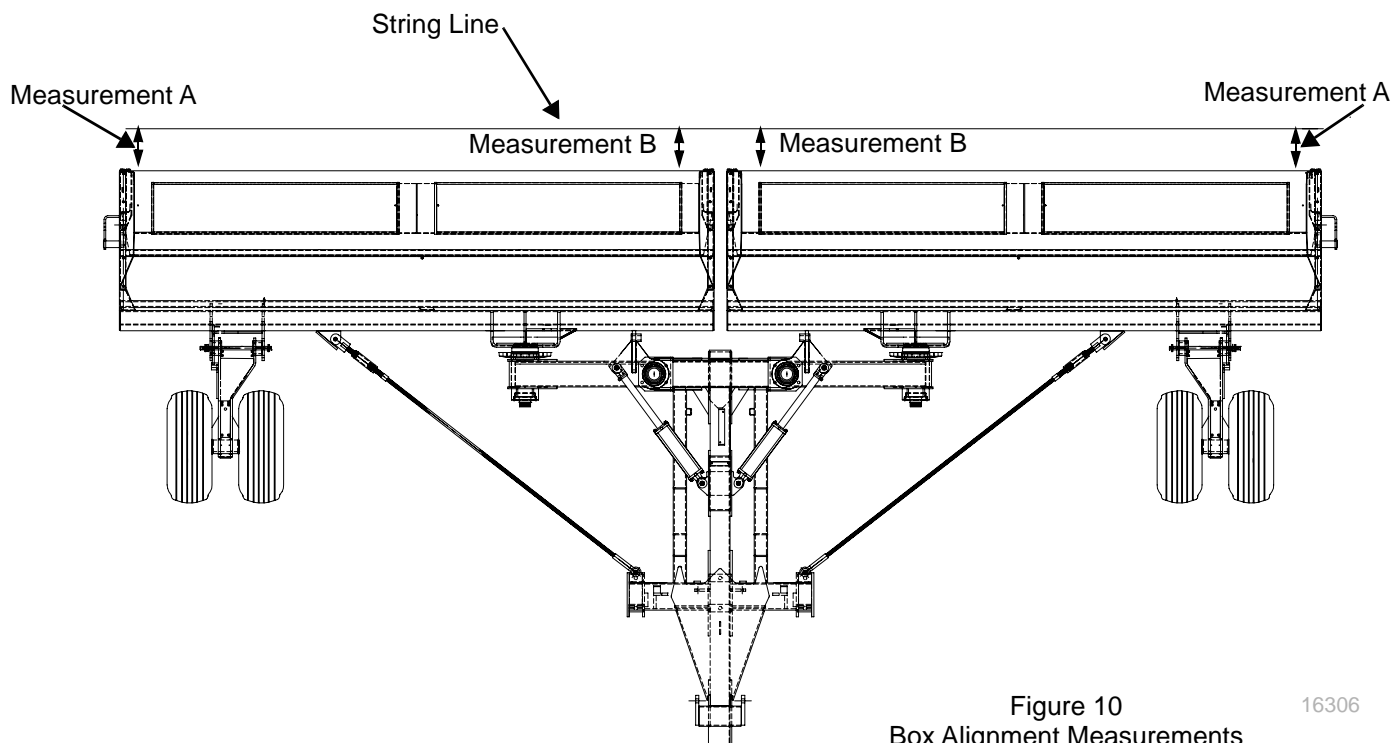


Figure 10
Box Alignment Measurements

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4. Make adjustments at the box end of each pull cable as shown in Figure 11. Loosen the jam nut on the adjustment trunnion screw. Turn the screw in or out to move the box end forward or backward as required. Tighten the jam nut.
5. Pull ahead slightly and check the box alignment. Adjust the pull cables if necessary.

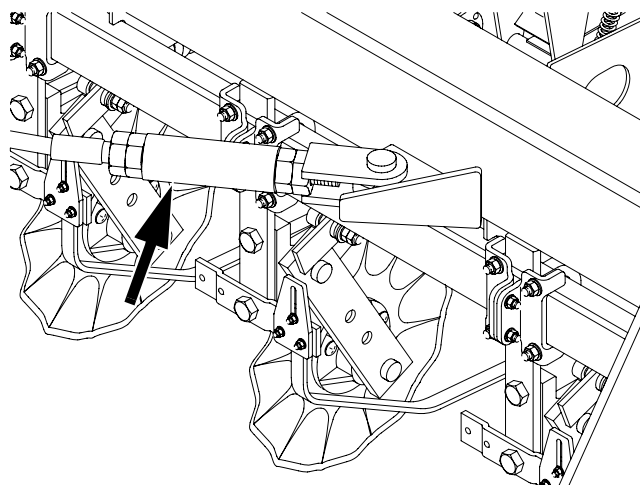



Figure 11
Box Alignment Adjustment

Make Folding Adjustments

The first time the drill is folded, the box folding height and transport carriers must be adjusted. The ends of the boxes must lift high enough to clear the transport carriers when folding. Lift-to-fold height for each box is controlled by the tool-bar cylinders. Adjustments are made by turning an eye-bolt adjustment at the base end of each cylinder. The carriers must be shifted forward or back to support the boxes during transport.

 **NOTE:** A slight turn on the eye-bolt adjustment will move the box end a great deal.

Before proceeding, read and refer to the operator's manual, *Folding the Drill*, "**Operating Instructions.**"

When first folding the drill, watch that hydraulic hoses do not get stretched, pinched or kinked. Adjust the hydraulic hose in the hose holder clamps as needed to give the hose plenty of slack for raising and folding.

1. Raise the drill and engage transport locks as explained in the operator's manual, *Folding the Drill*, "**Operating Instructions.**"
2. Begin to slowly fold the drill, watching if the box transport hooks will clear the transport carriers. The transport hooks are shown in Figure 13. Tool-Bar Cylinder Eye-Bolt Adjustment
 - If the transport hooks at the end of either box will not clear the carriers, shorten the eye-bolt adjustment on the corresponding tool-bar cylinder. The eye-bolt adjustment is shown in Figure 12. Shorten the eye-bolt adjustment until the transport hooks clear the carriers by one inch. Tighten the nuts on the adjustment when you have attained the proper length.
 - If the transport hooks at the end of either box completely swing over the transport carriers, lengthen the adjustment eyebolt on the corresponding tool-bar cylinder. The eye-bolt adjustment is shown in Figure 12. Lengthen the eye-bolt adjustment until the transport hooks clear the carrier pins by one inch. Tighten the nuts on the adjustment when you have attained the proper length.
3. Adjust the transport carriers so the transport hooks do not rub the carriers when you fold the drill. When folded, the hooks should rest securely on the carriers. Slide the transport carriers forward or back as needed and tighten into position.

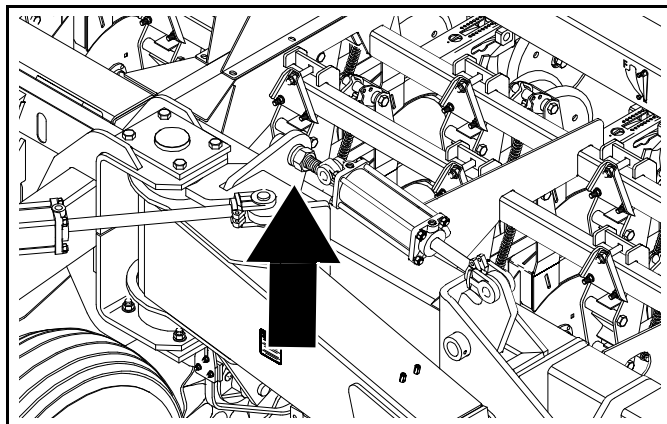


Figure 12
Tool-Bar Cylinder Eye-Bolt
Adjustment

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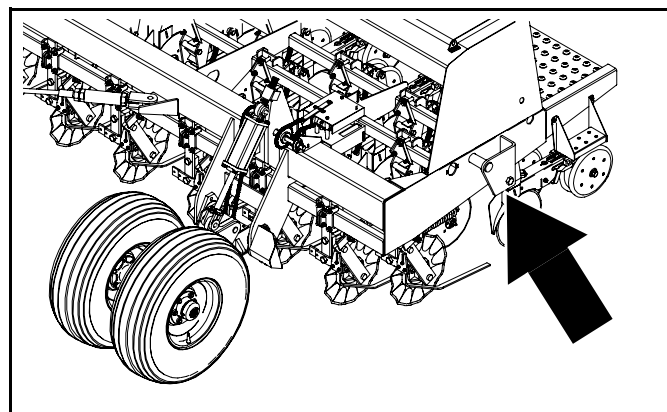


Figure 13
Transport Hooks

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Appendix

Torque Values Chart

Bolt Size in-tpi ^a	Bolt Head Identification					
	Grade 2		Grade 5		Grade 8	
	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb
1/4-20	7.4	5.6	11	8	16	12
1/4-28	8.5	6	13	10	18	14
5/16-18	15	11	24	17	33	25
5/16-24	17	13	26	19	37	27
3/8-16	27	20	42	31	59	44
3/8-24	31	22	47	35	67	49
7/16-14	43	32	67	49	95	70
7/16-20	49	36	75	55	105	78
1/2-13	66	49	105	76	145	105
1/2-20	75	55	115	85	165	120
9/16-12	95	70	150	110	210	155
9/16-18	105	79	165	120	235	170
5/8-11	130	97	205	150	285	210
5/8-18	150	110	230	170	325	240
3/4-10	235	170	360	265	510	375
3/4-16	260	190	405	295	570	420
7/8-9	225	165	585	430	820	605
7/8-14	250	185	640	475	905	670
1-8	340	250	875	645	1230	910
1-12	370	275	955	705	1350	995
1 1/8-7	480	355	1080	795	1750	1290
1 1/8-12	540	395	1210	890	1960	1440
1 1/4-7	680	500	1520	1120	2460	1820
1 1/4-12	750	555	1680	1240	2730	2010
1 3/8-6	890	655	1990	1470	3230	2380
1 3/8-12	1010	745	2270	1670	3680	2710
1 1/2-6	1180	870	2640	1950	4290	3160
1 1/2-12	1330	980	2970	2190	4820	3560

Bolt Size mm x pitch ^c	Bolt Head Identification					
	Class 5.8		Class 8.8		Class 10.9	
	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

a. in-tpi = nominal thread diameter in inches-threads per inch

b. N·m = newton-meters

c. mm x pitch = nominal thread diameter in mm x thread pitch

d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

25199

Tire Inflation Chart	
Tire Size	Inflation
12.5L-15 8-Ply	60 psi 248 kPa

Hydraulic Fittings Torque Values		
Fitting Size	ft-lbs	N-m
9/16 inch JIC	18-20	24-27
9/16 inch ORB w/jam nut	12-16	16-22
9/16 inch ORB straight	18-24	24-32
3/4 inch JIC	27-39	37-53
3/4 inch ORB w/jam nut	20-30	27-41
3/4 inch ORB straight	27-43	37-58



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