

1775NT Planters with ExactEmerge™ or MaxEmerge™ 5e

(Serial No. 794101 -)



JOHN DEERE

OPERATOR'S MANUAL

1775NT Planters with ExactEmerge™ or MaxEmerge™ 5e

OMA129775 ISSUE E1 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Seeding Group

North American Edition
PRINTED IN U.S.A.

Introduction

Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction the implement will travel when going forward.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I. N.) in the Specification section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's

support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate or statement which you should have received from your dealer

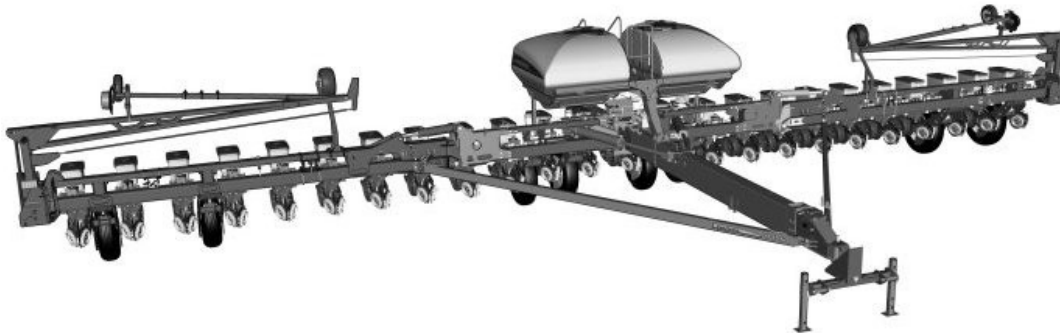
This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

THE TIRE MANUFACTURER'S warranty applicable to your machine may not apply outside the U.S.

If you are not the original owner of this machine, it is in your interest to contact your local John Deere dealer to inform them of this unit's serial number. This will help John Deere notify you of any issues or product improvements.

DX,IFC2-19-03APR09

Machine Photo



1775NT CCS Planter

A89555—UN—11FEB16

LM78752,00001DD-19-11FEB16

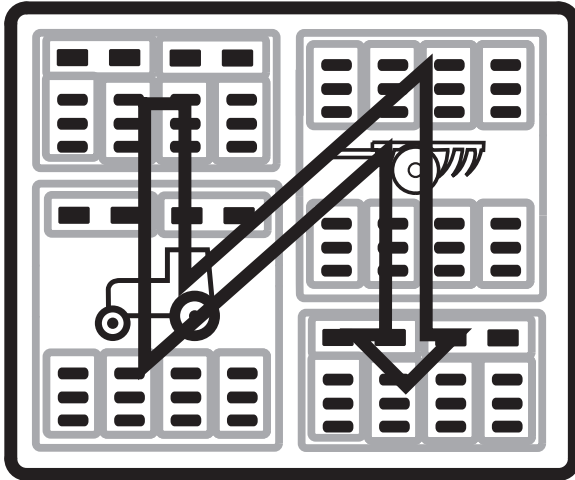
A Message to Our Customers

We appreciate the confidence placed in us by the purchase of this machine. To ensure that the machine performs at the highest level, countless hours were spent designing and testing, before this machine was produced. To achieve the maximum performance, it is imperative that this machine is operated in accordance with the procedures outlined in this manual.

Information in this manual is divided into sections. The section names are identified in the table of contents and

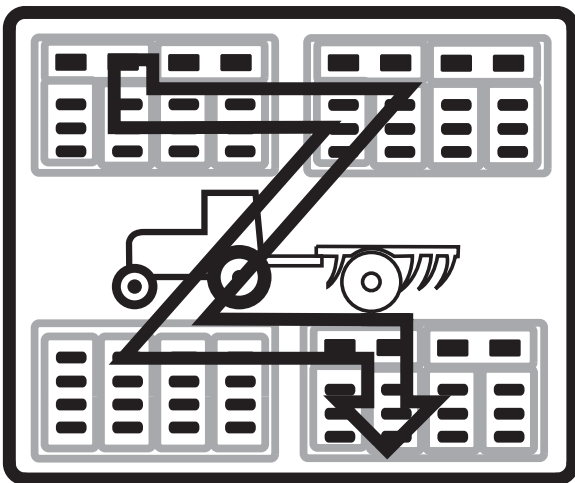
at the top of each page. Each section has a unique number and page count. Specific information within each section is organized into topics identified with bold headings.

The topic headings are listed in the table of contents with the section number and page number where the topic begins. Topics and information related to each topic are also referenced in the index along with the section and page number.



A100767—UN—07JUN18

The topic content flows down the left-hand side, then over and down the right-hand side, and repeats on the next page. Images precede the related text in the flow.



A100768—UN—07JUN18

The flow can divide both before and after the images and tables that span the width of a page.

Review this manual often to learn where to look for information.

Thanks again for purchasing this machine.

OUC6074,000106B-19-07JUN18

ADDITIONAL INFORMATION REQUIRED



TS190—UN—17JAN89

SeedStar™ Monitor:

This manual is used with the SeedStar™ seed monitor for seed monitoring and row unit control.

OUC6074,0000E5B-19-30APR21

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Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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Preparing the Tractor

Use Your Tractor Operator's Manual



TS190—UN—17JAN89

Always refer to tractor operator's manual for specific detailed information regarding operation of equipment.

Following tractor related information uses John Deere tractors to illustrate preparation, attachment, and operational procedures. Use your tractor OM for detailed information, as procedures vary by equipment.

WP29706,000078A-19-04APR14

ExactEmerge™ Tractor Requirements

ExactEmerge™ Horsepower Requirements						
Machine Configuration	Minimum Engine Horsepower					
	180 kW (242 hp)	213 kW (285 hp)	227 kW (305 hp)	274 kW (368 hp)	276 kW (370 hp)	369 kW (495 hp)
12-Row 76 cm (30 in)	X					
12-Row 76 cm (30 in) with fertilizer ^a			X			
16-Row 76 cm (30 in)		X				
16-Row 76 cm (30 in) with fertilizer ^a					X	
24-Row 76 cm (30 in)				X		
24-Row 76 cm (30 in) with fertilizer ^a						X

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^aImplement with fertilizer opener option.

ExactEmerge™ Horsepower Requirements with Track System						
Machine Configuration	Minimum Engine Horsepower					
	241 kW (245 hp)	285 kW (289 hp)	305 kW (309 hp)	276 kW (370 hp)	369 kW (374 hp)	380 kW (500 hp)
12-Row 76 cm (30 in)	X					
12-Row 76 cm (30 in) with fertilizer ^a			X			
16-Row 76 cm (30 in)		X				
16-Row 76 cm (30 in) with fertilizer ^a				X		
24-Row 76 cm (30 in)					X	
24-Row 76 cm (30 in) with fertilizer ^a						X

^aImplement with fertilizer opener option.

NOTE: Tractors with more horsepower may be required when operating with more machine attachments or when planting in soft seedbeds and rolling ground.

The horsepower (hp) in the tables are based at 10 mph for the ExactEmerge™ implements.

The vacuum metering system should be operated with tractors that have the capability of controlling hydraulic flow rates from the cab.

In-line flow control valves are needed when:

- Vacuum system is connected to the power beyond circuit.
- Dual vacuum motors are installed and controlled with one SCV.
- Vacuum system is connected to a tractor without the capability of controlling hydraulic flow rates from the cab.

See your John Deere™ dealer for more information.

WP29706,0000EE1-19-16DEC20

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Operating the Planter

General

IMPORTANT: DO NOT put the selective control valve (SCV) lever in “Float” when raising and lowering machine. Correct procedure for raising and lowering machine is to power completely up or down.

To prevent plugging of BrushBelt™ or seed openers, lower the machine when moving forward.

DO NOT back up with machine lowered.

For proper machine operation, it is important that the machine frame is fully lowered into correct planting position. Achieving this position is difficult with some attachment combinations, especially when planting in hard to penetrate soil conditions. If this situation is encountered, the following action is warranted: Reduce attachment down force levels. Avoid using more attachment down force than required.

To prevent BrushBelt™ malfunction, do not apply fertilizer directly to the seed furrow in front of the BrushBelt™.

1. Use recommended size tractor. See Specifications section.
2. Verify that tractor and machine have been properly prepared. See Prepare Tractor and Prepare Machine sections.
3. Use clean seed for best results.
4. Check seed rates carefully.
5. Check tire pressure before seeding.

6. Before seeding, allow tractor hydraulic oil to warm up thoroughly.

WP29706,000080E-19-05JUL16

Vacuum System Hydraulic Operation

The vacuum motor hydraulic hoses must be connected to the tractor with the pressure hose connected to the “Retract” coupler on the tractor.

To engage the vacuum system, move the SCV lever forward and lock it into forward (retract) detent.

Avoid damaging pressure spikes in the hydraulic system. Move the SCV lever forward into “Float” position, not “Neutral”, to stop the vacuum system.

Once the hydraulic vacuum motors and blowers have come to a stop, the SCV lever must be returned to “Neutral” position.

WP29706,000080F-19-18FEB16

Frame Controls

See your SeedStar™ Application Help on-screen for the frame control functions.

Leave the frame control in the Transport mode during transport. The transport mode disables the independent row hydraulic downforce, reduces the downforce to a minimal setting, and avoids trouble codes during transport.

OUC6074,0000F9D-19-16JUN17

Recommended Operating Speed

With ExactEmerge™		With MaxEmerge™ 5e	
Configuration	Ground Speed km/h (mph)	Configuration	Ground Speed km/h (mph)
Without fertilizer	2.5—16 (1.5—10)	Any	2.5—9 (1.5—5.5)
IMPORTANT: Avoid damage to the ground driven fertilizer system. Do not travel at speeds that cause the system pressure to exceed the maximum pressure of 620 kPa (6.2 bar) (90 psi). To avoid exceeding the maximum pressure, adjust the orifice sizes or ground speed.			
With a ground driven fertilizer pump	2.5 up to 11 (1.5 up to 7) ^a		

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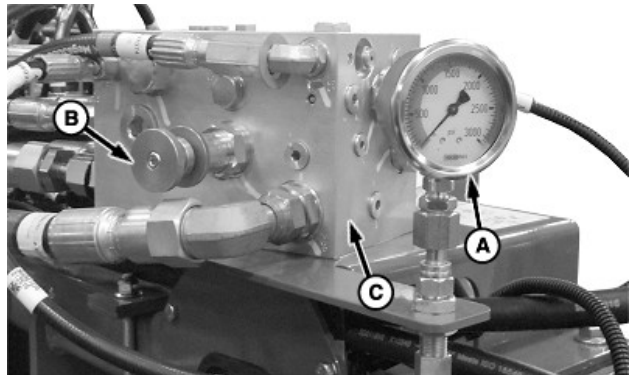
MaxEmerge is a trademark of Deere & Company

^aOptimum pump performance is 5—7 mph

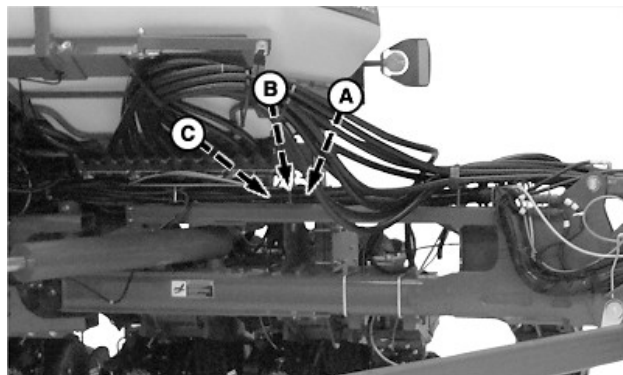
IMPORTANT: Avoid adverse effects on seed placement. Do not operate the planter outside of these speed recommendations.

WP29706,00007A4-19-05JUN18

Frame Weight Distribution (FWD) (If Equipped)



A89550—UN—09FEB16



A91238—UN—29JUN16

A—Pressure Gauge
B—Adjustment Knob
C—Valve Block

IMPORTANT: The display switch must be ON for the FWD system to engage automatically in response to the frame position.

NOTE: System pressure of the frame weight distribution is supplied from the power beyond circuit of the tractor. If a hydraulic repair allows air into the FWD system, bleed the FWD hydraulics. (See Bleeding Frame Weight Distribution Cylinders in the Servicing—General Adjustments section for additional information.)

Establish the final pressure when the product CCS™ tanks are full.

FWD operating pressure is adjustable due to the different weights of options on the center frame. (Example: An implement with only CCS™ tanks or an implement with CCS™ tanks and an extra capacity tank.)

FWD operating pressure does not change automatically as product levels change in the CCS™ tanks.

On ground-driven implements, verify that the transmission drive tires do not have excessive wheel slip when the tank levels are low and the FWD system is turned ON.

See your SeedStar™ Application Help for the frame control functions on the display. The FWD system does not interact with the software for the downforce systems or the frame control. The FWD system is turned ON and OFF through a switch on the tractor display. If adjusting the implement in the field, this switch allows the operator to turn the system OFF so that FWD movement cannot occur.

The FWD operates when the implement is unfolded, in the planting position, and the system is turned ON.

When FWD is being used, the effective pressure range is 4826—16 203 kPa (48—162 bar) (700—2350 psi).

1. Unfold and lower the planter in the field.
2. Verify that the downforce system for the row units is

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adjusted properly for the field conditions before enabling the FWD system.

3. To set the operational pressure on pressure gauge (A), use the adjustment knob (B) on the valve block (C).
4. Start the FWD pressure settings in the range of 6895—7584 kPa (69—76 bar) (1000—1100 psi) with the planter full of product (seed/liquid). Then adjust the FWD pressure accordingly.
5. To verify that FWD system is operational with the tractor running:
 - a. Unfold and lower the planter in a clear area with the FWD switch turned OFF.
 - b. Move the selective control valve (SCV) for the frame functions into the detent position.
 - c. Turn the FWD switch ON and observe the FWD cylinders and wing frames. The cylinders extend slightly and the wing frames move slightly, indicating that the system is enabled.
6. Pull the planter a short distance and verify that the wing wheels press into the soil at the same depth as the center frame wheels. Adjust the FWD pressure as needed to ensure that the wing wheels press down into the soil at the same depth.
7. Operate the planter until the CCS™ tanks are 50% full.
8. Once the CCS™ tanks are 50% full, verify that the wing wheels press into the soil the same depth as the center frame wheels. Slowly lower the FWD pressure and operate the planter in the field until the wing wheels are no longer sinking into the soil. This pressure setting represents the minimum FWD pressure needed.
9. Increase the FWD pressure slightly from the minimum for optimum performance.
10. Use the following guidelines with the FWD:
 - If the wing wheels are sinking too deep, reduce the distribution pressure.
 - If the wing wheels are losing ground contact, increase the distribution pressure or reduce the downforce on the row units.
 - To create more weight transfer to the wings when needed, increase the pressure setting.
 - If the wing wheels sink too deep with the system pressure at minimum, turn off the FWD system through the display.
 - If the depth gauge wheels are sinking too deep, lower the downforce on the row units. Afterward, adjust the wheel positions of the wings and center frame to maintain the proper frame height.

(See Adjust Center Frame Height or Adjust Wing Frame Height for additional information.)

WP29706,00008BD-19-27APR21

Track Recommendations During Transport (If Equipped)

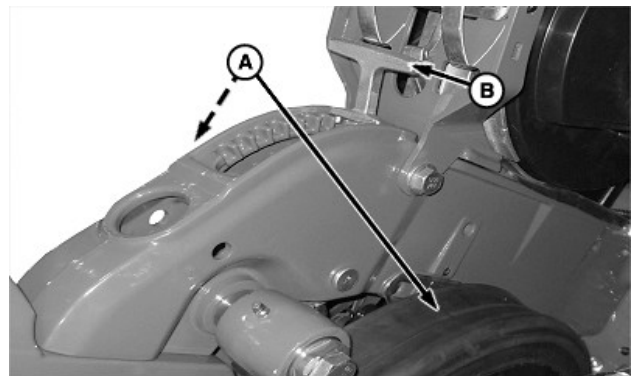
IMPORTANT: Maximum recommended transport speed is 32 km/h (20 mph) for no longer than 2 hours when the CCS™ tanks and fertilizer tanks are half full. Exceeding the recommended speed when using the track system damages the implement or track components. If the implement is connected to a tracked tractor, see the Tractor Operator's Manual for additional speed recommendations.

The lift cylinders used with the track system have a walking cylinder function that is used when transporting to or from a field.

- Walking cylinder function allows the track lift cylinders to move up and down, moving along with the contour of the road while transporting the implement.
- The walking cylinder function activates when the lift cylinders are just a few inches from maximum raised position during transport.
- The walking cylinder function adjusts the center lift cylinders during transport so the tracks adjust to the surface the implement is being driven on.

WP29706,0000EAD-19-21MAY21

Adjust the Planting Depth



A79045—UN—28OCT13



Handle Positions

A103834—UN—01MAR19

- A—Depth Gauge Wheel
- B—Depth Adjustment Handle
- C—Minimum Depth
- D—Maximum Depth

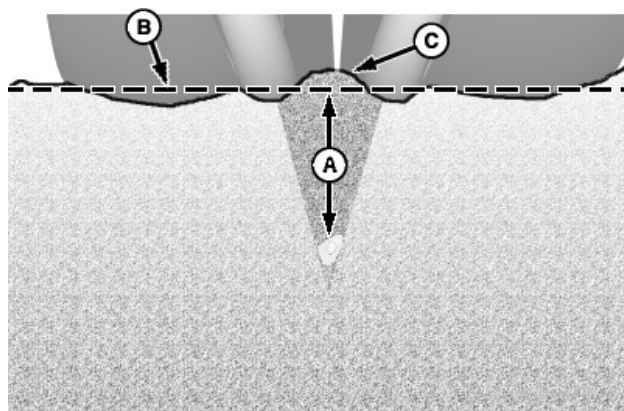
NOTE: The closing wheel downforce affects the seed placement and depth. Do not use more force than necessary on the seed furrow, especially in light soils.

The depth gauge wheels (A) control the seed depth. Adjust the planting depth as follows:

1. To remove weight from the depth gauge wheels, raise the planter.
2. Lift the depth adjustment handle (B). To decrease planting depth, move the handle forward. To increase planting depth, move the handle rearward. If small increments are needed, walk the handle from side-to-side along the depth adjustment channel. Each position changes the planting depth by 6 mm (1/4 in).
3. Adjust all rows to the same initial setting.

NOTE: Prevent the seed tubes from plugging. When operating in the field, lower the planter when the tractor is moving forward.

4. Lower planter and drive a short distance at the normal planting speed.



Soil Cross Section

A57713—UN—20APR06



Seed Digging Tool

A103836—UN—04MAR19

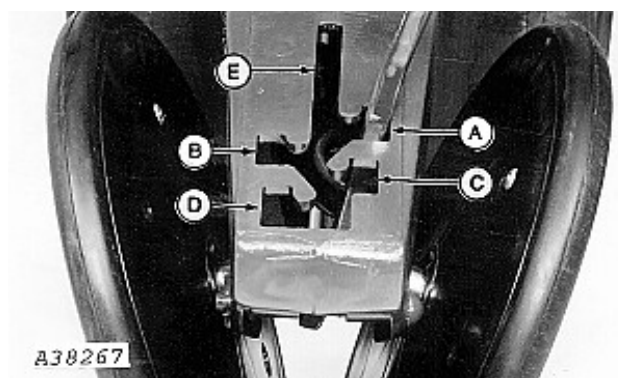
- A—Depth
- B—Top of Soil Profile
- C—Ridge

NOTE: Make it easier to see seed depth. Strap or chain up closing wheels when performing a check (see Check Seed Population). A seed digging tool is provided with the implement and available from a John Deere dealer or qualified service provider.

5. Check the planting depth on each row as follows:
 - a. Dig through soil to locate the seed.
 - b. Measure depth (A) between the seed and the top of the soil profile (B). Do not measure to the top of the ridge (C) created by the closing wheels.
 - c. Adjust the depth gauge wheels as needed.

OJ06074,00009B4-19-22MAR19

Adjust the Closing Wheel Downforce



- A—Position A (Minimum)
- B—Position B
- C—Position C
- D—Position D (Maximum)
- E—Position E (Float)

A38267—UN—27NOV95

If equipped with pneumatic closing wheels, see your SeedStar™ Application Help for adjustment.

The closing wheels close and firm the seed furrow created by the Tru-Vee™ openers.

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Tru-Vee is a trademark of Deere & Company

NOTE: Avoid adverse effects on seed placement and depth. Do not use more force than necessary to close the seed furrow, especially in light soils.

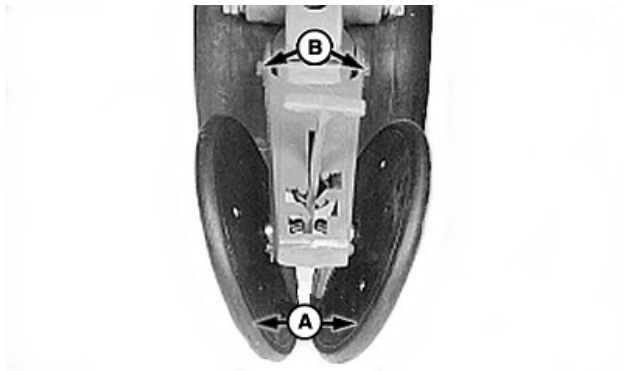
The proper amount of downforce closes and firms the seed furrow without compacting the area around the seed.

Select the optimum handle position (A), (B), (C) or (D) for the current soil conditions. The middle position (E) only applies the weight of the closing wheels as they float on the soil surface.

Verify that the closing wheels are centered over the seed furrow. (See Center the Closing Wheels in this section.)

AG,OUO6074,1203-19-01JUN17

Center the Closing Wheels



A46773—UN—12OCT00

A—Closing Wheels
B—Cap Screws

If the closing wheels (A) are not centered over the seed furrow, proceed as follows:

1. Raise the planter.
2. Loosen the cap screws (B) and adjust the closing wheels to the right or left. Visually center the closing wheels as required.
3. Tighten the cap screws (B) to specifications.

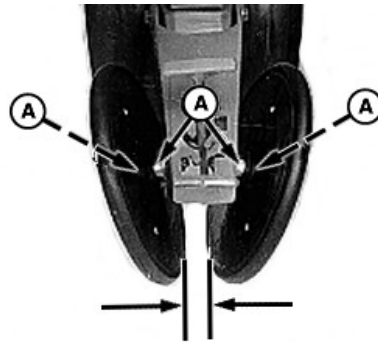
Specification

Cap Screws (B)—Torque. 140 N·m
(105 lb·ft)

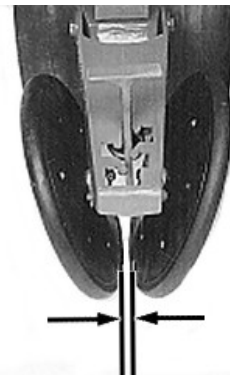
AG,OUO6074,1204-19-16APR18

Adjust Closing Wheel Spacing

NOTE: Spacing between closing wheels is adjustable, so closing system can be tailored to meet the requirements of planting small seeds at shallow depths.



A46774—UN—13OCT00



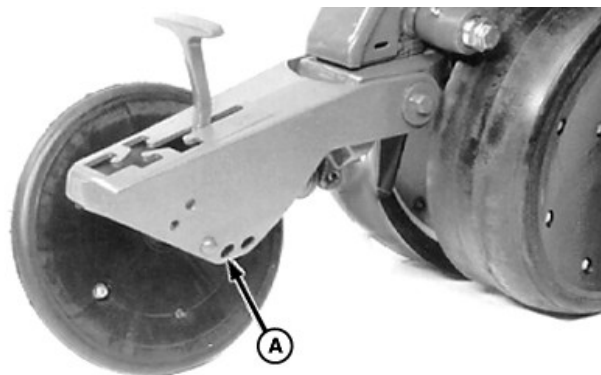
A46775—UN—12OCT00

A—Nuts and Spacers

To change spacing, remove nuts and spacers (A). Install closing wheels with spacers located to the outside (for narrow spacing) or to the inside (for wide spacing).

AG,OUO6074,1205-19-30JUL18

Stagger the Closing Wheels



A46776—UN—12OCT00

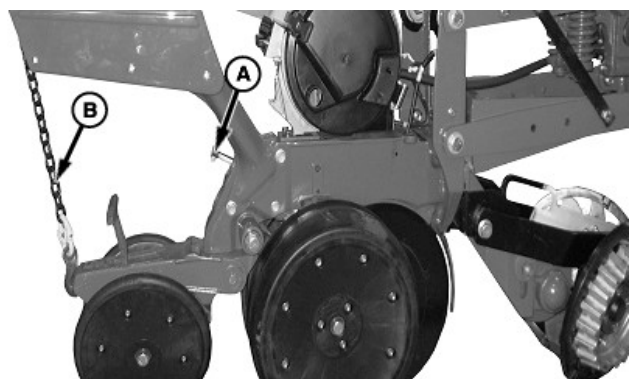
A—Rear Hole

If residue or root balls get lodged between the closing wheels in a mulch till or no-till conditions, remove one of the closing wheels from the planting unit and install it in the rear hole (A) of the casting.

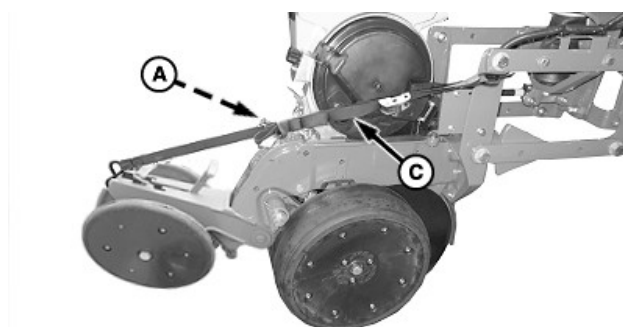
AG,OUO6074,1206-19-12JUL18

Checking the Seed Population

Check the Seed Population



A78826—UN—04OCT13



A78827—UN—04OCT13

A—Depth Handle
B—Chain
C—Ratchet Strap

NOTE: Disregard the seed spacing when planting at a shallow depth with the closing wheels raised. Seeds roll or bounce under these conditions, which affects seed spacing.

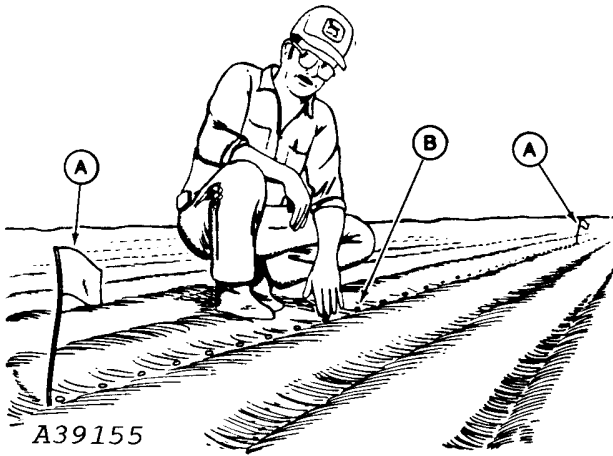
1. Set the depth handle (A) two settings from the minimum.
2. Attach a chain (B) or a ratchet strap (C) to one or more closing wheels so the seed furrow remains open.
3. Plant a short distance and verify that the seeds are visible in the furrow. Adjust the depth handle as needed.
4. Plant approximately 91 m (100 yd) at the target ground speed.
5. Consult the following table. Determine what distance equals 1/1000 of a hectare, 1/1000 of an acre, or 1/200 of an acre for the row width.

	Row Width (in)								
	15	18	19	20	22	30	36	38	40
Fraction of an Acre	Distance (ft) to Count for Population Check								
1/1000 ^a	34 ft 10 in	24 ft	27 ft 7 in	26 ft 1 in	23 ft 10 in	17 ft 5 in	14 ft 6 in	13 ft 10 in	13 ft 1 in
1/200 ^b	174 ft	145 ft	138 ft	131 ft	119 ft	87 ft	72.5 ft	69 ft	66 ft
Distance Calculation for Row Width (in) Not Shown									
1/1000	$(522\,722 \div \text{Row Width}) \div 1000 = \text{Feet to Count}$								
1/200	$(522\,722 \div \text{Row Width}) \div 200 = \text{Feet to Count}$								

^aUsed when the population is 100 000 seeds/acre or more.

^bUsed when the population is less than 100 000 seeds/acre.

	Row Width (cm)										
	38	46	48	51	56	70	76	80	91	97	101
Fraction of a Hectare	Distance (m) to Count for Population Check										
1/1000	26.24	21.88	20.72	19.68	17.90	14.29	13.12	12.5	10.94	10.36	9.84
Distance Calculation for Row Width (cm) Not Shown											
1/1000	$(1\,000\,000 \div \text{Row Width}) \div 1000 = \text{Meters to Count}$										



A39155—UN—13FEB96

A—Flag
B—Seeds

6. Mark the distance with flags (A).
7. Count the seeds (B) between the flags.
8. Calculate the population.

If 1/1000 of an area was counted, multiply the number of seeds by 1000.

If 1/200 of an area was counted, multiply the number of seeds by 200.

If the in-field checks are different from the target population, investigate the following in the order listed:

1. Check the monitor setup and settings.
2. Check the meter setup and condition. Adjust or repair the meters as needed.
3. Adjust the vacuum in 25 mm (1 in) increments. To reduce skips, increase the vacuum. To reduce doubles, decrease the vacuum.
4. Avoid excessive bounce of the row units. Increase the row unit downforce or reduce the ground speed.

WP29706,0000B9E-19-20MAR19

Liquid Fertilizer—ExactRate™ System

Service Fertilizer System Safely



TS281—UN—15APR13

CAUTION: Avoid injury from pressurized fertilizer solution. The fertilizer system is under pressure. Before servicing any areas of the fertilizer system, relieve all pressure from the fertilizer system.

WP29706,0000C74-19-01AUG19

IMPORTANT: Avoid plugging the BrushBelt™. Do not apply liquid fertilizer in front of and directly in-line with the seed furrow.

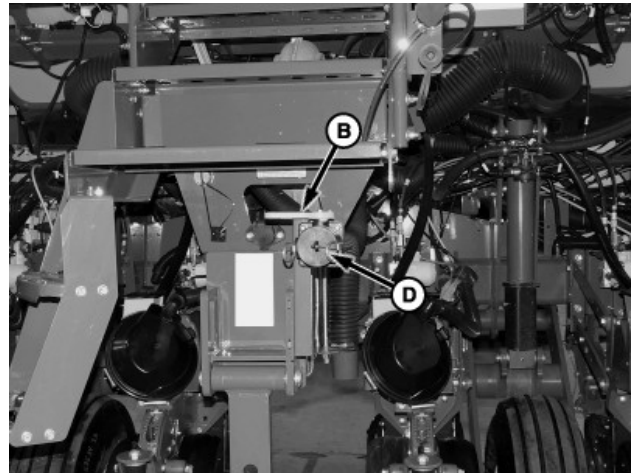
ExactRate™ liquid fertilizer system is only used with an in-furrow applicator or a frame-mounted opener that applies fertilizer to the side of the seed furrow.

WP29706,0000C6C-19-12AUG19

Quik-Fill™ Liquid Fertilizer



A104912—UN—18JUL19



A104913—UN—18JUL19

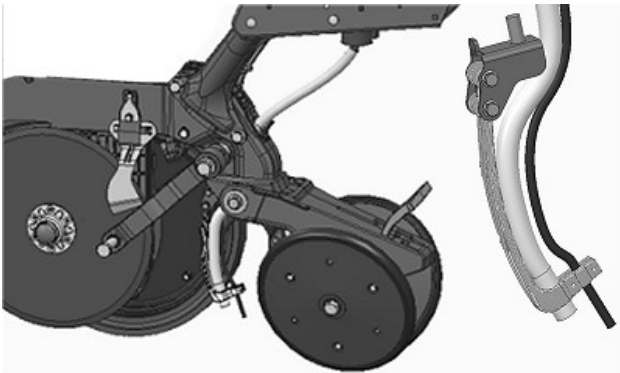
Quik-Fill™ Valve

- A—Pump Valve
- B—Quik-Fill™ Valve
- C—Tank Valve
- D—Dust Cover

The Quik-Fill™ system allows the liquid tanks to be filled from one accessible point on the implement.

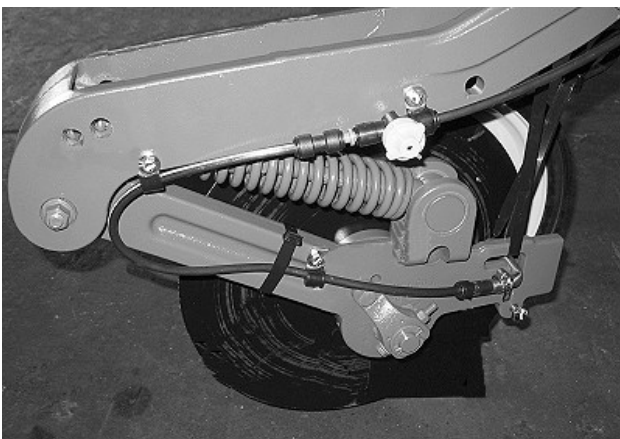
BrushBelt is a trademark of Deere & Company
ExactRate is a trademark of Deere & Company
Quik-Fill is a trademark of Deere & Company

Liquid Fertilizer Use with the BrushBelt™



A86695—UN—09JUN15

In-Furrow Applicator



A75012—UN—04APR12

Frame-Mounted Opener (beside the seed furrow)

CAUTION: Chemicals used in agricultural applications, such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers, can be harmful to your health and the environment. Always follow all label directions for effective, safe, and legal use of agricultural chemicals. Check all valves, fittings, hose clamps, plugs, and caps for tightness and soundness before adding chemical or fertilizer to the system. Check system at regular intervals and replace pipes and hoses when worn, cracked, or leaking.

1. Close Quik-Fill™ valve (B) and remove the dust cover (D).

IMPORTANT: Avoid O-ring damage. If a valve is hard to operate or leaks, adjust four housing cap screws evenly until lever moves smoothly and seals do not leak. Do not overtighten the bolt for the handle.

Avoid damage to the liquid fertilizer tank. Larger pumps exceed the system pressure limit. Signs of excessive pressure are tank swelling and seal leakage. The recommended nurse tank pump is a maximum 40 mm (1-1/2 in) centrifugal pump with a 2.2 kW (3—5 hp) engine. Operate a 50 mm (2 in) centrifugal pump with a 3.7—5.5 kW (5—7-1/2 hp) engine at half throttle. A 75 mm (3 in) centrifugal pump is not recommended.

2. Connect the nurse tank hose to the coupler.
3. Open the Quik-Fill™ valve (B).
4. Open the tank valve (C).
5. After the fertilizer tank has been filled, stop the pump engine, then close Quik-Fill™ valve (B) and close the tank valve (C).
6. Disconnect nurse tank hose from the implement.
7. Open the pump valve (A).

CR53390,0000134-19-21MAY20

Fertilizer Distribution Overview

The ExactRate™ liquid fertilizer system uses a pump, solenoid valves, and in-line orifices to dispense the product at various application rates. Solenoid valves are mounted onto the distribution pipes on the planter frame. This distribution system is compatible with the frame-mounted openers and in-furrow distribution.

The ExactRate™ fertilizer software uses sensors and setup parameters to maintain system rate. To set the application rate, input the application rate into the display. Oil temperature for the system must be warmed

to a minimum of 60°C (140°F) before usage. The system controls the in-line pressure and the solenoid valves near the row units to achieve the correct application rate. Verify the row spacing and the application rate. Verify that the power generation system is ON and the ExactRate™ pump is ON. Verify that the system is operating at the application rate when traveling at the target planting speed.

In-Furrow System Suggested Rates	
Fertilizer Application Rate	Fertilizer Planting Speed
18.7—93.5 L/ha (3—10 gal/acre)	4.8—20.9 km/h (3—13 mph)

Frame-Mounted Fertilizer Opener Suggested Rates	
Fertilizer Application Rate	Fertilizer Planting Speed
46.8—280.6 L/ha (7—30 gal/acre)	4.8—16.1 km/h (3—10 mph)

Priming the ExactRate™ fertilizer system is critical for obtaining the best performance. (See Prime and Start the ExactRate™ Pump.) Eliminate any kinks, pinches, or sharp bends in the fertilizer hoses. Any restriction in the hoses reduces the fertilizer flow.

WP29706,0000C6D-19-07JUL20

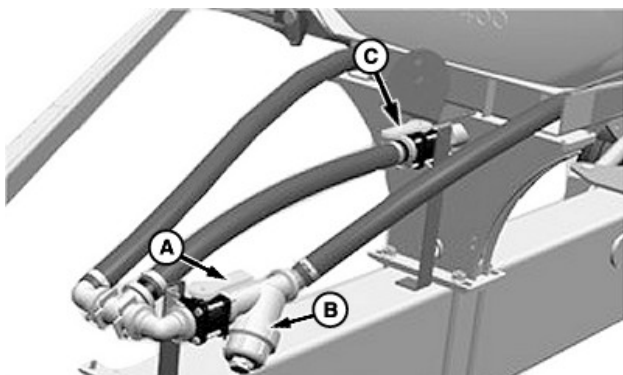
Prime and Start the ExactRate™ Pump

NOTE: Do not allow the solution pump to run dry. Verify that the air is removed from supply hoses and that the supply tank has enough liquid before priming the fertilizer system. If an offboard tank is used, bypass the transfer pump unless filling the onboard tank.

Before priming, inspect the ExactRate™ fertilizer distribution system. Verify that the strainer is clean and that there are no leaks in the suction hose for the ExactRate™ pump. Verify that there are no pinched, kinked, or otherwise restricted hoses. Verify that there are no extreme high or low variations in the path of the hose. Inspect all the in-line orifices and barbed fittings for debris and blockages.

1. Ensure that the tank is filled with a minimum level higher than the pump inlet and check the system for leaks. (See Quik-Fill™ Liquid Fertilizer.)
2. Unfold and park the planter on a level surface.
3. When filling up the liquid fertilizer tank, the ExactRate™ solution pump must be OFF.
4. Turn ON the electric power generation system.
5. Using the tractor display, verify that the first and last sections of valve bodies on the planter are enabled before priming pump and the fertilizer system. (See

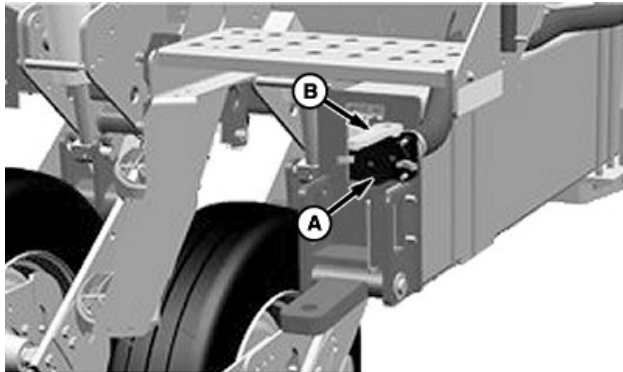
the SeedStar™ Application Help on the tractor display for entering the ExactRate™ pump rates or operational functions.)



A106831—UN—14MAY20

A—Ball Valve
B—Fill Strainer
C—Tank Ball Valve

6. If an offboard tank is supplying the solution pump or filling the planter tank, open ball valve (A) at the fill strainer (B). If the planter tank is supplying the solution pump, close valve (A).
7. If the planter tank is supplying the solution pump or being filled from a transfer pump, open the tank ball valve (C). If the planter tank is not supplying the solution pump or being filled, close valve (C).



A106830—UN—14MAY20

A—Fill Port
B—Ball Valve

NOTE: Only use the transfer pump to fill the planter tank. If an offboard tank is supplying the solution pump, bypass the transfer pump.

8. If using an offboard tank, connect the transfer hose to the fill port (A) and open the ball valve (B).



A106834—UN—14MAY20

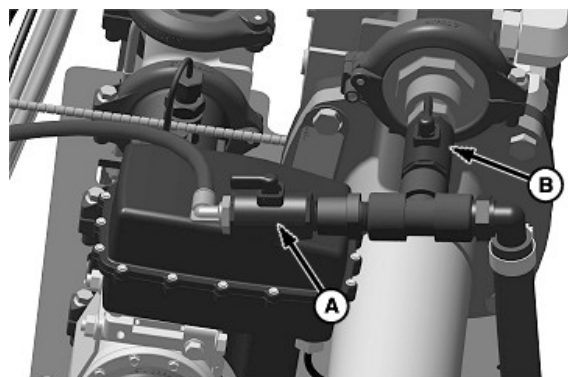
9. Verify that the compressor air tank is full. To activate the air compressor, place the hydraulic lever for lowering the planter into the continuous detent position until the compressor shuts off.



A103211—UN—02JAN19

A—Drain Hose

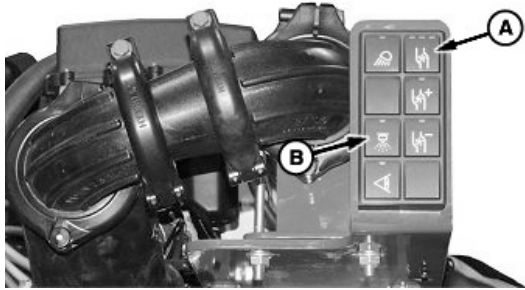
10. Place a drain hose (A) into a container or bucket.



A106832—UN—14MAY20

A—Air Valve
B—Solution Valve

11. Open the air valve (A) and the solution valve (B) at the same time.



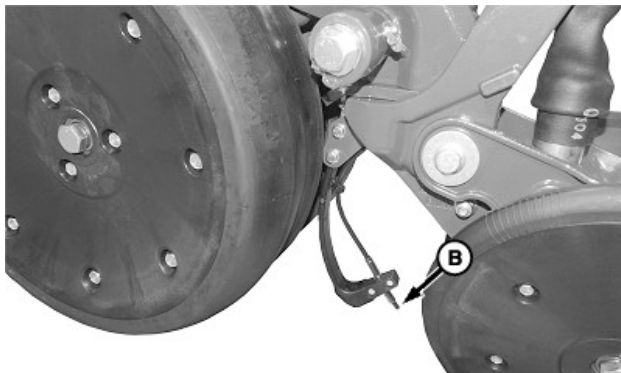
A106833—UN—14MAY20

A—Pump Button
B—Master Spray Button

12. When there is a steady stream of liquid from the drain hose, turn the solution pump ON and activate the delivery system. Press pump button (A) and master spray button (B).
13. Once liquid is flowing from the delivery hoses, close the air valve and solution valve.



A100281—UN—05OCT18



A100282—UN—04APR18

A—Opener Tube
B—In-Furrow Tube

14. In order to effectively prime the distribution tubes, keep the pump enabled until the first and last sections have continuous flow of liquid fertilizer exiting the opener tubes (A) or in-furrow tubes (B).
15. If a steady flow of the liquid is not present at the

designated rows, verify that there is not a significant variation of the system pressure and pump rate. If the system pressure and pump rate are correct but there is still a lack of flow, disable the pump and the valve bodies. Inspect for blockages at the designated rows that are not working correctly. Replace or repair any issues causing blockages.

16. Secondary Verification: Turn the solution pump ON and leave the master spray button OFF. View the main ExactRate™ screen. If the Apply OFF Pressure fluctuates ± 35 kPa (0.5 bar) (5 psi), repeat the air removal procedure.
17. Once the designated rows have steady flow, set the active target rate using the ExactRate™ application on the tractor display.
18. Enable all rows on the planter.
19. Verify that the designated rows are applying at the desired target rate by performing the nozzle flow check. Set the rate of speed in the procedure on the tractor display. To ensure that the system is hitting the rate, monitor the applied rate on the tractor display. To set, adjust, or calibrate the fertilizer system, see the SeedStar™ 4 Operator's Manual or Onscreen Help in the ExactRate™ application.
20. After the rate is verified and the solution flow is adequate, turn OFF the master spray function, then turn OFF the pump function.

WP29706,0000E9A-19-02JUL20

Prime and Start the ExactRate™ Pump (Tow-Behind Fertilizer Tank)

IMPORTANT: To avoid priming or suction issues, minimize restriction between the tank and ExactRate™ pump. Remove the strainers between the pump and tow-behind tank, sharp elbows, and restrictive hosing from the tank to the ExactRate™ pump inlet. Minimum of 5 cm (2 in) hose size for plumbing between tank and ExactRate™ pump.

NOTE: Verify that all products are strained when filling the tank.

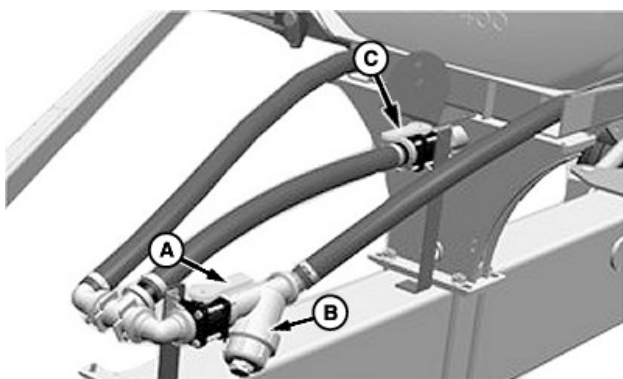
NOTE: Do not allow the solution pump to run dry. Verify that the air is removed from supply hoses and that the supply tank has enough liquid before priming the fertilizer system. If an offboard tank is used, bypass the transfer pump unless filling the onboard tank.

Before priming, inspect the ExactRate™ fertilizer distribution system. Verify that the strainer is clean and that there are no leaks in the suction hose for the ExactRate™ pump. Verify that there are no pinched,

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kinked, or otherwise restricted hoses. Verify that there are no extreme high or low variations in the path of the hose. Inspect all the in-line orifices and barbed fittings for debris and blockages.

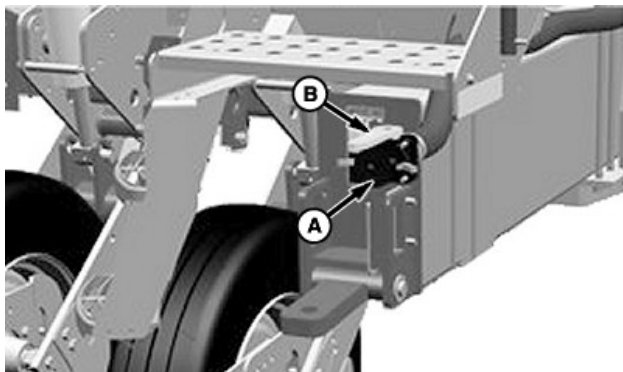
1. Unfold and park the planter on a level surface.
2. Verify that the tow-behind fertilizer tank or nurse tank is filled.
3. Turn ON the electric power generation system.
4. Using the tractor display, verify that the first and last valve bodies on the planter are enabled before priming pump and the fertilizer system. (See the SeedStar™ Application Help on-screen for entering the ExactRate™ pump rates or operational functions.)



A106831—UN—14MAY20

A—Ball Valve
B—Fill Strainer
C—Tank Ball Valve

5. If an offboard tank is supplying the solution pump or filling the planter tank, open ball valve (A) at the fill strainer (B). If the planter tank is supplying the solution pump, close valve (A).
6. If the planter tank is supplying the solution pump or being filled from a transfer pump, open the tank ball valve (C). If the planter tank is not supplying the solution pump or being filled, close valve (C).



A106830—UN—14MAY20

A—Fill Port
B—Ball Valve

NOTE: Only use the transfer pump to fill the planter tank. If an offboard tank is supplying the solution pump, bypass the transfer pump.

7. If using an offboard tank, connect the transfer hose to the fill port (A) and open the ball valve (B).



A106834—UN—14MAY20

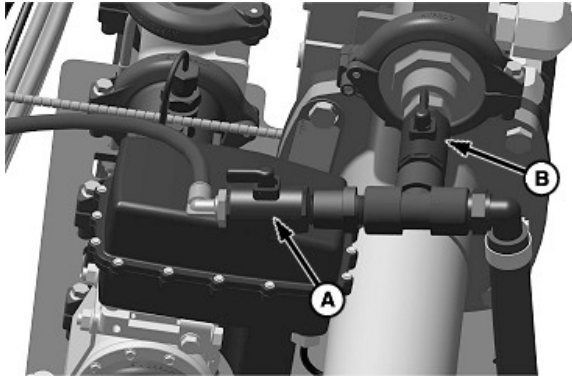
8. Verify that the compressor air tank is full. To activate the air compressor, place the hydraulic lever for lowering the planter into the continuous detent position until the compressor shuts off.



A103211—UN—02JAN19

A—Drain Hose

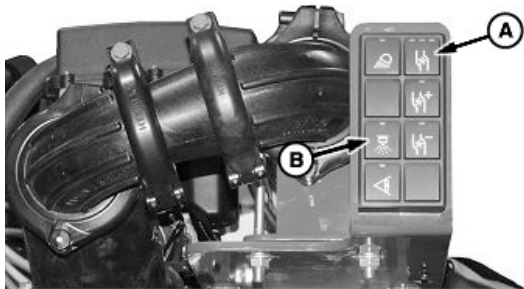
9. Place a drain hose (A) into a container or bucket.



A106832—UN—14MAY20

A—Air Valve
B—Solution Valve

10. Open the air valve (A) and the solution valve (B) at the same time.



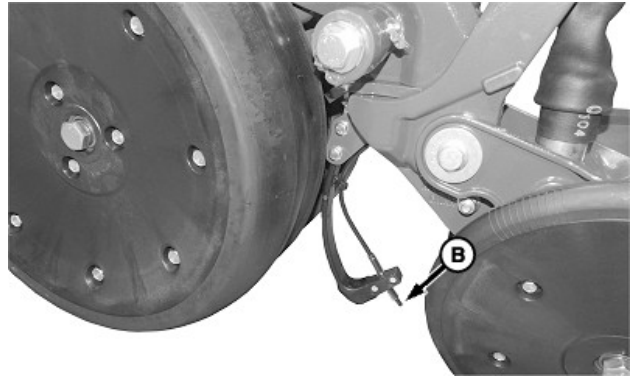
A106833—UN—14MAY20

A—Pump Button
B—Master Spray Button

11. When there is a steady stream of liquid from the drain hose, turn the solution pump ON and activate the delivery system. Press pump button (A) and master spray button (B).
12. Once liquid is flowing from the delivery hoses, close the air valve and solution valve.



A100281—UN—05OCT18



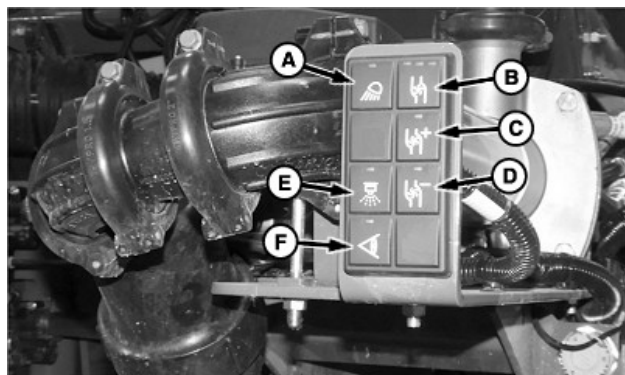
A100282—UN—04APR18

A—Opener Tube
B—In-Furrow Tube

13. In order to effectively prime the distribution tubes, keep the pump enabled until the first and last sections have continuous flow of liquid fertilizer exiting the opener tubes (A) or in-furrow tubes (B).
14. If a steady flow of the liquid is not present at the designated rows, verify that there is not a significant variation of the system pressure and pump rate. If the system pressure and pump rate are correct but there is still a lack of flow, disable the pump and the valve bodies. Inspect for blockages at the designated rows that are not working correctly. Replace or repair any issues causing blockages.
15. Secondary Verification: Turn the solution pump ON and leave the master spray button OFF. View the main ExactRate™ screen. If the Apply OFF Pressure fluctuates ± 35 kPa (0.5 bar) (5 psi), repeat the air removal procedure.
16. Once the designated rows have steady flow, set the active target rate using the ExactRate™ application on the tractor display.
17. Enable all rows on the planter.
18. Verify that the designated rows are applying at the desired target rate by performing the nozzle flow check. Set the rate of speed in the procedure on the tractor display. To ensure that the system is hitting the rate, monitor the applied rate on the tractor display. To set, adjust, or calibrate the fertilizer system, see the SeedStar™ 4 Operator's Manual or Onscreen Help in the ExactRate™ application.
19. After the rate is verified and the solution flow is adequate, turn OFF the master spray function, then turn OFF the pump function.

WP29706,0000DAD-19-02JUL20

Operate or Adjust the Pump with the Keypad



A100113—UN—12MAR18

- A—Lights Button
- B—Pump Button
- C—Speed (+) Increase Button
- D—Speed (-) Decrease Button
- E—Master Valve Button
- F—Visual Nozzle Check Button

NOTE: To enable all keypad functions, the power generation system must be turned ON. To enable fertilizer system functions, the ExactRate™ pump must also be turned ON.

See your SeedStar™ Application Help on-screen for entering the ExactRate™ pump rates or operational functions.

Some ExactRate™ pump functions are controlled either at the display in the tractor or at the pump keypad. The pump keypad is at the rear of the planter near the pump assembly.

To turn ON or OFF the load station lights, press the lights button (A).

To turn ON or OFF the ExactRate™ pump, press the pump button (B). The pump button has three indicator lights above the icon on the keypad. These lights are used as a visual aid for the operator to know what speed the pump motor is running. This button is also used for the initial priming of the ExactRate™ system.

To increase the speed of the motor for the ExactRate™ pump, press the speed increase button (C).

To decrease the speed of the motor for the ExactRate™ pump, press the speed decrease button (D).

NOTE: The pump must be turned ON before being able to activate the solenoid valves.

The master valve button (E) activates all enabled valve bodies, allowing flow to every row. Use the master valve button when priming, flushing, or winterizing the system.

The visual nozzle check button (F) activates one section of the valve bodies at a time, starting from the left side to

the right side on the planter. To check for blockages, use the visual nozzle check button and observe the flow at each row in the section.

WP29706,0000C70-19-16JUN20

Operating Condition of the Valve Body

During operation of the ExactRate™ fertilizer system, the valve bodies have lights that show different status indications:

- Light on the valve body that is constantly ON indicates that the product is being applied.
- Light on the valve body that is blinking ON and OFF, accompanied by a diagnostic trouble code (DTC), indicates a system fault of the valve body or row flow error.

WP29706,0000E93-19-26JUN20

Clean the Fertilizer System

CAUTION: All fertilizer equipment must be decontaminated before being overhauled or placed in storage. Decontamination must be done in a safe area by washing with water, neutralization, or by means recommended by the chemical manufacturer.

If the fertilizer product is left to sit in the tank for a day or a few days, close the tank ball valve and use water to rinse out the Quik-Fill™ hoses.

If the fertilizer product will sit for a week or more, close the tank ball valve and clean the fertilizer system with water by using the Rinse System procedure.

The fertilizer system must be rinsed or cleaned whenever the chemicals are changed or the planter is stored.

Use Erase™ or equivalent cleaner according to the recommendations of the manufacturer.

WP29706,0000C76-19-08JUL20

Access Rinse System

Access Application Through Display:



Menu

H113668—UN—22OCT15

Quik-Fill is a trademark of Deere & Company
Erase is a trademark of Precision Laboratories, LLC

SeedStar is a trademark of Deere & Company
ExactRate is a trademark of Deere & Company

1. Select Menu.



Machine Settings

N119118—UN—23SEP16

2. Select Machine Settings tab.



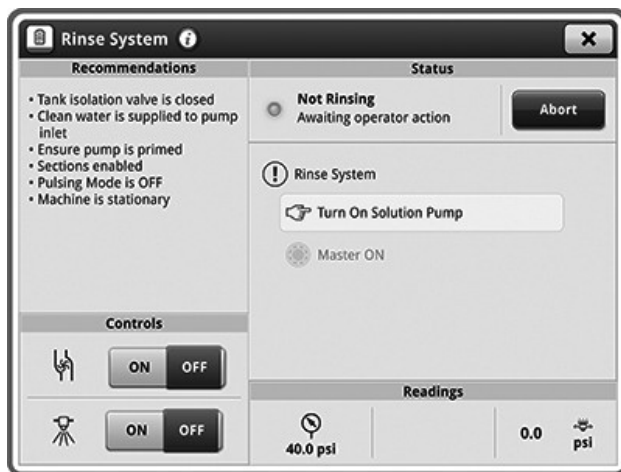
Rinse System

A99757—UN—19MAR18

3. Select the Rinse System application.

WP29706,0000E94-19-05JUN20

Rinse System



Rinse System Main Page

A105165—UN—29JUL19

The Rinse System application allows you to rinse the pump and delivery system components.

Items Accessible on Rinse System Main Page:

Recommendations— shows steps that aid in having a successful rinse procedure.



Status

A99751—UN—20MAR18

Status— shows the status of the rinse process during the procedure.



ON/OFF

A99072—UN—20MAR18

Controls— allows you to turn the pump and delivery system ON and OFF. When both are ON, the rinse cycle begins.



Readings

A99771—UN—19MAR18

Readings— shows the target pressure and the actual pressure. Select the target pressure to change the value.

Procedure to Modify:

1. Shut off the supply valve for the fertilizer tank. See the planter Operator's Manual for information.
2. Provide a supply of fresh water to the pump. See the planter Operator's Manual for information.
3. Open the ExactRate™ application, enable all the sections, and turn OFF the valve pulsing mode.
4. Open the Rinse System application.

NOTE: Messages related to the process appear on-screen throughout the procedure.



ON/OFF

A99754—UN—19MAR18

5. Select the toggle ON to start the pump.



ON/OFF

A99755—UN—19MAR18

6. To turn ON the Master Control, select the toggle. This step begins the rinse process.



Abort

A99037—UN—19MAR18

NOTE: Select Abort at any time to stop the rinse procedure.

7. After the rinse cycle is complete, open the ExactRate™ application. Next, disable all the

sections, select the custom sections, and enable the valve bodies that are connected to aspirator fittings.

NOTE: Aspirator fittings are installed on the end of the supply hoses and pipes.



ON/OFF

A99755—UN—19MAR18

8. Select the toggle to turn ON the Master Control.



ON/OFF

A99770—UN—19MAR18

9. After the rinse cycle is complete, turn OFF the pump.

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WP29706,0000E95-19-10JUL20

Status

Status indicates various conditions and messages about the rinse process.

The statuses and messages are as follows:



Amber

H113786—UN—30JAN17

Amber (Awaiting Operator Action)— indicates that the pump is OFF or the master control is OFF.



Alert

H114663—UN—05JAN17

Alert— indicates a part of the system that requires attention.



Attention

A99756—UN—19MAR18

Attention— suggests an action to resolve the issue.



Confirmation

H114662—UN—05JAN17

Confirmation— indicates that a required action is complete.



Blue

A99036—UN—19MAR18

Blue— indicates that the rinse is occurring.



Progress Indicator

H113801—UN—04JAN17

Progress Indicator— indicates that the rinse cycle is occurring.

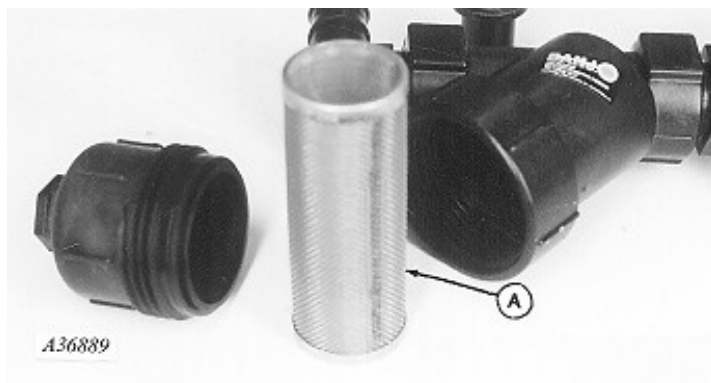
WP29706,0000E96-19-05JUN20

Strainer Recommendations

IMPORTANT: Prevent damage to the ExactRate™ pump. See the Storage section for recommended storage procedures.

There are multiple 80 mesh strainers installed in the plumbing of the ExactRate™ fertilizer system on the planter. These strainers must remain installed during all applications to prevent plugging of the distribution solenoid valves. When the planter is using a tow-behind fertilizer tank with the ExactRate™ fertilizer system, the strainer between the tow-behind fertilizer tank and the pump must be removed.

To prevent contamination, equip all the nurse tanks with strainers.



A36889—UN—10APR95

A—Strainer

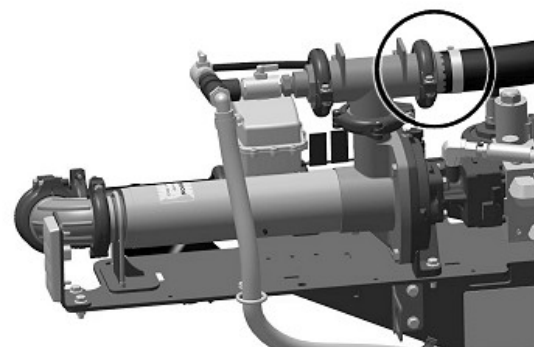
A strainer (A) prevents obstructions in solenoid valves, nozzles, and orifices. The strainer also prevents damage to the ExactRate™ pump, the fertilizer pipes, and the distribution tubes. A minimum 80 mesh strainer is required in the planter fill lines when equipped with ExactRate™. An 80 mesh main strainer is recommended for the fill tank. Inspect and clean the strainer after initial start-up, daily, or as required thereafter.

An increased pressure reading is an indication of an obstruction. Obstructions cause inconsistent delivery to openers.

If a fertilizer with a high solid content is plugging the 80 mesh strainer frequently, see your John Deere dealer or qualified service provider.

WP29706,0000C73-19-12AUG19

the air compressor, place the hydraulic lever for lowering the planter into the continuous detent position until the compressor shuts off.



A106835—UN—20MAY20

Winterize the ExactRate™ System Using the Winterizer Aid Kit

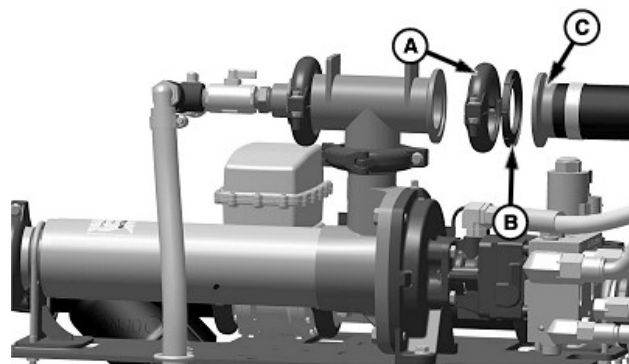
The winterization process for the ExactRate™ fertilizer system is as follows:

1. Turn ON the electric power generation system.



A106834—UN—14MAY20

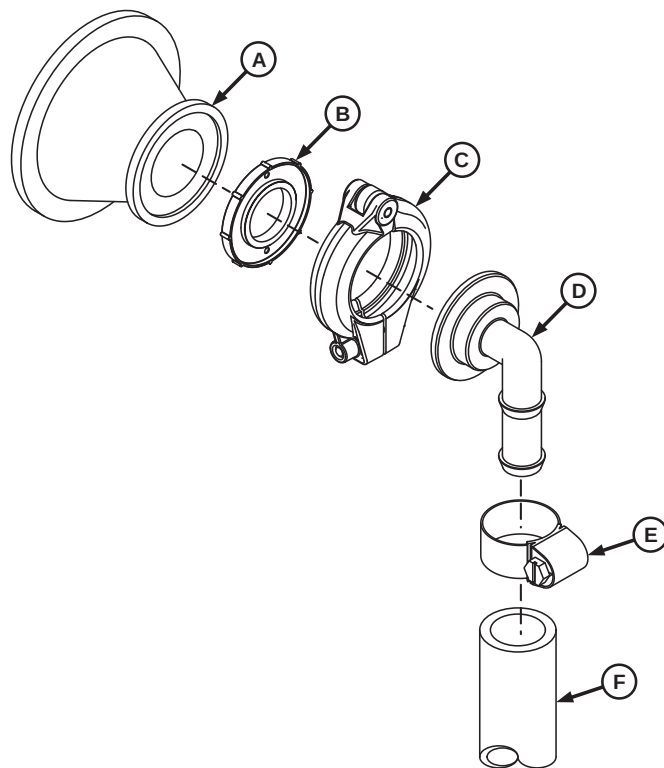
2. Verify that the compressor air tank is full. To activate



A106855—UN—20MAY20

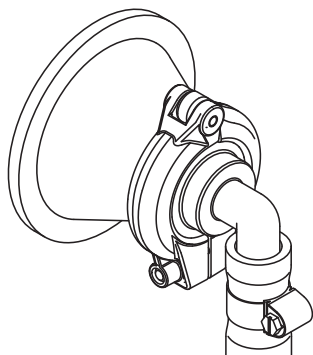
- A—Clamp
- B—Seal
- C—Hose with Flange Fitting

3. Drain the supply hose plumbing.
4. To catch residual fluid, place an empty drain pan or container under the inlet of the fertilizer pump and then remove the clamp (A), seal (B), and hose. Do not remove the barbed flange fitting (C).



Winterizer Aid Kit

A106851—UN—19MAY20



Assembled Example

A106852—UN—19MAY20

- A—Reducer Flange
- B—Gasket
- C—Flange Clamp
- D—Elbow Flange
- E—Hose Clamp
- F—Hose (3/4 in)

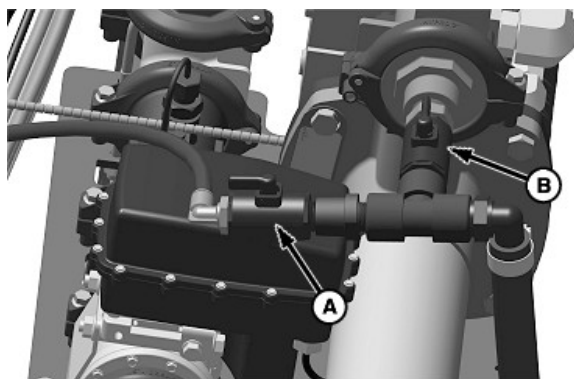
5. Assemble the parts (A—F) of the winterizer aid kit.
6. Using the previously removed clamp and seal, install the winterizer kit on the pump inlet.
7. Insert the hose into a bucket of winterization fluid. Keep the bucket full during the procedure.



A—Drain Hose

A103211—UN—02JAN19

8. To catch the winterizing fluid, position an empty bucket under the drain hose (A).



A—Air Valve
B—Solution Valve

A106832—UN—14MAY20

9. To draw fluid from the bucket into the top of the pump, open the air valve (A) and then solution valve (B).



A106833—UN—14MAY20

Keypad on Rear of Planter

A—Button, Fertilizer Pump
B—Button, Master Spray

10. Once fluid is coming out of the drain hose, enable the fertilizer pump using button (A).
11. Enable the master spray function using button (B).
12. When a steady flow is visible at the rows, close the solution valve and then the air valve.
13. Once the winterizer solution is visible at each row, turn OFF the master spray function.
14. Turn OFF the fertilizer pump.
15. To catch residual fluid, place an empty drain pan or container under the inlet of the fertilizer pump and then remove the winterizer kit.
16. Assemble the previously disconnected clamp, seal, and hose onto the pump inlet.

WP29706,0000E92-19-26JUN20

Winterize the ExactRate™ System without Using the Winterizer Aid Kit

The winterization process for the ExactRate™ fertilizer system is as follows:

1. Turn ON the electric power generation system.

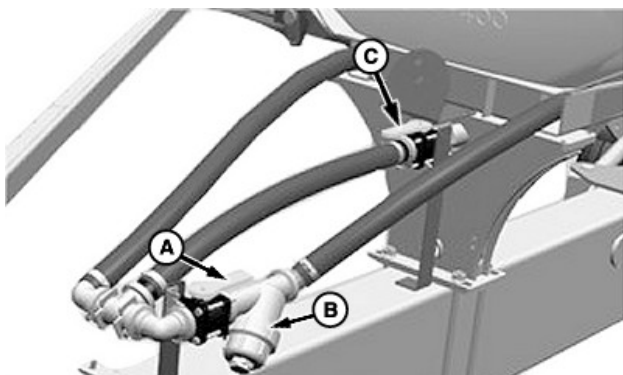


A106834—UN—14MAY20

2. Verify that the compressor air tank is full. To activate

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the air compressor, place the hydraulic lever for lowering the planter into the continuous detent position until the compressor shuts off.



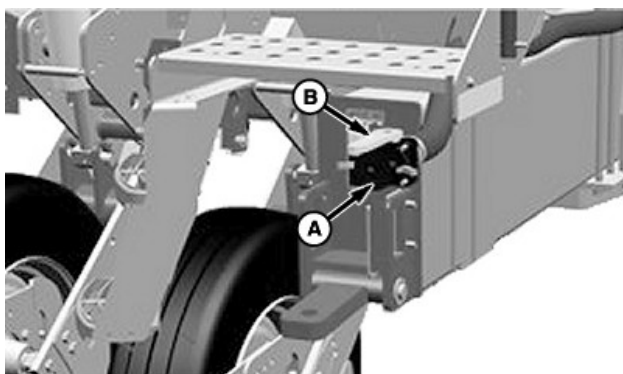
A106831—UN—14MAY20

- A—Ball Valve**
B—Strainer
C—Tank Ball Valve

3. Decide whether to add winterizing fluid into the planter tank or use an offboard tank with winterizer.

Using the Planter Tank: Close ball valve (A) and open the tank ball valve (C). Add winterizer to the tank and keep it from running empty during the procedure.

Using an Offboard Tank: Open ball valve (A) and close the tank ball valve (C). Open the tank valve after the procedure and use the transfer pump to add winterizer to the planter tank. Do not use the transfer pump during the winterizing procedure. Bypass the transfer pump.



A106830—UN—14MAY20

- A—Quik-Fill™ Port**
B—Quik-Fill™ Valve

4. Using the Planter Tank: After the procedure is complete, open Quik-Fill™ valve (B) and drain the hose.

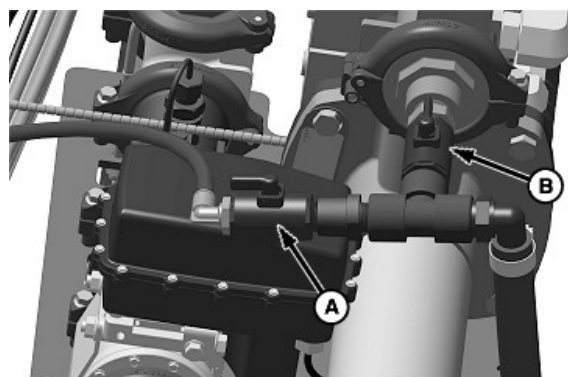
Using an Offboard Tank: Connect the offboard tank hose to the Quik-Fill™ port (A) and open the Quik-Fill™ valve (B). Verify that the plumbing is routed around the transfer pump.



A103211—UN—02JAN19

- A—Drain Hose**

5. To catch the solution coming out of the drain hose (A) at the fertilizer pump, place the drain hose into an empty bucket or container.

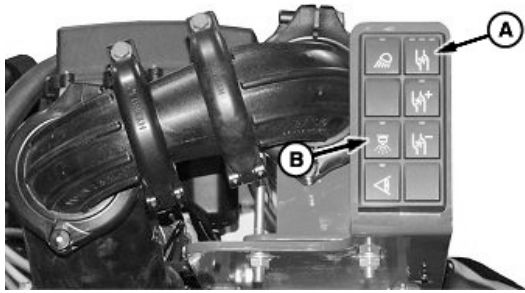


A106832—UN—14MAY20

- A—Air Valve**
B—Solution Valve

NOTE: This step can be skipped unless air entered the supply hose and caused the pump to lose prime.

6. To draw winterizer solution from the tank to the solution pump, open the air valve (A) and then solution valve (B).



A106833—UN—14MAY20

Keypad on Rear of Planter

A—Button, Fertilizer Pump

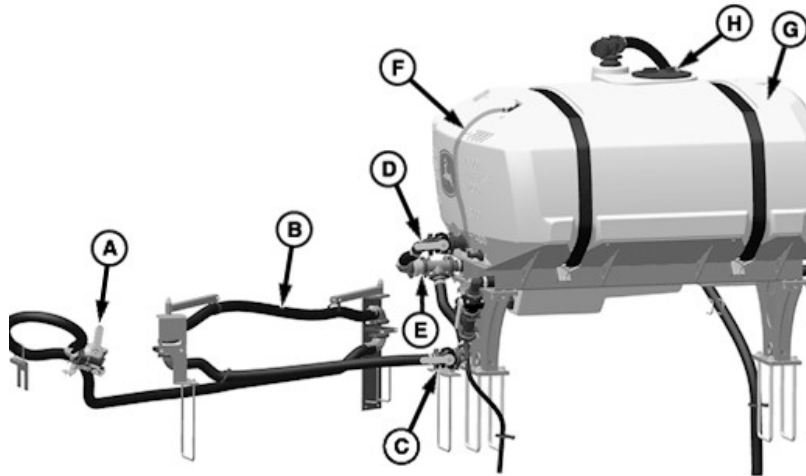
B—Button, Master Spray

7. Once fluid is coming out of the drain hose, enable the fertilizer pump using button (A).
8. Enable the master spray function using button (B).
9. When a steady flow is visible at the rows, close the solution valve and then the air valve.
10. Once the winterizer solution is visible at each row, turn OFF the master spray function.
11. Turn OFF the fertilizer pump.
12. If an offboard tank is used, close the Quick-Fill™ valve and disconnect the tank.
13. Install the Quick-Fill™ cap.

WP29706,0000E90-19-30JUN20

Liquid Fertilizer—ExactRate™ Fertilizer Transfer System

Front Fill and Fertilizer Tank Overview



- A—Front Connection Valve
- B—Front Fill Hose
- C—Front Fill Valve (if equipped)
- D—Tank Inlet Valve

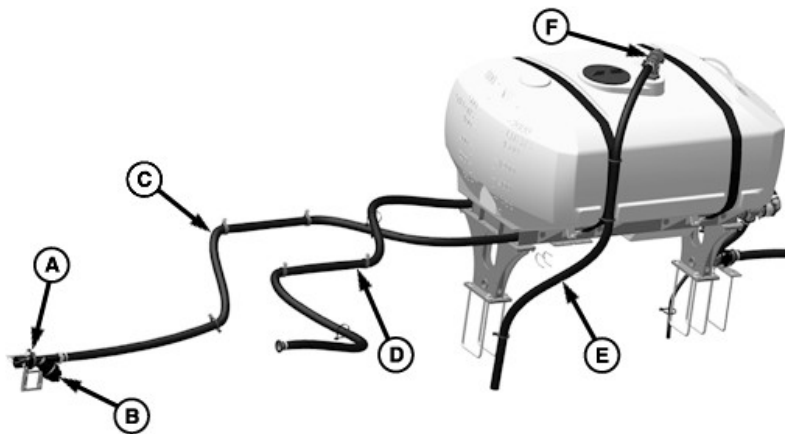
- E—Tank Inlet Check Valve
- F—Tank Sight Tube
- G—Fertilizer Tank
- H—Fertilizer Tank Lid

A108842—UN—02DEC20

This is a graphical overview of the fertilizer transfer system from the viewpoint of an operator using the front fill hose.

WP29706,0000EF4-19-16DEC20

Rear Fill and Fertilizer Tank Overview



- A—Rear Fill Valve
- B—Strainer
- C—Rear Fill Hose

- D—Fertilizer Pump Hose
- E—Anti-Siphon Valve
- F—Overflow Hose

A108843—UN—02DEC20

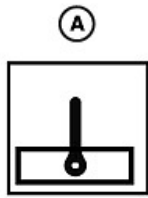
This is a graphical overview of the fertilizer transfer system from the viewpoint of an operator using the rear fill hose.

WP29706,0000EF5-19-16DEC20

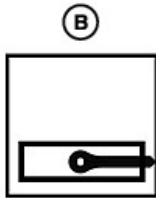
Valve Position Guide

A—Closed
B—Open

This valve position guide shows valve positions for different functions of the fertilizer transfer system.



A108845—UN—02DEC20

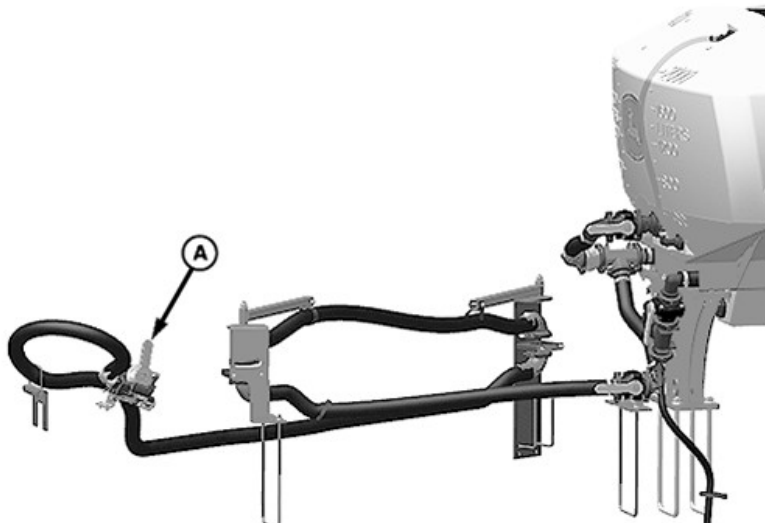


A108846—UN—02DEC20

Function		Front Connection Valve	Front Fill Valve (If Equipped)	Tank Inlet Valve	Rear Fill Valve	Fertilizer Pump Valve	Tank Drain Valve
Fill	From Front	Open	Open	Open	Closed	Any	Closed
	From Rear	Closed	Closed	Open	Open	Any	Closed
Empty Tank		Closed	Closed	Closed	Closed	Open	Open
Applying Fertilizer		Any	Any	Any	Closed	Open	Closed

WP29706,0000EE8-19-10DEC20

Connect or Disconnect the Implement or Fill Hose



A108847—UN—02DEC20

A—Front Connection Valve

1. Ensure that the front connection valve (A) on the implement is in the closed position.
2. Remove the cover from the front connection valve.

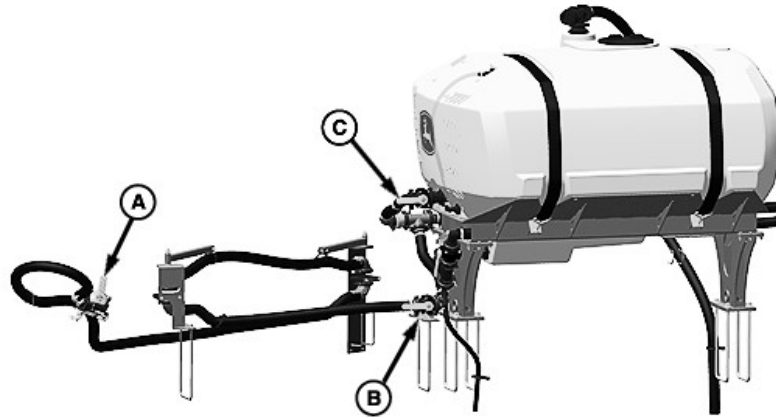
NOTE: Ensure that the tractor quick-hitch valves are in the closed position before disconnection.

3. Connect or disconnect the front connection valve from the tractor or offboard tank hose. When

disconnecting the hoses, install the previously removed covers back onto each valve for the tractor or the implement.

WP29706,0000EE4-19-16DEC20

Fill Liquid Fertilizer Tanks from Tractor



A—Front Connection Valve
B—Front Fill Valve

C—Tank Inlet Valve

A108848—UN—02DEC20

IMPORTANT: To avoid pump damage, do not allow the solution pump to run dry. Stop the pump immediately if the tank level drops below 5% of capacity.

NOTE: Always ensure that the tank drain valve is in the closed position.

Function		Front Connection Valve (A)	Front Fill Valve (B) (If Equipped)	Tank Inlet Valve (C)	Rear Fill Valve	Fertilizer Pump Valve	Tank Drain Valve
Fill	From Front	Open	Open	Open	Closed	Any	Closed

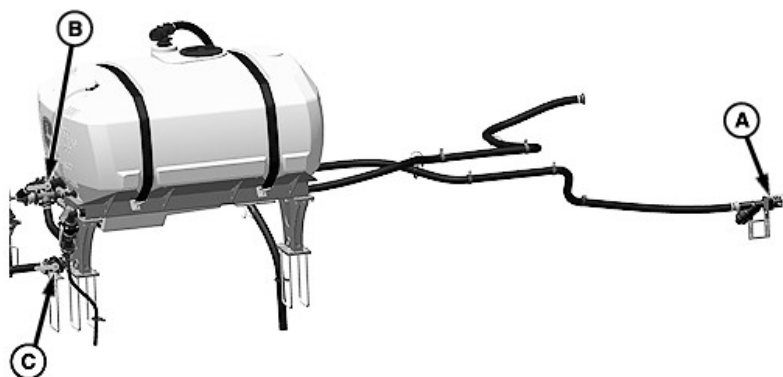
After connecting the hose from the tractor to the implement, liquid fertilizer can be transferred from the tractor to the liquid fertilizer tank on the implement. A check valve within the T-fitting prevents backpressure from the liquid fertilizer tank on the implement towards the front fill hose.

1. Connect the hose from the tractor to the implement. (See Connect or Disconnect the Implement or Fill Hose.)
2. Position the valves according to the table.

3. Transfer liquid fertilizer to the implement tank by using the procedure in the tractor Operator's Manual.
4. After the liquid fertilizer tank is full on the implement, stop the transfer process and place the valves in the closed position.
5. Disconnect the hose from the tractor to the implement. (See Connect or Disconnect the Implement or Fill Hose.)

WP29706,0000ECF-19-16DEC20

Fill Liquid Fertilizer Tanks from Rear of Implement



A—Rear Fill Valve
B—Tank Inlet Valve

C—Front Fill Valve

A108849—UN—02DEC20

IMPORTANT: Avoid pump damage. Do not allow the solution pump to run dry. Stop the pump immediately if the tank level drops below 5% of capacity.

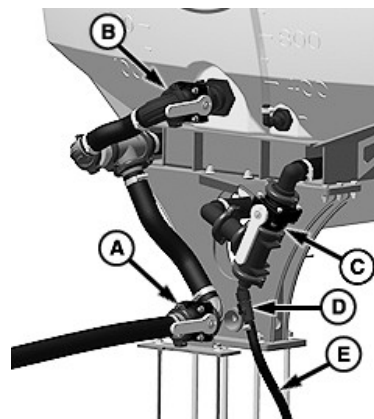
implement. (See Connect or Disconnect the Implement or Fill Hose.)

WP29706,0000EE9-19-16DEC20

Liquid fertilizer can be transferred from an external source to the liquid fertilizer tank on the implement using the rear fill plumbing. By opening the rear fill valve and the tank inlet valve, liquid fertilizer can be pumped from the external source through the rear fill hose and the T-fitting into the liquid fertilizer tank on the implement. To prevent liquid fertilizer from bypassing the tank and going into the front fill plumbing, ensure that either the front fill valve, if equipped, or the front connection valve is placed in the closed position (if the planter has both valves, place both in the closed position).

1. Connect the hose from the tractor to the implement. (See Connect or Disconnect the Implement or Fill Hose.)
2. Always ensure that the tank drain valve is in the closed position. If equipped with the front fill valve (C) on the tractor but filling from the rear of the implement, ensure that the front fill valve (C) on the tractor is in the closed position.
3. Place the rear fill valve (A) in the open position.
4. Place the tank inlet valve (B) in the open position.
5. Use proper procedure to transfer liquid fertilizer to the implement tank from the external source.
6. After the liquid fertilizer tank is full on the implement, stop the transfer process and place the valves in the closed position.
7. Disconnect the hose from the external source to the

Drain ExactRate™ Fertilizer Transfer System



A—Front Fill Valve
B—Tank Inlet Valve
C—Fertilizer Pump Valve
D—Tank Drain Valve
E—Drain Hose

A108850—UN—02DEC20

1. **Remove fluid from the tank:**
To catch excess fluid, place a container under the drain hose (E) of the liquid fertilizer tank.
2. Place the tank inlet valve (B) and fertilizer pump valve (C) in the closed position. If equipped with the front fill valve (A), place the valve in the closed position.
3. Place the tank drain valve (D) in the open position.

4. After tank is empty, place the tank drain valve in the closed position.

5. **Remove fluid from the front line valve, if equipped:**

- a. Place the tank inlet valve and fertilizer pump valve in the closed position. Place the front line valve in the closed position.
- b. Remove the front connection valve from the implement frame.
- c. Lower or droop the front connection valve and hose into a container for catching excess fluid.
- d. Place the front line valve in the open position.
- e. Remove the cover from the front connection valve.
- f. Place the front connection valve in the open position, allowing fluid to empty out of the front fill hose into the container.
- g. After the front fill hose is empty, place the front connection valve and the front line valve in the closed position.
- h. Install the cover onto the front connection valve.
- i. Install the front connection valve on the implement frame.

6. **Remove fluid from the front fill hose without a front line valve:**

- a. Place the tank inlet valve, fertilizer pump valve, and the front connection valve in the closed position.
- b. Remove the front connection valve from the implement frame.
- c. Lower or droop the front connection valve and hose into a container for catching excess fluid.
- d. Place the tank inlet valve in the open position.
- e. Remove the cover from the front connection valve.
- f. Place the front connection valve in the open position, allowing fluid to empty out of the front fill hose into the container.
- g. After the front fill hose is empty, place the front connection valve and the tank inlet valve in the closed position.

- h. Install the cover onto the front connection valve.

- i. Install the front connection valve on the implement frame.

7. **Remove fluid from the rear fill hose:**

Place the tank inlet valve, fertilizer pump valve, and the front connection valve in the closed position. If equipped with the front line valve, place the valve in the closed position.

8. To catch excess fluid, place a container under the strainer at the rear of the system.
9. To drain fluid from the rear half of the fertilizer transfer system, remove the strainer plug.
10. Install the strainer plug on the fertilizer system.

WP29706,0000ED5-19-17DEC20

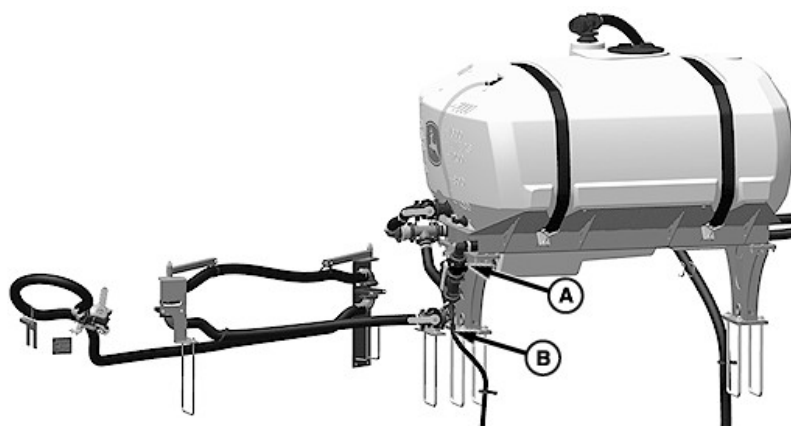
Rinse ExactRate™ Fertilizer Transfer System

The liquid fertilizer must be rinsed out of the ExactRate™ fertilizer transfer system before placing the implement in storage or switching chemicals.

- To clean out the fill hoses, use plenty of water and the same steps for filling the liquid fertilizer tank. (See Fill Liquid Fertilizer Tanks from Tractor or Fill Liquid Fertilizer Tanks from Rear of Implement.)
- To clean out the pump system, fill the fertilizer tank with water and use the same steps for rinsing the ExactRate™ pump system on the implement. (See Rinse System.)
- Once the ExactRate™ fertilizer transfer system is rinsed, use the same steps when emptying the fertilizer tanks to drain the remaining water out of the ExactRate™ fertilizer transfer system. (See Drain ExactRate™ Fertilizer Transfer System.)
- Ensure that all the water is drained and the lines are empty. Leave all the valves in the open position when the implement is being stored at the end of the planting season.
- Do not completely drain the ExactRate™ fertilizer pump system during the draining process of the ExactRate™ fertilizer transfer system. The ExactRate™ fertilizer pump should remain primed at all times.

WP29706,0000EF2-19-17DEC20

Ready System to Apply Fertilizer



A108851—UN—02DEC20

A—Fertilizer Pump Valve

Once the planter fertilizer tank has been filled, the tank is ready to apply fertilizer. By opening the fertilizer pump valve, liquid fertilizer travels from the fertilizer tank to the fertilizer pump and distribution system on the rear of the implement.

B—Tank Drain Valve

1. Open the fertilizer pump valve (A).
2. Ensure that the tank drain valve (B) is closed.
3. Prime the fertilizer pump with liquid fertilizer from the fertilizer tank. (See Prime and Start the ExactRate™ Pump.)

WP29706,0000EF3-19-16DEC20

Liquid Fertilizer Rate Charts—Non-Injection

How to Use Liquid Fertilizer Rate Charts

IMPORTANT: A field check must be done to verify the application rate (See Check Fertilizer Rates).

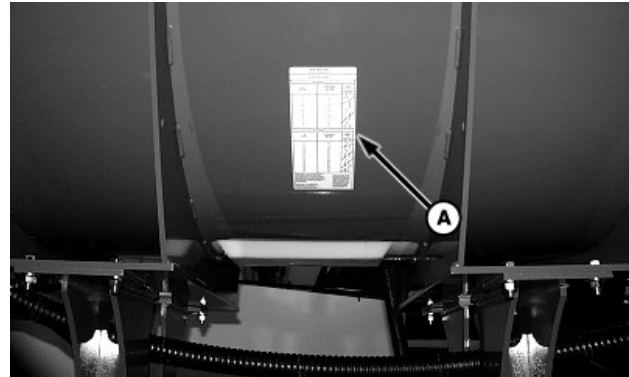
This system is **NOT** recommended for use with suspension fertilizers.

NOTE: 1.2 mm yellow orifices and 1.7 mm black orifices are included with this system from the factory. For customers wanting to apply higher or lower application rates, two additional orifice sizes (0.7 mm green and 2.5 mm gray) are available through Service Parts.

1. Refer to the rate chart for the fertilizer opener installed on the planter and select the approximate application rate desired for the row spacing being planted.
2. The pump ranges are given at top of the rate chart (table) for the liquid fertilizer application.
3. Set the range of the pump drive.
4. Other information contained in the chart is the pump setting, in-line orifices sizes, nozzle sizes, and estimated travel speeds during application.
5. Adjust the pump to the pump setting number.
6. Install the recommended in-line orifice or nozzle (shown on the rate chart).

OUO6064,0000610-19-25APR18

Utilize the in-line orifice for the non-injection openers. The orifice is inserted into the check valve then into the fittings described in the graphic. To achieve the desired application rate, use the rate charts of liquid fertilizer for non-injection openers.



A50571—UN—07OCT02

A—Chart

The size recommendation chart (A) for the in-line orifice is affected by many factors including the travel speed, ambient temperature, and product used. The objective is to keep the system pressure between 103—621 kPa (1.0—6.2 bar) (15—90 psi). **Do not exceed 689 kPa (6.9 bar) (100 psi).**

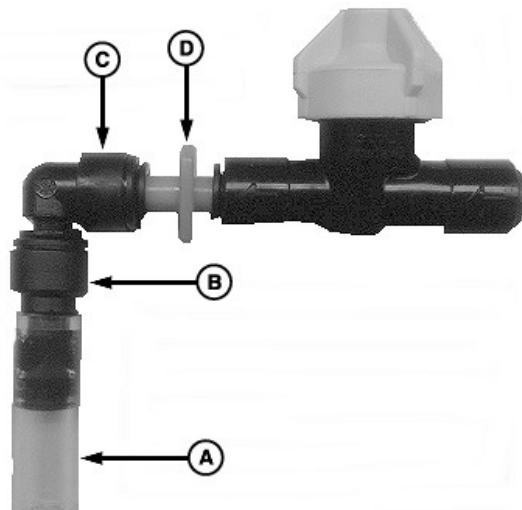
The charts are optimized for ground speeds of 8—11 km/h (5—7 mph) and not recommended for speeds over 11 km/h (7 mph).

NOTE: To change application rate (GPA), change pump setting.

NOTE: To change system pressure, change in-line orifice size and/or change travel speed.

WP29706,0000359-19-24APR18

Liquid Fertilizer Rate Charts for Non-Injection Openers (Frame, Unit Mounted, and In-Furrow Placement)



A74057—UN—19JAN12

- A—**3/8 in Hose
B—10 mm Stem to 8 mm Tube Fitting
C—5/16 in Stem to 5/16 in Tube, 90 Degree Fitting
D—Orifice

76 cm (30 in) Spacing 12 Row and 16 Row

Liquid Fertilizer Application Rate					
76 cm (30 in) Row Spacing					
Low Range			High Range		
Pump Setting	Approximate Rate	In-Line Orifice	Pump Setting	Approximate Rate	In-Line Orifice
Value	L/ha (gal/acre)	Size and Color	Value	L/ha (gal/acre)	Size and Color
3.0	22.4 (2.4)	0.70 Green	2.0	73.9 (7.9)	1.2 Yellow
3.5	26.2 (2.8)		2.5	90.7 (9.7)	
4.0	29.9 (3.2)		3.0	108.5 (11.6)	1.7 Black
4.5	33.7 (3.6)		3.5	125.3 (13.4)	
5.0	37.4 (4.0)		4.0	143.1 (15.3)	
5.5	41.2 (4.4)	1.2 Yellow	4.5	160.0 (17.1)	2.5 Gray
6.0	44.0 (4.7)		5.0	177.7 (19.0)	
6.5	47.7 (5.1)		5.5	195.5 (20.9)	
7.0	51.4 (5.5)		6.0	212.3 (22.7)	
7.5	55.2 (5.9)		6.5	230.1 (24.6)	
8.0	58.9 (6.3)		7.0	246.9 (26.4)	
8.5	62.7 (6.7)		7.5	264.7 (28.3)	
9.0	66.4 (7.1)		8.0	282.5 (30.2)	
9.5	70.2 (7.5)		8.5	299.3 (32.0)	
10.0	73.9 (7.9)		9.0	317.1 (33.9)	
			9.5	333.9 (35.7)	
			10.0	351.7 (37.6)	

Many factors affect the orifice size chart including ambient temperature, travel speed, wheel slippage, and type of fertilizer. Use this chart as a guide (See How to Use Liquid Fertilizer Rate Charts).
The charts are optimized for ground speeds of 8—11 km/h (5—7 mph) and not recommended for speeds over 11 km/h (7 mph).

To verify the rate, perform a field check (See Check the Fertilizer Rates).

76 cm (30 in) Spacing 24 Row

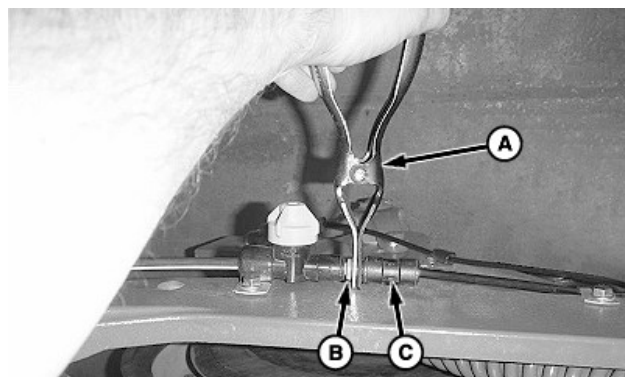
Liquid Fertilizer Application Rate					
76 cm (30 in) Row Spacing					
Low Range			High Range		
Pump Setting	Approximate Rate	In-Line Orifice	Pump Setting	Approximate Rate	In-Line Orifice
Value	L/ha (gal/acre)	Size and Color	Value	L/ha (gal/acre)	Size and Color
2.0	29.9 (3.2)	0.70 Green	2.0	48.6 (5.2)	1.2 Yellow
2.5	37.4 (4.0)		2.5	59.9 (6.4)	
3.0	45.8 (4.9)		3.0	72.0 (7.7)	
3.5	53.3 (5.7)		3.5	84.2 (9.0)	
4.0	60.8 (6.5)		4.0	96.3 (10.3)	
4.5	68.3 (7.3)	1.2 Yellow	4.5	108.5 (11.6)	1.7 Black
5.0	75.8 (8.1)		5.0	120.7 (12.9)	
5.5	83.2 (8.9)		5.5	132.8 (14.2)	
6.0	90.7 (9.7)		6.0	145.0 (15.5)	
6.5	98.2 (10.5)		6.5	157.1 (16.8)	
7.0	105.7 (11.3)		7.0	169.3 (18.1)	
7.5	113.2 (12.1)		7.5	180.5 (19.3)	
8.0	120.7 (12.9)	1.7 Black	8.0	192.7 (20.6)	2.5 Gray
8.5	128.1 (13.7)		8.5	204.9 (21.9)	
9.0	136.6 (14.6)		9.0	217.0 (23.2)	
9.5	144.1 (15.4)		9.5	229.2 (24.5)	
10.0	151.5 (16.2)		10.0	241.3 (25.8)	
10.5	159.0 (17.0)		10.5	253.5 (27.1)	
11.0	166.5 (17.8)		11.0	265.7 (28.4)	
11.5	174.0 (18.6)		11.5	277.8 (29.7)	
12.0	181.5 (19.4)		12.0	290.0 (31.0)	

Many factors affect the orifice size chart including ambient temperature, travel speed, wheel slippage, and type of fertilizer. Use this chart as a guide (See How to Use Liquid Fertilizer Rate Charts).
The charts are optimized for ground speeds of 8—11 km/h (5—7 mph) and not recommended for speeds over 11 km/h (7 mph).
To verify the rate, perform a field check (See Check the Fertilizer Rates).

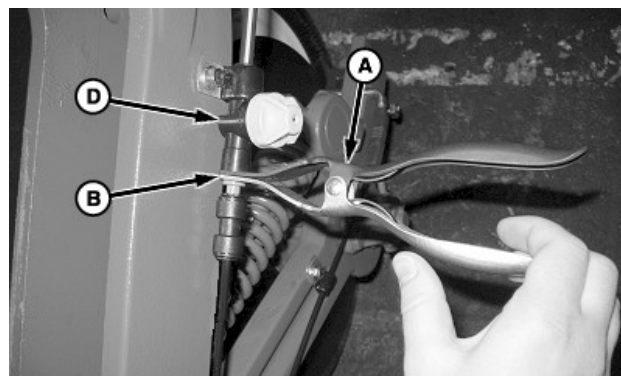
WP29706,0000CD8-19-13JUN18

Change the In-Line Orifices for Liquid Fertilizer

Remove In-Line Orifice



A72734—UN—22SEP11



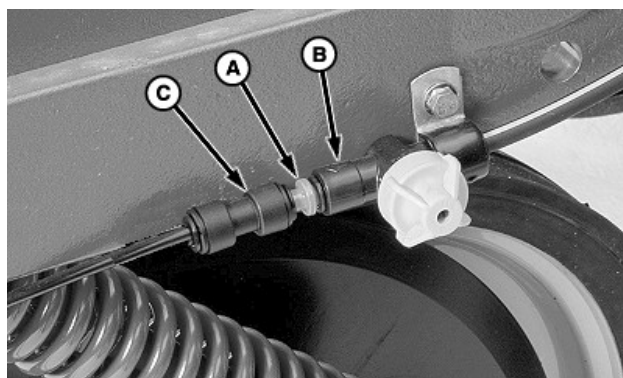
A72735—UN—22SEP11

- A—Special Pliers
- B—In-Line Orifice
- C—Coupler
- D—Check Valve

NOTE: If needed, the special pliers (Lisle 47900 Hose Remover Pliers), are purchased through the Lisle corporation.

1. Insert the special pliers (A), as far as possible, between the in-line orifice (B) and the coupler (C). Squeeze the pliers until the coupler disengages.
2. Insert the special pliers (A), as far as possible, between the in-line orifice (B) and the check valve (D). Squeeze the pliers until the in-line orifice disengages from the check valve.
3. Repeat on all fertilizer openers.

Install In-Line Orifice



A72736—UN—22SEP11

A—In-Line Orifice
B—Check Valve
C—Coupler

NOTE: Consult the fertilizer rate charts for the correct in-line orifice size at the target application rate.

1. Push the in-line orifice (A) into the check valve (B). Pull on the in-line orifice to verify that it is locked into the check valve.
2. Push the coupler (C) onto the in-line orifice (A). Pull on the coupler to verify that it is locked onto the in-line orifice.
3. Repeat on all fertilizer openers.

WP29706,000035C-19-26JUL18

Check Fertilizer Rates

IMPORTANT: Verify that the liquid fertilizer system is working as designed. Perform a rate check on all the rows of the planter simultaneously. Checking only one row is not a good indication of the fertilizer system performance.

Liters Per Hectare Conversion Chart	
Row Spacing	Conversion Factor
51 cm	0.081
56 cm	0.074

Liters Per Hectare Conversion Chart	
Row Spacing	Conversion Factor
76 cm	0.054
91 cm	0.045
97 cm	0.043
102 cm	0.041

Gallons Per Acre Conversion Chart	
Row Spacing	Conversion Factor
20 in	0.255
22 in	0.232
30 in	0.170
36 in	0.142
38 in	0.134
40 in	0.128

1. Calculate the size of the collection container is required.

Size of the container required = L/ha (gpa) expected ÷ conversion factor.

Metric example: 45 L/ha is the expected application rate. Conversion factor for 76 cm (30 in) row spacing is 0.054.

$$45 \div 0.054 = 833 \text{ mL}$$

Use a container capable of easily collecting at least 833 mL.

Standard example: 18 gpa is the expected application rate. Conversion factor for 76 cm (30 in) row spacing is 0.170.

$$18 \div 0.170 = 106 \text{ oz}$$

Use a container capable of easily collecting at least 106 oz.

2. Tie a container to the planter frame next to every fertilizer opener. Remove the delivery hoses from the openers and insert the hoses into the containers.
3. Drive the planter forward 244 m (800 ft) at the planting speed.
4. Measure the number of mL (oz) in each container.
5. Calculate the actual application rate for each opener.

Measured mL (oz) x conversion factor = actual rate

Metric example: 789 mL were captured in the container. Conversion factor for 76 cm (30 in) row spacing is 0.054.

$$789 \times 0.054 = 42.69 \text{ L/hectare (Actual Application Rate)}$$

Standard example: 118 oz were captured in the container. Conversion factor for 76 cm (30 in) row spacing is 0.170.

$118 \times 0.170 = 20 \text{ gpa}$ (Actual Application Rate)

WP29706,000035F-19-25APR18

Battery Safety

⚠ CAUTION: Help prevent serious injury from an electrical shock. This power generation system is equipped with a 56 V electrical system which has a high-voltage electrical current. Always use extreme caution when servicing the battery set in this machine.

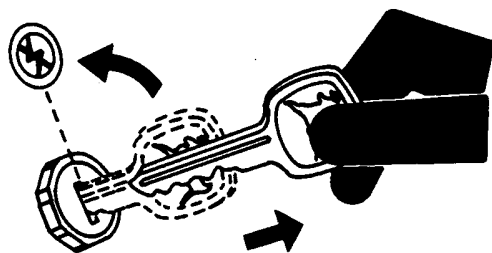
- Explosive mixtures of hydrogen gas are present within battery cells. **DO NOT** service or charge vehicle batteries in an area where open flames, sparks, cigarettes, or any other source of combustion are present.
- Only trained technicians or owners that have knowledge and experience with electrical maintenance must repair or service this vehicle.
- Avoid a short circuit or spark that results in an explosion, use extreme caution when using tools, wires, or metal objects near batteries. To prevent shorting out of batteries, wrap metal tools with vinyl tape.
- Remove all jewelry (watches, rings, bracelets) before servicing the electrical system or batteries.
- If it is necessary to operate or charge the vehicle in an enclosed area, verify that the work area is ventilated well.
- Always wear approved eye protection while servicing the vehicle. Wear a full face shield, rubber gloves, and rubber apron when servicing the batteries.
- Replace worn, damaged, or broken parts immediately.
- **DO NOT** touch battery terminals, connectors, or wires that are not insulated.
- **ALWAYS** refer to the Battery Connection diagram before and during battery installation and while making the electrical connections.
- Battery connections are both marked and color coded. **ALWAYS** verify that the **RED** boots cover the **POSITIVE (+)** battery terminals and wires. **ALWAYS** verify that the **BLACK** boots cover the **NEGATIVE (-)** battery terminals and wires. Avoid a short circuit or sparks that result in an explosion, by connecting battery wires properly.
- **DO NOT** install the primary battery **POSITIVE** cable onto the initial battery positive terminal until all other battery cable connections have been completed.
- Battery electrolyte is poisonous and causes severe burns. Avoid contact with skin, eyes, or clothing.

ANTIDOTES:

- **EXTERNAL:** Flush with water for at least 20 minutes. Call a physician immediately.
- **INTERNAL:** Drink large quantities of milk or water. Follow with Magnesium Hydroxide Mixture "Milk of Magnesia" or vegetable oil. Call a physician immediately.
- **EYES:** Flush with water for at least 20 minutes and get prompt medical attention.

WP29706,000074F-19-30SEP15

Access and Inspect the Batteries



TS230—UN—24MAY89



A82413—UN—22APR14

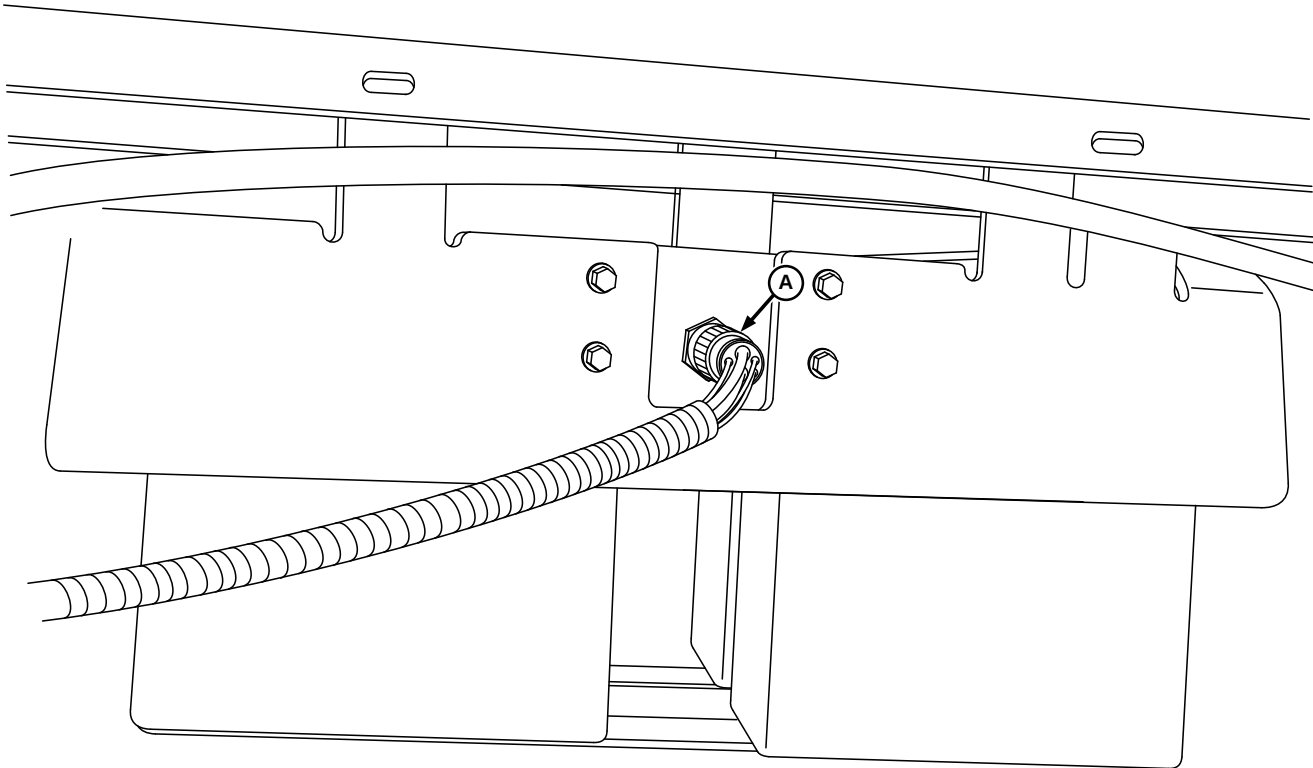
Help prevent serious injury from an electrical shock. The planter is equipped with a 56 V electrical system which has a high-voltage electrical current. Always use extreme caution when servicing this planter.

Avoid a short circuit or spark that results in an explosion. Use extreme caution when using tools, wires, or metal objects near batteries. To prevent shorting out the batteries, wrap the metal tools with vinyl tape.

Remove all jewelry (watches, rings, bracelets, and similar items) before servicing the electrical system or batteries.

A visual inspection of the planter batteries is intended to find and correct potential problems before serious safety and operational concerns occur. A battery is a perishable item that requires periodic maintenance. Life of a battery is extended with a reasonable amount of care.

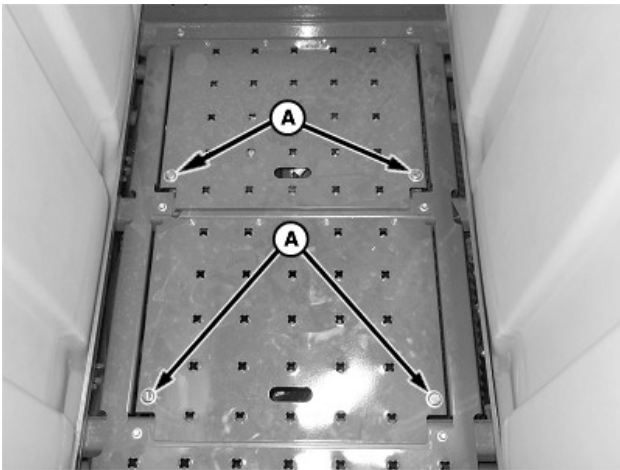
1. Park the planter safely. (See Parking Safely in the Safety section.)
2. Engage the park brake, shut off the engine and remove the key.



A83741—UN—30SEP14

A—Connector

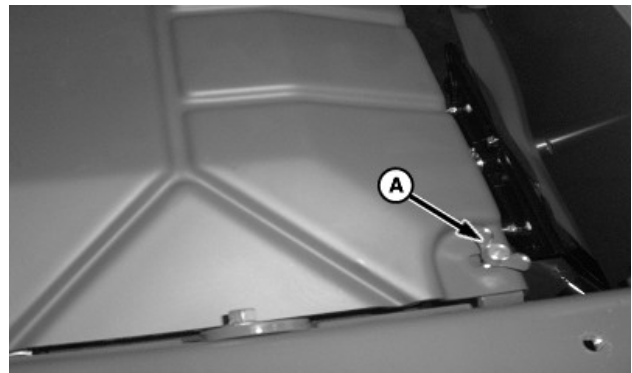
3. Remove the harness connector (A) from the outside of the battery container.



A82465—UN—01MAY14

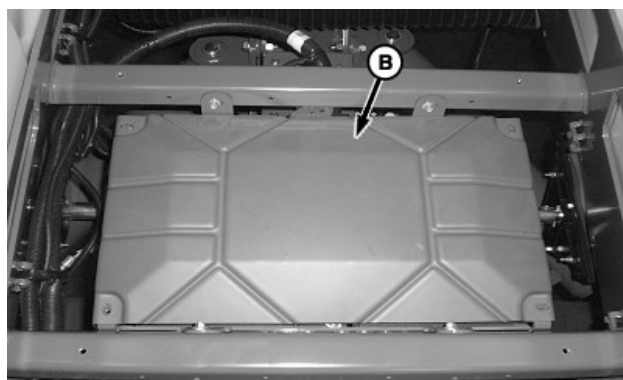
A—Latches

4. To open the CCS™ platform door, turn the latches (A). To expose the battery cover, lift the door.



A80310—UN—04MAR14

CCS is a trademark of Deere & Company



A80311—UN—04MAR14

A—Wing Screws
B—Battery Cover

5. Remove and retain the wing screws (A) from the battery cover (B).
6. Remove and retain the battery cover.



A83745—UN—26SEP14

IMPORTANT: Avoid system malfunctions, planter damages, and fires. Any damage to the battery case or terminals are possible signs that the terminal connections are loose. (See Cable Installation and Terminal Torque.)

7. Visually inspect all batteries for the following:

- Discolored or melted terminal boots
- Burn spots
- Dirt or corrosion on or around the battery terminals
- Damage to the battery case or terminals
- Leakage of the electrolyte
- Broken or frayed cables

To determine if the batteries need charging after a visual inspection, check the voltage levels on each battery separately. (See Check, Charge, or Replace the Batteries.)

8. After a visual inspection, charging, or repairs are complete, perform the following:

- Install the battery cover and wing screws.
- Close the CCS™ platform door and turn the latches back to the original positions on the planter.
- Install the previously removed harness connectors on the outside of the battery container.

WP29706,0000752-19-23APR18

Check, Charge, or Replace the Batteries



A82413—UN—22APR14

CAUTION: Help prevent serious injury from an electrical shock. The planter is equipped with a 56 V electrical system which has a high-voltage electrical current. Always use extreme caution when servicing this planter.

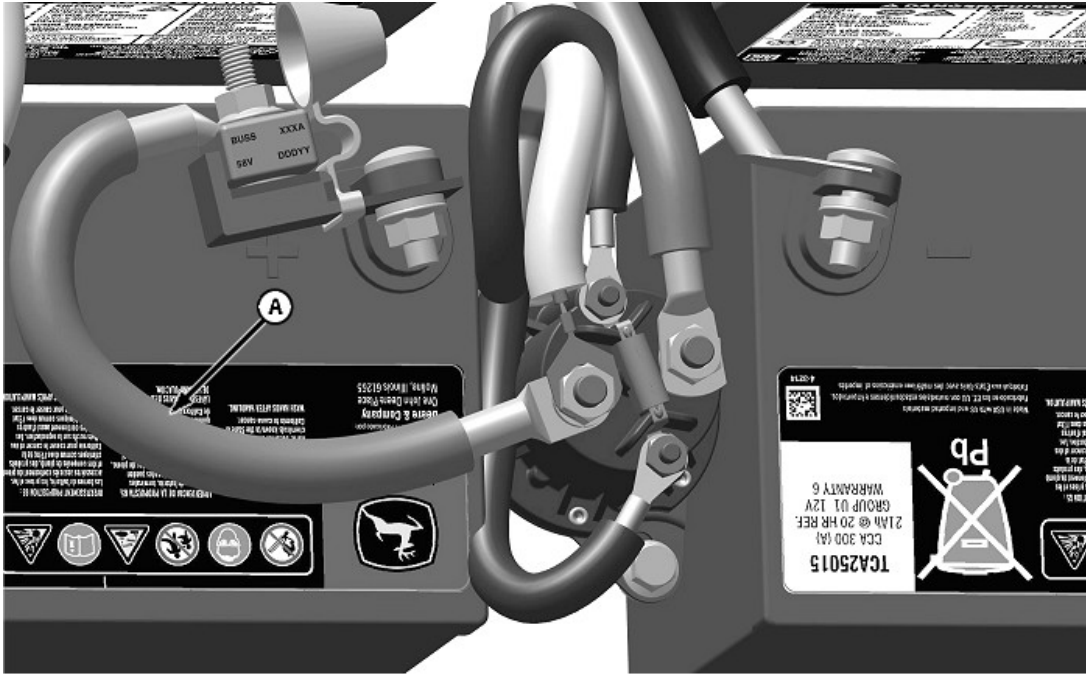
Avoid a short circuit or spark that results in an explosion. Use extreme caution when using tools, wires, or metal objects near the batteries. To prevent shorting out the batteries, wrap the metal tools with vinyl tape for protection.

Remove all jewelry (watches, rings, bracelets, and similar items) before servicing the electrical system or batteries.

IMPORTANT: Charge the batteries when the planter is removed from storage at the beginning of the season. If the battery bank voltage is below 48 V but above 10 V, the electric power generation (EPG) is used to charge the batteries. See your SeedStar™ Application Help or SeedStar™ Operator's Manual for additional information about operating the EPG. If the battery bank voltage is below 10 V, complete the following procedure to charge the batteries individually.

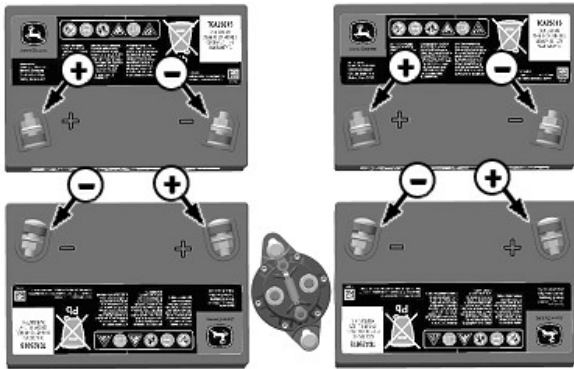
Batteries also need replacement after long-term use. (See Clean or Replace the Batteries.)

1. Access the battery tray. (See Access and Inspect the Batteries.)



A100128—UN—29MAR18

A—Battery Cable with Fuse



A100129—UN—06APR18

Battery Arrangement

IMPORTANT: This battery tray is wired as a 48 V electrical system until the cables are disconnected. Cables must be removed so that each battery is separated for an individual check or charge at a 12 V level.

2. Remove the cable with the fuse (A) first.
3. Remove the remaining battery cables.
4. After each battery is separated from the system, check the voltage level on each battery.
 - If the voltage is 11 to 12 V, the charge is OK.
 - If the voltage is 0 to 10 V, charge the battery.
 - If a battery does not accept a charge, replace it.
5. Connect the charger cables to the battery terminals on one battery at a time while charging.
6. If the batteries are removed, verify the arrangement when they are replaced.

CAUTION: Avoid an electric shock from completing the circuit incorrectly. Attach the battery cable with fuse (A) last. Always use extreme caution when servicing this planter.

IMPORTANT: Avoid damage. Tighten the terminal connections correctly.

7. Install and tighten the cables. (See Cable Installation and Terminal Torque.)
8. Install the battery cover and the wing screws.
9. Close the CCS™ platform door and turn the latches back to the original positions on the planter.
10. Install the previously removed harness connectors on the outside of the battery container.

WP29706,000074E-19-23APR18

CCS is a trademark of Deere & Company

Clean the Batteries



A82413—UN—22APR14

CAUTION: Help prevent serious injury from an electrical shock. The planter is equipped with a 56 V electrical system which has a high-voltage electrical current. Always use extreme caution when servicing this planter.

Avoid a short circuit or spark that results in an explosion. Use extreme caution when using tools, wires, or metal objects near batteries. To prevent shorting out the batteries, wrap the metal tools with vinyl tape.

Remove all jewelry (watches, rings, bracelets, and similar items) before servicing the electrical system or batteries. Do not touch the battery terminals, connectors, or wires that are not insulated.

Cleaning is a key element in the battery maintenance, for both safety and performance. Regular cleaning reduces the dirt and corrosion from forming. Cleaning reduces the chance of acid contact and provides efficient electrical connections. Lack of cleaning can cause the following problems:

- Reduced reliability and performance
- Shortened overall battery life
- Increased corrosion
- Possibility of a fire

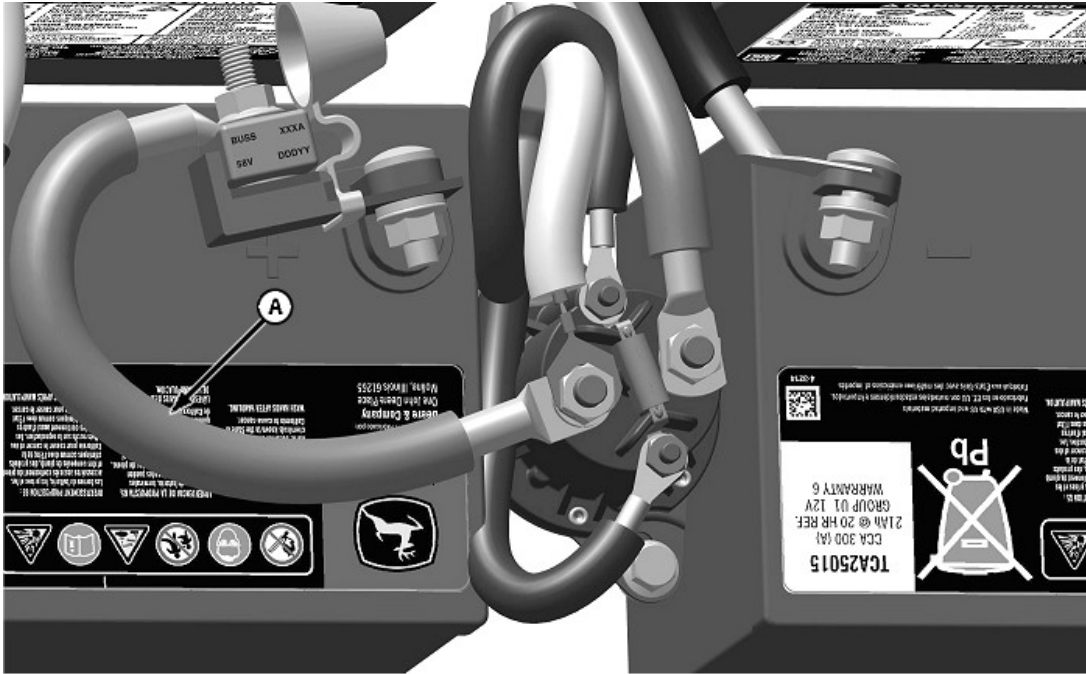


A83745—UN—26SEP14

1. Access the battery tray. (See Access and Inspect the Batteries.)
2. Clean all the moisture and corrosion in the battery compartment with a solution of one-part baking soda to five parts water. Rinse with clean water and allow to dry.

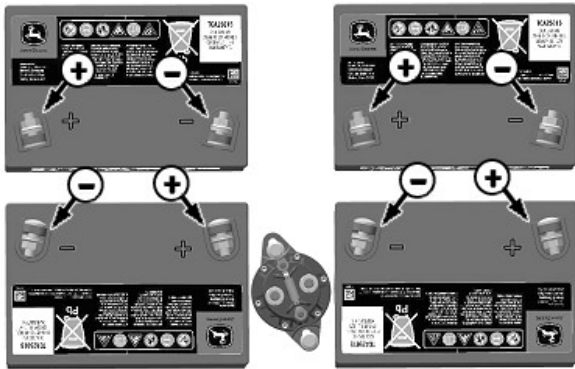
IMPORTANT: Avoid planter damage and component malfunction. Do not direct high-pressure water at the electrical components or connectors. Reduce the water pressure if pressurized spray is used to clean the batteries and surrounding areas.

3. Wash the batteries, battery terminals, and battery compartment. If the battery corrosion is excessive, continue with the following steps.



A100128—UN—29MAR18

A—Battery Cable with Fuse



A100129—UN—06APR18

Battery Arrangement

4. Remove the cable with the fuse (A) first.
5. Remove the remaining battery cables.
6. Remove the corrosion from the battery terminals and cable ends.
 - Clean the battery terminals and cable ends with a solution of one-part baking soda to five parts water. Use a wire brush if necessary.
 - Rinse all the parts with clean water and allow to dry.
7. Check the battery charge and then install the cables. (See Check, Charge, or Replace the Batteries.) (See Cable Installation and Terminal Torque.)

WP29706,0000755-19-23APR18

Cable Installation and Terminal Torque



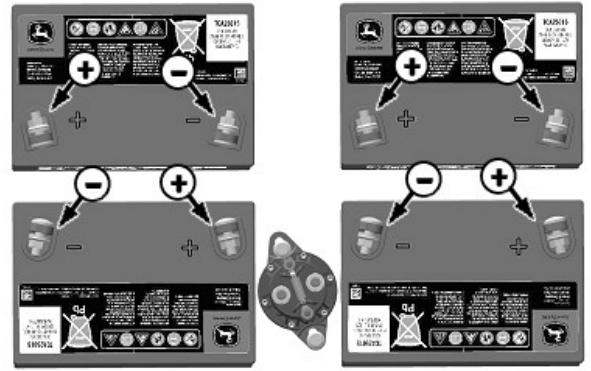
A82413—UN—22APR14

CAUTION: Help prevent serious injury from an electrical shock. This planter is equipped with a 56 V electrical system which has high-voltage electrical current. Always use extreme caution when servicing this planter.

Avoid a short circuit or spark that results in an explosion. Use extreme caution when using tools, wires, or metal objects near the batteries. To prevent shorting out the batteries, wrap the metal tools with vinyl tape.

Remove all jewelry (watches, rings, bracelets, and similar items) before servicing the electrical system or batteries.

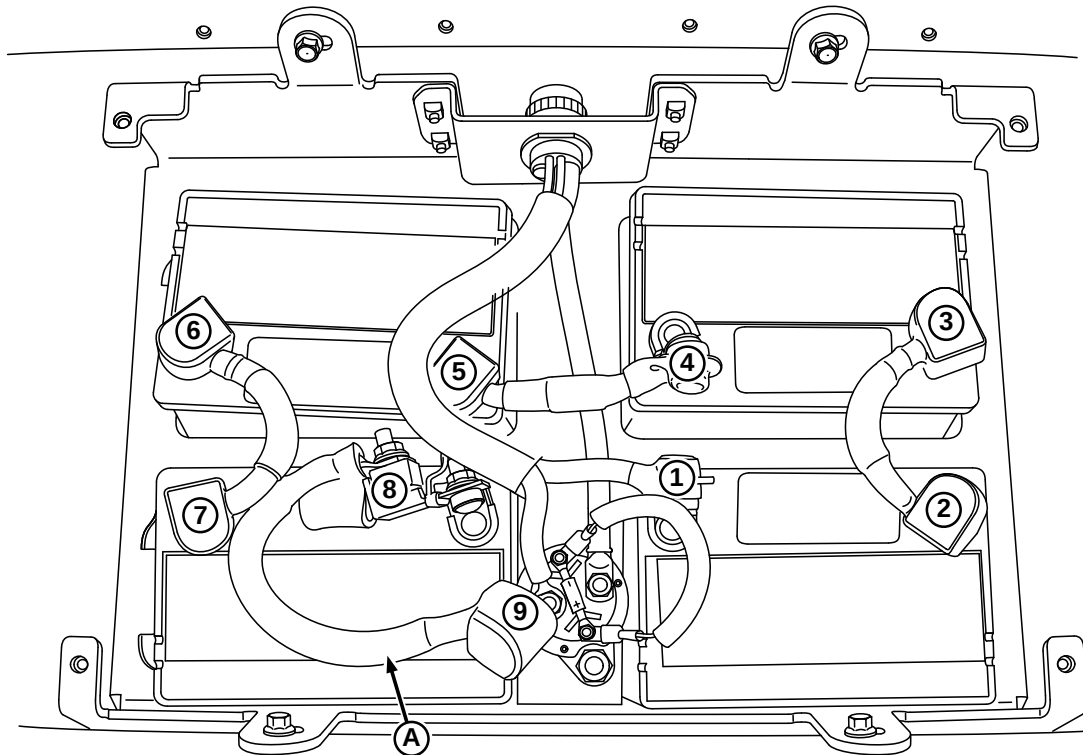
1. Clean the battery compartment, terminal connections, cable ends, and batteries (See Clean the Batteries).



A100129—UN—06APR18

Battery Arrangement

2. Verify the battery arrangement.



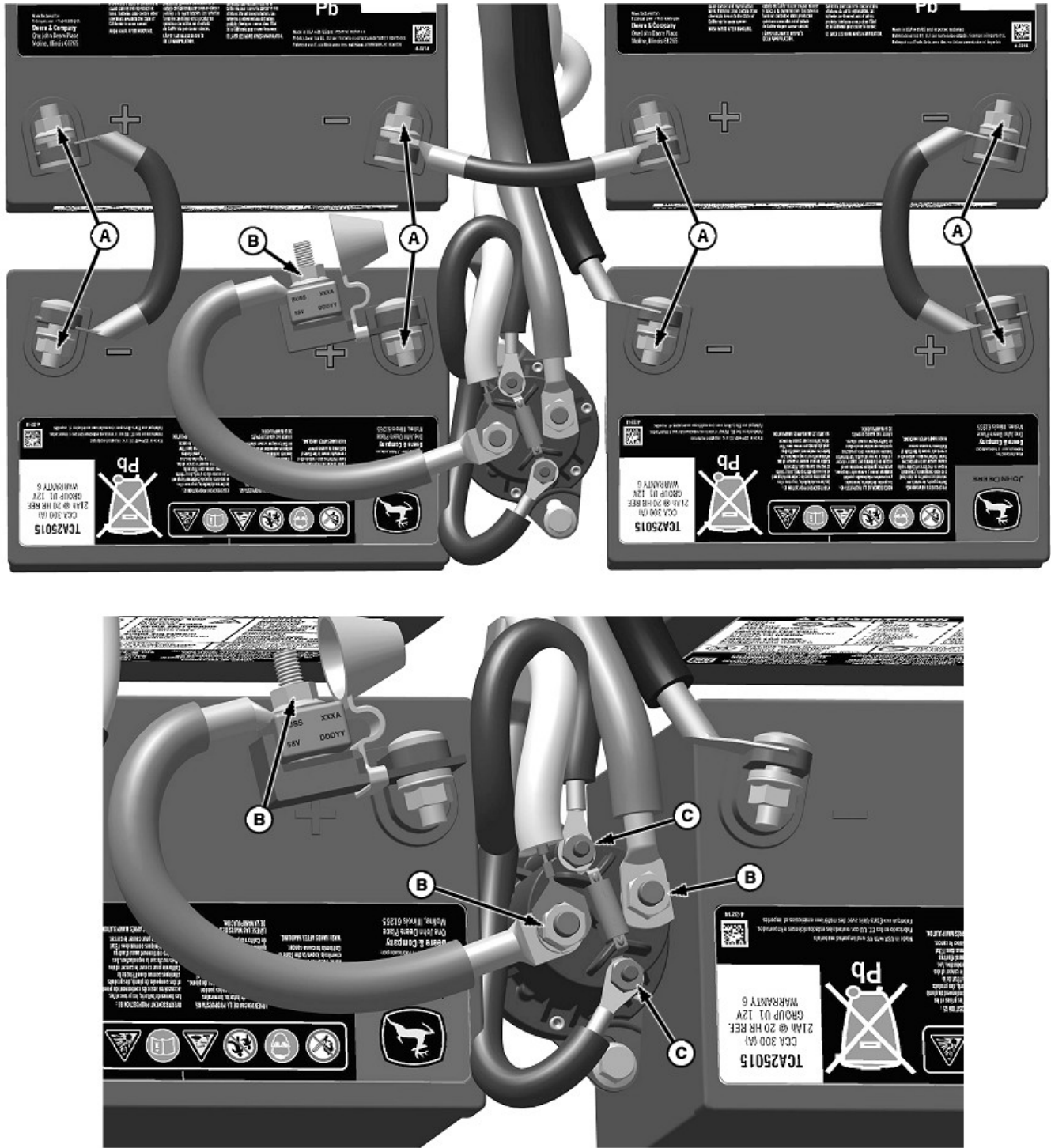
A83744—UN—30SEP14

Installation Sequence

A—Cable with Fuse

CAUTION: Avoid an electric shock from completing the circuit incorrectly. Attach the battery cable with fuse (A) last. Always use extreme caution when servicing this planter.

3. Attach the cable with the fuse (A) last.
4. Follow the cable connection sequence shown. Tighten the connections to the following specifications.



A100127—UN—29MAR18

A—Battery Terminals
B—Large Fuse and Coil Terminals

Battery Connections — Specification

Battery Terminals (A)—Dry

Torque. 5.6 N·m
 (50 lb·in)

Large Fuse and Coil Terminals

(B)—Dry Torque. 4 N·m
 (35 lb·in)

C—Small Coil Terminals

Small Coil Terminals (C)—Dry

Torque. 1.7 N·m
 (15 lb·in)

6. After tightening is complete, perform the following:

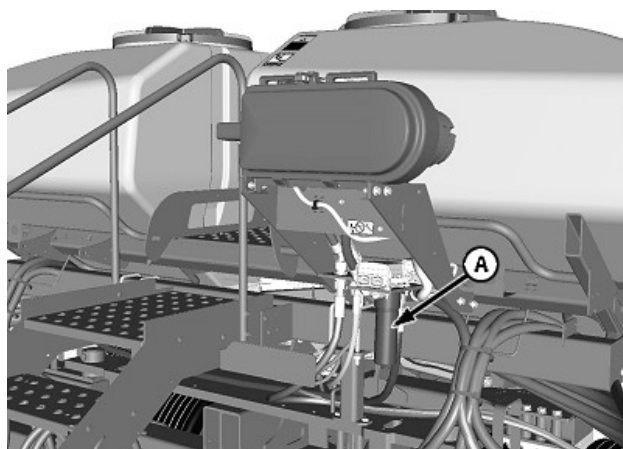
- Install the battery cover and wing screws.
- Close the CCS™ platform door and turn the

latches back to the original positions on the planter.

- Install the previously removed harness connectors on the outside of the battery container.

WP29706,0000753-19-12JUN18

Change the Hydraulic Filter on Implement Power Generation System



A—Filter Housing

A87851—UN—28SEP15

CAUTION: Avoid injury from hydraulic oil injection. Relieve the hydraulic pressure before servicing.

1. Before starting any service work on this filter, depressurize the hydraulic system (See Relieve the Hydraulic Pressure).
2. Turn off the tractor and disconnect the power beyond hoses from the tractor.
3. Remove the filter housing (A).
4. Replace the filter and install the housing. (See a John Deere dealer or qualified service provider for the AA83699 filter.)

OUC06074,0000ED8-19-23APR18

Zero the CCS™ Blower Pressure Gauge



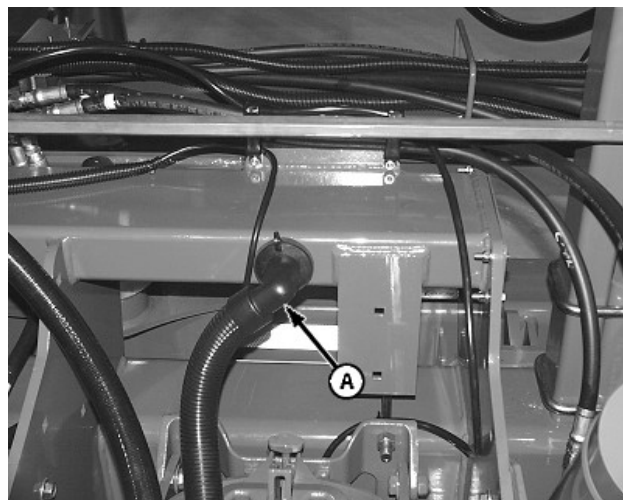
A51170—UN—18NOV02

A—Zero Adjusting Screw

1. Shut off the CCS™ blower.
2. With the gauge in a vertical position, disconnect the monitor hose to equalize the gauge with atmospheric pressure.
3. Use the zero adjusting screw (A) to set the gauge pointer exactly on the zero mark.
4. Connect the monitor hose.

OUC06064,00004DE-19-11JUN18

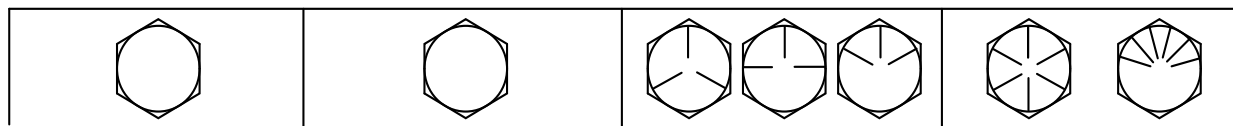
Vacuum Orifice Placement



A53591—UN—08JAN04

Specifications

Unified Inch Bolt and Screw Torque Values



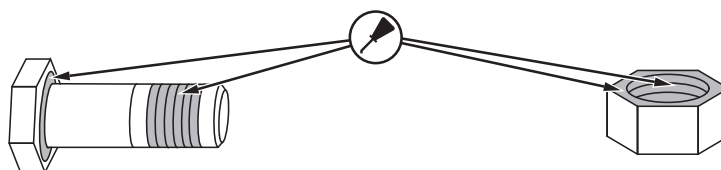
TS1671—UN—01MAY03

Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
													N·m	lb·ft	N·m	lb·ft
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
									N·m	lb·ft	N·m	lb·ft				
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
					N·m	lb·ft	N·m	lb·ft								
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
	N·m	lb·ft	N·m	lb·ft												
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



TS1741—UN—22MAY18

^aGrade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

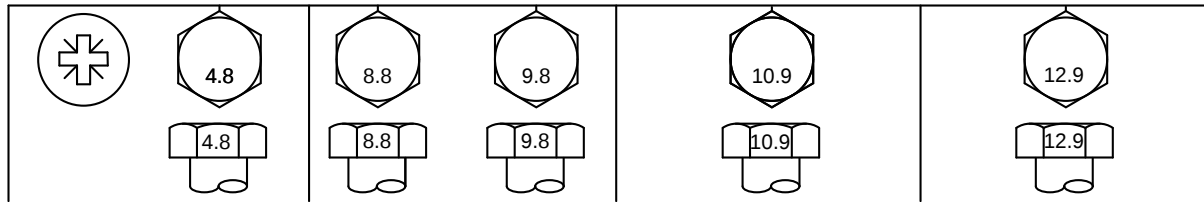
^bGrade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

^cHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^dHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ1-19-30MAY18

Metric Bolt and Screw Torque Values



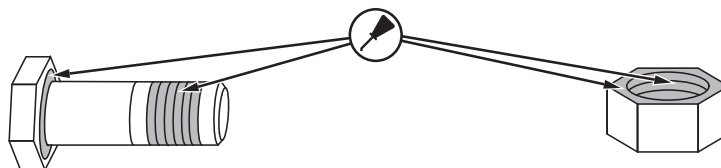
TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
	N·m	lb·ft														
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



TS1741—UN—22MAY18

^aHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^bHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2-19-30MAY18

Specifications

Specifications

NOTE: *Weights are with typical optional equipment.
Weights with other optional equipment vary.*

The maximum static vertical load occurs with the implement folded in road transport position and equipped with authorized attachments.

Maximum Static Vertical Load on Tractor Drawbar — Specification

12-Row—Weight.	2813 kg (6200 lb)
16-Row—Weight.	3993 kg (8800 lb)
24-Row—Weight.	6579 kg (14 500 lb)

Implement		Row Spacing cm (in)	Average Empty Weight kg (lb)
1775NT	12-Row	76 (30)	6305 (13 900)
1775NT	16-Row	76 (30)	10 206 (22 500)
1775NT	24-Row	76 (30)	12 587 (27 750)

Implement		Row Spacing cm (in)	Average Empty Weight with Track System kg (lb)
1775NT	12-Row	76 (30)	4005 (8830)
1775NT	16-Row	76 (30)	5185 (11 430)
1775NT	24-Row	76 (30)	7770 (17 130)

Implement	12-Row	16-Row	24-Row
Frame	Front Folding	Front Folding	Front Folding
Air System	Hydraulic Drive Horsepower Required: 4.5—10.4 kW (6—14 hp)	Hydraulic Drive Horsepower Required: 4.5—10.4 kW (6—14 hp)	Hydraulic Drive Horsepower Required: 4.5—10.4 kW (6—14 hp)
Planting Unit Types	Vacuum	Vacuum	Vacuum
Seed Openers	Tru-Vee™ Double Disk	Tru-Vee™ Double Disk	Tru-Vee™ Double Disk
Row Spacing	12-Row Narrow, 76 cm (30 in)	16-Row Narrow, 76 cm (30 in)	24-Row Narrow, 76 cm (30 in)
Liquid Chemical Tank	852 L (225 gal)		
Type of Lift	Wheel Modules with Hydraulic Cylinders	Wheel Modules with Hydraulic Cylinders	Wheel Modules with Rephasing Hydraulic System
Type of Drive	56 V Electric Motors	56 V Electric Motors	56 V Electric Motors
Tires	Contact Drive Tire: 16 x 6.50-8 4-Ply Frame Tires: VF245/70R19.5	Contact Drive Tire: 16 x 6.50-8 4-Ply Frame Tires: VF245/70R19.5	Contact Drive Tire: 16 x 6.50-8 4-Ply Frame Tires: VF295/75R22.5 Marker Tire: 18 x 8.5-8
Seed Hoppers	Mini-Hoppers CCS™ Bulk Tanks, Two 1762 L (50 bu)	Mini-Hoppers CCS™ Bulk Tanks, Two 2290 L (65 bu)	Mini-Hoppers CCS™ Bulk Tanks, Two 2290 L (65 bu)
Markers	Automatic Alternating Independently Controlled	Automatic Alternating Independently Controlled	Automatic Alternating Independently Controlled
Minimum Power Requirements	149 kW (200 hp)	201 kW (270 hp)	268 kW (360 hp)
Hydraulic Pump Required to Operate ExactEmerge™ Planter	60 gal/min	60 gal/min	60 gal/min
Tractor Standby Pressure	15 513 kPa (155 bar) (2250 psi)	15 513 kPa (155 bar) (2250 psi)	17 237 kPa (172 bar) (2500 psi)
Hydraulic System Working Pressure	20 684 kPa (207 bar) (3000 psi)	20 684 kPa (207 bar) (3000 psi)	20 684 kPa (207 bar) (3000 psi)
Hydraulic System Burst Pressure	82 737 kPa (827 bar) (12 000 psi)	82 737 kPa (827 bar) (12 000 psi)	82 737 kPa (827 bar) (12 000 psi)
Seed Monitor	SeedStar™	SeedStar™	SeedStar™

Specifications

Implement	12-Row	16-Row	24-Row
Specifications and design subject to change without notice.			

Tru-Vee is a trademark of Deere & Company
CCS is a trademark of Deere & Company
ExactEmerge is a trademark of Deere & Company
SeedStar is a trademark of Deere & Company

NOTE: Certain row unit attachments increase transport width.

WP29706,0000EE3-19-10MAY21

Dimensions

⚠ CAUTION: Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.

NOTE: Certain row unit attachments may increase transport width.

Unfolded				
Machine Position	Height	Width	Length (two-point)	Length (drawbar)
12 Row	3.2 m (10 ft 5 in)	9.9 m (32 ft 7 in)	6 m (19 ft 8 in)	Not applicable
16 Row	3.2 m (10 ft 5 in)	13.2 m (43 ft 4 in)	6.3 m (20 ft 8 in)	5.3 m (17 ft 3 in)
24 Row	3.2 m (10 ft 5 in)	18.7 m (61 ft 3 in)	8.6 m (28 ft 3 in)	9.7 m (31 ft 8 in)

Folded				
Machine Position	Height	Width	Length (two-point)	Length (drawbar)
12 Row	3.5 m (11 ft 6 in)	3.45 m (11 ft 4 in) with short parallel arms 3.58 m (11 ft 9 in) with long parallel arms	9 m (29 ft 5 in)	Not applicable
16 Row	3.81 m (12 ft 6 in)	3.7 m (12 ft) with short parallel arms 4.0 m (13 ft 2 in) with long parallel arms	9.3 m (30 ft 5 in)	11 m (36 ft)
24 Row	4.2 m (13 ft 8 in)	3.7 m (12 ft) with short parallel arms 4.0 m (13 ft 3 in) with long parallel arms	13.1 m (42 ft 11 in)	13.7 m (44 ft 9 in)

OUO6435,0001F90-19-02JUL20

Liquid Fertilizer Specifications

Operating Specifications	
Nozzles (Single-Disk Injection Opener Only)	00015 (1.5) 00025 (2.5) 0005 (5) 0008 (8) 0012 (12)
In-Line Orifices (Non-Injection Style Openers that is, Frame Mounted Fertilizer Opener)	Green (0.70) Yellow (1.2) Black (1.7) Gray (2.5)
Operating Speed	8—11 km/h (5—7 mph)
Operating System Pressure	103—621 kPa (1.0—6.2 bar) (15—90 psi)
Fertilizer Tank Fill Opening	QUICK-FILL™
Fertilizer Tank Strainer	80 Mesh
Specifications and design subject to change without notice.	

Tractor Hydraulic System Requirements

Operation of the hydraulically driven motors requires tractor to have either a load sensing hydraulic system or a closed center hydraulic system with flow control. These types of hydraulic systems usually have and do the following:

- Large oil reservoirs.
- Increased oil cooling capacity.
- Consistently deliver oil flow to maintain CCS blower speed at the selected RPMs without surging.

Tractors with open center hydraulic systems are not recommended for the following reasons:

- No means to control volume of oil flow.
- Excessive oil temperature.
- Decreased oil flow to blower motor during operation of other tractor control valves.
- Reduced oil flow to tractor power steering.

IMPORTANT: In addition to these requirements, tractor **MUST** be equipped with a low-pressure drain line connection for the blower motor case drain.

Sump pressure **MUST** be less than 172 kPa (1.72 bar) (25 psi), or blower motor damage occurs.

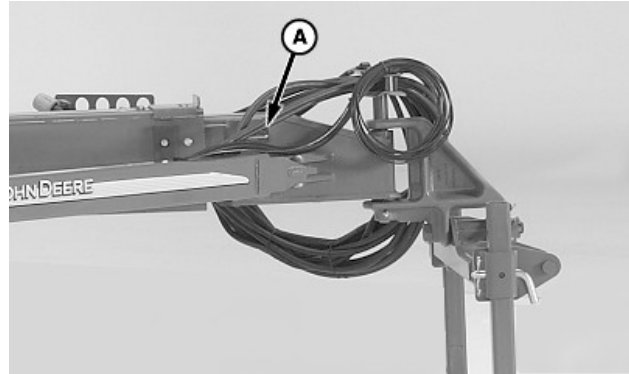
See your John Deere dealer for installation of a Low-Pressure Drain Line Kit, when tractor is not equipped.

NOTE: See Recommended Tractors and Tractor Hydraulic Compatibility for further information.

Make sure tractor hydraulic system meets all requirements.

OUO6435,0001F91-19-18FEB16

Record Serial Number

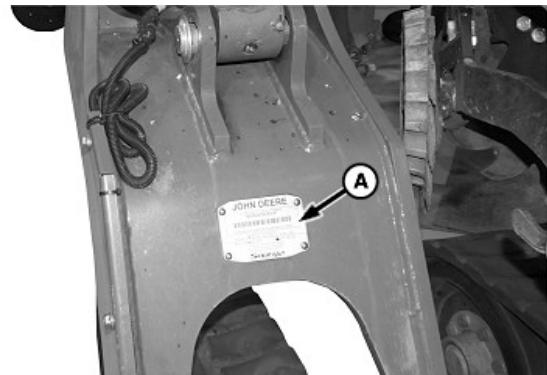


A78927—UN—21OCT13

A—Serial Number

The serial number (A) for the implement is located on the main frame. Record in the spaces provided.

Machine	
Serial Number	



A108038—UN—30SEP20

A—Serial Number

The serial number (A) for the track system is located on each of the mount assemblies. Record in the spaces provided.

Track System Mount #1	
Serial Number	
Track System Mount #2	
Serial Number	
Track System Mount #3	
Serial Number	
Track System Mount #4	