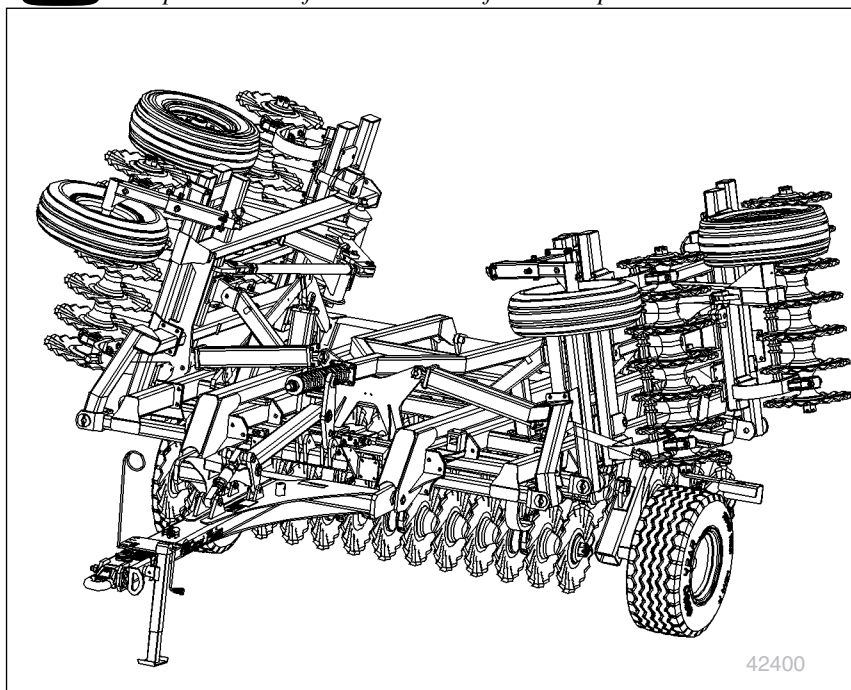


Operator Manual

1200TM, 1500TM, 1800TM,
2400TM, 3000TM, 3500TM & 4000TM
Turbo Max



Read the operator's 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!



Illustrations may show optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS



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Printed 2012-10-30

586-288M



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Printed in the United States of America

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.*



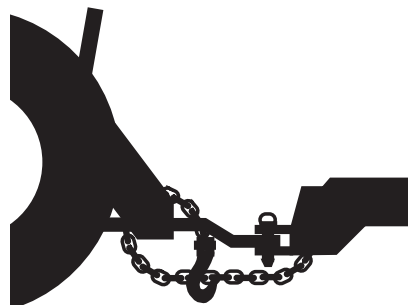
Be Familiar with Safety Decals

- ▲ *Read and understand “Safety Decals” on page 5, thoroughly.*
- ▲ *Read all instructions noted on the decals.*
- ▲ *Keep decals clean. Replace damaged, faded and illegible decals.*



Use Safety Chains

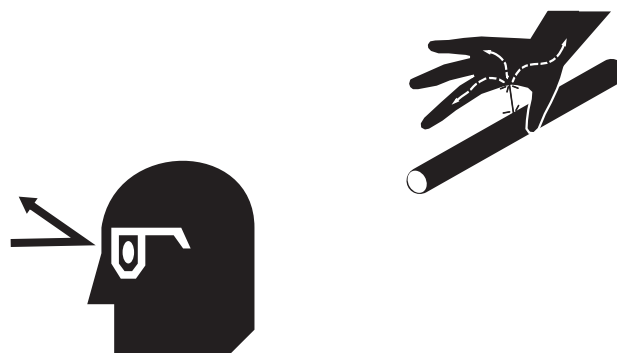
- ▲ *Use safety chains to help control drawn machinery should it separate from tractor draw-bar or trailing nurse tank hitch.*
- ▲ *Use chain with a strength rating equal to or greater than the gross weight of towed machinery.*
- ▲ *Attach implement chain to tractor draw-bar support or specified anchor location. Allow only enough slack in chain for turns.*
- ▲ *Replace chain if any links or end fittings are broken, stretched or damaged.*
- ▲ *Do not use safety chain for towing.*



Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury. This Turbo Max requires a Power-Beyond port, which is always under pressure when the tractor is running.

- ▲ *Avoid the hazard by relieving pressure at other remote, and shutting down tractor before connecting, disconnecting or inspecting 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.*



Keep Riders Off Machinery

Riders obstruct the operator's view. Riders could be struck by foreign objects or thrown from the machine.

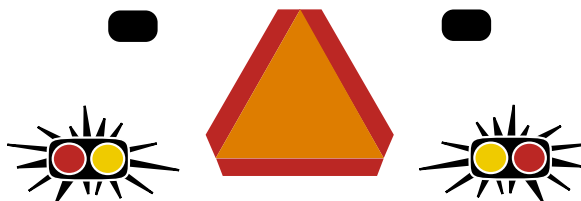
- ▲ *Never allow children to operate equipment.*
- ▲ *Keep all bystanders away from machine during operation.*



Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.

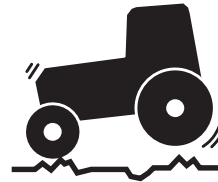
- ▲ *Use flashing warning lights and turn signals whenever driving on public roads.*
- ▲ *Use lights and devices provided with implement.*



Transport Machinery Safely

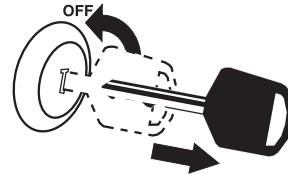
Maximum transport speed for implement is 20 mph (32 kph), 13 mph (22 kph) in turns. Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

- ▲ *Do not tow an implement or nurse tank that weighs more than 1.5 times the weight of towing vehicle.*
- ▲ *Carry reflectors or flags to mark Turbo Max in case of breakdown on the road.*
- ▲ *Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “**Turbo Max Specifications and Capacities**” on page 37.*
- ▲ *Do not exceed 20 mph. 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.*
- ▲ *Reduce speed on rough roads.*
- ▲ *Comply with national, regional and local laws.*
- ▲ *Do not fold or unfold the Turbo Max while the tractor is moving.*



Shutdown and Storage

- ▲ *Lower Turbo Max, put tractor in park, turn off engine, and remove the key.*
- ▲ *Secure Turbo Max using parking jack provided.*
- ▲ *Detach and store Turbo Max in an area where children normally do not play.*



Tire Safety

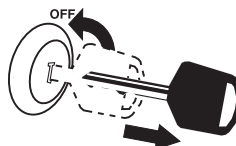
Tire changing can be dangerous. Employ trained personnel using correct tools and equipment.

- ▲ *When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.*
- ▲ *When removing and installing wheels, use wheel-handling equipment adequate for weight involved.*



Practice Safe Maintenance

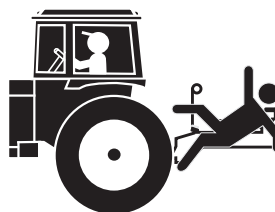
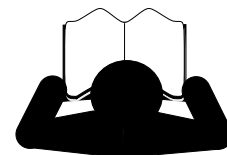
- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Lower implement, put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all moving parts have stopped and all system pressure is relieved.*
- ▲ *Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on Turbo Max.*
- ▲ *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 implement before operation.*



Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.

- ▲ *Be familiar with all Turbo Max functions.*
- ▲ *Operate machinery from the driver's seat only.*
- ▲ *Do not leave Turbo Max unattended with tractor engine running.*
- ▲ *Do not stand between tractor and implement, or implement and nurse tank, during hitching.*
- ▲ *Keep hands, feet and clothing away from power-driven parts.*
- ▲ *Wear snug-fitting clothing to avoid entanglement with moving parts.*
- ▲ *Watch out for wires, trees, etc., when folding and raising Turbo Max. Make sure all persons are clear of working*



Safety Decals

Safety Reflectors and Decals

Your implement comes equipped with all lights, safety reflectors and decals in place. They were designed to help you safely operate your implement.

- ▲ *Read and follow decal directions.*
- ▲ *Keep lights in operating condition.*
- ▲ *Keep all safety decals clean and legible.*
- ▲ *Replace all damaged or missing decals. Order new decals from your Great Plains dealer. Refer to this section for*

proper decal placement.

- ▲ *When ordering new parts or components, also request corresponding safety decals.*

To install new decals:

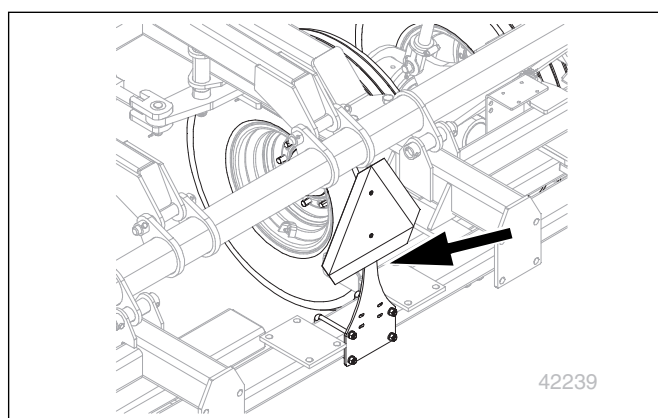
1. Clean the area on which the decal is to be placed.
2. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

Models 1200-3000



818-055C Slow Moving Vehicle Reflector

On the back of smv bracket, rear tube of center frame;
1 total

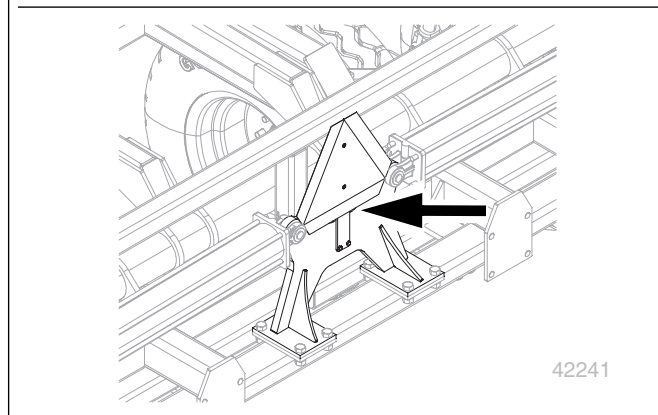


Models 3500-4000



818-055C Slow Moving Vehicle Reflector

On the back of smv post, rear of rear fold bracket;
1 total



Models 1200-3000

**838-615C
Amber Reflectors**

Two on front of light brackets. Two on outside of center brace bar. Two on side of center frame. Two on rear of finishing attachment (not shown), visible from side while folded for transport; 8 total

Models 3500-4000

**838-615C
Amber Reflectors**

Two on front of front light brackets. Two on outside of center brace bar. Two on side of center frame. Two on rear of finishing attachment (not shown), visible from side while folded for transport; 8 total

Models 1200-3000 total

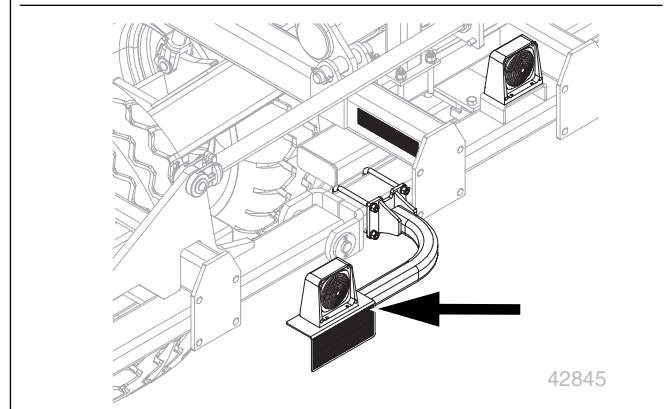
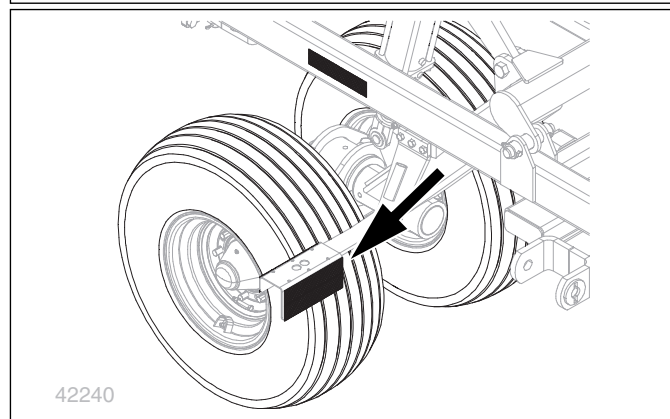
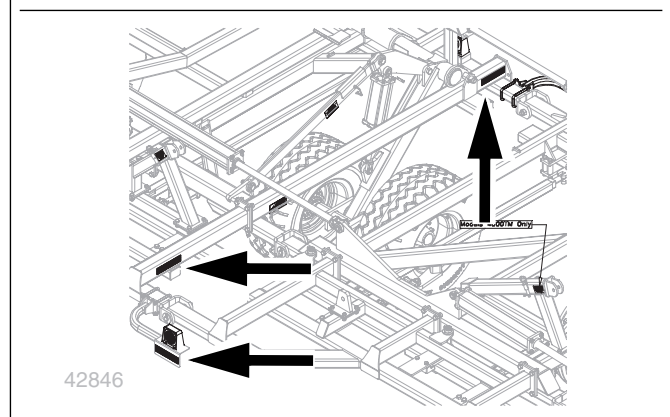
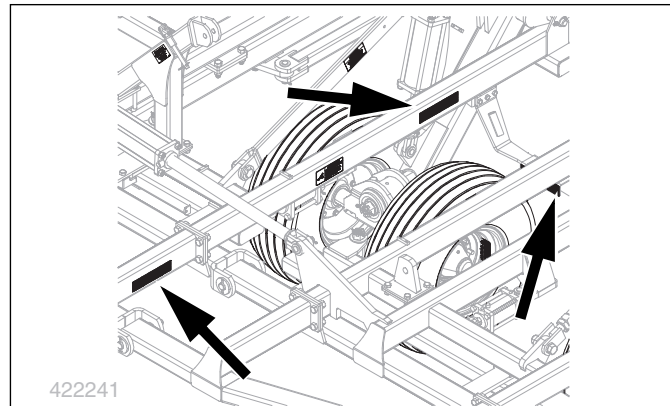
**838-614C
Red Reflectors**

On rear of light brackets (top); 2 total

Models 3500-4000

**838-614C
Red Reflectors**

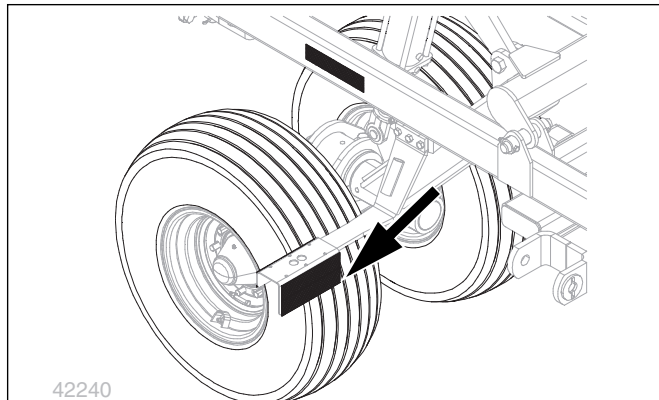
On rear of light brackets (top); 2 total



Models 1200-3000

**838-603C
Orange Reflectors**

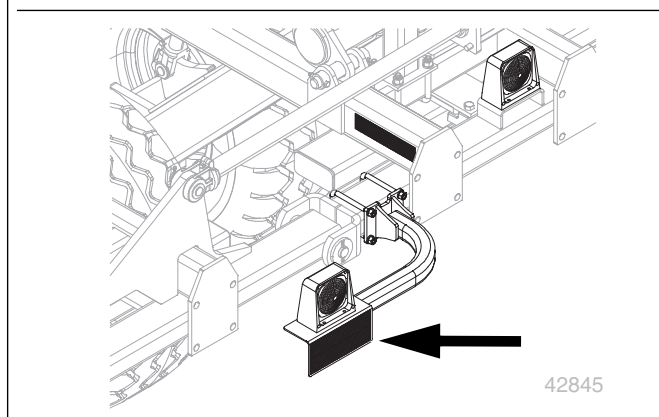
On rear of light brackets
(bottom);
2 total



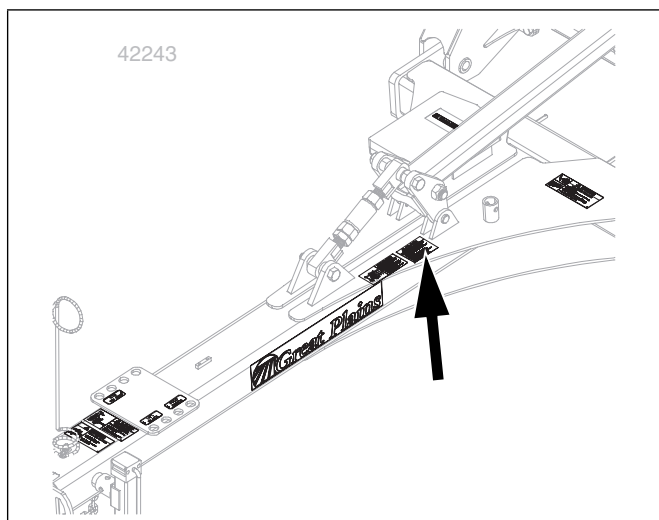
Models 3500-4000

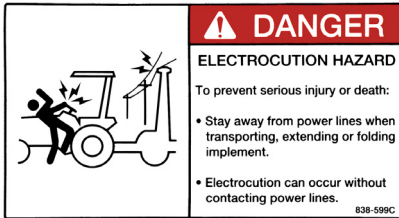
**838-603C
Orange Reflectors**

On rear of light brackets
(bottom);
2 total

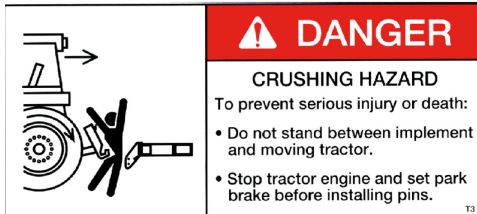
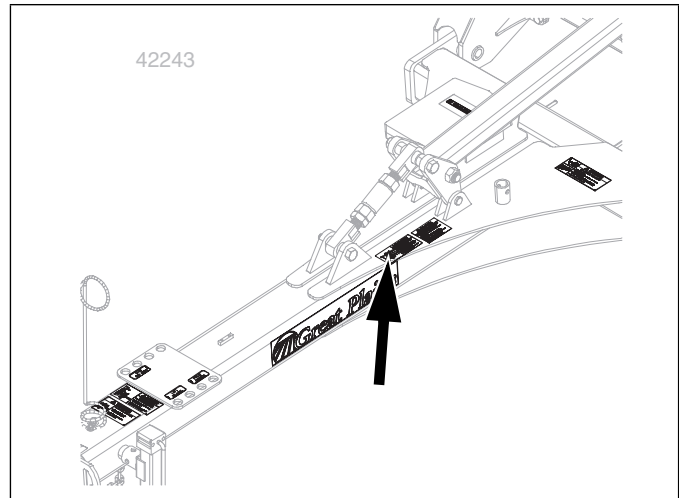
**838-598C
Caution: Read Operator's Manual**

On middle of hitch;
1 total

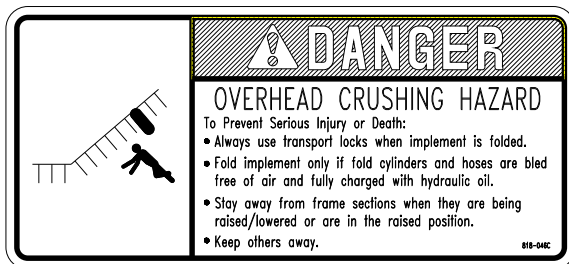
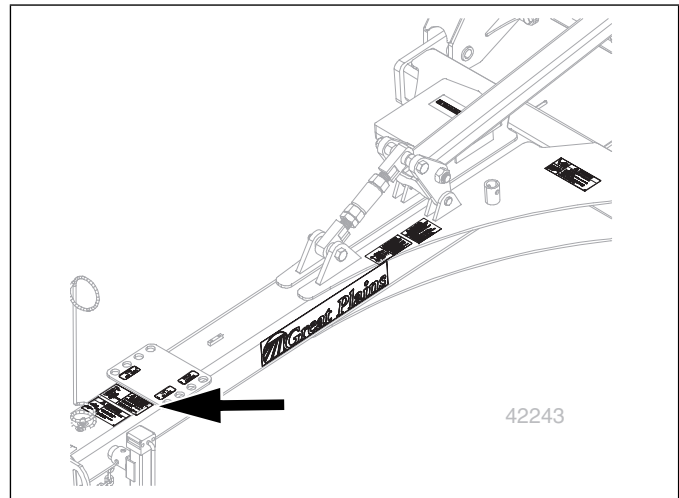


**838-599C****Danger: Electrocution Hazard**

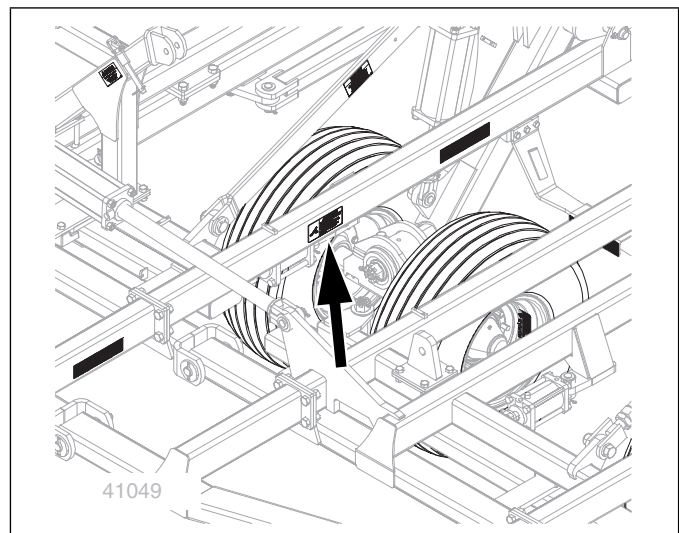
On middle of hitch;
1 total

**838-600C****Danger: Crushing Hazard**

On Front of hitch;
1 total

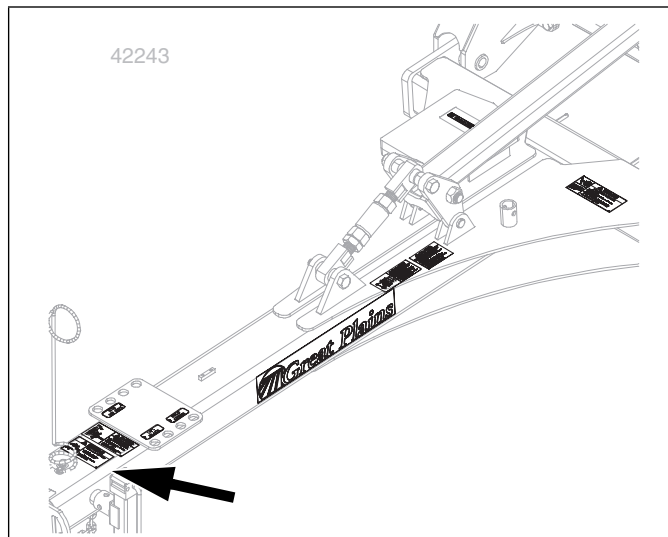
**818-046C****Danger: Overhead Crushing Hazard**

Outside, center of center frame (both sides);
2 total

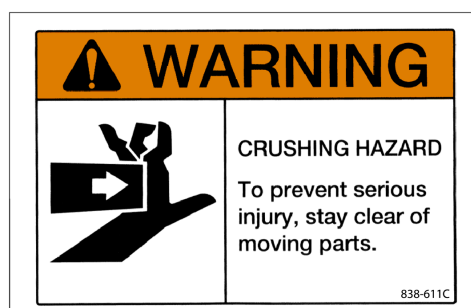
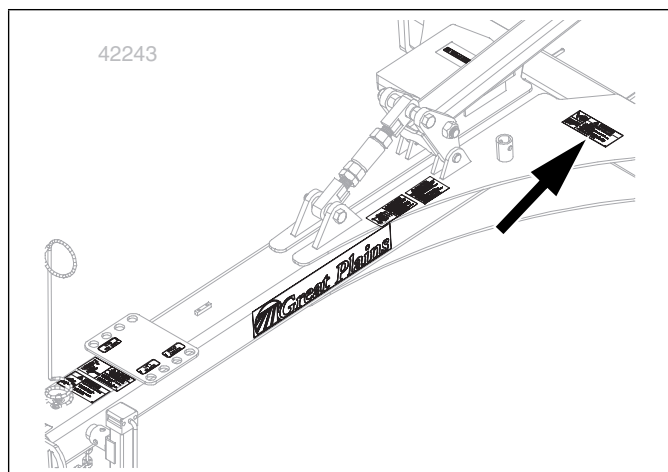


**838-606C****Warning: Tongue Rising**

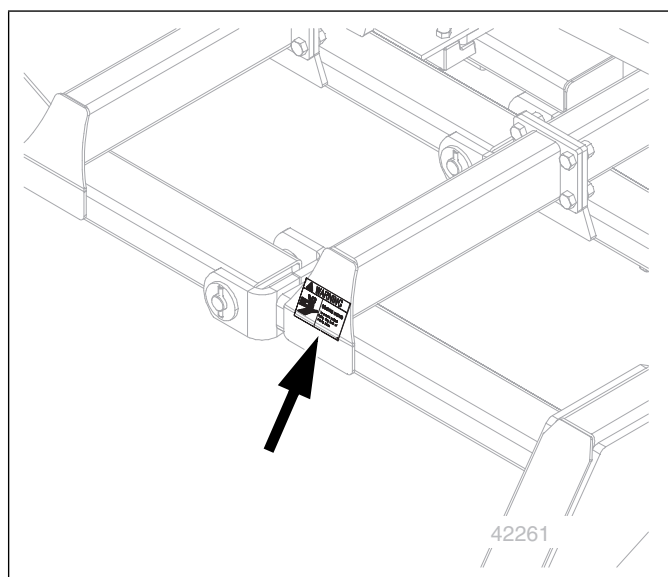
On front of hitch;
1 total

**838-094C****Warning: High Pressure Fluid**

On rear of hitch;
1 total

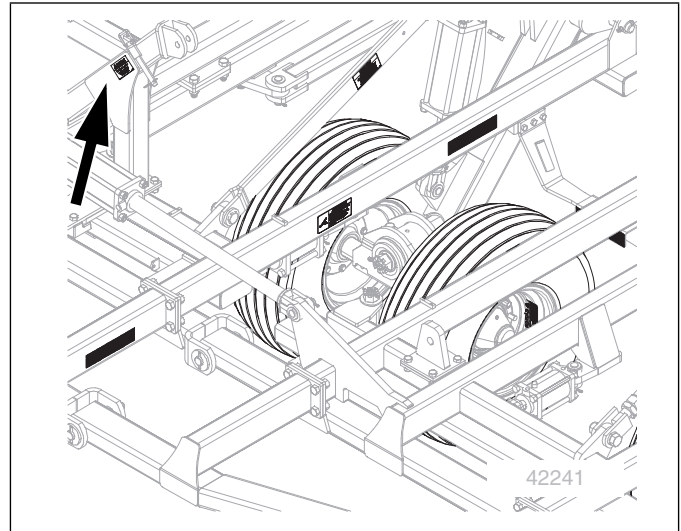
**838-611C****Warning: Hand Crushing**

Front side of center brace bar (right);
1 total

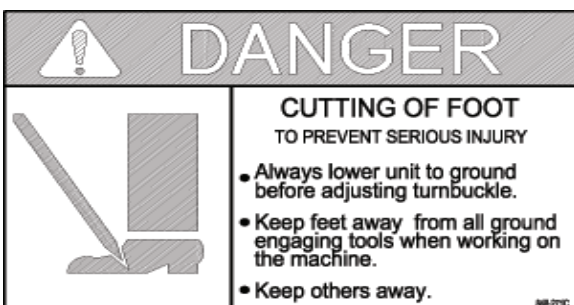
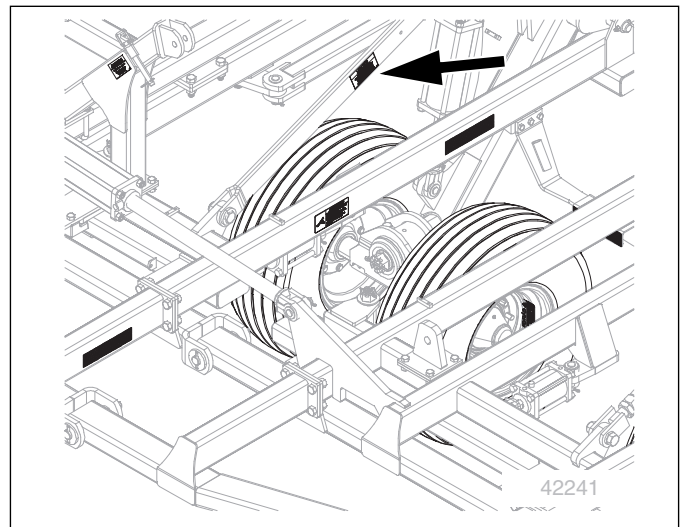


**838-612C****Warning: Wings Could Fall**

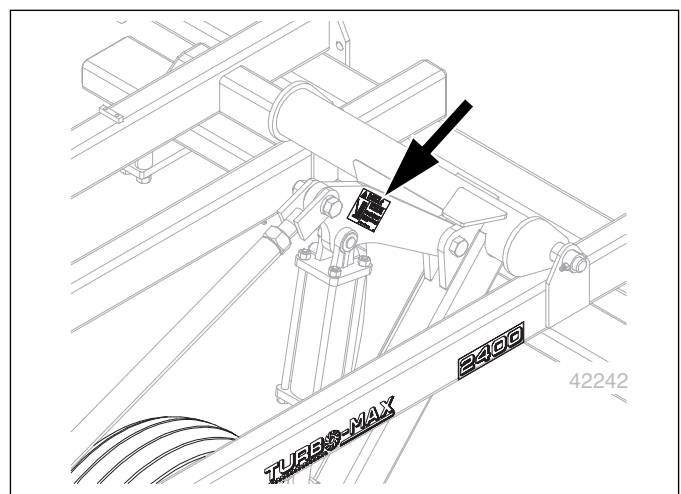
Front side of wing stops (both sides);
2 total, Models 1800-3500
4 total, Models 4000

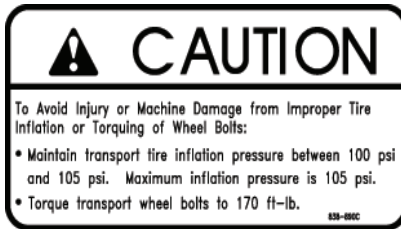
**838-613C****Notice: Transport Lock**

Outside of lift straps (both sides);
2 total, Models 1800-3500
4 total, Models 4000

**848-271C****Danger: Cutting Of Foot**

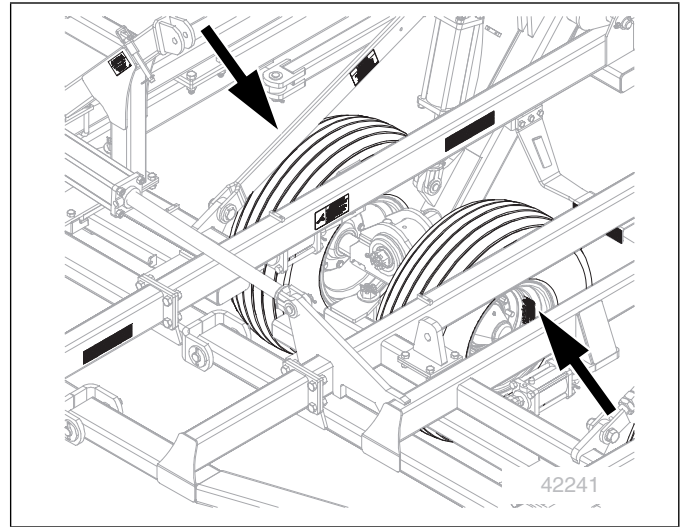
Outside of wing cylinder mount plates (both sides);
2 total, Models 1800-3500
4 total, Models 4000



**838-890C****Caution: Tire Pressure**

On all center transport wheels by valve stem

Models 2400TM;
4 total





Introduction

Great Plains welcomes you to our growing family of new product owners. The Turbo Max has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use from the machine.

Models Covered

1200TM	12' (7.5in) spacing
1500TM	15' (7.5in) spacing
1800TM	18' (7.5in) spacing
2400TM	24' (7.5in) spacing
3000TM	30' (7.5in) spacing
3500TM	35' (7.5in) spacing
4000TM	40' (7.5in) spacing

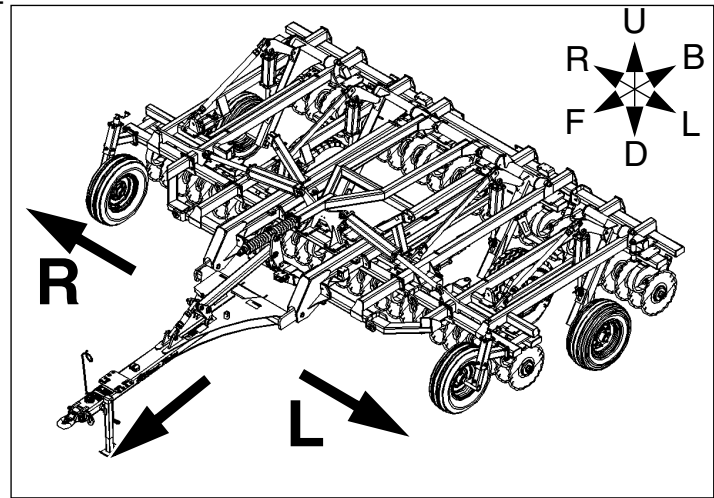


Figure 1
1800TM Turbo Max

42399

Description of Unit

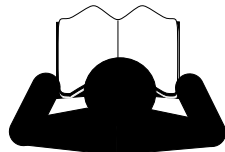
The 1200-4000TM Turbo Max is a one, three or five section "vertical" tillage tool. Working width ranges from 12 to 40 feet. The implement is designed to cut and size residue, till soil for faster seedbed warming, break up soil crust on hard dried fields while eliminating compaction layers. The front and rear gangs may be adjusted from 0-6 degree angle, depending on the aggressiveness desired. Various finishing attachments are also available to further smooth, redistribute residue, kill weeds, and break clods.

Document Family

586-288Q	Pre-Delivery Manual
586-288M	Operator Manual (this document)
586-288P	Parts Manual

Using This Manual

This manual will familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.



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

Definitions

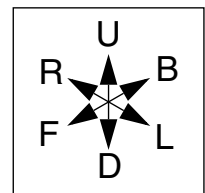
The following terms are used throughout this manual.

NOTICE

A crucial point of information related to the preceding topic. Read and follow the directions to remain safe, avoid serious damage to equipment and ensure desired field results.

Note: Useful information related to the preceding topic.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose in some line art illustrations shows the directions of: Up, Back, Left, Down, Front, Right.



Owner Assistance

If you need customer service or repair parts, contact a Great Plains dealer. They have trained personnel, repair parts and equipment specially designed for Great Plains products.

Refer to Figure 2

Your machine's parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the front of the left truss.

Record your Turbo Max model and serial number here for quick reference:

Model Number: _____

Serial Number: _____

Your Great Plains dealer wants you to be satisfied with your new machine. If you do not understand any part of this manual or are not satisfied with the service received, please take the following actions.

1. Discuss the matter with your dealership service manager. Make sure they are aware of any problems so they can assist you.
2. If you are still unsatisfied, seek out the owner or general manager of the dealership.

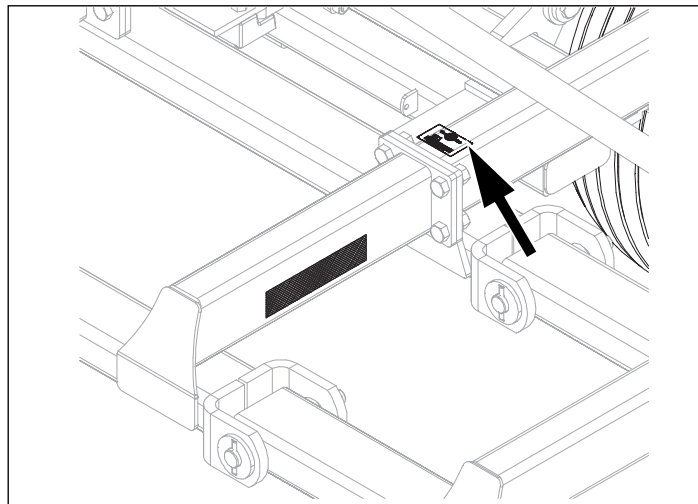


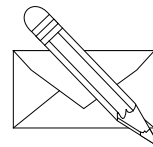
Figure 2
Serial Number Plate

42238

For further assistance write to:

Product Support

Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060



gp_web_cs@greatplainsmfg.com

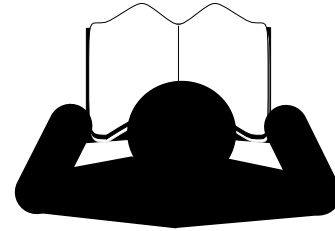
(800)255-9215



Preparation and Setup

This section helps you prepare your tractor and Turbo Max for use, and covers tasks that need to be done seasonally, or when the tractor/Turbo Max configuration changes.

Before using the Turbo Max in the field, you must hitch it to a suitable tractor, inspect systems and level the Turbo Max. Before using the Turbo Max for the first time, and periodically thereafter, certain adjustments and calibrations are required.



Prior to Going to the Field Checklist

Complete this checklist before routine setup:

- ☐ Read and understand “**Important Safety Information**” on page 1.
- ☐ Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- ☐ Make sure your tractor horsepower matches the implement you are pulling. This is important so the implement can do the best possible job.
- ☐ Clean all hydraulic couplings and connect to tractor, see “**Hydraulic Hose Hookup**” on page 16.
- ☐ If machine is folded, remove the transport pins from wing stops and open wing lock valve. (DO NOT remove pins if the wing is leaning against the pins or putting pressure on the pins. Use the hydraulics to pull the wings in completely before unpinning them.) Once the pins are removed, slowly unfold the unit. Make sure no one is under the wings during the unfolding process.
- ☐ Check again for hydraulic leaks and watch that hoses do not get pinched in hinges, wing stops, etc.
- ☐ After the machine is completely unfolded, raise and lower the Turbo Max several times to purge air from the hydraulic system. Again check for hydraulic leaks and tighten or replace if necessary.
- ☐ Check safety chain hookup. Make sure all warning lights are hooked up and functioning correctly.
- ☐ Check that all grease fittings are in place and lubricated. See “**Lubrication**” on page 35. The hubs will come pre-greased and will not need greased at this time.
- ☐ Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “**Safety Decals**” on page 5.
- ☐ Inflate tires to pressure recommended and tighten wheel bolts as specified. See “**Tire Inflation Chart**” on page 38.
- ☐ Put transport locks in place, and refold the machine slowly. Put wing stop pins in place and close wing lock valve. Always use the transport pins when moving from field to field. You are now ready to go to the field.

Hitching Turbo Max to Tractor

Hitch to a tractor for highway transport or field operations. Hitch to a leading implement only for field operations. Do not transport behind another implement.

Before hitching, check the compatibility and capability of the towing tractor or implement:

- The 1200-4000TM Turbo Max is a pull-type implement equipped with a standard Category IV single tang hitch. It may be converted to a Category III or clevis hitch using supplied accessory parts, see “**Clevis Hitch**” on page 17.

To prevent soil compaction on rows, set tractor wheels between rows. For hillsides and steep slopes, set tractor wheels as wide as possible for maximum stability.

1. Raise tractor three-point arms (if equipped) clear up to clear Turbo Max.
2. For TWO-WHEEL DRIVE and MFWD tractors, pin drawbar in fixed center position for field and transport. For FOUR-WHEEL DRIVE and TRAC-DRIVE tractors, leave one hole clearance on each side of drawbar for field position, hitch damage may occur if pinned solid. Pin in center position for transport to maintain maximum steering control.

Refer to Figure 3

3. Use jack ① to raise and lower turbo max tongue.
4. Back tractor draw bar into alignment with hitch ②.
5. Secure with a locking hitch pin.
6. Secure safety chain ③ to an anchor on the tractor.

CAUTION

Negative Tongue Weight Hazard:

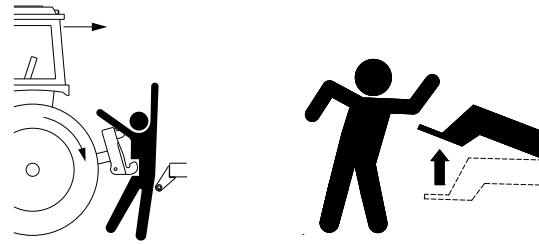
Make certain that turbo max is securely hitched to the tractor or leading implement before unfolding. An unhitched turbo max can tip over backwards during folding and unfolding if the tongue is not secured.

Refer to Figure 4

7. Retract jack foot. Re-orient jack to storage position.
8. After hitching tractor to turbo max, store jack on storage stob ④ on Turbo Max tongue.

Load Sway Hazard:

9. Lock drawbar swing to center position to minimize any side-to-side sway to assure proper tracking in the field, and safe road travel. See “**Transport**” on page 28, for safe transporting.



! DANGER

Crushing Hazard:

Do not stand or place any body part between turbo max and moving tractor. You may be severely injured or killed by being crushed between the tractor and turbo max. Stop tractor engine and set parking brake before attaching cables and hoses.

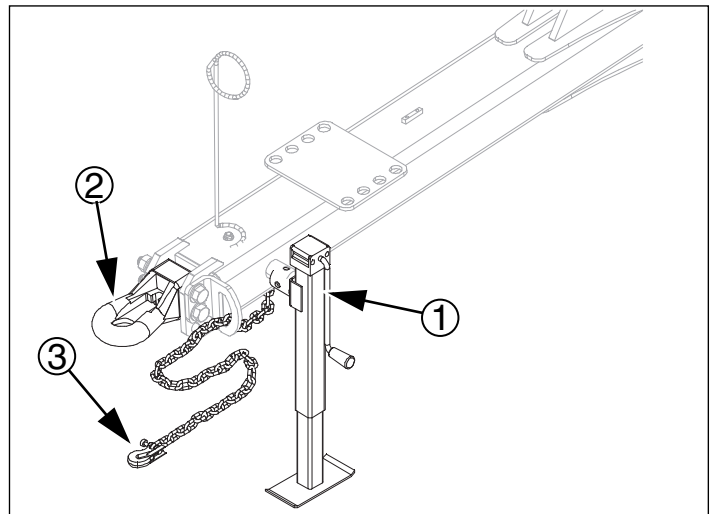


Figure 3
Jack & Hitch Clevis

42244

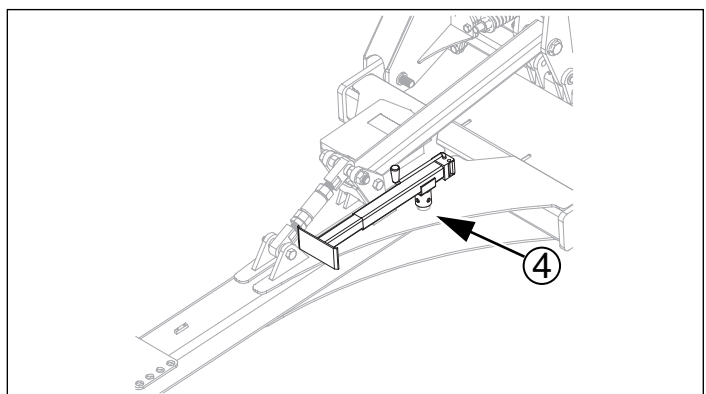


Figure 4
Jack in Storage

42262

Electrical Hookup

Refer to Figure 5

Your Turbo Max is equipped with North American Lights.

Plug the lighting connector into the tractor outlet.

Test the lights and signaling prior to highway movement.

Hydraulic Hose Hookup

Great Plains hydraulic hoses are color coded to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

Color	Hydraulic Function
Black	Lift (2 hoses)
Green	Fold (2 hoses)
Red	Gang Adjustment (2 hoses)



High Pressure Fluid Hazard:

Shut down tractor before making hydraulic connections.

Only trained personnel should work with system hydraulics.

Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.

Use paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

Refer to Figure 6

To distinguish hoses on the same hydraulic circuit, refer to hose label.

- The hose with an extended-cylinder symbol feeds a cylinder base end.
- The hose with a retracted-cylinder symbol feeds a cylinder rod end.

Secure hoses and cables so that they have sufficient slack for hitch movements, but cannot get caught between moving parts of tractor, turbo max or hitch. Failure to safely route and secure hoses and cables could result in damage requiring component repair/replacement, and lost field time.

Clean all hydraulic couplings and hook hoses to tractor.

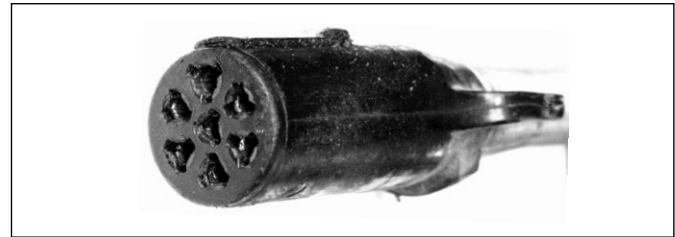


Figure 5
North American Connector

25236

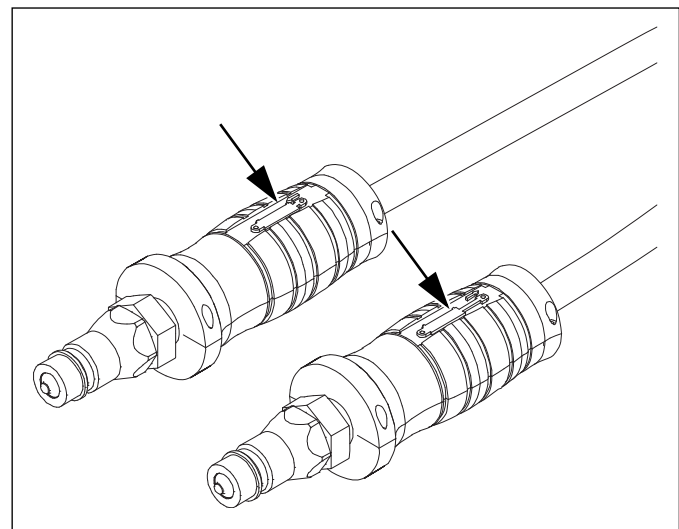
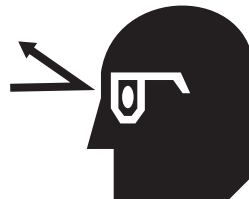


Figure 6
Hose Handles

31733

Clevis Hitch

Refer to Figure 7

The base hitch must be upright (with the recessed notch on the bottom) for this configuration. This places the tongue weight on the base hitch, and not the clevis.

1. Select one each:
 ⑧② 890-798C HITCH CLEVIS
 ④⑧ 802-487C HHCS 3/4-10X6 GR8
 ⑥② 803-367C NUT HEX TOP LOCK 3/4-10 PLT
2. With the square-shouldered end of the clevis ⑧② up, fully seat the clevis in the upright base hitch ⑧③. Insert the Grade 8 bolt ④⑧ from below. Secure with lock nut ⑥②.

⚠ CAUTION

Hitch Failure Hazard:

Install the hitch base and assemble the clevis parts as shown. Incorrect installation or assembly may result in failure of the clevis bolt, leading to hitch failure. This could result in a serious highway accident or severe machine damage.

Category III Hitch

The base hitch must be inverted (with the recessed notch on the top) for this configuration. Set the V-block ⑧⑦ to allow some vertical articulation of the draw bar pin. Always use at least one cushion ⑧⑧.

1. Select one each:
 ⑧⑨ PPI-302V TOP PLATE - CAT 3
 ⑧⑦ PPI-203VR V-BLOCK
 ④⑦ 802-383C HHCS 3/4-10X3 GR5
 and two:
 ⑧⑧ PPI-205H CUSHION
2. Set the cushions ⑧⑧ inside the hitch recess, just forward of the vertical bolt hole. Position the V-block ⑧⑦ forward of the cushions and check the size of the resulting pinning hole. Remove a cushion if needed.
3. Add the top plate ⑧⑨. Secure from below with Grade 5 bolt ④⑦.

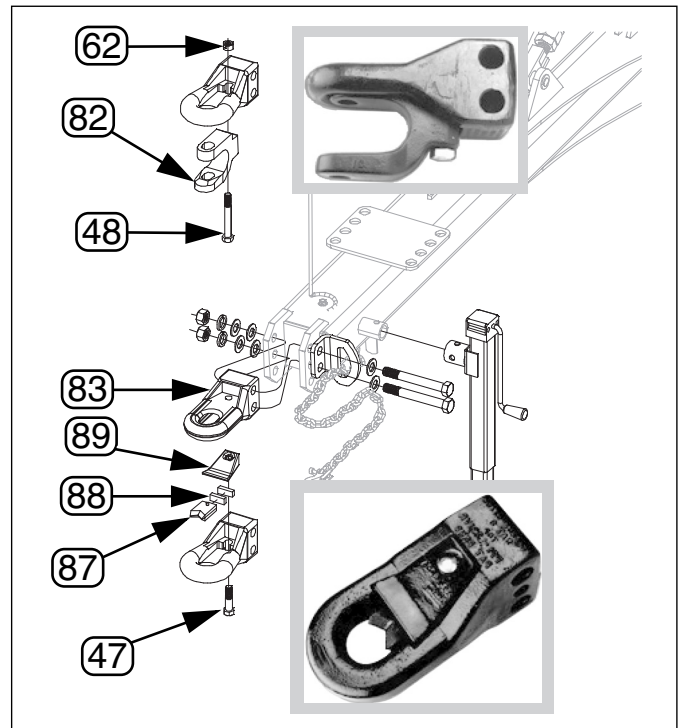


Figure 7
Configure Hitch

31740
42245
31741

Transport Locks

Refer to Figure 8

4. Once the cylinders are connected, raise the unit completely. If the transport locks ① are in place on cylinders ②, remove them at this time.
5. Store the transport locks ① in hole of the lift mechanism link ③.

Note: Always use transport locks and wing fold pins when transporting.

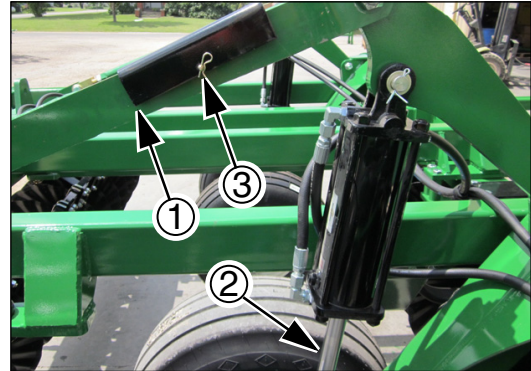


Figure 8
Transport Locks

42066

Wing Fold

Refer to Figure 9

6. If wing stop pins ① are installed remove pins from wing stop clevis ②.
7. Install pin in storage tube ③ on wing stop.

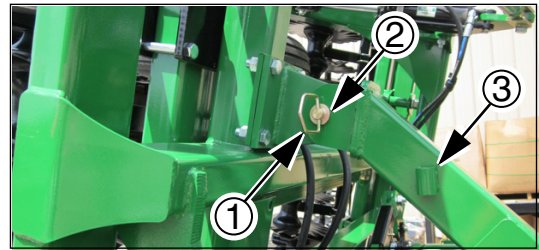


Figure 9
Wing Fold Pins

42249

Refer to Figure 10

Note: The wing locking valve ④ is located on the center brace bar close to the depth control valve (Models 1800-3000) or on the bypass/down pressure valve (Models 3500-4000) to prevent wing movement during transport and maintenance. The valve is shown with the handle ⑤ in the open position. To close the locking valve ④, turn handle ⑤ 90 degrees, to keep wings from un-folding.

8. Once the transport locks, wing stop pins are removed and wing fold valve is in the open position (as shown), unfold the wings (if folding unit).

Note: Make sure no one is under the wings during the unfolding process. Watch for leaks and make sure hoses do not get pinched during the initial unfolding process.

9. Once the machine is unfolded, raise and lower the machine several times to purge air from the lift system. Again, watch for any leaks and tighten if necessary.

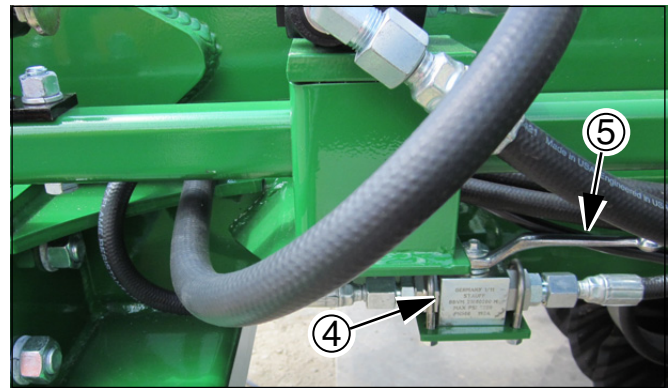


Figure 10
Wing Lock Valve

42259

Pre-Leveling of Machine

Note: Pre-leveling of machine should be done on a good level surface.

Front to Rear Leveling

Refer to Figure 11

10. Lower machine so front coulters are 1-2" off of ground. Loosen jam nut ① with turnbuckle wrench ② (stored on rear pegs of hitch). Adjust the turnbuckle ③ at the front of machine to level it front to back. (Shorten to bring front down, extend to bring front up).
11. When the front coulters are the same distance off ground as rear coulters retighten jam nut ①.

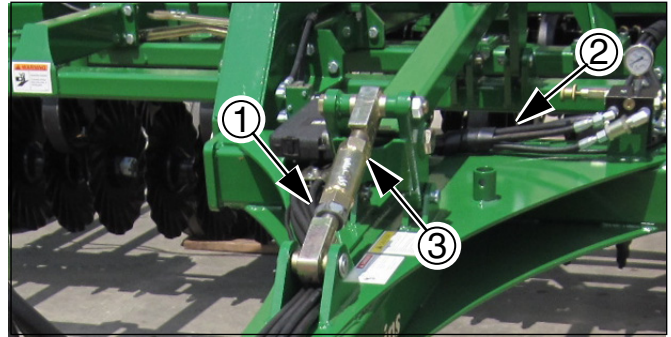


Figure 11
Hitch Turnbuckle Adjustment

42260

Level Bar Spring Adjustment

Refer to Figure 12

12. To adjust the level bar spring assembly ① to the preset position of 26 5/8", loosen 1 1/2 jam nut ② with turnbuckle wrench (stored on rear pegs of hitch).
13. Adjust the 1 1/2 nut ③ until the 26 5/8" dimension is reached between backside of spring guide ④ and front side of level bar spring rod plate ⑤.
14. Re-tighten the 1 1/2 jam nut ② to secure.

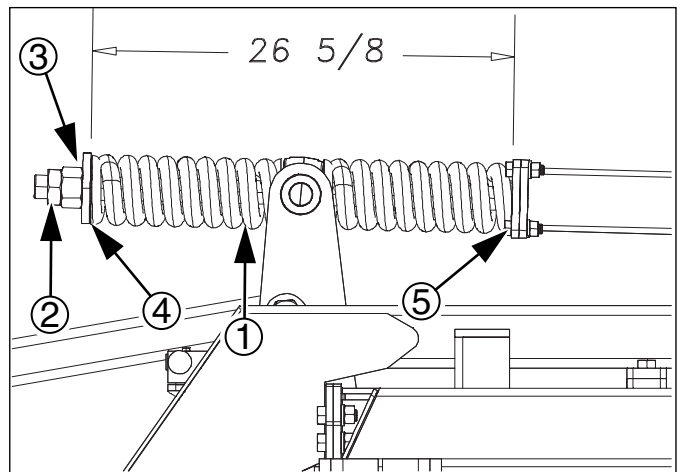


Figure 12
Level Bar Spring

42412

Wing Adjustment

Refer to Figure 13

15. Once the machine is level fore to aft, the wings may be leveled. Start by unfolding the wings. Lower the lift cylinders down until coulters are 1-2" off of ground, both center and wings.
16. Set the wings to match the depth of the center. Start by loosening jam nut ① with turnbuckle wrench (stored on rear pegs of hitch). Turn the turnbuckle ② to adjust. (Shorten turnbuckle to run shallower, lengthen to run deeper), see *Refer to Figure 14* or *Refer to Figure 15*, for pre-setting the turnbuckles.

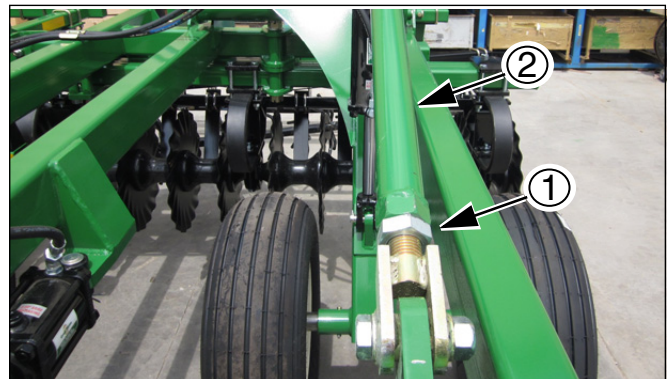


Figure 13
Wing Adjustment

42247

Wing Turnbuckle 586-295S

Refer to Figure 14

17. Models 1800-3000 and 4000 (outer wing), the wing turnbuckle ② should be pre-set at $45\frac{3}{4}$ " as shown.

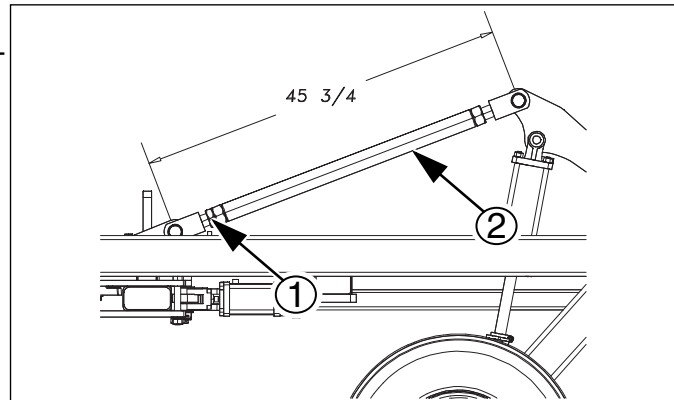


Figure 14
Wing Turnbuckle 586-295S

42395

Wing Turnbuckle 586-446S

Refer to Figure 15

18. Models 3500-4000, the wing turnbuckle ② should be pre-set at $40\frac{3}{8}$ " as shown.
19. Once machine is leveled side to side, any further adjustment in the field should be done with the hydraulic down pressure.
20. If running gangs at an angle and the wings are going too deep, then you should not run down pressure at all. Switch hydraulic to the float position.

Note: If wings are running too high, increase hydraulic down pressure setting, too low, decrease down pressure setting. See "Hydraulic Down Pressure 1800-3000" on page 23, "Hydraulic Down Pressure 3500" on page 24 or "Hydraulic Down Pressure 4000" on page 25 for initial setup and operation.

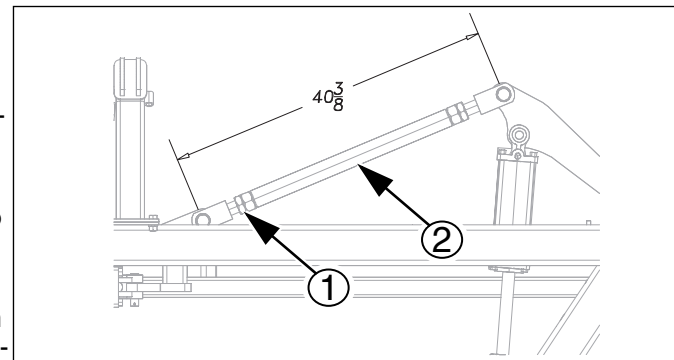


Figure 15
Wing Turnbuckle 586-446S

42395

Gang Angle Adjustment

Refer to Figure 16

Note: Check gang angle adjustment when machine is new and annually after, as wear may occur

21. With front gang adjusting cylinders ① in the full retract position the gang bar ② should be $\frac{1}{8}$ " from tubes ③.
22. If gang bar ② is not $\frac{1}{8}$ " from tubes ③ loosen allen screw ④ on clevis on rod end of cylinder (there are two flat spots on rod to get wrench on to adjust) and shorten cylinder rod ⑤ by turning cylinder rod to bring gang bar closer and lengthen clevis to lengthen to get cylinder to retract all the way.
23. Re-tighten allen screw ④ when adjustment is made.

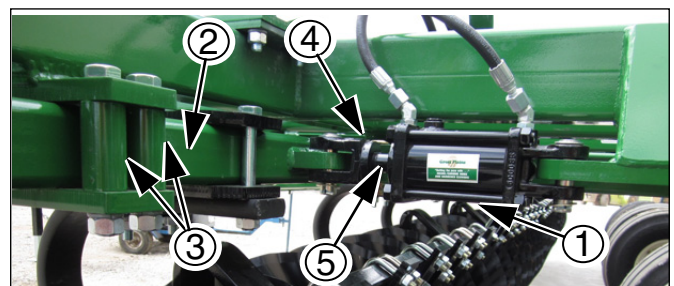


Figure 16
Front Gang Angle Adjustment

42251

Refer to Figure 17 and Refer to Figure 18

Note: Note the two different turnbuckles used. One has a rocker between two turnbuckles and the other has just one turnbuckle between the front and rear gang bars. They both adjust the same way.

24. When the front gang adjusting cylinders ①, see “**Front Gang Angle Adjustment**” on page 20, have been adjusted and are in the full retract position the rear gang bar ⑥ should be parallel to back frame tube.
25. If rear gang bar ⑥ is not parallel to back frame tube, remove pin ⑦ from turnbuckle end ⑧ and shorten turnbuckle end by turning clevis to bring gang bar closer and lengthen clevis to lengthen to get gang bar to retract all the way.
26. Re-install pin ⑦ when adjustment is made.



Figure 17
Rear Gang Angle Rocker

42252



Figure 18
Rear Gang Angle Straight

42860

Refer to Figure 19

27. When the front and rear gangs are adjusted and gang angle cylinders are fully retracted then the gang angle indicator will need adjusted.
28. Remove bolt ⑨ from either end of gauge link ⑩ and turn threaded end ⑪ until indicator ⑫ reads 0 degrees.
29. Re-install bolt ⑨ to secure gauge link.

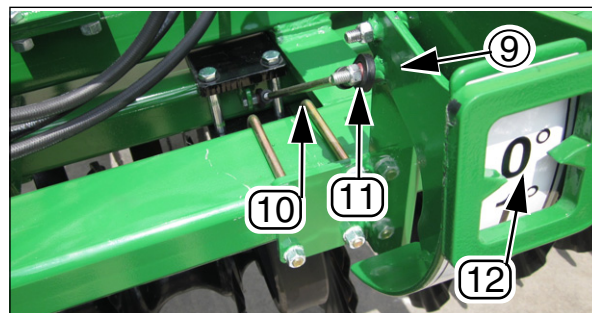


Figure 19
Gang Angle Indicator Adjustment

42253

Wing Fold Assist 3500TM

Refer to Figure 20

Note: Wings need to be folded up when installing and adjusting the wing fold assist to prevent damage to sensor and brackets. The machine will be shipped with sensor rocker LH and RH ① installed. When the proximity sensor bracket ② are installed the adjustment is very critical. See Pre-Delivery manual for proper installation.

30. Adjust the proximity sensor bracket ② 1" from back side of hinge plate to edge of bracket as shown. Tighten nuts on u-bolts ③ to 76 ft-lb.
31. Loosen nuts ④ (one on front and one on back side of sensor bracket ②) adjust the sensor ⑤ to 1/8" to 1/4" away from bracket as shown.
32. Re-tighten nuts ④ to secure sensor ⑤.

Note: In order for the fold assist to work, the electrical connector must be hooked to the tractor. The fold assist will allow the operator to run very low down pressure to the wings and still have ample pressure to the wings and still have ample pressure to untold the unit after transporting to the field.

If the system should fail for any reason, the unit may still be unfolded but the operator may need to close the down pressure valve, thereby increasing the unfold pressure to the wings. The operator may need to reset the pressure for field use.

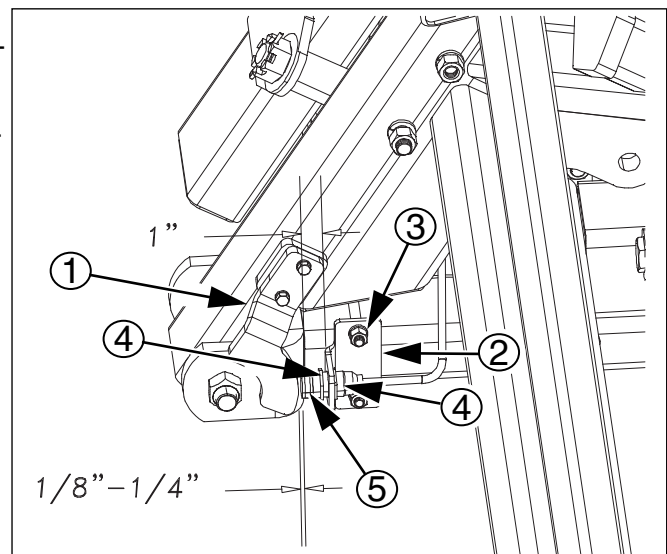


Figure 20
Wing Fold Assist

42862

Hydraulic Down Pressure 1800-3000

Refer to Figure 21

Note: This setup procedure is for tractors with closed-center or pressure compensated flow hydraulic systems. Open center hydraulics not supported. Adjust down pressure valve as shown on decal (located on front of left truss) Refer to Figure 1.

33. Adjust the bypass/pressure reducing valve by turning knob ①, clockwise all the way in and then backing out 1 full turn.

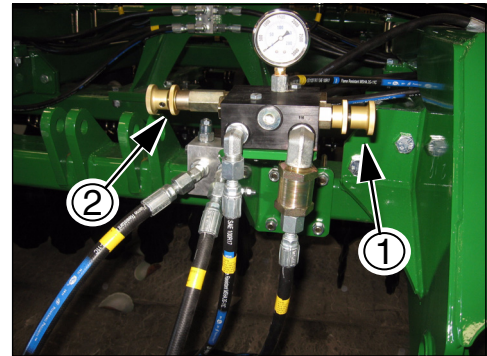


Figure 21
Down Pressure 1800-3000

42255

34. On tractor, adjust flow-control valve to low side of flow rate.

Note: The faster the flow of oil through the system the greater potential for oil heating, premature wear or tractor damage.

35. Lock the fold hydraulic lever for continuous downward oil flow.
36. Adjust bypass/pressure reducing valve knob ② on implement so the pressure gauge reads 1200 psi. Never exceed 1400 psi.
37. While watching pressure gauge, slowly open valve knob ① until gauge reads 1100 psi. Pressure might rise and then fall off as knob is opened. If pressure exceeds 1400 psi during this step, the tractor flow is too high, reduce tractor flow. Lock valve knob ① at 1100 psi.
38. Finally adjust valve ② to the desired wing down pressure setting of 300 to 400 psi. Never exceed 700 psi.
39. In field operation, Lock the fold hydraulic lever for continuous downward oil flow. If wings are running too high, increase pressure setting, knob ②, to level machine. If center is too high, decrease pressure setting with knob ② on valve.

Notice: When operating machine with the blades in angled position it is generally unnecessary to apply wing down pressure. Only in very hard ground will wing down pressure be necessary.

Caution: When not operating with live down pressure the fold system must be in "FLOAT" position. Failure to operate in either float or active down pressure will damage the fold system. See your tractor operator's manual to set system to "FLOAT" position if necessary.

Caution: This machine is designed for continuous hydraulic flow to the wing fold cylinders during field operations. It is for use on tractors having CLOSED CENTER hydraulics only.


TURBO MAX

DOWN PRESSURE VALVE INSTRUCTIONS:

NOTICE: When operating machine with blades in angled position it is generally unnecessary to apply wing down pressure. Only in very hard ground will wing down pressure be necessary.

CAUTION: When not operating with live down pressure the fold system must be in "FLOAT" position. Failure to operate in either float or active down pressure will damage the fold system. See your tractor operator's manual to set system to "FLOAT" position if necessary.

SETTING DOWN PRESSURE VALVE

1. Close short right hand valve (clockwise); open one turn.
2. Set tractor flow rate for fold system to SLOW.
3. Engage hydraulics (continuous flow) down.
4. Adjust long left hand valve to obtain 1200 psi.
5. Adjust right hand valve to 1100 psi; lock valve.
6. Adjust left hand valve to desired down pressure (usually between 300 to 400 psi).
7. If wings run to high, increase pressure.
If center runs high, decrease pressure.
Do not exceed 700 psi.

CAUTION: This machine is designed for continuous hydraulic flow to the wing fold cylinders during field operations. It is for use on tractors having CLOSED CENTER hydraulics only.

848-829C

Figure 1
Down Pressure Decal 1800-3000

848-829C

Hydraulic Down Pressure 3500

Refer to Figure 22

Note: This setup procedure is for tractors with closed-center or pressure compensated flow hydraulic systems. Open center hydraulics not supported. Adjust down pressure valve as shown on decal ① (located on front of left truss) Refer to Figure 23.

40. Engage the hydraulics (continuous flow) down.
41. From the cab, adjust the flow so the needle on the bypass gauge ② is in the green zone 1000-1500PSI.
42. At the valve, adjust the valve ③ to set your initial down pressure ④ (usually 300-400). Do not exceed 800 PSI.

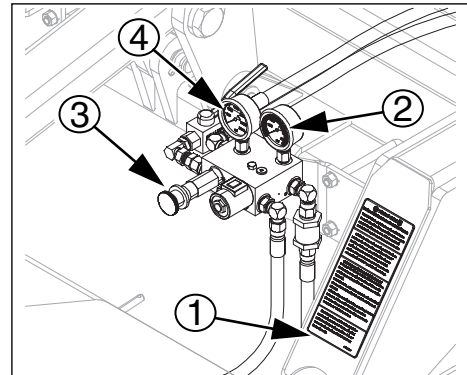


Figure 22
Down Pressure 3500

42865

43. If the wings run high during operation, increase pressure. If the center runs high, decrease pressure. If no pressure is needed, move valve in tractor to "FLOAT" position.

Notice: When operating machine with the blades in angled position it is generally unnecessary to apply wing down pressure. Only in very hard ground will wing down pressure be necessary.

Caution: When not operating with live down pressure the fold system must be in "FLOAT" position. Failure to operate in either float or active down pressure will damage the fold system. See your tractor operator's manual to set system to "FLOAT" position if necessary.

Caution: This machine is designed for continuous hydraulic flow to the wing fold cylinders during field operations. It is for use on tractors having CLOSED CENTER hydraulics only.


TURBO MAX


DOWN PRESSURE VALVE INSTRUCTIONS:

NOTICE: When operating machine with blades in angled position it is generally unnecessary to apply wing down pressure. Only in very hard ground will wing down pressure be necessary.

CAUTION: When not operating with live down pressure the fold system must be in "FLOAT" position. Failure to operate in either float or active down pressure will damage the fold system. See your tractor operator's manual to set system to "FLOAT" position if necessary.

SETTING DOWN PRESSURE VALVE

1. Engage the hydraulics (continuous flow) down.
2. From the cab, adjust the flow so the needle on the bypass gauge is in the green zone 1000 - 1500 PSI.
3. At the valve, adjust the valve to set your initial down pressure (usually 300-400). Do not exceed 800 PSI.
4. If the wings run high during operation, increase pressure. If the center runs high, decrease pressure. If no pressure is needed, move valve in tractor to "FLOAT" position.

CAUTION: This machine is designed for continuous hydraulic flow to the wing fold cylinders during field operations. It is for use on tractors having CLOSED CENTER hydraulics only.

848-972C

Figure 23
Down Pressure Decal 3500

848-972C

Hydraulic Down Pressure 4000

Refer to Figure 24

Note: This setup procedure is for tractors with closed-center or pressure compensated flow hydraulic systems. Open center hydraulics not supported. Adjust down pressure valve as shown on decal ④ (located on front of left side of center frame) *Refer to Figure 25*

44. Close rear valve ① (clockwise); open 1 turn.
45. Set tractor flow rate for fold system to SLOW.
46. Engage hydraulics (continuous flow) down.
47. Adjust front valves ② and ③ to obtain 1200 psi each.
48. Adjust rear valve ① to 1100 psi; lock valve.
49. Adjust front valves to desired down pressure 300-800 psi inside wings-left valve ② and 200-500 psi outer wings-right valve ③.
50. If wings run too high, increase pressure. If center runs high, decrease pressure,
51. Do not exceed 1000 psi.

Notice: When operating machine with the blades in angled position it is generally unnecessary to apply wing down pressure. Only in very hard ground will wing down pressure be necessary.

Caution: When not operating with live down pressure the fold system must be in "FLOAT" position. Failure to operate in either float or active down pressure will damage the fold system. See your tractor operator's manual to set system to "FLOAT" position if necessary.

Caution: This machine is designed for continuous hydraulic flow to the wing fold cylinders during field operations. It is for use on tractors having CLOSED CENTER hydraulics only.

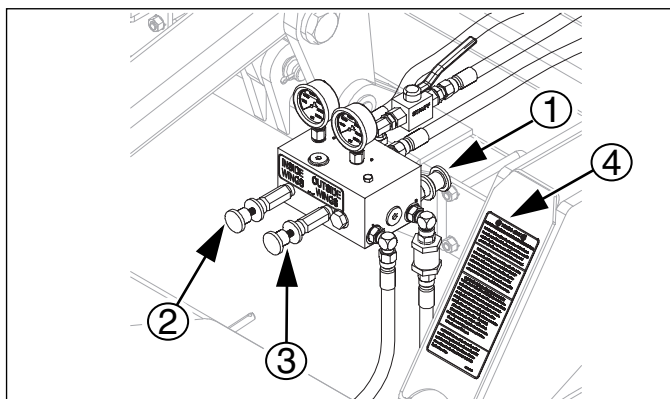


Figure 24
Down Pressure 4000

42944

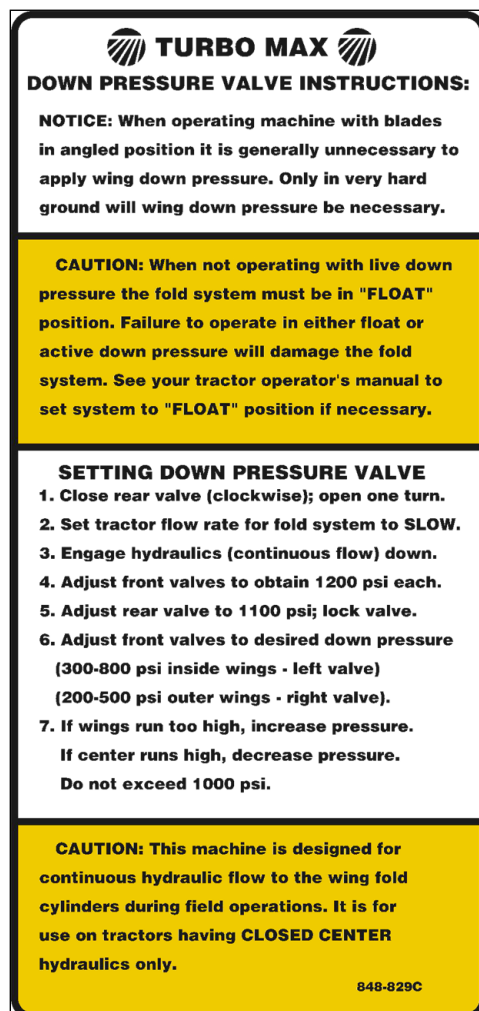


Figure 25
Down Pressure Decal 4000

858-002C

Weight Package Assembly (Optional)

Refer to Figure 26

Caution: Lower machine until coulters are on ground and pressure is off leveling system. Do not add weights to 1800TM unless the rear attachment is removed, as this will exceed the tire rating and could cause severe damage to machine.

Note: Models 3500-4000, all 4 sets of weights must be installed in the rear position behind wing stops. All other models may use up to 4 sets of weights in positions shown.

52. Start by removing the 3/4 x 2 Gr. 8 bolts ① from level bar assembly.
53. Pivot level bar ② up so there will be clearance to set the 750 pound weight assemblies ④ into place.
54. Pivot level bar spring assembly ③ forward.
55. Carefully lower the 750 pound weight assemblies ④ onto center frame trusses ⑤, two on front side of fold cylinders and two on rear side of fold cylinders.
56. Slide rear weights as far forward as possible and install weight box stops ⑥ on inside of trusses as close to weight as possible (rear weights), secure with 1/2 x 4 1/32 x 5 1/4 u-bolt ⑦, 1/2 lock washers and 1/2 nuts.
57. Torque u-bolts to 85 ft-lbs.

Refer to Figure 27

58. Pivot level bar ① and the level bar spring assembly ③ until holes in plates are aligned.
59. Re-install 3/4 x 2 Gr. 8 bolts ①, secure with 3/4 lock washers and 3/4 nuts.
60. Torque 3/4 x 2 Gr. 8 bolts ① to 375 ft lbs to be sure bolts do not work loose and cause damage to machine.

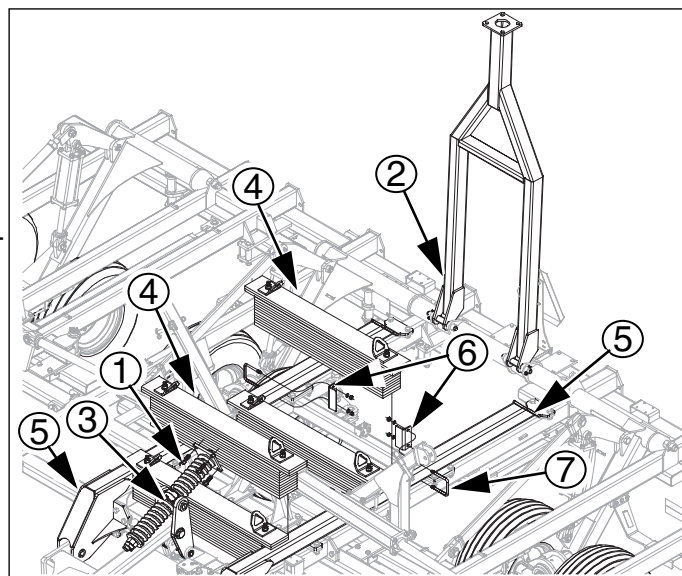


Figure 26
Weight Package

42407

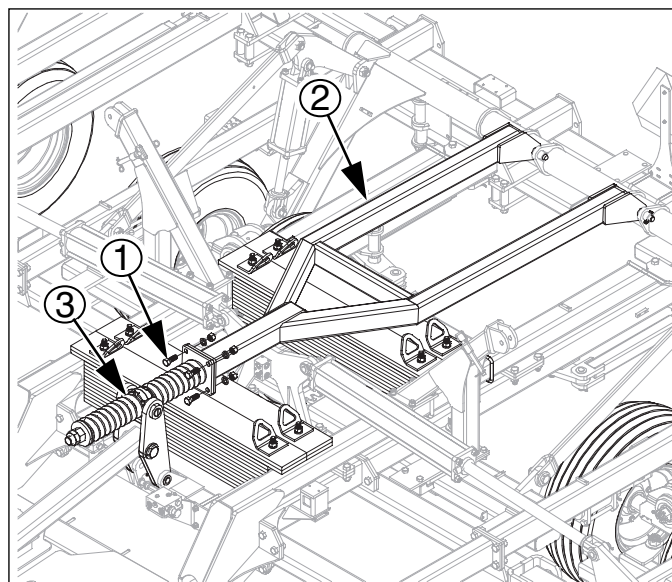


Figure 27
Level Bar

42408



Operating Instructions

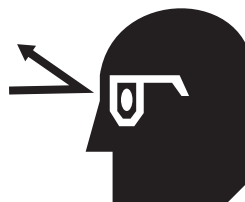
This section covers general operating procedures. Experience, machine familiarity, and the following information will lead to efficient operation and good working habits. Always operate farm machinery with safety in mind.

Pre-Start Checklist

Perform the following steps before transporting the 1200-400TM Turbo Max to the field.

- ☐ Carefully read “**Important Safety Information**” on page 1.
- ☐ Lubricate Turbo Max as indicated under “**Lubrication**” on page 35.
- ☐ Check all tires for proper inflation, “**Tire Inflation Chart**” on page 38.
- ☐ Check all bolts, pins, and fasteners. Torque as shown in “**Torque Values Chart**” on page 40.
- ☐ Check Turbo Max for worn or damaged parts. Repair or replace parts before going to the field.

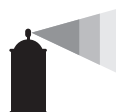
Check hydraulic hoses, fittings, and cylinders for leaks. Repair or replace before going to the field.



WARNING

High Pressure Fluid Hazard:

Relieve pressure and shut down tractor before connecting, disconnecting or checking 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. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.



Transport

⚠ DANGER

Loss of Control Hazard:

Do not tow the turbo max behind another implement on public roads. Tow the turbo max to the field with a separate vehicle. The leading implement may not provide sufficient lateral control of a trailing implement at highway speeds. The total weight of the train can also exceed the steering and/or braking capability of the tractor. The resulting accident could cause serious injury or death.



⚠ DANGER

Loss of Control Hazard:

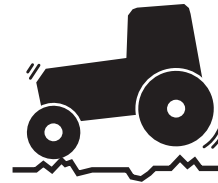
Use an adequate towing vehicle. Never tow an implement that weighs more than 150% of the towing vehicle (transport vehicle must weigh at least 67% of implement). Ensure that the towing vehicle is adequate for the task. Using an inadequate tow vehicle is extremely unsafe, and can result in loss of control, serious injury and death.



⚠ DANGER

Braking and Loss of Control Hazard:

Do not exceed 20 mph (32 kph). Slow down on rough roads.



Transport Steps

Know your implement weight. If tractor capabilities are marginal, check actual weight of implement at a scale.

1. Check that implement is securely hitched to a sufficient tractor (page 15).
2. Always use a locking-style hitch pin sized to match holes in hitch and draw-bar, and rated for the load.
3. Attach safety chain to tractor with enough slack to permit turning (page 15).
4. Verify correct operation of lights.
5. Install transport locks, wing fold pins and close wing lock valve (page 18).
6. Check that tires are properly inflated (page 38).
7. Plan the route. Avoid steep hills.
8. Always have lights on for highway operation.
9. Do not exceed 32 kph (20 mph). Comply with all national, regional and local laws when traveling on public roads.
10. Remember that the implement may be wider than the towing vehicle. Allow safe clearance.

Field Operation

This implement is designed to be pulled in the lowered field position (including wide turns). Lifting for short distances to clear residue clogs is acceptable. Lifting for tight turns or reverse moves is required.

NOTICE

Equipment Damage Risk:

Lift for tight turns and reverse moves. Tight turns can result in a section moving backward. Never back up with harrows on the ground. If the inside tire stops or rolls backward, the turn is tight and requires lift.

Field Set-Up Checklists

Use the following tables to develop a final checklist for your tractor/Turbo Max configuration. Additional or fewer steps may be necessary depending on tractor features, Turbo Max options and accessories.

Final Checklist

Mechanical Checklist	Page
☐ Turbo Max hitched	15
☐ Hitch pin locked	-
☐ Safety chain secured to tractor or leading implement	15
☐ Parking jack stowed	15
☐ Check all tire pressures	38
☐ Transport locks and locking valves are in the field position	18

Hydraulic System Checklist	Page
☐ Check tractor hydraulic reservoir full	-
☐ Make hydraulic connections	16
☐ Inspect connections for leaks	-
☐ Unfold Implement	-

Electrical Checklist	Page
☐ Verify electrical hookups solid, or connector securely stowed if not using lights in field.	16

Perform all steps in “**Pre-Start Checklist**” on page 27 and “**Final Checklist**” on page 29.

First Pass Operation Checklist	Page
1. Implement unfolded and aligned for first pass.	-
2. Pull forward, lower Turbo Max, and begin tilling for a short distance.	-
3. Stop. Assess: • coulter depth • finishing attachment operation	-
4. Make necessary adjustments	30

Sharp Field Turns Checklist	Page
1. Raise Turbo Max	-
2. Make turn	-
3. Lower Turbo Max	-
4. Resume tilling.	-

NOTICE

Do not make short radius turns with the implement in the ground.

Note: If you stop in the middle of a pass, raise the implement and back up 10' before resumption of tilling.

Ending Tilling Checklist	Page
1. Suspend operations as above	-
2. Lift implement	-
3. Set tractor for fold	18
4. Fold wings	-
5. Place locking valves in transport position	18
6. Place transport locks in transport position	18
7. Lower implement on to transport locks	-
8. Lights ON for transport	-

General Operation and In-Field Adjustments

Prior to Operating the Turbo Max

11. Raise the machine fully so the lift cylinders ① no longer rest on the transport lock channels ②, *Refer to Figure 28*. Remove transport lock channels and store on the bars ③ above. Remove the wing transport pins ④ *Refer to Figure 29* and store in the spools ⑤ on the wing rest bar. Open the wing fold valve ⑥ located under the depth stop adjustment (Models 1800-3000) or on the bypass/down pressure valve (Models 3500-4000). You are now ready to unfold unit.
12. Unfold unit being sure that the fold cylinders are fully extended. You may increase flow rates during the folding and unfolding procedure but be sure to slow the flow rates back down once the unit is unfolded.
13. When operating the Turbo Max with the blades running at an angle, it is generally unnecessary to operate with hydraulic down pressure to the wings. Only in very hard ground will down pressure be needed. If down pressure is needed, see **"Hydraulic Down Pressure 1800-3000"** on page 23, **"Hydraulic Down Pressure 3500"** on page 24 or **"Hydraulic Down Pressure 4000"** on page 25 for initial setup. If no down pressure is needed, set the fold hydraulic system to the "FLOAT" position at this time.
14. When operating the blades in the straight position, down pressure is necessary, usually between 200 and 400 psi.

Note: Never leave tractor valve centered when unfolded with machine in motion. Machine damage may occur when wings flex. The hydraulic down pressure cylinders have no wing flex capability and oil flow is required when the wings flex up or down. You must have the tractor fold hydraulic lever in continuous downward flow or "FLOAT" position before the wings can flex over terrain in the raised or lower lift position.

Hitch Turnbuckle

Note: If possible have someone observe the machine during the initial operation for levelness - both front to rear and center to wings. Adjust each as needed.

Refer to Figure 30

15. For front to rear, either extend or shorten the front turnbuckle ① on the leveling system by loosening jam nut ② with turnbuckle wrench ③ (stored on rear pegs of hitch). Adjust turnbuckle ① until level front to back. Re-tighten jam nut ① after machine is level. Never run the machine lower (deeper) in the rear than in the front.

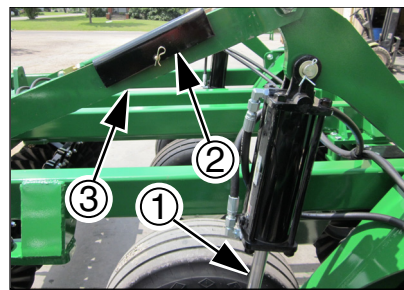


Figure 28
Transport Locks

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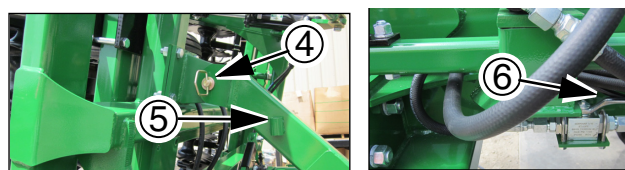


Figure 29
Wing Fold

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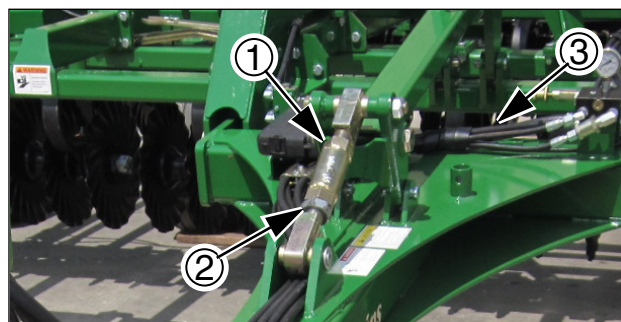


Figure 30
Hitch Turnbuckle Adjustment

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16. As far as leveling the wings to the center section, if the wings were pre-leveled as shown in **“Wing Adjustment”** on page 19, then further adjustment should be done with the down pressure setting. If the wings are running low, back off the down pressure. If wings are running high, increase the down pressure, see **“Hydraulic Down Pressure 1800-3000”** on page 23, **“Hydraulic Down Pressure 3500”** on page 24 or **“Hydraulic Down Pressure 4000”** on page 25 for complete down pressure adjustment. If no down pressure is being used, set the wings to match the depth of the center *Refer to Figure 31*. Start by loosening jam nut ① with turnbuckle wrench (stored on rear pegs of hitch). Turn the turnbuckle ② to adjust. (Shorten turnbuckle to run shallower, lengthen to run deeper).

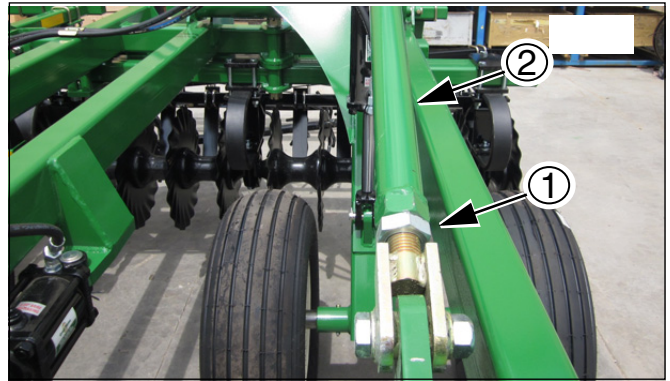


Figure 31
Wing Adjustment

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17. The Turbo Max may be operated with the gangs running from 0-6 degrees. Changing this angle does affect the operation of the unit in a couple of ways. As indicated above, if the blades are operated at an angle, down pressure is generally unnecessary. Also, operating speeds will need to be less when operating with the blades angled 3-6 degrees. Operating speeds should be from 6-8 mph when operating gangs in the angled position and from 8-10 mph when operating in the straight position.
18. In a first time operation, it is generally best to operate the unit at a slight angle to the rows. If the unit is used as a secondary pass it is recommended to operate the unit at a slight angle to the previous tillage pass. This will improve trash flow and increase the leveling capability.
19. *Refer to Figure 32*. Once the machine is level and set to the desired depth, set the depth stop ① at the front of the machine to ensure that the unit will operate at a consistent depth every pass. After setting the stop, if a change of depth is desired, 1 full turn of the handle ② either in or out will change the depth approximately 1/4" up or down respectively.

Note: Slight tire to ground pressure should be maintained to prevent cylinder pin and clevis wear. If after setting the depth stop, the detent on the tractor kicks out before the stop contacts the button ③ on the depth stop, slow the hydraulic flow speed down ③. If this problem exists, contact the factory service representative for other possible adjustments. On tractors with a timed detent setting, set the detent so when you raise the machine, the pump will run for 1/2 to 1 full second after full raise. If it runs longer than this, damage to the seals of the lift cylinders may result.

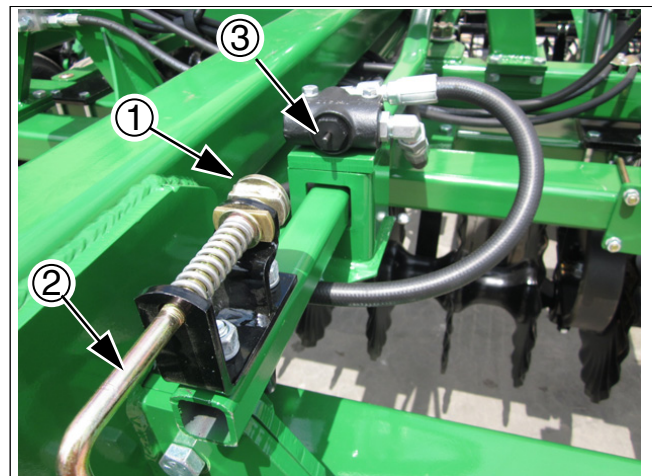


Figure 32
Depth Stop Adjustment

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20. Varying the angle on the gangs will also change the results of your operation. It is recommended to operate the Turbo Max with the gangs in the straight position when this is your last pass ahead of the planter

or grain drill. This will leave the best possible seedbed for planting. It is not recommended to operate the tool at a depth deeper than the intended planting depth.

21. Situations that may require the operator to angle the gangs would be in a field that requires the unit to be more aggressive as far as moving soil such as leveling ditches, filling in sprayer tracks, more aggressive weed control, etc. In these instances, the gangs may be angled as needed to level the ground and remove problem weeds. In the fall, the gangs would be angled to make the unit more aggressive to cover more residue. This will tie the residue to the surface and enhance the breakdown of the residue. Also in very hard ground, the angled gangs will allow the unit to penetrate better.
22. The Turbo Max is a versatile tool that allows the operator to make changes from the cab of the tractor. It is important to remember the relationships between gang angle, speed and wing down pressure. When operating the gangs at an angle, slow down (6-8 mph) and set wing fold system to "FLOAT". When operating gangs in the straight position, speed up (8-10 mph) and set the wing fold system to active hydraulic down pressure.

Gauge Wheel Adjustment

Refer to Figure 33

23. Once the machine has been adjusted and set to the desired working depth, you may now adjust the gauge wheels.

Note: The gauge wheels (if equipped) should be set in field position to be 1/2" to 1 1/2" off the ground.

24. Start by loosening set screws ① on each gauge wheel. Turn jack handle ②, to adjust spindle receiver ③. To lengthen the spindle receiver ③ (turn counter-clock-wise), to run wheel closer to ground, to shorten the spindle receiver (turn clock-wise) to run further away from ground.
25. After adjusting gauge wheel to position needed, re-tighten the set screws ①.

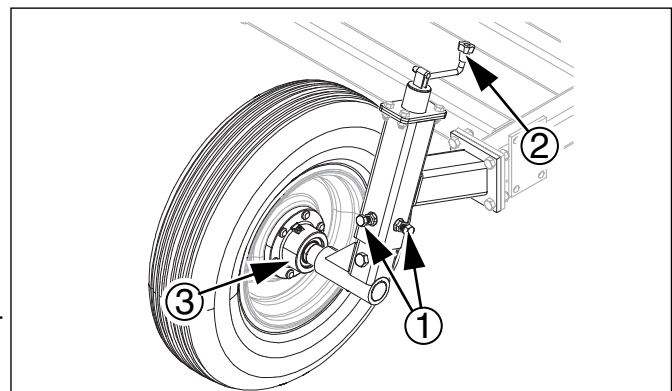


Figure 33
Gauge Wheel Adjustment

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Setting the Rolling Harrow and Reel

Refer to Figure 34

26. The rolling harrow ① and reel attachment ② is a very versatile leveling attachment and requires very little adjustment. The rolling harrow sections come preset at 22 degrees and should not need to be modified. In some severe conditions at high speeds, some windrowing may occur and the gang angle may need to be reduced slightly. When adjusting this, be careful to maintain adequate clearance between sections in the field position as to not cause damage to the units.
27. The reel down pressure may be adjusted by loosening the jam nut ③ and then either increasing or decreasing the spring pressure ④. When the desired amount of spring pressure is set, re-tighten the jam nut ③. Note: It is recommended to run little or no down pressure in wet or sticky field conditions.

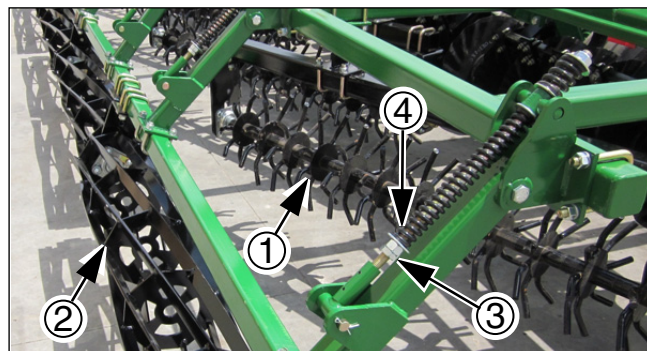


Figure 34
Reel Adjustment

42254

Refer to Figure 35

28. The bars on the reels are angled forward ⑤ and should be installed as such on the machine. In some conditions in which a firming of the soil is more desirable than breaking up clods then these reels can be mounted in reverse ⑥. This does however increase the chance of causing damage to the bars in rocky soil.

⚠ WARNING

Be sure reels are installed with twisted bars oriented forward ⑤ as shown. Mounting in reverse ⑥ can damage reel in rocky soil.

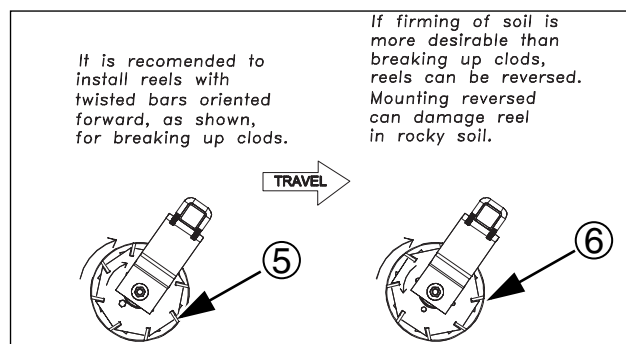


Figure 35
Reel Direction

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Parking

Follow these steps when parking the implement for periods of less than 36 hours. For longer periods, see *Storage*, the next topic.

1. Position the implement on firm, level ground.
2. Raise, fold and lock implement (page 18).

⚠ DANGER

Negative Tongue Weight Hazard:

If rear tow hitch is installed it is possible that the Turbo Max can tip over backwards during hitching and unhitching resulting in severe injury or death.

Refer to Figure 36

3. Remove jack from storage position and pin securely to lifting stob on outside of implement tongue ①. See **"Hitching Turbo Max to Tractor"** on page 15.
4. If ground is soft, place a wide block or plate under the jack to increase contact area.
5. Un-hook electrical lines and protect with any plugs or caps provided.
6. Release pressure on hydraulic system, then disconnect hydraulic lines and pull all lines back onto implement tongue. Store hose ends in keyholes of hose holder bracket.
7. Disconnect the safety chain.
8. Unhitch from tractor or leading implement.

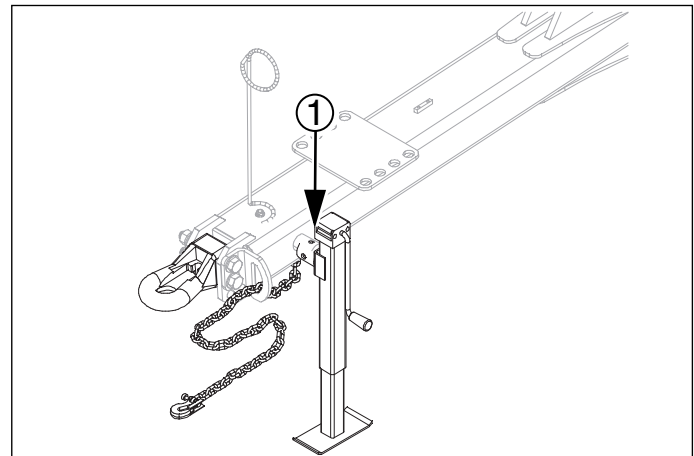


Figure 36
Front Jack (Parking)

42244

Storage

Store the implement where children do not play. If possible, store inside for longer life.

1. Raise, fold and lock implement (page 18) For unfolded storage, see steps at right.
2. Perform Parking checklist (page 34).
3. Lubricate the implement at all points listed under **"Lubrication"** on page 35.
4. Check all bolts, pins, fittings and hoses. Tighten, repair or replace parts as needed.
5. Check all moving parts for wear or damage. Make notes of any parts needing repair or replacement before the next season.
6. Lubricate all points listed in Maintenance to prevent rust.
7. Clean Turbo Max of mud, dirt, excess oil and grease.
8. Grease exposed cylinder rods to prevent rust.
9. Use touch-up paint to cover scratches, chips and worn areas to prevent rust.

Unfolded Storage

See page 18 for details on maintenance lock.

- 1a. Raise implement.
- 1b. Verify the transport locks are in the transport position.
- 1c. Be sure hydraulics are depressurized. Adjust locking valves to the open position. Unfold wings until wing is resting on shims.
- 1d. Lower implement onto lock channels.
- 1e. Set all hydraulic remotes to Float.



Maintenance and Lubrication

Maintenance

1. Always use the transport lock when working on or doing maintenance to the Turbo Max. If folded, be sure your wing stop pins are in place and wing fold valve closed. Read and understand all safety decals on your equipment.
2. During the first season of operation, and periodically after that, check your bolts for tightness.
3. Replace or rotate worn parts as needed -- hinge bolts, clevis pins, bearings, coulters, etc.
4. Check and tighten or replace any hydraulic leaks. Check hoses for any leaks. It is important that there are no leaks on the equipment.
5. Grease wheel bearings sparingly. Over greasing may cause damage to seals and reduce the life of the bearing.
6. Check drag bolts for looseness or excessive wear. Your drag is an important part of the tillage operation.
7. If machine is stored outdoors over the winter months, it is a good idea to fold the machine then set it down on the ground so all the cylinders are retracted to protect the cylinder rods. This will extend the life of

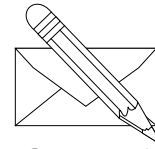
the cylinder seals and reduce internal and external leaks.

By following and maintaining a routine service and lubrication program, your tillage equipment will give you many years of service.

For the most current manual information, visit Great Plains website listed below. For more information on operating, adjusting or maintaining your Great Plains Turbo Max, assistance is available. Contact:

Product Support

Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060



gp_web_cs@greatplainsmfg.com

(800)255-9215

Lubrication

 Multipurpose spray lube	 Multipurpose grease lube	 Multipurpose oil lube	 50	Intervals (service hours) at which lubrication is required
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Wheel Bearing Hub

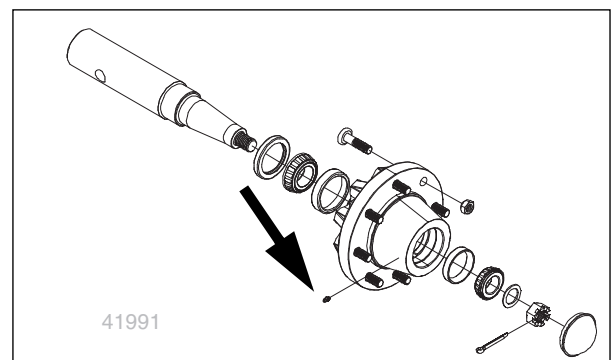


1 zerk on each hub;

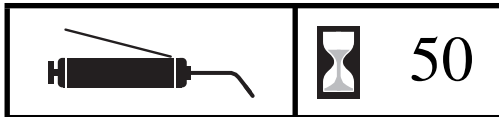
Type of Lubrication: Grease

Quantity: Sparingly, Do Not Over Grease, may cause damage to seal.

Repack wheel bearings annually or every 2500 acres.



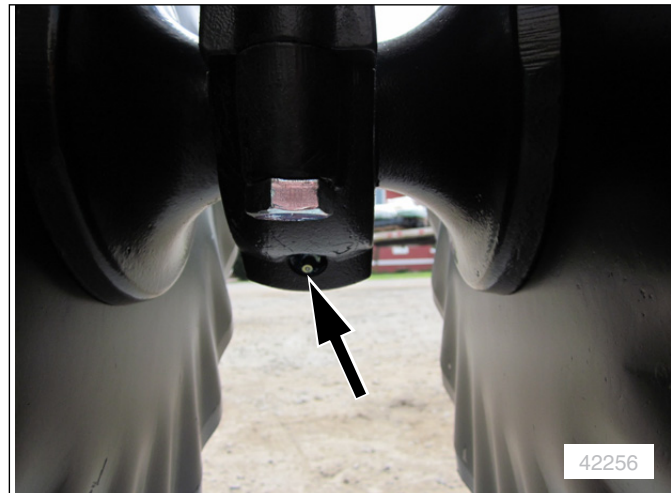
Coulter Bearings



One on rear of each c-flex bearing.

Type of Lubrication: Grease

Quantity: Grease every 50 hours, 2 to 3 pumps. In heavy conditions grease every 20 hours, 2 to 3 pumps.



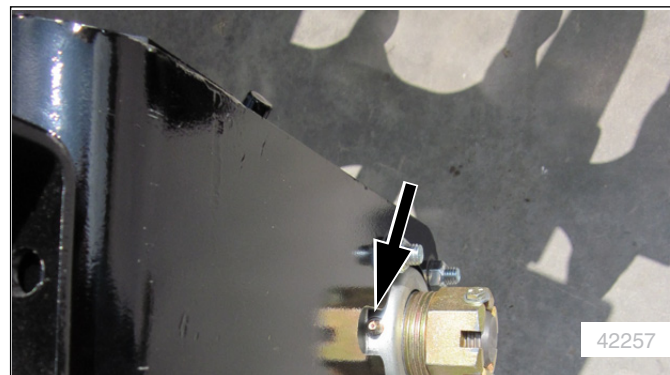
Finishing Reel



One on each bearing

Type of Lubrication: Grease

Quantity: Grease every 50 hours, 2 to 3 pumps. In heavy conditions grease every 20 hours, 2 to 3 pumps.



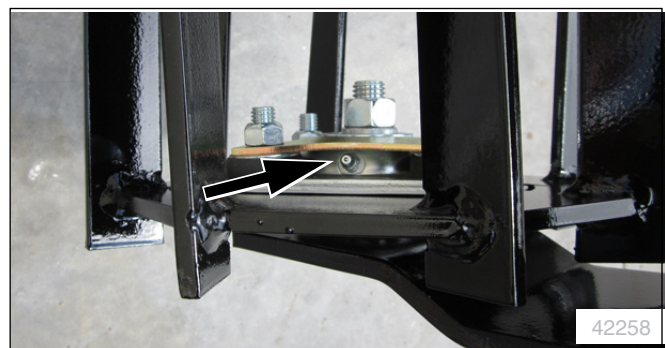
Heavy Reel



One on each bearing

Type of Lubrication: Grease

Quantity: Grease every 50 hours, 2 to 3 pumps. In heavy conditions grease every 20 hours, 2 to 3 pumps.





Appendix

Turbo Max Specifications and Capacities

Model No.	1200TM	1500TM	1800TM	2400TM
Tillage Width	13' 2" (401cm)	15' 8" (478cm)	18' (5499cm)	24' 5" (744cm)
Center Section	14' 0" (427cm)	16' 11" (516cm)	9' 3" (283cm)	10' 8" (329cm)
Wing (Inner)	N/A	N/A	4' 6" (140cm)	6' 9" (213cm)
Wing (Outer)	N/A	N/A	N/A	N/A
Number of Coulters	41	49	57	77
Blade Spacing	7.5" (19 m)	7.5" (19 m)	7.5" (19 m)	7.5" (19 m)
Gang Angle	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°
Weight (with Spike & Reel)	9000 lbs. (4082 kg)	10000 lbs. (4536 kg)	15180 lbs. (6896 kg)	18800 lbs. (8528 kg)
Transport Width	13' 6" (411cm)	15' 6" (472cm)	14' 0" (427cm)	15' 4" (469cm)
Transport Height	5' 4" (162cm)	5' 4" (162cm)	8' 3" (253cm)	11' 3" (344cm)
Length (w/o attachment)	20' 6" (625cm)	20' 6" (625cm)	20' 6" (625cm)	20' 6" (625cm)
Tire Size (Center)	11L-15SL 12 ply	11L-15SL 12 ply	380/55R16.5	12.5Lx16.5/G
Tire Size (Wing)	N/A	N/A	11L-15SL 12 ply	11L-15SL 12 ply
Horsepower (PTO)	115-140	140-180	180-230	230-285
Kilowatt	86-104	104-135	135-172	172-213

Model No.	3000TM	3500TM	4000TM
Tillage Width	30' 8" (935cm)	34' 6" (1052cm)	39' 6" (1204cm)
Center Section	10' 8" (329cm)	13' 0" (396cm)	13' 0" (396cm)
Wing (Inner)	10' (305cm)	10' 6" (320cm)	8' 11" (271cm)
Wing (Outer)	N/A	N/A	4' 6" (137cm)
Number of Coulters	97	109	125
Blade Spacing	7.5" (19 m)	7.5" (19 m)	7.5" (19 m)
Gang Angle	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°
Weight (with Spike & Reel)	22700 lbs. (10297 kg)	26860 lbs. (12183 kg)	32260 lbs. (14633 kg)
Transport Width	15' 4" (469cm)	16' 9" (511cm)	18' 0" (549cm)
Transport Height	14' 0" (427cm)	14' 4" (437cm)	14' 2" (432cm)
Length (w/o attachment)	20' 6" (625cm)	20' 6" (625cm)	20' 6" (625cm)
Tire Size (Center)	380/55R16.5	440/55R18	440/55R18
Tire Size (Wing)	12.5Lx15 12 ply	12.5Lx15 12 ply	12.5Lx15 12 ply
Horsepower (PTO)	285-340	340-380	380-450
Kilowatt	213-254	254-283	283-336

With a continued commitment to constantly improving our products, these specifications are subject to change without notice.

Tire Inflation Chart

Tire Inflation Chart		
Wheel	Tire Size	Inflation
Gauge Wheel	9.5L x 15" 8-Ply	44 psi (303 kPa)
Transport/ Center	12.5L x 15" F-Ply	90 psi (621 kPa)
Transport/ Center	12.5Lx16.5 Load G Galaxy	105 psi (724 kPa)
Transport/ Center	380/55R x 16.5 Load F RI	73 psi (503 kPa)
Transport/ Wings	11L-15SL 12-Ply	52 psi (359 kPa)
Transport/ Wings	12.5L x 15" 12-Ply	55 psi (379 kPa)
Transport/ Center	440/55R18 Load 159A8/B Titan	73 psi (503 kPa)

Tire Warranty Information

All tires are warranted by the original manufacturer of the tire. Tire warranty information is found in the brochures included with your Operator's and Parts Manuals or online at the manufacturer's web sites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

Manufacturer	Web site
Firestone	www.firestoneag.com
Gleason	www.gleasonwheel.com
Titan	www.titan-intl.com
Galaxy	www.atgtire.com
BKT	www.bkt-tire.com

Hydraulic Connectors and Torque

Refer to Figure 37 (a hypothetical fitting)

Leave any protective caps in place until immediately prior to making a connection.

- ① **NPT** - National Pipe Thread
Note tapered threads, no cone/flare, and no O-ring.
Apply liquid pipe sealant for hydraulic applications.
Do not use tape sealant, which can clog a filter and/or plug an orifice.
- ② **JIC** - Joint Industry Conference (SAE J514)
Note straight threads ④ and the 37° cone ⑤ on "M" fittings (or 37° flare on "F" fittings).
Use no sealants (tape or liquid) on JIC fittings.
- ③ **ORB** - O-Ring Boss (SAE J514)
Note straight threads ⑤ and elastomer O-Ring ⑦.
Prior to installation, to prevent abrasion during tightening, lubricate O-Ring with clean hydraulic fluid.
Use no sealants (tape or liquid) on ORB fittings.
ORB fittings that need orientation, such as the ell depicted, also have a washer ⑧ and jam nut ⑨ ("adjustable thread port stud"). Back jam nut away from washer. Thread fitting into receptacle until O-Ring contacts seat. Unscrew fitting to desired orientation. Tighten jam nut to torque specification.

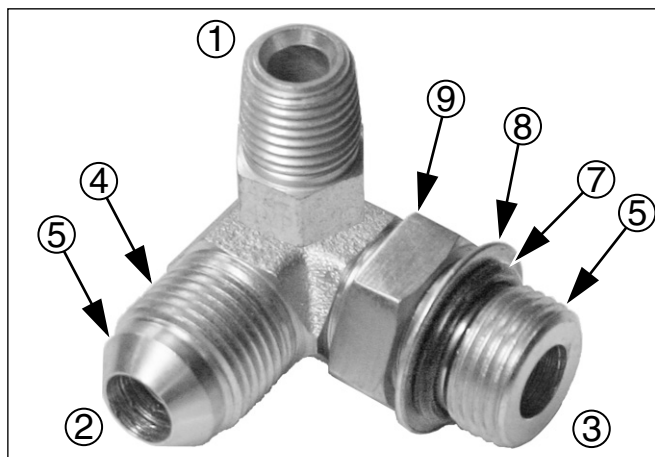


Figure 37
Hydraulic Connector ID

31282

Fittings Torque Values			
Dash Size	Fitting	N-m	Ft-Lbs
-4	1/4"-18 NPT	1.5-3.0 turns past finger tight	
-5	1/2"-20 JIC	19-20	14-15
-5	1/2"-20 ORB w/jam nut	12-16	9-12
-5	1/2"-20 ORB straight	19-26	14-19
-6	5/16"-18 JIC	24-27	18-20
-6	5/16"-18 ORB w/jam nut	16-22	12-16
-6	5/16"-18 ORB straight	24-33	18-24
-8	3/4"-16 JIC	37-53	27-39
-8	3/4"-16 ORB w/jam nut	27-41	20-30
-8	3/4"-16 ORB straight	37-58	27-43

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

Gang Bolt Torque 1 3/4"-5

850 Foot-pounds (165 lbs on 5' cheater).

Rolling Harrow Spike Bolt 1 1/2"-6

650-750 Foot-pounds (175 lbs on 4' cheater).

Wheel Bolt Torque Values

1/2"-20 (75-85 ft-lbs) 9/16"-18 (80-90 ft-lbs) 5/8"-18 (85-100 ft-lbs).

Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this tillage equipment will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions for personal use; 90 days for commercial or rental purposes. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated and the installation by the dealer of any such replacement part. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Great Plains' judgement shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.

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Great Plains Manufacturing, Inc.

Corporate Office: P.O. Box 5060
Salina, Kansas 67402-5060 USA
