



DCY

Central Insecticide System

OPERATOR'S MANUAL Central Insecticide System OMA87233 Issue G8 (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.

John Deere Seeding Group
Printed in U.S.A.



OMA87233

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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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Safety

Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



DX,ALERT -19-29SEP98-1/1

T81389 -UN-07DEC88

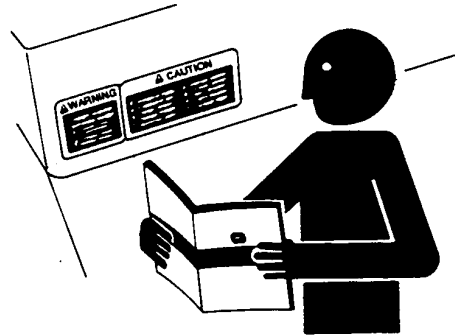
Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



DX,READ -19-03MAR93-1/1

TS201 -UN-23AUG88

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



DX,SIGNAL -19-03MAR93-1/1

TS187 -19-30SEP88

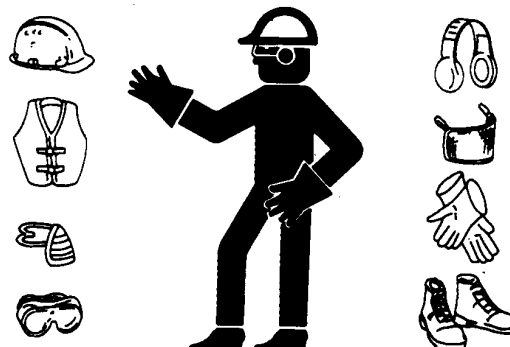
Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



TS220 -UN-23AUG88

DX,AIR -19-17FEB99-1/1

Live With Safety

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



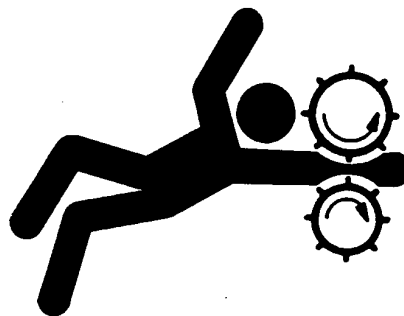
TS231 -19-07OCT88

DX,LIVE -19-25SEP92-1/1

Service Machines Safely

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



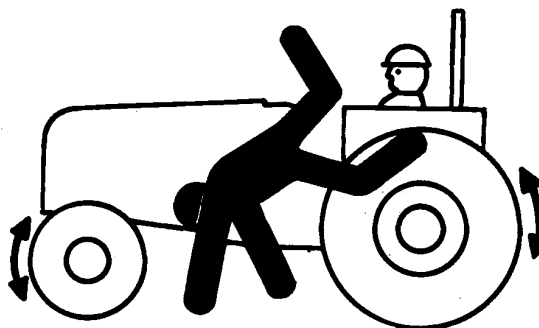
TS228 -UN-23AUG88

DX, LOOSE -19-04JUN90-1/1

Keep Riders Off Machine

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



TS290 -UN-23AUG88

DX, RIDER -19-03MAR93-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



TS218 -UN-23AUG88

DX,SERV -19-17FEB99-1/1

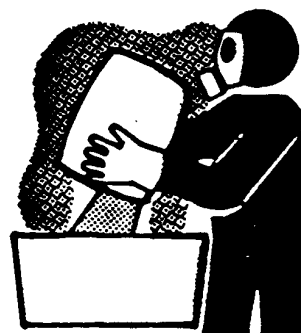
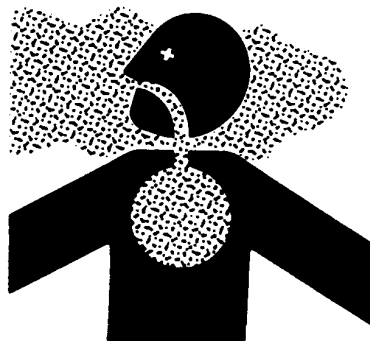
Handle Agricultural Chemicals Safely

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
 - Chemicals labeled '**Danger**': Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
 - Chemicals labeled '**Warning**': Less toxic. Generally require use of goggles, gloves, and skin protections.
 - Chemicals labeled '**Caution**': Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling spray or dusts.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area way from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.



A34471

TS220 -UN-23AUG88

A34471 -UN-11OCT88

Service and Operate Chemical Sprayers Safely

Chemicals used in agricultural sprayers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. (See 'Handle agricultural chemicals safely' found in the Safety Section.)
- Fill, flush, calibrate, and decontaminate sprayer in an area where runoff will not reach ponds, lakes or streams, livestock areas, or gardens, or near other people.
- Keep children away from the chemicals, chemical solutions, and rinsates.
- If spray or chemical concentrate contacts skin, hands, or face, wash immediately with soap and water. If spray or chemical concentrate gets into eyes, flush immediately with water.
- If nozzle clogs or system malfunctions, stop engine and relieve spray pressure from system.
- Do not place nozzle tips or other components to the mouth to clear obstructions. Keep spare tips on hand for replacement.
- Minimize risk of spray drift.
 - Use large nozzle tips operated at lower pressures
 - Do not operate solution delivery system at pressures exceeding 345kPa (3.5 bar) (50 psi).
 - Do not spray when winds exceed 16 km/h (10 mph).
 - Do not spray when wind is blowing towards a nearby sensitive crop, garden, or populated area.
- Properly dispose of unused chemicals, flushing solution, and empty chemical containers.
- Decontaminate equipment used in mixing, transferring, and applying chemicals after use.



TS272 -UN-23AUG88

TS220 -UN-23AUG88

Clean Vehicle of Hazardous Pesticides



CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

DX,CABS2 -19-24JUL01-1/1

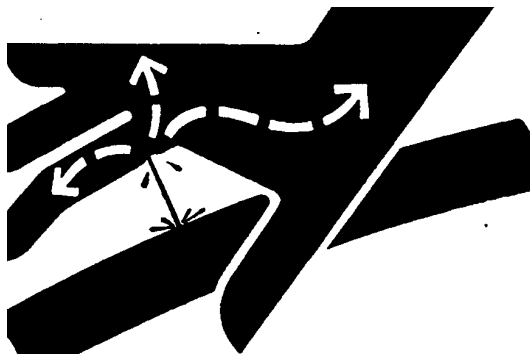
Avoid High-Pressure Fluids

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

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



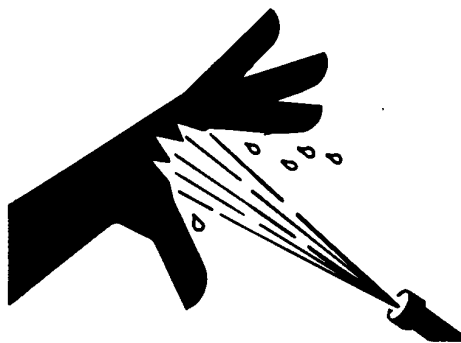
X9811 -UN-23AUG88

DX,FLUID -19-03MAR93-1/1

Protect Against High Pressure Spray

Spray from high pressure nozzles can penetrate the skin and cause serious injury. Keep spray from contacting hands or body.

If an accident occurs, see a doctor immediately. Any high pressure spray injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



TS1343 -UN-18MAR92

DX,SPRAY -19-16APR92-1/1

Dispose of Waste Properly

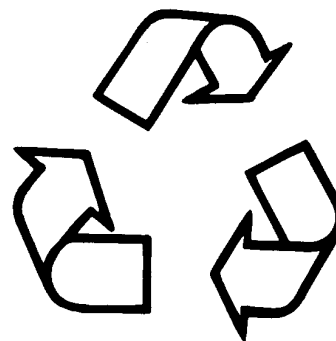
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

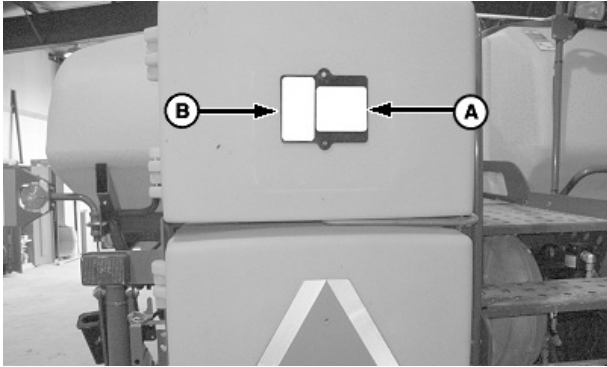
Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



TS1133 -UN-26NOV90

DX,DRAIN -19-03MAR93-1/1

Safety Signs



Upper Chemical Cabinet Decal Location

A62887 -UN-22JUL08

CAUTION

Agricultural chemicals can be dangerous. Improper selection or use can injure people, animals, plants, soils or other property.

BE SAFE

1. Select the right chemical for the job.
2. Handle and apply it with care. Follow instructions issued by the chemical manufacturer.

When using liquid fertilizer, excessive pressure can cause tank rupture. Do not allow internal tank pressure to exceed 15 PSI at any time.

1. Use relief valves.
2. Check valves for proper functioning.

A— Caution

WARNING



Chemicals may cause eye, skin, or breathing problems. Wear face mask, gloves, and goggles. Read and follow safety instructions on the chemical supplier's label.

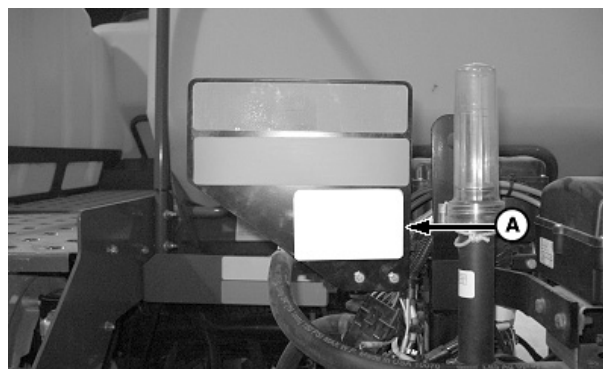
SSA54616 -19-15OCT04

B— Warning

SSA53344 -19-31 JAN07

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OUC6045,0000996 -19-22JUL08-1/2



A62888 -UN-22JUL08

Pump Assembly Decal Location



CAUTION

Components of liquid system may be under pressure.

Before servicing system wear all proper personal protective equipment.

To relieve system pressure:

1. Close water inlet.
2. Disconnect chemical boxes.
3. Open bleed valve.

SSA87452 -19-17JUL08

A—Caution

OUO6045,0000996 -19-22JUL08-2/2

Basic Monitor and System Operation

Introduction

This system is intended to control a carrier of water (product 1) and inject an insecticide (product 2). It must not be used for any other purpose.

Always wear personnel protective safety equipment when handling chemicals. Read carefully, the chemical manufacturers label.

Seed firming or pressing devices that cover the seed can disrupt the spray pattern and the insecticides effectiveness. Consult with your John Deere dealer before using these devices for optional equipment and or recommendations.

There are different nozzles used for Refuge Row applications in this system depending on planter size. Refer to specific model information in the Monitor Operation section. Optional nozzles are available from your John Deere dealer. Refer to nozzle chart for pressure at specific speed.

All entries made during programming must be in Imperial (U.S.) units.

System does the following:

- Applies a carrier (product 1) rate of 18.7 to 37.4 L/ha (2.0 to 4.0 gal./acre) depending on nozzle used. Refer to specific information on planter model and size in Monitor Operation section.
- Injects insecticide (product 2) at a rate of 89 to 296 mL/ha (3 to 10 oz./acre).
- Operates at speeds of 6.5 to 13 km/h (4 to 8 mph).

OUO6045,00008F5 -19-21JUL08-1/1

Approved Chemical Use

Syngenta™ Force CS is the only chemical currently approved for use in the Central Insecticide System. Use of non-approved chemicals is not recommended in this system.

OUO6045,0000A92 -19-03OCT07-1/1

Basic System Operation

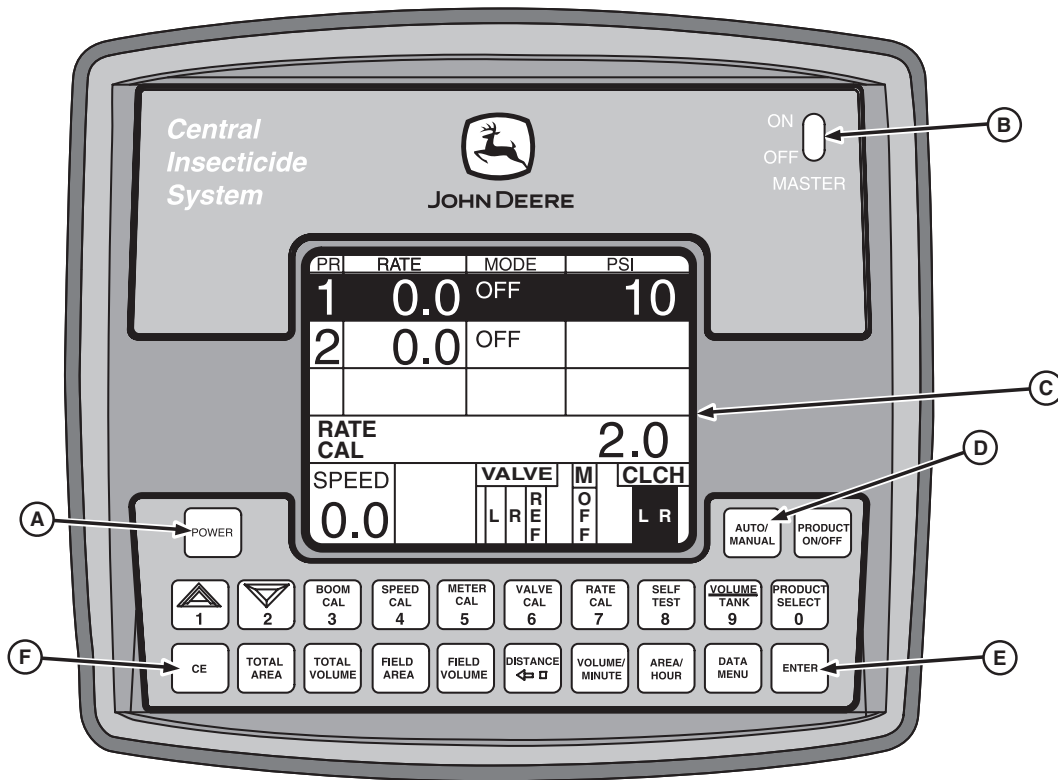
The Central Insecticide System applies a mixture of chemical and water at a chosen rate per acre. The carrier pump draws water from the carrier tanks through a hose and carrier filter assembly. Chemical is stored in the chemical storage cabinet, and it is connected by a manifold and supply line to the injection pump located in the pump assembly. As the chemical and water are pushed out of the pump assembly, they mix in the mixing chamber. This mixture then goes through the engaged section control valves to the flow monitors located on wing frames of the planter. From the flow monitors, the mixture flows through tubing to the individual spray nozzles located between the gauge wheels and closing wheels on each row unit used for corn.

When raising the planter, the right- and left-hand row unit switches open, which automatically shuts off the carrier pump. When lowering the planter, right- and left-hand row unit switches close, which automatically turns on the carrier pump.

Engaging a half-width or a third-width disconnect clutch tells all individual section control valves associated with that clutch to turn off. Shutting off an engaged half-width disconnect clutch tells all individual section control valves associated with that clutch to turn on.

OUC6045,0000986 -19-06NOV07-1/1

Basic Display Console Overview



A—POWER button turns on the display and turns off the system and display.

B—Master ON/OFF switch turns the system on or off. This does not affect the display.

C—Display screen shows actual rate of application, speed, psi., calibration data, function data, control mode (AUTO or MAN), and section status.

D—AUTO/MANUAL, selects manual or fully automatic control

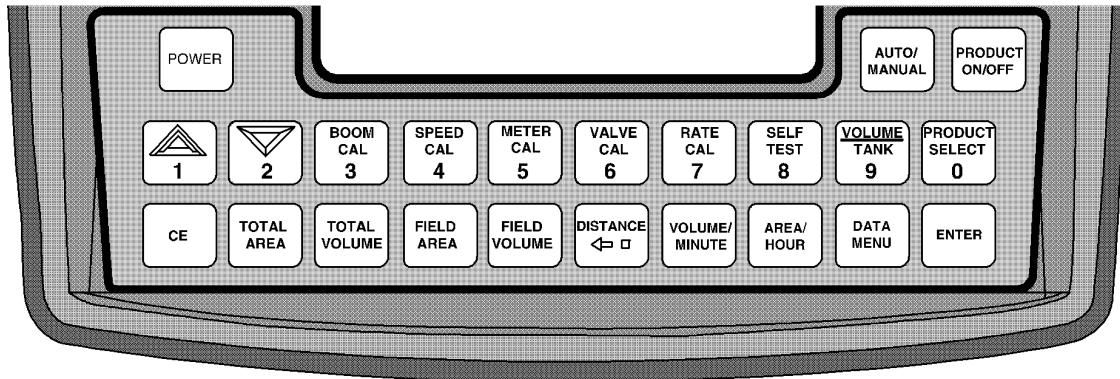
E—ENTER, used only to enter data into the console

F—CE, Clear Enter (use like a CE key on calculator), also resets the display when the display malfunctions.

A58296 -JUN-22OCT07

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OUO6045,00008F6 -19-21NOV07-1/2



Calibration Keys (top)
Function Keys (bottom)

Calibration Keys: Used to enter data into the console to calibrate system.

BOOM CAL—Width of Sections

SPEED CAL—Determined by Speed Sensor

METER CAL—Product 1 (Tip Cal), Product 2 (Injection Pump Cal)

VALVE CAL—Valve Response Time

RATE CAL—Target Application Rate

SELF TEST—Simulates Vehicle Speed

Function Keys: Used to Display Data

TOTAL AREA—Total Area Applied

TOTAL VOLUME—Total Volume Applied

FIELD AREA—Field Area Applied

FIELD VOLUME—Volume Applied to Field

DISTANCE—Distance Traveled

VOLUME/MINUTE—Flow Rate

AREA/HOUR—Present Area Per Hour

DATA MENU—Additional Features and Functions

PRODUCT ON/OFF—Toggles Product Control ON or OFF

PRODUCT SELECT—Selects Active Product for Programming or Manual Control

OUO6045,00008F6 -19-21NOV07-2/2

A61207 -UN-23OCT07

Monitor SETUP

Console Programming Introduction

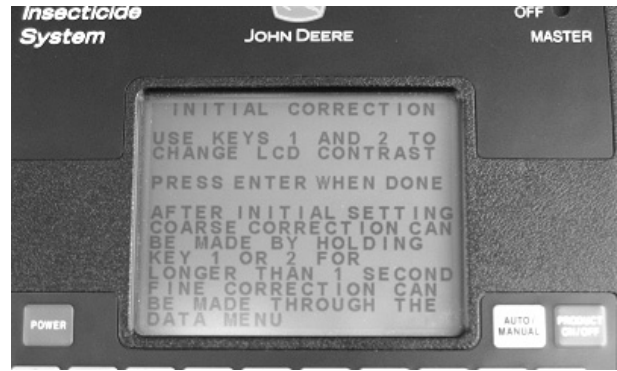
Press POWER button to turn console ON. The initial screen shows, INITIAL CORRECTION, USE KEYS 1 AND 2 TO ADJUST LCD CONTRAST. Perform this option, through Data Menu selection at any time. This screen can be bypassed by pressing the ENTER key. The display flashes CAL in lower left-hand corner (B) and displays REFUGE ROWS on line (A). Console must be "calibrated", or programmed. Turning OFF the console does not affect memory.

Change values to change performance of system.

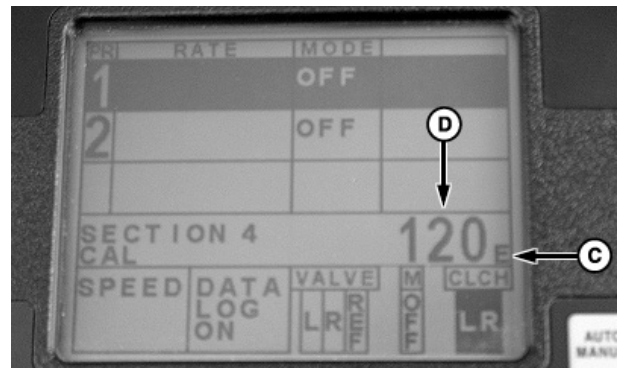
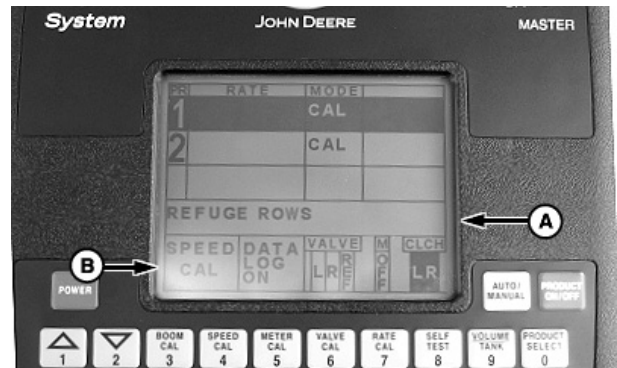
Numerical digits (D) displayed on line as shown, are values needed for operation of system. These values must be entered during initial programming. To change values, do the following:

- Select desired function, control, or calibration key.
- Press and release ENTER key.
- Letter E (C) appears on line (A).
- Use numeric keys to enter value.
- Press and release ENTER key to save.

A—Line
B—Lower Left-Hand Corner
C—Letter E
D—Numerical Digits



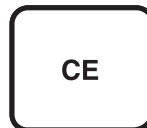
Initial Screen



OUO6045,00008FA -19-21JUL08-1/2

If an error is made during programming, turn console power off. Press and hold CE key while turning console power ON to re-start the programming process.

If the console display does not illuminate at power up or during use, turn console power off. Press and hold CE key while turning console power ON to restart the programming process.



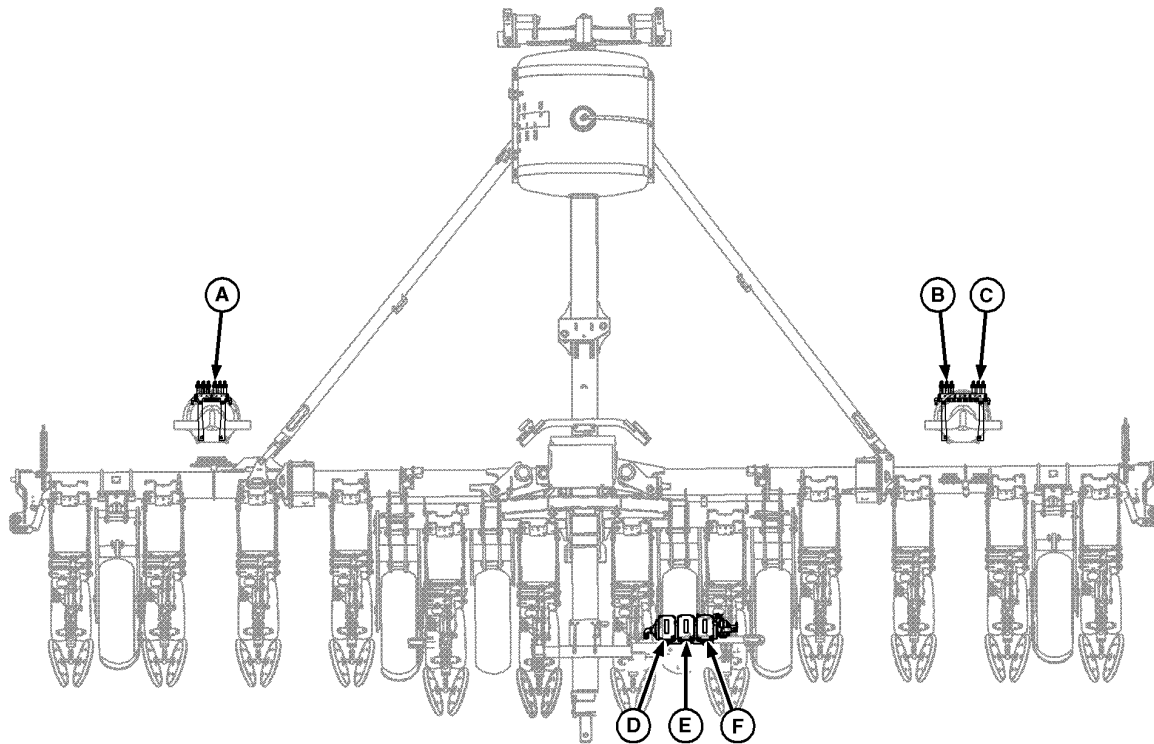
A58310 -UN-20JUL06

OUO6045,00008FA -19-21JUL08-2/2

Section Control Valve Diagrams

The following diagrams show section control valves and the flow monitors they control.

OOU6045,0000AB2 -19-22JUL08-1/4



1770NT and DB60

A—Left Flow Monitors
B—Right Flow Monitors
C—Refuge Flow Monitors

D—Left Flow Monitors Control Valve

E—Right Flow Monitors Control Valve

F—Refuge Flow Monitors Control Valve

Valve (D) controls left flow monitors (A). (Section 1)

Valve (F) controls refuge flow monitors (C). (Section 3)

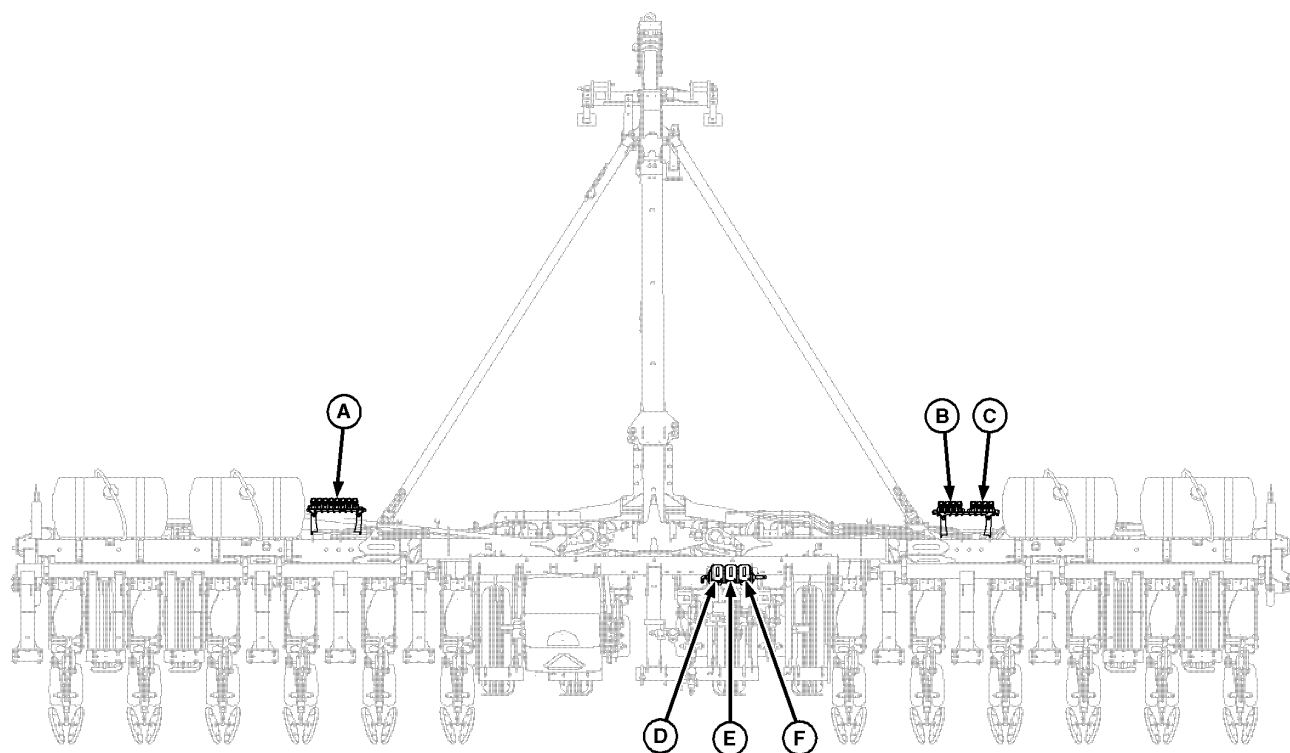
Valve (E) controls right flow monitors (B). (Section 4)

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OOU6045,0000AB2 -19-22JUL08-2/4

A61211 -UN-29OCT07

Monitor SETUP



1790

A—Left Flow Monitors
B—Right Flow Monitors
C—Refuge Flow Monitors

D—Left Flow Monitors Control Valve

E—Right Flow Monitors Control Valve

F—Refuge Flow Monitors Control Valve

Valve (D) controls left flow monitors (A). (Section 1)

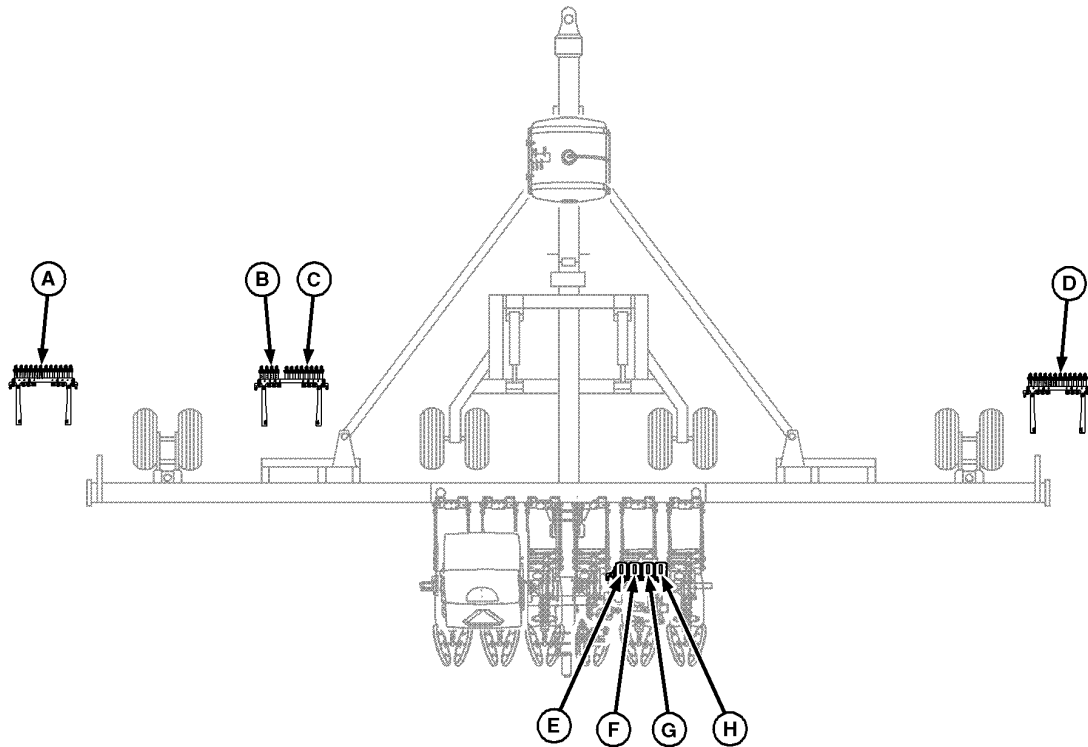
Valve (F) controls refuge flow monitors (C). (Section 3)

Valve (E) controls right flow monitors (B). (Section 4)

A61212 -UN-29OCT07

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OOU6045,0000AB2 -19-22JUL08-3/4



Deere/Bauer

A—Left Flow Monitors on DB80/90

B—Left Refuge Flow Monitors on DB80, Center Flow Monitors on DB90

C—Right Refuge Flow Monitors on DB80, Refuge Flow Monitors on DB90

D—Right Flow Monitors on DB80/90

E—Left Flow Monitors Control Valve on DB80/90

F—Left Refuge Flow Monitors Control Valve on DB80, Center Flow Monitors Control Valve on DB90

G—Right Refuge Flow Monitors Control Valve on DB80, Refuge Flow Monitors Control Valve on DB90

H—Right Flow Monitors Control Valve on DB80/90

Valve (E) controls left flow monitors (A) on DB80/90. (Section 1)

Valve (F) controls left refuge flow monitors (B) on DB80. (Section 2). Valve (F) controls center flow monitors (B) on DB90. (Section 2)

Valve (G) controls right refuge flow monitors (C) on DB80. (Section 3). Valve (G) controls refuge flow monitors on DB90. (Section 3)

Valve (H) controls right flow monitors (D) on DB80/90. (Section 4)

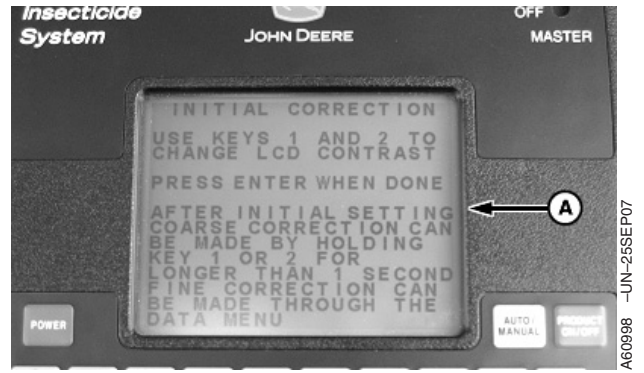
OUO6045,0000AB2 -19-22JUL08-4/4

A61213 -JUN-07NOV07

Monitor Setup

1. When display is powered up the first time, the display shows screen (A) first, INITIAL CORRECTION, USE KEYS 1 AND 2 TO CHANGE LCD CONTRAST. Set display contrast to desired level. Contrast is adjustable through Data Menu Selection.

A—First Screen

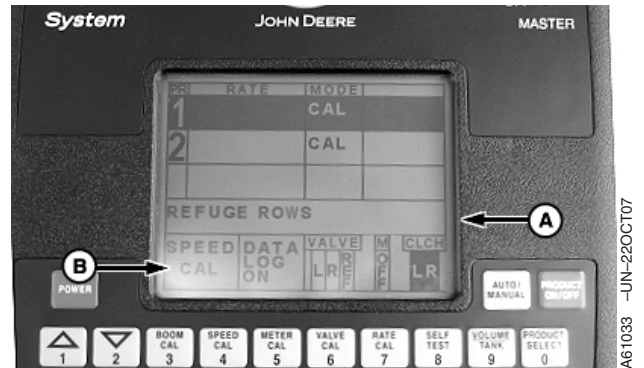


OUO6045,00008F8 -19-22JUL08-1/6

2. Press and release ENTER key. The display now shows Refuge Rows on line (A) and Cal (B) flashes in lower left corner.

A—Line

B—Flashing Cal



Continued on next page

OUO6045,00008F8 -19-22JUL08-2/6

3. Press and release CE key to toggle between Refuge Rows or All Rows.

IMPORTANT: Avoid component damage. Certain machine configurations require nozzle changes before switching to REFUGE ROWS option. These machines also require nozzle change when switching to ALL ROWS option. See Monitor Operation section for these procedures.

CE

ENTER

Selecting All Rows, all rows on the planter receive product at the nozzles.

Selecting Refuge Rows, only the rows for Refuge receive product at the nozzles.

Listed in the following table are factory installed refuge rows for Central Insecticide System.

Factory Installed Refuge Rows for Central Insecticide System	
Machine	Refuge Rows
1770NT 12 Row	10, 11, 12
1770NT 16 Row	13, 14, 15, 16
1770NT 24 Row	20, 21, 22, 23, 24
1790 12/23 Row	19, 21, 23
1790 12/24 Row	20, 22, 24
1790 16/31 Row	25, 27, 29, 31
1790 16/32 Row	26, 28, 30, 32
DB60 24/47 Row	39, 41, 43, 45, 47
DB80 32 Row	14, 15, 16, 17, 18, 19, 20
DB90 36 Row	15, 16, 17, 18, 19, 20, 21, 22

4. Press and release ENTER key to save desired option.
Display now shows 2 clutches.

NOTE: The option selected, is the number of half-width disconnect clutches, or variable rate drive motors on planter.

5. Press and release CE key to toggle between 2 clutches or 3 clutches. Select option that fits the planter.

6. Press and release ENTER key to save desired option.
Display now shows RATE CAL. This selection is for Product 1 (Carrier). Enter numeric value as gallons per acre (gal./acre).

7. Press and release ENTER key.

8. Using numeric keys, enter target RATE CAL (GPA) for product 1 (carrier). Value entered is dependent on planter model and size or as determined by chemical manufacturer. Refer to specific planter model information in Monitor Operation section.

Example: If 2 GPA is the desired rate, select 2, then 0 on numeric keys.

Continued on next page

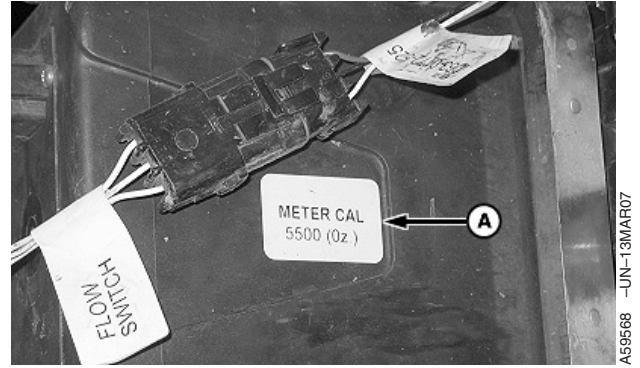
OUC6045,00008F8 -19-22JUL08-4/6

9. Press and release ENTER key to save. Display now shows METER CAL.

10. Press and release ENTER key.

NOTE: Meter cal tag is located on the injection pump or is next to injection pump as shown.

NOTE: Meter Cal number entered in this step, is taken off injection pump that is mounted on the planter. Record this number for future reference (_ _ _ _ _).



Example Tag

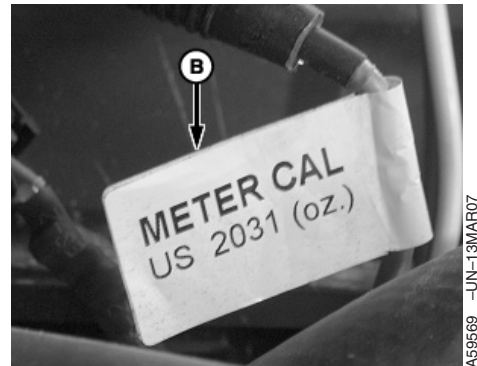
11. Using numeric keys, enter number that is on the injection pump meter cal tag (A) or (B).

12. Press and release ENTER key to save. Display now shows RATE CAL. This is for Product 2 (injection).

13. Press and release ENTER key.

14. Using numeric keys, enter target RATE CAL (oz./acre) for product 2 (injection). This entry is made in oz./acre as determined by chemical manufacturer.

Example: If 236 mL/ha (8 oz./acre) is the desired rate, select 8, then 0 on numeric keys.



Example Tag

15. Press and release ENTER key to save. Display now shows SPEED Cal.

16. Press and release ENTER key.

NOTE: Initial SPEED CAL number is 626 when using radar. See SPEED CALIBRATION in Monitor Calibration section to refine this number after console programming is complete.

17. Using numeric keys, enter initial SPEED Cal number of 626.

18. Press and release ENTER key to save. Display now shows SECTION 1 CAL.

19. Press and release ENTER key.

20. Using numeric keys, enter SECTION 1 width as shown in the following table.

A—Meter Cal Tag (1770NT, 1790 Planters and DB60)

B—Meter Cal Tag (DB80 and DB90 Planters)

Monitor SETUP

Normal Section Calibration Settings ^a						
Planter	Number of Rows	Section 1 Cal	Section 2 Cal	Section 3 Cal	Section 4 Cal	Number of Clutches
Flow Monitor Location On Machine		Left-Wing	Left Refuge DB80 Center DB90	Right Refuge DB80 Refuge 1770/1790/DB90	Right-Wing	
1770NT	12	180	0	90	90	2
1770NT	16	240	0	120	120	2
1770NT	24	360	0	150	210	2
1790	12	180	0	90	90	2
1790	16	240	0	120	120	2
DB60	24	360	0	150	210	2
DB80	32	390	90	120	360	2
DB90	36	360	120	240	360	3

^aFormula for section calibration, number of rows x row spacing on each section. (Example: 8 rows X 30 inch centers = 240)

21. Press and release ENTER key to save. Section 2 Cal is now shown on display.

22. Press and release ENTER key.

23. Using numeric keys, enter number shown in above table for Section 2 Cal. If 0 is shown in table for Section 2 Cal, 0 must be entered.

24. Press and release ENTER key to save. Section 3 is now shown on display.

25. Repeat steps for Section 3 Cal and Section 4 Cal.

26. When the above steps are completed, the flashing Cal in lower left corner goes off, indicating initial monitor programming is complete.

27. Perform Product 1 Meter Cal verification next. See METER CALIBRATION in this section.

OUC6045,00008F8 -19-22JUL08-6/6

Meter Calibration

Meter calibration value is nozzle tip volume rating.

IMPORTANT: Avoid pump damage. It is important to operate the system with suggested nozzle tips and the display properly configured.

DEFINITIONS

- **TIP Volume Cal:** Volume (gpm) rating of tip being used at pressure entered in Tip Pressure Cal.
- **Conv Const Cal:** Specific gravity of carrier liquid. For water, enter 1.00.
- **Tip Spacing Cal:** Planter row spacing (inches).
- **TIP Pressure Cal:** Pressure rating of tip (psi.) at volume entered in Tip Volume Cal.

Using 0067 Olive Green Tips (standard)		
Value	Number Entered	Actual Display Reading
TIP Volume Cal	0067	0.067
Conv Const Cal	100	1.00
TIP Spacing Cal	30	30
TIP Pressure Cal	040	40
Using 0050 Blue Tips (optional)		
TIP Volume Cal	0050	0.050
Conv Const Cal	100	1.00
TIP Spacing Cal	30	30
TIP Pressure Cal	040	40
Using 0100 Orange Tips (optional)		
TIP Volume Cal	0100	0.100
Conv Const Cal	100	1.00
TIP Spacing Cal	30	30
TIP Pressure Cal	040	40

The above table shows a setup of 30 inch row spacing using standard tips that spray water at 0.067 gpm at 40 psi.

Check these values once SETUP is complete. Do the following steps to verify:

1. Display ON, Master switch in OFF position.

Monitor SETUP

A58308 -UN-20JUL06

2. Highlight Product 1 using PRODUCT SELECT key.
3. Press and release METER CAL key.

PRODUCT
SELECT
0

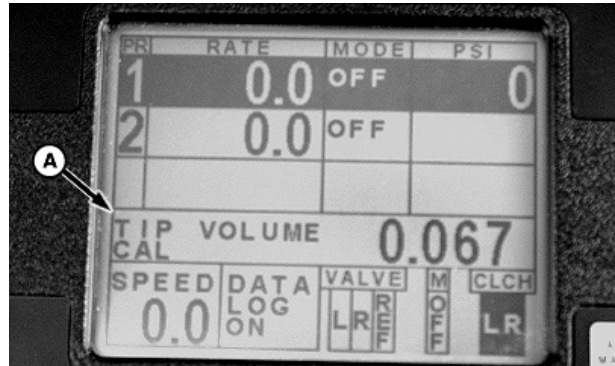
METER
CAL
5

OUC6045,00009C7 -19-21JUL08-2/4

NOTE: If nozzles are replaced with different nozzles.
Change Tip Volume Cal only, as described here,
all other entries remain the same.

4. Tip Volume Cal appears on line (A) of display. Verify that number agrees with above table.
5. If number does not agree with table, press and release ENTER key, use numeric keys to enter number from table. Press and release ENTER key to save.

A—Line



Product 1 Highlighted

A60999 -UN-25SEP07

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OUC6045,00009C7 -19-21JUL08-3/4

6. Press Down Arrow once and Conv Const Cal appears on display. Verify that number agrees with above table.
7. If number does not agree with table, press and release ENTER key, use numeric keys to enter number from table. Press and release ENTER key to save.
8. Press Down Arrow once and Tip Spacing Cal appears on display. Verify that number agrees with above table.
9. If number does not agree with table, press and release ENTER key, use numeric keys to enter number from table. Press and release ENTER to save.
10. Press Down Arrow once and Tip Pressure Cal appears on display. Verify that number agrees with above table.
11. If number does not agree with table, press and release ENTER key, use numeric keys to enter number from table. Press and release ENTER to save.



OUO6045,00009C7 –19–21JUL08–4/4

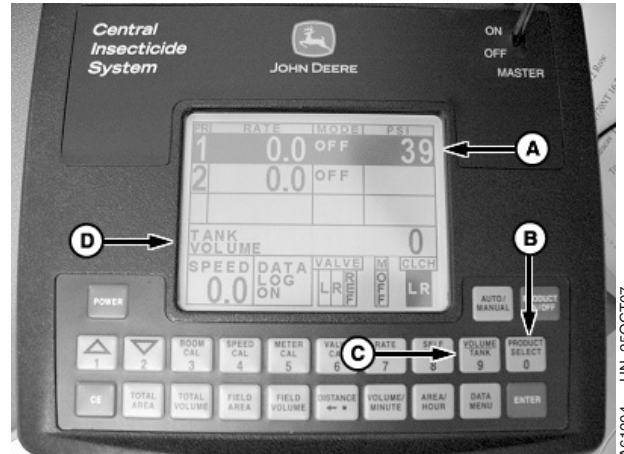
Enter Carrier Tank Volume and Low Level Alarm Values

Entered value decreases as product is used and does not reset automatically. Fill tanks and reset value.

Value entered is for the Low Tank Level Alarm.

To enter TANK VOLUME:

1. Highlight Product 1 (A), using PRODUCT SELECT key (B).
2. Press and release VOLUME TANK key (C), TANK VOLUME appears on line (D).
3. Press and release ENTER key, use numeric keys to enter total gallons of water in tanks. Do not enter the size of the tanks, but the amount of water in them.
4. Press and release ENTER to save.



A—Highlight Product 1
B—PRODUCT SELECT Key
C—VOLUME TANK Key
D—Line

A61204 –UN–25OCT07

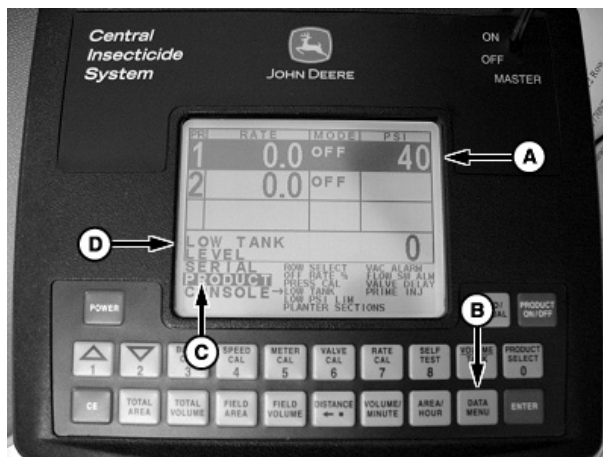
Continued on next page

OUO6045,00009C8 –19–21JUL08–1/2

The following steps to set LOW TANK LEVEL Alarm is only done once:

1. Highlight Product 1.
2. Press and release DATA MENU key (B) until PRODUCT (C) is highlighted.
3. Using DOWN ARROW key, move selection arrow to LOW TANK, LOW TANK LEVEL appears on line (D).
4. Press and release ENTER key.
5. Using numeric keys, enter a target number in gallons, to trigger LOW TANK LEVEL Alarm.
6. Press and release ENTER key to save.

A—Highlight Product 1
B—DATA MENU Key
C—PRODUCT
D—Line



A61205 -UN-25OCT07

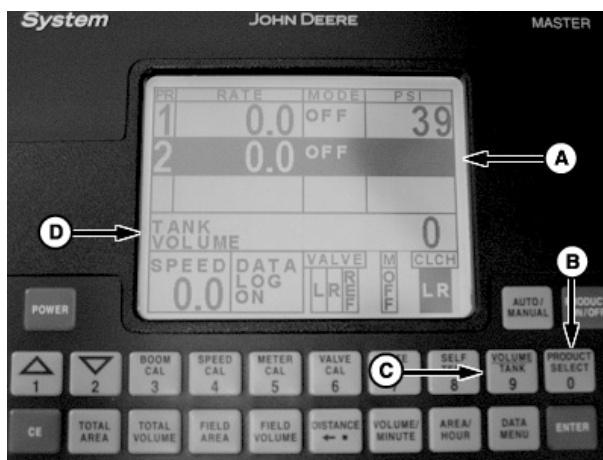
OUC06045.00009C8 -19-21JUL08-2/2

Enter Chemical Cabinet Volume and Low Tank Level Alarm Values

Entered value decreases as product is used and does not reset automatically. Reset value when chemical containers are replaced or added.

To enter chemical TANK VOLUME;

1. Highlight Product 2 (A), using PRODUCT SELECT key (B).
2. Press and release VOLUME TANK key (C), TANK VOLUME appears on line (D).
3. Press and release ENTER key, use the numeric keys to enter total ounces of chemical in cabinet. Each chemical container contains 9.5 L (320 oz.) of material.
4. Press and release ENTER key to save.



A—Highlight Product 2
B—PRODUCT SELECT Key
C—VOLUME/TANK Key
D—Line

A61202 -UN-25OCT07

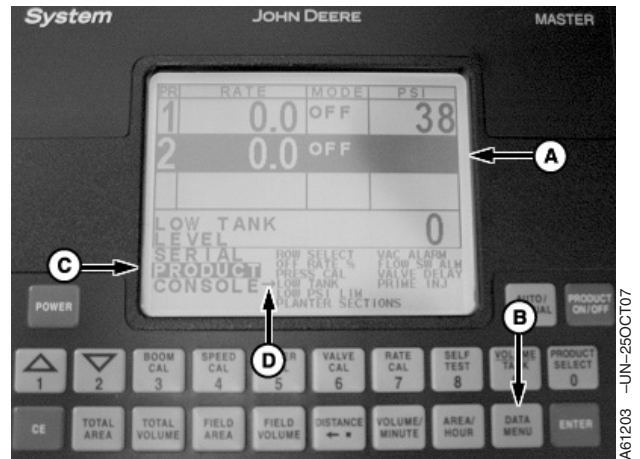
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OUC06045.00009C9 -19-21JUL08-1/2

The following steps to set chemical LOW TANK LEVEL Alarm is only done once;

1. Highlight Product 2.
2. Press and release DATA MENU key (B) until PRODUCT is highlighted (C).
3. Using DOWN ARROW key, move selection arrow (D) to LOW TANK as shown.
4. Press and release ENTER key.
5. Using numeric keys, enter a target number in ounces to trigger LOW TANK LEVEL Alarm.
6. Press and release ENTER key to save.

A—Highlight Product 2
 B—DATA MENU Key
 C—PRODUCT Highlighted
 D—Selection Arrow



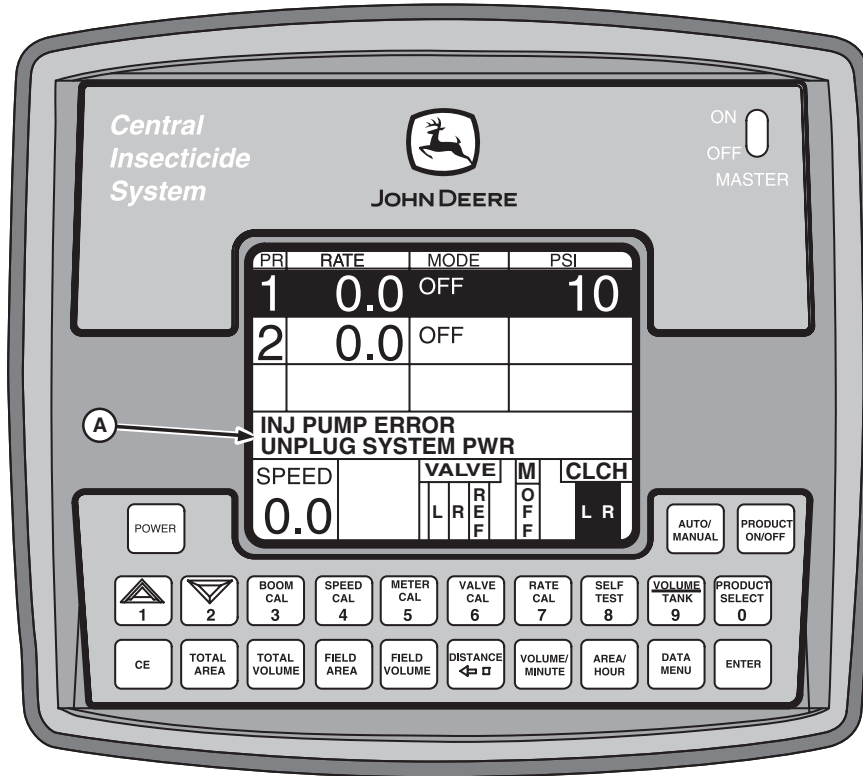
Monitor Operation

Basic Monitor Operation

The entries made during the SETUP procedure may require adjustments. Change values by pressing the corresponding function key (such as Rate Cal, Meter Cal) to refine settings.

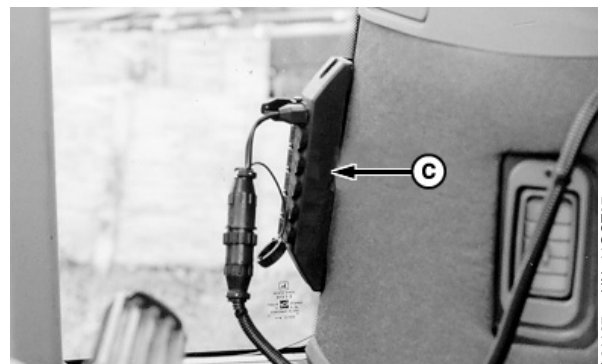
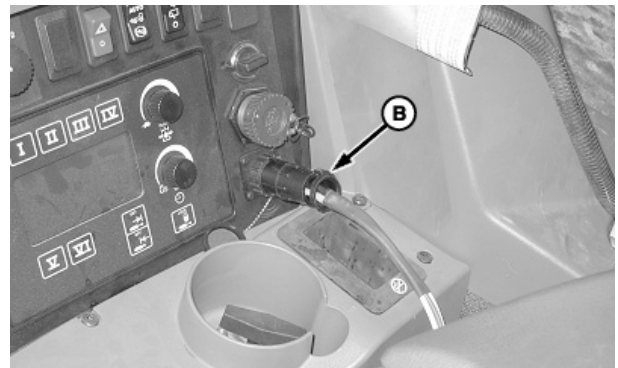
OUO6045,0000910 -19-22OCT07-1/1

Chemical Injection Pump Warning, Read This First



If INJ PUMP ERR—UNPLUG SYSTEM PWR warning (A) appears at any time on monitor, immediately disconnect power lead on Central Insecticide System wiring harness from either location (B or C) and contact your John Deere dealer.

- A—Warning
- B—Rear Convenience Outlet
- C—Power Strip



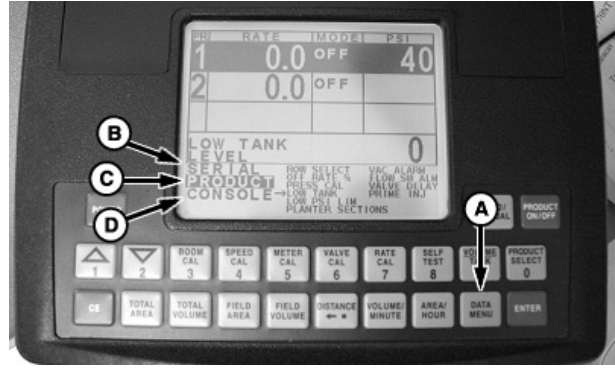
Data Menu Selections

The following is a brief description of features available under the DATA MENU key (A).

Three menus are available— SERIAL (B), PRODUCT (C), and CONSOLE (D).

New option highlights each time DATA MENU key is pressed.

- A—DATA MENU Key
- B—SERIAL
- C—PRODUCT
- D—CONSOLE



A61206 -UN-25OCT07

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A58298 -UN-20JUL06

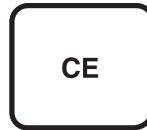
To access options under each menu, press the UP Arrow key or DOWN Arrow key.



OUC6045,0000911 -19-21JUL08-2/4

A58310 -UN-20JUL06

Use CE key to toggle between ON-OFF selections or when noted on screen to perform a function.



Continued on next page

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A58319 -UN-20JUL06

To change numerical value, press and release ENTER key, use numeric keys to enter new value. Press and release ENTER key to save.



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Serial Menu Selections

SERIAL Menu selections are used for access or reporting information when additional monitoring or documenting devices are in place. See Specifications section and operators manual of the additional device for connectivity information.

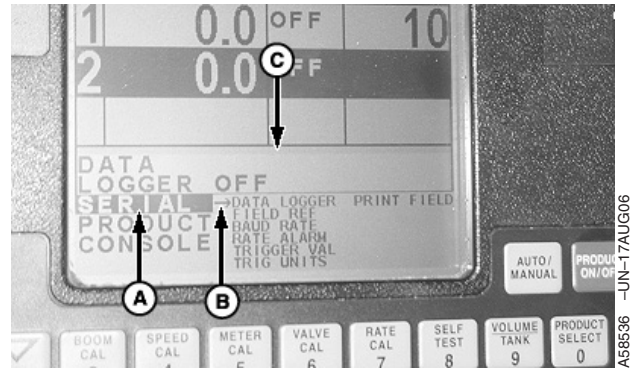
Selected option within SERIAL Menu has selection arrow (B) pointing at it. Use UP Arrow key or DOWN arrow key to move arrow to next option.

Selected option is shown on line (C) of monitor. When no numerical figure appears on line (C) for any selected option, use CE key to toggle between ON-OFF selections.

Numeric values displayed on line (C) can be changed. Press and release ENTER key, use numeric keys to change value, press, and release ENTER key to save.

The following list of options is available under this menu.

- **DATA LOGGER**—used for diagnostic purposes.
- **Field Ref**—is used to identify fields by entering up to a four-digit number. This option is included in field begin, field end pages and data logger time and date options.
- **Baud Rate**—displays set baud rate of 9600 for serial port communication.
- **Rate Alarm**—not available at this time.
- **Trigger Val**—is used in data logger mode. Trigger determines how often data is sent to serial port. This is entered in feet or seconds. Data logger does not function until Trigger value is nonzero.
- **Trig Units**—is also used in data logger mode. This can be entered in feet (meters) or seconds.
- **Print Field**—sends data to optional attached printer for field beginning and field ending pages. This option does not function when Data logger is ON.



A—SERIAL Menu (highlighted)
B—Selection Arrow
C—Line

Product Menu Selections

With PRODUCT Menu selected (A), several options become available.

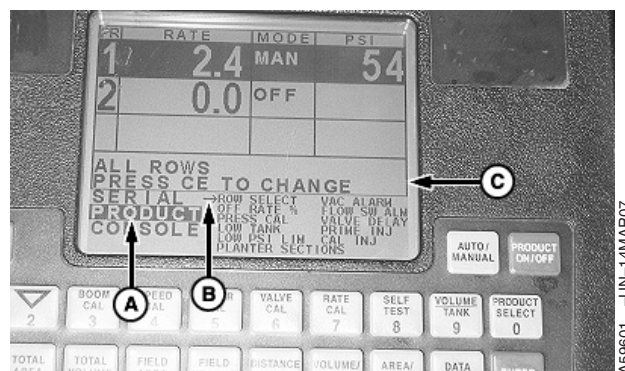
Selected option within PRODUCT Menu has selection arrow (B) pointing at it. Use UP Arrow key or DOWN arrow key to move arrow to next option.

Selected option is shown on line (C) of monitor. When no numerical figure appears on line (C) for any selected option, use CE key to toggle between ON-OFF selections.

Numeric values displayed on line (C) can be changed. Press and release ENTER key, use numeric keys to change value, press, and release ENTER key to save.

The following list of options is available under this menu.

- **ROW SELECT**—allows user to toggle between ALL ROWS or REFUGE ROWS application.
- **OFF RATE %**—turns on the OFF RATE Alarm when application rate (volume/area) is outside of specified percentage for more than 5 seconds. Default setting is 20%.
- **PRESS CAL**—is for calibration of pressure transducer.
- **LOW TANK**—if tank level falls below entered limit, alarm is turned ON, and LOW LEVL is displayed. Used to set the Low Tank Level limit for products 1 and 2.
- **LOW PSI LIM**—is a low speed override alarm. This means planting speed has fallen below speed needed to maintain Low Pressure Limit. System will maintain Low Pressure Limit and is now over-applying product. Alarm is turned on and LOW PSI is displayed. Range is 16-to-20 psi.
Set to the lowest pressure at which the system will operate to maintain the correct spray pattern out of nozzles. Alarm will come on when the lowest allowed pressure is reached and ground speed continues below the speed that would normally produce the lowest allowed pressure.
- **PLANTER SECTIONS**—this selection is based on planter configuration of 2 or 3 half-width clutches or 2 or 3 variable rate drive motors.



A—PRODUCT Menu (highlighted)
B—Selection Arrow
C—Line

- **VACUUM ALARM**—used to turn on-off the audible alarm for the Vacuum Alarm. Alarm turns on and VAC ERR is displayed when too high of a vacuum is required to pull chemical (product 2) into the injection pump.
- **FLOW SWITCH ALARM**—used to turn on-off the audible alarm of the flow switch.
- **VALVE DELAY**—sets delay time between when the sections are turned on and the console starts to control flow rate. 0 means no delay, 1 is a 1 second delay, and 9 is a 9 second delay. This feature is active if sections are turned off and on in less than 30 seconds. Default value is 2.
- **PRIM INJ**—see PRIME INJECTION PUMP in Prime and Charge System section.

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Console Menu Selections

With CONSOLE Menu selected (A), several options become available.

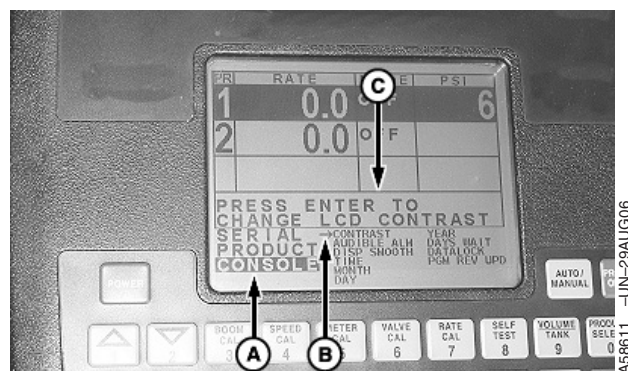
Selected option within CONSOLE Menu has selection arrow (B) pointing at it. Use UP Arrow key or DOWN arrow key to move arrow to next option.

Selected option is shown on line (C) of monitor, if no numerical figures appear on line (C) for any selected option, use CE key to toggle between ON/OFF selections.

Numeric values displayed on line (C) can be changed. Press and release ENTER key, use numeric keys to change value, press and release ENTER key to save.

The following list of options is available under this menu.

- **CONTRAST**—press and release ENTER key, then press and hold the UP Arrow key to sharpen or press and hold DOWN Arrow key to dull display screen. Press and release ENTER key when finished.
- **DISPLAY SMOOTHING**—when Display Smoothing is ON, the RATE displayed will be the target rate as long as the actual rate is within 10 percent of target rate. If this value is not reached in 10 seconds, actual application rate will be displayed. When Display Smoothing is OFF, the RATE displayed will be the actual application rate displayed at all times.
- **TIME**—select and set current time of day.
- **MONTH**—select and set current month.
- **DAY**—select and set current day.
- **YEAR**—select and set current year. Only two digits are allowed.
- **DAYS WAIT**—this option tells the monitor to go into low power mode and cause all time settings to be lost. Number is entered as days. After last monitor shut down, if 5 was entered for this option, monitor will go into low power mode in 5 days and time settings will be lost.
- **DATA LOCK**—If desired, enter a 4 digit code to lock the data in the monitor. This option prohibits data entry until DATA-LOCK code is entered. Enter a four digit code or enter 0 to disable.
- **PGM REV UPD**—displays monitor software and revision level.



A—CONSOLE Menu (highlighted)
B—Selection Arrow
C—Line

Decimal Point Shift

This feature is used to display more resolution at low application rates.

Shifting the decimal point is done during entry of METER CAL.



DISTANCE/Decimal Shift

Key

To shift decimal point, do the following:

- Press and release METER CAL key.
- Press and release ENTER key.
- Select DISTANCE/decimal shift key.
- Enter meter calibration constant number using numeric keys.
- Press and release ENTER key.
- Highlight Product 1 using PRODUCT SELECT Key.
- Press and release RATE CAL key.
- Press and release ENTER key.
- Using numeric keys, enter 2.00 (standard rate).
- Press and release ENTER key to save.
- Highlight Product 2 using PRODUCT SELECT key.
- Press and release RATE CAL key.
- Press and release ENTER key.
- Using numeric keys, enter desired RATE CAL for Product 2. (This entry is in oz./acre.)
- Press and release ENTER key.

To move decimal point back to original location, do the following:

- Press and release METER CAL key.
- Press and release ENTER key.
- Enter meter calibration constant number using numeric keys.
- Press and release ENTER key.

The following table shows where decimal point should be for better system accuracy.

Continued on next page

OUO6045,0000931 –19–05NOV07–1/2

Decimal Point Location		
Mode	Default Setting	Decimal Shift
Rate Display	000.0	00.00
Rate Cal	000.0	00.00
Tank Volume	000000	00000.0
Total Area	000.0	000.0
Total Volume	000000	00000.0
Field Area	000.0	000.0
Field Volume	000000	00000.0
Vol/Minute	000.0	00.00
Area/Hour	000.0	000.0
Rate +/-	000.0	00.00
Low Tank Level	0000	000.0
Low Vol/Min	0000	000.0

OUO6045,0000931 -19-05NOV07-2/2

Alarm Definition

The following is a brief description of visual and audible alarms used in the system.

Refer to TROUBLESHOOT section of this manual for more in depth information on each alarm and how to diagnose.

Alarm Descriptions		
Display Will Show	Audible Alarm	Description
INJ PUMP ERR UNPLUG SYSTEM PWR	Continuous	Alarm indicates chemical injection pump is running without a command from the controller to run. When this warning is shown, immediately unplug Central Insecticide System power supply harness and contact your John Deere dealer.
VAC ERR	Beeps 1/2 second every second	With vacuum alarm on, alarm indicates a vacuum error on the injection pump.
FLOW SW	Beeps 1/2 second every second	With flow switch alarm on, alarm indicates out of tolerance difference between flow switch and flow reading.
TOO SLOW	Beeps for 1/4 second twice per second	With low pressure limit set, alarm indicates that pressure has dropped below low limit. (auto mode only) Increase speed.
LOW FLO	Beeps for 1/4 second twice per second	Increase speed or increase Product 1 "RATE CAL" by 1.9 L (0.5 gpa).
OFF RATE	Continuous	Alarm occurs when Volume/Area rate is out of spec for more than 5 seconds from target application rate. See PRODUCT MENU SELECTIONS in this section
LOW LEVL	Beeps for 2 seconds every sixteen seconds	If a low tank value is entered, alarm occurs when tank level falls below entered value.
LOW SPD	Continuous	With low speed shutoff on, alarm will occur when speed drops below 1.6 km/h (1 mph). Control of product will not resume until speed is above 1.6 km/h (1 mph).
AUTO NOBM or MAN NOBM	N/A	NOBM, indicates no sections are turned on for that product.
LOW PSI	Continuous	System shuts down when pressure falls below 12 psi. for fifteen seconds or more. Product control will not resume until master switch is cycled.
TIME OUT	Beeps 1/2 second every second	Injection pump priming failed in time allotted specified by PRIMING CAL. See PRIME INJECTION PUMP in Prime and Charge System section.

Switch 12 and 16 Row Machines From ALL ROWS to REFUGE ROWS on 1770NT and 1790 Planters

Convert from ALL ROWS to REFUGE ROWS.

1. Raise machine and install service locks on all lift cylinders.
2. Lower machine onto service locks. Shut off tractor.
3. Refer to the following table for factory installed Refuge Rows. Replace nozzle tips on REFUGE ROWS with optional 0100 Orange Tips.

Factory Installed Refuge Rows for Central Insecticide System	
Machine	Refuge Rows
1770NT 12 Row	10, 11, 12
1770NT 16 Row	13, 14, 15, 16
1790 12/23 Row	19, 21, 23
1790 12/24 Row	20, 22, 24
1790 16/31 Row	25, 27, 29, 31
1790 16/32 Row	26, 28, 30, 32

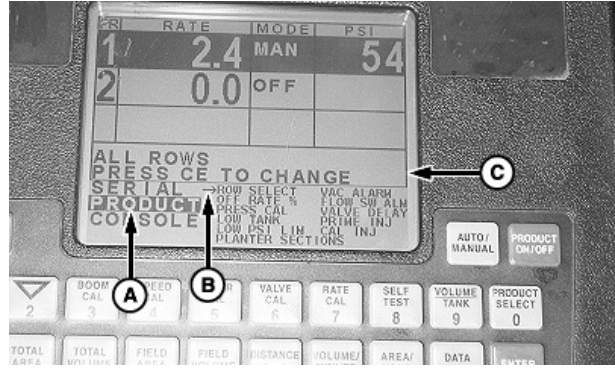
4. On all other rows, remove nozzle tips and install blank nozzle tips.
5. Turn console display ON.
6. Place master switch in OFF position.

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OUC6045,0000AFF -19-22JAN08-1/4

7. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
8. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
9. Press CE key. REFUGE ROWS appears on line (C).

A—PRODUCT Menu (highlighted)
 B—Selection Arrow
 C—Line



A59601 -UN-14MAR07

OUO6045,0000AFF -19-22JAN08-2/4

10. Highlight Product 1 using PRODUCT SELECT key.
11. Press and release METER CAL key.



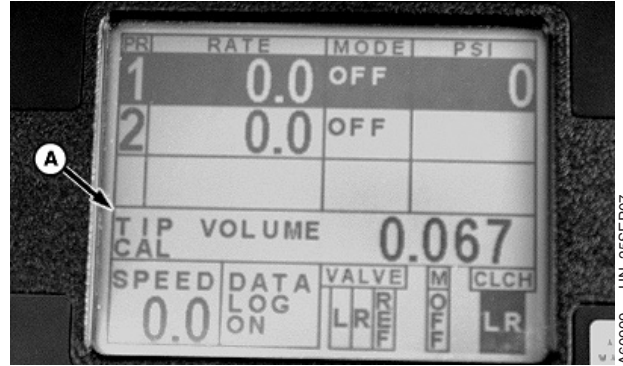
A58308 -UN-20JUL06

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OUO6045,0000AFF -19-22JAN08-3/4

12. Tip Volume Cal appears on line (A) of display.
13. Press and release ENTER key.
14. Using numeric keys, enter 0.100.
15. Press and release ENTER key to save.
16. Press and release RATE CAL key.
17. Press and release ENTER key.
18. Using numeric keys, enter 4.0.
19. Press and release ENTER key to save.
20. Raise machine and remove service locks.
21. System is now ready to operate on REFUGE ROWS only.

A—Line



Product 1 Highlighted



OUO6045,0000AFF -19-22JAN08-4/4

Switch 12 and 16 Row Machines From REFUGE ROWS to ALL ROWS on 1770NT and 1790 Planters

Convert from REFUGE ROWS to ALL ROWS.

1. Raise machine and install service locks on all lift cylinders.
2. Lower machine onto service locks. Shut off tractor.
3. Refer to the following table for factory installed Refuge Rows. Replace nozzle tips on Refuge Rows with standard 0.067 olive green nozzle tips.

Factory Installed Refuge Rows for Central Insecticide System	
Machine	Refuge Rows
1770NT 12 Row	10, 11, 12
1770NT 16 Row	13, 14, 15, 16
1790 12/23 Row	19, 21, 23
1790 12/24 Row	20, 22, 24
1790 16/31 Row	25, 27, 29, 31
1790 16/32 Row	26, 28, 30, 32

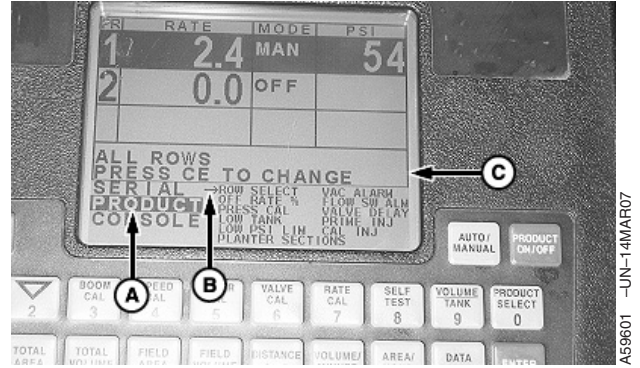
4. On all row nozzles that have blank tips installed, remove blank tips and install matching nozzle tips across entire machine.
5. Turn console display ON.
6. Place Master switch in OFF position.

Continued on next page

OUC6045,0000B00 -19-22JAN08-1/4

7. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
8. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
9. Press CE key. ALL ROWS appears on line (C).

A—PRODUCT Menu (highlighted)
 B—Selection Arrow
 C—Line



OUC6045,0000B00 -19-22JAN08-2/4

10. Highlight Product 1 using PRODUCT SELECT key.
11. Press and release METER CAL key.

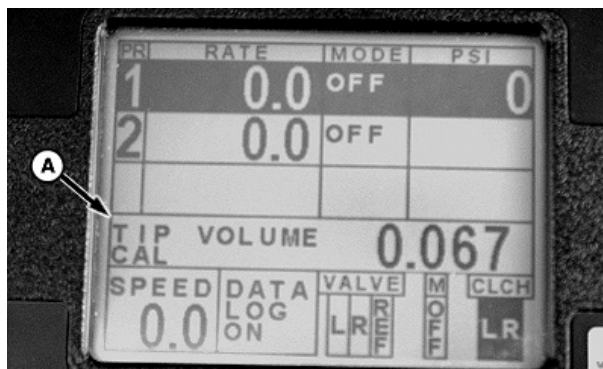
A58309 -UN-20JUL06



Continued on next page

OUC6045,0000B00 -19-22JAN08-3/4

12. Tip Volume Cal appears on line (A) of display.
13. Press and release ENTER key.
14. Using numeric keys, enter 0.067.
15. Press and release ENTER key to save.
16. Press and release RATE CAL key.
17. Press and release ENTER key.
18. Using numeric keys, enter 2.0.
19. Press and release ENTER key to save.
20. Raise machine and remove service locks.
21. System is now ready to operate on ALL ROWS.



Product 1 Highlighted

A—Line

OUO6045,0000B00 -19-22JAN08-4/4

Switch From ALL ROWS to REFUGE ROWS 1770NT 24 Row Only

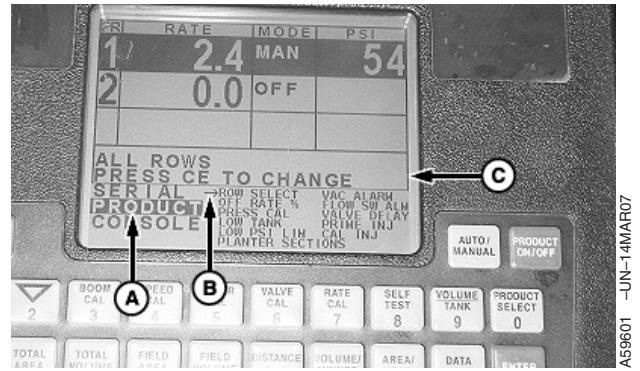
Convert from ALL ROWS to REFUGE ROWS.

1. Turn console display ON.
2. Place Master switch in OFF position.

Continued on next page

OUO6045,0000B05 -19-22JAN08-1/2

3. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
4. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
5. Press CE key. REFUGE ROWS appears on line (C).
6. Raise machine and install service locks on all lift cylinders.
7. Lower machine onto service locks. Shut OFF tractor.
8. On all row nozzles **not** used, remove nozzle tips and install blank nozzle tips.
9. Raise machine and remove service locks.
10. System is now ready to operate on REFUGE ROWS only.



A—PRODUCT Menu (highlighted)
B—Selection Arrow
C—Line

OUO6045,0000B05 -19-22JAN08-2/2

Switch From REFUGE ROWS to ALL ROWS 1770NT 24 Row Only

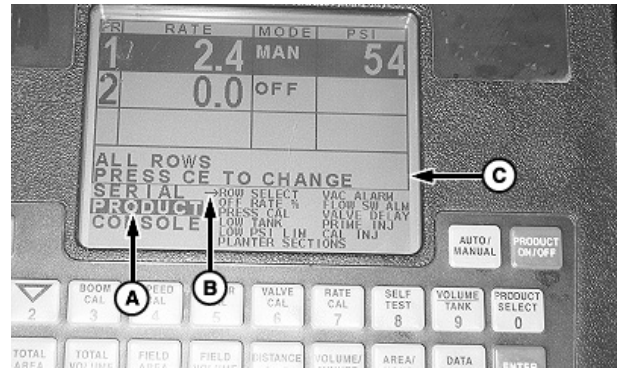
Convert from REFUGE ROWS to ALL ROWS.

1. Turn display console ON.
2. Place Master switch in OFF position.

Continued on next page

OUO6045,0000B06 -19-22JAN08-1/2

3. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
4. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
5. Press CE key. ALL ROWS appears on line (C).
6. Raise machine and install service locks on all lift cylinders.
7. Lower machine onto service locks. Shut OFF tractor.
8. On all row nozzles that have blank tips installed, remove blank tips and install matching nozzle tips across entire machine.
9. Raise machine and remove service locks.
10. System is now ready to operate on ALL ROWS.



A—PRODUCT Menu (highlighted)
B—Selection Arrow
C—Line

OUO6045,0000B06 -19-22JAN08-2/2

Switch From ALL ROWS to REFUGE ROWS DB60, DB80, DB90 Planters

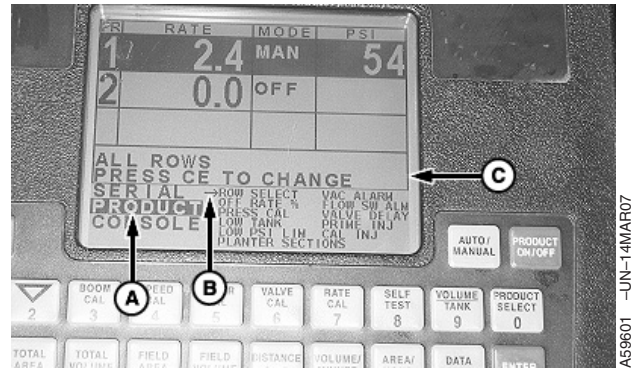
Convert from ALL ROWS to REFUGE ROWS.

1. Turn console display ON.
2. Place Master switch in OFF position.

Continued on next page

OUO6045,0000B07 -19-22JUL08-1/2

3. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
4. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
5. Press CE key. REFUGE ROWS appears on line (C).
6. Raise machine and install service locks on all lift cylinders.
7. Lower machine onto service locks. Shut OFF tractor.
8. On all row nozzles **not** used, remove nozzle tips and install blank nozzle tips.
9. Raise machine and remove service locks.
10. System is now ready to operate on REFUGE ROWS only.



A—PRODUCT Menu (highlighted)
B—Selection Arrow
C—Line

OUO6045,0000B07 -19-22JUL08-2/2

Switch From REFUGE ROWS to ALL ROWS DB60, DB80, DB90 Planters

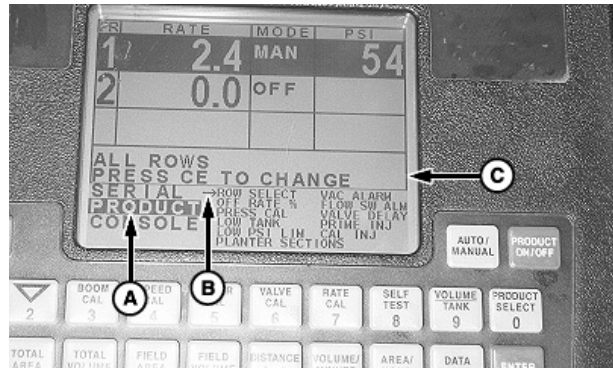
Convert from REFUGE ROWS to ALL ROWS.

1. Turn display console ON.
2. Place Master switch in OFF position.

Continued on next page

OUO6045,0000B08 -19-22JUL08-1/2

3. Press DATA MENU key until PRODUCT Menu (A) is highlighted as shown.
4. Press UP or DOWN arrow keys until selection arrow (B) is pointing at ROW SELECT as shown.
5. Press CE key. ALL ROWS appears on line (C).
6. Raise machine and install service locks on all lift cylinders.
7. Lower machine onto service locks. Shut OFF tractor.
8. On all row nozzles that have blank tips installed, remove blank tips and install matching nozzle tips across entire machine.
9. Raise machine and remove service locks.
10. System is now ready to operate on ALL ROWS.

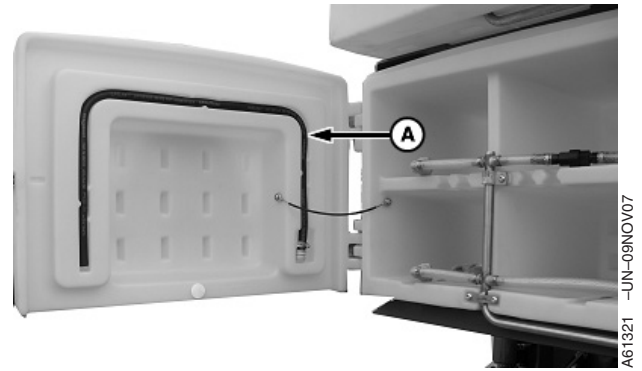


A—PRODUCT Menu (highlighted)
B—Selection Arrow
C—Line

OUC6045,0000B08 -19-22JUL08-2/2

Initial System SETUP

1. Fill carrier tanks.
2. Remove flushing hose (A) from door of lower cabinet.
3. Connect flushing hose to coupler with check valve in lower chemical cabinet, place open end of hose in a container of N305634 John Deere Winterizer fluid.
4. Place master switch in OFF position.
5. Prime carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.
6. Prime the injection pump. See PRIME INJECTION PUMP in Prime and Charge System section.
7. Disconnect flushing hose from coupler with check valve. Place flushing hose in door of lower cabinet.
8. Connect all chemical containers to manifold system in chemical cabinets.
9. Prime the injection pump with chemical. See PRIME INJECTION PUMP in Prime and Charge System section.
10. Calibrate injection pump. See INJECTION PUMP CALIBRATION in Monitor Calibration section.
11. Charge entire system with chemical. See CHARGE SYSTEM in Prime and Charge System section.



A—Flushing Hose

OUC6045,0000948 -19-26NOV07-1/1

Initial Field Test of System

A58368 –UN–20JUL06

1. Turn ON console using POWER button.
2. With the planter raised, travel forward at a target speed.



3. Verify Speed readout on display console.

A58359 –UN–20JUL06

4. Park machine on flat level surface.
5. Highlight Product 1 using PRODUCT SELECT key and place in AUTO mode using AUTO/MANUAL key.
6. Highlight Product 2 using PRODUCT SELECT key and place in AUTO mode using AUTO/MANUAL key.
7. Set tractor selective control valve used for FRAME RAISE/LOWER hydraulics to continuous flow and activate the SCV.



8. Place master switch in ON position.

NOTE: Self test will cancel if speed pulse is detected above 1.6 km/h (1 mph).

9. Select SELF TEST key.
10. Press and release ENTER key.
11. Using numeric keys, enter 5.0.
12. Press and release ENTER key to save.
13. Verify target rate is reached.
14. Increase and decrease speed by one mile per hour, by doing the following:
 - Select SELF TEST key.
 - Press and release ENTER key.
 - Use numeric keys to input new speed.
 - Press and release ENTER key.
 - System should automatically maintain the target rate for the adjusted speed entered.
15. If the system cannot change rate, check for the following:

Continued on next page

OUO6045.0000946 –19–06NOV07–1/2

- **Carrier pump water**—if programmed rate is not maintained, check the following:
 - Strainer on pump inlet
 - Empty tank/tank valve open
 - Verify Auto Mode
 - **Injection pump**—if programmed rate is not maintained, check for following:
 - Verify Auto Mode
 - Speed too high, above 13 km/h (8 mph)
 - If injection pump rate remains 0, check fuse in power supply harness.
16. If system does not appear to be adjusting properly, see INITIAL SYSTEM SETUP in this section.
17. If system appears to be functioning correctly, machine is ready to start planting.

OUC6045,0000946 -19-06NOV07-2/2

Operate Central Insecticide System

Before beginning field operation, verify that all calibration numbers are entered in console.

To begin field operation of the system:

1. Ensure there is water in carrier tanks and all valves for carrier system are in the open position.
2. Ensure that the chemical containers are installed and connected to manifold assembly in chemical cabinets.
3. Set tractor selective control valve for FRAME RAISE-LOWER hydraulics to continuous flow and activate the SCV.

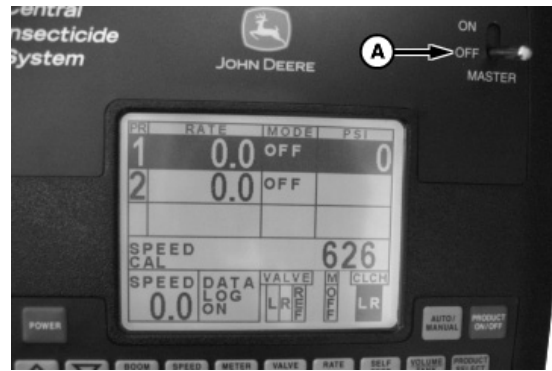
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OUC6045,0000947 -19-22JUL08-1/8

NOTE: When console is powered up, Product 1 is always highlighted.

4. Turn console power ON, place master ON-OFF switch (A) in OFF position.

A—Master ON-OFF Switch



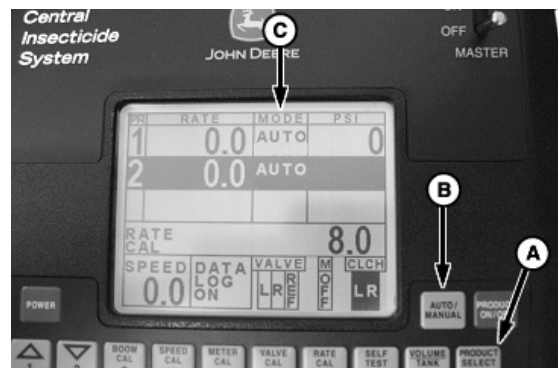
Console ON

A61110 -UN-24OCT07

OUO6045,0000947 -19-22JUL08-2/8

NOTE: Product 1 must be in AUTO mode before Product 2 can be placed in AUTO mode.

5. Using AUTO-MANUAL key (B), place Product 1 in AUTO mode (C).
6. Using PRODUCT SELECT key (A), highlight Product 2 and place in AUTO mode using AUTO-MANUAL key.
7. Place master switch in ON position.
8. While traveling forward at a speed greater than 1.6 km/h (1 mph), lower planter.



A—PRODUCT SELECT Key
B—AUTO/MANUAL Key
C—AUTO Mode

A61111 -UN-24OCT07

Continued on next page

OUO6045,0000947 -19-22JUL08-3/8

9. With planter down and speed of 1.6 km/h (1 mph) detected, console highlights active section control valves (A) and master switch (B). System is on and functioning as programmed. Console also shows pressure reading for Product 1 in upper right-hand corner.

A—Valves
B—Master Switch



A61112 -UN-24OCT07

1770NT/1790/DB60 All Rows ON



A61113 -UN-24OCT07

1770NT/1790/DB60 Refuge Rows Only ON



A61251 -UN-31OCT07

DB80 OFF

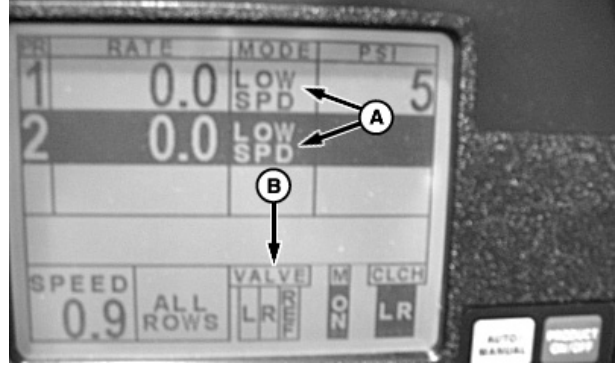


A61252 -UN-31OCT07

DB90 OFF

10. If speed is less than 1.6 km/h (1 mph) when planting, console shows LOW SPD warning (A) and valves (B) turn off, indicating system has stopped applying product. Increasing speed above 1.6 km/h (1 mph) restarts the system.

A—LOW SPD Warning
B—Valves



OUO6045,0000947 -19-22JUL08-5/8

A61227 -UN-25OCT07

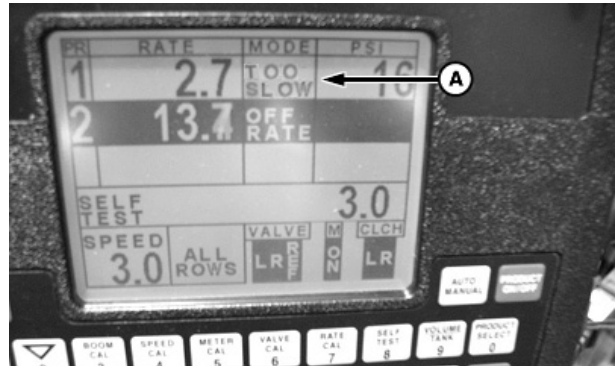
CAUTION: System is designed to apply product between 6.5 and 13 km/h (4 and 8 mph). Speeds below 6.5 km/h (4 mph) causes over-application of product.

NOTE: In order to maintain a proper spray pattern, the system automatically stops adjusting pressure and chemical rate below 6.5 km/h (4 mph), causing an over-application of chemical.

If speed is above 1.6 km/h (1 mph), but below 6.5 km/h (4 mph), display alternately flashes AUTO in Product 1 and 2, then TOO SLOW (A) in Product 1 and OFF RATE (B) in Product 1 and Product 2. This is normal. Increasing speed above 6.5 km/h (4 mph) clears the warnings.

When decreasing speed and speed falls below 6.5 km/h (4 mph), these warnings appear, this is normal. Increasing speed above 6.5 km/h (4 mph) clears these warnings.

A—TOO SLOW
B—OFF RATE



A61935 -UN-22JAN08



A61229 -UN-25OCT07

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OUO6045,0000947 -19-22JUL08-6/8

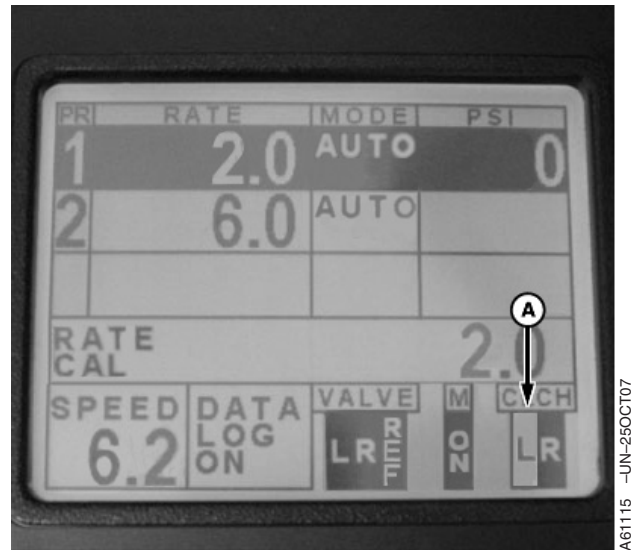
11. Observe flow monitor ball heights. They must be close to equal, however a 6 mm (1/4 in.) variation above or below the average ball height is normal.
12. Verify that target speed is obtainable, and that application rate is maintained as speed is increased or decreased.
13. System operation is now normal.



OUO6045,0000947 -19-22JUL08-7/8

14. When a half-width disconnect clutch is turned off on the frame control box, disconnected clutch on the console is no longer highlighted. In this example the left clutch (A) is turned off and right clutch is on.

A—Left Clutch



OUO6045,0000947 -19-22JUL08-8/8

A58318 -UN-20JUL06

Adjust Screen Contrast

NOTE: Press and hold the UP or DOWN arrow keys to adjust screen contrast during field operation.

**DATA
MENU**

1. To adjust screen contrast after initial programming, do the following:
 - a. Press and release DATA MENU key until CONSOLE (A) is highlighted.
 - b. Use UP and DOWN arrows to ensure selection arrow (B) is pointing to CONTRAST as shown.
 - c. Press and release ENTER key.

A—Console
B—Selection Arrow



OUO6045,0000902 -19-23JAN08-1/3

A58297 -UN-20JUL06

2. To adjust screen contrast, press and hold Up Arrow Key to sharpen screen display.



OUO6045,0000902 -19-23JAN08-2/3

A58298 -UN-20JUL06

3. Press and hold Down Arrow key to dull screen image.
4. Press and release ENTER key to save.



OUO6045,0000902 -19-23JAN08-3/3

Monitor Calibration

A58303 –UN–20JUL06

Speed Calibration

*NOTE: Initial SPEED CAL is 626 when using radar.
Complete the following steps to refine this number
after console programming is completed.*



1. Start machine and turn console power ON.
2. Press and release SPEED CAL key and record displayed SPEED CAL number for future reference.

IMPORTANT: Do not use machine odometer to determine distance.

3. Mark a 400 ft course.
4. Position tractor front tire at start of course.

Continued on next page

OUC6045,00008F0 –19–14NOV07–1/2

5. Press and release the DISTANCE key.
6. Press and release ENTER key.
7. Using numeric keys, enter 0.
8. Press and release ENTER key to save.



IMPORTANT: The most accurate calibration is achieved by accelerating and decelerating slowly when traveling course.

9. Drive tractor through 400 ft course and stop when front tire hits marked end of course.
10. Press and release DISTANCE key and record distance traveled. If displayed distance reads between 400-420, enter 626 as calibration number.

If displayed distance is out of this range, perform following calculation to find calibration number.
11. Formula to calculate calibration number is, Old Speed Cal Number multiplied by 400 divided by displayed number on console.

NOTE: Round all numbers to the closest whole number, enter that number into display.

NOTE: In the following step, initial (old) speed cal number of 626 is shown as example.

12. If actual distance reads 450, calculation would be 626 (old speed cal number) multiplied by 400 and divided by displayed value of 450.

- $(626 \times 400) \div 450 = 556.4$

13. 556.4 was calculated and rounded to 556. This value is entered.
14. Repeat steps 2—9 to verify SPEED Cal number.

Injection Pump Calibration

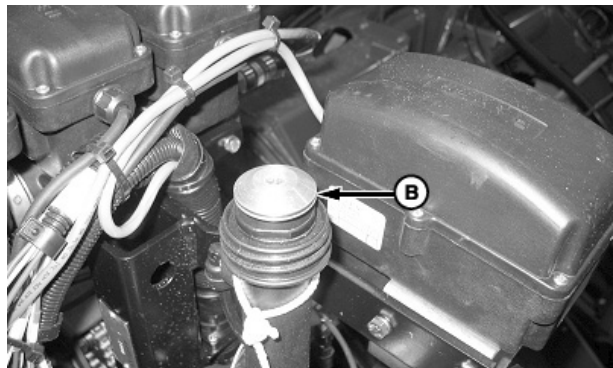
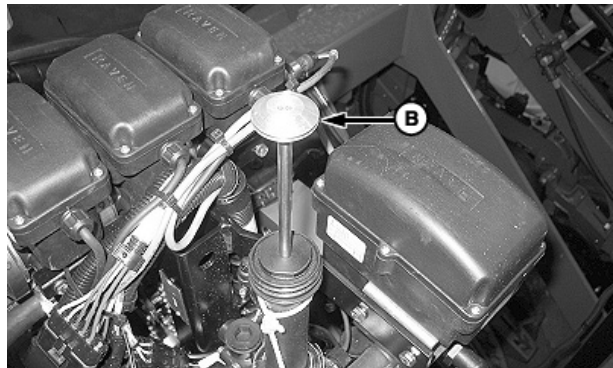
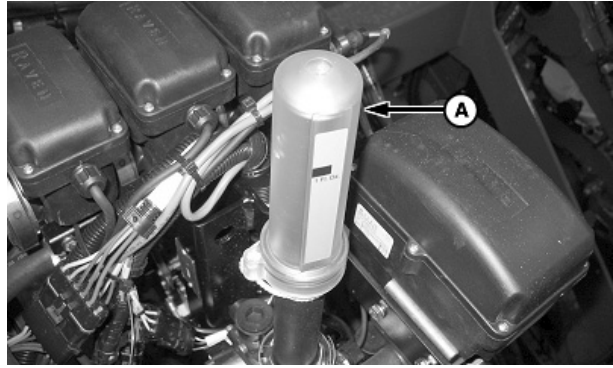
1. Injection pump must be primed prior to calibration. See PRIME INJECTION PUMP in Prime and Charge System section.
2. Turn OFF Product 1 and 2.
3. Lower planter.
4. Place master switch in ON position.
5. Clear SELF TEST speed, by doing the following.
 - Select SELF TEST key
 - Press and release ENTER key
 - Using numeric keys, enter 0
 - Press and release ENTER key to save

Continued on next page

OUO6045,0000904 -19-22JUL08-1/5

6. Unscrew cover (A) of calibration device.
7. Push plunger (B) down as shown. Reinstall calibration cover.

A—Calibration Cover
B—Plunger



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OOU6045,0000904 -19-22JUL08-2/5

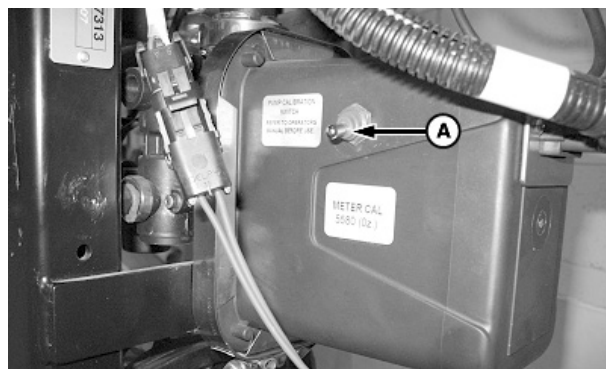
8. To start the pump, press up and release pump calibration switch (A) located on injection pump. Press up and release the pump calibration switch again, if it is necessary to stop the pump at any time.
9. The injection pump will pump a pre-determined amount and shutoff. This amount is 1 ounce.
10. If plunger indicator is within the calibration mark (B) on calibration cover, pump is in calibration.
11. If indicator is close to the programmed amount but is either over or under, adjust METER CAL number for Product 2 as follows:
 - If amount collected is less than desired amount, increase the METER CAL number slightly for Product 2.
 - If amount collected is more than desired amount, decrease the METER CAL number slightly for Product 2.
 - If amount collected is considerably low, clean the Injection Pump Check Valves. See REMOVE INJECTION PUMP CHECK VALVES and DISASSEMBLE AND ASSEMBLE INLET CHECK VALVE and DISASSEMBLE AND ASSEMBLE DISCHARGE CHECK VALVE in System Maintenance section.

Example:

Increasing METER CAL number by 3% will result in pump pumping 3% more.

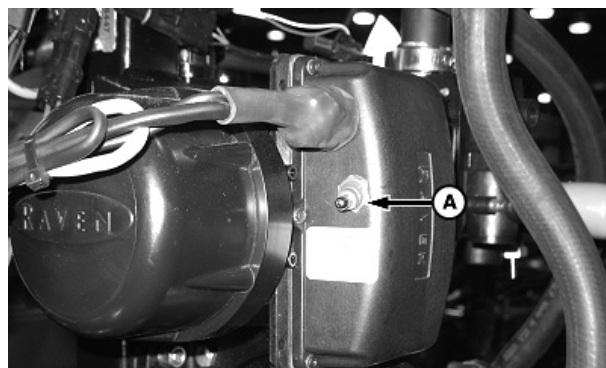
Decreasing METER CAL number by 3% will result in pump pumping 3% less.

A—Calibration Switch
B—Calibration Mark



1770NT/1790/DB60

A61154 -UN-17OCT07



DB80/90

A61300 -UN-07NOV07



A61233 -UN-29OCT07

Continued on next page

OUC6045,0000904 -19-22JUL08-3/5

A58309 -UN-20JUL06

12. To enter new calibration number, do the following:

- Press and release PRODUCT SELECT key until Product 2 is highlighted.



OUC6045,0000904 -19-22JUL08-4/5

- Press METER CAL key.
- Press ENTER key.
- Enter new METER CAL number using numeric keys.
- Press ENTER key to save.

13. Repeat calibration procedure to verify new calibration numbers.



A61234 -UN-29OCT07

OUC6045,0000904 -19-22JUL08-5/5

Calculate Valve Cal

The recommended initial Control Valve calibration number for VALVE CAL on Product 1 (Carrier) is 2122. Initial VALVE CAL for Product 2 (chemical) is 22.

The VALVE CAL number is used to adjust response time of control valve to changes in machine speed.

After operating this system, the number can be refined and changed if desired.

The following explains the sequence of digits and what they are used for in the VALVE CAL procedure, we are using 2122 for Product 1 (Carrier) as the example:

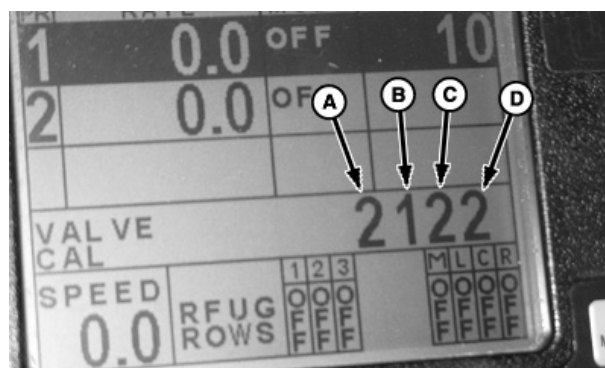
OUO6045,00008F3 -19-06NOV07-1/2

NOTE: Do not enter a Valve Backlash number for Product 2 (chemical).

- **First digit (A)** is 2 and is entered for **Valve Backlash:** This number controls the time of first correction pulse after a change is detected. Range is 1—9. 1 being a Short Pulse, 9 being a Long Pulse.

IMPORTANT: Running the control valve pulse length too fast will cause the system to oscillate.

- **Second digit (B)** is 1 and is entered for **Valve Speed:** This controls response time of control valve. Range is 1—9. 1 is slow and 9 is fast.
- **Third digit (C)** is 2 and is entered for **Brake Point:** This controls the time the control valve begins slowing down, so it will not overshoot desired rate. Range is 0—9. 0 is 5%, 1 is 10% and 9 is 90%.
- **Fourth digit (D)** is 2 and is entered for **Dead-Band:** This is the difference between target and actual application rate when rate correction is not performed. Range is 1—9. 1 is 1% and 9 is 9%.



A—Valve Backlash
B—Valve Speed
C—Brake Point
D—Dead-Band

A58401 -UN-2&JUL06

OUO6045,00008F3 -19-06NOV07-2/2

Rate Calibration

For Product 1 (Carrier), data is entered as gallons per acre (gal./acre).

For Product 2 (Injection), data is entered in ounces per acre (oz./acre).

Refer to the chemical manufacturer's label for recommended rates.

Nozzles must be rated for the suggested rate.

Be sure to change the METER CAL number in Product 1 to reflect the nozzles being used. METER CAL Product 1 equals nozzle gpm at 40 psi.

Adjust these entries as needed from the run screen once system is in operation.

OUO6045,00008F4 -19-18JAN08-1/1

Standard Nozzle Pressure and Flow Chart

The following table shows, how speed changes psi.
(pressure) to maintain target rate.

Nozzle Flow and Pressure Chart Green Tip, Black 0067 Pre-Orifice										
Ground Speed km/h (mph)		6.5 (4)	7.2 (4.5)	8.0 (5)	8.8 (5.5)	9.6 (6)	10.4 (6.5)	11.2 (7)	12 (7.5)	12.8 (8)
PSI	Capacity 1 Nozzle GPM	30 in. Nozzle Spacing Gallons Per Acre								
10	0.034	1.7	1.5	1.3	1.2	1.1	1.0	0.9	0.9	0.8
15	0.041	2.0	1.8	1.6	1.5	1.4	1.2	1.2	1.1	1.0
20	0.047	2.3	2.1	1.9	1.7	1.6	1.4	1.3	1.3	1.2
25	0.053	2.6	2.3	2.1	1.9	1.7	1.6	1.5	1.4	1.3
30	0.058	2.9	2.6	2.3	2.1	1.9	1.8	1.6	1.5	1.4
35	0.063	3.1	2.8	2.5	2.3	2.1	1.9	1.8	1.7	1.6
40	0.067	3.3	2.9	2.7	2.4	2.2	2.0	1.9	1.8	1.7
50	0.075	3.7	3.3	3.0	2.7	2.5	2.3	2.1	2.0	1.9
60	0.082	4.1	3.6	3.2	3.0	2.7	2.5	2.3	2.2	2.0
70	0.089	4.4	3.9	3.5	3.2	2.9	2.7	2.5	2.3	2.2

OUO6045,0000945 -19-26NOV07-1/1

Carrier Wet System

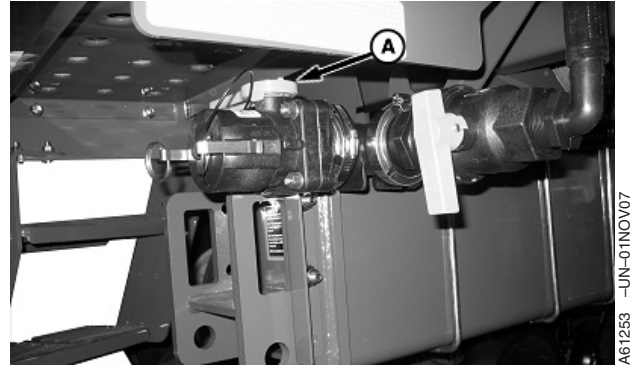
Carrier System Valves

Quik-Fill™ Valve

QUIK-FILL™ valve completes the connection between the nurse tank and the carrier tanks of the system.

Attach nurse tank hose to machine and rotate valve handle (A) until parallel with plumbing, to open the connection between the nurse tank and the carrier tanks.

After filling is completed, rotate handle back to the closed position as shown before disconnecting nurse tank hose from the system.



1770NT Shown

A—Valve Handle

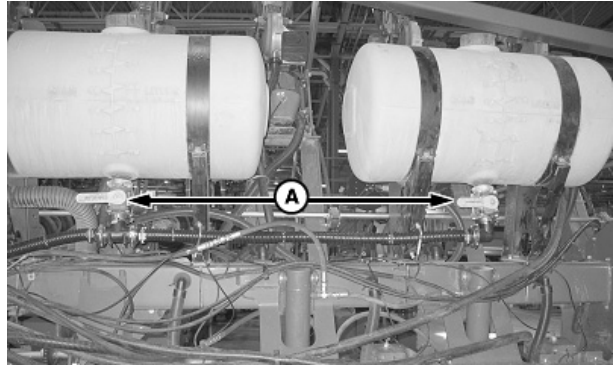
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OOU6045,0000959 -19-26NOV07-1/2

Carrier Tank ON/OFF Valve

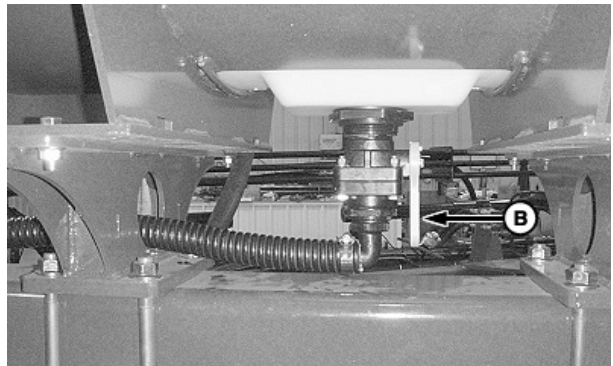
Carrier tank ON/OFF valve handles (A), (B), and (C), allows the operator to shutoff tanks when not in use. Separate tanks and valves on 1790 (16/31 and 16/32) allows product to be drawn from only one tank at a time, if needed.

- A—ON/OFF Valve Handles (1790)
- B—ON/OFF Valve Handle (Deere/Bauer)
- C—ON/OFF Valve Handle (1770NT)



A68828 -UN-21SEP06

1790 Valves Closed



A61061 -UN-08OCT07

DB Series Valve Open



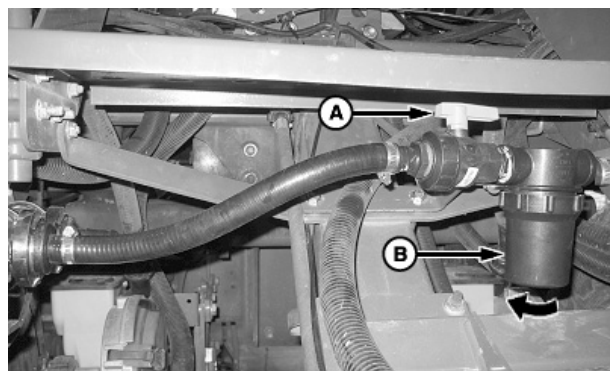
A61362 -UN-14NOV07

1770NT Valve Open

OUO6045.0000959 -19-26NOV07-2/2

Clean Carrier Tank Strainer

1. Rotate valve handle (A) horizontally to shut off water supply to carrier pump.
2. Remove strainer cap (B).
3. Remove strainer and clean it in fresh clean water.
4. Reinstall strainer and strainer cap (B).
5. Rotate valve handle (A) to open water supply to carrier pump.
6. Prime carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.



Valve Shown in Open Position

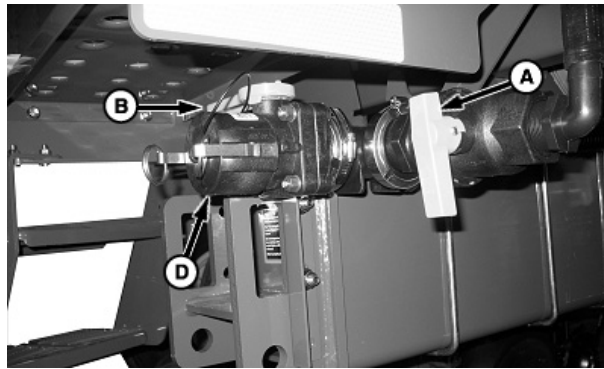
A—Handle
B—Strainer Cap

OUC6045,0000958 -19-21NOV07-1/1

Fill Carrier Tank

1. Rotate tank-to-strainer valve handle (A) to the closed position.
2. Remove cap (D) from QUIK-FILL™ coupler.
3. Attach nurse tank hose to QUIK-FILL™ coupler.
4. Ensure all carrier tank valve handles (C) are in the open position as shown.
5. Rotate QUIK-FILL™ valve handle (B) until parallel with plumbing to open the connection between the nurse tank and the carrier tanks.
6. Fill carrier tanks.
7. After filling is completed, rotate handle (B) back to the closed position, before disconnecting nurse tank hose from the system.
8. Rotate valve handle (A) until parallel with plumbing, to open water supply to carrier pump.
9. Prime carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.

A—Tank-to-Strainer Valve Handle
 B—Quik-Fill Valve Handle
 C—Carrier Tank Valve Handle
 D—Cap



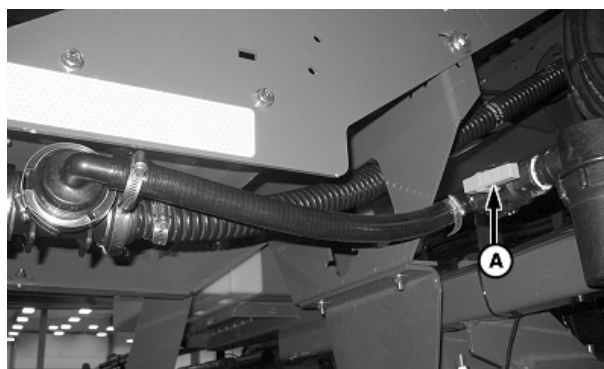
1770NT Closed

A61254 -UN-01NOV07



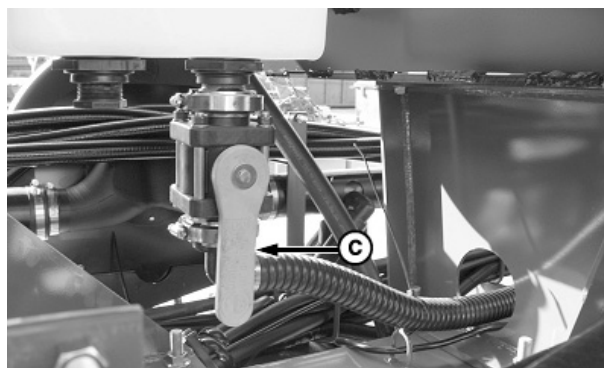
1790 Open

A61155 -UN-17OCT07



DB Series Open

A61156 -UN-17OCT07



1770NT Tank Valve Open

A61382 -UN-14NOV07

OUO6045,0000A8D -19-14NOV07-1/1

Chemical System

Install and Connect Chemical Containers

IMPORTANT: Check valve coupler (G) is always connected to lower right-hand chemical container (B).

1. Release latch (A) and open doors on chemical cabinet.

NOTE: Chemical containers are stamped with "This Side UP".

2. Install chemical containers (B) with correct side up, and with quick connect coupler pointing toward the doors as shown.

3. Remove protective seal from chemical container.



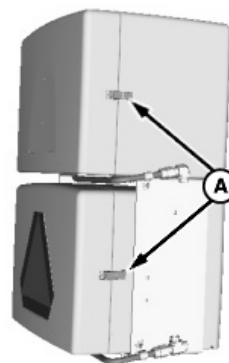
CAUTION: Always wear appropriate personal protective equipment as recommended by the chemical manufacturer when connecting chemical container to system.

NOTE: Connecting quick coupler to the chemical container requires some force to accomplish.

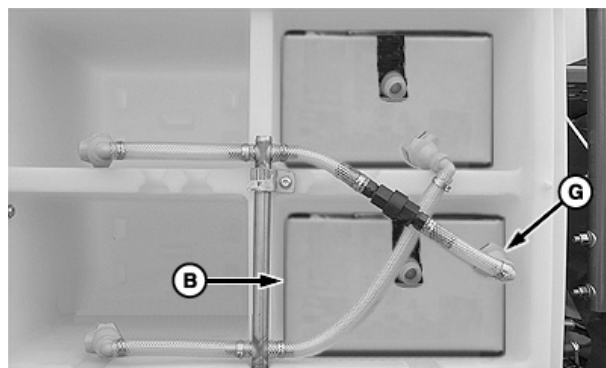
4. To connect quick couplers (C) to chemical containers, do the following:

- a. Remove spring lock pin (D) and tool (E) from storage position.
- b. Place tool (E) behind coupler on chemical container as shown.
- c. While holding coupler on chemical container with tool (E), push down on button (F), slide onto chemical container, and release button.
- d. Place tool (E) in storage position and install spring lock pin (D).

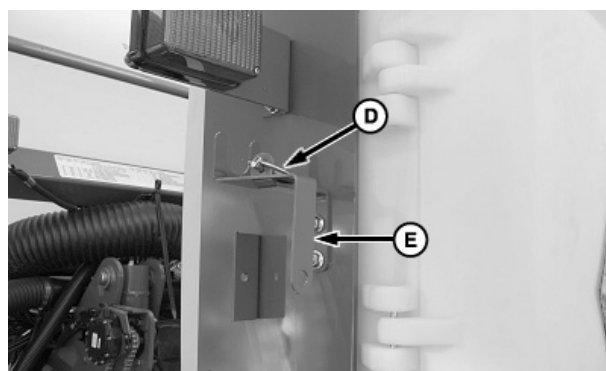
A—Latch
B—Chemical Container
C—Quick Coupler
D—Spring Lock Pin
E—Tool
F—Button
G—Check Valve Coupler



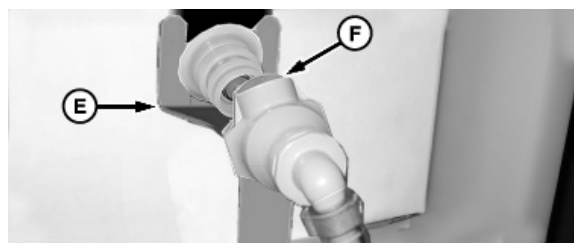
A61041 -UN-01OCT07



A61329 -UN-12NOV07



A61328 -UN-12NOV07



A61256 -UN-01NOV07

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OUC6045,000095B -19-14NOV07-1/3

5. Give a slight pull on quick coupler to ensure it has engaged the chemical container securely.



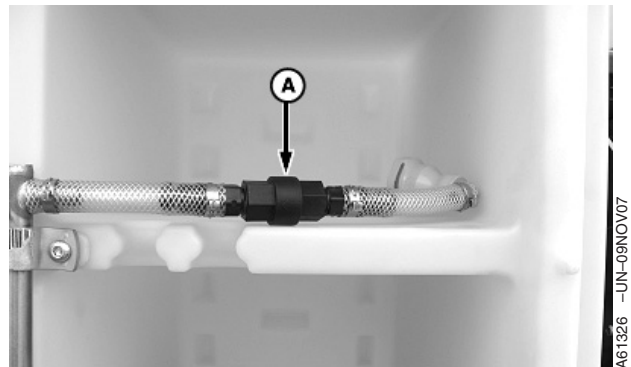
CAUTION: Always wear appropriate personal protective equipment as recommended by the chemical manufacturer when disconnecting chemical container from system.

6. Remove quick coupler by pushing down on button and pull quick coupler from chemical container.
7. Close and latch door.

OUC6045,000095B -19-14NOV07-2/3

Chemical In-Line Check Valve

1. Check valve (A) is always connected to the lower right-hand chemical container in lower cabinet.
2. The check valve is a restriction in the chemical manifold for the purpose of ensuring all chemical containers empty, before this one.
3. When the chemical container connected to check valve is the last container to empty and the temperature is close to 0° C (32° F) a VAC ERR message may be displayed on console. This is normal.



A—Check Valve

OUC6045,000095B -19-14NOV07-3/3

Clean Chemical Injection Pump Inlet Screen



CAUTION: Spray solutions or vapors are extremely dangerous. Treat all spray chemicals, solutions or solution residue with caution. When in doubt, proceed as though contamination exists. Always read and understand the chemical manufacturer's label prior to handling chemical solutions or components.

Keep spray material from contacting skin. If spray material contacts skin, wash off immediately with clean water and detergent or follow instructions of chemical manufacturer.

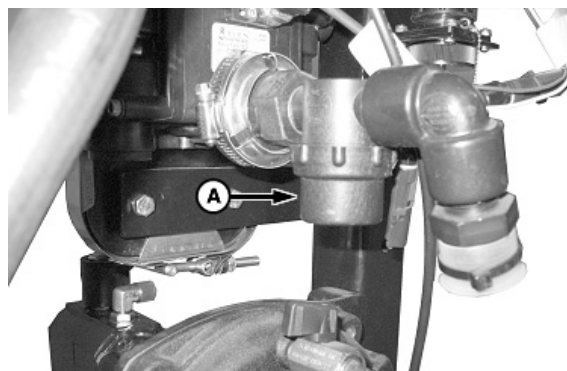
Remove strainer cap (A) and clean inlet screen (B) on chemical injection pump only when a VAC ERR is displayed on the monitor display.

1. Using POWER key, turn monitor OFF.
2. Disconnect all chemical containers from manifold assembly in chemical cabinets.



CAUTION: Always wear appropriate personal protective equipment as recommended by the chemical manufacturer when removing injection pump strainer.

3. Remove strainer cap (A).
4. Clean inlet screen (B) and strainer cap in clean water.
5. Inspect seal (C) for damage and replace as necessary.
6. Reinstall strainer cap with inlet screen.
7. Connect all chemical containers to manifold assembly in chemical cabinets.
8. Prime injection pump. (See PRIME INJECTION PUMP in Prime and Charge System section.)



A—Strainer Cap
B—Inlet Screen
C—Seal

A61136 -UN-12OCT07

A61137 -UN-12OCT07

Plant Refuge Rows Option (Only)

During Setup, if refuge rows option was selected and these are the “only” rows that will receive the chemical mixture at any time, Install supplied blank nozzle tips on all rows that do not receive chemical mixture. This keeps tips free of dirt and debris.

See SWITCH 12 and 16 Row machines from ALL ROWS to REFUGE ROWS 1770NT and 1790, SWITCH 12 and 16 Row Machines from REFUGE ROWS to ALL ROWS 1770NT and 1790, SWITCH from ALL ROWS to REFUGE ROWS 1770NT 24 Row Only, SWITCH from REFUGE ROWS to ALL ROWS 1770NT 24 Row Only, SWITCH from ALL ROWS to REFUGE ROWS DB60, DB80, DB90 Planters, SWITCH from REFUGE ROWS to ALL ROWS DB60, DB80, DB90 Planters in Monitor Operation section for machine specific information.



CAUTION: Do not select "All Rows" on the monitor for application without replacing the spray tips and confirming Tip Volume Cal and METER CAL values are correct. See machine-specific information in Monitor Operation section.

OUC6045,0000A8F -19-22JUL08-1/1

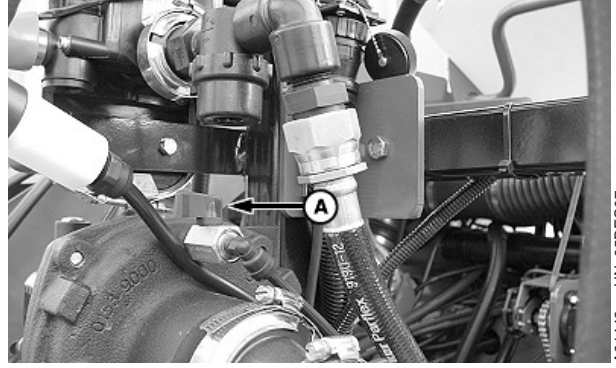
Prime and Charge System

Prime Carrier Pump

1. Open ON/OFF valve on bottom of carrier tanks.

IMPORTANT: Do not operate carrier pump without fluid in system, doing so may cause pump damage.

2. Fill carrier tank with water. (See FILL CARRIER TANK in Carrier Wet System section.)
3. Open bleed valve (A).
4. Leave valve open until water coming out end of hose is free of air bubbles.
5. Close bleed valve.
6. Place master switch in OFF position.



A—Bleed Valve

Continued on next page

OUC6045,000093A -19-20NOV07-1/2

7. Use PRODUCT SELECT key and highlight Product 1.
8. Use AUTO/ MANUAL key and place Product 1 in AUTO Mode.
9. Use PRODUCT SELECT key and highlight Product 2.
10. Ensure Product 2 is OFF.
11. Select SELF TEST key.
12. Press and release ENTER key.
13. Using numeric keys, enter 6.0.
14. Press and release ENTER key to save.

NOTE: Set tractor selective control valve used for FRAME RAISE/LOWER hydraulics to continuous flow.

15. Activate tractor FRAME RAISE/LOWER SCV into LOWER detent to lower planter to ground. Leave SCV in LOWER detent position.

16. Place master switch in ON position.

17. The carrier pump must now be running.

NOTE: Master switch must be cycled, if monitor shows LOW PSI.

18. Console displays LOW PSI and shuts off the system if it does not come up to pressure in fifteen seconds.

19. If pump does not prime, check the following and return to step 3.

- Carrier system tanks for closed valves.
- Hoses from carrier tanks to carrier pump for kinked or pinched hoses.
- Is carrier pump strainer ON/OFF valve in OPEN position.
- Does the carrier pump run.



A61258 -UN-01NOV07

Prime Injection Pump

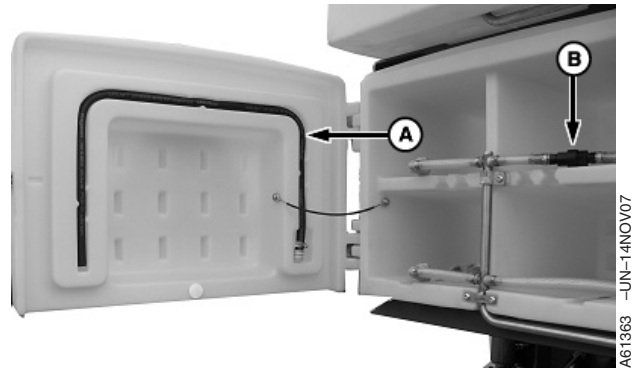
1. Place master switch in OFF position.
2. Lower planter.

NOTE: A flushing hose is supplied with the system. It is located on the inside of the lower chemical cabinet.

3. Connect flushing hose (A) to chemical hose with check valve (B) in lower chemical cabinet.
4. Priming injection pump the first time, place open end of flushing hose in container of N305634 Winterizer Fluid.

If injection pump has already been primed with Winterizer Fluid, remove flushing hose from manifold assembly and connect chemical containers to manifold assembly in chemical cabinets and proceed with next step.

5. On console, do the following;
 - a. Use PRODUCT SELECT key to Highlight Product 1.
 - b. Turn Product 1 OFF using PRODUCT ON/OFF key.
 - c. Place master switch in ON position.



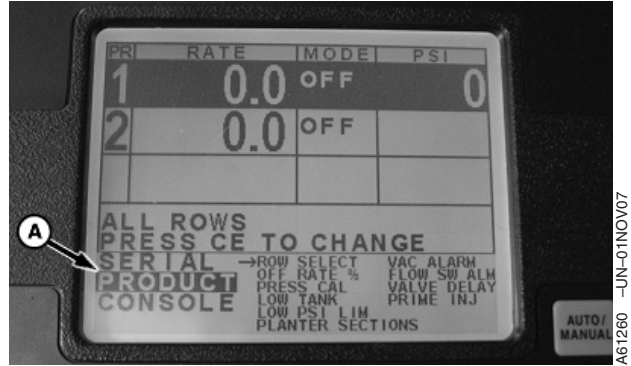
A—Flushing Hose
B—Check Valve

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OUC6045,000093B -19-18JAN08-1/5

- d. Press DATA MENU key, until PRODUCT (A) is highlighted as shown.

A—Product



A58318 -UN-20JUL06

DATA
MENU

OUC6045,000093B -19-18JAN08-2/5

- e. Press Up Arrow key until selector arrow (A) points to PRIME INJ. Display shows PRESS CE TO PRIME INJECTION PUMP on line (B).

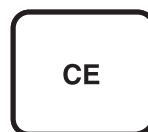
A—Selector Arrow
B—Line



Continued on next page

OUC6045,000093B -19-18JAN08-3/5

- f. Press CE key to begin priming pump.



6. If pump successfully primed, display will show PRIM DONE (A).
7. If pump did not successfully prime. Display shows either VAC ERR or TIME OUT.
8. Repeat priming procedure several times. After several attempts at priming and VAC ERR or TIME OUT are still displayed, check the following.
 - VAC ERR— Verify chemical container is connected and has product.
 - TIME OUT — Pump did not prime in the time allowed, do the following;
 - Check for leak between injection pump and chemical container.
 - Verify that injection pump runs during procedure.
 - Injection pump has contaminated valves. See REMOVE AND INSTALL CHECK VALVES, DISASSEMBLE AND ASSEMBLE INLET CHECK VALVE and DISASSEMBLE AND ASSEMBLE DISCHARGE CHECK VALVE in System Maintenance section.
 - LED on flow switch sensor will only flash after pump has been successfully primed.



A—PRIM DONE

Charge System

1. Carrier pump must be primed. See PRIME CARRIER PUMP in this section.
2. Prime injection pump with chemical. See PRIME INJECTION PUMP in this section.
3. Raise planter completely.
4. Place master switch in OFF position.
5. Place Product 1 and Product 2 in AUTO Mode.
6. Select SELF TEST key.
7. Press and release ENTER key.
8. Using numeric keys, enter 6.0.
9. Press and release ENTER key to save.
10. Set tractor FRAME RAISE/LOWER hydraulics to continuous flow.
11. Activate tractor SCV for FRAME RAISE/LOWER and place in LOWER detent position. Leave SCV in LOWER detent position.
12. Lower planter.
13. Place master switch in ON position.
14. Carrier pump and injection pump should now be ON.
15. Watch flow monitors on planter. When water in flow monitors change color, system is charged with chemical.

NOTE: SELF TEST speed will clear automatically with planter lowered, and a speed of 1.6 km/h (1 mph) or greater detected.

16. SELF TEST can clear in 3 ways:
 1. Proceed to planting and application of chemical.
 2. Steps 17 through 20.
 3. Turn monitor power off.

17. Select SELF TEST key.
18. Press and release ENTER key.
19. Using numeric keys, enter 0.
20. Press and release ENTER key to save.
21. System is now ready for planting.

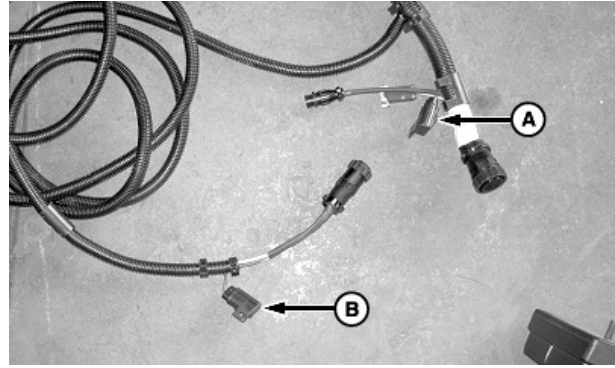
OUO6045,000093C -19-07NOV07-2/2

System Maintenance

Fuse Description and Location

Fuses (A and B) are incorporated into the Central Insecticide System power supply harness and main system harness to protect the system. The following is a brief description:

- F1 fuse (A), provides 10 amp protection for the Central Insecticide System monitor console. F1 is located in the Central Insecticide System cab harness near the back of the monitor display.
- F2 fuse (B), provides 20 amp protection for the Central Insecticide System injection system located on the rear of the planter. F2 is located in the Central Insecticide System cab harness and is near the connection for the tractor's 3-way convenience outlet.



A—10 Amp Fuse
B—20 Amp Fuse

OUC6045,0000AA1 -19-14NOV07-1/1

Recommended System Cleaners And Coatings

IMPORTANT: As with any chemical product, always read label and follow directions from manufacturer.

Use John Deere SPRAY MASTER cleaning agents, equipment coating and winterizer fluid for best results. These chemicals are available from your John Deere dealer.

- Equipment Coating N205703
- Winterizer Fluid N305634
- Spray Tank Cleaner N305631
- TY25396 Coating

OUC6045,000095A -19-02NOV07-1/1

Decontaminate Spray Equipment



CAUTION: Decontaminate work area before service. Decontaminate in a safe area with water or a neutralizing agent as recommended by chemical manufacturer.

Spray solutions or vapors are extremely dangerous. Treat all spray chemicals, solutions or solution residue with caution. When in doubt, proceed as though contamination exists.

Keep spray material from contacting skin. If spray material contacts skin follow instructions of chemical manufacturer.

OOU6045,00009F1 -19-02NOV07-1/1

Clean Carrier Tank Strainer - As Required

See CLEAN CARRIER TANK STRAINER in Carrier Wet System section.

OOU6045,0000ABB -19-21NOV07-1/1

Clean Chemical Injection Pump Inlet Screen - As Required

See CLEAN CHEMICAL INJECTION PUMP INLET SCREEN in Chemical System section.

OOU6045,0000ABC -19-21NOV07-1/1

Remove and Install Check Valves



CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you and others. Decontaminate all spraying equipment before performing repairs or placing in storage. Decontamination is performed by washing with water, neutralization, or by means recommended by the chemical manufacturer.

IMPORTANT: Refer to chemical manufacturer's label for required personal protective equipment, when working with chemical system.

Remove, disassemble, clean, and reassemble injection pump check valves if the following conditions exist, which may or may not appear on the display:

- Operator sees FLOW SW alarm.
 - Operator observes that not enough chemical was used. Verify pump calibration.
 - If pump does not CAL then clean or replace check valves.
1. Perform injection pump and system clean out procedure. (See INJECTION PUMP AND SYSTEM CLEAN OUT (End of Season) in this section.)

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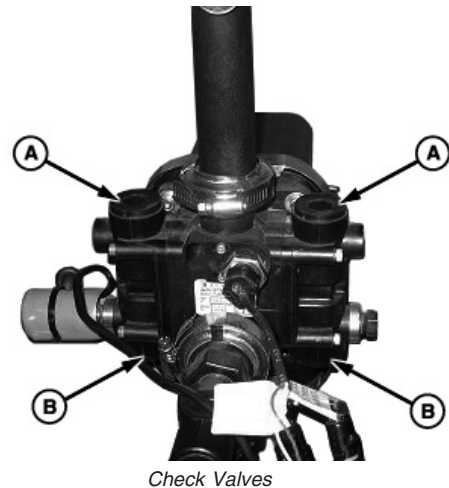
OOU6045,0000ABD -19-21NOV07-1/3

2. Clean area around check valves (A and B) of all dirt and debris.

IMPORTANT: Plug check valve bores to prevent system contamination.

3. Remove check valves (A or B) and repair or replace as needed. (See DISASSEMBLE AND ASSEMBLE DISCHARGE CHECK VALVE or DISASSEMBLE AND ASSEMBLE INLET CHECK VALVE in this section.)

A—Discharge Check Valves
B—Inlet Check Valves



A61241 -UN-31OCT07

OUC6045,0000ABD -19-21NOV07-2/3

4. Apply MULTI-PURPOSE HD LITHIUM™ grease to O-rings (A and B) on valve body and plug.
5. Install and securely tighten check valves.

A—O-ring
B—O-ring



Discharge Valve Shown

A61262 -UN-02NOV07

OUC6045,0000ABD -19-21NOV07-3/3

Disassemble and Assemble Inlet Check Valve



CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you and others. Decontaminate all spraying equipment before performing repairs or placing in storage. Decontamination is performed by washing with water, neutralization, or by means recommended by the chemical manufacturer.

IMPORTANT: Refer to chemical manufacturer's label for required personal protective equipment, when working with chemical system.

IMPORTANT: Plug check valve bore to prevent system contamination.

1. Remove inlet check valve. (See REMOVE AND INSTALL CHECK VALVES in this section.)

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OUO6045,0000AB6 -19-26NOV07-1/2

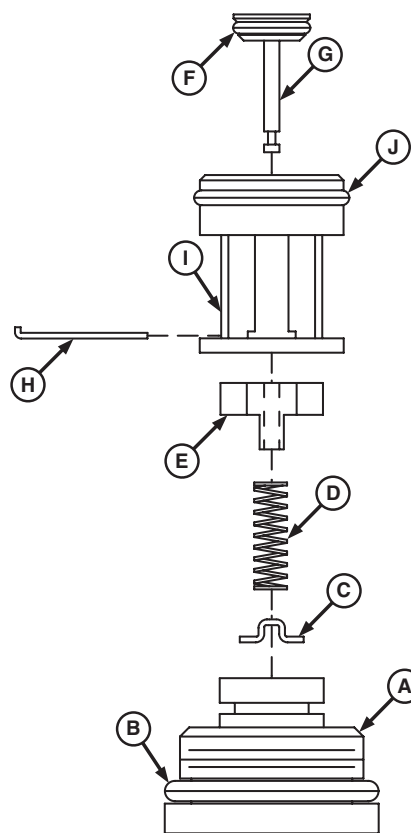
IMPORTANT: It is recommended to place check valve inside a clear plastic bag during disassembly to prevent losing small parts.

2. Remove clip (H) to separate valve body (I) from plug (A).
3. Push down on retainer (C), turn retainer 90°, lift up and remove retainer from poppet (G).
4. Disassemble the remaining valve parts using the exploded view as a guide.

IMPORTANT: O-rings (B, J and F) are made of chemical resistant material and should only be replaced with O-rings provided by dealer.

5. Inspect parts for wear, nicks, pits and foreign material. Repair or replace as necessary.
6. Reassemble in reverse order.
7. Install check valve. (See REMOVE AND INSTALL CHECK VALVES in this section.)

A—Plug
B—O-ring
C—Retainer
D—Spring
E—Guide
F—O-ring
G—Poppet
H—Clip
I—Valve Body
J—O-ring



Exploded View of Inlet Check Valve

A58629 -UN-05SEP06

OUC6045,0000AB6 -19-26NOV07-2/2

Disassemble and Assemble Discharge Check Valve



CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you and others. Decontaminate all spraying equipment before performing repairs or placing in storage. Decontamination is performed by washing with water, neutralization, or by means recommended by the chemical manufacturer.

IMPORTANT: Refer to chemical manufacturer's label for required personal protective equipment, when working with chemical system.

IMPORTANT: Plug check valve bore to prevent system contamination.

1. Remove discharge check valve. (See REMOVE AND INSTALL CHECK VALVES in this section.)

OUO6045,0000AB5 -19-26NOV07-1/3

IMPORTANT: It is recommended to place check valve inside a clear plastic bag during disassembly to prevent losing small parts.

2. Remove clip (B) to separate valve body (C) from plug (A).

A—Plug
B—Clip
C—Valve Body



A61239 -JUN-31OCT07

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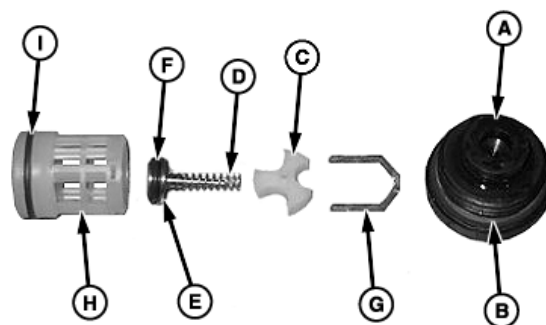
OUO6045,0000AB5 -19-26NOV07-2/3

3. Remove guide (C), spring (D) and poppet (E) from valve body (H).

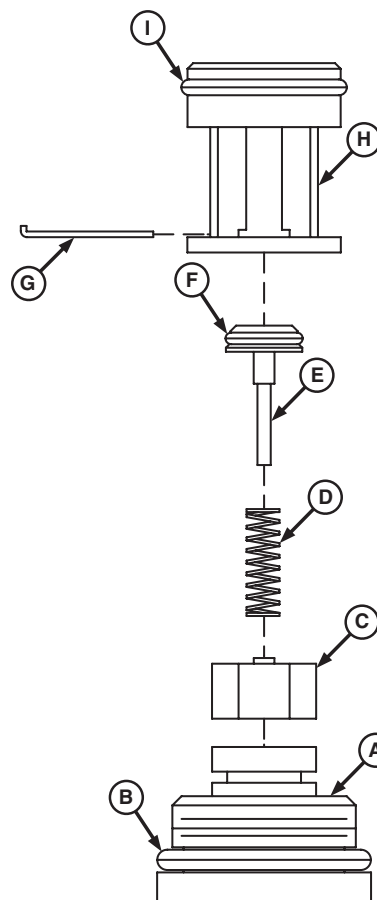
IMPORTANT: O-rings (B, F and I) used in check valves are made of chemical resistant material and should only be replaced with O-rings provided by dealer.

4. Inspect parts for wear, pits, nicks or foreign material. Repair or replace as necessary.
5. Assemble in reverse order.
6. Install check valve. (See REMOVE AND INSTALL CHECK VALVES in this section.)

A—Plug
B—O-ring
C—Guide
D—Spring
E—Poppet
F—O-ring
G—Clip
H—Valve Body
I—O-ring



Actual View



Exploded View

A61238 -UN-31OCT07

A58628 -UN-05SEP06

OUC6045,0000AB5 -19-26NOV07-3/3

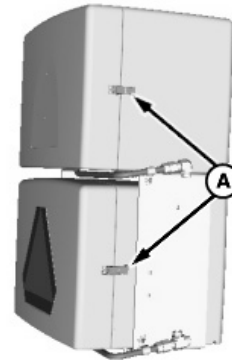
Remove, Clean, and Install In-Line Check Valve

1. Lower planter to the ground.
2. Turn off tractor.

OUO6045,0000010 -19-17APR08-1/6

3. Release latch (A) and open doors on chemical cabinet.
4. Disconnect all chemical containers from manifold couplers.
5. Obtain an approved chemical catch container.

A—Latch



A61041 -UN-01OCT07

OUO6045,0000010 -19-17APR08-2/6

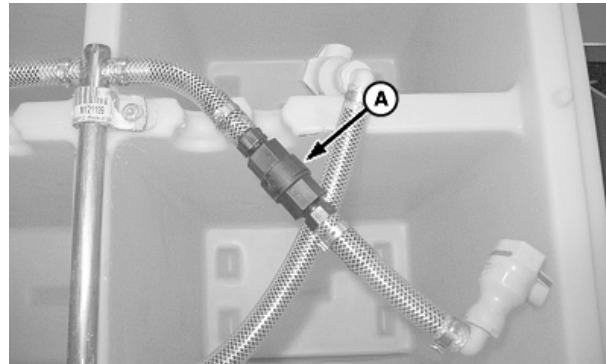
CAUTION: Always wear appropriate personal protective equipment as recommended by the chemical manufacturer when disconnecting chemical container from system.

6. Place catch container under check valve assembly (A).
7. Hold check valve end (B) stationary.

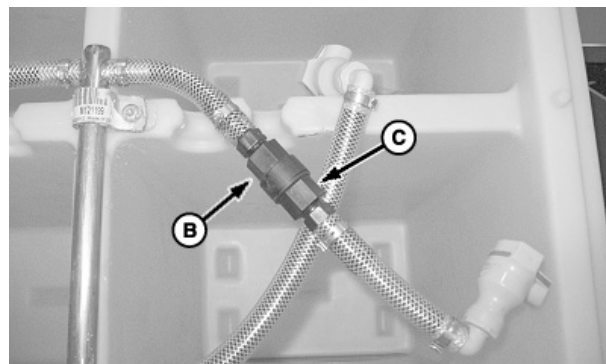
IMPORTANT: Check valve end (C) must be up when removing to prevent losing small parts.

8. Slowly turn valve end (C) counterclockwise and remove from check valve body.

A—Check Valve Assembly
B—Valve End
C—Valve End



A62454 -UN-17APR08



A62453 -UN-17APR08

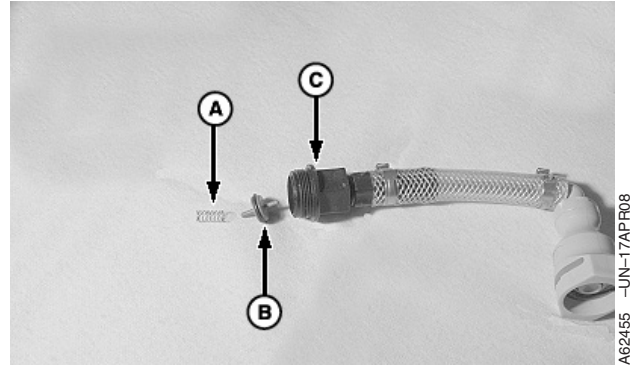
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OUO6045,0000010 -19-17APR08-3/6

NOTE: Note orientation of poppet (B) in valve body (C).

9. Remove spring (A) and poppet (B) from valve body (C).
10. Wash spring (A), poppet (B), and valve body (C) in clean soapy water.

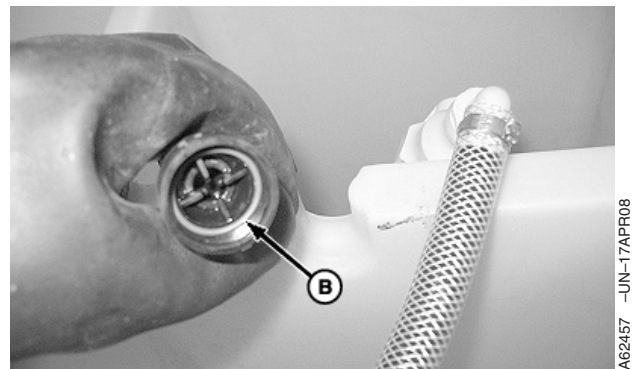
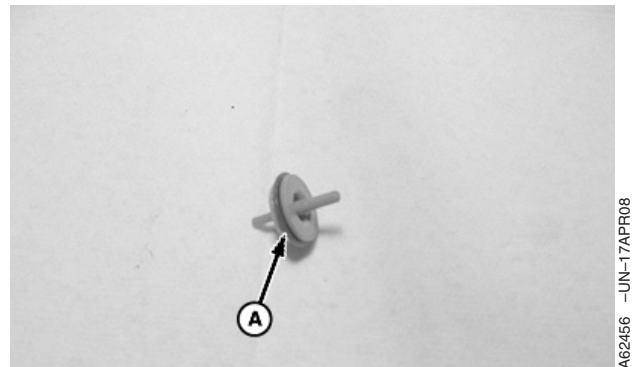
A—Spring
B—Poppet
C—Valve Body



OOU6045,0000010 -19-17APR08-4/6

11. Inspect O-ring (A) on poppet and O-ring (B) in valve body, replace O-rings as needed.
12. Reassemble poppet and spring in valve body as noted during removal.

A—O-ring
B—O-ring



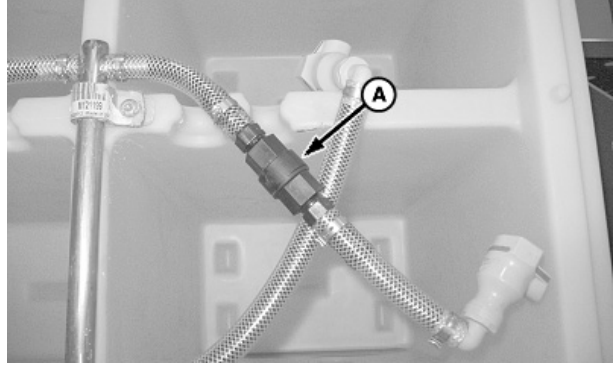
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OOU6045,0000010 -19-17APR08-5/6

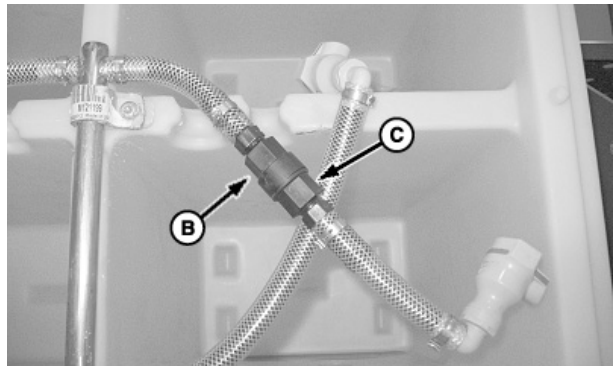
CAUTION: Always wear appropriate personal protective equipment as recommended by the chemical manufacturer when connecting chemical container to system.

13. Hold valve end (B) stationary.
14. Thread valve end (C) clockwise into valve end (B). Tighten valve end (C) by hand.
15. Reconnect all chemical containers to manifold couplers.
16. Prime injection pump. See PRIME INJECTION PUMP in Prime and Charge System section.

A—Check Valve Assembly
B—Valve End
C—Valve End



A62454 -UN-17APR08



A62453 -UN-17APR08

OUC6045,0000010 -19-17APR08-6/6

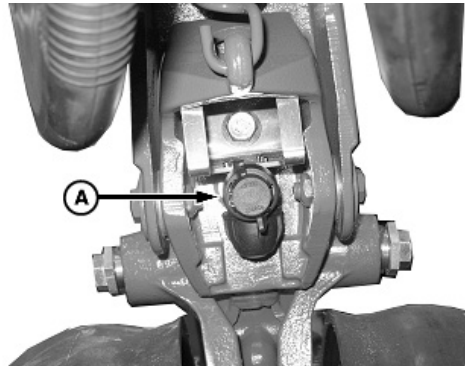
Install Spray Nozzle Blank Caps

Install blank caps (A) on nozzles when machine is in storage or system is not being utilized while operating the planter to prevent contamination.

For refuge row option, install blank caps on all nozzles that do not receive chemical mixture.

CAUTION: Do not select "All Rows" on the monitor for application without replacing the spray tips.

A—Blank Cap



A60439 -UN-16JUL07

OUC6045,0000A58 -19-02NOV07-1/1

Spray Nozzle Calibration and Maintenance

Spray nozzles used are for banding applications as they apply a uniform amount of chemical over the entire width of the spray pattern.

Frequency of Nozzle Calibration

Even though the spray system operation can be theoretically determined using mathematical formulas, there are still many reasons to verify that the output is what it should be. For example,

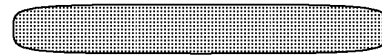
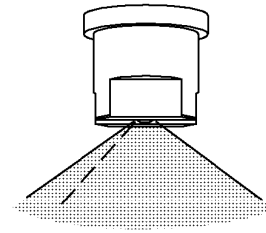
- wear (especially on nozzles)
- damaged or malfunctioning parts
- plugged or restricted passages (such as strainers and hoses)

A pre-season visual check is not adequate for accurate application, or the fact that equipment and nozzles are new. Also, manufacturer's catalogs are only guidelines; fine-tuning the spray system is the operator's responsibility.

A sprayer output should be checked:

- After any adjustments
- When switching to a new chemical or application rate
- After continuous use under the same circumstances

Verifying the results of an adjustment is standard procedure for all John Deere products. Never adjust the spray system without verifying the output from the nozzles.



A58822 -UN-20SEP06

Misapplication Issue	Resulting In:
Wasted Resources	Over-or-under-application of expensive chemicals
Reduced Yield/Quality	Chemical stress, pest pressure remaining
Effect on Future Crops	Chemical carryover

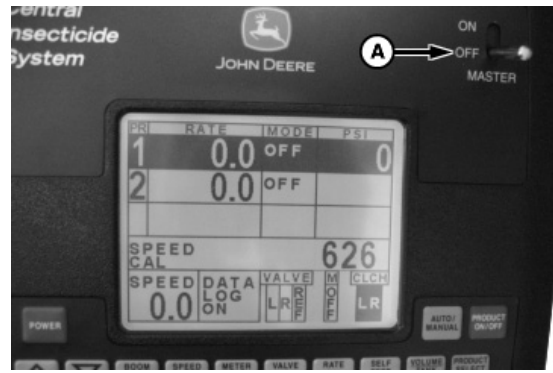
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OUC6045,0000954 -19-26NOV07-1/9

Nozzle Calibration

To Verify Spray System Output:

1. Turn console power ON, place master switch (A) in OFF position.
2. Using AUTO/MANUAL key, place Product 1 in AUTO mode.
3. Ensure Product 2 is OFF.
4. Set tractor selective control valve for FRAME RAISE/LOWER hydraulics to continuous flow and activate the SCV.
5. Lower planter.
6. Enter self test speed, by doing the following:
 1. Select SELF TEST key.
 2. Press and release ENTER key.
 3. Using numeric keys, enter 6.5.
 4. Press and release ENTER key to save.
7. Place master switch in ON position.



A—Master Switch

A61110 -UN-24OCT07

Continued on next page

OUO6045,0000954 -19-26NOV07-2/9



CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you or others. Decontaminate all spraying equipment before doing repairs or placing in storage. Decontamination should be done in a safe area by washing with water, neutralization, or by means recommended by the chemical manufacturer.

IMPORTANT: Refer to chemical manufacturer's label for required personal protective equipment, when working with chemical system.

8. **Hold a graduated pitcher under a nozzle for a certain length of time.** Use a stopwatch or other watch that shows seconds to know how long the pitcher was catching solution. Calculate the tips flow rate as follows. (Tip Flow Rate [L/min.] equals volume [L] collected times 60 over Time to Collect [sec] .)
9. **Compare the tip's actual flow rate with the required flow rate.** Refer to STANDARD NOZZLE PRESSURE AND FLOW CHARTS in Monitor Calibration section.
10. **Repeat Steps 8 and 9 with a couple of nozzles in each section.** It is necessary to check several nozzles on each section to get an average output. Even brand new nozzles will most likely not yield the exact flow rate expected.
11. **Clean or Replace nozzles if necessary.** Clean or replace any nozzle that varies from required flow rate by more than 10%. If two or more nozzles fail to pass, clean or replace all nozzles on that section.

Liters per minute

$$\text{Tip flow rate (L/min.)} = \frac{\text{Volume (L)} \times 60}{\text{Collection Time (sec.)}}$$

OR

$$\text{Tip flow rate (L/min.)} = \frac{\text{Volume (mm}^3\text{)} \times 60}{\text{Collection Time (sec.)} \times 1000}$$

Gallons per minute

$$\text{Tip flow rate (gpm)} = \frac{\text{Volume (gal)} \times 60}{\text{Collection Time (sec.)}}$$

OR

$$\text{Tip flow rate (gpm)} = \frac{\text{Volume (ounces)} \times 60}{\text{Collection Time (sec.)} \times 128}$$

A61470 -19-26NOV07

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OUO6045,0000954 -19-26NOV07-3/9

12. **Adjust pressure if necessary, then repeat entire procedure.** If average flow rate of the tips, which were checked, exceeds required flow rate, reduce pressure slightly by doing the following:

1. Place Product 1 in MANUAL mode.
2. Using DOWN arrow key (A) to decrease pressure. DEC (B) is displayed when DOWN arrow key is pressed.
3. Repeat Steps 8 and 9 with a couple of nozzles in each section.

A—Down Arrow Key
B—DEC

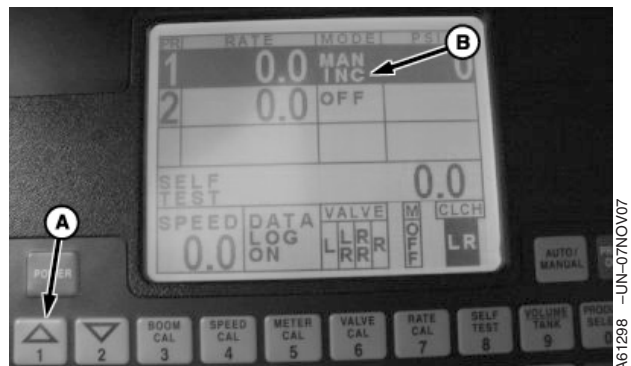


OUO6045,0000954 -19-26NOV07-4/9

13. If average flow rate was too low, increase pressure slightly by doing the following:

1. Place Product 1 in MANUAL mode.
2. Using UP arrow key (A) to increase pressure. INC (B) is displayed when UP arrow key is pressed.
3. Repeat Steps 8 and 9 with a couple of nozzles in each section.

A—Down Arrow Key
B—INC



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OUO6045,0000954 -19-26NOV07-5/9

Check and Replace Worn Nozzles



CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you or others. Decontaminate all spraying equipment before doing repairs or placing in storage. Decontamination should be done in a safe area by washing with water, neutralization, or by means recommended by the chemical manufacturer.

A major cause of improper spray application is nozzle wear. Maintenance and timely inspection helps to identify worn nozzles and extend service life.

1. **New Spray tips**, produce uniform distribution.

A58823 -UN-20SEP06



OUO6045,0000954 -19-26NOV07-6/9

2. **Worn Spray Tips**, have a higher output with more spray concentrated under the tip.

A58824 -UN-20SEP06



OUO6045,0000954 -19-26NOV07-7/9

3. **Damaged Spray Tips**, have a very erratic output, over-applying or under-applying.

A58825 -UN-20SEP06



Over-application can cause:

- Crop damage
- Chemical carryover, affecting future crops
- Ground water contamination

Under-application may:

- Require additional field passes
- Cause inadequate weed, pest or disease control, all of which impact crop yields

Continued on next page

OUO6045,0000954 -19-26NOV07-8/9

Clean Nozzle Body and Check Valve



CAUTION: Keep spare nozzle tips for field replacement. **DO NOT** clean nozzle tips by placing in mouth and blowing or you could swallow or inhale hazardous chemicals causing serious injury or death to you or others.

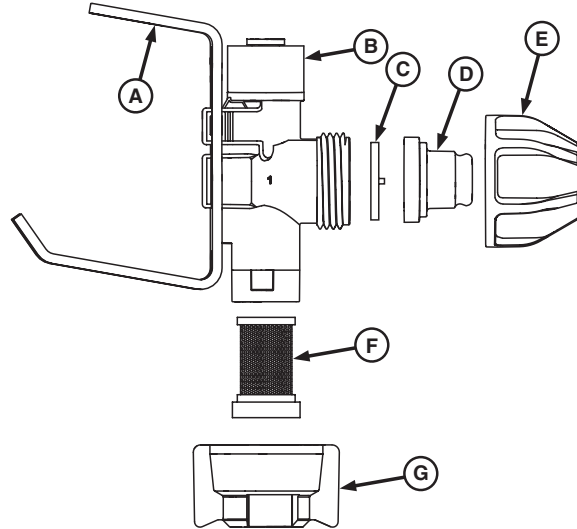
IMPORTANT: Do not use solvent or diesel fuel to clean nozzle body or check valve components.

IMPORTANT: Refer to chemical manufacturer's label for required personal protective equipment when working with chemical system.

1. Clean spray nozzle tips periodically, or any time irregular or uneven spray patterns are occurring.
2. Wash components in soapy water using a soft bristle brush to clean.

NOTE: Service life of plastic nozzle tips is greatly extended through careful cleaning. Do not use metal tools for cleaning as they can scratch hardened surfaces, which will accelerate wear, and shorten service life.

3. Check screen (E) if nozzle flow is not as expected.
4. Reassemble nozzle in reverse order. Ensure check valve retainer (E) is tight to prevent leakage.



- A—Mounting Bracket
- B—Nozzle Body
- C—Diaphragm
- D—Check Valve
- E—Check Valve Retainer
- F—Screen
- G—Spray Tip with Orifice

A60113 -JUN-23OCT07

OUO6045.0000954 -19-26NOV07-9/9

Carrier System Clean Out

IMPORTANT: Not following these instructions can result in plugged system components.

Carrier system must be cleaned out when planter is not going to be used for a period of 6 hours or more.

1. Turn console POWER ON, place master switch in OFF position.
2. Using AUTO-MANUAL key, place Product 1 in AUTO mode. Product 2 OFF.
3. Enter self test speed, by doing the following:
 - a. Select SELF TEST key.
 - b. Press and release ENTER key.
 - c. Using numeric keys, enter 8.0.
 - d. Press and release ENTER key to save.
4. Set tractor selective control valve for FRAME RAISE-LOWER hydraulics to continuous flow and activate the SCV.
5. Lower planter.
6. Clear distance, by doing the following:
 - a. Press and release DISTANCE key.
 - b. Press and release ENTER key.
 - c. Using numeric keys, enter 0.
 - d. Press and release ENTER key to save.
7. Place master switch in ON position.
8. Carrier system must be spraying.
9. Run system until distance reads 1500 ft.
10. Place master switch in OFF position.

Continued on next page

OUC6045,0000AC4 -19-22JUL08-1/2

NOTE: System must be charged with chemical before planting.

11. System is now flushed with water.

OUO6045,0000AC4 -19-22JUL08-2/2

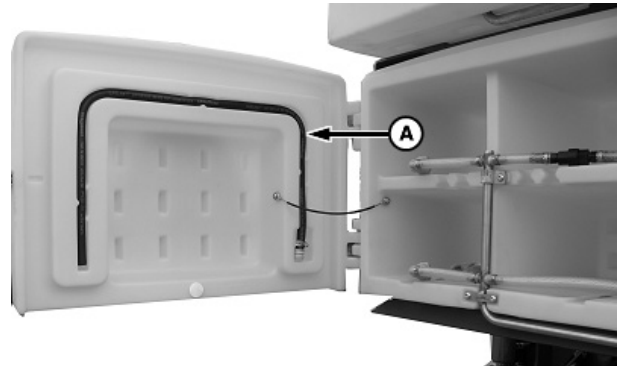
Injection Pump and System Clean Out (End of Season)

CAUTION: Chemicals and pesticides are hazardous and can cause serious injury or death to you or others. Decontaminate all spraying equipment before doing repairs or placing in storage. Decontamination must be done in a safe area by washing with water, neutralization, or by means recommended by the chemical manufacturer.

IMPORTANT: Refer to chemical manufacturers label for required personal protective equipment, when working with chemical system.

NOTE: Perform the following clean out procedure when system is not to be in use for several days or is stored at end of season.

1. Disconnect all chemical containers from the chemical manifold in the cabinet. Remove chemical containers from the cabinet and store or dispose of according to the manufacturers recommendations.
2. Close all carrier tank valves on bottom of tanks.



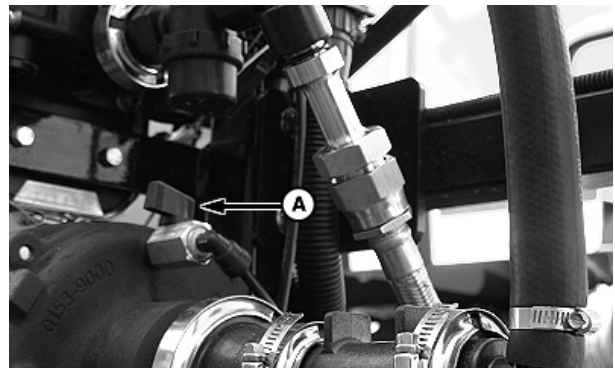
A—Flushing Hose

A61321 -UN-09NOV07

OUO6045,0000935 -19-22JUL08-1/8

3. Open carrier pump bleed valve (A). Leave bleed valve open.

A—Bleed Valve



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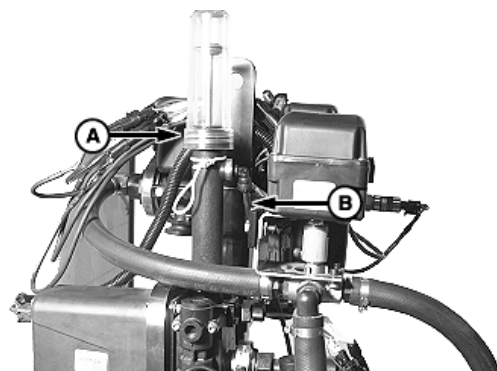
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A61269 -UN-05NOV07

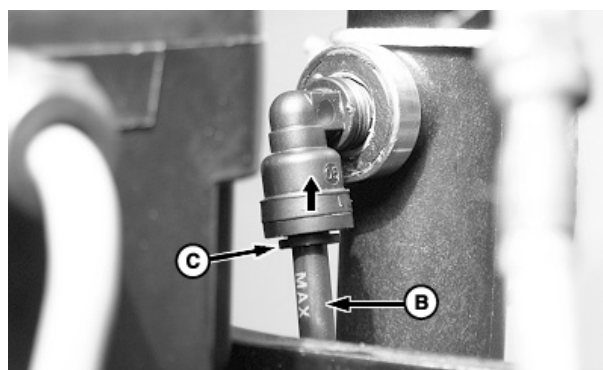
4. Remove line (B) from fitting on pump assembly (A), by doing the following:

1. Push line (B) and collar (C) up, tight against fitting.
2. Hold collar (C) against fitting and pull line (B) out of fitting.

A—Pump Assembly
B—Line
C—Collar



A61270 -UN-05NOV07

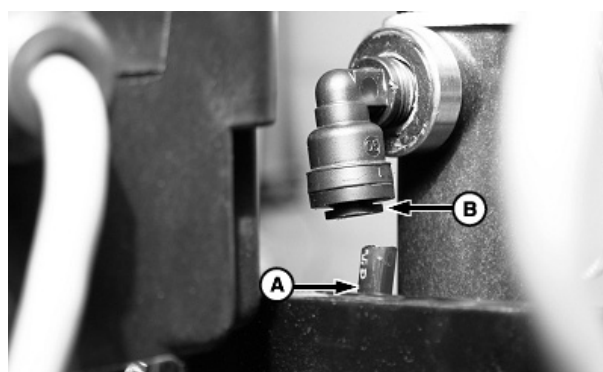


A61271 -UN-05NOV07

OUO6045,0000935 -19-22JUL08-3/8

NOTE: Obtain a collection container for the Central Insecticide System from the chemical manufacturer.

5. Push hose (A) from collection container into fitting (B) on pump assembly.
6. Connect flushing hose to top, left-hand quick coupler of chemical manifold. Secure open end of the flushing hose higher than the manifold connector to prevent the chemical from flowing back into the flushing hose.
7. Turn tractor key switch to ON position.
8. Press POWER button and turn console ON.
9. On console, do the following;
 - a. Use PRODUCT SELECT key to Highlight Product 1.
 - b. Turn Product 1 OFF using PRODUCT ON-OFF key.
 - c. Place master switch in ON position.



A61272 -UN-26NOV07

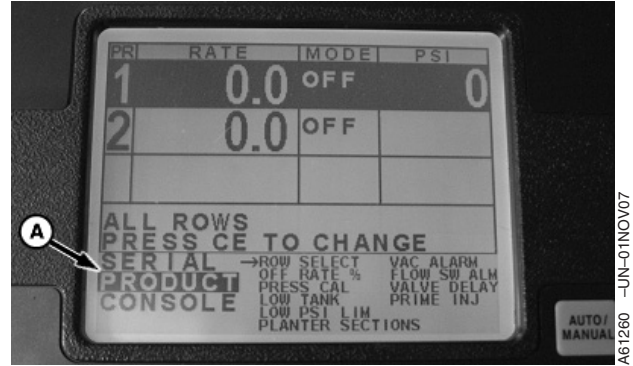
A—Hose
B—Fitting

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OUO6045,0000935 -19-22JUL08-4/8

- d. Press DATA MENU key, until PRODUCT (A) is highlighted as shown.

A—Product



A58318 -UN-20JUL06



OUC6045,0000935 -19-22JUL08-5/8

- e. Press Up Arrow key until selector arrow (A) points to PRIME INJ. Display shows PRESS CE TO PRIME INJECTION PUMP on line (B).

A—Selector Arrow
B—Line



Continued on next page

OUC6045,0000935 -19-22JUL08-6/8

f. Press CE key to begin priming pump.

10. Repeat priming procedure until TIME OUT ERROR is displayed on console.

CE

IMPORTANT: Never put chemical directly into the carrier tanks. This affects chemical and system performance.

11. Repeat steps 6 through 10 for each chemical line on the manifold in both chemical cabinets.
12. Place end of flushing hose in a container of N305634 Winterizer Fluid.
13. Open all ON-OFF valves on carrier tanks.
14. Start tractor engine.
15. Turn console power ON.
16. Place Product 1 and Product 2 in AUTO Mode.
17. Press and release SELF TEST key.
18. Press and release ENTER key.
19. Using numeric keys, enter 6.0 mph.
20. Press and release ENTER to save entry.
21. Set tractor selective control valve for FRAME RAISE-LOWER hydraulics to continuous flow and activate the SCV.
22. Select DISTANCE key.
23. Press and release ENTER key.
24. Using numeric keys enter 0.
25. Press and release ENTER key.
26. Place master switch in ON position. System must be running.
27. Run carrier and injection pump until 1500 feet is displayed.

28. Verify that liquid is clear in flow monitors. If not run until clear.
29. The entire system has now been flushed.
30. Winterize system. See INJECTION PUMP AND SYSTEM WINTERIZATION in this section.

OUC6045,0000935 -19-22JUL08-8/8

Injection Pump and System Winterization

1. Perform Injection Pump and System Cleanout procedure. See INJECTION PUMP AND SYSTEM CLEANOUT (End of Season) in this section.
2. Completely empty the carrier tank or tanks.
3. Place approximately 38 L (10 gal.) of N305634 Winterizer Fluid in carrier tank or a sufficient amount to prevent system from going dry.
4. Prime the carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.
5. Connect flushing hose to chemical line that is equipped with check valve in lower chemical cabinet.
6. Place hose end in container of N305634 Winterizer Fluid.
7. Prime Injection Pump. See PRIME INJECTION PUMP in Prime and Charge System section.
8. Place both Product 1 and Product 2 in Auto Mode.
9. Press and release SELF TEST key.
10. Press and release ENTER key.
11. Using numeric keys, enter 8.0 mph.
12. Press and release ENTER to save entry.
13. With tractor FRAME RAISE-LOWER hydraulics set to continuous flow and SCV activated, master switch in ON position, run system long enough to clear entire system of water.
14. System is now ready for storage.

OUO6045,0000936 -19-22JUL08-1/1

Adjust Row Unit Switch

The row unit switches (A) installed for the Central Insecticide System turn the system on and off as machine is raised and lowered.

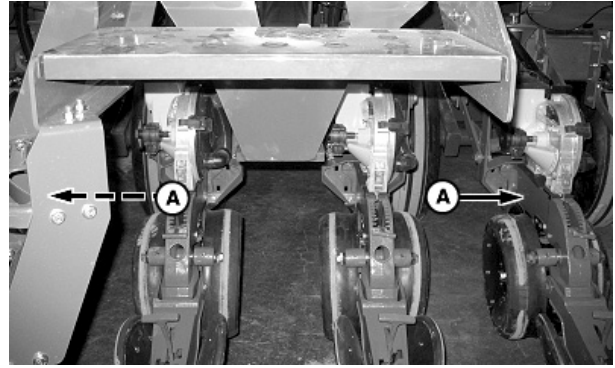
1. Raise machine so lower parallel arm stop (B) touches planting unit frame (C).
2. Loosen cap screw (F) slightly and rotate sensor bracket (D) until flat surface (E) is 20 mm (3/4 in.) from planting unit frame.

IMPORTANT: Central Insecticide System continues to run as long as tractor power is provided, when switch is not adjusted to deactivate when frame is raised.

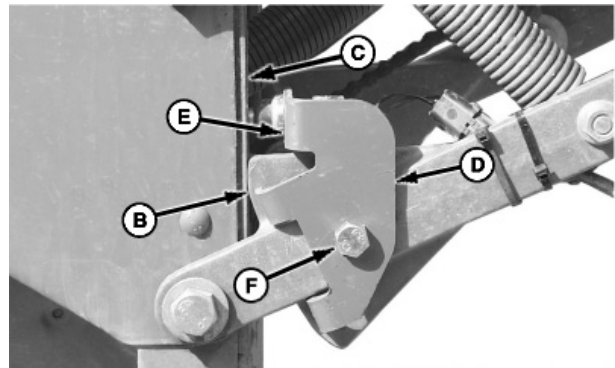
3. Tighten cap screw (F).
4. Lower and raise machine and verify bracket (D) did not move.
5. Observe Central Insecticide System and adjust switch so system shutoffs when frame obtains this fully raised position. This adjustment also ensures that Central Insecticide System engages the moment the row unit contacts the ground when lowered.

IMPORTANT: Avoid machine damage. System must never be run when dry.

6. Put a sufficient amount of water in tanks.
7. Prime carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.
8. Start tractor.
9. Turn CCS fan hydraulics on to continuous flow.
10. Turn monitor on.
11. Place Product 1 and Product 2 in AUTO mode.
12. Place master ON-OFF switch to ON position.



A60024 -UN-01MAY07



A53433 -UN-02DEC03

- A—Row Unit Switch (2 used)
- B—Stop
- C—Frame
- D—Bracket
- E—Flat Surface
- F—Cap Screw
- G—Rear Hitch

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OUC6045.0000AD0 -19-22JUL08-1/2

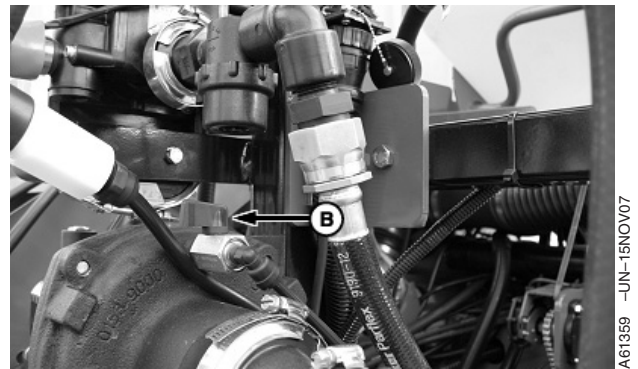
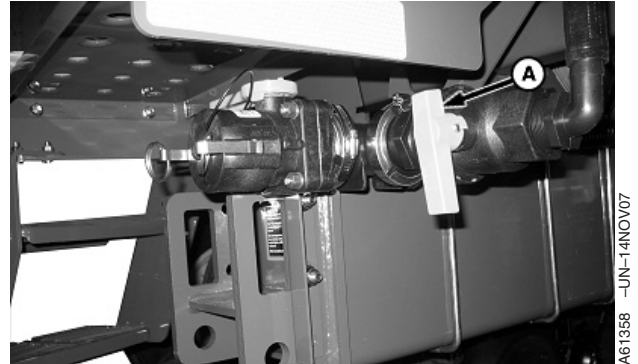
13. Verify that carrier pump does not engage with machine in raised position.

OUO6045,0000AD0 -19-22JUL08-2/2

Remove and Replace Carrier Pump Inlet Check Valve

1. Place carrier pump shut-off valve (A) in OFF position as shown.
2. Open bleed valve (B) on carrier pump to relieve internal system pressure.

A—Shut-Off Valve
B—Bleed Valve

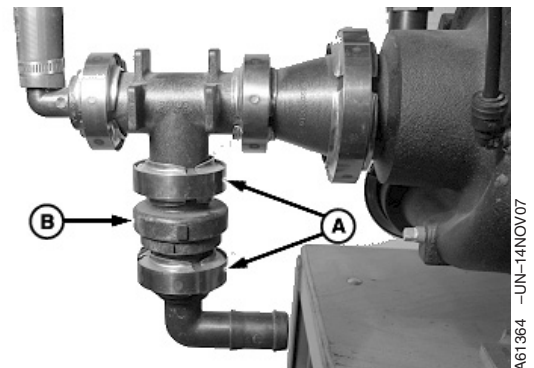


OUO6045,0000AD1 -19-21NOV07-1/2

IMPORTANT: Note orientation of inlet check valve in hoses. Inlet check valve must be installed exactly as removed.

3. Remove clamps (A) and inlet check valve (B).
4. Install replacement inlet check valve in reverse order of removal.
5. Place carrier pump shut-off valve in ON position.
6. Prime carrier pump. See PRIME CARRIER PUMP in Prime and Charge System section.

A—Clamp (2 used)
B—Inlet Check Valve



OUO6045,0000AD1 -19-21NOV07-2/2

Troubleshoot

Monitor Display

Symptom	Problem	Solution
Monitor display is blank.	Monitor not powered.	Check in-line fuses in monitor power harness.
	Tractor 12 V power receptacle fuse blown.	Replace fuse.
Monitor control keys do not function.	Monitor not responding.	Cycle monitor power.
	Monitor defective.	See your John Deere dealer.
Monitor display has disfigured digits.	Monitor defective.	Cycle monitor power.
		See your John Deere dealer.
Monitor does not function correctly or acts up during operation.	Monitor has momentarily lost its settings.	With monitor on, hold CE key for 2 seconds to reset monitor.
	Loose harness connections.	Ensure all harness connections are secure.
	Low voltage from power source.	Check for 12 V from battery.

Continued on next page

OUC6045,00009F2 -19-22JUL08-1/4

Symptom	Problem	Solution
FLOW SW alarm is displayed and beeping every 1/2 second.	No chemical at injection pump.	Check chemical supply line to injection pump for loose fittings, or missing O-rings.
	Injection pump has lost prime.	Prime Injection Pump. See PRIME INJECTION PUMP in Prime and Charge System section.
	System contaminated with solidified chemical.	Replace all chemical containers in chemical cabinets and perform INJECTION PUMP CLEAN OUT (End of Season) in System Maintenance section.
	Injection pump, intake and discharge valves contaminated.	IMPORTANT: Refer to chemical manufacturers label for required protective equipment, when working with chemical system. See INJECTION PUMP and SYSTEM CLEANOUT (End of Season) and REMOVE and INSTALL CHECK VALVES, DISASSEMBLE and ASSEMBLE INLET CHECK VALVE, and DISASSEMBLE and ASSEMBLE DISCHARGE CHECK VALVE in System Maintenance section.

Continued on next page

OUO6045.00009F2 -19-22JUL08-2/4

Symptom	Problem	Solution
VAC ERR alarm is displayed and beeping every 1/2 second.	Chemical supply pipes between injection pump and chemical containers plugged.	Inspect the manifold hoses in the chemical cabinet for pinched or kinked hoses.
	Chemical is thicker due to cold ambient air temperature.	Operate system in temperatures recommended by the chemical manufacturer.
	Pulling chemical from final chemical container with check valve from the cabinet.	Verify all containers are empty except for the last one (with check valve). Perform injection pump calibration to verify system is working correctly. See INJECTION PUMP CALIBRATION in Monitor Calibration section.
		System working correctly at lower temperature for final container in the cabinet.
	Injection pump inlet screen plugged.	Clean screen. See CLEAN CHEMICAL INJECTION PUMP INLET SCREEN in Chemical System section.
TOO SLOW alarm is displayed and beeping every 1/4 second.	Vacuum sensor inlet plugged.	See your John Deere dealer.
	Ground speed has fallen below speed needed to maintain system pressure. (auto mode only)	Increase ground speed.
	Carrier pump intake screen plugged.	Clean screen. See CLEAN CARRIER TANK STRAINER in Carrier Wet System section.
	Low psi. limit set to high.	See PRODUCT MENU SELECTIONS in Monitor Operation section.
LOW PSI alarm is displayed and beeping continuously.	Carrier tanks empty.	Fill tanks.

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OJ06045,00009F2 -19-22JUL08-3/4

Symptom	Problem	Solution
OFF RATE alarm is displayed and beeping continuously.	Carrier pump intake screen plugged.	Clean screen.
	Injection pump not calibrated	Calibrate injection pump. See INJECTION PUMP CALIBRATION in Monitor Calibration section.
	Operating system outside of allowable settings.	See Monitor SETUP section for correct input of settings and operation of system.
LOW SPD alarm is displayed and beeping continuously.	Ground speed has fallen below 1.6 km/h (1 mph).	Increase ground speed above 1.6 km/h (1 mph).
LOW LEVL alarm, beeps for 2 seconds, every 16 seconds for Product 1.	Occurs when carrier tank level falls below entered value.	Refill carrier tanks and enter new low level limit. See ENTER CARRIER TANK VOLUME and LOW LEVEL ALARM VALUES in Monitor Setup section.
LOW LEVL alarm is displayed and beeps for 2 seconds, every 16 seconds for Product 2.	Occurs when chemical cabinet level falls below entered limit.	Refill chemical cabinet and enter new low level limit. See ENTER CHEMICAL CABINET VOLUME and LOW LEVEL ALARM VALUES in Monitor Setup section.
TIME OUT alarm is displayed and beeping every 1/2 second.	Injection pump priming failed in time allotted, specified by PRIMING CAL.	See PRIME INJECTION PUMP in Prime and Charge System section.
LOW FLO alarm is displayed and beeping every 1/4 second.	Ground speed too slow to maintain pressure.	Increase ground speed.
	Product 1 application rate set to low.	Increase product 1 rate by 1.9 L (0.5 gpa).
INJ PUMP ERR—UNPLUG SYSTEM PWR error is displayed on monitor and a constant alarm is turned on.	Chemical injection pump is running without a command from the controller to run.	Immediately unplug Central Insecticide System power supply harness and contact your John Deere dealer.

OUC6045,00009F2 -19-22JUL08-4/4

Chemical Solution System

Symptom	Problem	Solution
Injection pump will not prime.	Monitor not ON.	Turn monitor ON.
	Product 1 On.	Turn Product 1 off.
	Master ON-OFF switch in OFF position.	Place master switch in ON position.
	VAC ERR displayed on monitor.	Check chemical supply line for restrictions. Cold ambient air temperature preventing flow of chemical.
	TIME OUT Error displayed on monitor.	Injection pump failed to prime in time allotted. See PRIME INJECTION PUMP in Prime and Charge System section.
	Chemical containers empty.	Replace chemical containers.
	Chemical supply line has loose fittings or is damaged.	Tighten loose fittings and repair or replace damaged supply line.
	Contaminated check valves in injection pump.	See REMOVE AND INSTALL CHECK VALVES and DISASSEMBLE and ASSEMBLE INLET CHECK VALVE or DISASSEMBLE and ASSEMBLE DISCHARGE CHECK VALVE in System Maintenance section.

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OOU6045,00009F3 -19-22JUL08-1/8

Symptom	Problem	Solution
Injection pump does not engage.	Master ON-OFF switch in OFF position.	Place Master ON-OFF switch in ON position.
	Power supply harness in-line fuse blown.	Check in-line fuse and replace as needed.
	Ground speed has fallen below 1.6 km/h (1 mph).	Increase ground speed above 1.6 km/h (1 mph).
	Row unit switches out of adjustment.	Adjust row unit switches. See ADJUST ROW UNIT SWITCH in System Maintenance section.
	Product 1 and Product 2 not in AUTO mode.	Place Product 1 and Product 2 in AUTO mode.
Continued on next page		OUC6045,00009F3 -19-22JUL08-2/8

Symptom	Problem	Solution
All flow monitors show no flow when planter is down and moving forward.	Central Insecticide System not on.	Turn monitor power on, place Product 1 and 2 in AUTO mode, place master ON-OFF switch in ON position.
	Monitor power supply harness not connected.	Connect harness.
	No 12 V power to monitor.	Check in-line fuses in monitor power supply harness. Check tractor 12 V power receptacle for blown fuse. Replace fuse if needed.
	Product 1 and Product 2 not in AUTO mode.	Place Product 1 and Product 2 in AUTO mode.
	Console programmed incorrectly.	Ensure console is programmed correctly. See MONITOR SETUP in Monitor Setup section for all rows or refuge rows.
	Blank nozzles tips installed.	Remove blank nozzle tips and install recommended nozzle tips.
	1 or more section control valves are not opening.	Verify row switches are adjusted correctly See ADJUST ROW UNIT SWITCH in System Maintenance section.
Several flow monitors show either high or low flow to rows.	Tractor selective control valve for planter FRAME RAISE-LOWER not set to continuous flow.	Set tractor selective control valve for FRAME RAISE-LOWER to continuous flow.
	Flow monitor variance is normal.	Flow monitor ball heights should be close to equal, however a 6 mm (1/4 in.) variation above or below the average ball height is normal.
One flow monitor shows high flow to one row.	Broken nozzle assembly.	Repair or replace broken nozzle assembly.

Continued on next page

OUO6045,00009F3 -19-22JUL08-3/8

Symptom

Problem

Solution

One flow monitor shows low flow to row.

Rows showing low flow has plugged spray nozzle tip with orifice or plugged screen in spray nozzle or a kinked supply line.



CAUTION: Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing. You could swallow or inhale hazardous chemicals, causing serious injury, or death to you or others.

IMPORTANT: Refer to chemical manufacturers label for required protective equipment, when working with chemical system.

Clean screen and nozzle tip with orifice in nozzle. See **SPRAY NOZZLE CALIBRATION** and **MAINTENANCE** in System Maintenance section.

Check nozzle supply line for kinks, repair, or replace as needed.

Left Section and Right Section flow monitors show no flow when planter is down and moving forward.

Monitor setup for refuge rows only.

Change monitor setting to all rows. See **SWITCH ALL ROWS** to **REFUGE ROWS** or **REFUGE ROWS** to **ALL ROWS** IN Monitor Operation section for machine-specific information and **PLANT REFUGE ROWS OPTION** (only) in Chemical System section.

Continued on next page

OUO6045.00009F3 -19-22JUL08-4/8

Symptom	Problem	Solution
Refuge flow monitors show uneven flow to rows.	Flow monitor variance is normal.	Flow monitor ball heights should be close to equal, however a 6 mm (1/4 in.) variation above or below the average ball height is normal.
	Rows showing low flow has plugged spray nozzle tip with orifice or plugged screen in spray nozzle or a kinked supply line.	 CAUTION: Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing. You could swallow or inhale hazardous chemicals, causing serious injury, or death to you or others. IMPORTANT: Refer to chemical manufacturers label for required protective equipment, when working with chemical system. Clean screen and spray nozzle tip with orifice in spray nozzle. See SPRAY NOZZLE CALIBRATION and MAINTENANCE in System Maintenance section. Check nozzle supply line for kinks, repair, or replace as needed.

Continued on next page

OOU6045,00009F3 -19-22JUL08-5/8

Symptom	Problem	Solution
Injection pump does not calibrate.	Injection pump not primed.	See PRIME INJECTION PUMP in Prime and Charge System section.
	Product 1 On.	Turn Product 1 off.
	Master ON-OFF switch in off position.	Place master switch in ON position.
	Chemical supply containers not connected to manifold assembly in chemical cabinets.	Connect chemical containers to manifold assembly in chemical cabinets.
	Injection pump supply hose fittings loose.	IMPORTANT: Refer to chemical manufacturers label for required protective equipment, when working with chemical system. Tighten fittings. Disassemble fittings and check flat face O-rings. Replace O-rings, assemble, and tighten fittings.
	Injection pump supply hose damaged or cracked.	IMPORTANT: Refer to chemical manufacturers label for required protective equipment, when working with chemical system. Replace damaged or cracked pipe.
	Injection pump inlet and discharge check valves are contaminated.	See INJECTION PUMP AND SYSTEM CLEANOUT (End of Season) and REMOVE AND INSTALL CHECK VALVES, DISASSEMBLE AND ASSEMBLE INLET CHECK VALVE and DISASSEMBLE AND ASSEMBLE DISCHARGE VALVE in System Maintenance section.

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OUC6045,00009F3 -19-22JUL08-6/8

Symptom	Problem	Solution
	Injection pump strainer is plugged.	Clean strainer. See CLEAN CHEMICAL INJECTION PUMP INLET SCREEN-AS REQUIRED in System Maintenance section.
	Injection pump failure.	See your John Deere dealer.
Cannot change Product 2 rate.	Product 2 in MANUAL mode.	Place Product 2 in AUTO mode.
	Injection pump failure.	See your John Deere dealer.
Pesticide Over-application.	Wrong meter CAL entered	Recalibrate injection pump and enter correct meter Cal. See INJECTION PUMP CALIBRATION in Monitor Calibration section.
	Incorrect section CAL number entered for section width.	See MONITOR SETUP in Monitor Setup section.
	Incorrect RATE CAL entered for Product 2.	Enter correct RATE CAL for Product 2. See MONITOR SETUP in Monitor Setup section.
	Spray nozzle tips worn.	See SPRAY NOZZLE CALIBRATION and MAINTENANCE in System Maintenance section.
	System running in Manual mode.	Place Product 1 and Product 2 in AUTO mode.
	Injection pump failure.	See your John Deere dealer.

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OUO6045,00009F3 -19-22JUL08-7/8

Symptom	Problem	Solution
Pesticide under-application.	Incorrect RATE CAL entered for Product 2.	Enter correct RATE CAL for Product 2. See MONITOR SETUP in Monitor Setup section.
	Incorrect section CAL number entered for section width.	See MONITOR SETUP in Monitor Setup section.
	System running in Manual mode.	Place Product 1 and Product 2 in AUTO mode.
	Main wiring harness kinked or broken.	Check main wiring harness for kinks or breaks. Repair or replace harness as needed.
	Injection pump not calibrated.	See INJECTION PUMP CALIBRATION in Monitor Calibration section.
	All chemical containers empty.	Replace chemical containers.
	Spray nozzle tips with orifice or inlet screen plugged.	See SPRAY NOZZLE CALIBRATION and MAINTENANCE in System Maintenance section.
	Injection pump failure.	See your John Deere dealer.

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Carrier System

Symptom	Problem	Solution
Over-or under-application of Carrier.	Wrong Calibration number for the nozzle tip entered into Product 1 Meter Cal.	Enter correct calibration number for tip being used. See METER CALIBRATION in Monitor Setup section.
	Error made in entering speed calibration number into console.	Enter correct speed calibration number. See SPEED CALIBRATION in Monitor Calibration section.
	System in MANUAL mode.	Place Product 1 and Product 2 in AUTO mode.
	Radar-speed source not calibrated	Calibrate radar-speed sensor. See SPEED CALIBRATION in Monitor Calibration section.
	Defective pressure sensor.	See your John Deere dealer.
	Radar-speed source defective.	See your John Deere dealer.
	Flow control valve defective.	See your John Deere dealer.
	Bad console.	Reprogram monitor. See MONITOR SETUP in Monitor Setup section. See your John Deere dealer.
Over-application of carrier.	Worn tips or nozzles.	Replace worn nozzles. See SPRAY NOZZLE CALIBRATION AND MAINTENANCE in System Maintenance section.

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OOU6045,00009F6 -19-22JUL08-1/3

Symptom	Problem	Solution
Carrier pump will not prime.	Carrier pump supply line shutoff valve in OFF position.	Turn valve to ON position.
	Carrier tanks valves in closed position.	Open carrier tank valves.
	Carrier tanks empty.	Fill tanks.
	Carrier pump bleed valve plugged.	Clean bleed valve.
	Carrier pump water inlet check valve is not opening.	Replace check valve. See REMOVE AND REPLACE CARRIER PUMP INLET CHECK VALVE in System Maintenance section.
Carrier pump does not generate pressure.	Carrier pump supply line shutoff valve in OFF position.	Turn valve to ON position.
	Carrier tanks valves in closed position.	Open carrier tank valves.
	Carrier pump strainer plugged.	Clean strainer. See CLEAN CARRIER TANK STRAINER in Carrier Wet System section.
	Tractor FRAME RAISE-LOWER hydraulics not set to continuous flow.	Set tractor hydraulics for FRAME RAISE-LOWER to continuous flow.
	Carrier pump water inlet check valve is not opening.	Replace check valve. See REMOVE AND REPLACE CARRIER PUMP INLET CHECK VALVE in System Maintenance section.

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OUO6045.00009F6 -19-22JUL08-2/3

Troubleshoot

Symptom	Problem	Solution
Carrier pump does not turn.	Planter in raised position.	Lower planter.
	Tractor FRAME RAISE-LOWER hydraulics not set to continuous flow.	Set tractor hydraulics for FRAME RAISE-LOWER to continuous flow.
	Insufficient tractor hydraulic pressure or flow.	See compatibility specifications for required tractor hydraulic system pressure and flow.
	Hydraulic drive pump seal leaking.	See your John Deere dealer.
	Pump ON-OFF solenoid defective.	See your John Deere dealer.
	Key sheared on impeller drive shaft.	See your John Deere dealer.
	Carrier pump hydraulic drive motor has failed.	See your John Deere dealer.
	Carrier pump failure.	See your John Deere dealer.
	Planter hydraulic system failure.	See your John Deere dealer.
1790 16/31 16/32 Tanks empty unevenly.	Tractor hydraulic system failure.	See your John Deere dealer.
	Variance in tank level.	On flat ground they typically level out, but uneven ground can cause some uneven distribution of water.
	Tank ON-OFF valves not set correctly.	Set valves correctly.
	Line from carrier tanks to carrier pump has an obstruction.	Remove obstruction.

OUO6045,00009F6 -19-22JUL08-3/3

Specifications

Specifications

Specifications for Central Insecticide System	
Operating Specifications	
Nozzle	0.067 0.050 0.100
Carrier Pump Rate	18.7 L/ha (2.0 gal./acre) 14.4 L/ha (1.5 gal./acre 0.050 nozzle) 28.1 L/ha (3.0 gal./acre 0.100 nozzle)
Injection Pump Rate	89 to 296 ml/ha (3 to 10 oz./acre)
Operating Speed	8.5 km/h (4 mph) to 13 km/h (8 mph)
Flow Control	3-Way Valve
Section Control Valve	Electric
Carrier System	
Carrier Tank (Quantity)	1770NT (1) 1790 12/23 (1) 1790 12/24 (1) 1790 16/31 (4) 1790 16/32 (4) Deere/Bauer (1)
Carrier Tank Capacity	1770NT 12R 568/852 L (150/225 gal) 1770NT 16R 1135 L (300 gal) 1770NT 24R 1135/1703 L (300/450 gal) 1790 12/23 568/852 L (150/225) 1790 12/24 568/852 L (150/225) 1790 16/31 265 L (70 gal x 4) 1790 16/32 265 L (70 gal x 4) DB Series 1590 L (420 gal)
Fill Opening	QUIK-FILL™
Carrier Pump Strainer	110 Mesh
Injection Pump Supply Line Strainer	20 Mesh
Carrier Pump	Centrifugal
Carrier Pump Drive	Hydraulic
Hydraulic Motor	Displacement (.129 cu. in./Rev)
	Case Drain Max Pressure 172 kPa 1.7 bar (25 psi.)
	Pressure Rating 20684 kPa 207 bar (3000 psi.) Continuous
Injection System	
Injection Pump	Direct Injection
Chemical System	
Total Chemical Containers	8
Chemical Container Size	9.5 L each (320 ounces each)
Visual Reference	One Flow Monitor on Each Row
Control	Console Display
Nozzles	

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OUC6045,0000AAE -19-22JAN08-1/2

Specifications

Specifications for Central Insecticide System

Operating Specifications

Standard	0.067 18.7 L/ha (2.0 gal./acre)
Optional	0.050 14.4 L/ha (1.5 gal./acre)
Optional	0.100 28.1 L/ha (3.0 gal./acre) ^a
Operating Pressure	275 kPa 2.75 bar (40 psi.)

^aOrder PMQLDE5001, if not available order AA70282.

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