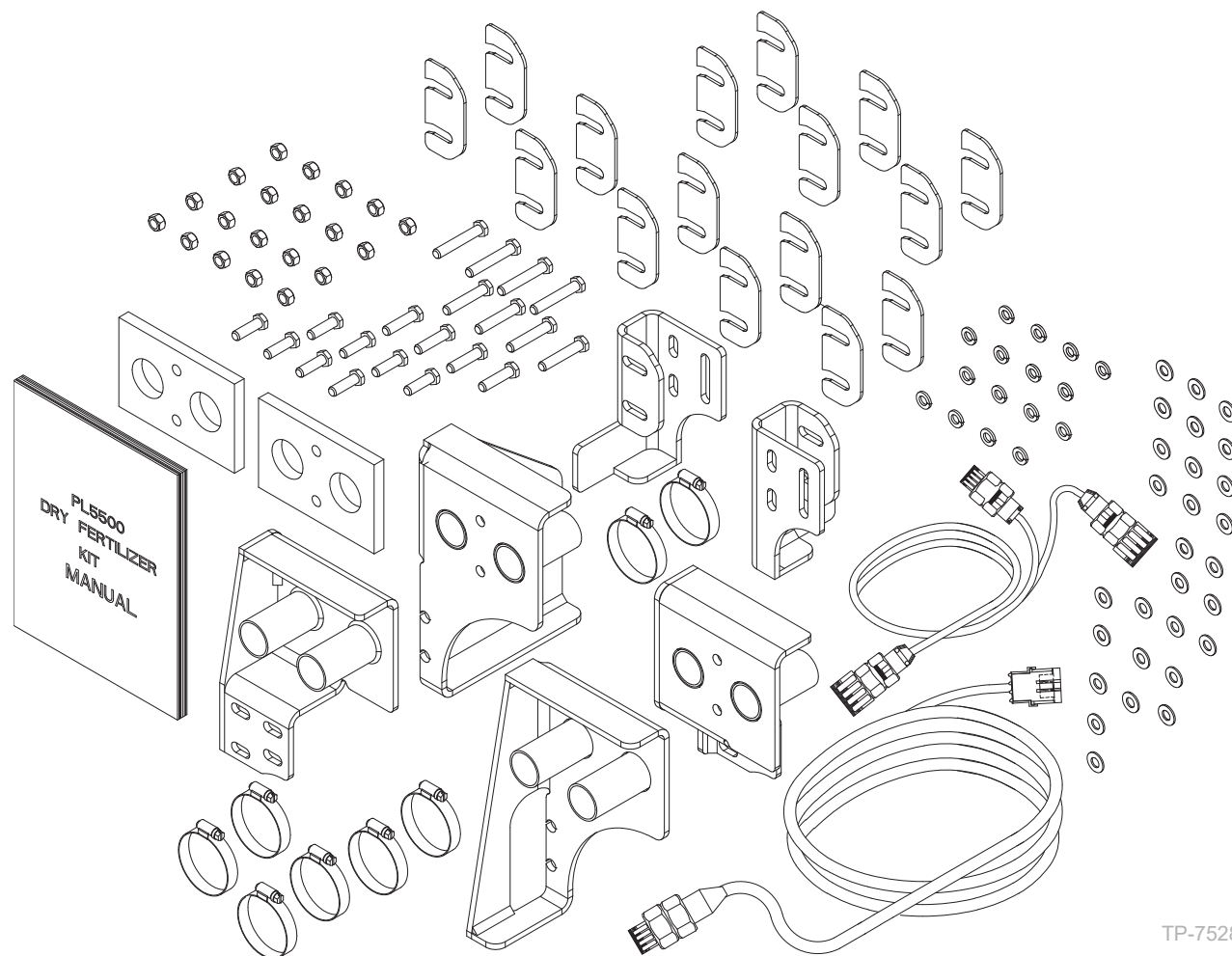


Great Plains

# Dry Fertilizer Kit

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL  
Designed for all PL5500 Front-Fold Planters



TP-75282



## Original Instructions 411-950M



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

## 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.

<b>Model Number</b>	
<b>Serial Number</b>	
<b>Machine Height</b>	
<b>Machine Length</b>	
<b>Machine Width</b>	
<b>Machine Weight</b>	
<b>Year of Construction</b>	
<b>Delivery Date</b>	
<b>First Operation</b>	
<b>Accessories</b>	<div></div> <div></div> <div></div>

## Dealer Contact Information

**Name:** \_\_\_\_\_

**Street:** \_\_\_\_\_

**City/State:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Dealer's Customer No.:** \_\_\_\_\_



**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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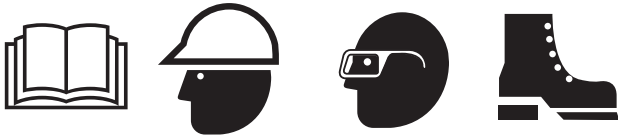
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# Safety Information

## ■ Before Getting Started



### Read Machine Information

- Read the operator manual and this manual in their entirety before attempting to start and operate the machine. Do not let anyone operate machine without proper instruction.
- Non-Great Plains components on this machine may contain additional safety information not found in this manual. Consult the manufacturer's safety information and product decals to safely use products from third-parties.

### Wear Appropriate Clothing and Equipment

- Never wear loose clothing around machine. Always wear appropriate clothing and equipment such as hard hats, gloves, face masks, eye protection, and work or steel-toed boots as needed.
- Prolonged exposure to machine noise during operation can cause hearing impairment or loss. Use proper hearing protection devices (HPD) like earmuffs or earplugs while working. Do not use headphones as hearing protection.

### Inspect Machine Before Use

- Inspect brakes, link pins, and other mechanical parts for wear and dirt buildup, and check that all guards and shields are undamaged, installed, and secure before operating machine.
- Check that hydraulic fittings are tight and all hydraulic hoses and lines are in good working condition before applying pressure to the system.
- Do not modify the machine. Unauthorized modification can result in unsafe conditions that lead to machine damage or personal injury.

### Safety Decals

- Your implement comes equipped with safety reflectors and decals in place. Refer to the operator manual for a full-accounting of all of the safety reflectors and decals.
- Read and follow decal directions. Keep all safety decals clean and legible. Replace all damaged, faded, or missing decals.

## ■ Machine Use



### Operate Responsibly

- Maintain attention on operation at all times to avoid injury to yourself or others.
- Do not operate machine while distracted by a smart phone, tablet, or similar electronic device, or while impaired by alcohol, medication, any controlled substance, or while fatigued.
- Do not ever allow passengers to ride on any part of the machine at any time, for any reason.

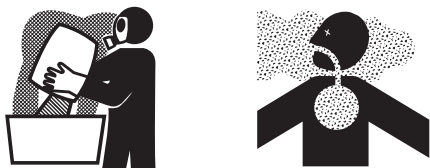
### Handle Hydraulics with Care

- Keep clear of machine while hydraulics are in use. Any failure in the hydraulic system can cause machine parts to move or fall rapidly with a great deal of force. Anyone struck, caught between, or crushed beneath these parts can suffer serious injury or even death.
- A raised planter without cylinder locks installed or without active hydraulic pressure will slowly lower over time. Use tractor hydraulics to raise planter only for brief periods, such as while completing a field turn or during cylinder lock installation.
- Relieve hydraulic pressure and wait for all parts to come to a complete stop before disconnecting any hydraulic lines or performing any work on the hydraulic system. Great Plains recommends only a trained professional complete hydraulic system work. Contact your Great Plains dealer to schedule a service appointment.
- Do not have skin exposed when searching for leaks in hydraulic lines. Use a piece of cardboard or wood to locate leaks. If injured by escaping hydraulic fluid, seek immediate medical attention.
- Wear protective gloves and eye protection when working around the hydraulic system.

### Avoid Potential Collision Damage

- Watch your surroundings at all times. Do not operate planter with nearby bystanders or while anyone makes adjustments or fills the machine.
- Avoid contacting overhead obstructions such as low bridges, overpasses, and power lines.
- Do not operate near ditches, holes, steep slopes, embankments, or other surfaces which may collapse under the machine's weight or tip the machine over.

## Chemicals and Waste



Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.

- Read chemical manufacturer's instructions carefully, and then take appropriate precautions before use. In the absence of manufacturer instructions, chemical labels will inform you of any potential hazards and their severity.
- Wear protective clothing.
- Wash hands and face before eating after working with chemicals. Shower as soon as application is completed for the day.
- Apply only with acceptable wind conditions. Make sure wind drift of chemicals will not affect any surrounding land, people, or animals.
- Dispose of unused chemicals and chemical waste as specified by the manufacturer. Observe all the local ordinances and regulations in your area.

## Machine Maintenance



### Follow Tire Recommendations

- Consult the tire manufacturer's recommendations for maintenance and replacement of your machine's tires. Only use prescribed tire sizes with correct ratings and tire pressure.
- Replacing tires is potentially hazardous. Have a trained professional change the machine's tires with the proper tools and equipment.
- Avoid over inflation of tires and over torquing wheel bolts. Review the machine specifications and tire information in this manual first before doing any work on the tires of your machine.

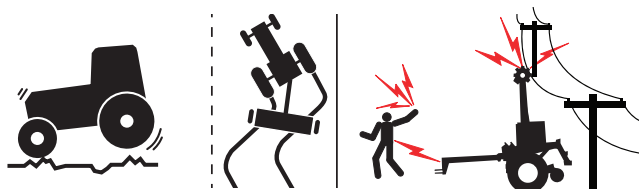
### Prepare for Performing Maintenance

- Understand procedures before performing any work. Always use proper tools and equipment.
- Only work on or around the machine if frame is lowered, or raised with the cylinder locks in place.
- Lower the implement. Put tractor gear in "Park", engage parking brakes, and turn off engine. To

prevent unauthorized starting, remove key before performing maintenance or service work.

- If work must be performed planter raised, install cylinder locks to secure the planter.
- Disconnect electronic consoles and lighting harness from the tractor before servicing or adjusting electrical systems.
- Before welding, disconnect electronic console and lighting harness from the tractor. Protect hydraulic lines. Avoid fumes from heated paint.
- Check and replace worn brake lines as needed.
- Remove all tools and unused parts from planter before operation.

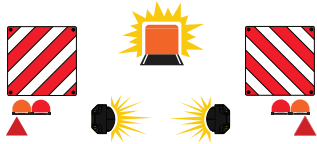
## Planter Transport



- As with transporting any piece of heavy machinery, comply with all local laws and regulations before and during transport process.
- Be advised that this machine does not meet all local, regional, or national regulations for transport on a public road. In areas that have national certification requirements for road transport, it can be impossible for machine to be approved for such road transport.
- Transport only at recommended transport speed for implement. Further reduce speed when turning, and make as wide a turn as possible. Turning tractor too tightly or sudden braking can cause a towed load to swerve and tip over.
- Before towing implement on roads, make sure to empty out all material from the hoppers or boxes.
- Know transport height and width of implement.
- Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
- Do not engage any hydraulic functions while machine is in transport.
- Keep clear of overhead power lines and other obstructions when transporting.



## Use Safety Lights and Devices



- Check the safety chain before use. The chain must be properly rated as if you were to pull the weight of your machine. However, never use the safety chain for towing. Replace chain if any links or end fittings are broken, stretched, or otherwise damaged.
- Always use safety lights and devices when transporting and operating the machine. If equipped, use flashing warning lights and turn signals whenever driving on public roads.
- Regularly inspect safety lights, signs, and devices to ensure that they are clean, visible from either end of the machine, and are in good working condition.

## ■ Shutdown and Storage

1. Park the tractor and implement on a solid, level surface where children normally do not play.
2. Fold and tilt wings.
3. Put tractor gear in “Park” and engage the parking brake. Turn off engine and remove key to prevent unauthorized starting.
4. Wait for all components to come to a complete stop before leaving the operator seat.
5. Deploy parking stands.
6. Detach the tractor. Secure the planter using blocks.

## ■ Dispose of Waste Properly

- Dispose of waste properly to avoid threatening the environment and ecology. Potential harmful waste includes oil, fuel, filters, and batteries.
- Use a leak-proof container for draining fluids. Do not use a food or beverage container that may be mistaken for a consumable product.
- Do not drain or pour waste onto the ground, down a drain, or into any water source.
- Contact your local environmental or recycling center for the proper way to recycle or dispose of waste.

# Introduction

This manual will familiarize you with safety, installation, adjustments, operation, and maintenance for the newly designed dry fertilizer kits for all PL5500 front-fold planters. This optional dry fertilizer kit will apply dry fertilizer with your Great Plains planter. Please read and understand all instructions in the operator manual and this manual thoroughly before proceeding. It may be necessary to refer to your tractor operator manual for information about hitching, connections, warnings, operations, and intended usage. Have a PL5500 parts manual on hand to refer to for detailed parts information and orientation during installation.

These installation instructions will cover the kits listed below. Contact your Great Plains dealer to order a dry fertilizer kit.

## Dry Fertilizer Kits

Dry Fertilizer Kit - Ground Drive	411-949A
Dry Fertilizer Kit - IRC Drive	411-951A

## Recommended Great Plains Manuals

Operator Manual	411-633M
Parts Manual	411-633P
Material Rate Manual	411-633B
Dry Fertilizer Kit Manual	411-950M

## ■ Intended Usage

The Dry Fertilizer Kit is intended for use in all PL5500 front-fold planters. Each kit has been specially designed and fitted for your PL5500 planter's drive configuration.

## ■ Definitions

### Symbols



*The safety symbol indicates a potential safety hazard to persons operating or near the machine and advises on how to avoid it.*



*The notice symbol indicates a potential for machine or property damage from operator error and advises on how to avoid misuse.*

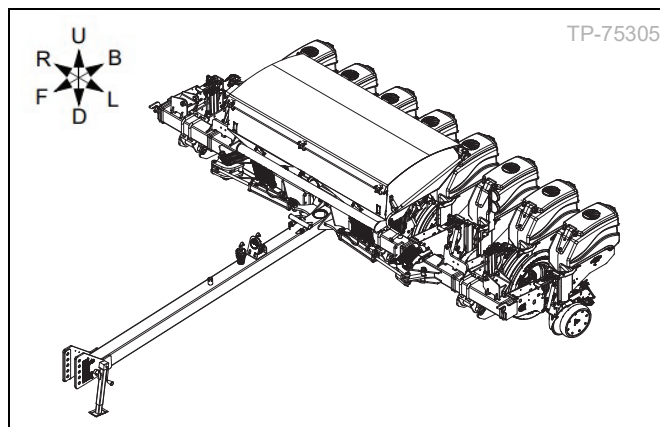


The information symbol indicates useful - but not crucial - information for machine operation, assembly, or adjustment.

The following terms are used throughout this manual.

**Right-hand and Left-hand** - will be defined by the forward direction of travel of the planter while in use.

An **orientation rose** (shown) depicts up, backwards, left, down, forward, and right.



Parts included in the dry fertilizer kit have been assigned callouts (1) to (19) for clarity. Refer to "Parts List" on page 6.

## ■ Product Support

If you do not understand any part of this manual, or have other installation or setup questions, assistance is available. Contact our Service Department at:

**Great Plains Manufacturing, Inc.**

**Service Department**

P.O. Box 5060

Salina, Kansas 67402-5060

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

Additional copies of the operator, parts, and material rate manuals, are available by mail or online. Please visit [www.greatplainsag.com](http://www.greatplainsag.com) and follow the product links for the PL5500 planter. If writing, please include the serial number in all correspondence.

## Kit Installation



### **Pinch and Crushing Hazards**

*Do not attempt to make adjustments or install parts while the planter or tractor in operation. Never place body or body parts under or between planter or planter parts during operation or serious injury and even death can occur.*



### **Crushing Hazard**

*A falling implement can cause severe injury or death by crushing. A raised planter slowly lowers when held up only by hydraulic circuit, resulting in serious injury for persons trapped beneath row units or any part of the planter. Use the hydraulic circuit to hold the raised planter for very brief periods, such as when completing a field turn and during cylinder lock installation. Install cylinder locks for installation.*



### **High Pressure Fluid Hazard**

*Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Check all hydraulic lines and fittings before applying pressure. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. Use extreme care when working around the planter's hydraulic system. Compromising a closed hydraulic system can cause serious injury or death. If injured, seek immediate medical attention from a physician familiar with this type of injury.*



### **Falling Hazard**

*Do not stand on tires at any time. Wheels may have little or no weight, and may turn suddenly, without warning, if used as a step and will result in a serious injury.*



### **Planter Damage Risk**

*Do not fold or unfold the planter without first raising the planter completely or damage will occur.*

This section will provide step-by-step instructions for installation of the newly designed dry fertilizer kits for PL5500 front-fold planters. Ensure you have all the necessary tools and equipment before beginning. Follow each set of instructions to achieve a properly functioning planter at the end of the kit installation. These instructions provide a general guide of instructions. At times, it may be necessary to identify when other parts or assemblies may block the removal, installation, or movement of a part or section of the planter. Due to evolving manufacturing and shipping practices, some parts may arrive

loosely assembled in the kit. Do not assume loosely assembled parts will be installed together.

Illustrations in this manual were not completed during an actual installation. For clarity, some illustrations may or may not include parts, assemblies, and other components at the same point during installation.

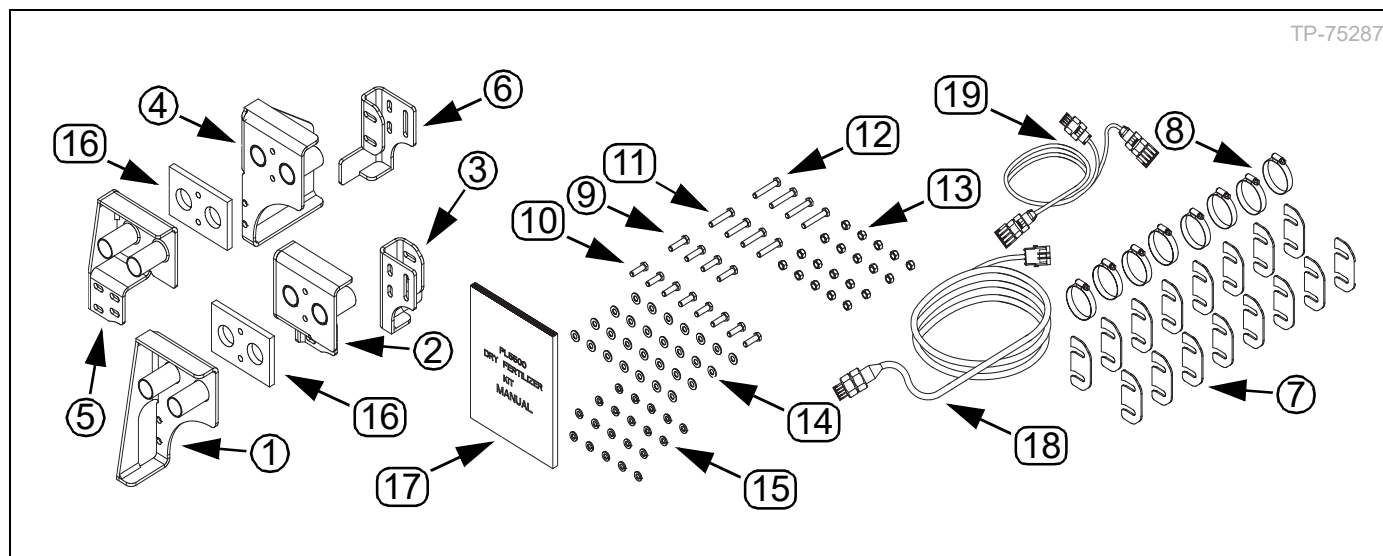
## ■ Before You Begin

- ☑ Read and understand “**Safety Information**” before beginning to install the kit.
- ☑ Read and understand the operator manual in its entirety before attempting to start and operate the planter.
- ☑ Have at least two additional people on hand during installation.
- ☑ Ensure the work location is level and free of obstructions and debris. Great Plains recommends an open concrete area.
- ☑ Create a plan for installation, and ensure all workers understand the plan, their responsibilities, and what to do in the event of an accident or emergency.
- ☑ Have all major components and required tools. Test to ensure all equipment and tools are properly functioning.
- ☑ Account for all parts in the kit. Refer to “**Parts List**” on page 6.
- ☑ Use a tractor of sufficient size and horsepower with at least 2 remotes. Refer to “**Specifications**” in the operator manual for tractor requirements.
- ☑ Understand and follow all instructions on planter safety decals. Replace any damaged or illegible decals. Refer to “**Safety Decals**” in the operator manual for more information.
- ☑ Have a copy of the parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
- ☑ Ensure all moving parts are moving freely, bolts are tighten to torque, and cotter pins are spread.

## Required Tools

- General hand tools
- Blocks or wheel chocks
- Jack stands or blocking
- At least three people for installation work

## ■ Parts List



### Dry Fertilizer Kit Ground Drive Planters (411-949A)

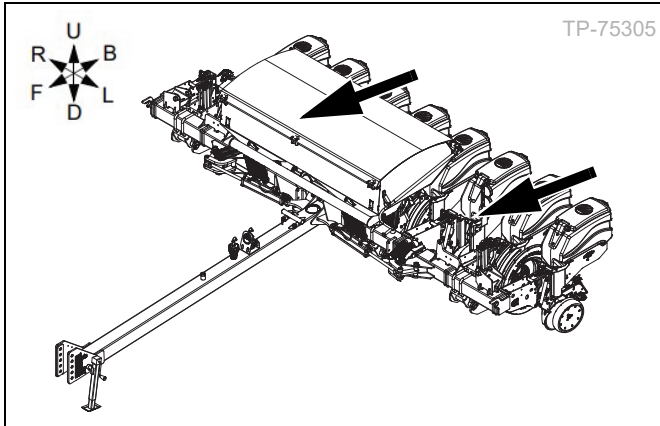
Ref. No.	Description	Part No.	Qty
1	BULKHEAD MAINFRAME WA RH	411-943H	1
2	BULKHEAD WING WA RH	411-944H	1
3	BULKHEAD WING MOUNT WA RH	411-945H	1
4	BULKHEAD MAINFRAME WA LH	411-946H	1
5	BULKHEAD WING WA LH	411-947H	1
6	BULKHEAD WING MOUNT LH	411-948H	1
7	SPACER PLATE	441-003D	16
8	CLAMP	800-203C	8
9	HHCS 3/8 - 16 X 1 1/2 GR5	802-022C	4
10	HHCS 3/8 - 16 X 1 1/4 GR5	802-079C	8
11	HHCS 3/8 - 16 X 2 GR5	802-143C	4
12	HHCS 3/8 - 16 X 2 1/4 GR8 PLT	802-483C	4
13	NUT HEX 3/8 - 16 PLT	803-014C	20
14	WASHER FLAT 3/8 SAE PLT	804-012C	28
15	WASHER LOCK SPRING 3/8 PLT	804-013C	16
16	BULKHEAD SEAL	892-059C	2
17	MANUAL	411-950M	1
18	HARNESS, EXT. 15.5	843-033C	1
19	HARNESS, PL55 FAN SPEED	843-476C	1

### Dry Fertilizer Kit IRC Drive Planters (411-951A)

Ref. No.	Description	Part No.	Qty
1	BULKHEAD MAINFRAME WA RH	411-943H	1
2	BULKHEAD WING WA	411-944H	1
3	BULKHEAD WING MOUNT WA	411-945H	1
4	BULKHEAD MAINFRAME WA LH	411-946H	1
5	BULKHEAD WING WA	411-947H	1
6	BULKHEAD WING MOUNT LH	411-948H	1
7	SPACER PLATE	441-003D	16
8	CLAMP	800-203C	8
9	HHCS 3/8 - 16 X 1 1/2 GR5	802-022C	4
10	HHCS 3/8 - 16 X 1 1/4 GR5	802-079C	8
11	HHCS 3/8 - 16 X 2 GR5	802-143C	4
12	HHCS 3/8 - 16 X 2 1/4 GR8 PLT	802-483C	4
13	NUT HEX 3/8 - 16 PLT	803-014C	20
14	WASHER FLAT 3/8 SAE PLT	804-012C	28
15	WASHER LOCK SPRING 3/8 PLT	804-013C	16
16	BULKHEAD SEAL	892-059C	2
		411-950M	1

## ■ Installation Location

Familiarize yourself with the location of the kit installation on the planter. The installation location is on the left-and-right sides on the center frame at the bulkhead. To aid in the ease of kit installation, wings should be angled forward at 45° angle. This will allow for greater access to the left-and-right sides of the center frame.



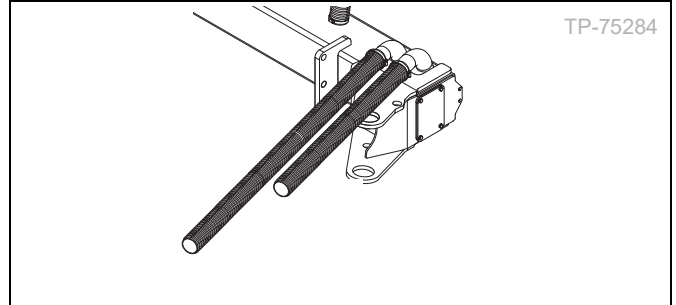
## ■ Prepare Planter



### **Planter Damage Risk**

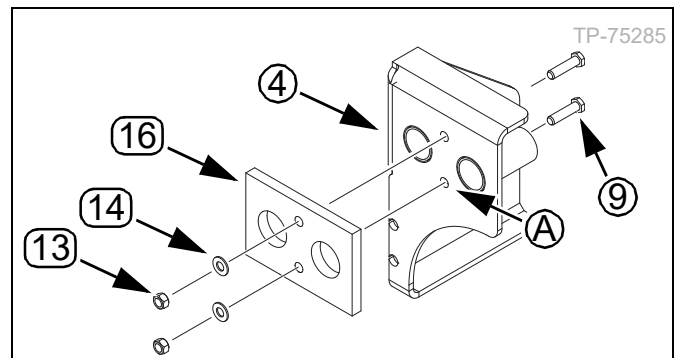
*The planter wing gauge wheels must be fully raised before beginning installation work. If not, planter damage will occur.*

1. Move the planter to level ground with adequate overhead and side-to-side clearances for unfold-and-fold operations.
2. Set the tractor fan circuit lever(s) to "Neutral".
3. Use the tractor lift circuit lever to raise the planter.
4. Set the tractor lift circuit lever to "Neutral".
5. Set the tractor gear to "Park" and engage the parking brake.
6. Install the cylinder locks on lift hydraulic rods.
7. Set the tractor gear to "Neutral".
8. Use the tractor circuit lever to raise the wing gauge wheels.
9. Set the tractor circuit lever to "Neutral".
10. Set the tractor hydraulic pressure to the lowest setting.
11. Use the tractor fold circuit lever and adjust the planter wings to a 45° angle. This will create greater access to the installation location.
12. Set the tractor fold circuit lever to "Neutral".
13. Set the tractor gear to "Park", engage the parking brake, turn off the tractor engine, and remove the key.
14. Using care, support the center frame with jack stands. Do not block up the wings.
15. Beginning on the left-side, loosen clamps to remove hoses from the row units. Loosely hand tighten the clamps on hose ends for later use. Set hoses aside in a manner to allow for greater access to work area.



## ■ Prepare Parts

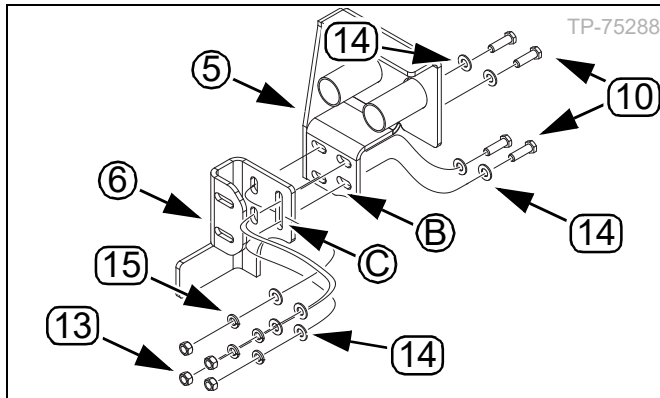
1. Confirm all parts in the kit are available for installation. See "**Parts List**" on page 6 for kit contents information.
2. Locate two seals (16), left-side weldment (4), ride-side weldment (1), four alignment bolts (9), four washers (14), and four nuts (13).
3. Thread two alignment bolts (9) in the mounting holes (A) on left-side weldment (4).



4. Release the protective backing on one seal (16), align holes (A) on left-side weldment (4) to holes (A) on seal.
5. Using care around the seal (16), add two washers (14) and two nuts (13) to the two alignment bolts (9). Do not compress seal (16) or over tighten fasteners as these are used for alignment purposes only. Set aside created assembly for future use.



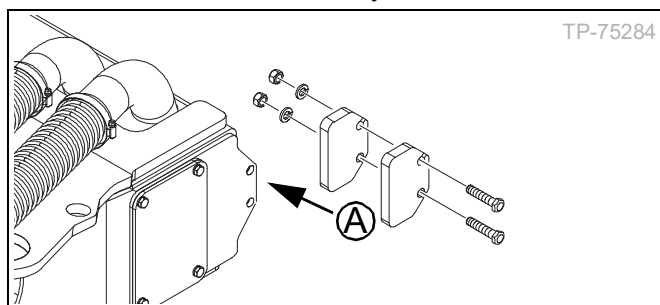
6. Repeat steps 13 and 14 with the right-side weldment (1). Not shown.
7. Locate eight bolts (10), sixteen washers (14), the left-side wing weldment (5), the right-side wing weldment (2), the left-side wing mount (6), the right-side wing mount (3), eight lock washers (15), and eight nuts (13).



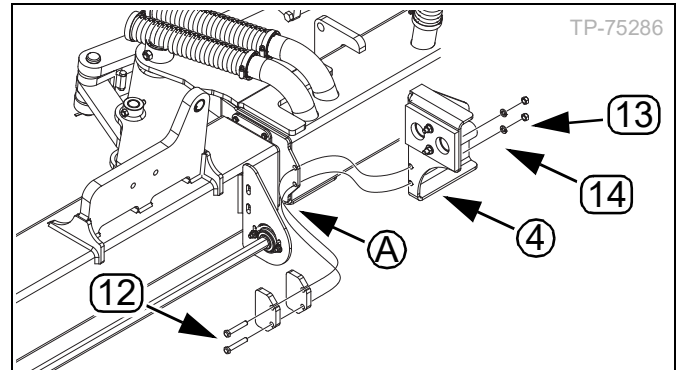
8. Align the four mounting holes (B) on the left-side wing weldment (5) to the three mounting holes (C) on the left-side wing mount (6).
9. Secure the left-side wing weldment (5) to the left-side wing mount (6) using four bolts (10) and four washers on the outside surface of the left-side wing weldment and use four washers (14), four lock washers (15), and four nuts (13) at the mounting holes (C) on the left-side wing mount. These should be hand-tighten because the wing weldments will need to be adjusted on the wing mount at a later time during installation. Retain created assembly for future use.
10. Repeat steps 16 through 18 with right-side wing weldment (2) and right-side wing mount (3). Not shown.

## ■ Mount and Weldment Installation

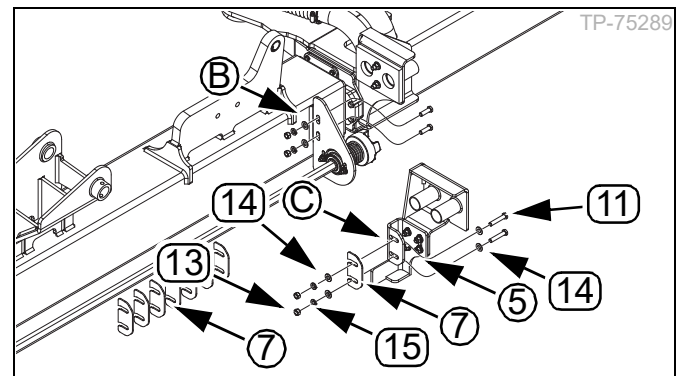
1. Loosen and remove existing wing shim plates (431-244D), bolts, washers, and nuts from mounting holes (A). Retain wing shim plates for future use. Fasteners may be discarded.



2. In the center frame weldment mounting holes (A), use the two retained wing shim plates (431-244D) and two bolts (12) to mount wing shim plates flush against outer side of center frame weldment. On the inner side of frame weldment, mount left-side weldment (4) with the affixed seal flush and secure using two lock washers (14) and two nuts (13).

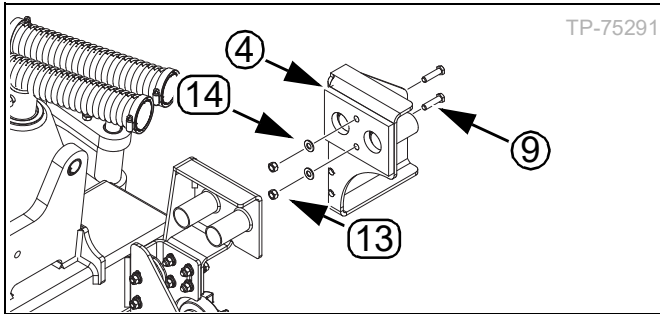


3. Align all parts and press firmly for the tightest fit to frame weldment. Securely tighten to torque. **"Torque Values Chart"** on page 21.
4. On the left-wing frame, remove the existing bolts, washers, lock washers, and nuts from the mount holes (B) on the shaft support bracket.



5. Secure the left-side wing weldment (5) to the shaft support bracket. Use two bolts (11) and two washers (14) on the inner side of the mounting holes (C). Use spacer plates (7) on the outside shaft support bracket and secure with two washers (14), two lock washers (15), and two nuts (13).
6. Align all parts, paying special attention to ensure the shaft support bracket is flush with the mounting bracket on the left-wing frame. Hand tighten bolts as there will be additional adjustments in the future.

7. Remove two alignment bolts (9), two washers (14), and two nuts (13) from left-side weldment (4). Set aside fasteners for future use. Do not remove weldment.



8. Repeat steps 1 through 7 on the right-side of the planter. Not shown.

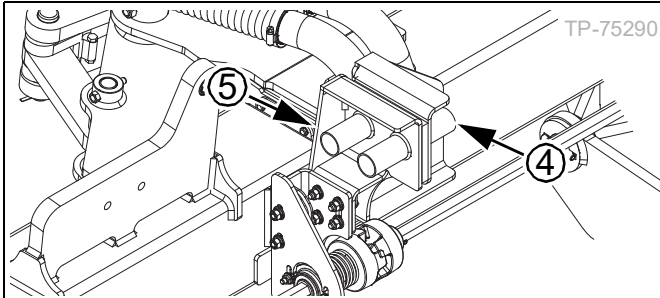
## ■ Alignment



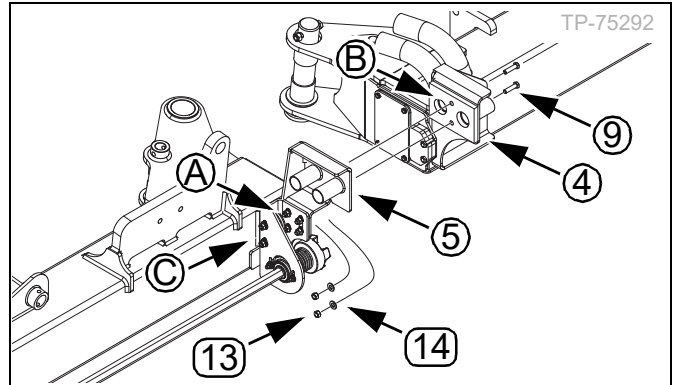
### **Planter Damage Risk**

Use two workers to observe the left-and-right installation areas from behind the planter center frame to prevent unintentional contact between parts during folding/unfolding action. Damages can occur if unintentional contact occurs.

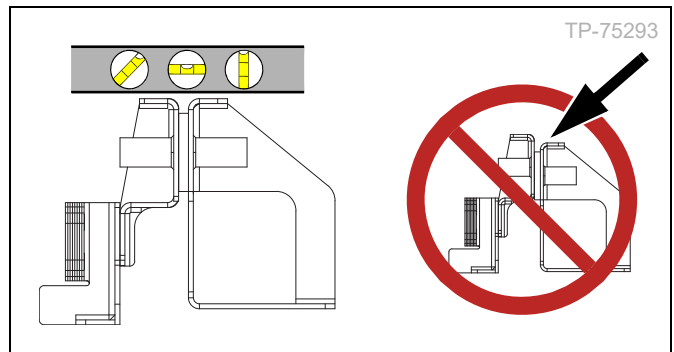
1. Use two workers to observe the left-and-right installation areas from behind the planter center frame.
2. Set the tractor gear to "Neutral".
3. Ensure the tractor hydraulic pressure is set to the lowest setting.
4. Use the tractor fold circuit lever and slowly unfold the planter.
5. Set the tractor fold circuit to "Neutral".
6. Set the tractor gear to "Park", engage the parking brake, turn off the tractor engine, and remove the key.
7. When the planter is fully unfolded the left-side wing weldment (5) and left-side weldment (4) will be pressed together. The right-side wing weldment and right-side weldment will be as well. Not shown.

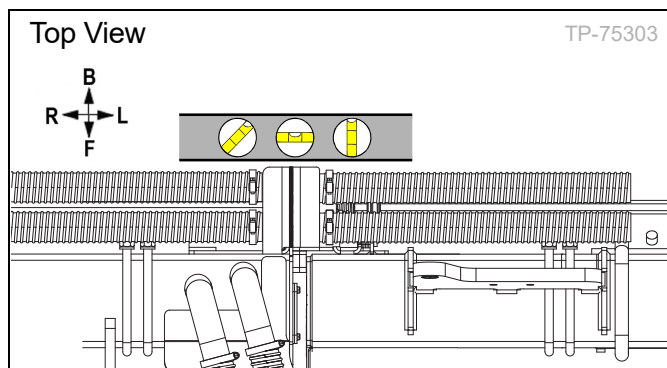


8. Slightly loosen the four sets of nuts and washers at the mounting holes (A).



9. Thread two alignment bolts (9) through the left-side weldment (4) mounting holes (B). Align the left-side wing weldment (5) with the left-side weldment (4) until two washers (14) and two nuts (13) can be hand-tighten to two alignment bolts (9).
10. If necessary, loosen the two sets of nuts, lock washers, washers, and bolts on the shaft support bracket mounting holes (C) and remove or add additional spacers plates (7) on the wing frame mount until the seal (16) is compressed to 50%.
11. Once the correct alignment between the left-side weldment and left-side wing weldment has been achieved, tighten all bolts to torque at mounting holes (A) and (C). See "**Torque Values Chart**" on page 21.





12. Remove the two alignment bolts (9), two washers (14), and two nuts (13) used for alignment.



### **Planter Damage Risk**

*Do not attempt to fold or unfold the planter without first removing the alignment bolts, washers, and nuts from the left-side weldment and left-side wing weldment, and the right-side weldment and right-side wing weldment or planter damage will occur.*

13. Repeat steps 8 through 12 on the right-side. Not shown.

## ■ Check Alignment

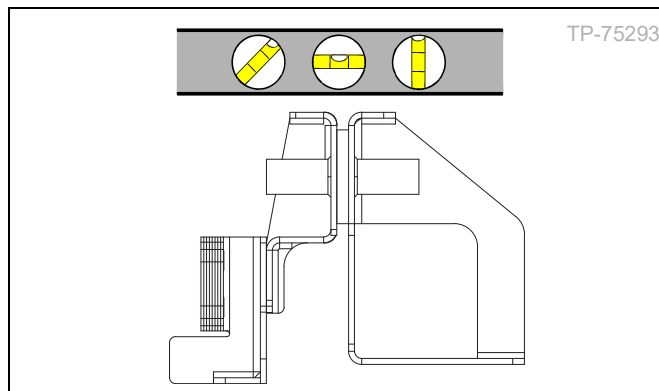


### **Planter Damage Risk**

*Use two workers to observe the left-and-right installation areas from behind the planter center frame to prevent unintentional contact between parts during folding/unfolding action. Damages can occur if unintentional contact occurs.*

1. Use two workers to observe the left-and-right installation areas from behind the planter center frame.
2. Set the tractor gear to "Neutral".
3. Ensure the tractor hydraulic pressure is set to the lowest setting.
4. Use the tractor fold circuit lever and slowly fold and unfold the planter to observe whether all kit weldments do not make unintentional contact with any part of the planter. Stop and make adjustments as necessary.
5. Continue to slowly fold and unfold the planter several times to confirm installed kit will remain in

alignment on both left-and-right sides. Make adjustments as necessary.



6. Set the tractor fold circuit to "Neutral".
7. Set the tractor gear to "Park", engage the parking brake, turn off the tractor engine, and remove the key.

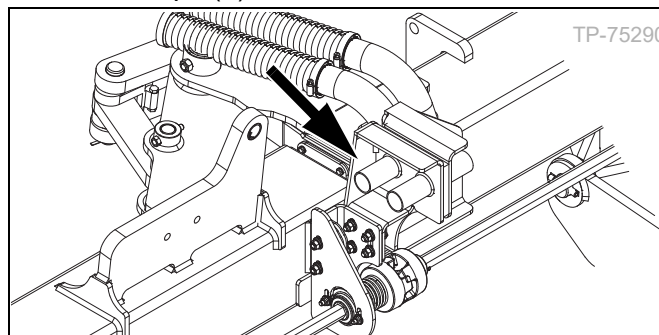
## ■ Hose Connections

1. Work from left-to-right on along the planter, and trim hoses to length.



When trimming hoses to length, use care to allow for enough slack for movements but not so much slack to create an opportunity for the hoses to become pinched or crushed by nearby moving parts. Hoses should create a gentle "S" shape and not be stretched too tight.

2. Secure hoses to the newly installed weldments with clamps (8).



## ■ Electrical Harnesses

### **(Ground Drive Configuration Only)**



### **Electrocution Hazard**

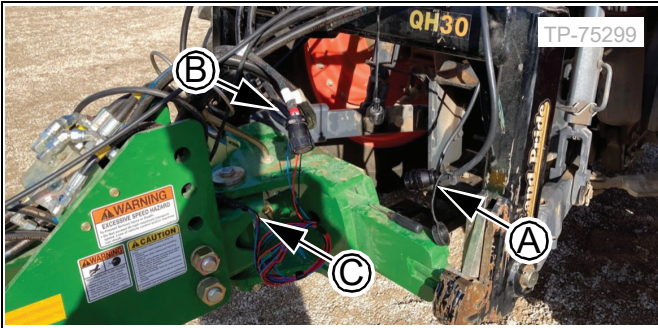
*Disconnect electronic harnesses and consoles from the tractor before completing work, maintenance, and making connections on any electronic component on the planter. Failure to do so may result in serious injuries.*



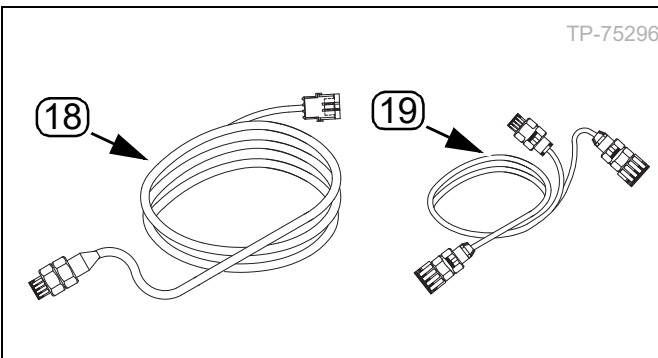


Electrical harness (19) will have the following connections when installed:

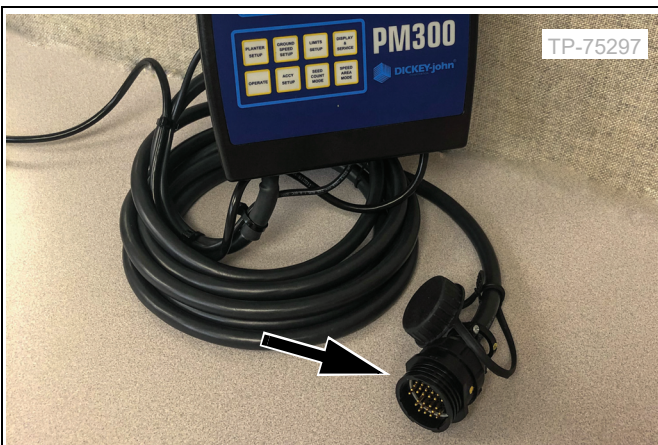
- (A) Connection to PM300 console
- (B) Connection to planter main electrical harness
- (C) Connection to electrical harness (18)



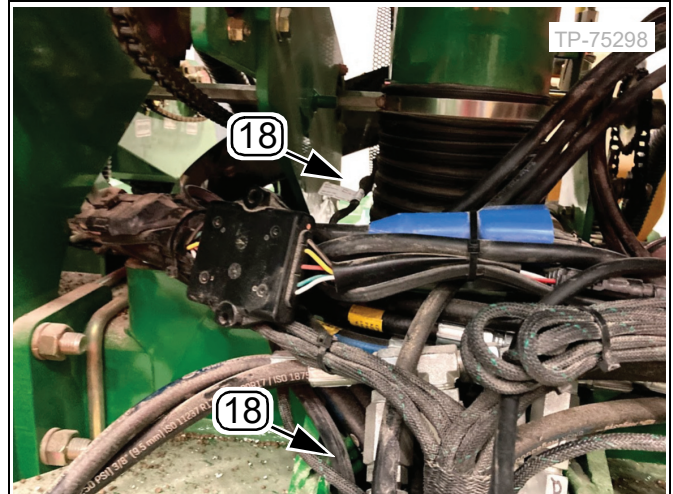
1. Locate the two electrical harnesses (18) (19) in the installation kit.



2. On the PM300 console there is an existing electrical connection to the main electrical harness which is routed from the cab to the rear of the tractor. Connect the electrical harness (19) to the PM300 electrical connection (A).



3. Connect electrical harness (19) to the planter main electrical harness connection (B).
4. Connect the fan speed sensor to electrical harness (18) and route through main frame tube to tongue.



5. At tongue, connect electrical harness (18) to electrical harness (19) to create connection (C).
6. Connect main electrical harness to tractor.

## ■ Test System

1. Inspect hydraulic system for leaks or dislodged hydraulic hoses during installation work before pressurizing or operating hydraulic system.
2. Set the meter pressure to the lowest setting and operate the fan.
3. Inspect the dry fertilizer system for air leaks. If any leaks are discovered, shut off system and tighten clamps and seals, as necessary.



Testing the operation of the dry fertilizer system with a small amount of material is recommended before continuing on to close-out. Refer to Operator manual for operational instructions.

## ■ Close-out

1. Remove all tools and equipment, unused parts, and debris from work area.
2. Properly dispose or recycle waste and unused parts using environment-friendly methods as allowed by local and federal regulations.

# Operation



## Agricultural Chemical Hazard

*Read and follow all supplier instructions regarding safe handling and approved application of chemicals. Agricultural chemicals can be extremely hazardous.*

This section will provide information about the settings, operation, adjustments, and maintenance for the dry fertilizer kit. Follow the recommendations to ensure safe and efficient operation.

Great Plains recommends checking with your local agronomist before setting the rate, as soil conditions vary. See the Material Rate manual for dry fertilizer calibration and rates.

The fertilizer meters are driven from the right-hand ground drive. When the planter is lowered and in motion, the meters operate, and fertilizer is applied.

The outlets of the fertilizer meters are normally connected to fertilizer drop tubes at the dry fertilizer coulters.

If fertilizer will not be applied, remove the drive chain near the fan.

## ■ In-Cab Console Settings

It is necessary to set up the in-cab console. Refer to the console owner's manual for instructions on setting the values.

It will be necessary to enter the following values before beginning dry fertilizer application:

- Fan Speed
- Fan Speed Alarm Limits

## ■ Settings

This section provides guidance on initial settings and recommendations for adjustments. Have the material rate manual on hand for supplement information.

### Hydraulic Flow Settings

It may be necessary to adjust the hydraulic flow to fan to set the fan speed to achieve the desired dry fertilizer application rate. Refer to your tractor's owner manual for instructions on how to adjust the hydraulic flow from tractor to fan.

Keep your tractor stationary and the engine running at optimal RPM for planting operations. Ensure your tractor hydraulic oil reservoir is filled to its proper level.

Before making any adjustments to the hydraulic flow to the fan, it is necessary to test and adjust hydraulic flow to the planter lift and marker hydraulic systems.

If the planter lift or marker hydraulic systems cause the fan speed to drop more than 250 RPM, reduce the flow to hydraulic function until fan speed does not drop 250 RPM below its set point.

### Fan Speed

Based on the desired dry fertilizer application rate, use the chart below as a guideline for setting fan speed along with initial seed and fertilizer air butterfly valve settings.

Fertilizer Application Rate (lb/acre)	Fertilizer Application Rate (kg/hectare)	Fan Speed	Seed Air Butterfly Valve Position	Fertilizer Air Butterfly Valve Position
25	62	2000	60	0
50	124	2192	60	0
100	248	2577	70	0
150	372	2961	70	0
200	496	3346	70	0
250	620	3731	70	0
300	744	4115	70	0
350	868	4500	70	0

### Seed Air Butterfly Valve Adjustments

Adjustments to the seed air butterfly valve may be needed to reach the desired seed air pressure as described in the material rate manual. Refer to the material rate manual for more information.

## ■ Loading Dry Fertilizer



### Agricultural Chemical Hazard

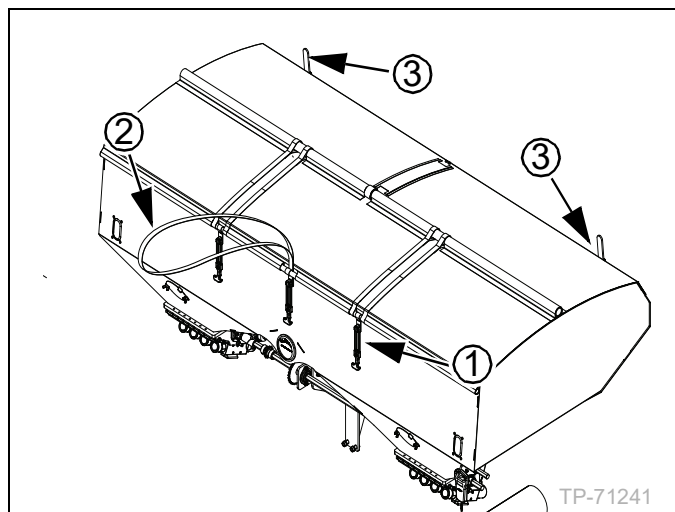
*Wear protective equipment suitable for the material to be used, and the material previously dispensed from the hoppers. Avoid contact with skin or eyes. Avoid breathing dust.*

Loading fertilizer before transport is not recommended. Although the meters are not turning during transport, it is possible for some material to spill through the meters, particularly on rough roads.

Use only dry granular fertilizer. Granules must flow freely.

1. Position the planter facing into the wind, so that you are facing downwind while loading fertilizer.

2. Open the tarp cover.
  - a. Unlatch the tarp latches (1).
  - b. Hold on to the tarp strap (2) and allow the tarp to roll back to the tarp rests (3).
3. Inspect the hopper for leftover materials and debris. Clean out as needed.
4. Fill the hopper with fertilizer.
5. Close the tarp cover.
  - a. Pull on the tarp strap to pull the tarp cover closed.
  - b. Secure all the latches.



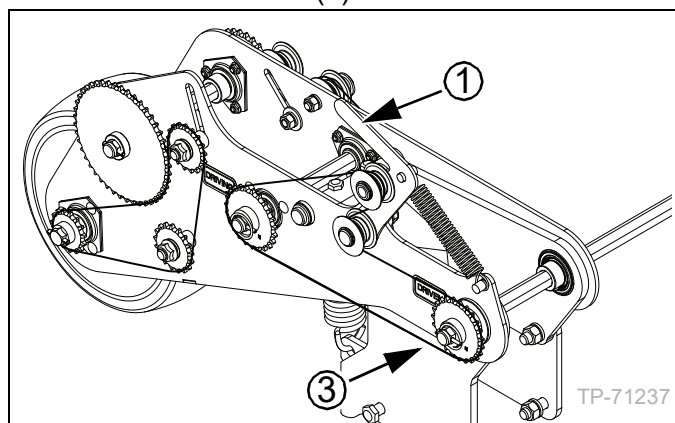
### ■ Dry Fertilizer Ground Drive Setup

Adjust drive speed range sprockets and transmission sprockets.

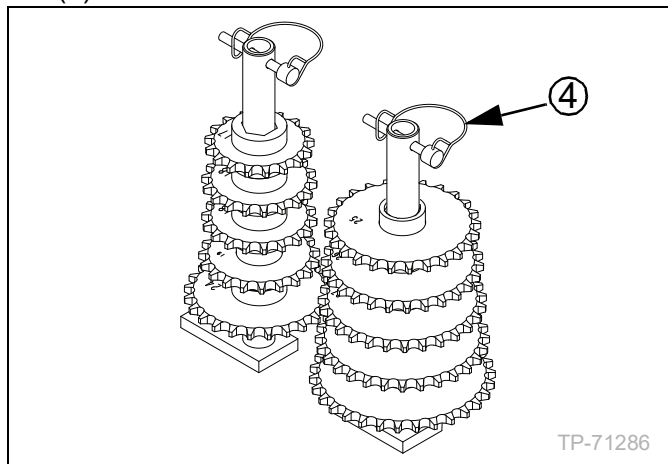
See the seed monitoring system operator manual for console setup.

#### Range Sprockets

1. Select the range sprockets for your rate from the Material Rate manual.
2. Pull the idler handle (1) to remove the chain.



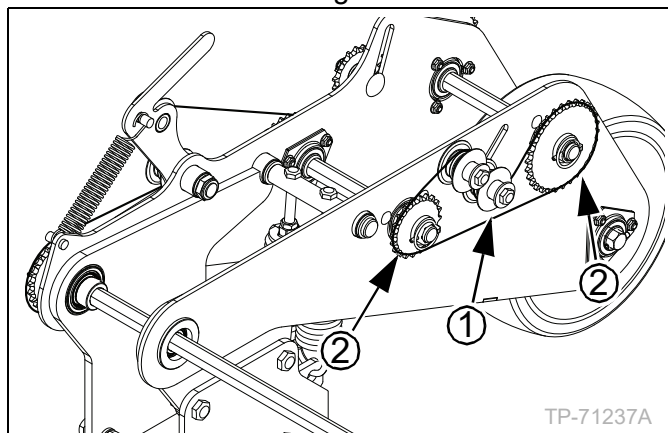
3. Remove the retaining pins from DRIVING (2) or DRIVEN (3) sprockets, and at the storage towers (4).



4. Exchange sprockets so the new DRIVING and DRIVEN sprocket tooth counts match the seed rate chart.
5. Install the retaining pins on the sprockets. Store and pin the removed sprockets onto the storage towers.
6. Install the chain and engage the idler.

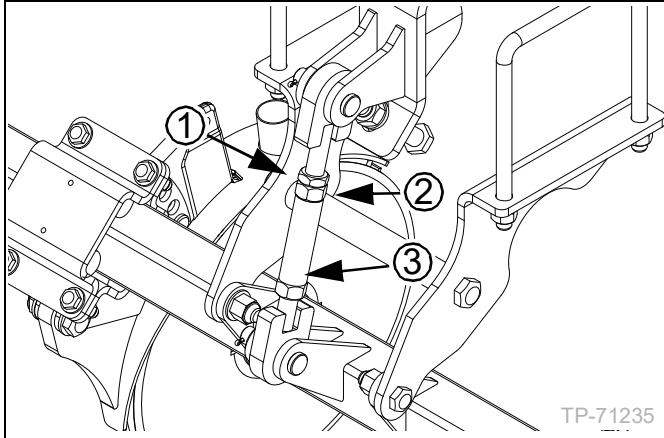
#### Transmission Sprockets

1. Select the transmission sprockets for your rate from the charts in the Material Rate manual.
2. Loosen the idler (1) and remove the drive chain.
3. Remove the retaining pins from the sprockets (2) and storage towers.
4. Exchange the sprockets to match the seed rate charts.
5. Install the retaining pins on the sprockets. Store and pin the removed sprockets onto the storage towers.
6. Install the chain and tighten the idler.

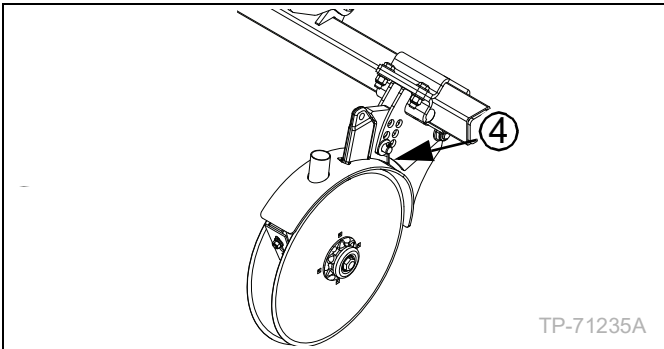


## Dry Fertilizer Coulters

Level the coulters and adjust coulters depth with the adjuster (1). Loosen the jam nut (2) and turn the turnbuckle (3) as necessary to achieve the desired results. Tighten the jam nut.



Adjust the spring tension of the coulter by removing the pin (4). Rotate the coulter opener and pin at the desired tension.



5. Operate the dry fertilizer ground drive wheel until the hopper is empty.
6. For extended storage, use a hose and clean water to wash out the hopper, meters, hoses, and applicator tubes. Allow for ample time for moisture to air-dry before storing planter.

## ■ Dry Fertilizer Clean-Out



### **Agricultural Chemical Hazard**

*Wear protective equipment suitable for the material previously dispensed from the hoppers. Avoid contact with skin or eyes. Clean-out operations are likely to result in airborne dust, which could be contaminated with hazardous chemicals.*



### **Chemical Hazard**

*Store and dispose of unused chemical as specified by the chemical manufacturer. Review all instructions on the material containers and material safety data sheets.*

1. Raise the planter.
2. Clean-out seed or disconnect the drive chain.
3. Place a tarp, or multiple collection contains, under the dry fertilizer meters.
4. Remove the applicator hoses from the meters.



## Troubleshooting

Table is specific to dry fertilizer kit installation and operation. If another system fails to operate correctly immediately after dry fertilizer kit installation, look closely in the work areas and ensure other nearby planter parts remained in the correct location. For an example, if there is no seed flow, and previously had been, the drive shaft may be misaligned or disconnected. Refer to a parts manual for part orientation.

See operator manual for more troubleshooting topics for general planter operation.

Problem	Cause	Solution
One or more delivery hoses plugging	Air leak(s).	Ensure all connections are tightly secured with seals and/or clamps. A small air leak or two can cause plugging.
	Pinched or sagging hoses.	Reroute and trim hoses. Hoses should create a gentle "S" shape without being pulled too taut or sagging too much.
	Fan speed too low.	Increase fan speed.
No fertilizer flow on some rows	Air leak(s).	Delivery hoses to row unit are not secured tightly or are not attached. Inspect and correct the delivery hose on the impacted row.
	Hopper plugged.	Clean-out any material clogging discharge port.
	Fan speed too low.	Increase fan speed.
No fertilizer flow across all rows	Tractor fan circuit running in reverse.	Check and reconnect tractor fan circuits in the correct order. Refer to operator manual for connection instructions.
	Air leak.	Air leak is present before fertilizer meter.
	Hopper empty.	Fill hopper.
	Chain missing at one or more drive stages.	Check all chains.
	Fan speed too low.	Increase fan speed.
	Damaged meter.	Inspect meter and repair as necessary.
No fertilizer flow on one half of planter	Seal not compressed enough.	Add additional spacer plates to the shaft support bracket (page 10).
		Ensure the planter is fully unfolded.
	Seal at bulkhead is misaligned.	Use a level and realign weldments to create a good seal when planter is unfolded.
		Bolts are not tighten to torque. Weldments have shifted during operation. Realign weldments at seal and tighten to torque.
	Blocked meter.	Inspect and clean-out the meter on the impacted side.

Problem	Cause	Solution
No fertilizer flow, one row	Applicator tube plugged with soil.	Disconnect hose at top of applicator tube. Remove blockage from below. Raise release height.
	Applicator tube plugged with fertilizer.	Disconnect hose at top of applicator tube. Remove blockage from below. Use finer grained fertilizer, or dry out the fertilizer hopper if coagulation is the problem.
	Damaged applicator tube.	Replace applicator tube.
Low flow, across planter	Field speed too high.	Apply fertilizer at a lower rate. Metering is lower at higher speeds. Always comply with field speed recommendations.
	Ground drive wheel is slipping.	Check lowered tool bar height. Operate at a lower field speed. Field conditions may be too wet for reliable meter drive.
	Meter flutes worn.	Inspect meter flute, and replace as needed.
High flow	Field speed too low for transmission sprockets selected.	Apply at a higher speed, or use a new sprocket pair for the actual rate and speed. Metering is higher at low speeds.
Fertilizer on surface	Release height too high.	Lower release height.
	Coulter depth too shallow.	Increase coulter depth.
Planter will not fold	Alignment bolts installed.	Remove alignment bolts on both left-and-right sides of planter center frame weldment and wing frame weldments (page 11).
Planter will not fold on one side only		Remove alignment bolts on the side of the planter which will not unfold (page 11).
Loss of material at bulkhead	Fan running while planter is folded.	Shut fan off. Fans should never run while the planter isn't fully unfolded. Do not run fans when the planter is not fully unfolded.
IntelliAg ISO6 alarm(s) on console	Low alarm threshold.	Adjust alarm threshold to preference. Refer to console manual.
	False-positive blockage detection.	Material may be too fine. Turn off monitoring while applying fine material. Refer to console manual.

# Maintenance

Proper servicing and maintenance is the key to long implement life. With careful inspection, you can avoid costly maintenance, downtime, and repairs. These maintenance items are limited to the dry fertilizer system. Refer to the operator manual for all maintenance items.

Always set the tractor gear to “Park,” engage parking brake, turn off the tractor engine, and remove the tractor key. The frame should be supported and the cylinder locks should be installed before making any adjustments or performing any maintenance.



## High Pressure Fluid Hazard

Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Check all hydraulic lines and fittings before applying pressure. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. If injured, seek immediate medical attention from a physician familiar with this type of injury.



## Crushing Hazard

A falling planter can cause severe injury or death by crushing. Always have the four main transport wheel lift cylinder locks installed and secured on the lift cylinder rods. The frame must be blocked up when working on the planter..



## Chemical Hazard

Store and dispose of unused chemicals as specified by the chemical manufacturer. Review all instructions on the material containers and material safety data sheets.



## Component Damage Risk

When cleaning the planter, to avoid damage to IRC components, do not power-wash on or around these components.

## ■ Maintenance Schedule

Maintenance Point	Type of Maintenance	Frequency
Bulkhead seal alignment	Inspect and adjust.	Daily
Coulter hub bearings	Lubricate grease fittings.	Every 8 hours
Chains	Inspect and lubricate.	Periodically
Chain slack	Tighten as needed.	Within first 8 hours, then seasonally
Bulkhead seal	Inspect seal and replace as needed.	Seasonally

## ■ Regular Maintenance

- ☑ After using your planter for several hours, check all bolts to be sure they are tight.
- ☑ Remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
- ☑ Maintain proper air pressure in tires.
- ☑ Keep disk scrapers properly adjusted.
- ☑ Clean planter on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
- ☑ Lubricate areas listed under “<Bold>Lubrication” beginning on page 18.
- ☑ Replace any worn, damaged, or illegible safety decals by obtaining new decals from your Great Plains dealer.

## ■ Chain Maintenance

### Chain Lubrication

Inspect and lubricate chains regularly. Lubricate chains any time there is a chance of moisture and when stored at the end of the planting season. Use a multi-purpose spray lubricant.

When performing periodic lubrication, check chain condition. Replace chain if any frozen kinks are not corrected by lubrication.

### Chain Slack

New chains may slack during the first few hours of operation.

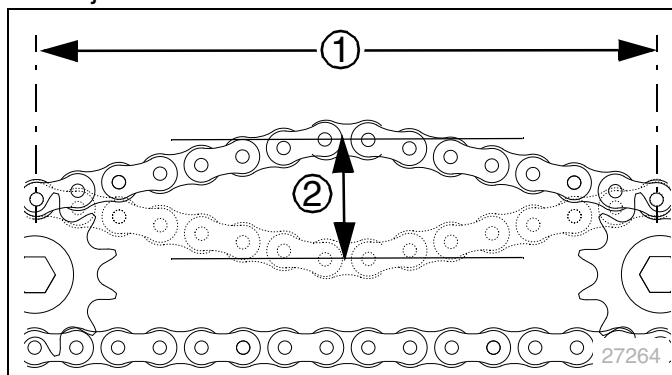
Check chain slack at fixed idlers within the first 8 hours of operation. Tighten idlers as necessary.

Check chain slack at spring-operated idlers seasonally, and tighten idlers as needed.

1. Measure the span (1) for allowable slack:  
Locate the longest span of each chain (usually the span which does not run through the idlers).
2. Determine the ideal slack:

Chain Type	Chain Slack
Long chains over 36 in. (91 cm)	1/4 in/ft (2.1 cm/m)
Vertical short chains	1/4 in/ft (2.1 cm/m)
Horizontal short chains	1/2 in/ft (4.2 cm/m)

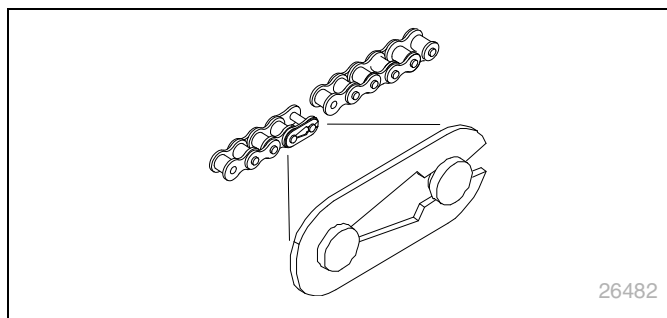
3. Measure the current slack (2):  
At a right angle to the chain span at the center of the span, deflect the chain in both directions. The slack is the distance of the movement.
4. Adjust the idlers for ideal slack.



### Chain Clips

Whenever mounting a chain, make sure the clip at the removable link is positioned to minimize snags.

Install the clip with the open end facing away from the direction of chain travel.



### Meter Drive Chain

When performing seasonal checks, lower the planter to put the chain at minimum idler spring tension.

Lift the spring off the idler assembly. Check that the idler pivots freely. Re-attach the spring.

### ■ Lubrication




If any movable parts such as levers, pivots, and clamps are not moving smoothly due to rust or hindering material, do not attempt to force parts into motion. Instead, remove the rust or unwanted material and apply oil or grease on the relevant spot. Otherwise, machine may become damaged through impaired usage.




### Grease Fittings

Lubricate with grease at the hourly interval indicated in the arrow. If you operate the machine in extremely wet and/or muddy conditions, lubricate grease fittings more frequently.



# Torque Values Chart

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

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

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

b. N·m = newton-meters

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

d. ft-lb = foot pounds

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

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