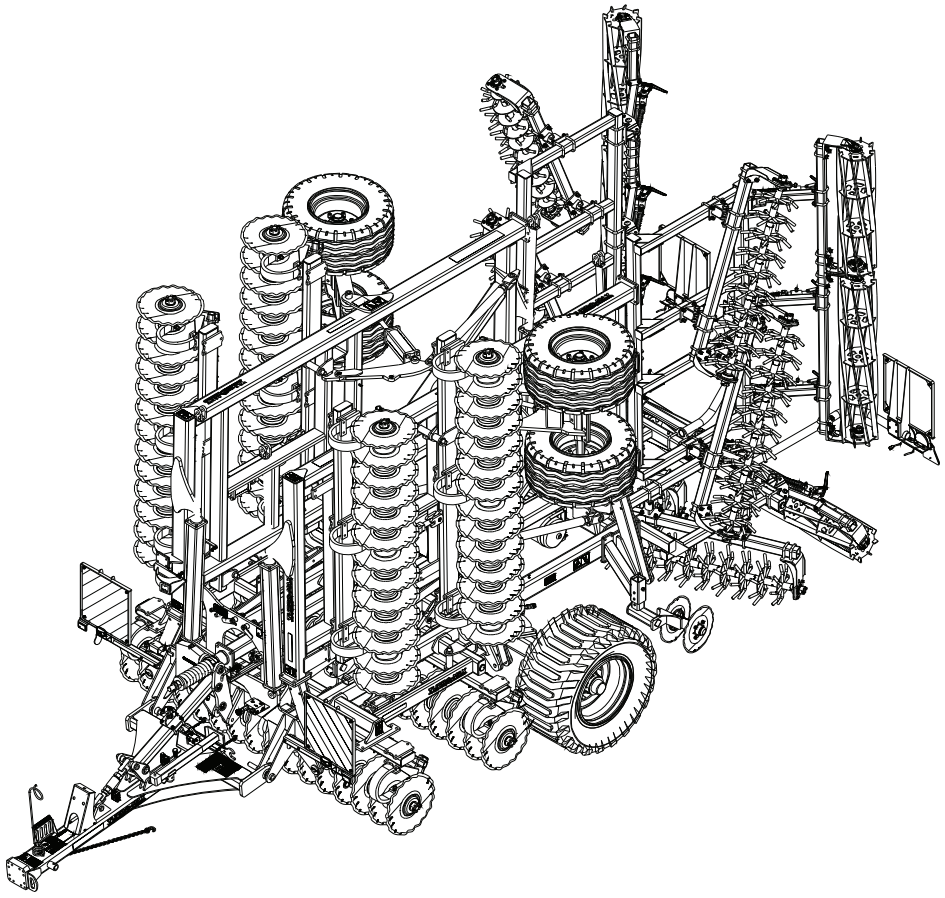
Table of Contents Index

GREAT PLAINS

TURBO-MAX

OPERATOR MANUAL

MODELS 6.0TM & 8.0TM



588-015M

Read the operator 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.

Great Plains
"Harvest Starts Here."

Machine Identification

Record your machine details in the log below. If you replace this manual, be sure to transfer this information to the new manual.

If you, or the dealer, have added Options not originally ordered with the machine, or removed Options that were originally ordered, the weights and measurements are no longer accurate for your machine. Update the record by adding the machine weight and measurements on page 19 with the Option(s) weight and measurements.

Model Number	
Serial Number	
Machine Height	
Machine Length	
Machine Width	
Machine Weight	
Year of Construction	
Delivery Date	
First Operation	
Accessories	

Dealer Contact Information

Name: _____

Street: _____

City/State: _____

Telephone: _____

Email: _____

Dealer's Customer No.: _____

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This machine contains components and/or fluids known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)

For more information: oehha.ca.gov/proposition-65

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Introduction

Great Plains' Turbo-Max is a pull-type unit designed for tilling and working soil. Every Turbo-Max we build is designed and built with care using only quality materials. For the best user experience, read this manual and follow all instructions carefully. These pages will guide you through the operation and contain tips for easier adjustment and maintenance.

All information in this manual is current as of publication. Information contained within is subject to change to ensure top performance.



■ Turbo-Max Models Covered

6.0 Meter Turbo-Max	19cm row spacing
8.0 Meter Turbo-Max	19cm row spacing

■ Document Family

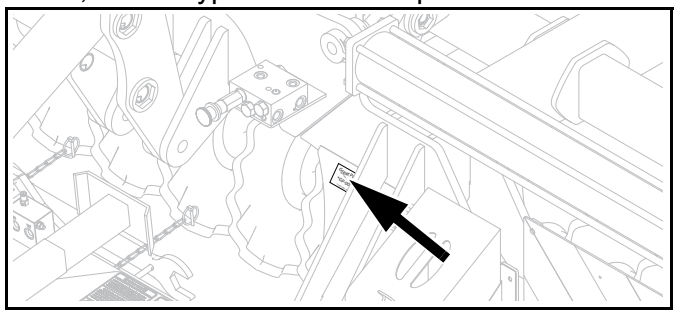
588-015M	Operator Manual (this document)
588-015B	Pre-Delivery Manual
588-015P	Parts Manual

See "**Specifications and Capacities**" on page 85 for precise swath information.

■ 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.

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 left side main frame, below bypass and down pressure valve.



Record your machine's model and serial number on the inside cover of this manual for quick reference.

Turbo-Max QRC

The QR Code (Quick Response) to the left will take you to this machine's family of manuals. Use your smart phone or tablet to scan the QR Code with an appropriate App to begin viewing.

■ Further Assistance

Great Plains Manufacturing, Inc. and your Great Plains dealer want you to be satisfied with your new Turbo-Max. If for any reason you do not understand any part of this manual or are otherwise dissatisfied, please take the following actions first:

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.

If your dealer is unable to resolve the problem or the issue is parts related, please contact:

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

Or go to **www.greatplainsag.com** and follow the contact information at the bottom of your screen for our service department.

Dealer QRC

The QR Code (Quick Reference) to the left will take you to available dealers for Great Plains products. Refer to the Parts Manual QR Locater for detailed instructions.

Safety Information

■ Look for Informational Symbols

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.

NOTE indicates useful, but not crucial, information for machine operation, assembly, or adjustment. It may also direct you towards additional information.

■ Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness. The signal words are:

DANGER

DANGER indicates an imminent hazard 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

WARNING indicates a potential hazard 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.

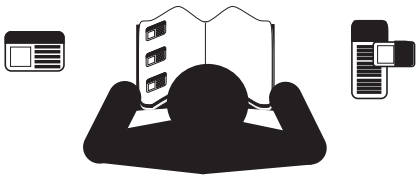
CAUTION

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

NOTICE

NOTICE indicates a potential hazard which, if not avoided, may result in moderate to severe damage to your machine, machine parts, or nearby property.

■ Be Familiar with Safety Decals



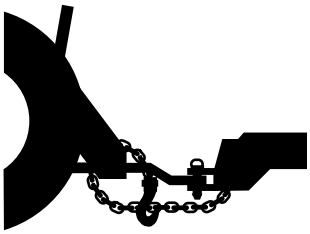
1. Throughly read and understand "**Locations of Safety Decals**" on page 8.
2. Read all instructions noted on the decals.
3. Keep decals clean. Replace damaged, faded and illegible decals.

■ Wear Protective Equipment



1. Wear protective clothing and equipment appropriate for the job, such as safety glasses, hard hat, and ear plugs.
2. Clothing must fit snug without fringes and pull strings to avoid entanglement with moving parts.
3. Avoid using distracting multimedia devices, such as audio that requires headphones, tablet, or smart phone, while operating machinery.

■ Use A Safety Chain



1. A safety chain will help control drawn machinery if the machinery separates from tractor drawbar.
2. Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.
3. Attach chain to tractor drawbar support or other specified anchor location. Allow only enough slack in chain to permit turning.
4. Replace chain if any links or end fittings are broken, stretched or damaged.
5. Do not use safety chain for towing.

■ Avoid High Pressure Fluids



⚠ WARNING: Escaping Fluid Hazard

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

1. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
2. Avoid the hazard by relieving pressure before disconnecting hydraulic lines or performing any work on the system.
3. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
4. Escaping fluid under pressure can penetrate the skin causing serious injury.
5. Use a piece of paper or cardboard, **NOT BODY PARTS**, to check for suspected leaks.
6. **DO NOT DELAY.** If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury. Any fluid injected into the skin or eyes must be treated within a few hours or gangrene can result.

■ Tire Safety



🕮 NOTE: Use Correct Tire Changing Tools

Tire changing can be dangerous and must be performed by trained personnel using correct tools and equipment.

1. 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.
2. When removing and installing wheels, use wheel-handling equipment adequate for weight involved.

■ Use Safety Lights and Devices

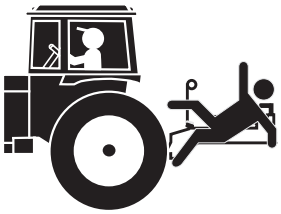


🕮 NOTE: Always Use Safety Lighting

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

1. If equipped, use flashing warning lights and turn signals whenever driving on public roads.
2. Use safety devices provided with implement.
3. Keep safety lights and signs clean and visible from rear of the machine.

■ Keep Riders Off Machinery



⚠ WARNING: Do Not Ride Machinery

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

1. Never carry riders or use machinery as a personal lift.
2. Riders obstruct the operators view.
3. Riders can be struck by foreign objects or thrown from the machine.
4. Never allow children to operate equipment.
5. Keep all bystanders away from machine during operation.

■ Transport Machinery Safely



NOTE: Maximum Transport Speed

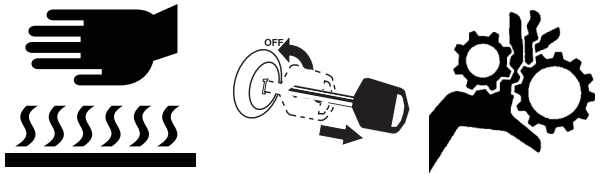
Maximum Transport speed for implement is 30 kph (20 mph). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

1. Comply with state and local laws.
2. Carry reflectors or flags to mark machinery in case of breakdown on the road.
3. Keep clear of overhead power lines and other obstructions when transporting.
4. Do not fold or unfold the implement while the tractor is moving.
5. Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
6. Turning tractor too tight can cause implement to tip over.
7. When towing on a trailer, secure implement with tie downs and chains.
8. When towing on a trailer, sudden braking can cause a trailer to swerve and upset. Reduce speed if trailer is not equipped with brakes.

■ Shutdown and Storage

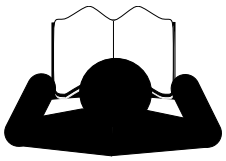
1. Park the tractor and implement on a solid, level surface where children normally do not play.
2. Raise the wings, put tractor in park or set park brake. Turn off engine and remove switch key to prevent unauthorized starting.
3. Wait for all components to come to a complete stop before leaving the leaving the operator's seat.
4. Turn lockout valve and wing lock levers to locked position to prevent the wings from lowering.
5. Install transport lock onto lift cylinders then lower implement on locks to relieve pressure on hydraulic hoses.
6. Detach the tractor. Secure the implement using blocks.

■ Practice Safe Maintenance



1. Understand procedure before doing work. Use proper tools and equipment. Refer to this manual.
2. Work in a clean, dry area.
3. Lower the implement. Put tractor in Park, turn off engine. To prevent unauthorized starting, remove key before performing maintenance or service work.
4. If work must be performed with wings raised, turn lockout valve and wing lock levers to locked position.
5. Make sure all moving parts have stopped and all system pressure is relieved.
6. Disconnect lighting harness from the tractor before servicing or adjusting electrical systems.
7. Welding: Disconnect lighting harness from the tractor. Protect hydraulic lines. Avoid fumes from heated paint.
8. Inspect all parts. Make sure parts are in good condition and installed properly.
9. Do not alter this machine in a way which will adversely affect its performance.
10. Remove buildup of grease, oil or debris.
11. Remove all tools and unused parts from implement before operation.

■ Safety At All Times



🕮 **NOTE: Read Operator Manual**
Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.

🕮 **NOTE: Do Not Use Untrained Operators**
Do not allow anyone to operate this equipment who has not fully read and comprehended this manual and who has not been properly trained in the safe operation of the equipment.

1. The operator must not use drugs or alcohol as they can change the alertness or coordination of that person while operating equipment. If over-the-counter drugs are used, seek medical advice on whether you can safely operate equipment.
2. Operator must be familiar with all functions of the tractor and attachments, and be able to handle emergencies quickly.
3. Make sure all guards and shields are in place and secured before operating the implement.
4. Keep all bystanders away from equipment and work area.
5. Operator must start tractor and operate controls from the driver's seat only, never from the ground.
6. Dismounting from a moving tractor can cause serious injury or death.
7. Be familiar with all functions of the implement.
8. Do not leave implement unattended with tractor engine running.
9. Do not stand between the tractor and the implement during hitching.
10. Watch out for wires, trees, etc., when folding and raising the implement.
11. Turning tractor too tight can cause hitched implement to ride up on wheels. This can result in injury or equipment damage.

Safety Decals

Carefully read decal instructions until fully understood. Learn safe operation as part of operating drill correctly. If misused, heavy machinery is dangerous. Exercise extreme caution!

A. **Hand Trap | 858-634C**
Do not place hands between folding parts.

B. **Tires Not A Step | 848-507C**
Use ladder, not tires, to climb onto machine.

C. **Cutting Of Foot | 848-271C**
Lower unit to ground before adjusting turnbuckle and keep feet away from ground tools while working.

D. **Wing Crushing | 858-633C**
Avoid crushing hazard of wings folding by not standing between wings during operation.

E. **Do Not Tamper | 858-636C**
Do not perform any procedure that loosens hardware.

F. **High Pressure Oil | 858-636C**
Take appropriate precautions outlined in this manual.

G. **Read Manual | 858-636C**
Carefully read all instructions for machine use.

H. **Do Not Ride | 858-636C**
Do not move tractor with someone on hitch.

I. **Wing Lock | 858-859C**
Turn wing lock valves to release or secure wings.

J. **Wings Falling | 858-858C**
Always use wing and secondary fold valve locks when wings are not in use to avoid wings unexpectedly falling.

K. **High Pressure Fluids | 838-094C**
Wear proper hand and eye protection when working with hydraulic system.

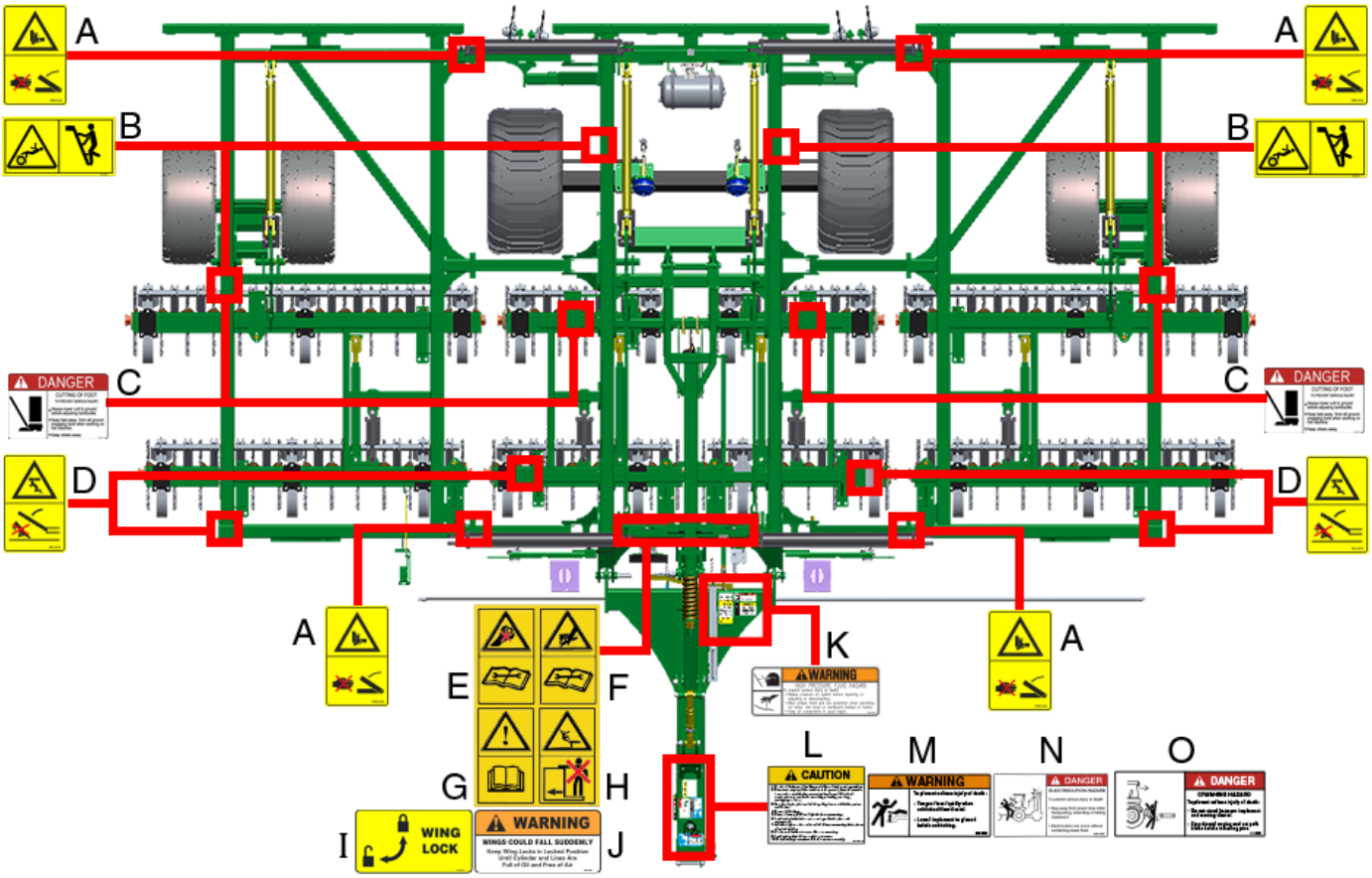
L. **General Information | 838-598C**
Read and follow general instructions prior to machine operation.

M. **Tongue Rising | 838-606C**
Avoid standing in front of tongue while unhitching.

N. **Electrocution | 838-599C**
Do not drive machine underneath low power wires.

O. **Crushing Hazard | 838-600C**
Do not stand between folding parts or hitches.

Decal Layout



Adjustments and Installation

This section helps you prepare your tractor and Turbo Max for use, and covers tasks that need to be done for new machines, 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.

☐ Pre-Operation 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 9.
- ❑ If machine is folded, unlock wings and open wing lock valve then 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 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 18.
- ❑ Refold the machine slowly, then lock wings and close wing lock valve. Always place wing locks in locked position when moving from field to field. Put transport locks into place. You are now ready to go to the field.

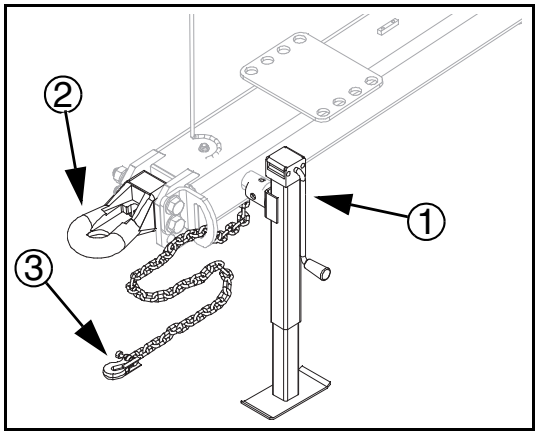
Hitching Turbo Max to Tractor

Hitch to a tractor for highway transport or field operations.

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.

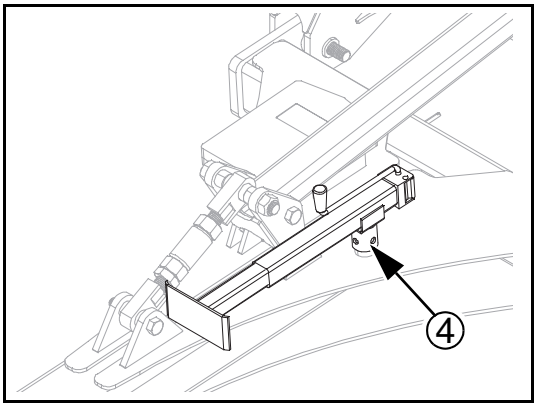
1. Raise tractor three-point arms (if equipped) clear up to clear Turbo-Max.
2. For TWO-WHEEL DRIVE and MFWD tractors, pin drawbar in fixed center position for field and transport. For FOUR-WHEEL DRIVE and TRAC-DRIVE tractors, leave one hole clearance on each side of drawbar for field position, hitch damage may occur if pinned solid. Pin in center position for transport to maintain maximum steering control.
3. Use jack (1) to raise and lower turbo max tongue. Back tractor draw bar into alignment with hitch (2). Secure with a locking hitch pin. Secure safety chain (3) to an anchor on the tractor.



WARNING: 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.

4. Retract jack foot (1). Re-orient jack to storage position. After hitching tractor to turbo max, store jack on storage stob (4) on Turbo-Max tongue.



NOTE: Lock Drawbar

*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 13, for safe transporting.*

Electrical Hookup

Make sure tractor is shut down with accessory power off before making connections.

Connect lighting connector and any options or after-market electronics to tractor outlets.



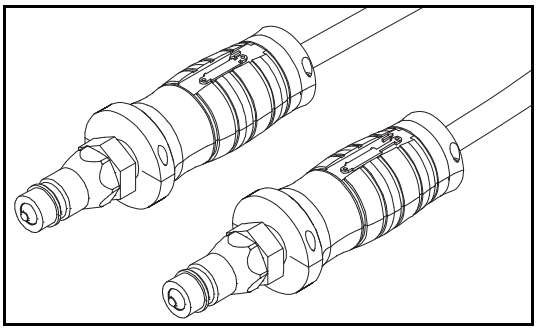
NOTE: Make Electrical Connections

Make connections prior to machine 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)



WARNING: 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.

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

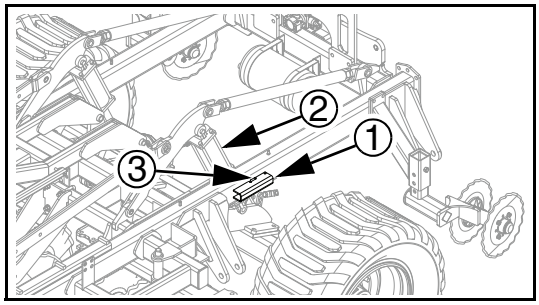
- The hose with an extended-cylinder symbol feeds a cylinder base end.
- The hose with a retracted-cylinder symbol feeds a cylinder rod end.

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.

Transport Locks

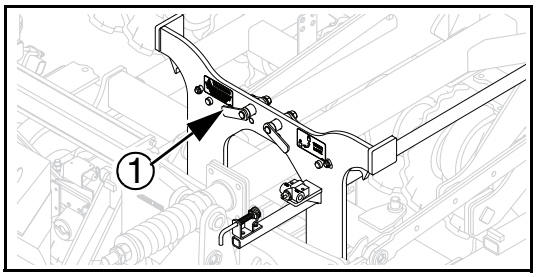
1. Once the cylinders are connected, raise the unit completely. If the transport locks (1) are in place on cylinders (2), remove them at this time.
2. Store the transport locks (1) on the sides of the center frame. Stick pin (3) through tube on the sides of the center frame between the frame and carrier tire.



Wing Folding/Unfolding

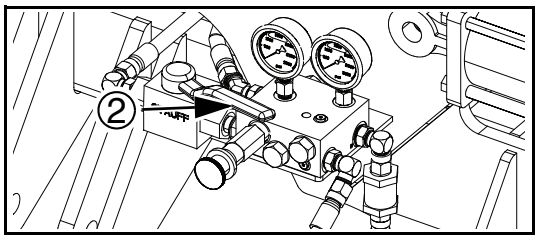
Unfolding

1. If the wing lock levers are in the locked position, turn handle (1) until set securely into the unlock position.
2. Turn down pressure valve (2) so handle is facing the outside of the machine.
3. Once the transport and wing locks are raised and wing fold valve is in the open position (as shown), unfold the wings from the tractor terminal.



NOTE: Operating Wing Lock Valve

The wing locking valve (2) is located on the bypass/down pressure valve (6). To close the locking valve, turn handle (5) 90 degrees, to keep wings from unfolding.



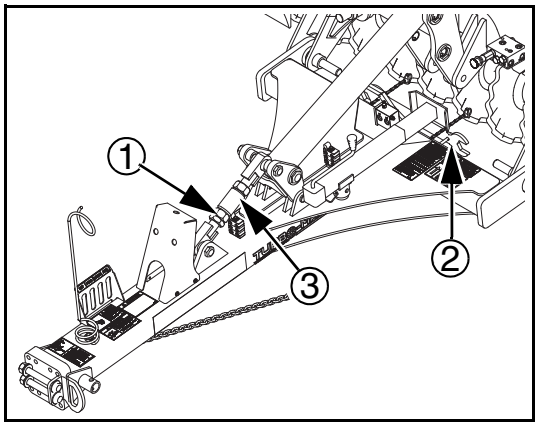
4. Once the machine is unfolded, raise and lower the machine several times to purge air from the lift system. Again, watch for any leaks and tighten if necessary.

Front to Rear Leveling

NOTE: Level Machine On Flat Surface

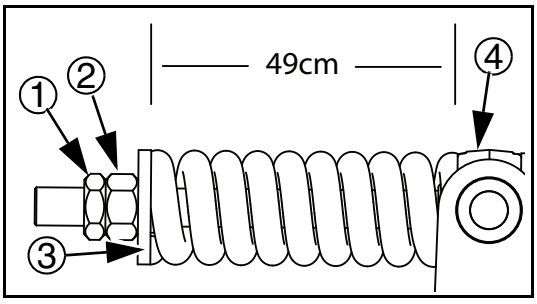
Pre-leveling of machine should be done on a good level surface.

1. If your machine is equipped with the turnbuckle option use the following steps to level your machine. Lower machine so front coulter gangs are 2.5 - 5cm 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).
2. When the front coulter gangs are the same distance off ground as rear coulter gangs re-tighten jam nut (1).

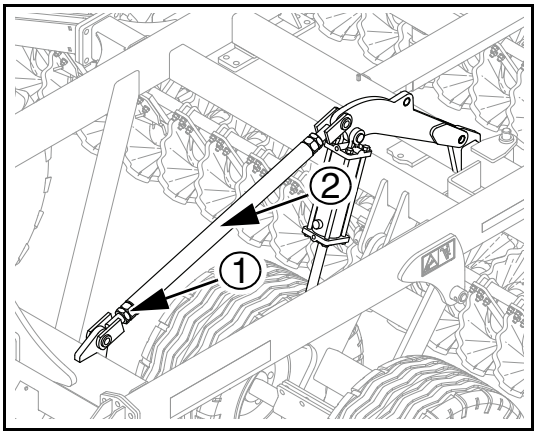


Level Bar Spring Adjustment

1. To adjust the level bar spring assembly to the preset position of 49cm, loosen jam nut (1) with turnbuckle wrench (stored on rear pegs of hitch).
2. Adjust nut (3) until the 49cm dimension is reached between backside of spring guide (4) and front side of level bar spring rod plate (5).
3. Re-tighten the jam nut (2) to secure.



Wing Adjustment

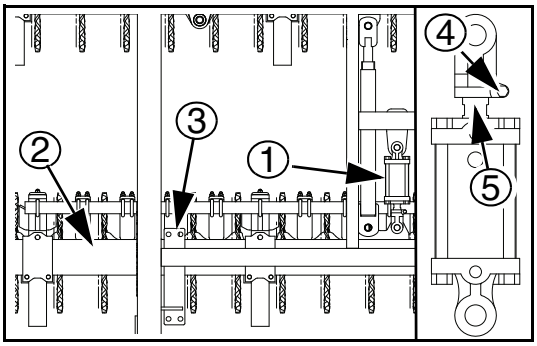


1. Once the machine is level fore to aft, the wings may be leveled. Start by unfolding the wings. Lower the lift cylinders down until center coulter gangs are 2.5 - 5 cm off of ground.
2. Set the wings to match the depth of the center. Start by loosening jam nut (1) with turnbuckle wrench (stored on rear pegs of hitch). Turn the turnbuckle (2) to adjust (shorten turnbuckle to run shallower and lengthen to run deeper).
3. Run machine in field with wings unfolded and down pressure applied. If wings are not making contact or running too deep into the soil, make additional adjustments to turnbuckle.

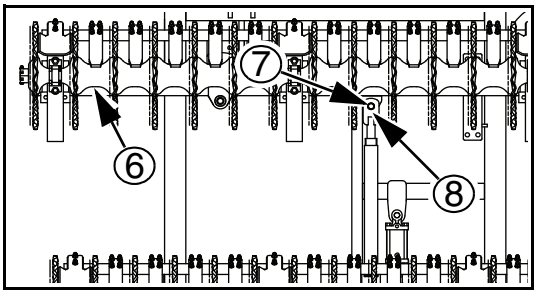
Gang Cylinders

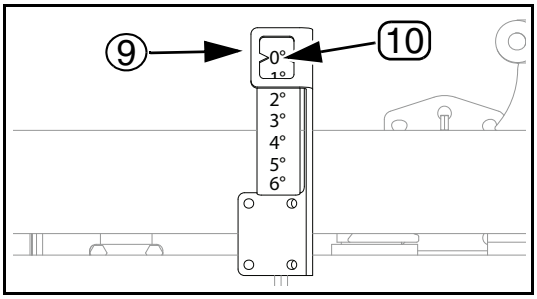
NOTE: Check Gang Angle

Check gang angle adjustment annually. Always adjust the front gangs first and then the rear.

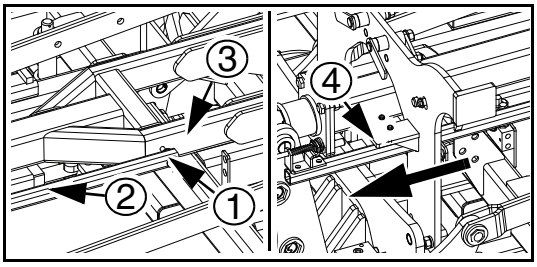


1. With front gang cylinders (1) in the full retract position, the gang bar (2) should be 7.5cm from tubes (3). If gang bar is not 7.5cm from tubes, loosen allen screw (4) on clevis on rod end of cylinder and shorten cylinder rod (6) by turning cylinder rod. Re-tighten allen screw.
2. After the center is set, adjust the wings the same way.
3. When the front gang adjusting cylinders - see "**Front Gang Angle Adjustment**" on page 13 - have been adjusted and are in the full retract position the rear gang bar (6) should be parallel to back frame tube.
4. If rear gang bar (6) is not parallel to back frame tube, remove pin (7) from turnbuckle end (8). Turn clevis to adjust gang bar length.
5. Re-install pin (7) when adjustment is made.
6. Unlock jam nuts from both ends of the gauge link (9). Turn rod until indictator (10) - located on front of the machine's right wing - reads 0°.
7. Re-tighten jam nuts.

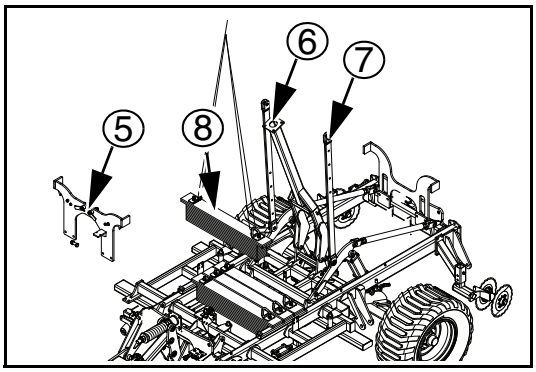




Weight Package Installation



1. Remove cotter pin (1) and remove the depth-stop bar (2) from the rear of the level bar (3). Pull depth-stop bar (4) out from the front of the machine and set aside.
2. Unbolt wing rest (5), remove, and set aside.
3. Remove bolts from level bar assembly (6). Pivot level bar up so there will be clearance to set the weight assemblies into place. Pivot level bar spring assembly forward.
4. Remove bolts from leveling strap assemblies (7) near the front of the machine. Pivot leveling straps up to allow clearance for weight assemblies.
5. Carefully lower the 340kg weight assemblies (8) onto center frame trusses using hoist and straps.
6. Pivot level bar (6) down and the level bar spring assembly (3) until holes in plates are aligned. Re-install bolts (1). Secure with lock washers and nuts.
7. Reinstall remaining hardware including leveling straps (7), wing rest (5), and depth-stop bar (4).



Brake Connections

CAUTION: Braking Hazards

To avoid damaging the machine, make sure the operator understands when brakes are engaged and when they are released.

An air controlled braking (trailer braking) system is installed on this machine. Your tractor's trailer brake system operates the air brakes. See your tractor's operator manual for more information.

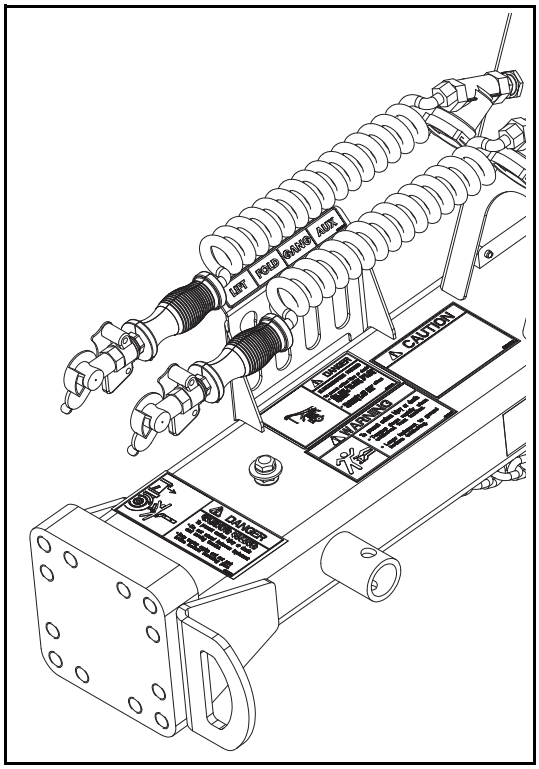
Air Brake Connections

1. Locate the button for the shunt valve on the tongue of the machine. Make sure the button is pulled all the way out.

CAUTION: Braking Hazards

Do not use the machine with a "single-line" air brake system. Transport speeds require an air brake system to be dual-line.

2. Inspect yellow and red gladhands before connecting. Clean elastomer seal surfaces and inlet ports.
3. Connect the yellow gladhand.
4. Once yellow coded brake line is attached, connect the red gladhand.
5. Pull the ring on the bottom of the air reservoir to open drain valve. Drain any water from air reservoir. Release the ring to close the drain valve.



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

⚠ 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.

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

- ❑ Carefully read "**Important Safety Information**" on page 1.
- ❑ Lubricate Turbo-Max as indicated under "**Lubrication**" on page 18.
- ❑ Check all tires for proper inflation, "**Tire Inflation Chart**" on page 18.
- ❑ Check all bolts, pins, and fasteners. Torque as shown in "**Torque Values Chart**" on page 21.
- ❑ 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.

☐ 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 (30 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 8).
2. Always use a locking-style hitch pin sized to match holes in hitch and draw-bar, and rated for the load.
3. Verify correct operation of lights.
4. Install transport locks, wing locks and close wing lock valve (page 10).
5. Check that tires are properly inflated (page 18).
6. Do not exceed 30 kph (20 mph). Comply with all national, regional and local laws when traveling on public roads.
7. 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	8
❑	Hitch pin locked	-
❑	Implement jack stowed	8
❑	Check all tire pressures	18
❑	Transport locks are removed and lock valve is in the field position (open)	9
❑	Wings locks are in the unlocked position	10

	Hydraulic System Checklist	Page
❑	Check tractor hydraulic reservoir full	-
❑	Make hydraulic connections	9
❑	Inspect connections for leaks	-
❑	Unfold Implement	10

	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	14

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

	Ending Tilling Checklist	Page
1.	Suspend operations as above	-
2.	Lift implement	-
3.	Set tractor for fold and fold wings	10
4.	Secure wings with wing locks	10
5.	Place locking valve and transport locks in transport positions	9
6.	Lower implement on to transport locks	-
7.	Lights ON for transport	-

❑ General Operation and In-Field Adjustments

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**" on page 15 for initial setup. If no down pressure is needed, set the fold hydraulic system to the "FLOAT" position at this time.

When operating the blades in the straight position, down pressure is necessary, usually between 300 and 400 psi.

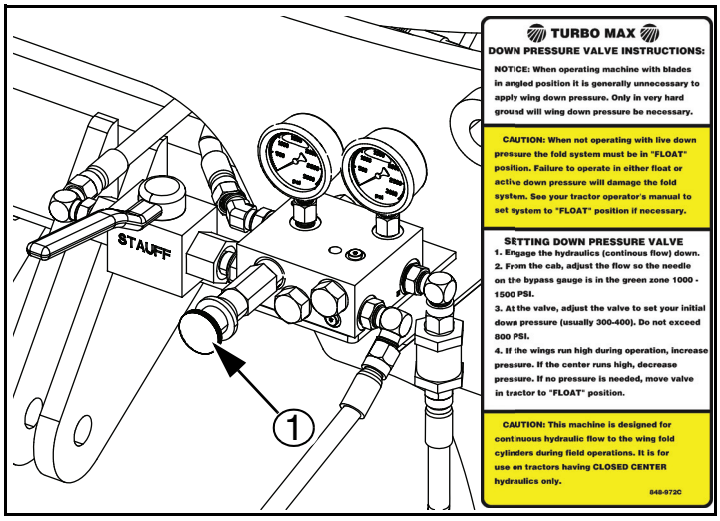
🕮 **NOTE: Set Tractor Valve Properly**

Never leave tractor valve centered when unfolded with machine in motion. 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.

🕮 **NOTE: Angle Rows**

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.

Hydraulic Down Pressure



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 either float or active down pressure will damage the fold system. See yoru 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.

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 (1), adjust the valve to set your initial down pressure (usually 300-400 PSI). Do not exceed 800 PSI.
4. If the wings run high during operation, increase pressure. If the center runs high, decrease pressure. If pressure is unneeded, move valve in tractor to "FLOAT".

Tillage Gang Controls

Your Turbo-Max's gang angles are hydraulically adjustable from within a tractor cab. Simply determine the desired angle and apply hydraulics until satisfied with the result. Angling your machine's tillage gangs can help breakup and level difficult-to-work soil and root systems. For softer soil and final passes when planting, set gangs to a vertical (non-angled) position.



NOTE: Setting Gang Angles

Setting the gang angles to a more severe angle allows disks to breakdown and circulate more crop residue to the soil surface with fewer passes.

When gangs are angled, operating speed should be lowered to between 9-12 kph to reduce machine stress and chance of disk breakage. After returning the gangs to a vertical position, you can resume normal operating speeds.

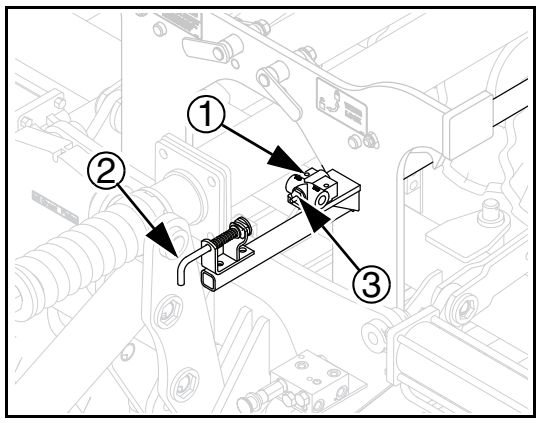
Turn off down pressure to wings while gangs are angled. Resume applying down pressure when disks are returned to a vertical position.

CAUTION: Field Hazard

Down pressure applied to wings while gangs are angled causes overly aggressive and uneven tilling of soil.

Depth Stop Adjustment

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.

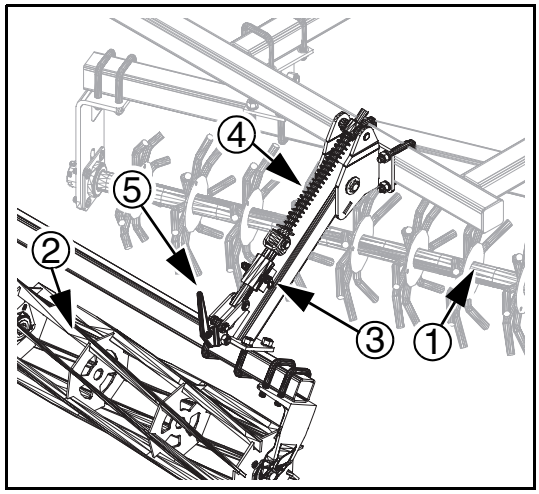


NOTE: Maintain Tire-To-Ground Pressure

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. If this problem persists, contact the factory service representative for other possible adjustments.

Rolling Harrow and Reel (Option)

The rolling harrow ① and reel attachment ② is a versatile leveling attachment and requires very little adjustment. Some adjustment, however, may be required for maximum effectiveness.



NOTE: Reduce Gang Angle At High Speeds

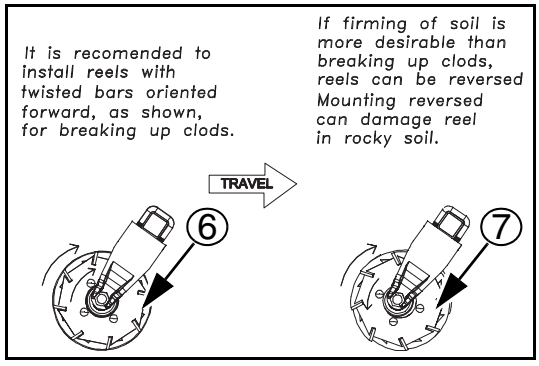
In some severe conditions at high speeds, some windrowing may occur and the gang angle may need to be reduced slightly from the preset 22 degrees. When adjusting, maintain adequate clearance between sections in the field position.

1. The reel down pressure may be adjusted by removing the pin (3) and then either pushing the handle (5) forward to increase the spring pressure or by pulling the handle backwards to decrease the spring pressure (4). When the desired amount of spring pressure is set, re-insert the pin ③.

NOTE: Avoid Down Pressure In Wet Conditions

It is recommended to run little or no down pressure in wet or sticky field conditions.

2. The bars on the reels are angled forward (6) 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 (7). This does however increase the chance of causing damage to the bars in rocky soil.



WARNING: Rough Terrain Hazard

Be sure reels are installed with twisted bars oriented forward (6) as shown. Mounting in reverse (7) can damage reel in rocky soil.

Parking

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

1. Position the implement on firm, level ground. Raise, fold and lock implement (page 9 and 10).

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.

2. Remove jack from storage position and pin securely to lifting stob on outside of implement tongue. See "**Hitching Turbo Max to Tractor**" on page 8.

NOTE: Avoid Soft Ground

If ground is soft, place a wide block or plate under the jack to increase contact area.

3. Unhook electrical lines and protect with any plugs or caps provided.
4. 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.
5. Disconnect the safety chain.
6. Unhitch from tractor.

Storage

If you intend to store your machine for an extended period of time, follow the procedures outlined below. These procedures will ensure that the machine is ready to operate with minimum preparation when it is removed from storage.

Placing Machine Into Storage

NOTE: Keep Stored Away From Children

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

1. Raise, fold and lock implement (page 9 and 10).
2. Clean Turbo-Max of mud, dirt, excess oil and grease.
3. Perform "**Parking**" checklist (see above).
4. Check all bolts, pins, fittings and hoses for wear or damage. Tighten, repair or replace parts as needed.
5. Use touch-up paint to cover scratches, chips and worn areas to prevent rust.

Removing Machine From Storage

1. Check tire pressure and inflate tires as necessary. See "**Tire Inflation Chart**" on page 18 for recommended PSI levels.
2. Perform any necessary repairs to the machine before performing any adjustments or operation.
3. Check that wings are securely raised and locked.

NOTICE: Winter Storage Removal

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.

Maintenance and Lubrication

Maintenance

1. Always use the transport lock when working on or doing maintenance to the Turbo-Max. If folded, ensure you have secured wing locks and closed the wing fold valve. 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. Coulter, Finishing Reel and Heavy Reel bearings are all maintenance free and do not require greasing.
6. Check drag bolts for looseness or excessive wear. Your drag is an important part of the tillage operation.

Tire Inflation Chart

Tire Inflation Chart		
Wheel	Tire Size	Inflation
Transport/ Wings	15.0/55 - 17 14-Ply BKT AW705	54 psi (372 kPa)
Transport/ Center	550/45 - 22.5 20 P.R. BKT Floation 648T	58 psi (400 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

Appendix

Turbo Max Specifications and Capacities

Model No.	6.0m Turbo-Max	8.0m Turbo-Max
Tillage Width	6 meters	8 meters
Center Section	3 meters	3 meters
Wing (Inner)	1.5 meters	2.5 meters
Number of Coulters	65	85
Blade Spacing	19cm	19cm
Gang Angle	Hyd. Adjustable 0° to 6°	Hyd. Adjustable 0° to 6°
Weight, Base Machine	7,900kg	9,800kg
Transport Width	3 meters	3 meters
Transport Height	3 meters	4 meters
Length (w/ attachment)	8.7 meters	8.7 meters
Tire Size (Center)	550/4.5-22.5 20 PR	550/4.5 - 22.5 20 PR
Tire Size (Wing)	15.0/55-17 14 PR	15.0/55-17 14 PR
Horsepower (PTO)	200+	275+
Kilowatt	150+	205+

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

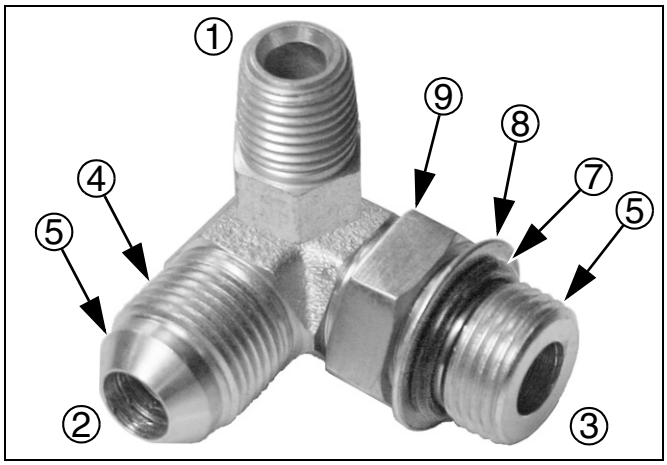
☐ Hydraulic Connectors and Torque

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.



Dash Size	Fittings Torque Values		
	Fitting	N-m	Ft-Lbs
-4	<numerator>1⁄<denominator>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	<numerator>5⁄<denominator>16-18 JIC	24-27	18-20
-6	<numerator>5⁄<denominator>16-18 ORB w/ jam nut	16-22	12-16
-6	<numerator>5⁄<denominator>16-18 ORB straight	24-33	18-24
-8	<numerator>3⁄<denominator>4 -16 JIC	37-53	27-39
-8	<numerator>3⁄<denominator>4 -16 ORB w/jam nut	27-41	20-30
-8	<numerator>3⁄<denominator>4-16 ORB straight	37-58	27-43

Torque Values Chart

Bolt Size	Bolt Head Identification					
	 Grade 2		 Grade 5		 Grade 8	
in-tpi[a]	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	Bolt Head Identification					
	 Class 5.8		 Class 8.8		 Class 10.9	
mm x pitch[c]	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

Torque Values Chart	
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	5/8”-18 (170ft-lbs) 3/4”-16 (295ft-lbs)

Warranty

Great Plains (a division of Great Plains Manufacturing, Inc.) warrants to the original purchaser that this Great Plains unit will be free from defects in material and workmanship for a period of one year from the first use date when used as intended and under normal service and conditions for personal use; ninety days for custom/commercial or rental use. This Warranty is limited to the replacement of any defective part by Great Plains 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.

The following items and/or conditions are **not covered under warranty**: failures resulting from abuse or misuse of the equipment, failures occurring as a result of accidental damage or acts of God, failures resulting from alterations or modifications, failures caused by lack of normal maintenance as outlined in the operator's manual, repairs made by non-authorized personnel, items replaced or repaired due to normal wear (such as wear items and ground engaging components), repeat repair due to improper diagnosis or repair by the dealer, temporary repairs, service calls and/or mileage to and from customer location, overtime premium, or unit hauling expenses. The warranty may be voided if the unit is towed at speeds in excess of 20 miles per hour (32 kilometers per hour), or is used in soils with rocks, stumps, or other obstructions.

Great Plains reserves the right to make changes in materials or design of the product at any time without notice. The warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct or consequential or contingent to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its control. This warranty does not extend to crop loss, losses caused by planting or harvest delays or any expense or loss of 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 the unit is registered with Great Plains within 10 days from the date of the original purchase.

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