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3P200 and 3P300 Three-Point Sprayer  500-103M  3/6/06
Important Safety Information

Be Aware of Signal Words
The word that designates a degree or level of hazard seriousness. The signal words are:

⚠️ 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.

Keep Riders Off Machinery
▲ Riders obstruct the operator’s view they could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.

For Your Protection
▲ Thoroughly read and understand the “Safety Decals” section, read all instructions noted on them.

Use Safety Lights and Devices
▲ Slow moving tractors, self-propelled equipment, and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
▲ Flashing warning lights and turn signals are recommended whenever driving on public roads. Use lights and devices provided with implement.

Shutdown and Storage
▲ Disengage power, put tractor in park, turn off engine, and remove the key.
▲ Detach and store boom in an area where children normally do not play. Secure boom using blocks and supports provided.
Transport
Machinery Safely
▲ Comply with state and local laws.
▲ Maximum transport speed for implement is 20 mph. DO NOT EXCEED. Never travel at a speed which does not allow adequate control of steering and stopping. Some rough terrains require a slower speed.
▲ Sudden braking can cause a towed load to swerve and upset. Reduce speed if towed load is not equipped with brakes.
▲ Do not transport sprayer when filled with chemicals.
▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.

Prepare for Emergencies
▲ Be prepared if a fire starts. It is recommended that the operator of this sprayer carry a minimum five-pound ABC fire extinguisher.
▲ Keep a first aid kit.
▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.

Practice Safe Maintenance
▲ Understand procedure before doing work. Use proper tools and equipment, refer to Operator’s Manual for additional information.
▲ Work in a clean dry area.
▲ Disengage power, put tractor in park, turn off engine, and remove key before performing maintenance.
▲ Make sure all moving parts have stopped and all pressure in the system is relieved.
▲ Allow sprayer to cool completely.
▲ Do not work on hoses, nozzles or plumbing components (with the exception of throttling valve and chemical inductor) while pump is running or hoses are pressurized. Disengage pump and release hose pressure by turning boom section switches on before working on individual components.
▲ Do not grease or oil sprayer while it is in operation.
▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on sprayer.
▲ Inspect all parts. Make sure parts are in good condition & installed properly.
▲ Remove buildup of grease, oil or debris.
▲ Remove all tools and unused parts from sprayer before operation.
Handle Chemicals Properly

▲ Read and follow Chemical Manufacturer's instructions.
▲ Protective clothing should be worn.
▲ Handle all chemicals with care.
▲ Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.
▲ Inhaling smoke from any type of chemical fire is a serious health hazard.
▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.
▲ Before adding chemical to the tank, make sure tank is at least half full. Concentrate should not be poured into an empty tank.
▲ Never leave fill hose attached to the sprayer after filling tank. Chemicals in tank can siphon out of tank and contaminate freshwater source.
▲ Always keep handwash tank filled with clean water and have soap available in case of an emergency. Flush any area of the body that is contaminated by chemicals immediately and thoroughly.
▲ Do not touch sprayer components with mouth or lips.
▲ If chemical is swallowed, carefully follow the chemical manufacturer's recommendations and consult with a doctor.
▲ If persons are exposed to a chemical in a way that could affect their health, consult a doctor immediately with the chemical label or container in hand. Any delay could cause serious illness or death.
▲ Dispose of empty chemical containers properly. By law rinsing of the used chemical container must be repeated three times. The container should then be punctured to prevent future use. An alternative is to jet-rinse or pressure rinse the container.
▲ Keep hands, feet, and clothing away from power-driven parts.
▲ Wear snug fitting clothing to avoid entanglement with moving parts.
▲ Turning tractor too tight may cause implement to ride up on wheels. This could result in injury or equipment damage.
▲ When using a PTO pump, be sure that (1) PTO shield is in place on the tractor, (2) PTO coupler bolts are torqued to the correct specification, and (3) torque bar is properly chained to tractor drawbar.
▲ When inductor tank is not being used, keep inductor tank valve closed to prevent chemical overflow.
▲ Run pump when using inductor tank. Failure to do so will cause chemical overflow.
▲ Wash hands and face before eating when working with chemicals. Shower as soon as spraying is completed for the day.
▲ Spray only with acceptable wind conditions. Make sure wind drift of chemicals will not affect any surrounding land, people or animals.
▲ Never wash the sprayer tank out within 100 feet of any freshwater source or in a car wash.
▲ Rinse out the tank and spray rinse water on the last field sprayed.

Safety at All Times

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Decals" section, read all instructions noted on them.
▲ Operator should be familiar with all functions of the unit. This sprayer can be dangerous and can cause bodily harm if not properly used or guarded.
▲ Keep others away from sprayer when in operation.
▲ Operate sprayer from the driver's seat only.
▲ Use only water without pesticides added to calibrate the sprayer.
▲ Do not exceed the calibrated sprayer speed and pressure when operating.
▲ Do not leave tractor or sprayer unattended with engine running.
▲ Dismounting from a moving tractor could cause serious injury or death.
▲ Do not stand between the tractor and sprayer during hitching.

Avoid High Pressure Fluids Hazard

▲ 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, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.
Wear Protective Equipment

▲ Protective clothing and equipment should be worn.
▲ Do not wear contaminated clothing. Wash protective clothing and equipment with soap and water after each use. Personal clothing must be laundered separately from household articles.
▲ Clothing contaminated with certain pesticides (read the label) must be destroyed according to state and local regulations.
▲ Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing.
▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
▲ Operating equipment safely requires the full attention of the operator. Avoid wearing radio headphones while operating machinery.

Tire Safety

▲ Tire changing can be dangerous and should be performed by trained personnel using the correct tools and equipment.
▲ When inflating tires, use a clip-on chuck and extension hose long enough to allow operator to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
▲ When removing and installing wheels, use wheel handling equipment adequate for the weight involved.

Personal Safety Equipment

Great Plains advises all users of chemical pesticides or herbicides to use the following personal safety equipment. Always follow the chemical label instructions, operator safety and the effectiveness of the product depends upon operator actions.

▲ Waterproof apron
▲ Waterproof, unlined gloves. Neoprene gloves are recommended.
▲ Cloth coveralls/outer clothing changed daily; waterproof items if there is a chance of becoming wet with spray
▲ Cartridge-type respirator approved for pesticide vapors unless label specifies another type of respirator
▲ Waterproof boots or foot coverings

▲ Waterproof, wide-brimmed hat
▲ Face shield, goggles or full face respirator. Goggles with side shields or a full face respirator is required if handling or applying dusts, wettable powders, or granules or if being exposed to spray mist.
▲ Waterproof, wide-brimmed hat
Safety Decals

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

1. Read and follow decal directions.
2. Keep all safety decals clean and legible.
3. Replace all damaged or missing decals. Order new decals from your Great Plains dealer. Refer to this section for proper decal placement.

4. When ordering new parts or components, also request corresponding safety decals.
5. To install new decals:
   a. Clean the area on which the decal is to be placed.
   b. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

838-265C
Amber Reflector

838-265C
Amber Reflector

818-323C
Ag Chemicals
**Important Safety Information**

**CAUTION**

To Avoid Injury or Machine Damage:
- Read and understand owner's manual before operating sprayer.
- Have sprayer in working ORDER before spraying field.
- Do NOT transport sprayer without addition of liquid in tank.
- Before transporting, make sure all parts of the machine are secured and locked.
- NEVER drive on power line, or using machine near high voltage areas.
- Operating personnel should be aware of equipment when near power lines.

**818-324C**
Caution! General Sprayer Caution

**DANGER**

ELECTROCUTION HAZARD

To prevent serious injury or death from electrocution:
- Stay away from overhead power lines when folding, unfolding, transporting, or operating the boom, unless it is not grounded. Electrocution can occur without direct contact.

**818-367C**
Power Line/Electrocution Hazard (Front and back)

**CAUTION**

To Avoid Injury or Machine Damage:
- Place the transmission in park and turn off tractor engine BEFORE attaching 3-Point and PTO pump.
- Secure sprayer to tractor BEFORE removing parking stands.

**818-466C**
Tractor Hook Up
Introduction

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

Description of Unit
The 3P200 and 3P300 are three-point-mounted spraying units.

Intended Usage
Use these sprayers to apply chemicals to production-agriculture crops only. Do not modify the boom for use with attachments other than those approved by Great Plains.

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

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

Definitions
The following terms are used throughout this manual.

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.

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

IMPORTANT: Useful information related to the preceding topic.

Owner Assistance
If you need customer service or repair parts, contact an Application Systems dealer. They have trained personnel, repair parts and equipment specially designed for Application Systems products.

Your machine’s parts were specially designed and should only be replaced with Application Systems parts. Always use the serial and model number when ordering parts from your Application Systems dealer. The serial-number plate is located as shown in Figure A.

Record your sprayer model and serial number here for quick reference:

Model Number: _________________________________

Serial Number: _________________________________

Your Application Systems 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.

3. For further assistance write to:

Product Support
Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060
Section 1 Assembly and Setup

Before You Start
- Find an open, flat area to assemble the sprayer.
- Read all the instructions and understand them before assembling the sprayer.
- Have the adequate tools necessary.

Read and understand this Operator's Manual for the sprayer. A basic understanding of how the sprayer works will aid in assembly, setup and operation. Find an open, flat area to assemble the sprayer and attach it to the tractor.

Tractor/Sprayer Hookup

**WARNING!**
Be certain that tractor lift capacity is adequate and that tractor is weighted to maintain steering control. Failure to do so may cause loss of vehicle control. Refer to Tractor Specifications, “Specifications and Capacities,” page 25. Consult the tractor’s operator’s manual for tractor weighting recommendations.

Refer to Figure 1-1:

1. Determine the pin and spacer orientation needed for the tractor, and securely fasten the hitch pins.
2. Mount the 3-Point Sprayer to a tractor with the correct pin mountings determined from instruction Step #1. Make sure that the sprayer frame is level so that after the boom is assembled, it won’t hit the tractor cab when the boom is folded or raised.

**IMPORTANT:** The category 4 narrow hitch (CAT IV-N) spacers are not standard parts supplied with the 3-Point Sprayer. Order 501-011S from an Application Systems dealer for the Cat IV-N spacers.

NOTE: Be sure that the top 3-Point link is adjusted correctly so that the frame is level in operating position but will not hit the cab in transport. The tractor 3-Point arms should be adjusted to keep the sprayer level from side to side with lift arm rigid.
Tractor/Great Plains PTO Pump Hookup

1. Position the PTO pump on the tractor's PTO shaft with the coupler bolt removed on the splined end.
2. Push the coupler of the pump on to align with notch in the tractor PTO shaft and install bolt.
3. Make sure there is adequate hose length to reach the pump in raised and lowered position. Cut off excess hose.
4. For a 540 RPM pump or a 1000 RPM 1 3/8 inch spline pump, torque the 1/2 inch Grade 8 coupler bolts to 105 ft-lbs. For a 1000 RPM 1 3/4 inch spline PTO pump, torque the 5/8 inch Grade 8 coupler bolt to 210 ft-lbs and the other 1/2 inch Grade 8 coupler bolt to 105 ft-lbs.
5. Rotate the PTO shaft by hand to make sure the bolts clear the PTO shielding.
6. Attach the torque bar chain to the drawbar securely.
7. Hook the tarp strap in such a way that the slack in the chain is taken up slowly when the PTO is engaged so the torque bar does not bang.
8. Tie up any loose hoses with cable ties to prevent hose damage.
9. With water in the sprayer tank, and water in the pump, engage the PTO shaft slowly with the tractor engine idling. Once the system builds pressure, close the agitation valve, shut off the boom section switches and close throttling valves (if applicable). Sprayers with automatic controllers do not have throttling valves. The pump is now at dead head pressure. Adjust the engine RPM so that the spray pressure reaches 80 PSI maximum on the nozzle pressure gauge, or the PTO speed reaches the rated RPM (540 or 1000), whichever is first. Never exceed the rated tractor PTO RPM. This is the RPM needed to spray to prevent excess pressure on the spray's plumbing.

Tractor/Hydraulic Pump Hook Up

The hydraulic motor used on all liquid pumps is a 6 GPM motor. If the tractor used on the sprayer does not have the capabilities to adjust the remotes down to this flow, then a Hydraulic Flow Divider Kit must be installed so that flow can be controlled to prevent operating the pump at excessive speeds. See an Great Plains dealer for more information.

1. The pressure hose coming out of the tractor remotes must be connected to the "A" port of the motor and the return line connected to the "B" port. Before operating, place a stop in the neutral position for the tractor hydraulics so that the hydraulic lever can only be moved to the float and down positions. Refer to the tractor's operator's manual or tractor dealer on information for the neutral stop.

NOTE: DO NOT move the hydraulic lever into the neutral position while the hydraulic pump is running. To do so may cause damage to the hydraulic pump.

2. To determine the correct setting of the flow rate, start out with the hydraulic flow control valve set at a minimum flow for the pair of outlets that operate the pump.
3. With water in the sprayer tank and in the pump, place the hydraulic lever in the float position.
4. Open up the sprayer flow control valve to its maximum setting.
5. Start the tractor and engage the pump by placing the hydraulic lever in the down (forward) position.
6. Once the system builds pressure, close the agitation valve, shut off the boom section switches, and close the throttling valves (if applicable).
7. The pump is now at dead head pressure and the hydraulic control valve must be adjusted so that the spray pressure reaches 80 PSI maximum on the nozzle pressure gauge. This process should be done with the tractor throttle set at normal operating speed. Mark this setting on the hydraulic control valve for future reference.
8. Open up the agitation valve and reset the throttling valves (if applicable). Refer to Throttling Valve Adjustment in the "Adjustments" section on page 16.

Tractor/PTO Ace Pump Hookup

1. 540 PTO Pump: Attach the pump to the tractor PTO shaft by tightening the three screwdriver slotted set screws and jam nuts. Make certain the set screws are in line with the retaining groove on the tractor PTO shaft.

    1000 PTO Pump: Attach the pump to the tractor PTO shaft. Make sure screwdriver slotted set screws are aligned with retaining groove on tractor PTO shaft BUT DO NOT TIGHTEN. Next, align the split in the slat-ring locking collar with corresponding split in the pump drive shaft. Securely tighten the 5/16" allen head set screw in the locking collar, then tighten the three slotted head set screws and jam nuts.

2. To keep the pump body from rotating with the tractor PTO shaft, affix one end of a torque chain to the "cold shut" shackle on the pump, and one end to the tractor.

NOTE: Do not fasten the pump rigidly in position with the Torque Chain. To do so will cause damage to the pump. Fasten the pump so that the chain holds the pump and that there can be slack in the chain.

Ace power take off mounted belt driven centrifugal pumps may be swung to the bottom, top or either side of the tractor PTO shaft in order to make it fit a particular tractor. The pump will operate satisfactorily in all these positions.

IMPORTANT: Remember that the discharge port in the volute should always be at the top (the 12 o'clock or 3 o'clock position) to aid in priming.
Control Box Assembly
Manual Control Systems Only
Refer to Figure 1-2:
To assemble the control box and attachments onto the sprayer proceed with the following instructions:

1. Connect the brown wire to the positive terminal and the blue wire to the negative terminal on the tractor battery.

2. Route the battery cable into the cab of the tractor making sure there is no sharp edges for the wires to short out on.

**CAUTION!**
Position battery cables properly to avoid binding or cutting on electrical wires. Failure to do so could cause injury by fire or fire damage to tractor from shorting.

3. Connect the control box harness to the harness attached on the sprayer.

4. Route the control box harness into the cab of the tractor through the rear window, or opening provided in the tractor and attach the harness to the control box.

5. Using pipe sealant, Place a small portion of pipe sealant on the pressure gage threads and assemble the reduction fitting (#1) onto the gage. Make sure that the gage hole does not get clogged with pipe sealant.

6. Screw the 1/8" threaded quick coupling (#2) into the reduction fitting (#1) on the back of the control box.

7. Place the gage protector magnet mount (#3) on the back of the tractor so that it does not interfere with the operation of the tractor, but is easily accessible.

8. Estimate the amount of tube needed from the mounted control box in the tractor to the gage protector magnet mount (#3) and cut that length of the tube. Make sure the tube is routed in a safe place where it won’t be damaged while in operation.

**IMPORTANT:** The 50/50 mixture in the following steps is a 50/50 mixture of antifreeze and water.

9. With the control box laying face down, fill the gauge, the reduction fitting (#1) and the quick coupling (#2) with the 50/50 mixture, brim full.

10. Insert the tube into quick coupling (#4).
11. Fill the gauge protector on the magnet mount brim full with the 50/50 mixture.
12. Fill the clear tubing with the 50/50 mixture using a short piece of 1/2 I.D. rubber hose and a small funnel.
13. With the tube completely full of the 50/50 mixture, as well as the pressure gauge and gauge protector, insert the tube into the coupling (#2). Make sure that there is no air in the tubing when the tube is installed. The tube will automatically lock in the coupling (#2) after insertion.
14. When removing the control box from the tractor cab, disconnect the hose at the gauge protector quick disconnect (#5) and take the magnet mount with the control box so that the fluid-filled tube does not have to be disconnected.
15. Save the coupling (#6) in case of tube damage to make a splice.
16. Assemble the 3/8“ hose from the valve bank to the magnet mount (#3) and attach with the hose clamp provided.

[Diagram of control box assembly]
Section 2 Operating Instructions

General Notes For Field Operation

DANGER!

Read and follow chemical manufacturer's instructions. Some chemicals and cause serious burns, lung damage and even death.

1. Lubricate the sprayer as needed. Refer to the Lubrication portion of the “Maintenance and Lubrication” section starting on page 20.

2. Hookup the pump to the tractor. Refer to Operating Pump in this section on page 13 and follow the instructions.

3. When transporting the sprayer, DO NOT exceed 20 mph and DO NOT transport with chemical in the tank. Fasten the level-float pin in the lock position BEFORE folding the boom and transporting it if boom is not equipped with an automatic latch.

4. NEVER allow anyone to ride on the sprayer.

5. Make sure all tank shut off valves are turned on.

6. Calibrate sprayer with water only, not chemical and water. Calibrate with the sprayer tank half full of water. Refer to the calibration procedures in the Application Guide.

7. Adjust throttling valves on the boom valves, and the manual pressure adjustment valve (if applicable). Adjust the boom height required for the nozzles and spacing to be used. (Refer to nozzle tables in the Application Guide.)

8. Check and clean, if necessary, pump, nozzles and Whirlfilters®.

9. Safely and carefully add the chemical to the sprayer tank. ALWAYS wear personal safety equipment as shown in the Personal Safety Equipment portion of the “Important Safety Information” section on page 4. By law rinsing of the used chemical container must be repeated three times. The container should then be punctured to prevent future use. An alternative is to jet-rinse or pressure rinse the container. When adding chemical, remain at least 100 feet from any water well or fresh water source. Follow chemical manufacturer's recommendations for safe handling of chemicals.

10. If possible, work crosswise to the wind, starting from the downwind side of the field. This will prevent heading directly into the chemical fumes.

11. Check the sprayer initially and periodically for loose bolts, pins and hose clamps. Check the hoses, pumps, valves and fittings for leaks.

12. Make sure that the hand wash tank is full of clean water.

Operating Checklist

Each time the sprayer is used, check the following:

☐ Check tire pressure, wear and overall condition.
☐ Check the tractor's brakes to make sure they operate properly.
☐ Make sure all lights and turn signals are working properly.
☐ Lubricate sprayer as needed.
☐ Booms must be locked in place before transporting.
☐ Inspect tank. Make sure the hitch is adjusted so that the solution drains to the sump.
☐ Use safety equipment as listed on page 4.
☐ Fill with water and calibrate sprayer BEFORE adding chemical to the tank.
☐ Check the position of the ball valves in the plumbing to see if they are in the correct position.
☐ Check hoses, pumps and valves for any leaks.
☐ Check nozzle pattern for streaks and non-uniformity.
☐ Check the sprayer initially and periodically for loose bolts and pins.
☐ Follow “Important Safety Information” on page 1 of this Manual.
☐ Make sure the handwash tank is full of clean water.
Using Handwash Tank
In the event of an accidental spill of chemicals on skin or in eyes, use the Handwash Tank to flush away chemicals.

1. Open the tank valve and use the hose to direct the clean water on all contaminated areas. Wash all contaminated areas of skin with soap and water. To flush chemicals from eyes, point the hose and water stream upward while lowering eyes into the stream of flowing water.
2. Close the tank valve and refill the handwash tank with fresh water when finished.
3. Periodically refill the handwash tank with fresh water. ALWAYS keep the handwash tank clean.

Agitation
To adjust the agitation, adjust the Agitation Valve shown in Figure 2-1. Refer to the agitation gage to set a reference pressure for the agitation.

Agitation Valve/Manual Pressure Valve
Figure 2-1

Manual Pressure Valve
Refer to Figure 2-1:
When the manual pressure valve is wide open, the pressure adjustment can be very sensitive. If sprayer is equipped with an automatic controller, the butterfly valve will have to move more often causing additional wear. If sprayer is equipped with manual controls plumbing, the pressure adjustment switch on the control box will be more sensitive and it will be hard to set the pressure. To decrease the sensitivity, set the manual pressure adjustment valve as follows:
1. Open the control valve so that it is wide open and there is full flow to the sprayer booms. On a sprayer with manual controls, adjust the pressure switch. On an automatic controller, open the butterfly valve until it is full open.
2. Shut the manual pressure adjustment valve down so the pressure is about 20 PSI greater than the pressure you will spray at. The pressure the spray will be applied at is determined when calibrating sprayer. Refer to the Application Guide.

With this valve set, it will decrease the flow through the electric ball valve and reduce the sensitivity of the pressure adjustment switch.

Operating Whirlfilter®
There are two Whirlfilters® on the Great Plains Sprayer. One filters the water entering the tank and the other filters the chemical solution being sprayed.

Clean-out the solution Whirlfilter®
Refer to Figure 2-2:
1. Fill the sprayer tank with water and turn the pump on.
2. With the pump running, slowly open the clean-out valve and allow the grit to flow out into a bucket. Clean out the solution Whirlfilter® only when the sprayer tank is filled with water and no chemical has been added.
3. Close the clean-out valve and turn off the pump.
4. Dispose of the grit and water in the same manner described on the manufacturer’s label of the latest chemical used in the sprayer.
Clean out the tank-fill Whirlfilter®

Refer to Figure 2-3:
1. Start with an empty sprayer tank.
2. Position a bucket under the plug in the sump of the Whirlfilter® and allow the grit to fall out.
3. Screw the plug back in using pipe thread sealant to seal the plug.
4. Dispose of the grit and water in the same manner described on the manufacturer’s label of the latest chemical used in the sprayer.

CAUTION!

Do not add the chemical until the sprayer is in the field, just prior to spraying. When adding the chemical, follow the manufacturer’s instructions for mixing the spray solution in order to achieve the desired application rate.

3. Before adding the chemical to the tank, make sure the tank is at least one half full. The concentrate should not be poured into an empty tank.
4. Keep the spray solution away from all skin. Wear protective clothing and goggles. If the solutions comes in contact with the body, wash off the contaminated area with soap and water.
5. Keep chemical containers low when pouring.
6. Make sure the wind is blowing the fumes and dust away from the operator while pouring chemical.
7. DO NOT smoke while handling chemicals.

Operating Pump

DANGER!

Rotating driveline contact can cause death. KEEP AWAY! Do not operate without guards attached and driveline securely attached at both ends.

To operate the PTO pumps, engage the PTO shaft slowly at the tractor’s idle throttle position. Slowly accelerate to the desired PTO RPM. On a 540 RPM pump, the RPM of the PTO would be the speed at which the dead head pressure reaches 80 PSI (Refer to Tractor/PTO Pump Hook-Up on page 8) or 540 RPM. On a 1000 RPM pump, the RPM of the PTO would be the speed at which the dead head pressure reaches 80 PSI or 1000 RPM.

WARNING!

Never operate the PTO pump without the tractor PTO shield in place, and the pump torque bar firmly chained in place.

1. To operate the hydraulic pump, first make sure that the hydraulic hoses are routed correctly so that the pump turns in the correct direction. See the Tractor/Hydraulic Pump Hookup in the “Assembly and Setup” section on page 9 for more details. To run the pump, push the hydraulic lever in the “down” position. When stopping the pump, push the hydraulic lever in the “float” position.

NOTE: Do not move the hydraulic lever to the neutral position while the hydraulic pump is running. To do so may cause damage to the hydraulic pump.

Hydraulic Elevator Option

Raise and lower to the desired boom height using the tractor hydraulics. Make sure the boom doesn’t settle hydraulically (lower in height) during the operation of the sprayer.
Transporting
1. Park the sprayer in an open area where power lines, buildings, etc. will not come in contact with the folded boom.
2. Secure the level-float pin in the lock position on the boom.
3. Never allow riders when transporting the sprayer.
4. When transporting the sprayer, be sure to watch the height clearances for the folded boom to prevent damage and possible injury.

DANGER!
Contact with electrical power lines by booms can cause death by electrocution.

5. Do not exceed 20 mph transporting the sprayer.
6. Do not transport sprayer while filled with chemical mixture.

Parking
The following list should be conducted when unhitching the sprayer. See Storage in the “Maintenance and Lubrication” section on page 22, for more information about long term storage of the sprayer.

1. Lock the boom level float pin (refer to the boom operator’s manual), secure the fold bracket pins, if applicable, and fold the spray booms.
2. Drain the sprayer tank of any excess water or chemical. Dispose of or store chemical properly by instructions on the chemical label.
3. Securely attach the boom parking stands onto the Great Plains boom (refer to the boom operator’s manual for the mounting instructions). Lower and pin the front boom stands so they are the same level as the parking stands on the boom. Secure the pins in the front stands with the wire attached to each pin, refer to Figure 2-4.
4. Park the sprayer on a flat, level area where wind cannot blow it over and preferably where it is sheltered from direct sunlight.
5. If the ground is soft, place a board or plate under the parking stands to widen the ground contact area. Make sure the sprayer remains level.
6. Lower the 3-Point on the tractor and bring the boom to rest on the support.
7. Unhook the PTO pump or unplug hydraulic lines from the hydraulic pump, which ever is applicable.
8. Remove the 3-Point pins from the tractor and pull the tractor away from the sprayer.

Refer to Tractor/Sprayer Hookup in the “Assembly and Setup” section on page 8, when preparing to hitch the sprayer to the tractor.

Inductor (Optional Equipment)
The chemical inductor provides a safe and easy way to put chemical into the tank, which keeps an operator from having to climb up on the walkboard and dispense the chemical into the tank from the tank lid. Placing the chemical into the inductor tank allows it to transfer the chemical into the sprayer tank.

Induct chemical into the tank
Refer to Figure 2-5:
1. Fill the main sprayer tank with the carrier needed and transport the sprayer to the field where the sprayer will be used.
2. Make sure the boom section solenoid valve switches are all off and operate the pump.
3. Turn the Product Valve from “OFF” to “INDUCT”.
4. Add chemical to inductor tank.
5. Turn Inductor Valve from “INDUCTOR OFF” to “INDUCTOR ON”.
6. Add additional chemical as needed into the inductor tank.
7. When finished, turn Inductor Valve from “INDUCTOR ON” to “INDUCTOR OFF”, rotate Product Valve from “INDUCT” to “OFF”, and turn off pump in that order.
Tank Fill Using Existing Pump Operations

The Tank Fill can be used to fill the main sprayer tank using the existing sprayer pump. To do so refer to the following instructions:

1. Make sure sprayer pump is off and insert supply tank hose into the walk-board quick-fill coupler. Leave quick-fill valve off. For location of valve, refer back to Figure 2-3.

2. Turn the Sump Valve, Figure 2-6, from “SPRAY” to “TANK FILL”.

3. Open supply tank valve making sure that positive head pressure is maintained at the quick-fill to prevent back-flow from the sprayer tank.

⚠️ WARNING!

Make sure the supply tank is higher than the sprayer tank. Failure to do so can cause back-flow from the sprayer tank causing sickness, serious injury or death from water contamination.

4. Open quick-fill valve under the walk-board.

5. Turn Product Valve, Figure 2-5, from “OFF” to “TANK FILL”. For location of valve refer back to

6. Make sure the boom section solenoid valve switches are all off, start the pump and fill the tank.

7. When finished, turn off pump, rotate Product Valve from “TANK FILL” to “OFF”, shut quick-fill valve, shut off supply tank valve, and rotate Sump Valve from “TANK FILL” to “SPRAY” in that order. Make sure that there is positive head pressure from the supply tank during this procedure.
Section 3 Adjustments

General Field Adjustments

Boom Height
After calibrating the sprayer for the specific nozzle that will be used at a desired pressure and tractor speed, the main field adjustment is the boom height. Refer to *Hydraulic Elevator Option* in the “Operating Instructions” section on page 13. Depending on which type of nozzle is being used, set the boom height so that the correct overlap for that specific nozzle is achieved. If the crop canopy is taller in some fields than others adjust the boom height accordingly. Refer to the Nozzle Charts in the Application Guide located in this manual to determine the height of the boom needed.

EXAMPLE: A 2.5 MeterCone nozzle at 20 inch spacing is being used. From the Nozzle Chart (refer to the Application Guide), a height of 19 to 21 inches above the top of the crop is required. If the crop is 6 inches off the ground, the boom height should be set to 25 to 27 inches off the ground.

Nozzle Pressure
Another area that will need some field adjustments is the nozzle pressure. As the tank level decreases the boom pressure may need to be adjusted to keep the pressure at the same magnitude for what the sprayer was calibrated for if the sprayer is not equipped with a monitor. Watch the pressure gauge and be aware of changes in the pressure.

Tank Straps
The tank straps that wrap around the sprayer tank may become loose after the first few hours of operation. This occurs when the tank settles in the saddle. Polyethylene tanks are especially susceptible to this. Retighten the tank straps to secure the tank.

Throttling Valve Adjustment
*(Manual Control System Only)*
The boom valves used to turn on the individual boom sections are three way valves. These valves route the flow to the boom sections or back into the tank, depending on whether the boom section switches on the control box are turned on or off.

When a boom section switch is turned to the off position, the boom valve for that switch diverts the flow back into the inlet of the pump. To insure that the flow going to the boom section and the flow going back to the inlet of the pump are the same, a throttling valve is used to adjust the flow going to the inlet of the pump. If these flows were not equal, every time the boom section switch if flipped, the pressure will either rise or decrease in the other boom sections, causing the sprayer to over or under apply chemical in those boom sections.

To set the three throttling valves, complete the following:

1. Adjust all three of the throttling valves until they are closed, Figure 3-1.
2. Turn all the boom section switches on with the tank filled with water (no chemical added) and the pump running. Adjust the boom pressure until the boom pressure gauge reaches the selected calibration pressure.
3. Turn the left boom section switch off and keep the center and right section switches on. Unscrew the throttling valve for the left boom section until the pressure on the boom pressure gauge reaches the calibration pressure. Flip the left boom section switch a few times and adjust the throttling valve so that the pressure remains at the selected calibration pressure.
4. Turn the left boom section switch on. With the left and right boom sections on, turn the center boom section off and adjust the throttling valve as described in step #3.
5. Adjust the throttling valve for the right boom section with the left and center boom sections on as described in step #3.
6. With all throttling valves adjusted, it should be possible to flip any combination of boom section switches with the pressure remaining constant.

Pressure Adjustments
*(Manual Control System Only)*
One of the most important areas of controlling the sprayer accuracy is to have the proper pressure when spraying. The pressure is determined when the sprayer is calibr-
Section 3 Adjustments

ed. Refer to Calibration Procedures in the Application Guide.

The electric ball valve is used to adjust the pressure to the booms. It is controlled with the pressure adjust switch on the control box. The boom pressure is displayed by the boom pressure gauge.

To adjust the pressure, hold the pressure adjust toggle switch up for more pressure, down for less pressure.

As the tank level decreases, the boom pressure may change. Check boom pressure gauge frequently and make sure that the pressure doesn’t change. Generally, the boom pressure will need to be adjusted up slightly when the tank level decreases.

When the manual pressure adjustment valve, Figure 3-2, is wide open, the pressure adjust switch is very sensitive. To decrease the sensitivity of the pressure adjust, set the manual pressure adjustment valve. Refer to Manual Pressure Valve in the “Operating Instructions” section on page 12.

### Elevator Slide Adjustment

Refer to Figure 3-3:

The elevator slide is initially adjusted at the factory so that the slide blocks have the correct tolerances between the blocks and the vertical elevator tube. Over time the blocks will wear and may need to be adjusted. To adjust the slide blocks, adjust the slide block clearance bolts (#1) so that the slide frame is centered and parallel with the elevator frame. Make sure all blocks have 1/32 of an inch clearance between the block and the vertical tube when finished.

**IMPORTANT:** With the boom mounted, there will be 1/16 of an inch clearance on the top rear and lower front blocks. The other blocks will be touching the tube due to the weight of the boom.
## Section 4 Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Problem Area</th>
<th>Specific Checks</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure decreasing</td>
<td>Between gauge and liquid supply</td>
<td>Pump wearing</td>
<td>Rebuild or replace pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plugged suction or pump to pressure head hose</td>
<td>Clean hose and reduce cause of clogging</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plugged Whirlfilter</td>
<td>Clean out Whirlfilter, refer to pages 12 &amp; 13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plugged gauge</td>
<td>Remove the quick disconnect fitting and flush gauge protector</td>
</tr>
<tr>
<td>Pressure fluctuating</td>
<td>Between pump outlet and liquid</td>
<td>Check suction hose &amp; fittings for air leaks. Air in system is indicated by buffs of air at nozzles</td>
<td>Remove obstruction from clogged area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vortex in tank suction</td>
<td>Align agitators properly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cracked pump housing</td>
<td>Replace pump housing</td>
</tr>
<tr>
<td>Pressure increasing</td>
<td>Between gauge and nozzle</td>
<td>Nozzle screens clogged</td>
<td>Clean screens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nozzle orifices plugged</td>
<td>Remove material with soft brush or air</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boom hoses becoming clogged</td>
<td>Remove obstruction from clogged area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boom hoses pinched</td>
<td>Use cable ties to position hose so it will not kink</td>
</tr>
<tr>
<td>Pressure cannot increase</td>
<td>Pump or electric ball valve</td>
<td>From nozzle charts check liquid demand against pump capacity (nozzle requirement + agitation requirement)</td>
<td>Reduce swath width by nozzle reduction; install smaller nozzles and drive at a lower rate of speed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electric ball valve or gauge not functional</td>
<td>Replace or repair</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pressure adjust switch faulty</td>
<td>Test switch &amp; replace if faulty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuse is out in control box</td>
<td>Replace fuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manual pressure adjustment valve not all the way open</td>
<td>Open the manual pressure valve all the way and allow the electric ball valve to govern the pressure</td>
</tr>
<tr>
<td>No pressure</td>
<td>Plumbing</td>
<td>Tank shut-off valves off</td>
<td>Make sure all tank shut-off valves are open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loose fittings</td>
<td>Tighten fittings so pump can prime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collapsed suction hose to pump</td>
<td>Replace hose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Obstruction in suction hose or tank</td>
<td>Remove obstruction</td>
</tr>
<tr>
<td>No pressure</td>
<td>Pump</td>
<td>Hydraulic pump running in the wrong direction</td>
<td>Switch hydraulic hoses in the tractor outlet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PTO pump coupler loose</td>
<td>Tighten PTO coupler</td>
</tr>
<tr>
<td>Pressure cannot decrease</td>
<td>Pump or electric ball valve</td>
<td>Tank agitation restricted</td>
<td>Check that the agitator valve is open and that the liquid is being agitated</td>
</tr>
</tbody>
</table>
## Section 4 Troubleshooting

### Problem

<table>
<thead>
<tr>
<th>Problem</th>
<th>Problem Area</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid will not induct</td>
<td>Chemical Inductor</td>
<td>Make sure the valve below the inductor tank is open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Make sure the pump is in operation and has prime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Make sure the venturi bypass valve is open</td>
</tr>
<tr>
<td>Inductor overflow</td>
<td>Chemical Inductor</td>
<td>Close valve below inductor tank until pump is running, has pressure and venturi valve is open</td>
</tr>
</tbody>
</table>
Section 5 Maintenance and Lubrication

Maintenance
Proper servicing and adjustment is the key to long life for any implement. With careful and systematic inspection, costly maintenance, repairs and down time can be avoided.

WARNING!
Before working on, servicing or making adjustments on sprayer, always disengage power, shut off tractor engine, make sure all moving parts have stopped, and all pressure in the system is relieved.

- Always wear rubber gloves when making repairs or adjustments.
- Make sure all safety equipment mentioned in the Personal Safety Equipment portion of the “Important Safety Information” section on page 4., are stored in an easily accessible place but protected from potential contamination from dust or chemicals.

Equipment Cleanup

DANGER!
Read and follow chemical manufacturer’s instructions. Some chemicals and cause serious burns, lung damage and even death.

Nozzles should be cleaned with a low pressure (less than 30 psi) air hose, and periodically replaced. Haul a supply tank of water so cleaning of the spray tank and applicator can be done in the field. NEVER wash tank out in the yard or at a car wash.

Dispose of leftover chemical in the same manner described on the manufacturer's label of the chemical last used in the sprayer. Rinse out the tank and spray the rinse water on the last field that was sprayed.

Flush the sprayer with fresh water and spray the water in the field that was last sprayed. While the sprayer is being flushed at the field, turn the boom section switches "on" to flush the nozzles, then turn them "off" to flush out the throttling valves and bypass lines (if equipped). Repeat this procedure several times. Periodically clean each throttling valve by unscrewing its gray knob until it stops. Flush it with the fresh water by operating the pump with the boom section switches "off". Reset the solenoid throttling valves as described in Throttling Valve Adjustment on page 16.

The magnet-mount gauge protector shown in Figure 5-1 can be cleaned out periodically to prevent chemical build-up under the gauge protector. To clean out the chemical under the gauge protector (#1), remove the quick disconnect fitting (#2) and flush the gauge hose out into a clean bucket. Dispose of this material in the same manner described as the chemical that built up in the hose. Using the personal safety equipment needed (see the Personal Safety Equipment portion of the “Important Safety Information” section on page 4.) rinse bottom of gauge protector (#1) in the same manner by disposing of the chemical as stated by the chemical manufacturer.

General Information
If equipment is to be used in freezing or near freezing conditions, protect pump and plumbing system by thoroughly draining liquid and pumping antifreeze (Great Plains strongly recommends the use of recreational vehicle antifreeze) solution through the plumbing system.

The cast iron pump must be either full of RV antifreeze or completely empty of all liquid to avoid corrosion. If the contents of the pump is unclear it is advisable to drain the pump, remove it, and place it in a warm dry, environment during the winter.

Check the condition of the sprayer hoses and clamps. Fix all leaks by tightening hose clamps or fittings. If the pump is leaking, refer to the pump maintenance section. If the hoses are dragging when the sprayer is operated use cable ties to fix their position. Make sure the hoses do not bind or kink when the boom is folded or raised. If so, route the hoses to prevent kinking and binding. If hoses are damaged, replace as necessary. Periodically check for loose bolts and tighten.

Inspect all parts of the sprayer for wear and rust. Repair and paint parts as necessary.

Pump Maintenance & Repair
This Great Plains pump is designed for long life and service. Through the years there may be a need to replace the mechanical seal or service some component of the pump. A mechanical seal may weep slightly, but if it starts to drip the pump will have to be disassembled. Before disassembling the pump be sure to wash it out with fresh water.

The following is an instruction list for how to reassemble the pump after it has been disassembled and repaired. Refer to the parts manual for the components of the pump.
Refer to Figure 5-2:

If the pump is leaking, before removing it from the sprayer, run the pump with adequate water in the tank to diagnose the actual pump problem. If fluid leaks out between the front suction housing (#5) and the rear volute housing (#8), the housing gasket may be dried out. Give the gasket (#6) adequate time to absorb moisture and swell up. If necessary, retighten the volute housing (#8) by alternating on opposite sides until all nuts (#9) are torqued to 16 - 18 ft.-lbs. It is a good practice to apply grease to both sides of the gasket (#6) to prevent shrinkage.

If seal replacement is required:

1. Disassemble pump and clean all components.
2. Assemble the ceramic ring seat of the mechanical seal (#7) into the volute housing (#8) of the pump. Make sure the ceramic seat is positioned square into the volute housing.
3. Clean off any grease or dirt from pump shaft (#10) and dry the shaft so the rubber bellows on the mechanical seal will adhere to the shaft properly when assembled.
4. Bolt up the pump input bearing housing (not shown) to the volute housing (#8) using bolts (#2), (#3) and (#4) with spacers (not furnished) for alignment and assembly of the shaft seal.
5. Assemble the seal (#7) without its spring, on the pump shaft by pushing on the inside rubber portion of the seal using water as the lubrication. The graphite seal face should touch the white ceramic seat face. The rubber bellows adhering to the pump shaft should not protrude more than 1/16" beyond the stainless steel ring located on the impeller side of the seal.
6. Assemble the seal's spring and the impeller, being careful not to move the mechanical seal that has been positioned on the pump shaft. Torque the impeller bolt (#1) 16 - 18 ft./lbs.
7. Remove the three bolts and spacers. Using gun grease, lubricate the gasket (#6). Assemble the gasket (#6) and suction housing (#5) using bolts, flat washers and locknuts. Torque nuts 16 - 18 ft./lbs.
Tank Agitation
There is a tank agitator in the sprayer tank that shoots a jet of liquid out at a high velocity. This keeps the pesticides in suspension. The agitator has three holes and is oriented as shown in Figure 5-3. To ensure that the tank gets proper agitation, make sure that the agitator is always kept in the orientation shown.

Storage
1. Empty solution from the tank, clean the chemical inductor (if included), and store or dispose of the chemical as recommended by the manufacturer's chemical label.
2. Flush the entire sprayer system with clean water.
3. Clean out Whirlfilters®. Refer to Operating Whirlfilter® in the “Operating Instructions” section on page 12.
4. Circulate 3 - 5 gallons of antifreeze (Great Plains strongly recommends the use of recreational vehicle antifreeze) through the system including the pump, hoses and nozzles.
5. The cast iron pump must be either full of RV antifreeze or completely empty of all liquid to avoid corrosion. If the contents of the pump is unclear it is advisable to drain the pump, remove it, and place it in a warm dry, environment during the winter.

IMPORTANT: Regular antifreeze is harmful or fatal to animals and humans. Use carefully according to the label's instructions. We strongly recommend the use of recreational vehicle antifreeze which does not exhibit these harmful side effects.

6. Remove nozzles, disconnect the control box, and place them indoors with the pump.
7. Change filters in the tractor cab after finished.
8. Wash off the exterior of the sprayer thoroughly using a safe solvent or soap and water.
9. Inspect all parts of the sprayer for wear and rust. Repair and paint parts as necessary.
10. Store the sprayer in a dry area away from direct sunlight.
**Section 5 Maintenance and Lubrication**

**Lubrication**

**Legend**
- Spray lube
- Grease lube
- Oil lube

---

**PTO Pump (if applicable)**
The grease zerk is located on the gear case cover and is marked with a decal. Grease with five shots of grease.

Type of Lubrication: NLGI grade 2 or 3 grease lubricant

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**Elevator Slide (if applicable)**
The hydraulic elevator can be lubricated with dry graphite or NLGI grade 2 grease on the black elevator pads and vertical elevator tubes.

Type of Lubrication: Dry graphite or NLGI grade 2 grease lubricant

---

**Ace Pump**
The grease zerk is located on the belt idler arm casting. Grease with three shots of grease.

Type of Lubrication: NLGI grade 2 or 3 grease lubricant
**Chemical Inductor**

The chemical inductor provides a safe and easy way to put chemical into the tank, which keeps an operator from having to climb up on the walkboard and dispense the chemical into the tank from the tank lid. Placing the chemical into the inductor tank allows it to transfer the chemical into the sprayer tank.

*For additional information refer to:*

- “Important Safety Information” on page 1
- “Section 2 Operating Instructions” on page 11
- “Section 4 Troubleshooting” on page 18
- “Section 5 Maintenance and Lubrication” on page 20
### Section 7 Specifications and Capacities

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Tank Size</td>
<td>200/300 Gallon - Polyethylene</td>
</tr>
<tr>
<td>Boom Widths Available</td>
<td>30', 40', 45', 50' &amp; 60'</td>
</tr>
<tr>
<td>Nozzle Spacing</td>
<td>15&quot;, 20&quot; &amp; 30&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>620 pounds (with no booms)</td>
</tr>
<tr>
<td>Frame Materials</td>
<td>3&quot; x 3&quot; and 3&quot; x 4&quot; steel tubing</td>
</tr>
<tr>
<td>Transport Width</td>
<td>Manual fold booms 91 1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>Hydraulic fold booms 153&quot;</td>
</tr>
<tr>
<td>Tractor Requirements</td>
<td></td>
</tr>
<tr>
<td>Electrical System</td>
<td>12-volt, negative ground</td>
</tr>
<tr>
<td>Hydraulic System</td>
<td>For hydraulic pump, one hydraulic remote that can restrict flow to 6 gpm.*</td>
</tr>
<tr>
<td></td>
<td>For hydraulic elevator and hydraulic pump used in combination, two hydraulic remotes.</td>
</tr>
<tr>
<td>Lift Capacity†</td>
<td>3P200: 4600 lbs.</td>
</tr>
<tr>
<td></td>
<td>3P300: 5500 lbs.</td>
</tr>
<tr>
<td>Pumps</td>
<td></td>
</tr>
<tr>
<td>Tractor mounted PTO pump</td>
<td>- 540 RPM</td>
</tr>
<tr>
<td>Tractor mounted PTO pump</td>
<td>- 1000 RPM 1 3/8&quot; spline</td>
</tr>
<tr>
<td>Tractor mounted PTO pump</td>
<td>- 1000 RPM 1 3/4&quot; spline</td>
</tr>
<tr>
<td>Hydraulic pump</td>
<td></td>
</tr>
<tr>
<td>Tractor mounted high volume PTO pump</td>
<td>- 540 RPM</td>
</tr>
<tr>
<td>Tractor mounted high volume PTO pump</td>
<td>- 1000 RPM 1 3/8&quot; spline</td>
</tr>
</tbody>
</table>

* If tractor cannot restrict flow to 6 gpm, purchase a flow-control kit from your Great Plains dealer.

† At 24 inches behind lower lift-arm balls.
### Section 8 Appendix

#### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Inflation PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.50 x 20” 4-Ply Drill Rib</td>
<td>28</td>
</tr>
<tr>
<td>9.0 x 22.5 10-Ply Highway Service 70</td>
<td>70</td>
</tr>
<tr>
<td>9.0 x 24” 8-Ply Rib Implement</td>
<td>40</td>
</tr>
<tr>
<td>9.5L x 15” 6-Ply Rib Implement</td>
<td>32</td>
</tr>
<tr>
<td>9.5L x 15” 8-Ply Rib Implement</td>
<td>44</td>
</tr>
<tr>
<td>9.5L x 15” 12-Ply Rib Implement</td>
<td>60</td>
</tr>
</tbody>
</table>

#### Torque Values Chart for Common Bolt Sizes

<table>
<thead>
<tr>
<th>Bolt Size (Inches)</th>
<th>Bolt Head Identification</th>
<th>Bolt Size (Metric)</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 5</td>
<td>Grade 8</td>
</tr>
<tr>
<td>1/4” - 20</td>
<td>7.4</td>
<td>5.6</td>
<td>11</td>
</tr>
<tr>
<td>1/4” - 28</td>
<td>8.5</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>5/16 - 18</td>
<td>15</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>5/16” - 24</td>
<td>17</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>3/8” - 16</td>
<td>27</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>3/8” - 24</td>
<td>31</td>
<td>22</td>
<td>47</td>
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1 in-tpi = nominal thread dia. in inches/threads per inch
2 N·m = newton-meters
3 ft-lb = foot pounds
4 mm x pitch = nominal thread dia. in millimeters x thread pitch

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