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.
**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 with the option(s) weight and measurements.

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**Dealer Contact Information**

Name: 
Street:  
City/State:  
Telephone:  
Email:  
Dealer's Customer No.:  

⚠️ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov
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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.
Wear Protective Equipment

▲ Wear protective clothing and equipment.
▲ Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
▲ Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.
▲ Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.

Handle Chemicals Properly

Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
▲ Read and follow chemical manufacturer’s instructions.
▲ Wear protective clothing.
▲ Handle all chemicals with care.
▲ Avoid inhaling smoke from any type of chemical fire.
▲ Store or dispose of unused chemicals as specified by chemical manufacturer.

Avoid High Pressure Fluids

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

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

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.
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 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.

▲ Comply with state and local laws.

▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.

▲ Carry reflectors or flags to mark Field Cultivator Air Drill in case of breakdown on the road.

▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under "FCA Specifications and Capacities" on page 34.

▲ Do not fold or unfold the Field Cultivator Air Drill while the tractor is moving.

Shutdown and Storage

▲ Lower Field Cultivator Air Drill, put tractor in park, turn off engine, and remove the key.

▲ Secure Field Cultivator Air Drill using blocks and supports provided.

▲ Detach and store machine in an area where children normally do not play.

Tire Safety

Tire changing can be dangerous and should be performed by 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 the machine, put tractor in park, turn off engine, and remove key before performing maintenance.
▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on machine.
▲ 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 machine 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 machine functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave Field Cultivator Air Drill unattended with tractor engine running.
▲ Do not stand between the tractor and machine 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 machine. Make sure all persons are clear of working area.
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.

---

818-055C
Slow Moving Vehicle Reflector
On the back of the center wing stop.;
1 total

838-615C
Amber Reflectors
Two on light bracket and two on center brace bar. Two on center frame. Two on rear of finishing attachment (not shown), visible from side while folded for transport; 8 total
838-614C
Red Reflectors
On rear of light brackets (top);
2 total

838-603C
Orange Reflectors
On rear of light brackets (bottom);
2 total

838-598C
Caution: Read Operator's Manual
On front of hitch;
1 total
838-599C
Danger: Electrocution Hazard
Front side of center wing brace (left side); 1 total

838-600C
Danger: Crushing Hazard
On front (middle) of hitch; 1 total

838-602C
Warning: Overhead Wing Hazard
On outside center of center and wing frames (both sides); 4 total 8323, 8328, 8332 & 8336
6 total 5539, 8544, 8548, 8551, 8556 & 8560
### 838-094C
**Warning: High Pressure Fluid**
Front side of center wing brace (middle);
1 total

### 838-611C
**Warning: Hand Crushing**
Front side of center wing brace (left & right side);
2 total

### 838-613C
**Notice: Transport Lock**
On front middle of center frame;
1 total
838-612C
Warning: Wings Could Fall Suddenly
On front of wing stop (both sides); 2 total
Introduction

Great Plains welcomes you to our growing family of new product owners. The FCA4500 Field Cultivator have 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

FCA4500-5410   45-Foot 5-section 10” spacing
FCA4500-7275   45-Foot 5-Section 7.5” spacing

Description of Unit

The FCA4500 Field Cultivator is a five-section seedbed preparation and planting tool all in one. Working width is 45 feet. The implement is designed for secondary field operations to smooth, level, eliminate weeds and incorporate chemicals, apply fertilizer and drill seed.

Definitions

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.

NOTICE

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.

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.
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 left end of the top front tool bar.

Record your FCA4500 Field Cultivator Air Drill 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.

Further Assistance

Great Plains Manufacturing, Inc. wants you to be satisfied with your new FCA4500 Field Cultivator Air Drill. If for any reason you do not understand any part of this manual or are otherwise dissatisfied with the product please contact:

Great Plains Service Department
1525 E. North St.
PO 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.
Preparation and Setup

This section helps you prepare your tractor and FCA4500 Field Cultivator Air Drill for use, and covers tasks that need to be done seasonally, or when the tractor/Field Cultivator Air Drill configuration changes.

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

Post-Delivery/Seasonal Setup

On initial delivery, use with a new tractor, and seasonally, check and as necessary, complete these items before continuing to the routine setup items:

- Bleed hydraulic fold system.
- Wing leveling and alignment (page 25).
- De-grease exposed cylinder rods if so protected at last storage.

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 as shown on page 16.
- If machine is folded, remove the transport pins from wing stops. (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 untold 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 Field Cultivator Air Drill 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 32. 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 34.
- Put transport locks in place and refold the machine slowly. Put wing stop pins in place. Always use the transport pins when moving from field to field. You are now ready to go to the field.

NOTICE

Tractor must have a powered center pin in the electrical hook up or the wing fold system and tower retract system will not function, damage to equipment will result.
Clevis Hitch

- The Field Cultivator Air Drill 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.

Refer to Figure 3

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:
   - 890-798C HITCH CLEVIS
   - 802-487C HHCS 3/4-10X6 GR8
   - 803-367C NUT HEX TOP LOCK 3/4-10 PLT

2. With the square-shouldered end of the clevis up, fully seat the clevis in the upright base hitch. Insert the Grade 8 bolt from below. Secure with lock nut.

**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 to allow some vertical articulation of the draw bar pin. Always use at least one cushion.

1. Select one each:
   - PPI-302V TOP PLATE - CAT 3
   - PPI-203VR V-BLOCK
   - 802-383C HHCS 3/4-10X3 GR5
   and two:
   - PPI-205H CUSHION

2. Set the cushions inside the hitch recess, just forward of the vertical bolt hole. Position the V-block forward of the cushions and check the size of the resulting pinning hole. Remove a cushion if needed.

3. Add the top plate. Secure from below with Grade 5 bolt.
Hitching Tractor to Field Cultivator Air Drill

**DANGER**

**Crushing Hazard:**
Do not stand or place any body part between Field Cultivator Air Drill and moving tractor. You may be severely injured or killed by being crushed between the tractor and Field Cultivator Air Drill. Stop tractor engine and set parking brake before attaching cables and hoses.

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

Before hitching, check the compatibility and capability of the towing tractor.

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 Field Cultivator Air Drill.
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. Hitch the tractor to the Field Cultivator Air Drill using the block or yoke clevis determined by the tractor drawbar. Use the correct size pin for clevis or block.

**Load Sway Hazard:**
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 “Transporting” on page 21, for safe transporting.

**Refer to Figure 4**

4. Use jack 1 to raise and lower Field Cultivator Air Drill tongue.

**Refer to Figure 4**

5. After hitching tractor to Field Cultivator Air Drill, store jack on storage tube 2 on side of Field Cultivator Air Drill tongue.
6. Secure Field Cultivator Air Drill safety chain to an anchor on the tractor capable of pulling the unit.
Electrical Hookup
Plug FCA4500 electrical lead in tractor seven-pin connector. If your tractor is not equipped with a seven-pin connector, contact your dealer for installation. Plug in any optional connectors or aftermarket connectors, such as an FCA4500-mounted GPS receiver. For future reference, note any optional connectors on this checklist.

- ☑️ Lighting connector (standard)
- ____________________
- ____________________

Hydraulic Hose Hookup

**WARNING**

*High Pressure Fluid Hazard:*
Relieve pressure before disconnecting hydraulic lines. Escaping fluid under pressure may have sufficient pressure to penetrate the skin causing serious injury. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.

**Refer to Figure 7**
Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

**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.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Lift (2 hoses)</td>
</tr>
<tr>
<td>Green</td>
<td>Fold (2 hoses)</td>
</tr>
<tr>
<td>Red</td>
<td>Openers (2 hoses)</td>
</tr>
</tbody>
</table>

**WARNING**

*High Pressure Fluid Hazard:*
Relieve pressure before disconnecting hydraulic lines. Use 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. Only trained personnel should work on system hydraulics.
Refer to Figure 6

Hose Handles

To distinguish hoses on the same hydraulic circuit, refer to, “Hydraulic Hose Hookup” on page 15. The hose under an extended symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.

Clean all hydraulic couplings and hook hoses to tractor.
First Time Field Adjustments

Pre-Leveling of Machine

Front to Rear Leveling

Refer to Figure 7

1. Pre-leveling of machine can be done on a concrete slab or level surface. Lower machine so sweeps are 1-2” off of ground on the center frame. Loosen jam nut and adjust turnbuckle at the front of machine to level it from front to back. (Shorten to bring front down, extend to bring front up). Level machine with the front row shanks just slightly deeper or lower than the back.

2. Re-tighten jam nut.

3. Repeat same procedure for other side of center frame and 5-Section machines, adjust inner wing gauge wheels the same.

Wing Adjustment

Refer to Figure 8

4. Set the 3-section wings and 5-section inner wings to match the depth of the center. This is done by adjusting the wing pull bar assembly ① on each wing. Start by loosening the jam nut ②, then adjust the adjustment rod ③. Lengthen the adjustment rod ③ (turn counter-clockwise), to run shallower, shorten the bolt (turn clock-wise) to run deeper.

5. Tighten jam nut ②, back against clevis.

In some conditions the wings will need to be set slightly lower than the center, as the center may tend to run deeper behind the tractor tires.
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 FCA4500 Field Cultivator to the field.

- Carefully read "Important Safety Information" on page 1.
- Your tractor must have a powered auxiliary pin for in the electrical hookup or the wing fold assist and the tower retract systems will not operate.
- Lubricate Field Cultivator Air Drill as indicated under "Lubrication" on page 32.
- Check all tires for proper inflation. See "Tire Inflation Chart" on page 34.
- Check all bolts, pins, and fasteners. Torque as shown in "Torque Values Chart" on page 36.
- Check Field Cultivator Air Drill 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.
- Perform all beginning-of-season and items under "Maintenance and Lubrication" on page 32.

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.
Raising / Lowering

Raising When Unfolded
No particular steps are required for raising while unfolded.

When raising in the field, hold at full lift for 2-to-3 seconds to re-phase the lift circuit.

At first field lift of the day, raise and lower several times to purge any air from the system.

Raising When Folded
If folded, the implement may be raised at any time. Extend the lift circuit until the implement is fully raised. Hold the lever at Extend for an extra 2-to-3 seconds to re-phase the lift cylinders.

Set the lift circuit to Neutral to hold at lift, such as for removal of lock channels.

Lowering When Unfolded
No particular steps are required for lowering while unfolded.

Retract the lift circuit until the depth control system arrests vertical motion. Set the circuit to Neutral.

Lowering When Folded (with Locks)
Great Plains recommends lowering the implement onto the lock channels for transport and storage, rather than having it held above the locks by hydraulics.

These steps presume the lock channels are already in place (page 22).

1. Slowly Float the lift circuit to lower the implement onto the locks.
2. Set the circuit to Neutral.

Fully Lowering When Folded
Great Plains does not recommend resting the folded implement on the center section chisel points. Fully lowering a folded implement onto supports or stands might be necessary for maintenance.

For lowering, the transport lock channels need to be removed if in place.

1. If an optional hydraulic finishing attachment is installed, Retract that circuit to fully raise it. Set the circuit to Neutral to hold at raised.
2. If transport locks are installed, Extend the lift cylinder circuit to fully raise the implement. Set the circuit to Neutral to hold at lift. Turn off the tractor. Remove the key. Remove and store the transport lock channels (page 22).
3. Start the tractor. Slowly Retract the lift circuit until the frames rest on the support stands. Set the lift circuit to Float. Any optional hydraulic finishing attachment needs to be lowered on to support stands and that circuit placed in Float.
Unfolding

Unfold the FCA4500 for adjustments, field operations, maintenance, parking and storage.

1. Unless the FCA4500 was folded, with the currently hitched tractor, only a short time ago, check for evidence of oil leaks. Check the ground at hitch connections, hose fittings and under cylinders.
3. Clear all persons from on or near the FCA4500.
4. Be aware of vertical and horizontal clearances needed to unfold the FCA4500.
5. If the implement was lowered, or was raised with transport lock channels installed, Extend the lift circuit to fully raise the implement. Set the circuit to Neutral to hold at lift.
6. Shut down the tractor and remove the key.
7. Remove Wing Pins & store on front Wing Stop.
8. Put tractor in Park with parking brake engaged.
9. Slowly Extend the fold circuit to unfold the wings. When wing wheel are in ground contact, set the fold circuit to active down pressure or Float.
10. Wait for both wings to reach the fully unfolded position. Set tractor remote to Neutral to lock at unfolded.

Folding

Fold the FCA4500 for movements on public roads and between fields with narrow clearances.

1. Hitch tractor (page 14).
2. Move to level ground. Be aware of vertical clearance needed to fold FCA4500.
3. Put tractor in Park with parking brake engaged.
4. Be aware of vertical clearance required for folding.
5. Clear all persons from or near the FCA4500.
6. Verify that the wing lock pins are out or in the storage holes.
7. Slowly move fold circuit lever to Retract. Observe the fold operation.
8. Wait for both wings to reach the fully folded position. Set tractor remote to Neutral to hold at folded.
9. Set the fold circuit to Neutral to hold at fold.
10. Shut down the tractor.
11. Install Wing Pins.

Start the tractor. Slowly Retract the lift circuit to settle the machine on the locks, then move circuit to Float to relieve any pressure, then Neutral.

**WARNING**

Overhead Sharp Object and Crushing Hazards:
Clear all persons from around the implement during unfold. A lowering wing could cause severe lacerations at chisel points, as well as crushing resulting in serious injury or death.

**WARNING**

Crushing Hazard:
Bystanders could be crushed between the folding FCA4500 wings and the FCA4500 center frame, or caught in the folding mechanism. To avoid serious injury or death, keep all bystanders well away during FCA4500 operation.

**DANGER**

Electrocution Hazard:
Avoid overhead lines when folding and transporting. When folded and lifted, the FCA4500 Field Cultivator requires clearance of at least 14 feet 6 inches (4.4m), which is high enough to contact low hanging lines. Touching the FCA4500 Field Cultivator or tractor completes a circuit to ground, and can result in serious injury or death. At higher voltages, shock can occur without direct contact.

**WARNING**

Crushing Hazard:
Bystanders could be crushed between the folding FCA4500 Field Cultivator wings and the FCA4500 Field Cultivator center frame, or caught in the folding mechanism. To avoid serious injury or death, keep all bystanders well away during FCA4500 Field Cultivator operations.

**NOTICE**

Equipment Damage Risk:
Do not fold on hillsides. Fold only on level ground. On a hillside, step 9 could allow the downhill wing to unfold.
Transporting
See “Hitching Tractor to Field Cultivator Air Drill” on page 14 before transporting the Field Cultivator Air Drill.

Check Tractor Capacity and Configuration

- Add weights to tractor as required.

When determining the weight of your Field Cultivator Air Drill, be sure to include the weight of any options.

⚠️ DANGER

Loss of Control Hazard:
Do not tow the FCA4500 behind another implement on public roads. Tow the FCA4500 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 14).
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 14).
4. Verify correct operation of lights.
5. Be sure all transport locks are installed.

- Remember that the Field Cultivator Air Drill is wider than the tractor. Be sure towers are fully retracted when folding machine, if not damage will occur.

6. Check that tires are properly inflated (page 34).
8. Always have flashing warning lights on whenever traveling on public roadways, except where such use is prohibited by law.
9. Comply with all federal, state and local safety laws when traveling on public roads.
10. Do not exceed 32 kph (20 mph). Comply with all national, regional and local laws when traveling on public roads.
Lift Cylinder (Transport) Locks

Refer to Figure 9 and Figure 10

Two lock channels ① can hold the implement at raised for transport, storage and maintenance.

The lift cylinders are inconvenient to access when the FCA4500 Field Cultivator is unfolded. Great Plains recommends performing lift cylinder lock steps with the implement folded and with wings locked.

To Install Lift Lock Channels
1. Raise the FCA4500 Field Cultivator and fold the wings (page 20). Leave the lift circuit at Neutral to hold at lift.
2. Secure the wings with lock pins.
3. Remove the lock channels ① from their storage location.
4. With the pin ② free, place each lock channel over a lift cylinder rod. Secure with pin.
5. Slowly move the remote lever to Float to settle the implement onto the channel.
6. Set the lift circuit to Neutral after settling on lock channels.

To Remove Lift Lock Channels
A tractor or suitable hydraulic power source must be connected for these steps.
1. If the implement is unfolded and/or lowered, raise and fold it (page 19).
2. Secure the wings with lock pins.
3. Extend the lift circuit to raise the implement completely. Set the circuit to Neutral to hold at full lift.
4. Remove the pin ② from each lock channel ①. Remove the channel.
5. Transfer to the storage tube weldment that is located on the top of the center frame. Secure with pin.
General Operation and In-Field Adjustments

1. Remove the transport pins and unfold machine. Make sure the fold cylinders are fully extended to allow the wings to fully flex in the field.

2. If possible have someone observe the machine during first time operation for levelness, front to rear and wings to center frame. Adjust each as needed. For front to rear, either extend or shorten the length of the turnbuckle on the gauge wheels. Never run the machine with the back lower (deeper) than the front. To adjust the machine from side to side, use the eyebolt on each wing, See "First Time Field Adjustments" on page 17.

3. The ideal working speed for the Field Cultivator Air Drill is 5 to 7 mph. Working too slow may cause plugging, poor incorporation or mixing of crop residue and reduced weed kill. Running too fast may cause air system plugging.

4. The Field Cultivator Air Drill is designed as a secondary tillage tool and is designed to leave a finished seedbed following some form of fall or spring tillage. For best results, if at all possible, run the machine at a slight angle of the rows. This will improve trash flow and help spread the residue more evenly throughout the field.

5. When you have the machine set to the desired working depth, set the depth stop assembly on the depth control bar. This is located at the front of the machine on the brace bar.

   - Screw the depth stop in to run shallower. Screw the depth stop out to run deeper. 1 turn = 1/4" working depth. This will maintain a constant depth each time after raising and lowering the machine.

6. If after setting the depth stop, the detent on the tractor kicks out before the stop contacts the button on the depth stop, slow the hydraulic flow speed down. If the problem persists, contact the factory service representative for the possible adjustments. Do not adjust the rebound valve without first contacting the factory service rep.

7. Adjust the drag to leave the desired results while maintaining the trash flow through the drag.

**NOTICE**

When in use be sure towers are fully raised or plugging issues will likely occur.
Initial Frame Down-Pressure

Refer to Figure 11

Be sure to set the working depth on the field cultivator before setting the down pressure on the openers.

Set opener down pressure. There is one pressure-control valve for wing sections ① and one for center section ②.

Initially set down pressure at 1400 psi, as indicated on the gauges ③, ④. Then adjust as field condition warrant.

Figure 11
Set Opener Down-Pressure

Manual valve shown. Electric valve does not have knobs.
Implement Lift Switch Adjustment
S/N D1003P-

Adjustment

⚠️ DANGER ⚠️

Do not place any part of body under implement while making adjustments.

Refer to Figure 12
Lower the implement until at a height where seeding should stop (usually just above ground). Turn off the tractor and remove the key. Securely support implement frame at this height with jack stands or blocks. Loosen switch bracket bolts and slide switch up or down until the flexible toggle (whisker) is just past the point at which the switch is activated (flexible switch toggle not contacting anything).

Lift Switch Wiring
The implement lift switch has three wires (black, red and green). In order for the switch to work properly, the correct two leads must be connected to the lift switch extension cable.

The extension cable black lead always connects to the switch black wire.

The extension cable red lead must connect to the switch wire color indicated in the table below, for your implement.

<table>
<thead>
<tr>
<th>Drill Model</th>
<th>Lift Switch Extension Cable Red Wire to...</th>
<th>Switch State Drill Raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA4000/HD</td>
<td>Switch Wire: Red</td>
<td>Closed</td>
</tr>
<tr>
<td>CTA4500HD</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FCA4500</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>NTA3010</td>
<td>Switch Wire: Green</td>
<td>Open</td>
</tr>
<tr>
<td>NTA3510</td>
<td>Switch Wire: Green</td>
<td>Open</td>
</tr>
<tr>
<td>3N-4010HDA</td>
<td>Switch Wire: Red</td>
<td>Closed</td>
</tr>
</tbody>
</table>

Figure 12
FCA Lift Switch
S/N D1004P+

Adjustment Refer to Figure 59

The implement lift switch ① is a proximity type switch, mounted on the right-hand rear wheel assembly. The lift switch turns seed metering on and off as the implement is lowered and raised. The lift switch is actuated by the upper lift arm ②.

To adjust the height at which the seed metering is turned on, do the following.

⚠️ DANGER

Do not place any part of body under implement while making adjustments.

1. Park the tractor, implement, and, if equipped, the seed cart on a solid, level surface.
2. Unfold the drill.
3. Lower the implement to the height where seeding should start (usually just above ground). Raise the openers and additional 1/2 in (12 mm). Set the lift circuit to neutral.

⚠️ Do not set the lift switch to come on too low. The openers can ride up over irregular ground and an early switch can result in patches of no seeding.
4. Stop the tractor engine and apply the tractor parking brake. Turn the key to the ON position to provide power to the lift switch.

⚠️ DANGER

Have another person set in the tractor seat during the adjustment procedure. Have the person make sure the hydraulics are not engaged and the tractor is not started during the adjustment procedure.

5. Locate the lift switch ①. Check the distance between the face ② of the lift switch and the rod ③ that moves across the face. The distance must be \( \frac{5}{16} \) in (8 mm) or less. If the distance is not correct, adjust the nuts on the lift switch as necessary.
6. Loosen the outer nut ④ on the lift switch just enough so the lift switch can move in the adjustment slot.
7. Slide the lift switch up or down in the slot until the yellow lamp in lift switch goes from off to on.
8. Tighten the outer nut on the lift switch without moving the lift switch.
9. Start the tractor engine and lower the implement all the way.
10. Stop the tractor engine. Remove the key and take the key with you.

⚠️ NOTE: If adjustments are made to hydraulic coulter depth, check lift switch adjustment.
Frame Level

Refer to Figure 14
The 00 and 00HD Series openers are designed to produce optimal results when the opener frames are level with the ground. Operating with drill frame level is also recommended, and this is set by hitch height (page 18).

• opener sub-frame adjustment: all gauge wheel trunnions in same frame pivot holes - see “Opener-Subframe Adjustment” on page 53,
• opener pivot height: all openers pivoting in same hole at their mounts

• opener press wheel height: all row units set the same - see page 59, and;
• opener spring down-force: all row units set the same (possibly excepting rows in tire tracks) - see page 56.

Refer to Figure 15
This photograph illustrates openers too high in front. Increase hydraulic pressure and/or lengthen opener springs.
Check sub-frame pivot in use at higher pressures.

Refer to Figure 16
This photograph illustrates openers too low in front, also known as “bulldozing”. Decrease hydraulic pressure and/or shorten opener springs.
Check sub-frame pivot if pressures have recently been reduced.
Initial Seeding Depth

Refer to Figure 17

11. Set opener seeding depth by adjusting press-wheel height ➊. To adjust, first raise openers slightly, then lift and slide T handles ➋ on top of openers. Adjust all press wheels to the same height. T handles adjust at 1\(\frac{1}{4}\) inch (6.4 mm) seeding depth change per minimum handle step. The range is approximately 0 to 3\(\frac{1}{2}\) inch (0-8.9 cm) seeding depth.

  • For more shallow seeding, slide T handles forward ➋ toward implement.
  
  • For deeper seeding, slide T handles backward ➋ away from implement.

12. While seeding, remember:

  • Raise openers before turning. Never back up or turn sharply with openers in the ground. Doing so will plug openers and may damage equipment.

  • Be aware of the 5 to 10 foot (1.5 to 3 m) delay needed for seed to reach openers. If you stop in middle of field, lift FCA4500 and back up 10 feet before proceeding.

  • Check periodically for plugged openers and hoses. With fan running and FCA4500 raised, hand crank metering system. Look below each opener for seed or fertilizer.
**Field Checklists**

Use the following tables to develop a final checklist for your tractor/FCA4500 Field Cultivator configuration. Additional or fewer steps may be necessary depending on tractor features, options and accessories.

### Mechanical Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCA4500 Field Cultivator hitched with correct category hitch</td>
<td>12</td>
</tr>
<tr>
<td>Hitch pin locked</td>
<td>-</td>
</tr>
<tr>
<td>Safety chains secured to tractor or leading implement</td>
<td>14</td>
</tr>
<tr>
<td>Parking jack stowed</td>
<td>14</td>
</tr>
<tr>
<td>Check all tire pressures</td>
<td>32</td>
</tr>
<tr>
<td>Transport locks (fold and lift) remove and stowed</td>
<td>20</td>
</tr>
</tbody>
</table>

### Electrical Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify electrical hookup solid</td>
<td>15</td>
</tr>
</tbody>
</table>

### Hydraulic System Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check tractor hydraulic reservoir within operating limits</td>
<td>-</td>
</tr>
<tr>
<td>Make hydraulic connections</td>
<td>15</td>
</tr>
<tr>
<td>Inspect connections for leaks</td>
<td>-</td>
</tr>
<tr>
<td>Unfold Implement</td>
<td>20</td>
</tr>
<tr>
<td>Raise the FCA4500 Field Cultivator completely to re-phase the hydraulic circuit before starting field work</td>
<td>-</td>
</tr>
</tbody>
</table>

### First Pass Operation Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement unfolded and aligned for first pass.</td>
<td>20</td>
</tr>
<tr>
<td>Pull forward, lower FCA4500 Field Cultivator.</td>
<td>24</td>
</tr>
<tr>
<td>Begin drilling for a short distance.</td>
<td>-</td>
</tr>
<tr>
<td>Stop. Assess:</td>
<td></td>
</tr>
<tr>
<td>• working depth, seeding depth</td>
<td>-</td>
</tr>
<tr>
<td>• finishing attachment operation</td>
<td></td>
</tr>
<tr>
<td>Make necessary adjustments</td>
<td>23</td>
</tr>
</tbody>
</table>

### Sharp Field Turns Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Raise FCA4500 Field Cultivator</td>
<td>-</td>
</tr>
<tr>
<td>2. Make turn</td>
<td>-</td>
</tr>
<tr>
<td>3. Lower FCA4500 Field Cultivator</td>
<td>-</td>
</tr>
<tr>
<td>4. Resume drilling.</td>
<td>-</td>
</tr>
</tbody>
</table>

### Equipment Damage Risk:

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

⚠️ If you stop in the middle of a pass, raise the implement and back up 10 feet (3 meters) before resumption of working.

### Ending Tilling Checklist

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suspend operations as above</td>
<td>-</td>
</tr>
<tr>
<td>2. Lift implement</td>
<td>-</td>
</tr>
<tr>
<td>3. Set tractor for fold</td>
<td>20</td>
</tr>
<tr>
<td>4. Fold wings</td>
<td>20</td>
</tr>
<tr>
<td>5. Place transport locks in transport position</td>
<td>22</td>
</tr>
<tr>
<td>6. Lower implement on to transport locks</td>
<td>-</td>
</tr>
<tr>
<td>7. Lights ON for transport</td>
<td>-</td>
</tr>
<tr>
<td>8. Travel with caution</td>
<td>-</td>
</tr>
</tbody>
</table>
Rear Attachment Settings

Heavy Reel Adjustment

Refer to Figure 18

9. The reel ① down pressure may be adjusted by loosening or tightening the bolt ② that is screwed into the front of the spring ③ underneath the reel arm ④ and then either increasing or decreasing the spring pressure. For more down pressure tighten the bolt. For less down pressure loosen the bolt. Note: It is recommended to run little or no down pressure in wet or sticky field conditions.

Refer to Figure 19

10. The bars on the reels are angled forward ④ 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 ⑤. 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 ④ as shown. Mounting in reverse ⑤ can damage reel in rocky soil.
Parking

If possible, store the FCA4500 inside for longer life. Store the Ultra Chisel where children do not play.

11. For long-term parking, see also “End of Season Storage” below.

12. Choose a parking location that is level, has firm soil and is unlikely to develop soft soil in rain. With the FCA4500 still hitched, maneuver it to the parking location.

End of Season Storage

18. Park the implement at the storage location as per “Parking” above. Secure tires with blocks.

19. Clean machine as much as possible. Remove all dirt from rust prone parts like hinge points, turnbuckles and bolt threads.

20. Check all bolts for tightness. Tighten as needed.

21. Check over the machine for damaged or worn parts. Replace or rotate worn parts as needed—hinge bolts, clevis pins, bearings, etc. Make repairs and service during the off season.

22. Check and tighten or replace any hydraulic leaks. Check hoses for any leaks.

23. The wheel bearings should be cleaned and repacked annually or every 2500 acres.

Beginning of Season

28. Hitch the tractor to the FCA4500 Field Cultivator and connect the hydraulic hoses.

29. Check fold and lift cylinders for leaks that could have caused air to enter cylinders. If leaks are noticed repair cylinders and fully purge air from cylinders by unpinning cylinder, block up and fully cycle cylinders back and forth several times.

30. If Cylinders were stored with rods retracted, extend cylinders and reinstall clevis bolts.

31. Slowly raise the machine a couple of times to its full height and hold lever for 10 to 15 seconds to purge air from lift cylinders.

32. If machine was not serviced and greased at end of last season, perform steps 18 - 24 from “End of Season Storage” section.

33. Make sure all moving parts move freely and do not bind.
Maintenance and Lubrication

Maintenance

1. Always use the transport lock when working on or doing maintenance to the Field Cultivator Air Drill. If folded, be sure your wing stop pins are in place. 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. Check shank pivot bolts for tightness. Check shank pivot bolts on the spring-loaded shank, these must remain tight to prevent excessive wear on the shank assembly.

3. Replace or rotate worn parts as needed -- hinge bolts, clevis pins, bearings, sweeps, shanks, 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 and walking beams sparingly. Over greasing may cause damage to seals and reduce the life of the bearing. Grease hinge points periodically. Real Bearings are maintenance free & do not require greasing.

6. Check drag bolts for loosness or excessive wear. Replace broken or bent teeth. 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 more information on operating, adjusting or maintaining your Great Plains FCA4500 Field Cultivator, assistance is available. Contact:

Great Plains Manufacturing, Inc. wants you to be satisfied with your new FCA4500 Field Cultivator Air Drill. If for any reason you do not understand any part of this manual or are otherwise dissatisfied with the product please contact:

Great Plains Service Department
1525 E. North St.
PO 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.

Lubrication

Wheel Bearing Hub

<table>
<thead>
<tr>
<th>Multipurpose spray lube</th>
<th>Multipurpose grease lube</th>
<th>Multipurpose oil lube</th>
<th>50</th>
<th>Intervals (service hours) at which lubrication is required</th>
</tr>
</thead>
</table>

1 zerk on each hub; 4 total

Type of Lubrication: Grease

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

Repack wheel bearings annually or every 2500 acres.

Newer machine may have non-greaseable hubs but they will still need repacking every 2500 acres.
Walking Beam Pivot Bearings

One on each walking beam
Type of Lubrication: Grease
Quantity: Sparingly and check for endplay
If there is a lot of end play take apart, check bearings and re-pack

Outside Wing Hinge

One on each outside wing (5-Section)
Type of Lubrication: Grease
Quantity: Sparingly or 2 pumps
Appendix

FCA Specifications and Capacities

<table>
<thead>
<tr>
<th>Model No.</th>
<th>FCA4500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Width</td>
<td>45' ft (13.72 m)</td>
</tr>
<tr>
<td>Number of Sweeps</td>
<td>77</td>
</tr>
<tr>
<td>Center Section</td>
<td>12' (3.65m)</td>
</tr>
<tr>
<td>1st Wing</td>
<td>10' 9&quot; (3.28 m)</td>
</tr>
<tr>
<td>2nd Wing</td>
<td>6' (1.8m)</td>
</tr>
<tr>
<td>Transport Width</td>
<td>16' 10&quot; (5.13m)</td>
</tr>
<tr>
<td>Transport Height</td>
<td>14' 6&quot; (4.42m)</td>
</tr>
<tr>
<td>Overall Length</td>
<td>30' 5&quot; (9.27m)</td>
</tr>
<tr>
<td>Tire Size Center</td>
<td>9.5 LX15 8 PLY</td>
</tr>
<tr>
<td>Tire Size Wing</td>
<td>9.5 LX15 8 PLY</td>
</tr>
<tr>
<td>Horsepower (PTO)</td>
<td>350-400</td>
</tr>
<tr>
<td>Kilowatt</td>
<td>260-300</td>
</tr>
<tr>
<td>Weight (base machine)</td>
<td>28,000lbs. (12700kg)</td>
</tr>
</tbody>
</table>

Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge</td>
<td>11Lx15&quot; 12-Ply</td>
<td>52 psi 358 kPa</td>
</tr>
<tr>
<td>Transport/ Center</td>
<td>340/60R16.5 3/5offset</td>
<td>73 psi 358 kPa</td>
</tr>
<tr>
<td>Wings</td>
<td>9.5Lx15&quot; 8-Ply</td>
<td>44 psi 503 kPa</td>
</tr>
</tbody>
</table>

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.

<table>
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<tr>
<th>Manufacturer</th>
<th>Web site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
<tr>
<td>Gleason</td>
<td><a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a></td>
</tr>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Galaxy</td>
<td><a href="http://www.atgtire.com">www.atgtire.com</a></td>
</tr>
<tr>
<td>BKT</td>
<td><a href="http://www.bkt-tire.com">www.bkt-tire.com</a></td>
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</tbody>
</table>
Hydraulic Connectors and Torque

Refer to Figure 20 (a hypothetical fitting)

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

NPT - National Pipe Thread
1. Note tapered threads, no cone/flare, and no O-ring. Do not use tape sealant, which can clog a filter and/or plug an orifice.

JIC - Joint Industry Conference (SAE J514)
2. Note straight threads and the 37° cone on “M” fittings (or 37° flare on “F” fittings). Use no sealants (tape or liquid) on JIC fittings.

ORB - O-Ring Boss (SAE J514)
3. Note straight threads and elastomer O-Ring. 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 and jam nut (“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.

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

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<tr>
<th>Bolt Size</th>
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<th>Bolt Head Identification</th>
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<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 5</td>
</tr>
<tr>
<td>in-tpi</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
</tr>
<tr>
<td>2 1/4-20</td>
<td>7.4 5.6</td>
<td>11 8</td>
</tr>
<tr>
<td>2 1/4-28</td>
<td>8.5 6.0</td>
<td>13 10</td>
</tr>
<tr>
<td>5/16-18</td>
<td>15 11</td>
<td>24 17</td>
</tr>
<tr>
<td>5/16-24</td>
<td>17 13</td>
<td>26 19</td>
</tr>
<tr>
<td>3/8-16</td>
<td>27 20</td>
<td>42 31</td>
</tr>
<tr>
<td>3/8-24</td>
<td>31 22</td>
<td>47 35</td>
</tr>
<tr>
<td>7/16-14</td>
<td>43 32</td>
<td>67 49</td>
</tr>
<tr>
<td>7/16-20</td>
<td>49 36</td>
<td>75 55</td>
</tr>
<tr>
<td>1/2-13</td>
<td>66 49</td>
<td>105 76</td>
</tr>
<tr>
<td>1/2-20</td>
<td>75 55</td>
<td>115 85</td>
</tr>
<tr>
<td>9/16-12</td>
<td>95 70</td>
<td>150 110</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105 79</td>
<td>165 120</td>
</tr>
<tr>
<td>5/8-11</td>
<td>130 97</td>
<td>205 150</td>
</tr>
<tr>
<td>5/8-18</td>
<td>150 110</td>
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<td>3/4-10</td>
<td>235 170</td>
<td>360 265</td>
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<tr>
<td>3/4-16</td>
<td>260 190</td>
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<td>7/8-9</td>
<td>225 165</td>
<td>585 430</td>
</tr>
<tr>
<td>7/8-14</td>
<td>250 185</td>
<td>640 475</td>
</tr>
<tr>
<td>1-8</td>
<td>340 250</td>
<td>875 645</td>
</tr>
<tr>
<td>1-12</td>
<td>370 275</td>
<td>955 705</td>
</tr>
<tr>
<td>1 1/8-7</td>
<td>480 355</td>
<td>1080 795</td>
</tr>
<tr>
<td>1 1/8-12</td>
<td>540 395</td>
<td>1210 890</td>
</tr>
<tr>
<td>1 1/4-7</td>
<td>680 500</td>
<td>1520 1120</td>
</tr>
<tr>
<td>1 1/4-12</td>
<td>750 555</td>
<td>1680 1240</td>
</tr>
<tr>
<td>1 3/8-6</td>
<td>890 655</td>
<td>1990 1470</td>
</tr>
<tr>
<td>1 3/8-12</td>
<td>1010 745</td>
<td>2270 1670</td>
</tr>
<tr>
<td>1 1/2-6</td>
<td>1180 870</td>
<td>2640 1950</td>
</tr>
<tr>
<td>1 1/2-12</td>
<td>1330 980</td>
<td>2970 2190</td>
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<tr>
<th>Bolt Size</th>
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<tbody>
<tr>
<td></td>
<td>N-m ft-lb</td>
</tr>
<tr>
<td>M 5 X 0.8</td>
<td>4 3</td>
</tr>
<tr>
<td>M 6 X 1</td>
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</tr>
<tr>
<td>M 8 X 1.25</td>
<td>17 12</td>
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<tr>
<td>M 8 X 1</td>
<td>18 13</td>
</tr>
<tr>
<td>M 10 X 1.5</td>
<td>33 24</td>
</tr>
<tr>
<td>M 10 X 0.75</td>
<td>39 29</td>
</tr>
<tr>
<td>M12 X 1.75</td>
<td>58 42</td>
</tr>
<tr>
<td>M12 X 1.5</td>
<td>60 44</td>
</tr>
<tr>
<td>M16 X 2</td>
<td>145 105</td>
</tr>
<tr>
<td>M16 X 1.5</td>
<td>155 115</td>
</tr>
<tr>
<td>M18 X 2</td>
<td>195 145</td>
</tr>
<tr>
<td>M18 X 1.5</td>
<td>220 165</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td>280 205</td>
</tr>
<tr>
<td>M20 X 1.5</td>
<td>310 230</td>
</tr>
<tr>
<td>M24 X 3</td>
<td>480 355</td>
</tr>
<tr>
<td>M24 X 2</td>
<td>525 390</td>
</tr>
<tr>
<td>M30 X 3.5</td>
<td>960 705</td>
</tr>
<tr>
<td>M30 X 2</td>
<td>1060 785</td>
</tr>
<tr>
<td>M36 X 3.5</td>
<td>1730 1270</td>
</tr>
<tr>
<td>M36 X 2</td>
<td>1880 1380</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt Size</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>M 5 X 0.8</td>
<td>4 3</td>
</tr>
<tr>
<td>M 6 X 1</td>
<td>7 5</td>
</tr>
<tr>
<td>M 8 X 1.25</td>
<td>17 12</td>
</tr>
<tr>
<td>M 8 X 1</td>
<td>18 13</td>
</tr>
<tr>
<td>M 10 X 1.5</td>
<td>33 24</td>
</tr>
<tr>
<td>M 10 X 0.75</td>
<td>39 29</td>
</tr>
<tr>
<td>M12 X 1.75</td>
<td>58 42</td>
</tr>
<tr>
<td>M12 X 1.5</td>
<td>60 44</td>
</tr>
<tr>
<td>M16 X 2</td>
<td>145 105</td>
</tr>
<tr>
<td>M16 X 1.5</td>
<td>155 115</td>
</tr>
<tr>
<td>M18 X 2</td>
<td>195 145</td>
</tr>
<tr>
<td>M18 X 1.5</td>
<td>220 165</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td>280 205</td>
</tr>
<tr>
<td>M20 X 1.5</td>
<td>310 230</td>
</tr>
<tr>
<td>M24 X 3</td>
<td>480 355</td>
</tr>
<tr>
<td>M24 X 2</td>
<td>525 390</td>
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<tr>
<td>M30 X 3.5</td>
<td>960 705</td>
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<tr>
<td>M30 X 2</td>
<td>1060 785</td>
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<tr>
<td>M36 X 3.5</td>
<td>1730 1270</td>
</tr>
<tr>
<td>M36 X 2</td>
<td>1880 1380</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Class 10.9</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>N-m ft-lb</td>
</tr>
<tr>
<td>M 5 X 0.8</td>
<td>4 3</td>
</tr>
<tr>
<td>M 6 X 1</td>
<td>7 5</td>
</tr>
<tr>
<td>M 8 X 1.25</td>
<td>17 12</td>
</tr>
<tr>
<td>M 8 X 1</td>
<td>18 13</td>
</tr>
<tr>
<td>M 10 X 1.5</td>
<td>33 24</td>
</tr>
<tr>
<td>M 10 X 0.75</td>
<td>39 29</td>
</tr>
<tr>
<td>M12 X 1.75</td>
<td>58 42</td>
</tr>
<tr>
<td>M12 X 1.5</td>
<td>60 44</td>
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<tr>
<td>M16 X 2</td>
<td>145 105</td>
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<tr>
<td>M16 X 1.5</td>
<td>155 115</td>
</tr>
<tr>
<td>M18 X 2</td>
<td>195 145</td>
</tr>
<tr>
<td>M18 X 1.5</td>
<td>220 165</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td>280 205</td>
</tr>
<tr>
<td>M20 X 1.5</td>
<td>310 230</td>
</tr>
<tr>
<td>M24 X 3</td>
<td>480 355</td>
</tr>
<tr>
<td>M24 X 2</td>
<td>525 390</td>
</tr>
<tr>
<td>M30 X 3.5</td>
<td>960 705</td>
</tr>
<tr>
<td>M30 X 2</td>
<td>1060 785</td>
</tr>
<tr>
<td>M36 X 3.5</td>
<td>1730 1270</td>
</tr>
<tr>
<td>M36 X 2</td>
<td>1880 1380</td>
</tr>
</tbody>
</table>

- a. in-tpi = nominal thread diameter in inches-thread 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 values chart + 0% to -15% of torquing values. Unless otherwise specified use torque values listed above.

---

**Torque Values Chart**

<table>
<thead>
<tr>
<th>Wheel Bolt Torque Values</th>
<th>1/2&quot;-20 (75-85ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel Bolt Torque Values</td>
<td>9/16&quot;-18 (80-90ft-lbs)</td>
</tr>
<tr>
<td>Wheel Bolt Torque Values</td>
<td>5/8&quot;-18 (85-100ft-lbs)</td>
</tr>
</tbody>
</table>
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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  838-602C, decal ............... 7
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  838-612C, decal ............... 9
  838-613C, decal ............... 8
  838-614C, reflector .......... 6
  838-615C, reflector .......... 5
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