



DCY

# SeedStar™ 2 Monitor

## OPERATOR'S MANUAL

### SeedStar™ 2 Monitor

OMA87553 ISSUE L8 (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**  
LITHO IN U.S.A.



OMA87553

# Introduction

## Foreword

READ THIS MANUAL carefully to avoid personal injury or equipment damage. Learn how to operate and service the machine correctly. If desired, see your John Deere dealer to determine if this manual and safety signs on the machine are available in other languages.

CONSIDER THIS MANUAL a permanent part of the machine and include the manuals with the machine when sold.

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

RIGHT-HAND AND LEFT-HAND sides are determined by facing the direction the implement travels when moving forward.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Specification section. Accurately record all the numbers to help trace the machine if stolen. Your dealer also needs these numbers to order parts. File the identification numbers in a secure place away from machine.

OUO6074,0001041 -19-03OCT07-1/1

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# Identification Views

## Identification Views



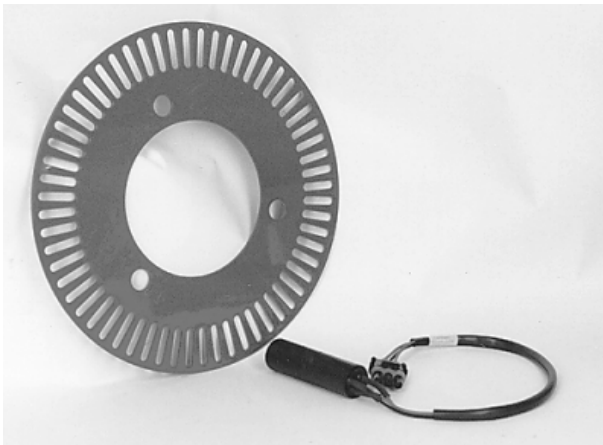
GS2 2100 and GS2 2600 Touch Screen Monitor

A61842 —UN—22JAN08



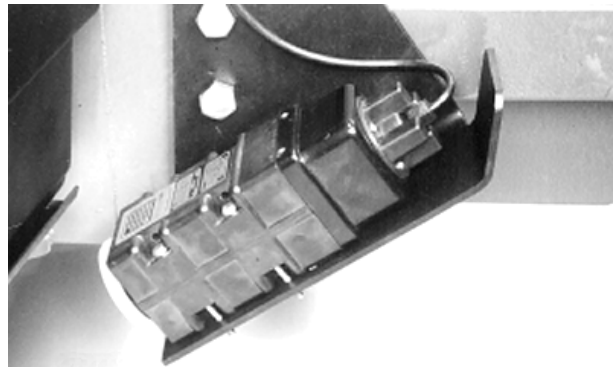
GS2 1800 Control Pad Monitor

A61843 —UN—22JAN08



Variable Rate Drive Wheel Motion Sensor

A44952 —UN—17JUL98



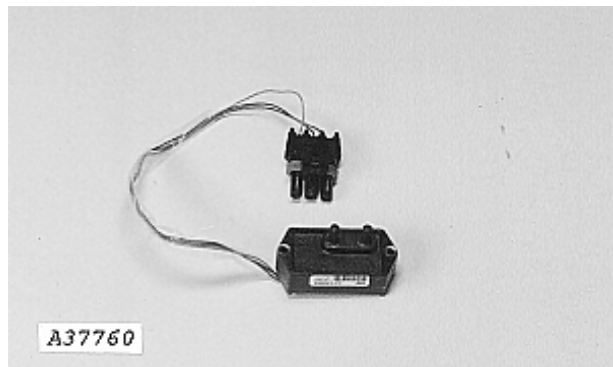
External Radar (Optional)

A48199 —UN—26OCT01



System Controller

A50167 —UN—09SEP02



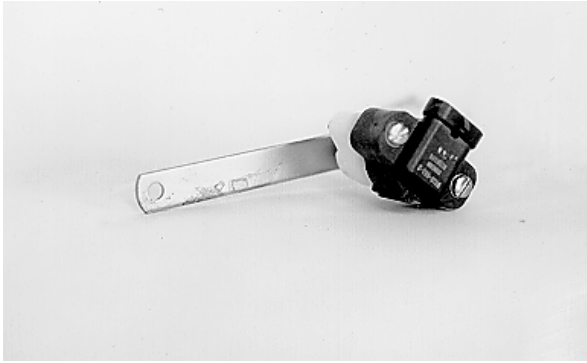
Vacuum Sensor

A37760 —UN—06SEP95

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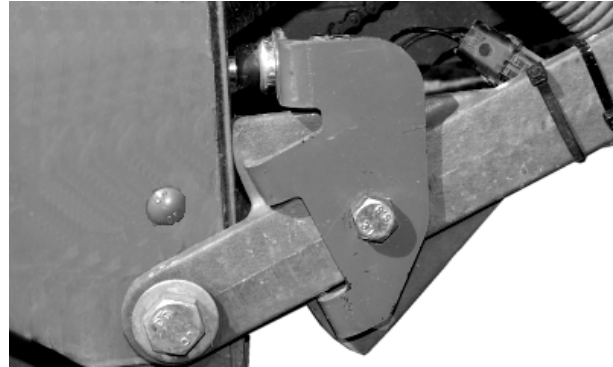
OUO6074,0000F44 -19-07OCT08-1/3

## Identification Views



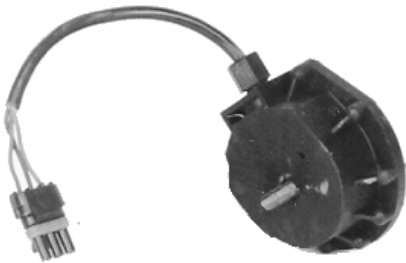
A45210 —UN—27NOV98

Height Sensor for Drawn Planters and 1720 16RN Planter



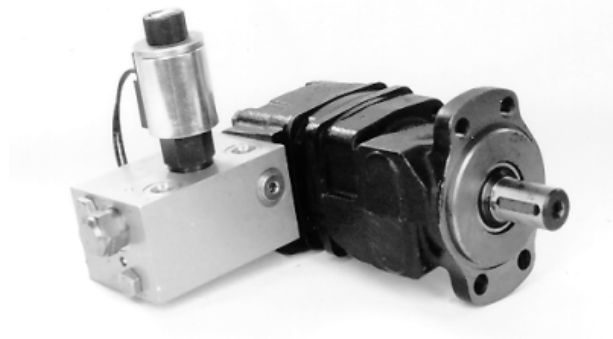
A48170 —UN—19OCT01

Parallel Arm Height Switch for Most Integral Planters



A48171 —UN—19OCT01

Variable Rate Drive Motor Speed Sensor



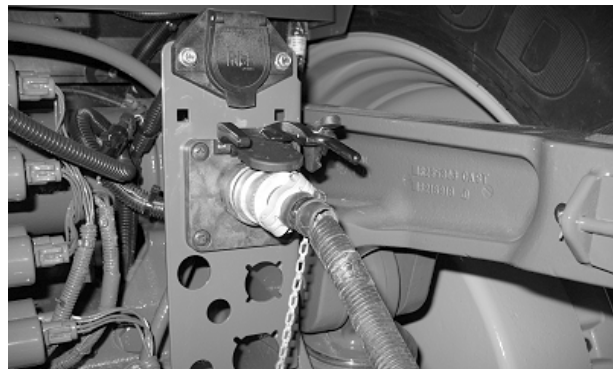
A44950 —UN—17JUL98

Variable Rate Drive Motor and Valve



A63336 —UN—02OCT08

EPM



A62821 —UN—23JUL08

CAN Harness Connection

Continued on next page

OU06074,0000F44 -19-07OCT08-2/3

Identification Views



Seed Tube with Seed Sensor

A61060 —UN—05OCT07

OUO6074,0000F44 -19-07OCT08-3/3

# 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.



TS1389 —UN—07DEC88

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

## 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.

**▲ DANGER**

**▲ WARNING**

**▲ CAUTION**

TS187 —19—30SEP88

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

## 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.



TS201 —UN—23AUG88

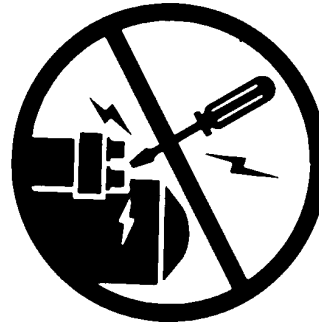
DX,READ -19-03MAR93-1/1

## Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177 —UN—11JAN89

DX,BYPAS1 -19-29SEP98-1/1

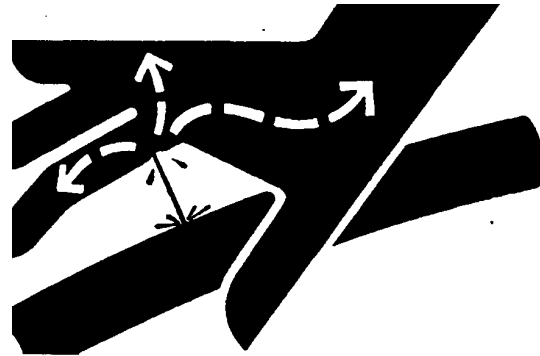
## Avoid High-Pressure Fluids

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

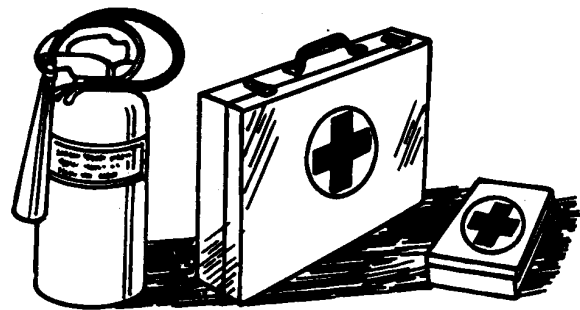
DX,FLUID -19-03MAR93-1/1

## Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 —UN—23AUG88

DX,FIRE2 -19-03MAR93-1/1

## Electrical Connections

Keep all sparks and flames away from battery, as gas given off by electrolyte is explosive. To avoid sparks, connect ground cable last and disconnect it first.

AG,OUO1074,1484 -19-24APR00-1/1

### Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



TS204 —UN—23AUG88

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

### Do Not Modify Monitor or Radar Sensor

Doing so could nullify the warranty. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

AG,OUO1074,1485 -19-24APR00-1/1

# Safety Signs

## Safety Signs

**Warning:** To avoid possible eye damage from microwave signals emitted by this radar sensor, DO NOT look directly into sensor face.



*External Radar (Optional)*

OUO6074,000057E -19-23JUL08-1/1

# How to Use Monitor

## Use with GreenStar™ Monitors

The information presented in this manual describes how to use John Deere™ displays. The easiest way to learn is to use an operational monitor while reading this manual.



*Touch Screen Monitor*

A61842 —UN—22JAN08



*Control Pad Monitor*

A61843 —UN—22JAN08

*John Deere is a trademark of Deere & Company*

OUC6074,0000FE2 -19-22JUL08-1/1

## Monitor Controls

With the touchscreen monitor, touch the screen over the image of the item to activate. The following pages describe the types of items that are selectable.

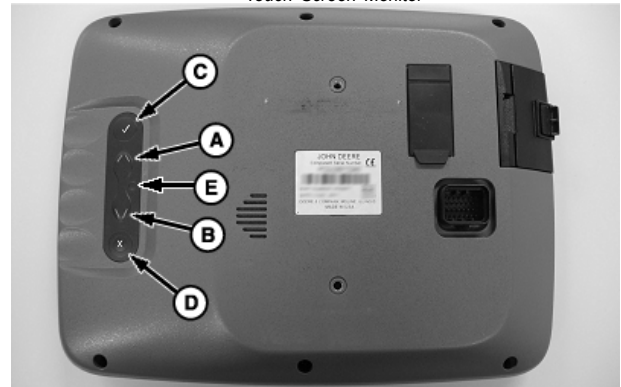
If the touchscreen malfunctions or if fingers are greasy or dirty, use manual control on back of monitor. Use the up arrow (A) and down arrow (B) to toggle through the screen selections. Use the check mark (C) to select a highlighted selection on the screen. Use the X (D) to clear a selection or cancel an entry. If the screen fails to respond, hold the reset (E) until monitor restarts.

A—Up Arrow  
B—Down Arrow  
C—Check Mark

D—Clear or Cancel  
E—Reset



Touch Screen Monitor



Manual Controls

Continued on next page

OUC6074,0000010 -19-29MAR08-1/2

A61842 —UN—22JAN08

A61830 —UN—09JAN08

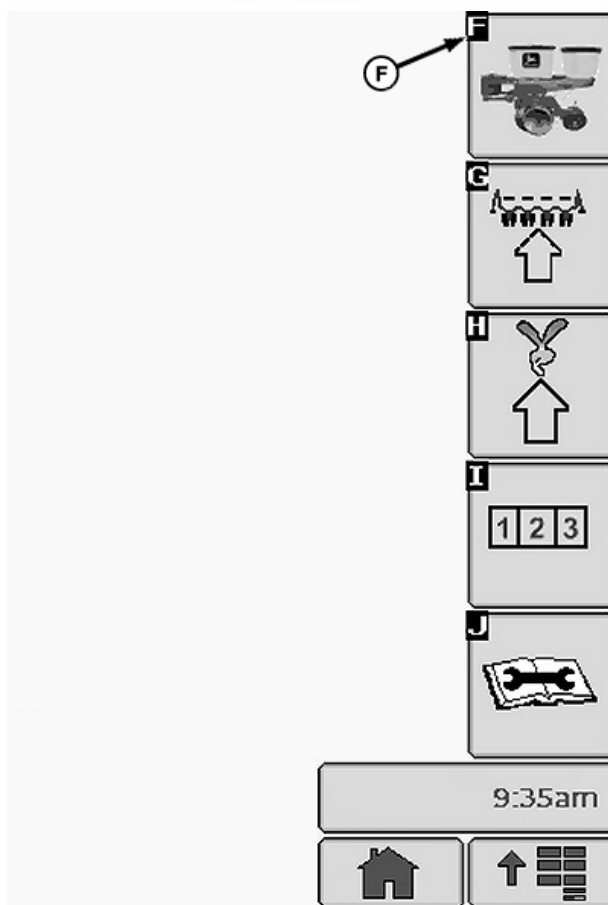
With the control pad monitor, use the thumbwheel (A) to scroll through selectable items on screen. Each item highlights as the wheel is turned. Use the enter button (B) to activate a highlighted item. Use the cancel button (C) to cancel the previous action. Use the menu button (D) to return to the main menu screen. Use the home button (E) to return to the home screen. Use the quick selection buttons (F) to select an item, with the same letter on screen, without using the thumbwheel to highlight the item first.

A—Thumbwheel  
B—Enter  
C—Cancel

D—Menu  
E—Home  
F—Quick Select Buttons



A62351 —UN—29MAR08



A62354 —UN—29MAR08

OUO6074,0000010 -19-29MAR08-2/2

## Monitor Power Up and Power Down

Upon power up, wait for display to detect data from implement control unit and adjust screens before working with display.

If the last programmed home page is for an implement not currently connected to tractor, the monitor defaults to Layout Manager screen.

**IMPORTANT: Avoid data loss. Do not cycle power quickly. Wait 30 seconds after power down before data card is removed or before another power up.**

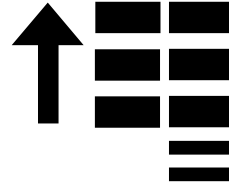
If power is cycled too quickly data loss is possible. Upon power down, wait for power light on monitor to go out and wait an additional 30 seconds before another power up.

OUO6074,0000FA4 -19-24OCT08-1/1

## Standard Buttons

Become familiar with these buttons. These buttons have standard functions and are used periodically throughout the screens.

- **Primary Menu:** Displays primary menu showing buttons for various functions.
- **Enter:** Enter a value or selection into memory. Continue to next step of procedure.
- **Cancel:** Cancels the current screen or selection.
- **Clear:** Clears a value to zero or erases a selection.
- **Previous:** Returns to previous screen or selection.
- **Back:** Moves cursor back one space.
- **Toggle:** Alternates a selection back and forth.



Primary Menu

A59325 —UN—19FEB07



Enter or Continue

H85801 —UN—14JUN06



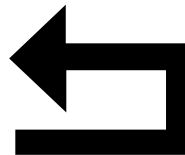
Cancel

H85814 —UN—14JUN06



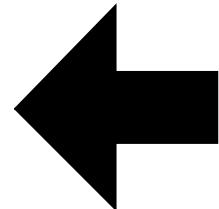
Clear

H85815 —UN—14JUN06



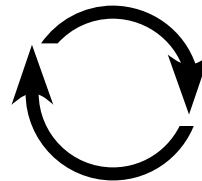
Previous

H85816 —UN—14JUN06



Back

A59323 —UN—22FEB07



Toggle

A59322 —UN—19FEB07

OUO6074,0000FA6 -19-16OCT08-1/1

## Input Entry Methods

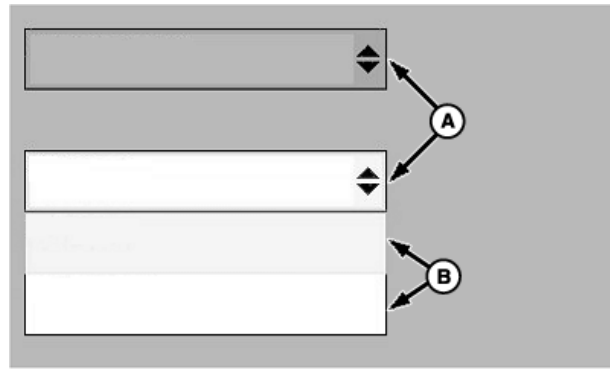
There are various ways the monitor accepts data entry. Following are some examples:

### Drop-Down Box

A drop-down box (A) contains a list (B) of items. Select a drop-down box to see list. Select an item from the list to make it the active item in the drop-down box.

To close a drop-down list without selecting a new item, select the current selection or touch (touchscreen only) an empty screen location.

A scroll bar, with up and down arrows, appears next to a list when it is longer than screen area. Select an arrow to scroll up or down.



A—Drop-Down Box

B—List

A59311 —UN—15FEB07

Continued on next page

OUO6074,0000FA5 -19-16OCT08-1/5

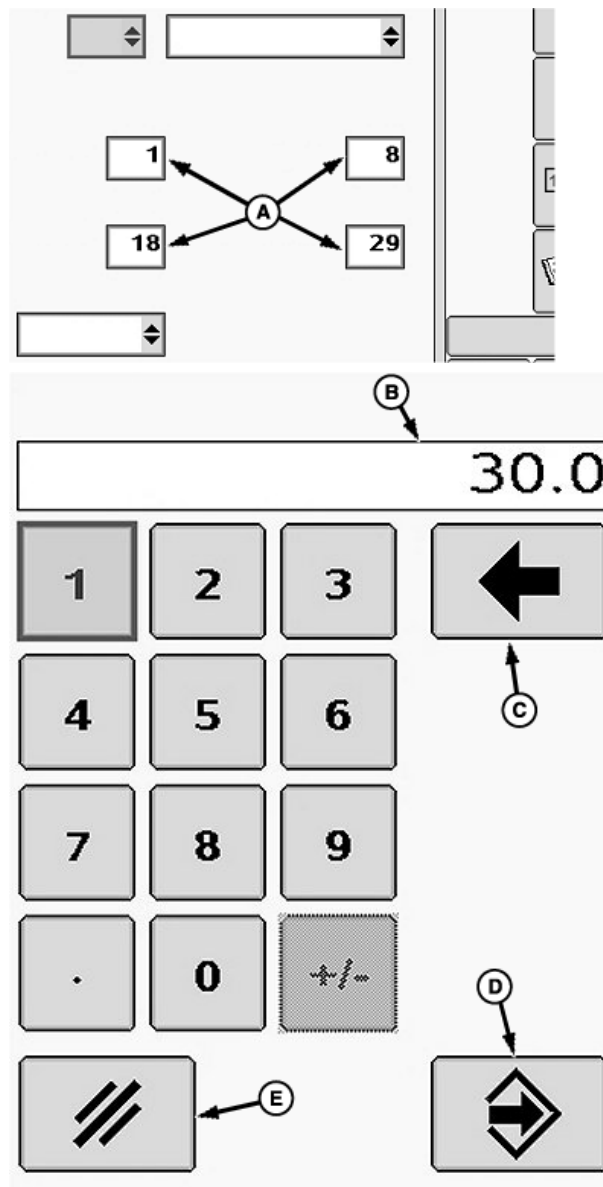
**Input Box**

Input boxes (A) allow numeric value entries.

- Select an **Input Box** to see the numeric keypad. Select desired value. Entered value appears in bounding box (B).
- Select **Back Arrow** (C) button to clear a selected value.
- Select **Enter** (D) button to confirm value.
- Select **Clear** (E) button to deactivate keypad without confirming a new value.

A—Input Box  
B—Bounding Box  
C—Back Arrow

D—Enter  
E—Cancel



Numeric Keypad

Continued on next page

OUO6074,0000FA5 -19-16OCT08-2/5

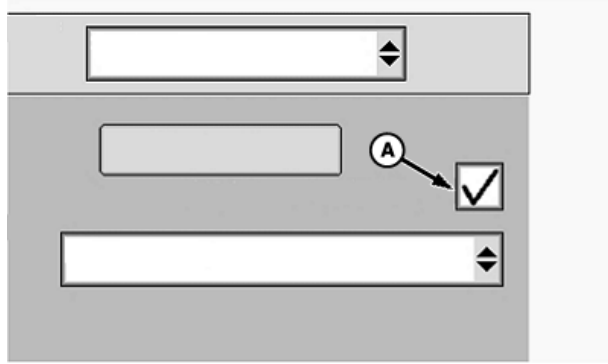
A59312 —UN—11NOV08

A59357 —UN—21MAR07

## Check Box

A check box (A) allows activation and deactivation of single items. A check mark indicates an active feature. An empty box indicates a deactivated feature.

A—Check Box



Check Box Example

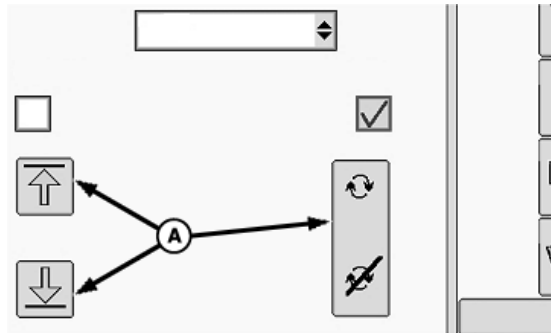
A59313 —UN—15FEB07

OOU6074,0000FA5 -19-16OCT08-3/5

## Button

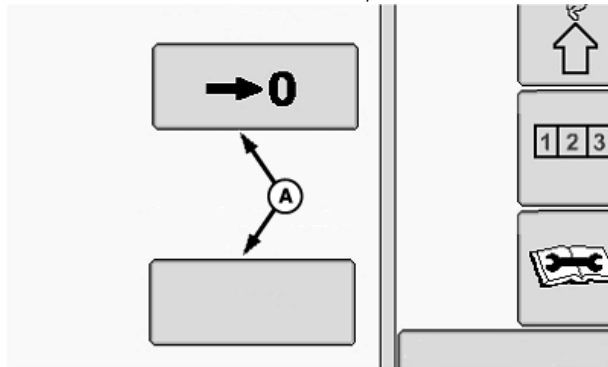
Buttons have different shapes, sizes, and images. Some have text on them. Select any button (A) to activate its feature.

A—Button



Button Examples

A59314 —UN—11NOV08

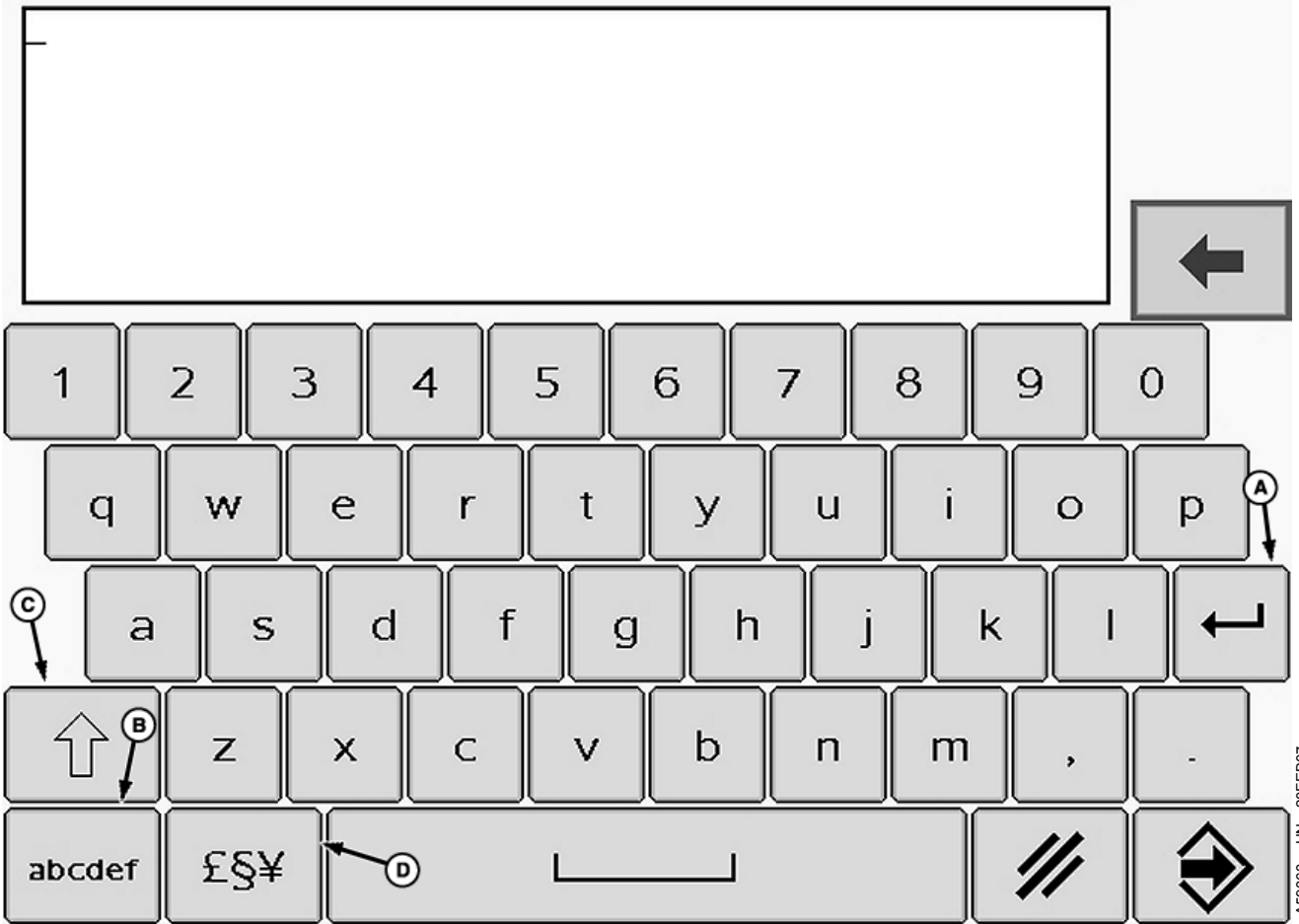


Button Examples

A59315 —UN—15FEB07

Continued on next page

OOU6074,0000FA5 -19-16OCT08-4/5



A—Return

B—Appearance

C—Case

D—Symbols

### Custom Input Keypad

Some input or drop-down boxes have an Edit or Custom option. When Edit or Custom is selected, a keypad appears for data entry. The **Return** (A) button moves cursor to the next line down. The **Appearance** (B) button

toggles between a standard **qwerty** keypad layout and an alphabetical keypad layout. The **Case** (C) button toggles between upper and lower case letters. The **Symbols** (D) button toggles between a keypad with letters and a keypad with symbols.

OUO6074,0000FA5 -19-16OCT08-5/5

## Screen Layout Manager

**IMPORTANT:** Planter screen is only available in full screen or half screen. Error messages do not appear on half screen layout. Return to full screen to see messages when an audible alert signals an error.

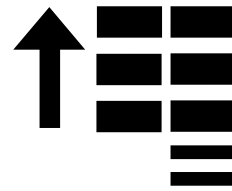
1. Select **Primary Menu** button.
2. Select **Layout Manager** button.
3. Select a page number from the drop down menu.
4. Select a layout pattern (A) from right side of screen.
5. Select **Include in Home Page Collection** check box. Add a check to include this page. Clear the box to remove a page from the collection.
6. Select an area of screen (B) to change.

*NOTE: If single window layout is selected, select **Enter** button after option is chosen. No need to select preview.*

7. Only the options allowed in this area of screen appear. Select an **option** or select **Previous** button.
8. If an option is selected, a preview of selection appears. Select the **preview** to verify it is correct or select **Previous** button.
9. Select **Enter** button.
10. Select another area of screen to change. Continue until all areas are chosen.
11. To view all active home pages, repeatedly select the **Home** button.

A—Layout Patterns

B—Selection Areas



Primary Menu

A59325 —UN—19FEB07



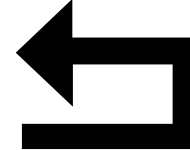
Enter

H85801 —UN—14JUN06



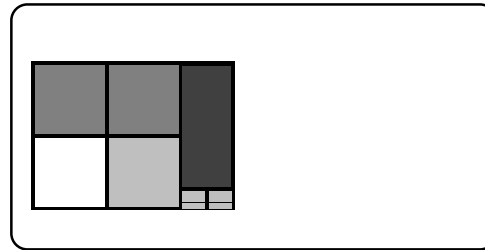
Cancel

H85814 —UN—14JUN06

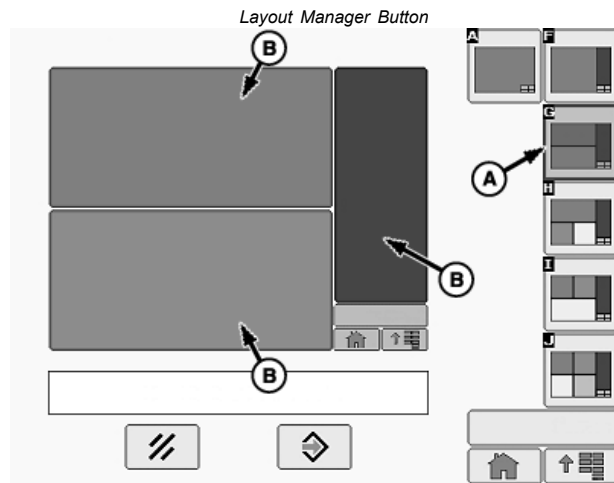


Previous

H85816 —UN—14JUN06



A61062 —UN—09OCT07



A61063 —UN—08OCT07

OUO6074,0001045 -19-23JUL08-1/1

## Screen Navigation

**NOTE:** Although information appears similar on competitive displays, the navigational steps can be different. Refer to the operator's manual for your display for specific instructions.

### Main Menu

Buttons and Softkeys appear similar. Buttons simply activate a feature or transfer to a new screen. Softkeys open screens where set up and data entry are possible.

The **Primary Menu** (A) button transfers to a screen with selectable buttons for each monitor.

Select a button to transfer to the desired application. The following are a few examples.

- (B) Opens Planter application page. Various planter functions are available.
- (C) Opens Performance Monitor Totals page. Various tractor performance values are available.
- (D) Opens Display Main page. Various monitor functions are available.
- (E) Opens Message Center page. Various messages are available.

The following screen area information is for translation purposes to assist an operator using a screen with English text when the operator does not read English. The left side of the list remains English to match the screen and the right side of the list is translated along with the rest of this manual. The operator matches the English words on screen with English words listed on left side of list and views the translated meaning.

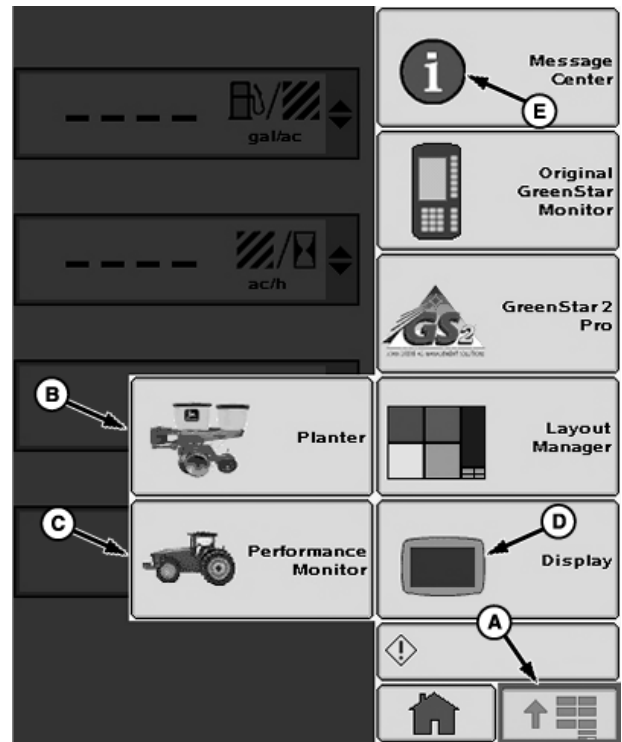
### Screen Area Information

**Planter** — Planter

**Performance Monitor** — Performance Monitor

**Message Center** — Message Center

**Original GreenStar Monitor** — Original GreenStar Monitor



Menu Buttons

A—Primary Menu

B—Planter Application Button

C—Performance Monitor Button

D—Display Button

E—Message Center Button

**GreenStar 2 Pro** — GreenStar 2 Pro

**Layout Manager** — Layout Manager

**Display** — Display

Continued on next page

OUO6074,0000FA7 -19-24OCT08-1/5

A59550 —UN—26MAR07

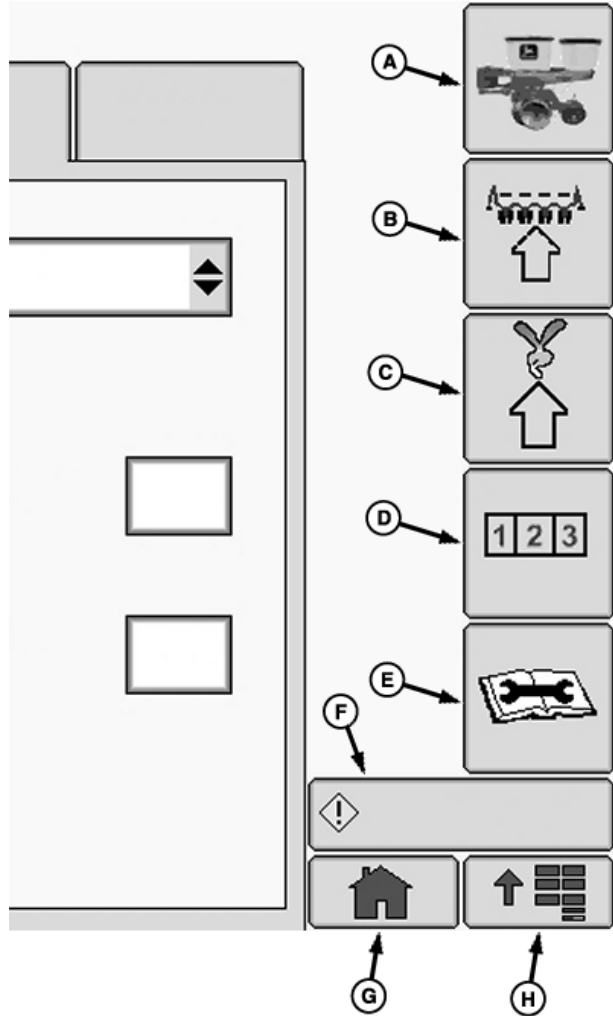
## Planter Application Screens

Select **Softkeys** (A) through (E) to transfer to various planter screens. A title at the top of each screen matches the name of the softkey.

Once any screen is displayed, it is not necessary to return to the primary menu before selecting another softkey in the same application. Example: Assume that the current screen is already Planter - Rates screen. If a procedure indicates to select the **Primary Menu** button (H), then the **Planter** button, then the **Configuration** softkey (B) to reach Planter - Configuration screen, simply select the **Configuration** softkey instead. The display is already on a Planter screen. There is no need to start from the Primary Menu again.

- (A) Transfers to Main planter screen, often referred to as the Run page.
- (B) Transfers to configuration screen for frame, sensor, and drives set up.
- (C) Transfers to configuration screen with Crops and Rates.
- (D) Transfers to screen with Totals and Calculators.
- (E) Transfers to diagnostic screen for Readings and Tests.
- (F) Transfers to Message Center.
- (G) Transfers to Home screen.
- (H) Transfers to primary Menu screen with buttons for different applications.

A—Main Softkey  
B—Configuration Softkey  
C—Rates Softkey  
D—Totals Softkey  
E—Diagnostics Softkey  
F—Message Center Button  
G—Home Button  
H—Menu Button



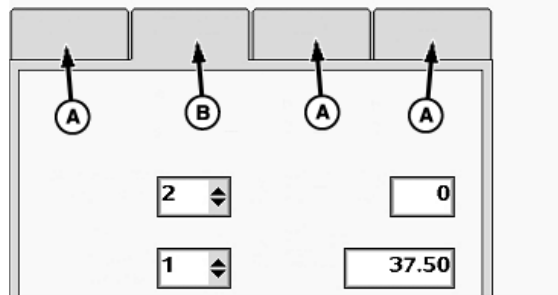
A59326—UN—15FEB07

OUC6074,0000FA7 -19-24OCT08-2/5

## Function Tabs

Select **Tabs** to activate various options on a screen.

A—Inactive Tab  
B—Active Tab



A59328—UN—11NOV08

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OUC6074,0000FA7 -19-24OCT08-3/5

### Navigation Example A:

Follow along with an active monitor to become familiar with the display.

1. Select **Primary Menu** button (A).
2. Select **Planter Application** button (B).
3. Select planter **Configure** softkey (C). Planter - Configuration (D) screen title is now displayed.
4. Select **Sensor** tab (E).
5. Select drop-down box (F) and choose **Seed**.
6. Select **Row** input box (G) and enter an individual row number.
7. Select **On** or **Off** check box (H) to configure selected row.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensor** — Sensor

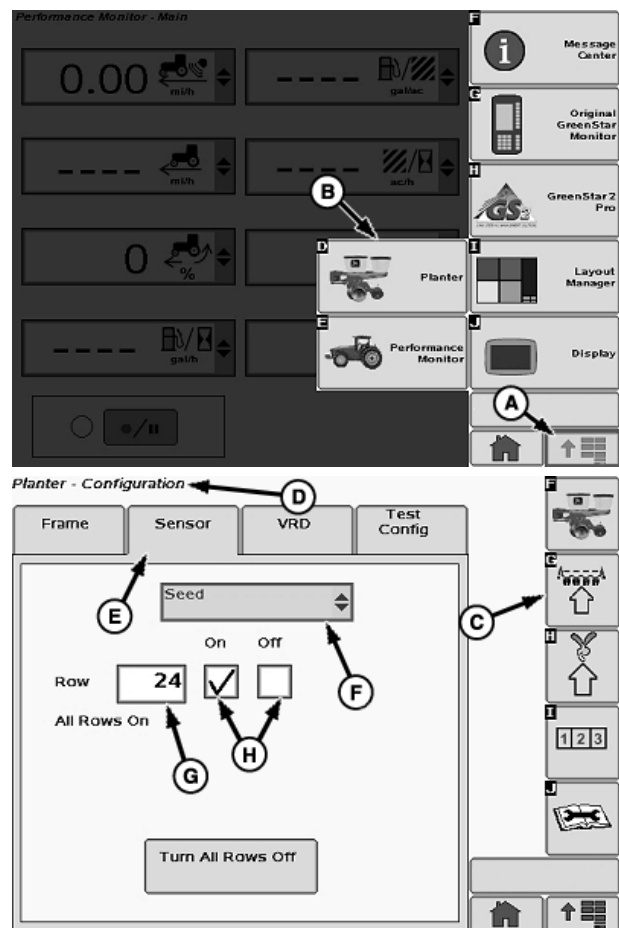
**Seed** — Seed

**Row** — Row

**On** — On

**Off** — Off

- |                                |                          |
|--------------------------------|--------------------------|
| A—Primary Menu Button          | E—Sensor Tab             |
| B—Planter Application Button   | F—Drop Down Box          |
| C—Configure Softkey            | G—Row Input Box          |
| D—Planter Configuration Screen | H—On and Off Check Boxes |



Continued on next page

OUC6074,0000FA7 -19-24OCT08-4/5

A595688 —UN—12MAR07

A595689 —UN—12MAR07

### Navigation Example B:

All procedures in this manual use a condensed version of Navigation Example A shown on previous page. The following steps are an example of Navigation Example A, simplified. Each **bold** word is a selectable screen item. The arrows ( >> ) indicate each screen item to select in sequence. Once common buttons, softkeys, and screen titles become familiar, this technique shortens the reading time needed to accomplish a task. Remember, it is not necessary to begin at the Primary Menu if the display is already on the destination screen.

Follow along with an active monitor to become familiar with the display and this style of navigation. If needed, refer back to previous descriptions in this section while learning screen items.

1. Select **Primary Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Seed** from drop-down box.
3. Select **Row** input box and enter an individual row number. Select **On** or **Off** check box to configure selected row.

#### Screen Area Information

**Planter Configuration** — Planter Configuration

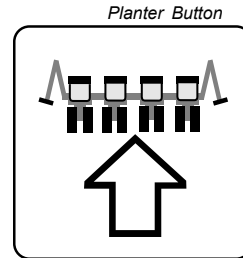
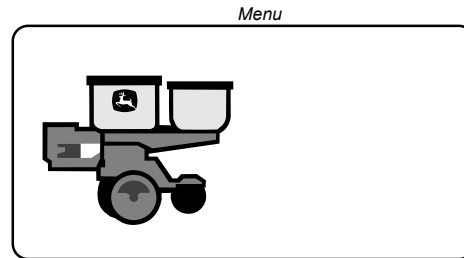
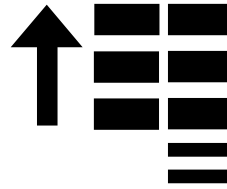
**Sensor** — Sensor

**Seed** — Seed

**Row** — Row

**On** — On

**Off** — Off



Configuration Softkey

A59325 —UN—19FEB07

A59551 —UN—08MAR07

A59172 —UN—29JAN07

OUO6074,0000FA7 -19-24OCT08-5/5

# Monitor Settings

## Configure Brightness, Volume, and Color

1. Select **Menu** >> **Display** button >> **Display** softkey.
2. Two brightness levels are available. Select **Day/Night** button to toggle screen brightness between day level and night level. Sun and moon images at top left of screen alternately highlight to show active selection. Select **+ plus** and **- minus** buttons to adjust backlight level for Day selection. Toggle to Night selection and adjust a different backlight level with plus and minus buttons.
3. Select **Instant Darken** button to completely darken screen. Touch any part of screen (touchscreen only) or select any button to brighten again.
4. Select plus and minus buttons to adjust **Volume** indicator.
5. Select a check box to choose a **Highlight Color** an item changes to when selected.
6. When monitor is installed in a compatible cab, a (Synchronize) **Sync With Cab** check box is available. When checked, this display controls interior cab lights as well.

### Screen Area Information

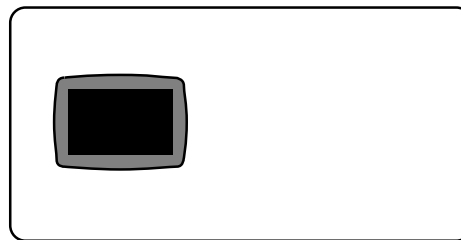
**Display Main** — Display Main

**Backlight** — Backlight

**Volume** — Volume

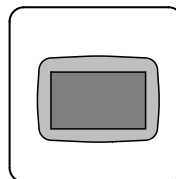
**Highlight Color** — Highlight Color

**Sync With Cab** — Synchronize With Cab



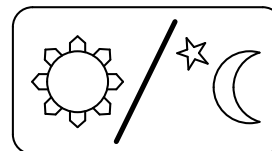
Display Button

A59565 —UN—08MAR07



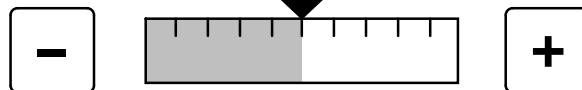
Display Softkey

A59591 —UN—15MAR07



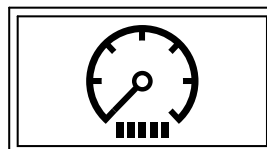
Day / Night Button

A59594 —UN—15MAR07



Scale Indicator

A59595 —UN—15MAR07



Instant Darken Button

A59593 —UN—15MAR07

OUO6074,0000F45 -19-30OCT07-1/1

## Configure Language and Units of Measure

1. Select **Menu** >> **Display** button >> **Settings** softkey.
2. Select **Regional** tab.
3. Select each drop-down box and choose a **Country**, **Language**, **Numeric Format**, and the **Units** of measure. To select different units of measure for different options, proceed as follows.
4. Select **Units of Measure** tab.
5. Select each drop-down box and choose a unit of measure. To change all units back to a single type, select **Regional** tab >> **Units** >> any option.

### Screen Area Information

**Display Settings** — Display Settings

**Regional** — Regional

**Country** — Country

**Language** — Language

**Numeric Format** — Numeric Format

**Units** — Units

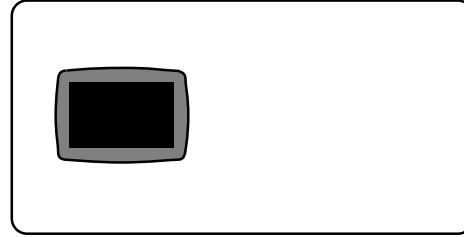
**Metric** — Metric

**Imperial** — Imperial

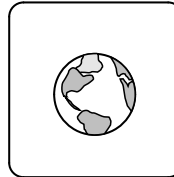
**US** — United States

**Units of Measure** — Units of Measure

**Distance** — Distance



Display Button



Settings Softkey

**Area** — Area

**Volume** — Volume

**Mass** — Mass

**Temperature** — Temperature

**Pressure** — Pressure

**Force** — Force

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A59592 —UN—15MAR07

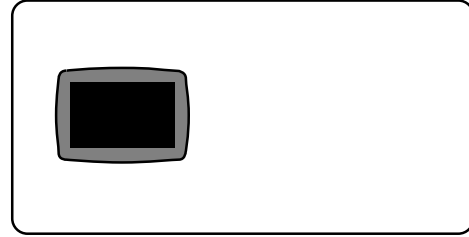
OUO6074,0000F46 -19-08MAR08-1/1

## Configure Date and Time

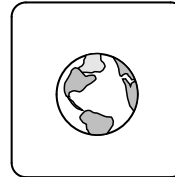
1. Select **Menu** >> **Display** button >> **Settings** softkey.
2. Select **Time/Date** tab.
3. Select each **Date** drop down box and choose the month, day, and year.
4. Select **Date Format** drop down box and choose desired format.
5. If area is currently observing daylight saving time, select **Daylight Savings Time** check box to display a check. When daylight saving changes, select this box to change hour reading instantly.
6. To use a 24 hour clock, select **24 Hour Clock** check box to display a check.
7. Select **Time** input boxes and enter an hour and minute. Select **a.m.** or **p.m.** from drop-down box.
8. If equipped with GPS, perform the following:
  - a. Select **GPS Time Sync** check box to synchronize time.
  - b. Select **GMT Offset** drop down box and select a number representing the number of hours current location varies from Greenwich Mean Time.
  - c. Select **Local Offset** drop down box and enter the number of minutes current location is past local time zone.

### Screen Area Information

**Display Settings** — Display Settings



Display Button



Settings Softkey

**Time/Date** — Time and Date

**Date** — Date

**Date Format** — Date Format

**MM** — Month

**DD** — Day

**YYYY** — Year

**Time** — Time

**24 Hour Clock** — 24 Hour Clock

**Daylight Savings Time** — Daylight Savings Time

**GMT Offset** — Greenwich Mean Time Offset

**Local Offset** — Local Offset

**GPS Time Sync** — Global Positioning System Synchronization

A59565 —UN—08MAR07

A59592 —UN—15MAR07

OUO6074,0000FC3 -19-22JUL08-1/1

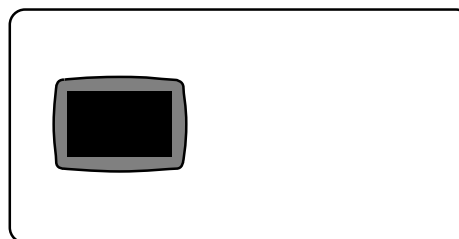
## Touchscreen Calibration

1. Select **Menu >> Display** button >> **Diagnostic** softkey.
2. Select **Tests** tab.
3. Select **Color Test** button. Three distinct colors appear for 5 seconds (Red, Blue, and Green). If three colors do not appear, contact your John Deere™ dealer.
4. Select **Touchscreen Test** and touch the screen in area of suspected malfunction. A target image appears under tip of finger. If target image does not appear when screen is touched, contact a John Deere™ dealer.
5. Select **Touchscreen Calibration** button.
6. Touch the screen over each X symbol as it appears on screen. Several X symbols appear in sequence, then a screen appears to indicate calibration was successful or unsuccessful.

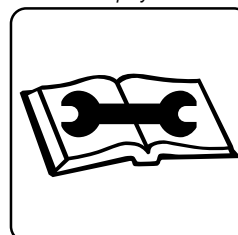
Select primary menu button to end the touch screen test and navigate back to desired screen or application.

### Screen Area Information

**Display** — Display  
**Display Diagnostics** — Display Diagnostics  
**Tests** — Tests



Display Button



Diagnostic Softkey

**Color Test** — Color Test  
**Touchscreen Test** — Touchscreen Test  
**Touchscreen Calibration** — Touchscreen Calibration  
**Calibration Successful** — Calibration Successful  
**Calibration Unsuccessful** — Calibration Unsuccessful  
**Reset Touchscreen Calibration** — Reset Touchscreen Calibration

A59565 —UN—08MAR07

A59567 —UN—08MAR07

OUO6074,0000FC9 -19-24OCT08-1/1

# Performance Monitor

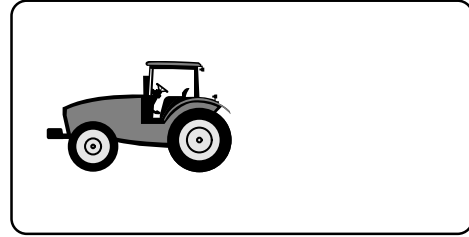
## Check Implement Width in Performance Monitor

Performance Monitor is a GreenStar 2 display function and is integrated with the SeedStar 2 monitoring system. The implement width is sent to Performance Monitor on startup and cannot be changed as long as the planter is connected to the tractor.

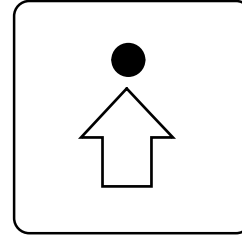
**IMPORTANT:** If implement width is changed in the planter application, for example when changing from corn to soybeans on a split row planter, cycle power to the display for new settings to take effect.

To view current width in Performance Monitor, select **Menu >> Performance Monitor >> Settings** softkey.

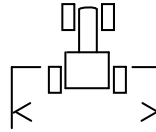
Implement width appears next to implement width icon.



Performance Monitor Button



Settings Softkey



Implement Width

OUO6045,000003D -19-29JUL08-1/1

A59552 —UN—08MAR07

A59377 —UN—23FEB07

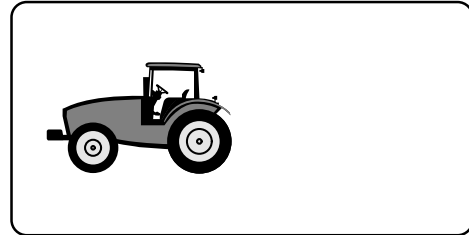
A59378 —UN—22FEB07

## Radar Configuration

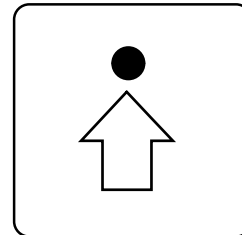
Select **Menu >> Performance Monitor** button >> **Settings** softkey.

- Clear the **GPS or Ground Radar Connected to Display** check box for John Deere™ 00, 10, and 20 Series Tractors with factory equipped tractor radar.
- Place a check in the **GPS or Ground Radar Connected to Display** check box for John Deere™ tractor models earlier than 00 Series with radar connected directly to the GreenStar™ Cab Harness.
- Place a check in the **GPS or Ground Radar Connected to Display** check box for competitive tractors with radar connected directly to the GreenStar™ Cab Harness.
- For John Deere 30 Series and newer tractors, this step is not required and it is not possible to check this box.
- For (ISO 11783 compliant) competitive tractors with a TECU, this step is not required and it is not possible to check this box.
- If using GPS as a ground speed source see your John Deere Dealer, because many configurations are possible.

*John Deere is a trademark of Deere & Company  
GreenStar is a trademark of Deere & Company*



Performance Monitor Button



Settings Softkey

OUO6074,000003F -19-24JUL08-1/1

A59552 —UN—08MAR07

A59377 —UN—23FEB07

## Radar Calibration

**IMPORTANT: Perform calibration in the field under seeding conditions. Inflate all tires to specifications given in operator's manuals. Do not inflate to level given on tire sidewall.**

Accurate system performance is dependant upon accurate radar calibration.

Some radars are integrated into tractor system. Calibrate these according to tractor operator's manual.

A radar that is connected directly to the GreenStar™ harness is calibrated using the following procedure. Dickey John™ Radar is an example of a radar that is connected directly to the GreenStar™ harness.

1. Select **Menu >> Performance Monitor** button >> **Settings** softkey.
2. Select **Radar Connected To Display** check box and mark with a check.
3. Select **Radar Calibration** button.
4. Follow the three step procedure listed on screen.

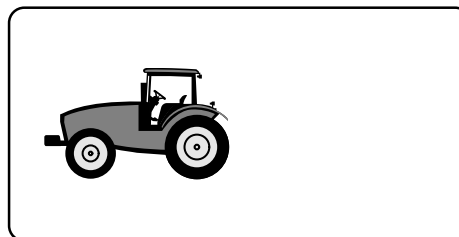
Step 1: Measure and mark a 122 m (400 ft.) course. Drive tractor approximately 3.2 km/h (2 mph) without pulling a load. Select **Radar Calibration** button as front tires cross mark at one end of course.

Step 2: Maintain speed. Select **Radar Calibration** button as front tires cross mark at other end of course.

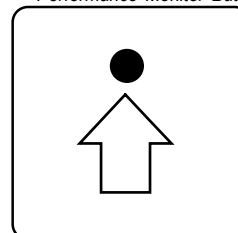
Step 3: Calibration is either successful or unsuccessful. Either a **Previous** button appears to repeat the procedure or an **Enter** button appears to complete the procedure.

**Radar connected to display —** Radar connected to display

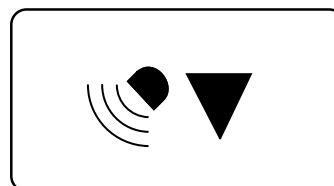
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Performance Monitor Button



Settings Softkey



Radar Calibration Button

**Calibrate Radar —** Calibrate Radar  
**Start Calibration at beginning of course —** Start Calibration at beginning of course  
**Stop Calibration at end of course —** Stop Calibration at end of course  
**Calibration not successful. Repeat process —** Calibration not successful. Repeat process  
**Calibration successful —** Calibration successful

A59552 —UN—08MAR07

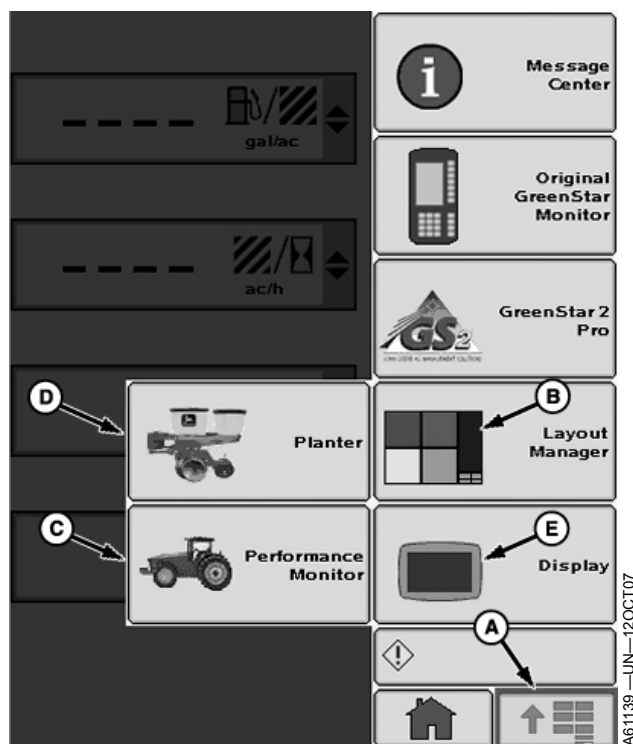
A59377 —UN—23FEB07

A59379 —UN—23FEB07

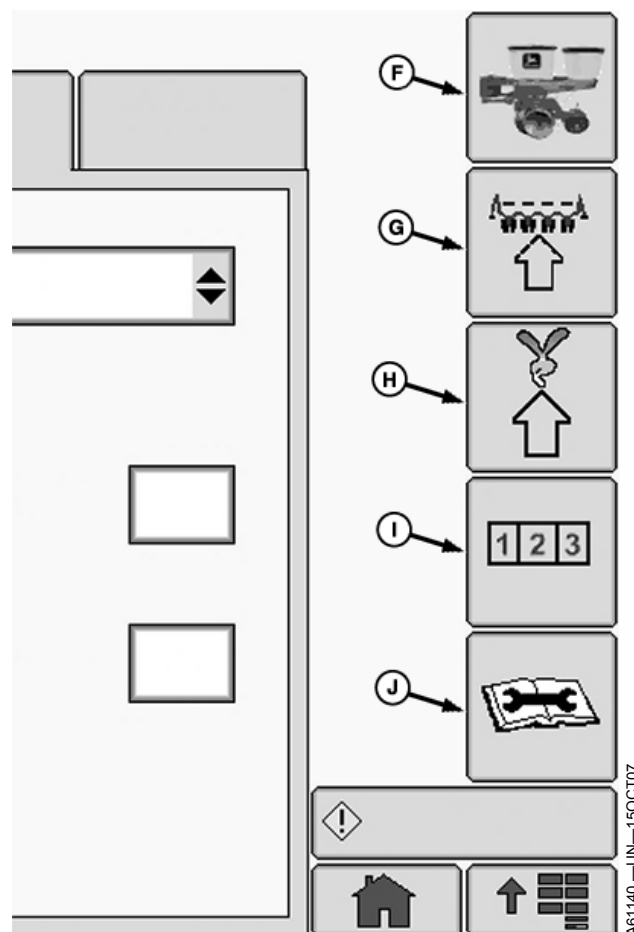
OUC6074,0000FAB -19-23JUL08-1/1

# Quick Reference Setup

## Quick Reference Setup for Ground Driven Machines



Main Menu Screen



Planter Application Screen

A—Main Menu  
B—Layout Manager  
C—Performance Monitor

D—Planter Application  
E—Display Application  
F—Planter Main

G—Planter Configuration  
H—Planter Rates  
I— Planter Totals

J— Planter Diagnostics

The following reference assumes that the operator has read and understands this manual. Some button images are given on this page as a reminder. Some entries

require certain information be set-up first. Follow quick reference in sequence.

| Quick Reference             |                       |                                                                                                                                                   |
|-----------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Screen Layout               |                       | Select Menu >> Layout Manager button >> Select a layout pattern.                                                                                  |
|                             | >> Screen Area        | Select a screen area to assign an application.                                                                                                    |
|                             | >> Application Button | Only applications allowed in chosen area appear as selections. Select one.                                                                        |
|                             | >> Application Screen | Select application screen to verify. Select remaining screen areas to change. Select enter when done.                                             |
| Performance Monitor         |                       | Select Menu >> Performance Monitor button >> Settings softkey. If monitor reset button is ever pressed, these values are erased.                  |
|                             | >> Check Box          | Select GPS or radar connected directly to planter application or not. Check indicates connected. Empty indicates radar is part of tractor system. |
|                             | >> Input Box          | Verify implement width matches planter width shown on planter monitor. Cycle power if they do not match.                                          |
|                             | >> Calibrate Button   | Follow calibration procedure if radar is connected to display.                                                                                    |
| Planter Drive Configuration |                       | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Drive Configuration drop-down >> Settings button.                             |
|                             | >> Drive Source       | >> Ground Driven. If this is changed, all setup data is lost.                                                                                     |

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## Quick Reference Setup

| Quick Reference                     |                                            |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | >> Meter Type                              | Vacuum or Mechanical                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Drive Section Configuration |                                            | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Drive Sections drop-down box >> Settings button.                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Number of Sections                      | Enter number of clutch disconnects on machine.                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | RowCommand™                                | Place a Check Mark in Box to activate.                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter RowCommand™ Configuration   |                                            | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Row Control Sections drop-down >> Settings button.                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Number of Sections Input Box            | Enter desired number of RowCommand™ sections on machine.                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter end row for current section.                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter values for additional sections.                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Enter Button                            |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Frame Configuration         |                                            | Select Enter >> Planter button >> Configuration softkey >> Frame tab.                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Rows Input Box                          | Enter total number of rows. Total means all rows, even if planter is a split row machine, and half the rows are currently inactive.                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Row Spacing Input Box                   | Enter row spacing. Spacing is the distance between any two side by side rows. Do not skip an inactive row and measure to the next active row on split row machines.              |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Planter Width                           | Enter planter width in unit of measure shown. Cycle power.                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Split Row Check Box                     | Check the box, if planter is a split row machine. This status never changes.                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Clutch Disconnect Warning               | Check this box if machine is equipped with multiple width disconnects and a warning is desired when some rows are inactive.                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Sensor Configuration        |                                            | >> Sensor Tab                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Seed                                    | >> Row Input Box                                                                                                                                                                 | Use this to set specific row sensors. Change split row activation in Rates setup later, not here. Enter row number and select row On or Off check box. Repeat for additional rows. Turn all row sensors on or off at once with button on bottom of page.                                                                                                                                                                                         |
|                                     | >> Vacuum                                  | >> Sensors: Drop Down                                                                                                                                                            | Select number of vacuum sensors on machine.                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                     |                                            | >> Sensor                                                                                                                                                                        | Vacuum must be off. Select each sensor, one at a time, and enter Calibration Value in input box. Deere sensors are 5.66. Select zero button to zero sensor reading. Select next sensor and repeat.                                                                                                                                                                                                                                               |
|                                     | >> Fertilizer                              | >> Sensors: Drop Down                                                                                                                                                            | Select number of fertilizer sensors on machine.                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     |                                            | >> High Pressure                                                                                                                                                                 | Enter a value to trigger an alarm.                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                     |                                            | >> Sensor                                                                                                                                                                        | Residual fluid pressure must be released from system. Select each sensor, one at a time, and enter Calibration Value in input box. Deere sensors are 37.50. Select zero button to zero sensor reading. Select next sensor and repeat.                                                                                                                                                                                                            |
|                                     | >> Height (Only if RowCommand™ is enabled. | >> Common or Separate Check Box                                                                                                                                                  | Common sets a single height to start and stop variable rate motors. Separate sets individual start and stop heights for variable rate motors.                                                                                                                                                                                                                                                                                                    |
|                                     |                                            | Calibrate full up and full down                                                                                                                                                  | Fully raise machine and select Raised button (up arrow). Select Enter. Fully lower machine while driving forward in field and select Lowered button (down arrow). Select Enter.                                                                                                                                                                                                                                                                  |
|                                     |                                            | Set start and stop point                                                                                                                                                         | Common: Select Start/Stop button. Raise machine to correct height and select Start/Stop Height button or enter a value in Input box. Select Enter.<br>Separate: Select Start/Stop button. From lowered position, raise machine to motor stop point and select Stop Height button or enter value in Input box. From raised position, lower machine to motor start point and select Start Height button or enter value in Input box. Select Enter. |
|                                     | >> Tractor Speed                           | Select Auto check box to allow display to determine optimal ground speed source (recommended). If unchecked, a drop-down appears. Select drop-down menu and chose sensor source. |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Seed Rate Configuration             |                                            | >> Rates Softkey                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Crop Name Drop Down                     | Select corn, soybeans or one of the custom crop names.                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Edit Crop Name                          | Select to edit names of crops in crop name drop down.                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Target Input Box                        | Program target rate.                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> High and Low Input Box                  | Automatically sets ten percent over and under. Select box to change.                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Population Adjust                       | Enter correction value after performing seed rate check in field.                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Rows Planting Check Box                 | Only visible on split row machine configurations. This is where split row planting is turned on and off. Select number of rows actively planting.                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Calculators                 |                                            | >> Totals Softkey                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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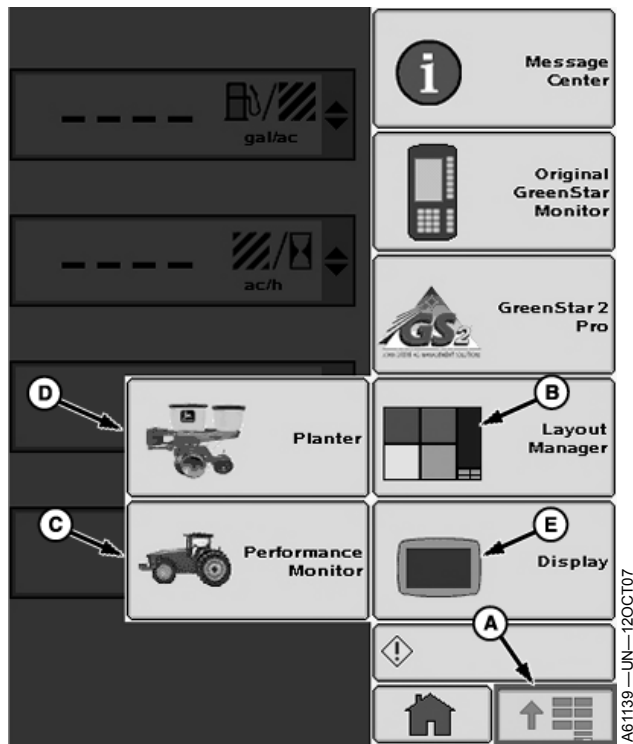
OUO6074,0001070 -19-07NOV08-2/3

## Quick Reference Setup

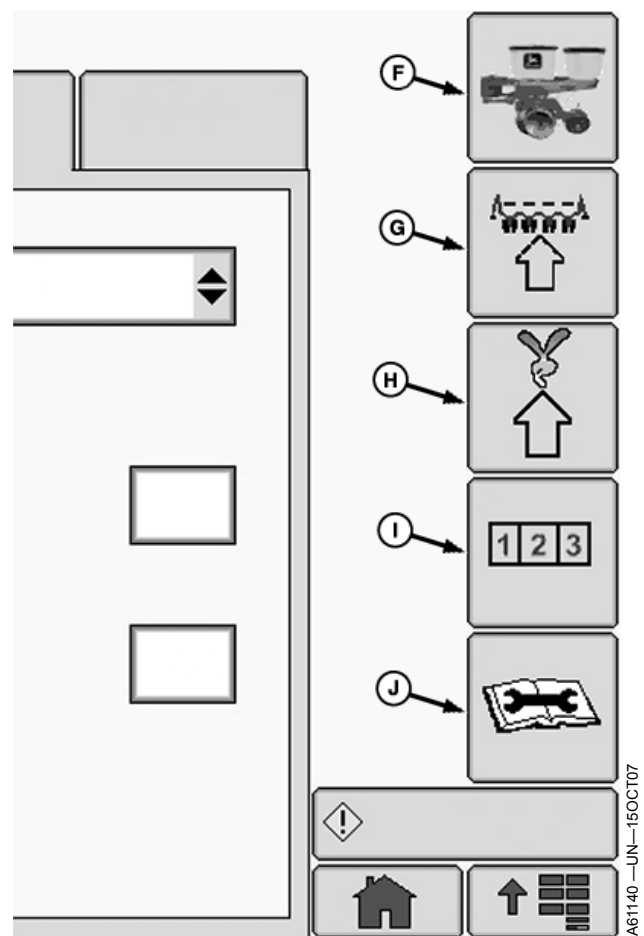
| Quick Reference |                                                |                                         |                                                                                                                                           |
|-----------------|------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                 | >> Seed Estimator                              | >> Calculators Tab >> Seed Estimator    | Select one of three estimators; Bag, Unit, or Weight. Enter all values and view result. See Counters and Calculators section for details. |
|                 | >> Transmission Sprocket Calculator            | >> Calculators Tab >> Seed Transmission |                                                                                                                                           |
|                 |                                                | >> Target Population Input Box          | Enter target population.                                                                                                                  |
|                 |                                                | >> Disk Type Drop Down                  | Select vacuum disk type installed in meter or select finger pickup or radial bean at bottom of list.                                      |
|                 |                                                | >> Seed Disk Drop Down (Vacuum Only)    | Select disk installed in meter.                                                                                                           |
|                 | >> Vacuum Calculator (With Vacuum Meters Only) | >> Calculators Tab >> Vacuum            |                                                                                                                                           |
|                 |                                                | >> Top Drop Down                        | Select Vacuum                                                                                                                             |
|                 |                                                | >> Seeds per kg (lb.) Input Box         | Enter number of seeds per kg (lb.)                                                                                                        |
|                 |                                                | >> Disk Type Drop Down                  | Select type of disk in meter.                                                                                                             |
|                 |                                                | >> Seed Disk Drop Down                  | Select disk. Set vacuum to suggested value as a starting point.                                                                           |
|                 | Fertilizer Calculator                          | >>Calculators Tab >> Fertilizer         |                                                                                                                                           |
|                 |                                                | >> Model Drop Down                      | Select planter model.                                                                                                                     |
|                 |                                                | >> Rate (gal/ac)                        | Set the rate at which fertilizer will be applied.                                                                                         |
|                 |                                                | Target Speed (mph)                      | Set the target speed the tractor will travel.                                                                                             |
|                 | Area Calculators                               | >> Totals Tab                           | Select any input box. Change values or zero with Zero button.                                                                             |
| Diagnostics     |                                                |                                         |                                                                                                                                           |
|                 | >> Diagnostic Softkey >> Readings tab          | >> Hardware/Software                    | Provides system data. On large frame planters with more than one controller, select each controller separately from the drop down.        |
|                 |                                                | >> Sensors/Status Drop Down             | Observe readings of programmed sensors.                                                                                                   |
|                 |                                                | >> System Voltages                      | Provides system data.                                                                                                                     |
|                 | >> Tests >> Top Drop Down                      | >> Seed Tube Sensor                     | Tests the seed sensors detected by the monitor.                                                                                           |
|                 |                                                | >> Seed Drop                            | Tests if a seed sensor is detecting seeds accurately.                                                                                     |
|                 |                                                | >> Timed Seed Drop                      | Tests the seed rate of a single row unit.                                                                                                 |
|                 |                                                | >> VRD Events Log                       |                                                                                                                                           |
|                 |                                                | >> VRD Motor/Valve Flush                | Used to flush air from VRD hydraulic system.                                                                                              |
|                 |                                                | >> Diagnostics Code                     |                                                                                                                                           |
|                 |                                                | >> Rotate Meters                        | Verify drillshaft and meters turn without pulling machine through field.                                                                  |
|                 |                                                | Row Clutches test                       | Used to electrically test each RowCommand™ row clutch circuit.                                                                            |
|                 |                                                | Row Clutch Self-test                    | Used to electrically test all RowCommand™ clutches.                                                                                       |

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## Quick Reference Setup for VRD Machines



Main Menu Screen



Planter Application Screen

A—Main Menu  
B—Layout Manager  
C—Performance Monitor

D—Planter Application  
E—Display Application  
F—Planter Main

G—Planter Configuration  
H—Planter Rates  
I—Planter Totals

J—Planter Diagnostics

The following reference assumes that the operator has read and understands this manual. Some button images are given on this page as a reminder. Some entries

require certain information be set up first. Follow quick reference in sequence.

| Quick Reference             |                                                                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Screen Layout               | Select Menu >> Layout Manager button >> Select a layout pattern.                                                                                  |
| >> Screen Area              | Select a screen area to assign an application.                                                                                                    |
| >> Application Button       | Only applications allowed in chosen area appear as selections. Select one.                                                                        |
| >> Application Screen       | Select application screen to verify. Select remaining screen areas to change. Select enter when done.                                             |
| Performance Monitor         | Select Menu >> Performance Monitor button >> Settings softkey. If monitor reset button is ever pressed, these values are erased.                  |
| >> Check Box                | Select GPS or radar connected directly to planter application or not. Check indicates connected. Empty indicates radar is part of tractor system. |
| >> Input Box                | Verify Implement Width matches planter width shown in planter monitor. Cycle power if they do not match.                                          |
| >> Calibrate Button         | Follow calibration procedure if radar is connected to display.                                                                                    |
| Planter Drive Configuration | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Drive Configuration drop-down box >> Settings button.                         |
| >> Drive Source             | >> Variable Rate. If this is changed, all setup data is lost.                                                                                     |
| >> Meter Type               | Vacuum or Mechanical                                                                                                                              |

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## Quick Reference Setup

| Quick Reference                     |                                            |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | >> Drive Type                              | MaxEmerge™ or Pro-Series™                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> QS Enabled                              | Check indicates Quick Start enabled (recommended). Empty indicates disabled.                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Drive Section Configuration |                                            | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Drive Sections drop-down box >> Settings button.                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Number of Sections Input Box            | Enter number of variable rate motors on machine.                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> RowCommand™                             | Check indicates RowCommand™ enabled. Empty indicates disabled.                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter values for first motor in input boxes.                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter values for additional motors.                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Enter Button                            |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter RowCommand™ Configuration   |                                            | Select Menu >> Planter button >> Configure softkey >> Drives tab >> Row Control Sections drop-down >> Settings button.                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Number of Sections Input Box            | Enter desired number of RowCommand™ sections on machine.                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter end row for current section.                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Next Page Button                        | Enter values for additional sections.                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Enter Button                            |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Frame Configuration         |                                            | Select Enter >> Planter button >> Configuration softkey >> Frame tab.                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Rows Input Box                          | Enter total number of rows. Total means all rows, even if planter is a split row machine, and half the rows are currently inactive.                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Row Spacing Input Box                   | Enter row spacing. Spacing is the distance between any two side by side rows. Do not skip an inactive row and measure to the next active row on split row machines.               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Planter Width Input Box                 | Enter planter width in unit of measure shown. Cycle power.                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Split Row Check Box                     | Check the box, if planter is a split row machine. This status never changes for this machine.                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Clutch Check Box                        | Check this box if machine is equipped with multiple width disconnects and a warning is desired when some rows are inactive.                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Planter Sensor Configuration        |                                            | >> Sensor Tab                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Seed                                    | >> Row Input Box                                                                                                                                                                  | Use this to set specific row sensors. Change split row activation in Rates setup later, not here. Enter row number and select row on or off check box. Repeat for additional rows. Turn all row sensors on or off at once with button on bottom of page.                                                                                                                                                                                         |
|                                     | >> Vacuum                                  | >> Sensors: Drop Down                                                                                                                                                             | Select number of vacuum sensors on machine.                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                     |                                            | >> Sensor                                                                                                                                                                         | Vacuum must be off. Select each sensor, one at a time, and enter Calibration Value in input box. Deere sensors are 5.66. Select zero button to zero sensor reading. Select next sensor and repeat.                                                                                                                                                                                                                                               |
|                                     | >> Fertilizer                              | >> Sensors: Drop Down                                                                                                                                                             | Select number of fertilizer sensors on machine.                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     |                                            | >> Sensor                                                                                                                                                                         | Residual fluid pressure must be released from system. Select each sensor, one at a time, and enter Calibration Value in input box. Deere sensors are 37.50. Select zero button to zero sensor reading. Select next sensor and repeat.                                                                                                                                                                                                            |
|                                     | >> Height (Only if RowCommand™ is enabled. | >> Common or Separate Check Box                                                                                                                                                   | Common sets a single height to start and stop variable rate motors. Separate sets individual start and stop heights for variable rate motors.                                                                                                                                                                                                                                                                                                    |
|                                     |                                            | Calibrate full up and full down                                                                                                                                                   | Fully raise machine and select Raised button (up arrow). Select Enter. Fully lower machine while driving forward in field and select Lowered button (down arrow). Select Enter.                                                                                                                                                                                                                                                                  |
|                                     |                                            | Set start and stop point                                                                                                                                                          | Common: Select Start/Stop button. Raise machine to correct height and select Start/Stop Height button or enter a value in Input box. Select Enter.<br>Separate: Select Start/Stop button. From lowered position, raise machine to motor stop point and select Stop Height button or enter value in Input box. From raised position, lower machine to motor start point and select Start Height button or enter value in Input box. Select Enter. |
|                                     | >> Tractor Speed                           | Select Auto check box to allow display to determine optimal ground speed source (recommended). If unchecked, a drop-down appears. Select drop-down menu and choose sensor source. |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Seed Rate Configuration             |                                            | >> Rates Softkey                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     | >> Show Rates Button                       | View current rates for each motor.                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                     |                                            | >> Change Rates Button                                                                                                                                                            | To change any rate.                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                     |                                            | >> Rate Drop Down                                                                                                                                                                 | Select rate to change.                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                     |                                            | >> Motor Drop Down                                                                                                                                                                | When equipped with multiple motors and different rates for each motor. Select motor to set a rate. Only visible if box <b>Use one rate for all motors</b> is not selected.                                                                                                                                                                                                                                                                       |

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## Quick Reference Setup

| Quick Reference     |                                             |                                                                                                                                                   |                                                                                                                                            |
|---------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                             | >> On - Off Drop Down                                                                                                                             | Set rate to appear or run screen or not.                                                                                                   |
|                     |                                             | >> Target Input Box                                                                                                                               | Program target rate for selected motor.                                                                                                    |
|                     |                                             | >> High and Low Input Box                                                                                                                         | Automatically sets ten percent over and under. Select box to change.                                                                       |
|                     |                                             | >> Enter Button                                                                                                                                   | Saves program.                                                                                                                             |
|                     | >> One Rate All Motors Check Box            | Only visible if multiple motors on machine. Check for one rate across machine. Empty for different rates on each motor.                           |                                                                                                                                            |
|                     | >> Crop Name Drop Down                      | Select corn, soybeans or one of the custom crop names.                                                                                            |                                                                                                                                            |
|                     |                                             | >> Edit Crop Name                                                                                                                                 | Select to edit names of crops in crop name drop down.                                                                                      |
|                     | >> Disk Type Drop Down                      | Select type of disk or meter.<br>If custom is chosen, enter number of seeds/holes per revolution.                                                 |                                                                                                                                            |
|                     | >> Seed Disk (Vacuum only)                  | Select disk installed in meter.                                                                                                                   |                                                                                                                                            |
|                     | >> Population Adjust                        | Enter correction value after performing seed rate check in field.                                                                                 |                                                                                                                                            |
|                     | >> Rows Planting Check Box                  | Only visible on split row machine configurations. This is where split row planting is turned on and off. Select number of rows actively planting. |                                                                                                                                            |
| Planter Calculators |                                             | >> Totals Softkey                                                                                                                                 |                                                                                                                                            |
|                     | Area Calculators                            | >> Totals Tab                                                                                                                                     | Select any input box. Change values or zero with Zero button.                                                                              |
|                     | Seed Estimator                              | >> Calculators Tab >> Seed Estimator                                                                                                              | Select one of three estimators; Bag, Unit, or Weight. Enter all values and view result. See Counters and Calculators section for details.  |
|                     | Vacuum Calculator (With Vacuum Meters Only) | >> Calculators Tab >> Vacuum                                                                                                                      |                                                                                                                                            |
|                     |                                             | >> Top Drop Down                                                                                                                                  | Select Vacuum                                                                                                                              |
|                     |                                             | >> Seeds per kg (lb.) Input Box                                                                                                                   | Enter number of seeds per kg (lb.)                                                                                                         |
|                     |                                             | >> Disk Type Drop Down                                                                                                                            | Select type of disk in meter.                                                                                                              |
|                     |                                             | >> Seed Disk Drop Down                                                                                                                            | Select disk. Set vacuum to suggested value as a starting point.                                                                            |
|                     | Fertilizer Calculator                       | >> Calculators Tab >> Fertilizer                                                                                                                  |                                                                                                                                            |
|                     |                                             | >> Model Drop Down                                                                                                                                | Select planter model.                                                                                                                      |
|                     |                                             | >> Rate (gal/ac)                                                                                                                                  | Set the rate at which fertilizer will be applied.                                                                                          |
|                     |                                             | Target Speed (mph)                                                                                                                                | Set the target speed the tractor will travel.                                                                                              |
| Diagnostics         |                                             |                                                                                                                                                   |                                                                                                                                            |
|                     | >> Diagnostic Softkey >> Readings tab.      | >> Hardware/Software                                                                                                                              | Provides system data. On large frame planters with more than one controller, select each controller separately from the drop down.         |
|                     |                                             | >> Sensors/Status Drop Down                                                                                                                       | Observe readings of programmed sensors.                                                                                                    |
|                     |                                             | >> System Voltages                                                                                                                                | Provides system data.                                                                                                                      |
|                     |                                             | >> VRD Data Drop Down                                                                                                                             | Review sensor readings. If Target rpm displays CAL, operate machine in the field a short distance with VRD active. This calibrates motors. |
|                     | >> Tests >> Top Drop Down                   | >> Seed Tube Sensor                                                                                                                               | Tests the seed sensors detected by the monitor.                                                                                            |
|                     |                                             | >> Seed Drop                                                                                                                                      | Tests if a seed sensor is detecting seeds accurately.                                                                                      |
|                     |                                             | >> Timed Seed Drop                                                                                                                                | Tests the seed rate of a single row unit.                                                                                                  |
|                     |                                             | >> VRD Events Log                                                                                                                                 |                                                                                                                                            |
|                     |                                             | >> VRD Motor/Valve Flush                                                                                                                          | Used to flush air from VRD hydraulic system.                                                                                               |
|                     |                                             | >> Diagnostics Code                                                                                                                               |                                                                                                                                            |
|                     |                                             | >> Rotate Meters                                                                                                                                  | Verify drillshaft and meters turn without pulling machine through field.                                                                   |
|                     |                                             | Row Clutches test                                                                                                                                 | Used to electrically test each RowCommand™ row clutch circuit.                                                                             |
|                     |                                             | Row Clutch Self-test                                                                                                                              | Used to electrically test all RowCommand™ clutches.                                                                                        |

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# SETUP Basic Planter Configuration

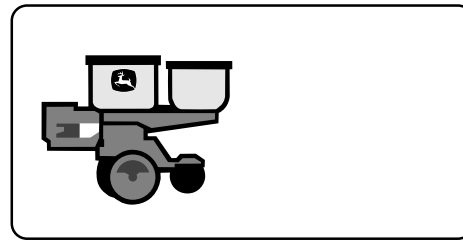
## Check Current Configuration

1. Select **Menu >> Planter button >> Configure** softkey.

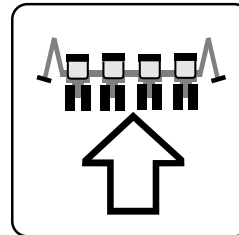
**IMPORTANT:** A Drive Source change resets all planter settings to default values and requires cycling power to the display and controller. Always configure Drive Source before planter settings are entered.

2. Select each tab (A) and verify planter configuration before operation to minimize down time.

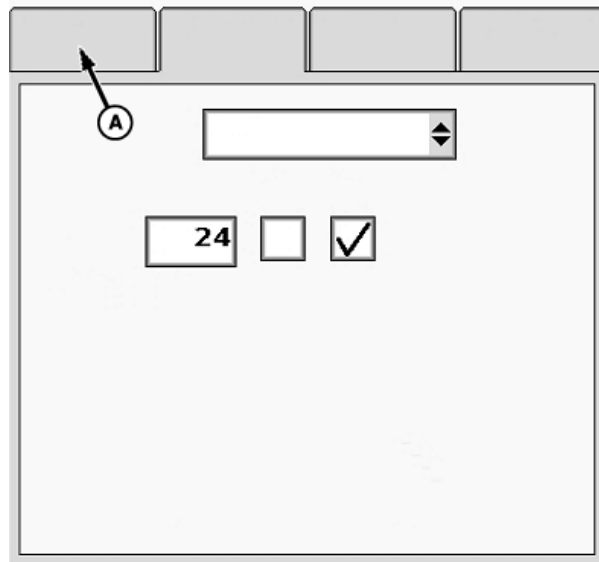
A—Tabs



Planter Button



Configure Softkey



A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59181 —UN—26JAN07

OUC6074,0000F7D -19-23JUL08-1/1

## Configure Planter Drive Source

Drive source is configured at the factory for each planter. The only reason to change this configuration is if a different drive system has been installed on machine.

1. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Drive Configure** drop-down box >> **Settings** button.

**IMPORTANT: A Drive Source change resets all planter settings to default values.**

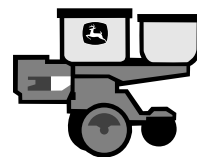
2. Select drive source.
3. Select **Enter** button to acknowledge controller reset warning.

*NOTE: Wait 30 seconds between power cycles.*

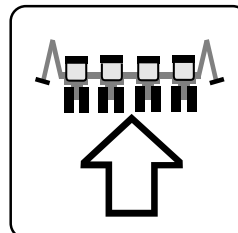
4. Cycle power.
5. For variable driven machines:
  - a. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Drive Sections** drop-down box >> **Settings** button.
  - b. Set number of motors, and select next page icon.
  - c. Configure each drive motors end row with input box.
  - d. Configure drive gear and driven gear using input boxes.
  - e. Configure clutch disconnect location using drop-down box. Select next page icon to configure other motor row clutches.
  - f. When complete select **Enter**.

### Screen Area Information

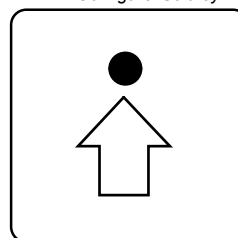
**Planter Configuration** — Planter Configuration



Planter Button



Configure Softkey



Settings Button

**Frame** — Frame  
**Meter Drive Setup** — Meter Drive Setup  
**Drive Source** — Drive Source  
**Drives** — Drives  
**Start Row** — Starting Row  
**End Row** — Ending Row  
**Drive Gear** — Drive Gear  
**Driven Gear** — Driven Gear

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59377 —UN—23FEB07

OUC6074,0000F7E -19-14OCT08-1/1

## Configure Frame, Split Row, and Drive Disconnect Warning

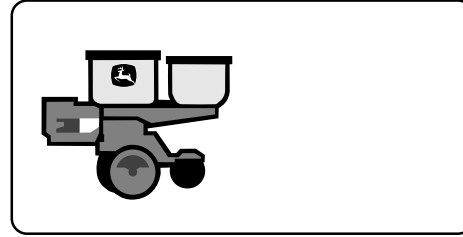
1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Frame** tab.
2. Select **Rows** input box. Enter total number of rows on machine.
3. Select **Row Spacing** input box. Enter distance between each row unit.
4. Planter **Width** is automatically calculated. To calculate width manually, select input box and enter a value.
5. Cycle power.
6. Select **Clutch Disconnect Warning** check box to enable or disable the partial width alarm. When enabled, a full page warning displays for 5 seconds whenever a clutch or drive section is disengaged. A message is displayed on Message Center softkey and monitor beeps every 15 seconds as a reminder.

*NOTE: When split row option is chosen, the number of rows, row spacing, and machine width are automatically calculated for monitoring purposes. Split row settings are displayed to the right of input boxes.*

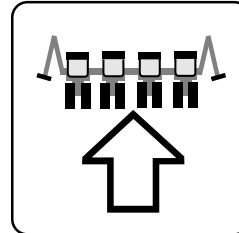
7. If machine is a split row design, select **Split Row** check box. Split Row must always remain checked if planter is a split row design. To toggle between wide and narrow rows when planting, perform the following:
8. Select **Rates** softkey.
9. If planter is a split row machine, select **Rows Planting** check box to change between split rows and all rows.
10. Cycle power to ensure all new settings are updated.

### Screen Area Information

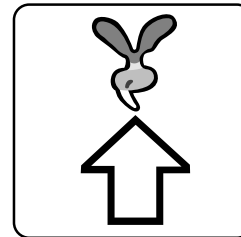
**Planter Configuration** — Planter Configuration



Planter Button



Configuration Softkey



Rates Softkey

**Frame** — Frame  
**Total** — Total  
**Rows** — Rows  
**Row Spacing** — Row Spacing  
**Planter Width** — Planter Width  
**Split Row** — Split Row  
**Split** — Split  
**Clutch Disconnect Warning** — Clutch Disconnect Warning  
**Rows Planting** — Number of Rows Planting

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59173 —UN—29JAN07

OUO6074,0000F80 -19-23JUL08-1/1

## Configure RowCommand™

1. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Drive Sections** drop-down box >> **Settings** button.

2. Check box to enable RowCommand™. Select next page icon.

**NOTE:** To set-up motors see *CONFIGURE PLANTER DRIVE SOURCE* section in this manual.

3. If equipped with variable drive, motor setup appears on screen. Select next page icon until row control sections setup appears on screen:

- a. Enter number of sections in input box. Select next page icon.

**IMPORTANT:** RowCommand™ sections must not cross meter drive sections on the planter. Plan your configuration accordingly. See **RECOMMENDED ROWCOMMAND™ CONFIGURATIONS** in this section.

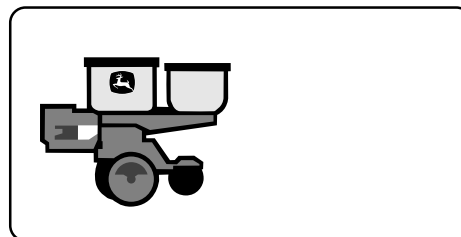
**IMPORTANT:** The number of rows across a minimum of 152 cm (60 in.) must be entered for each section. If planter is on 76 cm (30 in.) row spacing a minimum of 2 rows must be entered.

For example if a 1790-16/32 is being set-up, there are four rows per 152 cm (60 in.), minimum number of rows per section would be four.

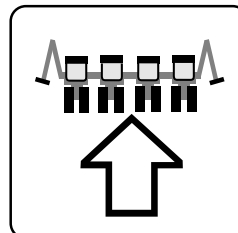
If numerous RowCommand™ clutches are simultaneously energized (meters disengaged), a tractor “Low Voltage” warning may occur due to limited alternator output. Reduce electrical load or increase engine RPM.

- b. Configure each sections ending row using input box. Select next page icon to toggle through each section. See **RECOMMENDED ROWCOMMAND™ SECTION CONFIGURATIONS** in this section.
- c. When complete, a visual representation of your configuration appears. Select **Enter** to confirm setup. Select **Enter** again. Cycle power when prompted.

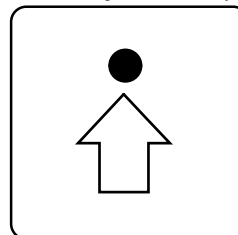
To edit row control sections select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Row Control Sections** drop-down box >> **Settings** button.



Planter Button



Configuration Softkey



Settings Button

If **Row Control Sections** does not appear in drop-down box, RowCommand™ has not been enabled. Repeat RowCommand™ configuration procedure.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Drives** — Drives

**Row Command** — Row Command

**Number of Sections** — Number of Sections

**Start Row** — Starting Row

**End Row** — Ending Row

**Row Control Sections** — Row Control Sections

NS43404,00000B9 -19-07NOV08-1/1

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59377 —UN—23FEB07

## Recommended RowCommand™ Section Configurations

| Machine             | Number of Rows | Drive Sections (Variable Rate Drive) | Drive Sections (Ground Drive) | Control Sections |
|---------------------|----------------|--------------------------------------|-------------------------------|------------------|
| 1720 12R 30, 38, 40 | 12             | 3                                    | 1                             | 6                |
| 1720 16R30          | 16             | 3                                    | 1                             | 8                |
| 1760 12R30          | 12             | 2                                    | 2                             | 6                |
| 1770 12R30          | 12             | 2                                    | 2                             | 6                |
| 1770NT 12R30        | 12             | 2                                    | 2                             | 6                |
| 1770NT 16R30        | 16             | 2                                    | 2                             | 8                |
| 1770NT 24R30        | 24             | 2                                    | 2                             | 12               |
| 1790 12_23          | 23             | 2                                    | 2                             | 6                |
| 1790 12_24          | 24             | 2                                    | 2                             | 6                |
| 1790 24R20          | 24             | 2                                    | 2                             | 8                |
| 1790 16_31          | 31             | 2                                    | 2                             | 8                |
| 1790 16_32          | 32             | 2                                    | 2                             | 8                |
| DB44 24R22          | 24             | 2                                    | 2                             | 8                |
| DB58 32R22          | 32             | 2                                    | 2                             | 8                |
| DB60 36R20          | 36             | 3                                    | 2                             | 12               |
| DB60 47R15          | 47             | 3                                    | 2                             | 12               |
| DB66 36R22          | 36             | 3                                    | 2                             | 12               |
| DB80 32R30          | 32             | 2                                    | 2                             | 16               |
| DB80 48R20          | 48             | 3                                    | 3                             | 12               |
| DB88 48R22          | 48             | 3                                    | 3                             | 12               |
| DB90 36R30          | 36             | 3                                    | 3                             | 12               |

NS43404,00000EF -19-07NOV08-1/1

### Seed Sensors On/Off

1. Select **Menu >> Planter** button >> **Configuration** softkey >> **Sensor** tab.

**IMPORTANT: Frame configuration must be complete before seed sensor setup.**

2. Select **Seed** from drop down box.
3. To change all rows at once, select button to **Turn All Rows On** or to **Turn All Rows Off**.

To change one row at a time, select **Row** input box and enter row number. Select **On** or **Off** check box to configure selected row.

On/Off selections are only available for active rows.  
Example: If a split row machine is set to plant in the wide row configuration, the intermediate (split) rows are not selectable.

#### Screen Area Information

**Planter Configuration** — Planter Configuration

**Seed** — Seed

**Row** — Row

**On** — On

**Off** — Off

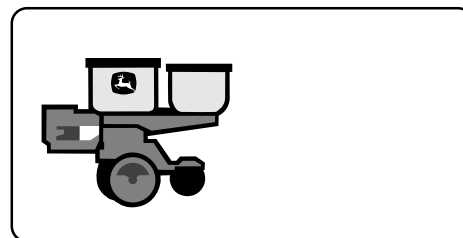
**All Rows On** — All Rows On

**All Rows Off** — All Rows Off

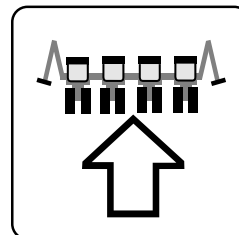
**Turn All Rows On** — Turn All Rows On

**Turn All Rows Off** — Turn All Rows Off

**Rows Off:** — Rows Off:



Planter Button



Configuration Softkey

A59551—UN—08MAR07

A59172—UN—29JAN07

OUC06074,0000F84 -19-12MAR07-1/1

## Vacuum Sensors

*NOTE: This option is only visible if machine is configured for one or more sensors.*

1. Select **Menu >> Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Vacuum** from drop down box.
3. Select number of vacuum sensors on machine from **Sensors:** drop down box.

*NOTE: Current pressure is displayed on bottom left of screen.*

4. Select each sensor, one at a time, from the **Sensor** drop down box. Shut off vacuum hydraulics and select the **Zero Sensor** button.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensors:** — Sensors:

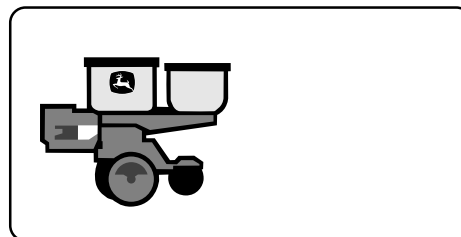
**Sensor** — Sensor

**Vacuum** — Vacuum

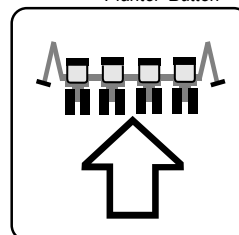
**Cal Value** — Calibration Value

**Turn Vacuum Off** — Turn Vacuum Off

**Select** — Select



Planter Button



Configuration Softkey



Zero Sensor Button

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59369 —UN—20FEB07

OUO6074,0000F83 -19-23JUL08-1/1

## Vacuum Sensor Calibration

**NOTE:** This option is only visible if machine is configured for one or more sensors.

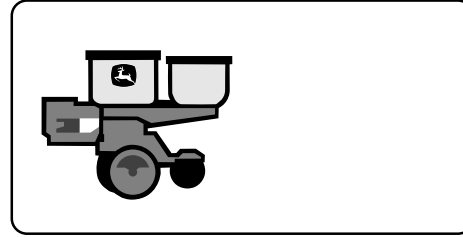
1. Select **Menu >> Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Vacuum** from drop down box.
3. Select each sensor, one at a time, from the **Sensor** drop down box.
4. Select **Cal Value** input box and enter the number of inches of water displayed per volt from the vacuum sensor. John Deere™ planters with factory equipped sensors have a calibration value of 5.66.

**NOTE:** Current pressure is displayed on bottom left of screen.

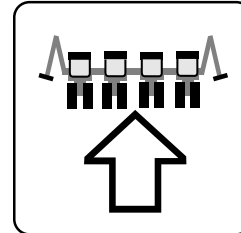
5. Shut off vacuum hydraulics and select the **Zero Sensor** button.

### Screen Area Information

**Planter Configuration** — Planter Configuration  
**Sensor** — Sensor  
**Vacuum** — Vacuum  
**Cal Value** — Calibration Value  
**Turn Vacuum Off** — Turn Vacuum Off  
**Select** — Select



Planter Button



Configuration Softkey



Zero Sensor Button

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59369 —UN—20FEB07

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OUO6074,0000F86 -19-23JUL08-1/1

## Liquid Fertilizer Sensors

*NOTE: This option is only visible if machine is configured for one or more sensors.*

1. Select **Menu >> Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Fertilizer** from drop down box.
3. Select number of fertilizer sensors on machine from **Sensors:** drop down box.
4. Select each sensor, one at a time, from the **Sensor** drop down box. Select **High Pressure** input box and enter a high pressure warning limit, if desired.

*NOTE: Current pressure is displayed on bottom left of screen.*

5. Select each sensor, one at a time, from the **Sensor** drop down box. Relieve pressure in fertilizer system and select the **Zero Sensor** button.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Fertilizer** — Fertilizer

**Sensors:** — Sensors:

**Sensor** — Sensor

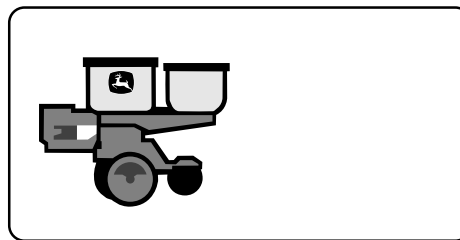
**High Pressure** — High Pressure

**Cal Value** — Calibration Value

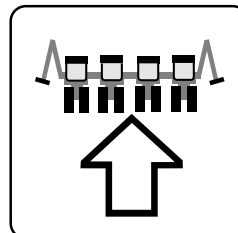
**Pressure** — Pressure

**Relieve Pressure** — Relieve Pressure

**Select** — Select



Planter Button



Configuration Softkey



Zero Sensor Button

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59369 —UN—20FEB07

OUO6074,0000FA8 -19-23JUL08-1/1

## Liquid Fertilizer Sensor Calibration (Optional)

*NOTE: This option is only visible if machine is configured for one or more sensors.*

1. Select **Menu >> Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Fertilizer** from drop down box.
3. Select each sensor, one at a time, from the **Sensor** drop down box.
4. Select **Cal Value** input box and enter the pressure per volt from the fertilizer sensor. John Deere™ planters with factory equipped sensors have a calibration value of 37.50.

*NOTE: Some pressure remains trapped in the system even after it is shut down, unless manually relieved.*

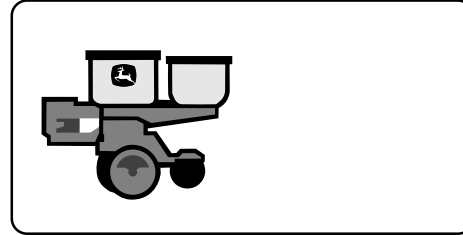
*NOTE: Current pressure is displayed on bottom left of screen.*

5. Relieve fertilizer pressure from system and select the **Zero Sensor** button.

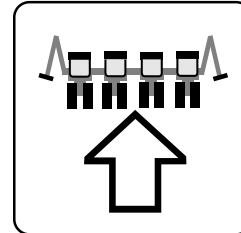
### Screen Area Information

**Planter Configuration** — Planter Configuration  
**Sensor** — Sensor  
**Fertilizer** — Fertilizer  
**High Pressure** — High Pressure  
**Cal Value** — Calibration Value  
**Pressure** — Pressure  
**Relieve Pressure** — Relieve Pressure  
**Select** — Select

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Planter Button



Configuration Softkey



Zero Sensor Button

A59551—UN—08MAR07

A59172—UN—29JAN07

A59369—UN—20FEB07

OUO6074,0000F87 -19-23JUL08-1/1

## Calibrate Common Start and Stop Height

Use this procedure to set a single point to start and stop VRD motors as the machine raises and lowers. Common start/stop points are used when machine is equipped with parallel-arm height switches. Machines with a frame height sensor can use separate start/stop points.

1. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Sensor** tab.
2. Select **Height** from drop-down box.
3. Completely raise machine in field raised position.
4. Select **Planter Raised** button. Select **Enter** button.
5. Lower machine completely while driving forward under seeding conditions.
6. Select **Planter Lowered** button. Select **Enter** button.
7. Select **Start/Stop** button.

**IMPORTANT: Start/stop point must be manually set to 50 for integral planters with single action height switches on parallel arms.**

*NOTE: A set point less than 20 is not recommended with frame height sensor.*

8. With Frame Height Sensor: From the fully lowered position, raise machine until the desired start/stop point is achieved and select **Set Height** button. Recommended setting is with openers at soil surface.
9. If setting needs slight adjustment after planting begins, select input box and adjust value in small increments.
10. Select **Enter** button.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensor** — Sensor

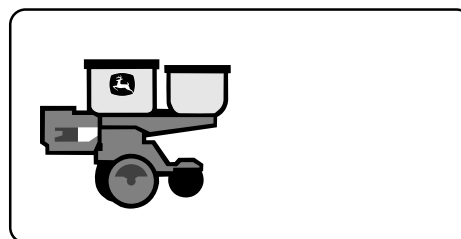
**Height** — Height

**Common** — Common

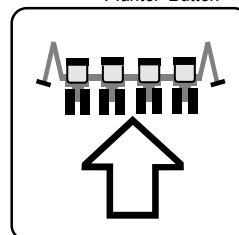
**Separate** — Separate

**Motor Start/Stop Height** — Motor Start/Stop Height

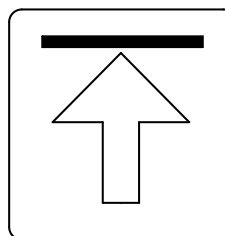
**Current Planter Height** — Current Planter Height



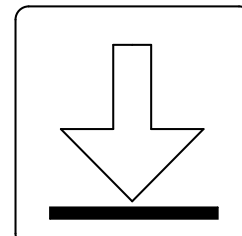
Planter Button



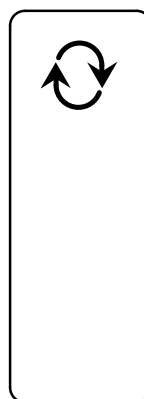
Configure Softkey



Planter Raised



Planter Lowered



Start/Stop

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59529 —UN—09MAR07

A59530 —UN—08MAR07

## Calibrate Separate Start and Stop Height

Use this procedure to set separate points to start and stop VRD motors as the machine raises and lowers. Machines with frame height sensors use separate start/stop points. Common start/stop points are generally used when machine is equipped with parallel-arm height switches.

Select **Menu** >> **Planter** button >> **Configure** softkey >> **Sensor** tab.

1. Select **Height** from drop down box.
2. Completely raise machine in field raised position.
3. Select **Planter Raised** button. Select **Enter** button.
4. Lower machine completely while driving forward under seeding conditions.
5. Select **Planter Lowered** button. Select **Enter** button.
6. Select **Start/Stop** button.

**IMPORTANT: Start height must be a larger value than stop height.**

**NOTE: A Stop point less than 20 is not recommended.**

7. From the fully lowered position, raise machine until motor stop height is achieved and select **Stop Height** button. Recommended setting is just before openers exit soil.
8. Fully raise machine.
9. From the fully raised position, lower machine until motor start height is achieved and select **Start Height** button. Recommended setting is just before openers contact soil.
10. If settings need to be adjusted slightly after planting begins, select input boxes and adjust values in small increments.
11. Select **Enter** button.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensor** — Sensor

**Height** — Height

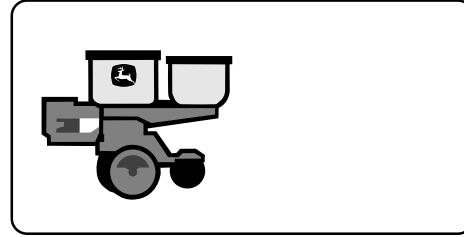
**Common** — Common

**Separate** — Separate

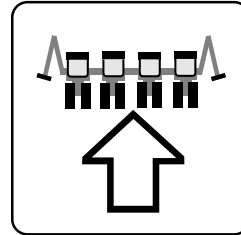
**Motor Start Height** — Motor Start Height

**Motor Stop Height** — Motor Stop Height

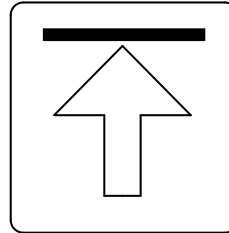
**Current Planter Height** — Current Planter Height



Planter Button



Configure Softkey



Planter Raised

A59528 —UN—08MAR07

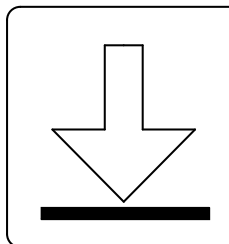


Start/Stop

A59551 —UN—08MAR07

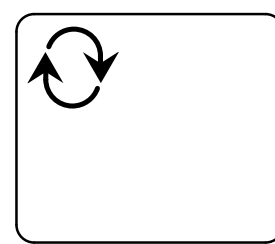
A59172 —UN—29JAN07

A59531 —UN—08MAR07



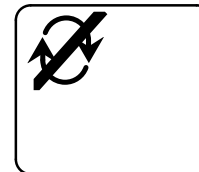
Planter Lowered

A59529 —UN—08MAR07



Start Height

A59526 —UN—08MAR07



Stop Height

A59527 —UN—08MAR07

OUO6074,0000FB0 -19-08OCT07-1/1

## Ground Speed Source

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Tractor Speed** from drop down box.
3. **Auto** box checked is the recommended option. Radar speed and tractor wheel speed are shown on bottom of screen. The active source used at this moment is displayed in the middle of the screen.
4. To force the monitor to use only one speed source, clear **Auto** check box.

**IMPORTANT: Manual speed is an option. A single speed value must be entered. The monitor assumes the planter is always travelling this speed. Travel at this speed for most accurate monitor readings. All rates and warnings are based on the speed entered, not the actual ground speed.**

5. Select a single speed source; **Radar**, **Wheel Speed**, or **Manual**.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensors:** — Sensors:

**Sensor** — Sensor

**Tractor Speed** — Tractor Speed

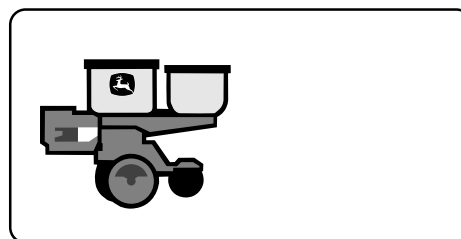
**Auto** — Auto

**Select Source** — Select Source

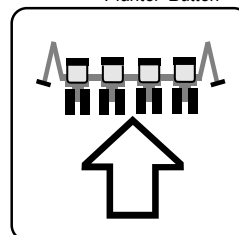
**Active Source** — Active Source

**mph** — Miles Per Hour

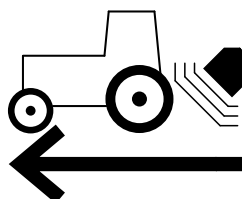
**kph** — Kilometers Per Hour



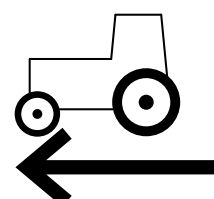
Planter Button



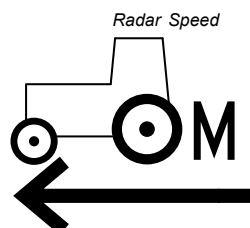
Configuration Softkey



A62104 —UN—22FEB08



Wheel Speed



Manual Speed

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A62103 —UN—03MAR08

A62106 —UN—22FEB08

OUC6074,000107C -19-24JUL08-1/1

# SETUP Variable Rate Drive

## Variable Rate Drive (VRD) Overview

A Variable Rate Drive (VRD) system uses one or more hydraulic motors to turn the seed meters. Various sensors along with data entered into the monitor by the operator determines meter speed required to achieve a chosen population.

VRD features provide additional performance over mechanical drives.

- Manually change seed rates from the cab without stopping.
- Manually change seed rates when crossing different soil types.
- Manually change seed rates when crossing transitions between irrigated and non-irrigated ground.
- Program up to five different seed rates to choose from while planting.
- Use multiple VRD motors to seed different rates with each hydraulic drive motor or select the same rate for all motors.
- Compatibility with APEX software and Map Based Planter Field Doc™ to design a prescription plan that automatically adjusts seed rates in the field.

## System Components

- **Hydraulic Motor** - Motor turns planter drive shafts and meters.
- **Valve and Solenoid** - Varies oil flow to motor.
- **Motor Sensor** - Monitors motor speed.
- **Height Sensor or Switch** - Monitors frame height.
- **Motion Sensor** - Monitors planter wheel rotation.
- **Tractor Radar or GPS Receiver** - Indicates ground speed.
- **System Controller** - Processes all signals and data input.
- **Monitor Display** - Presents data and accepts operator input.

## Hydraulic Requirements

Tractor must have either a load sensing hydraulic system or a closed center hydraulic system with flow control. These types of hydraulic systems usually have large oil reservoirs and increased oil cooling capacity. They only deliver the oil flow needed for the VRD motors to maintain a constant speed.

Each VRD motor requires a nominal hydraulic oil flow of 3.79 to 30.28 L/min. (1.0 to 8.0 gpm) at 3447 to 10 342 kPa (500 to 1500 psi).

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

- No control of oil flow volume.
- Excessive oil temperature.
- Decreased oil flow to motor during operation of other tractor control valves.

## System Functionality

- **SeedStar™2 Controller:** A controller mounted on the planter frame receives power from the tractor and signals from all the system components. The controller processes all the information, controls the hydraulic motor valve, and provides information to the monitor display. The controller communicates over a CAN (Controller Area Network) system.
- **Monitor Display:** A monitor accepts operator inputs and sends data to the controller. The monitor also displays data received from the controller. SeedStar™2 is compatible with John Deere GreenStar™2 (GS2) displays and ISO 11783 compliant competitive displays only.
- **Height Sensor:** Most drawn planters use an adjustable height sensor to start and stop seeding at chosen points as the planter is lowered and raised. The start and stop points are input and adjusted by the operator on the GreenStar™2 display. Most integral planters use one or more push button switches mounted on a row unit parallel arm. The switches compress when the planter is raised and release when lowered. **Two Switch System:** One switch is installed on the far left side of the machine, and one switch on the first row unit to the right of center. If only one switch is compressed, the drives continue to turn. Uneven ground can cause one switch to compress while one switch remains in the released position. Drives only stop when BOTH switches are compressed as planter is raised.
- A tractor mounted radar or GPS receiver determines ground speed.
- A wheel motion sensor mounted on a planter wheel detects motion and indicates the planter is moving. This is a safety feature validating the ground speed signal from the radar or GPS receiver.
- Power to the variable rate drive motors is supplied by continuous hydraulic flow from the tractor. The controller signals a solenoid operating a hydraulic valve on the motor to control motor speed.
- A speed sensor mounted on the motor shaft detects motor speed for feedback to the SeedStar™ controller.

*NOTE: Population readings detected by seed sensors do NOT control motor speed.*

- The operator enters data into the monitor for seed rates, seed disks, seed meters, row spacing, motor sprockets, and frame position. The controller uses other operator entered data to adjust motor speed and therefore meter speed.

The following components must be active for system operation:

- **Monitor operation**—Monitor and controller must have electrical power.
- **Seed Rates**—One or more must be entered and turned ON from the Planter - Rates screen.

Continued on next page

OUO6074,0000F7A -19-24JUL08-1/3

- Continuous hydraulic oil flow—Oil must be flowing to motors.
- Ground Speed—Controller must detect ground speeds greater than 1.6 km/h (1 mph).
- Wheel motion sensor—Controller must detect planter wheel motion.
- Height Sensor or Switch—Must be calibrated and controller must detect that planter is lowered.

To verify planter settings, see CHECK CURRENT CONFIGURATION in Setup Variable Rate Drive section.

To view current status of VRD inputs, Select **Planter Application** >> **Diagnostics** softkey >> **Readings** tab >> **VRD Data** from drop down menu.

In order for variable rate drive to work, seed rates must be entered and turned ON from the Planter - Rates screen.

During normal operation, a visual indicator appears on the RUN screen when motors are operational. The gear indicator sections fill in, one at a time based on system activity, then turn solid green to indicate at least one motor is operational.

### System Performance

Low speeds affect performance. Motor performance becomes marginal at speeds less than 3.2 km/h (2 mph) and stops at speeds below 1.6 km/h (1 mph). NO monitor warnings are given at speeds below 3.2 km/h (2 mph).

Extreme and sudden changes in speed cause a decrease in population and spacing accuracy. To start from a



No Activity



Wheel Motion Active



Planter Lowered



Drives Engaged

stopped position, use high idle and a low gear. Gradually upshift and increase speed from 3.2 km/h (2 mph) to target speed to allow the VRD system time to adjust. Use Quick Start feature to improve initial motor activation. Downshift instead of idling down to turn on ends of field. Attain 3.2 km/h (2 mph) before lowering the planter and gradually upshift to target speed.

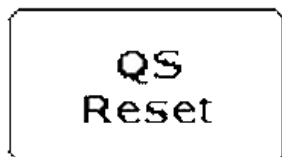
*Field Doc is a trademark of Deere & Company*

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OUC6074,0000F7A -19-24JUL08-2/3

## Quick Start Overview—Variable Rate Drive

A59897 —UN—02APR07



The Quick Start button is above the motor rotation button.

A skip is an area where seed is expected, but has not been planted.

The Quick Start feature allows the operator to reduce a skip when the planter starts from a stop. Quick Start reduces the skip to approximately 0.3—1.2 m (1—4 ft).

When Quick Start is selected and activates, the control unit engages the motors at the minimum operational rpm represented by a target ground speed. The motors overpopulate until actual ground speed reaches the target speed calculated by the control unit.

For example:

| Population                                  | Row Spacing       | Minimum Speed         |
|---------------------------------------------|-------------------|-----------------------|
| 37 000 seeds/hectare<br>(15 000 seeds/acre) | 76 cm<br>(30 in.) | 4.8 km/h<br>(3 mph)   |
| 74 000 seeds/hectare<br>(30 000 seeds/acre) | 76 cm<br>(30 in.) | 2.4 km/h<br>(1.5 mph) |

The control unit must detect the four following conditions before Quick Start activates:

- Quick Start must be enabled in **Planter** application >> **Planter Configuration** softkey >> **Frame** tab >> **Drive Configuration** drop down box >> **Settings** button >> check **QS** check box.
- Actual measured radar speed must be less than minimum ground speed.

- Planter wheel motion must be detected.
- Planter frame height must indicate a lowered position.

To use Quick Start:

1. Raise planter.
2. Begin forward travel in a low gear at high idle.
3. Select QS Reset on display.
4. Lower planter. When the height sensor indicates a lowered position “QS 6” appears on screen and begins counting down. The VRD motors engage at the minimum speed.
5. Gradually shift up to planting speed.

When timer reaches zero, the control unit checks for a minimum ground speed of 1.6 km/h (1 mph). If minimum speed is not reached, system shuts down. If speed is over minimum, but less than target, timer resets to 6 seconds. When timer reaches zero again, the control unit checks for the minimum ground speed again. If minimum speed is not reached, system shuts down. If speed is over minimum, but less than target, motors continue to run below optimum limits and a warning is issued to increase speed. If target speed is reached at any point while timer is active, Quick Start deactivates and normal operation resumes.

OUC6074,0000F7B -19-24JUL08-1/1

## Rotate Seed Meters Overview

**CAUTION:** Avoid injury from rotating drive components. Ensure everyone is clear of drive components before activating variable rate drive.

The Rotate Seed Meters feature allows the operator to rotate the seed meters by activating the variable rate drive motors while machine is stationary. The meters fill with seed as meters rotate. Full meters reduce the area traveled before seeds meet the soil when starting from a stop.

The following must occur for this feature to function:

- Planter must be unfolded.
- Planter must be in raised position.
- Planter must be stationary.
- Variable rate hydraulics must be active.
- If equipped with vacuum, vacuum must be at operating pressure to hold seeds on meter disks.

Select **Meter Rotation** button on Main Planter screen to rotate meters. An audible tone sounds when meters stop turning. Each time the icon is pressed, the meters rotate



Meter Rotation Button

approximately one half a revolution. Select the button at least three times to completely fill seed meters. If meters fail to move, a warning screen appears.

*NOTE: When Rotate Meter function is used in conjunction with RowCommand™, RowCommand™ clutches will be de-energized (meters engaged).*

This feature may also be used as a diagnostic tool for the variable rate drive.

OUO6074,0000F7C -19-07NOV08-1/1

## Enable Variable Rate Drive Software

*NOTE: Planters are configured with the appropriate drive source from the factory.*

Confirm the Planter Drive source is listed as Variable Rate from the **Planter Configuration** softkey >> **Drives** tab.

Height sensor must be calibrated and rates must be defined and turned ON before operation.

OUO6074,0000FAD -19-23JUL08-1/1

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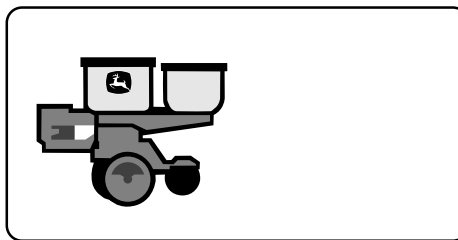
## Check Current Configuration

1. Select **Menu >> Planter button >> Configure** softkey.

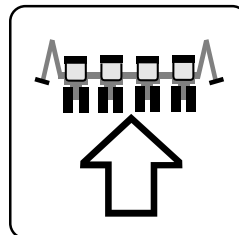
**IMPORTANT: A Drive Source change resets all planter settings to default values and requires cycling power to the display and controller. Always configure Drive Source before planter settings are entered.**

2. Select each tab (A) and verify planter configuration before operation to minimize down time.

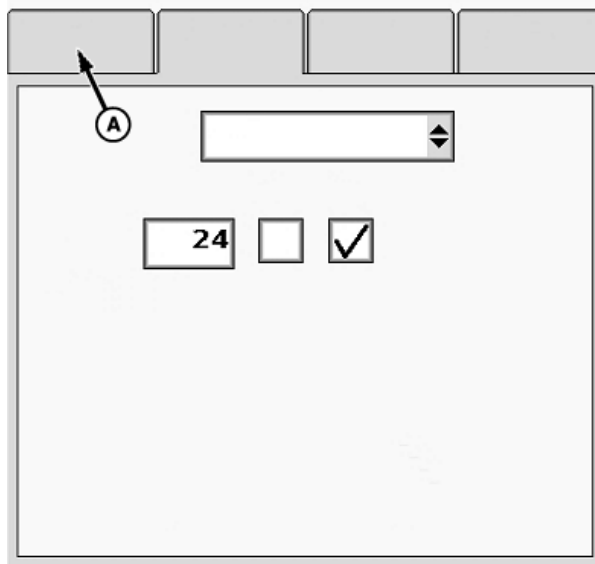
A—Tabs



Planter Button



Configure Softkey



A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59181 —UN—26JAN07

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## Set Meter Type and Row Unit Drive Type

1. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Drive Configuration** >> **Settings** button.
2. Select **Meter Type** drop down menu and choose type of meter on machine.
3. Select **Drive Type** drop down menu and choose type of row unit on planter.
4. To enable QuickStart feature, check the **QS** box.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Meter Type** — Meter Type

**Drives** — Drives

**Drive Type** — Drive Type

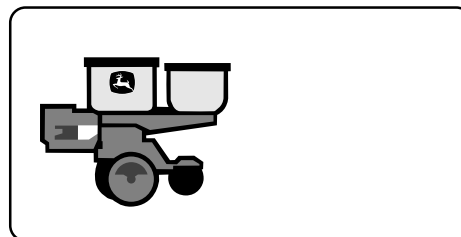
**Vacuum** — Vacuum

**Mechanical** — Mechanical

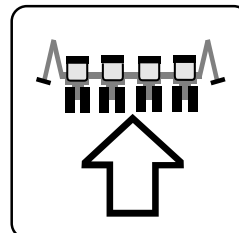
**MaxEmerge** — MaxEmerge

**PRO-SERIES** — PRO-SERIES

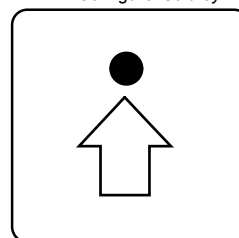
**QS** — Quick Start



Planter Button



Configure Softkey



Settings Button

OUO6074,0000FB1 -19-24JUL08-1/1

A59551 —UN—08MAR07

A59172 —UN—29JAN07

A59377 —UN—23FEB07

## Adjust Motion Sensor Gap—All Planters Except 1770NT, 1790, and Deere/Bauer

**IMPORTANT:** Avoid damage to sensor. Rotate wheel to ensure no contact between disk (B) and end of sensor (A).

Loosen cap screws (C). Adjust position of wheel motion sensor (A) until space between end of sensor and disk (B) is 2—4 mm (0.08—0.16 in.). Tighten two cap screws (C).

A—Motion Sensor  
B—Disk

C—Cap Screws



A40665 —UN—09JAN97

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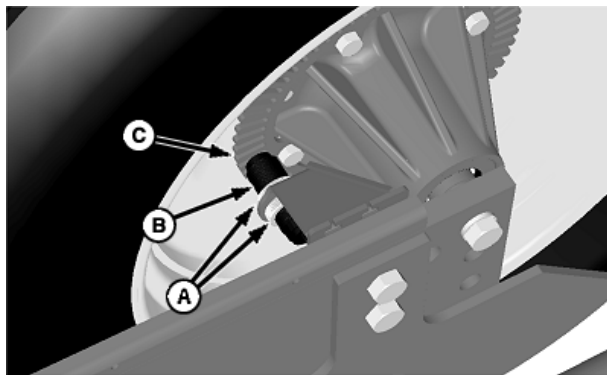
## Adjust Motion Sensor Gap—1770NT, 1790, and Deere/Bauer

**IMPORTANT:** Avoid damage to sensor. Rotate wheel to ensure no contact between disk (C) and end of sensor (B).

Loosen lock nuts (A) and adjust position of wheel motion sensor (B) until space between end of sensor and disk (C) is 2—4 mm (0.08—0.16 in.). Tighten lock nuts.

A—Lock Nuts  
B—Sensor

C—Disk



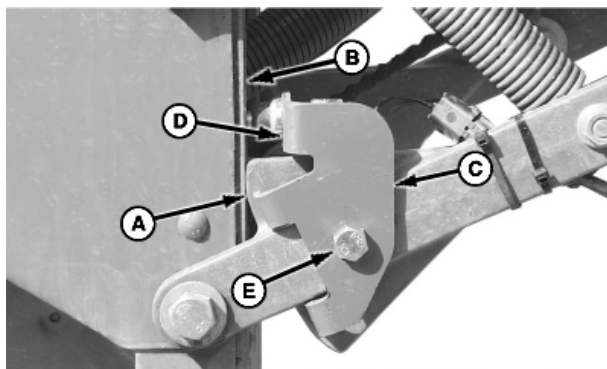
A51324 —UN—03DEC02

OUO6074,00006AB -19-08OCT07-1/1

## Adjust Parallel Arm Height Switch

This switch is used on all integral planters except 1720 16 Row.

1. Raise machine until lower parallel arm stop (A) contacts planting unit frame (B).
2. Loosen cap screw (E).
3. Rotate sensor bracket (C) until flat surface (D) is 20 mm (3/4 in.) from planting unit frame (B).
4. Tighten cap screw (E).
5. Repeat on other height sensor, if equipped.



A—Stop  
B—Frame  
C—Bracket

D—Flat Surface  
E—Cap Screw

A48187 —UN—18OCT01

OUO6074,0000FCA -19-08OCT07-1/1

## Assign Motor—Rows, Sprockets, and Width Disconnect

**IMPORTANT:** Complete frame configuration first for correct VRD configuration.

1. Select **Menu >> Planter** button >> **Configure** softkey >> **Drives** tab.
2. Highlight drop down box and select **Drive Sections**
3. Select **Settings** button and set the number of motors on machine.
4. Select **Next Page** button. Set up each motor, one at a time, entering the following:

**NOTE:** Row number one is always on left side of machine.

- Select **End Row** input box and enter right most row number controlled by selected VRD motor.
- Select **Disconnect** drop down box and assign a section of the machine to selected VRD motor.

**IMPORTANT:** When an auto-half width disconnect is activated, all rows on that disconnect, stop planting and monitor does not monitor them for a failure. All deactivated rows have to start planting again before the planter at a glance page and row failure monitoring is activated again.

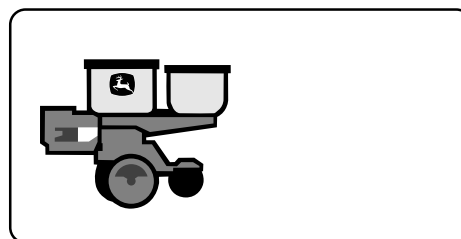
**IMPORTANT:** When using RowCommand™, the 1/2 auto width reduction feature is turned off.

**NOTE:** Tooth count is stamped on the side of sprocket.

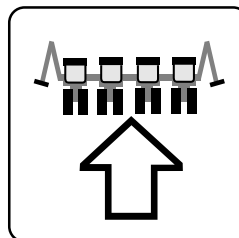
- Select **Drive Gear** and **Driven Gear** (Sprocket) input boxes and enter number of sprocket teeth for selected VRD motor.
5. Repeat for each motor.
  6. Select **Enter** button.

**NOTE:** Message not displayed on half screen layout.

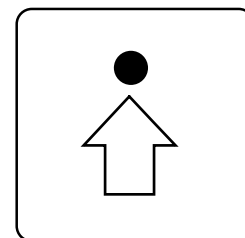
7. Select **Clutch Disconnect Warning** check box to enable or disable the partial width alarm. If enabled, a full page warning displays for 5 seconds whenever a clutch is disengaged. A message is displayed on bottom line of full page run screen and monitor beeps every 15 seconds as a reminder.



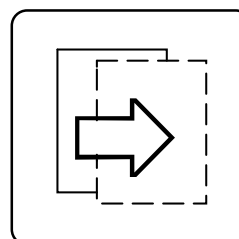
Planter Button



Configure Softkey



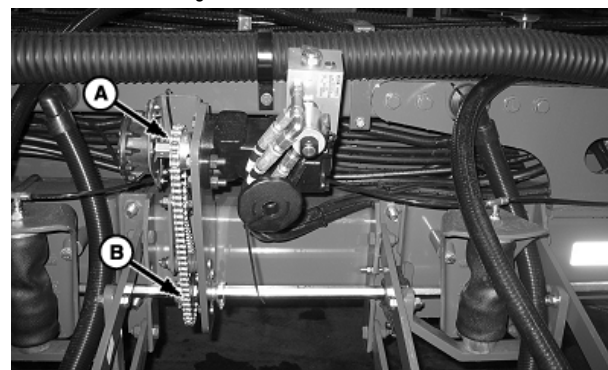
Settings Button



Next Page



Disconnect



A—Drive Gear

B—Driven Gear

| Machine                                                            | Drive Gear (Motor Sprocket) | Driven Gear (Drillshaft Sprocket) |
|--------------------------------------------------------------------|-----------------------------|-----------------------------------|
| All 1790 Machines                                                  | 18                          | 36                                |
| 1770NT (12, 16, and 24 Row) with Mechanical Meters and Cable Drive | 27                          | 29                                |
| All Other Machines and 1770NT Configurations                       | 18                          | 29                                |

### Screen Area Information

**Planter Configuration** — Planter Configuration  
**VRD** — Variable Rate Drive  
**Motors** — Motors  
**Settings** — Motor Setup  
**Start Row** — Begin Row

**End Row** — End Row  
**Drive Gear** — Drive Gear  
**Driven Gear** — Driven Gear  
**Left** — Left  
**Right** — Right  
**Center** — Center  
**Either** — Either

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OUC6074.0000FAE -19-28OCT08-1/2

A59551 —UN—08MAR07

A62919 —UN—23JUL08

A59520 —UN—23JUL08

A59899 —UN—02APR07

**None** — None  
**Enter** — Next Screen  
**Continue** — Save  
**Frame** — Frame

**Clutch Disconnect Warning** — Clutch Disconnect  
Warning

OUO6074,0000FAE -19-28OCT08-2/2

# SETUP Seed Rates

## Ground Driven Machines—Target Population and High/Low Warnings

**IMPORTANT:** Population and High/Low warnings are entered differently for variable rate drive machines. See VRD MACHINES—CONFIGURE METER, CROP, DISK, AND RATES in this section.

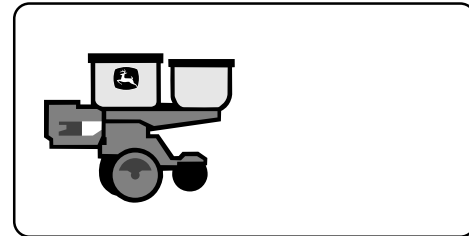
*NOTE: Number of rows planting are only visible if monitor is configured for a split row machine. See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.*

1. Select **Menu >> Planter** button >> **Rates** softkey.
2. Select corn, soybeans, or one of the custom crop names. Select **Enter** button.
3. Select **Target Rate** input box and enter value.
4. High and low warning limits are automatically set to a percentage above and below the target rate. To change limits, select **High** and **Low Warning** input boxes and enter new value.

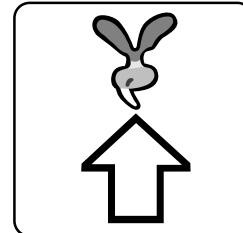
*NOTE: Rates and warning setpoints are saved for each crop name.*

### Screen Area Information

**Planter Rates** — Planter Rates  
**Crop Name** — Crop Name  
**Corn** — Corn  
**Soybeans** — Soybeans



Planter Button



Rates Softkey

**Custom** — Custom  
**Edit** — Edit  
**Target Rate** — Target Rate  
**High Warning** — High Warning  
**Low Warning** — Low Warning  
**Population Adjust** — Population Adjust  
**Rows Planting** — Rows Planting  
**Avg. Spacing** — Average Spacing  
**Seeds** — Seeds  
**ac** — Acre  
**ha** — Hectare

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## VRD Machines—Configure Meter, Crop, Disk, and Rates

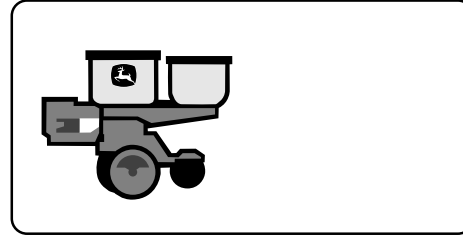
1. Select **Menu >> Planter** button >> **Rates** softkey.
2. Select **Use One Rate for All Motors** check box. A checked box indicates one rate on all motors. An empty box indicates different rates for each motor.
3. Select corn, soybeans, or one of the custom crop names.
4. Select **Disk Type** drop down box. If planter is configured for mechanical meters, plateless meter selections appear. Select the plateless meter installed on machine. If planter is configured for VRD, types of vacuum disks appear. Select the type of disk installed in meters.
5. Select **Seed Disk** drop down box and select the vacuum disk used.
6. Select **Show Rates** button.
7. Select **Change Rates** button.
8. If setting different rates for each motor, select **Motor** drop down box to choose a motor to assign rates.
9. Select **Rate** drop down box and choose a rate to assign population.
10. Select **Target** input box and enter the target population for selected rate. High and Low population (warning) limits are automatically set to a percentage above and below the target rate. Select **High** and **Low** input boxes to manually adjust warning limits.

**IMPORTANT: Variable Rate Drive is inoperative until at least one target rate has been defined AND turned ON.**

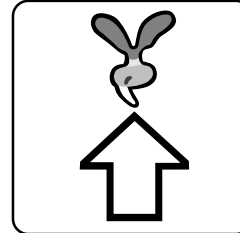
11. To see a rate on the RUN page as a choice, select **On / Off** drop down box and choose **ON**.
12. Select **Enter** button.
13. Average Spacing shown on the bottom of the screen is the CALCULATED distance between plants based on the row width and target population entered in monitor

### Screen Area Information

**Planter Rates** — Planter Rates  
**Use One Rate for All Motors** — Use One Rate for All Motors  
**Crop Name** — Crop Name



Planter Button



Rates Softkey

**Corn** — Corn  
**Soybeans** — Soybeans  
**Custom** — Custom  
**Edit** — Edit  
**Disk Type** — Disk Type  
**Finger Pick-Up** — Finger Pick-Up  
**Radial Bean** — Radial Bean  
**Custom Plateless** — Custom Plateless  
**Cotton** — Cotton  
**Sorghum** — Sorghum  
**Sunflower** — Sunflower  
**Edible Beans** — Edible Beans  
**Peanuts** — Peanuts  
**Sugar Beets** — Sugar Beets  
**Custom Vacuum** — Custom Vacuum  
**Seed Disk** — Seed Disk  
**Show Rates** — Show Rates  
**Change Rates** — Change Rates  
**Rate** — Rate  
**Target Population** — Target Population  
**Seeds** — Seeds  
**ac** — Acre  
**ha** — Hectare  
**Target** — Target  
**High** — High  
**Low** — Low  
**On** — On  
**Off** — Off  
**Avg. Spacing** — Average Spacing

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A59173 —UN—29JAN07

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## Population Adjust (PA)

**IMPORTANT:** Ensure that seed meters are properly adjusted and perform an in-field population check **BEFORE** using Population Adjust.

PA (POPULATION ADJUST) is beneficial when planting high population rates or planting small seeds. Under these two conditions, some sensors detect fewer seeds than are delivered. To adjust for the undetected seeds, a correction factor must be calculated and entered into the monitor to adjust the displayed population.

PA is the correction factor the operator calculates and enters into the monitor. Sensor detections are multiplied by the correction factor before display. A PA number of 1.00 displays actual sensor detections. A PA number of 2.00 displays twice the number of actual sensor detections.

A field population check **MUST** be performed to determine the correct PA correction factor.

Always reset Population Adjust factor back to 1.00 when changing crops, seed varieties, or populations. Calculate new PA factor only if necessary.

### Example:

If 160 000 seeds are detected and displayed when 180 000 are planted, divide 180 000 by 160 000 to obtain a PA value ( $180\,000 \div 160\,000 = 1.13$ ). Enter a PA value of 1.13 into monitor. The monitor multiplies each detected seed by 1.13 and displays an adjusted population of 180 000.

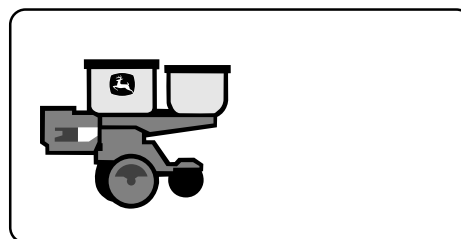
1. Select **Menu >> Planter button >> Rates** softkey.

*NOTE: Initial PA setting is always 1.0. PA value other than 1.0 is not needed for soybeans when AccuCount™ seed tube sensors are used. AccuCount™ sensors are identified by a red LED (A) on the outside of sensor housing.*

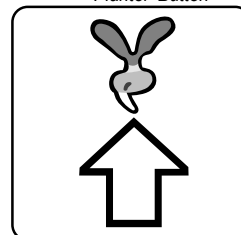
2. Select **Population Adjust** input box.
3. Enter the calculated value. Acceptable range is between 0.1 and 2.5.
4. Perform a population check and adjust PA value until monitor displays the same value as actual population.

### Screen Area Information

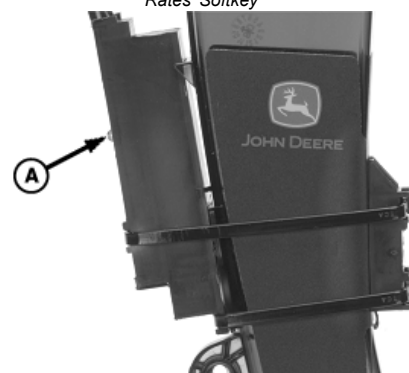
*AccuCount is a trademark of Deere & Company*



Planter Button



Rates Softkey



A—Sensor LED

**Planter Rates** — Planter Rates  
**Population Adjust** — Population Adjust  
**Crop Name** — Crop Name  
**Target Rate** — Target Rate  
**High Warning** — High Warning  
**Low Warning** — Low Warning  
**Seeds** — Seeds  
**ac** — Acre  
**ha** — Hectare

A59551 —UN—08MAR07

A59173 —UN—29JAN07

A61237 —UN—30OCT07

OUO6074,0000F82 -19-24JUL08-1/1

# Main Run Screens

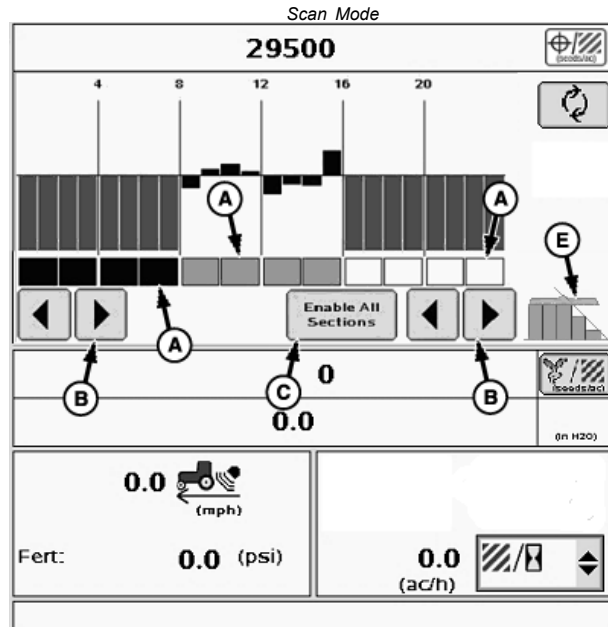
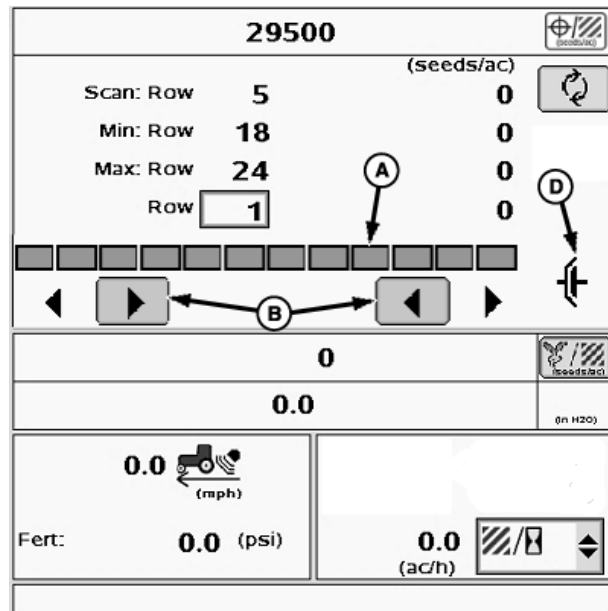
## Machines with RowCommand™

Indicators (A) show activity of individual RowCommand™ sections.

Select buttons (B) to turn sections on and off manually, starting from the outside of the planter. Select button (C) to turn on all sections. The clutch icon (D) indicates sections are controlled manually. Swath icon (E) indicates sections controlled by SwathControl™.

The planter main run screen monitors all critical functions on the planter and is always visible on the display while planting. The main run screen is viewable in Scan mode or Planter At A Glance mode. See following descriptions in this section for detailed information.

**NOTE:** If numerous RowCommand™ clutches are simultaneously energized (meters disengaged), a tractor "Low Voltage" warning can occur due to limited alternator output. Reduce electrical load or increase engine RPM.



A—Drive Indicator  
B—Command Buttons  
C—All On Button

D—Clutch Icon  
E—Swath Icon

| RowCommand™ Indicators (A) |                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Indicator Color            | RowCommand™ Activity                                                                                                                        |
| Green                      | Section is active and detected by system.                                                                                                   |
| Black                      | Section deactivated manually by operator.                                                                                                   |
| Blank With Black Border    | Section deactivated by SwathControl™ prescription.                                                                                          |
| Not Visible                | Section is not responsive. Row continues to plant, but section cannot be controlled with RowCommand™. A warning alerts operator to failure. |

OUO6074,0000056 -19-07NOV08-1/1

## Ground Driven Machines

The planter main run screen monitors all critical functions on the planter and is always visible on the display while planting. The main run screen is viewable in Scan mode or Planter At A Glance mode.

Select **Menu** button >> **Planter** button >> **Main** softkey. Select **Toggle** button to switch between Scan and Planter At A Glance mode.

- (A) Target Population Rate (seeds per area).
- (B) Seeds per Area for active scan row (Scan mode).
- (C) Active Scan Row (Scan mode).
- (D) Row number delivering minimum population.
- (E) Row number delivering maximum population.
- (F) Selected row population.
- (G) Toggle Button: Toggles population monitor from Scan Mode to Planter-at-a-Glance Mode.

(H) Drive Status Bar: Shows whether meter drives are active or inactive. The status bar is divided into the number of drive sections on the planter. Green is active. Gray is inactive. When a disconnect is selected, the green bar for that drive section turns gray. The meter drives stop, and the population bars turn red as the population drops to zero on the disconnected rows. The status bar turns green again and the Planters at a Glance population bars become active once all rows in the disconnected drive section deliver greater than two seeds per second.

(I) Average population across entire machine (seeds per area).

(J) Vacuum Level display. When machine is equipped with more than one vacuum fan, the bar is divided by the number of fans on the machine.

(K) Fertilizer pressure (if equipped).

(L) Planter Cautions.

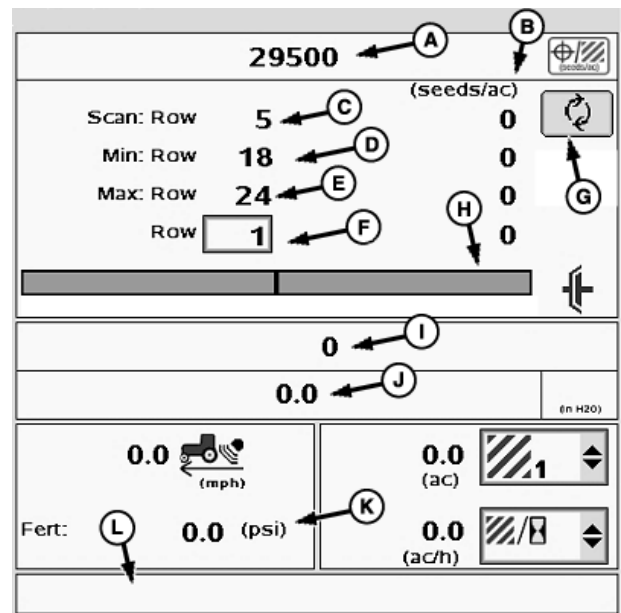
(M) Planter at a glance screen area.

(N) Population Bar. Orange when planting above or below alarm setpoints. Red when not planting.

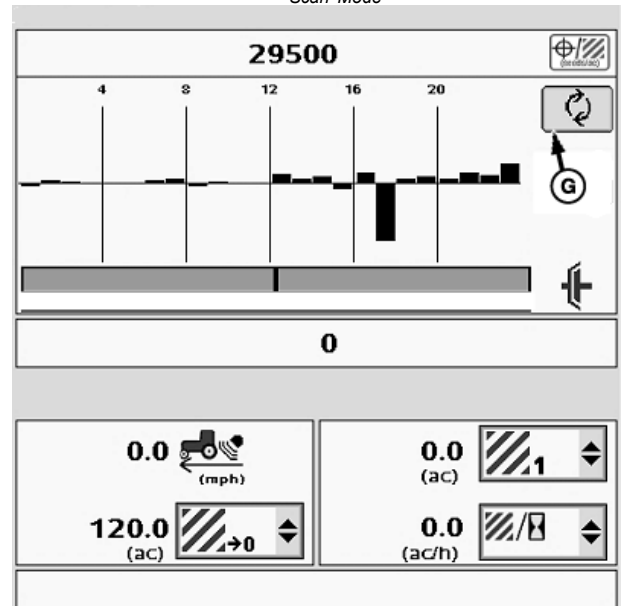
(O) Counters and speed are displayed in lower section of screen.

**Planter At A Glance Mode** The line in the middle is the target population. When a row approaches the upper or lower limit, the bar for that row turns orange and an alarm sounds along with a text message. If a row falls below two seeds per second, the bar turns red and a row failed warning appears. The top of the graph is the programmed upper limit. The bottom of the graph is the programmed lower limit.

The graph shown here indicates the machine is not seeding evenly on both sides. Possible causes are the



Scan Mode



Planter At A Glance Mode

A—Target Population Rate  
B—Seeds Per Area  
C—Scanned Row Number  
D—Row With Minimum  
E—Row With Maximum  
F—Row Selected  
G—Toggle Button  
H—Drive Indicator

I—Area Counter  
J—Vacuum Level  
K—Fertilizer Pressure  
L—Planter Cautions  
M—Planter At A Glance  
N—Population Bar  
O—Counters and Speed

drivelines or vacuums not operating equally. Row 18 is either operating below the average of the other meters or the seed sensor is dirty or has malfunctioned.

OUO6074.0000FE5 -19-24JUL08-1/1

A59904 —UN—24JUL08

A59905 —UN—24JUL08

## Variable Rate Drive Machines

Select **Menu** button >> **Planter** button >> **Main** softkey.

(A) Target Population Rate (seeds per area). If multiple variable motors deliver different rates, the bar is divided. Select the target rate button (O) to the right to select other programmed rates.

(B) Seeds per Area for active scan row (Scan mode).

(C) Active Scan Row (Scan mode).

(D) Row number delivering minimum population.

(E) Row number delivering maximum population.

(F) Selected row population.

(G) Toggle Button: Toggles population monitor from Scan Mode to Planter-at-a-Glance Mode.

(H) Drive Status Bar: Shows whether meter drives are active or inactive. The status bar is divided into the number of drive sections on the planter. Green is active. Gray is inactive. When a disconnect is selected, the green bar for that drive section turns gray, the meter drives stop, and the population bars turn red as the population drops to zero on the disconnected rows. The status bar does not turn green again and the Planter at a Glance population bars do not become active again until all rows in the disconnected drive section deliver greater than two seeds per second.

(I) Average population across entire machine (seeds per area).

(J) Vacuum Level display. When machine is equipped with more than one vacuum fan, the bar is divided by the number of fans on the machine.

(K) Fertilizer pressure (if equipped).

(L) Planter Cautions.

(M) Quick Start button appears when quick start is enabled.

(N) Rotate seed meters button.

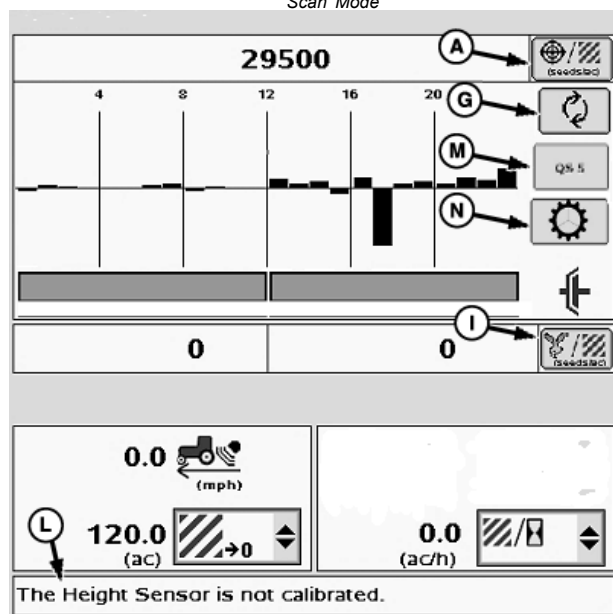
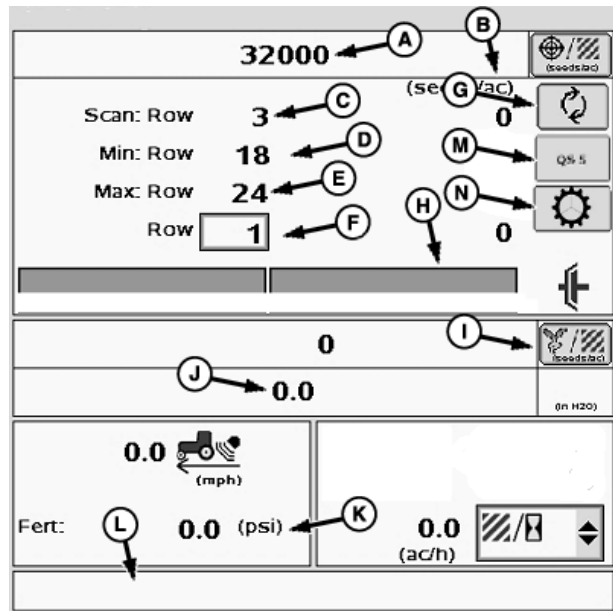
(O) Target population button accesses additional programmed rates.

(P) Planter at a glance screen area.

(Q) Population Bar. Orange when planting above or below alarm set points. Red when not planting.

(R) Counters and speed are displayed in lower section of screen.

**Planter At A Glance Mode** The line in the middle is the target population. When a row approaches the upper or lower limit, the bar for that row turns orange and an alarm sounds along with a text message. If a row falls below two seeds per second, the bar turns red and a row failed warning appears. The top of the graph is the programmed



A—Target Population Rate  
B—Seeds Per Area  
C—Scanned Row Number  
D—Row With Minimum  
E—Row With Maximum  
F—Row Selected  
G—Toggle Button  
H—Drive Indicator  
I—Average Population

J—Vacuum Level  
K—Fertilizer Pressure  
L—Planter Cautions  
M—Quick Start Button  
N—Rotate Seed Meters Button  
O—Target Rate Button  
P—Planter At A Glance  
Q—Population Bar  
R—Counters and Speed

upper limit. The bottom of the graph is the programmed lower limit.

Continued on next page

OUO6074,0000FE6 -19-24JUL08-1/2

The graph shown here indicates the machine is not seeding evenly on both sides. Possible causes are the drivelines or vacuums not operating equally. Row 18 is

either operating below the average of the other meters or the seed sensor is dirty or has malfunctioned.

OJ06074,0000FE6 -19-24JUL08-2/2

## Half Screen Layout

**NOTE:** Half screen layout and multiple home pages are only available when John Deere™ SeedStar™ 2 Monitor is used with a John Deere™ Greenstar™2 (GS2) display.

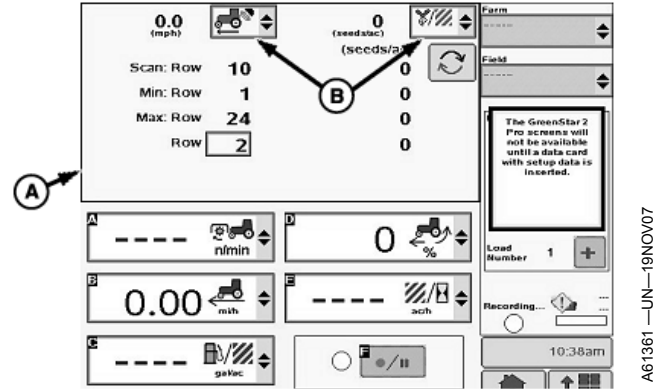
**NOTE:** Half screen layout must be set using layout manager.

Planter screens only appear as full screen or half screen (A). When half screen layout is selected, less information is presented in screen area. Error messages do not appear on half screen. Return to full screen mode to view error messages when an audio alert signals an error.

To set up screen layout (see SCREEN LAYOUT MANAGER in How to Use Monitor section).

To enter full screen mode and access configuration, totals, and diagnostic softkeys, select **Menu >> Planter** application button.

John Deere is a trademark of Deere & Company



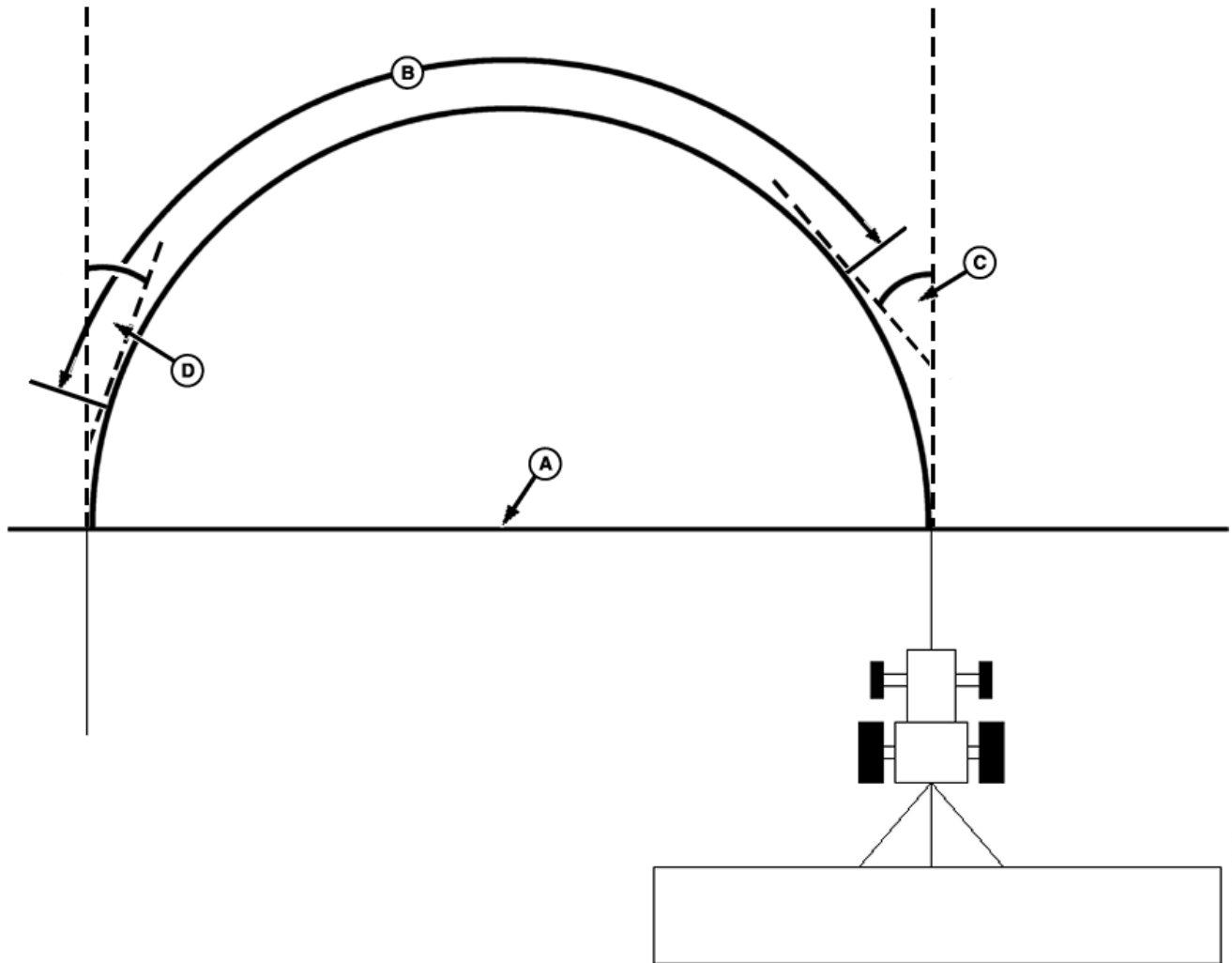
A—Half Screen

B—Counter and Speed Options

A61361—UN—19NOV07

LD45720,0000009 -19-23JUL08-1/1

## Turning View Warning Suppression



A62927 —UN—24JUL08

A—Headlands

B—Warning Suppression

C—Suppression Begins 45 Degrees Away

D—Suppression Ends 13 Degrees Away

When operating with a John Deere™ GreenStar™2 (GS2) display and using John Deere™ Guidance Products, full screen seed monitor warnings can be suppressed (B) when making turns on headlands (A).

To enable turning view seed warning suppression, **Turning View** check box must be checked in Greenstar™2 Pro Guidance Setup.

The following occurs when turning view is enabled:

- Seed warning suppression and turning view begin when tractor is turned 45 degrees (C) away from the current pass using Straight Track.
- Turning View ends when tractor is within 13 degrees (D) of next pass.
- Seed warning suppression ends three seconds after turning view disappears from screen.
- Warnings are suppressed for a maximum of 22 seconds.

OUO6074,0000040 -19-25JUL08-1/1

# Counters and Calculators

## Area Counters, Seeds Per Hour, Seeds Per Area, and Area Until Empty

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Totals** tab.

Screen Items:

- Two adjustable area counters
  - A non-adjustable total area counter
  - A non-adjustable seeding hours counter
  - An average seeds per area counter
  - An adjustable counter that counts down to zero before sounding an alarm
2. Select **Area Counter** one or two input box and enter zero to clear the counter or enter a value to continue a previous count.
  3. Select **Area Until Empty** input box and enter an area to count down. When count reaches zero, a full page warning appears and an audible alarm sounds. Refer to SEED ESTIMATOR CALCULATORS to calculate the area a quantity of seed covers. Enter that value in the Area Until Empty input box. To set the alarm to sound before the hoppers are empty, enter a slightly smaller value than what the seed covers.
  4. **Seeding Hours** records the total amount of time seed is actually planted. **Seeding Hours** only counts when seed sensors detect seed flow.
  5. Select the **Zero** button to clear Average Seeds Per Area counter every time a new field is entered or crop type is changed. This counter averages the total number of actual seeds detected by the seed sensors over the actual area planted.

### Screen Area Information

**Planter Totals** — Planter Totals

**Totals** — Totals

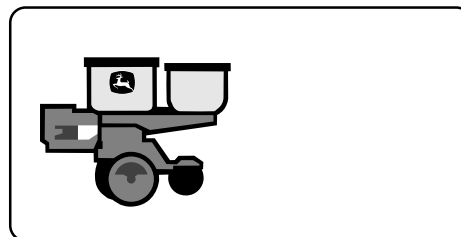
**ac** — Acre

**ha** — Hectare

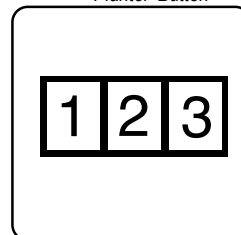
**h** — Hours

**avg sds/ac** — Average Seeds Per Acre

**avg sds/ha** — Average Seeds Per Hectare



Planter Button



Totals Softkey



Area Counter



Area Until Empty



Seeding Hours



Average Seeds Per Area



Zero Button

A59551 —UN—08MAR07

A59174 —UN—29JAN07

A59547 —UN—08MAR07

A59548 —UN—08MAR07

A62922 —UN—23JUL08

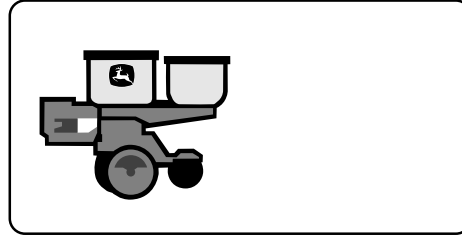
A59369 —UN—20FEB07

OUO6074,0000FB3 -19-23JUL08-1/1

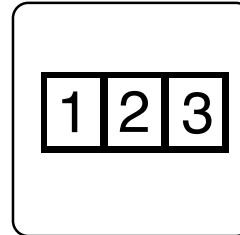
## Transmission Sprocket Calculator

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab >> **Transmission** drop down.
  2. Enter **Target Population** into input box.
  3. Select **Disk Type** using drop-down menu.
- Recommended transmission values appear.



*Planter Button*



*Totals Softkey*

A59551 —UN—08MAR07

A59174 —UN—29JAN07

OUC6074,0000041 -19-02OCT08-1/1

## Seed Estimator by Bag

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

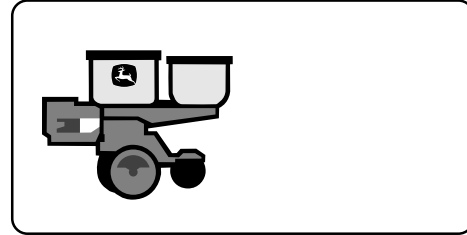
1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in top drop down box.
3. Select **Calculated By** drop down box and choose **Bag**.
4. Select **Population** input box and enter target population.
5. Select **Seeds per Bag** input box and enter number of seeds in each seed bag.
6. Select **weight per bag** input box and enter weight of bag in units shown on screen.
7. Select **Bags:** input box and enter number of seed bags emptied into hoppers.
8. An approximate Area value is automatically calculated to show area until empty. Enter this value in **Totals** tab >> **Area Until Empty** input box to activate alarm. Enter a slightly smaller value to set alarm before hoppers are actually empty.

The lower area of screen is also used to calculate the number of seed bags needed for a given area.

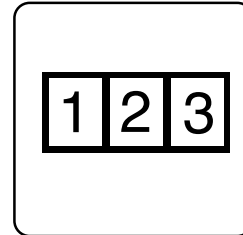
1. Enter all preceding data accurately.
2. Select **Area** input box and enter the intended area to plant.
3. The approximate number of bags required to cover that much area is automatically calculated and displayed in **Bags:** box.

### Screen Area Information

**Planter Calculations** — Planter Calculations



Planter Button



Totals Softkey

**Calc** — Calculator  
**Seed Estimator** — Seed Estimator  
**Calculated By** — Calculated By  
**Bag** — Bag  
**Population** — Population  
**seeds/ac** — Seeds per Acre  
**seeds/ha** — Seeds per Hectare  
**Seeds/bag** — Seeds per Bag  
**Lbs/bag** — Pounds per Bag  
**kg/bag** — Kilograms per Bag  
**Area** — Area  
**Bags** — Bags  
**ac** — Acre  
**ha** — Hectare  
**in/seed** — Inches per Seed  
**cm/seed** — Centimeters per Seed  
**seed/ft** — Seeds per Foot  
**seed/m** — Seeds per Meter  
**in rows** — Inch Rows  
**cm rows** — Centimeter Rows

A59551 —UN—08MAR07

A59174 —UN—29JAN07

OUC6074,0000FB4 -19-02APR07-1/1

## Seed Estimator by Unit

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

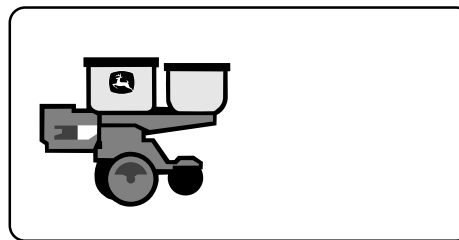
1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in top drop down box.
3. Select **Calculated By** drop down box and choose **Unit**.
4. Select **Population** input box and enter target population.
5. Select **Seeds per Unit** input box and enter number of seeds in each seed container.
6. Select **weight per unit** input box and enter weight of seed container in units shown on screen.
7. Select **Units:** input box and enter quantity of seed containers emptied into hoppers.
8. An approximate Area value is automatically calculated to show area until empty. Enter this value in **Totals** tab >> **Area Until Empty** input box to activate alarm. Enter a slightly smaller value to set alarm before hoppers are actually empty.

The lower area of screen is also used to calculate the number of units needed for a given area.

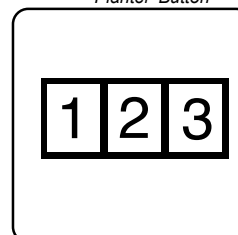
1. Enter all preceding data accurately.
2. Select **Area** input box and enter the intended area to plant.
3. The approximate number of units required to cover that much area is automatically calculated and displayed in **Units:** box.

### Screen Area Information

**Planter Calculations** — Planter Calculations



Planter Button



Totals Softkey

**Calc** — Calculator  
**Seed Estimator** — Seed Estimator  
**Calculated By** — Calculated By  
**Unit** — Unit  
**Population** — Population  
**seeds/ac** — Seeds per Acre  
**seeds/ha** — Seeds per Hectare  
**Seeds/unit** — Seeds per Unit  
**Lbs/unit** — Pounds per Unit  
**kg/unit** — Kilograms per Unit  
**Area** — Area  
**Units:** — Units:  
**ac** — Acre  
**ha** — Hectare  
**in/seed** — Inches per Seed  
**cm/seed** — Centimeters per Seed  
**seed/ft** — Seeds per Foot  
**seed/m** — Seeds per Meter  
**in rows** — Inch Rows  
**cm rows** — Centimeter Rows

A59551 —UN—08MAR07

A59174 —UN—29JAN07

OUO6074,0000FB5 -19-02APR07-1/1

## Seed Estimator by Weight

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in top drop down box.
3. Select **Calculated By** drop down box and choose **Weight**.
4. Select **Population** input box and enter target population.
5. Select **Seed Size** input box and enter number of seeds per kilogram (pound).
6. Select **Total Weight** input box and enter total weight of seed placed in hoppers.
7. An approximate Area value is automatically calculated to show area until empty. Enter this value in **Totals** tab >> **Area Until Empty** input box to activate alarm. Enter a slightly smaller value to set alarm before hoppers are actually empty.

The lower area of screen is also used to calculate the weight needed for a given area.

1. Enter all preceding data accurately.
2. Select **Area** input box and enter the intended area to plant.
3. The approximate weight required to cover that much area is automatically calculated and displayed in **Total Weight** box.

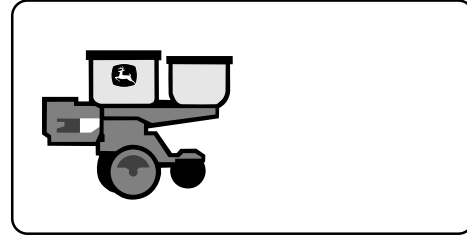
### Screen Area Information

**Planter Calculations** — Planter Calculations

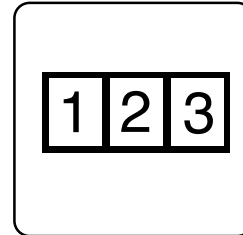
**Calc** — Calculator

**Seed Estimator** — Seed Estimator

**Calculated By** — Calculated By



Planter Button



Totals Softkey

**Weight** — Weight

**Population** — Population

**seeds/ac** — Seeds per Acre

**seeds/ha** — Seeds per Hectare

**Seed Size** — Seed Size

**seeds/lb** — Seeds per Pound

**seeds/kg** — Seeds per Kilogram

**Area** — Area

**ac** — Acre

**ha** — Hectare

**lb** — Pound

**kg** — Kilogram

**in/seed** — Inches per Seed

**cm/seed** — Centimeters per Seed

**seed/ft** — Seeds per Foot

**seed/m** — Seeds per Meter

**in rows** — Inch Rows

**cm rows** — Centimeter Rows

**lb/ac** — Pounds per Acre

**kg/ha** — Kilograms per Hectare

**Total Weight** — Total Weight

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A59551 —UN—08MAR07

A59174 —UN—29JAN07

## Vacuum Calculator

**IMPORTANT: Monitor must be completely set up for machine and rate configurations for calculators to function properly.**

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Vacuum** in top drop down box.
3. Select **Seeds per kg (lb.)** input box and enter seed size.
4. Select **Disk Type** drop down box and select type of disk installed in meter.
5. Select **Seed Disk** drop down box and select disk installed in meter.

**IMPORTANT: Suggested vacuum levels are starting points only. Adjust vacuum level up or down to achieve proper singulation.**

Suggested vacuum and actual vacuum readings are displayed at the bottom of screen.

### Screen Area Information

**Planter Calculations** — Planter Calculations

**Calc** — Calculator

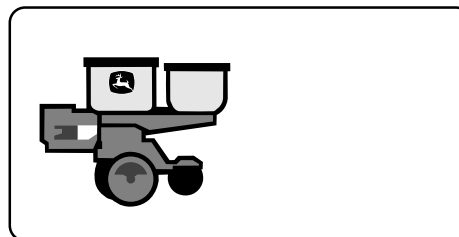
**Vacuum** — Vacuum

**seeds/lb** — Seeds per Pound

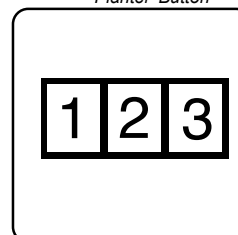
**seeds/kg** — Seeds per Kilogram

**Disk Type** — Disk Type

**Corn** — Corn



Planter Button



Totals Softkey

**Soybeans** — Soybeans

**Cotton** — Cotton

**Sorghum** — Sorghum

**Sunflower** — Sunflower

**Edible Beans** — Edible Beans

**Peanuts** — Peanuts

**Sugar Beets** — Sugar Beets

**Seed Disk** — Seed Disk

**Suggested V** — Suggested Vacuum

**Actual Vacuum** — Actual Vacuum

A59551 —UN—08MAR07

A59174 —UN—29JAN07

OUO6074,0000FB7 -19-04OCT07-1/1

## Fertilizer Calculator

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Fertilizer** in top drop down box.
3. Select and enter **Model** from drop down box.
4. Enter fertilizer **Rate** in input box.
5. Enter **Target Speed** in input box.

**IMPORTANT:** Fertilizer suggestions are starting points only.

Fertilizer suggestions are displayed at the bottom of screen.

### Screen Area Information

**Planter Calculations** — Planter Calculations

**Calc** — Calculator

**Fertilizer** — Fertilizer

**Model** — Model

**Rate** — Rate

**gal/ac** — Gallons per Acre

**Target Speed** — Target Speed

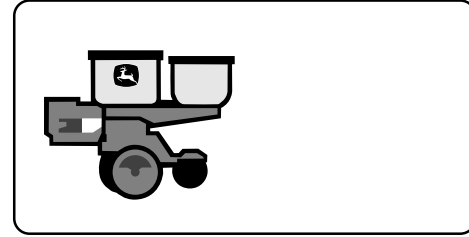
**mph** — Miles per Hour

**kph** — Kilometers per Hour

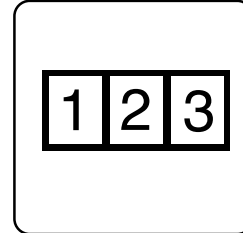
**Row Spacing** — Row Spacing

**cm** — Centimeters

**in** — Inches



Planter Button



Totals Softkey

**Pump Drive Range** — Pump Drive Range

**Lo** — Low

**Hi** — High

**Pump Setting** — Pump Setting

**Nozzle** — Nozzle

**Expected Pres\*** — Expected Pressure

**\*Not valid if using Flow Divider** — \*Not valid if using Flow Divider

**kPa** — Kilopascals

**psi** — Pounds per Square Inch

**Orifice** — Orifice

OUO6074,0000FB8 -19-15MAR07-1/1

A59551 —UN—08MAR07

A59174 —UN—29JAN07

# Variable Rate Liquid Fertilizer

## Variable Rate Fertilizer Overview

The variable rate fertilizer (VRF) system is monitored independently with the original GreenStar™ display or through the Original GreenStar™ Mode on the GS2 display. To enter the Original GreenStar™ Mode, select **Menu >> Original GreenStar Monitor** button.

*NOTE: Variable rate fertilizer does not work on competitive ISO 11783 compliant displays.*

Warning messages do not appear on Original GreenStar Monitor screen. When an audible alert signals a warning, return to SeedStar™ 2 screens to view messages.

Variable Rate Fertilizer is comprised of three basic components.

1. An original GreenStar™ display or GS2 display in Original GreenStar™ Mode.
2. A SeedStar™ Variable Rate Fertilizer controller mounted on the planter frame. This controller monitors pump rotational speed, piston stroke, ground speed, and distance traveled. Ground speed and distance are obtained from radar input.
3. A variable displacement piston pump for fertilizer.

The SeedStar™ Variable Rate Fertilizer system allows an operator to change the application rate from the cab while planting.

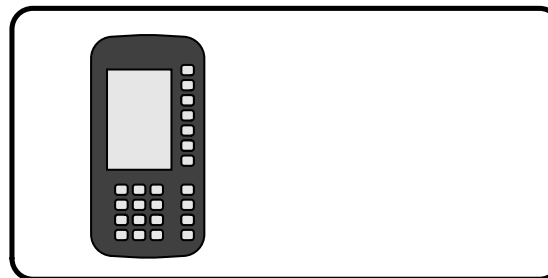
- Fertilizer rates are adjustable for different soil types or for irrigated versus dry land soils.
- Five different fertilizer rates are programmable into the system. While planting, the operator selects any one of the programmed rates to change the application.
- Two separate pumps are programmable for different rates.

A ground driven mechanism provides the power to rotate the pump. Once set, the programmed application rate is constant regardless of varying ground speeds.

Two pump output ranges are available. High and low ranges are determined using different sprocket combinations. Output rate is variable for either range.

Refer to your planter operator's manual for specific information about your model of planter pump and delivery system.

When a rate is selected, the controller monitors pump rotational speed, piston stroke, and distance traveled to calculate actual application rate. If calculated rate differs from selected rate, the controller adjusts the piston stroke to match selected rate. True ground speed is obtained with radar or GPS ground speed signal from the CAN bus. Implement speed is obtained indirectly from



Original GreenStar Monitor Button

A61356 —UN—13NOV07

pump rotational speed. The controller calculates percent slippage from the different speed readings and changes the pump stroke to compensate. If slippage exceeds a predetermined value, a warning is issued.

The following components must be active or engaged for proper system operation:

- Contact Drive or Ground Wheel Drive
- Radar or GPS Ground Speed Signal
- Pump RPM Sensor
- Pump Stroke Position Sensor

Fertilizer systems are available in two configurations; flow divider and central manifold.

- The flow divider is a device that controls product flow while maintaining constant pressure. The divider allows for maximum flexibility when changing application rates.
- The central manifold system allows some adjustment within overall system pressure limits. Orifices placed at each row control product flow. As rate is increased, pressure increases. Once pressure reaches a certain level, flow cannot be increased any further without damage to the system.

A variety of warnings and cautions are provided for customer assurance. Some examples are:

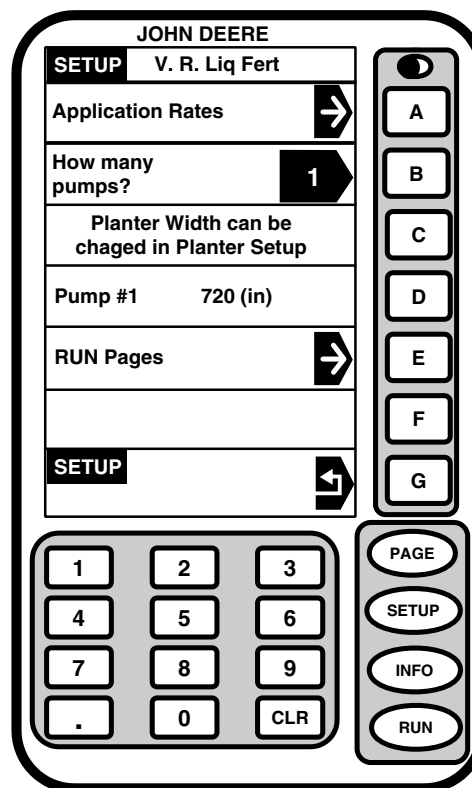
- No power detected on motor drive
- Over or under application!
- Pump position sensor not detected
- Pump 1 has no response to control
- VRF system problem detected. Pump Number 2 calculated rates inaccurate
- VRF system sprocket change detected. Pump Number 1 recalibrated
- Lost communications with mobile processor
- Battery voltage out of range

*GreenStar is a trademark of Deere & Company  
SeedStar is a trademark of Deere & Company*

OUC6074,0001039 -19-23JUL08-1/1

## Application Rates

1. Select **SETUP** >> **V.R. Liq Fert**.
2. Select key **B** and enter number of pumps on machine.
3. Select Application Rates option.



A50168 — 19— 12SEP02

Continued on next page

OUO6074,0001077 -19-13NOV07-1/3

*NOTE: If two pumps are entered, setup pumps to apply identical rates or different rates.*

4. Select keys **A—E** to setup rates.

| JOHN DEERE |                    |   |
|------------|--------------------|---|
| SETUP      | Fertilizer Rates   |   |
| 50.0       | Rate 1<br>(gal/ac) | → |
| 10.0       | Rate 2<br>(gal/ac) | → |
| 20.0       | Rate 3<br>(gal/ac) | → |
| Off        | Rate 4<br>(gal/ac) | → |
| Off        | Rate 5<br>(gal/ac) | → |
|            |                    |   |
| SETUP      | V. R. Liq Fert     | ← |

Buttons A, B, C, D, E, F, G

Buttons: 1, 2, 3, 4, 5, 6, 7, 8, 9, ., 0, CLR

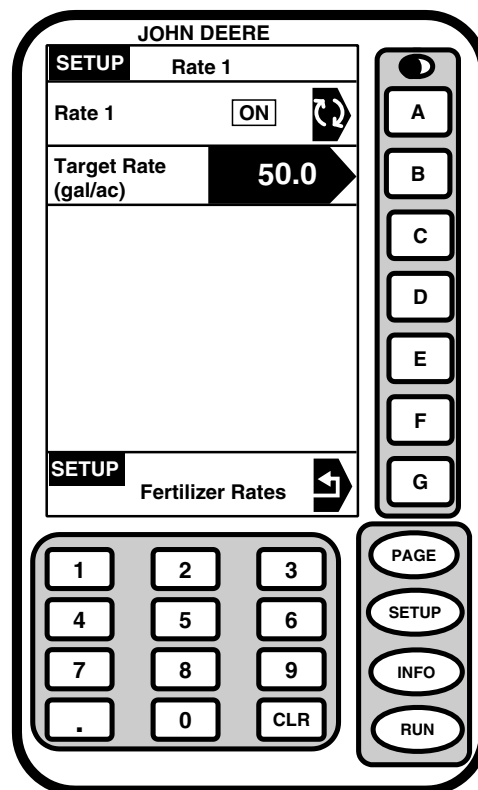
Buttons: PAGE, SETUP, INFO, RUN

A50169—19—24SEP02

Continued on next page

OJ06074,0001077 -19-13NOV07-2/3

5. Select key **A** to toggle rate On or Off. The rate is only available as an option on the RUN page if it is turned on.
6. Select key **B** to enter a rate with numeric keypad.



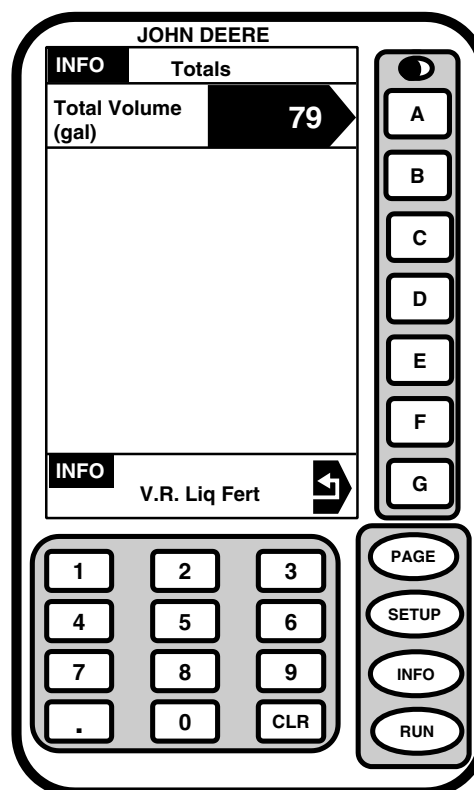
A50173 —19—12SEP02

OUO6074,0001077 -19-13NOV07-3/3

**VRF Volume Totals**

Select **INFO** >> **V.R. Liq Fert** >> **Totals**.

The value displayed is total accumulated since last zeroed. Select key **A** and then **CLR** clear key to zero the value.



A50170 —19—12SEP02

OUO6074,0001078 -19-13NOV07-1/1

## VRF System Test

This test verifies the operation of the position sensor and RPM sensor for variable rate fertilizer.

1. Select **INFO >> V.R. Liq Fert >> Diagnostics >> System Test**.

2. Select **Pump Direction** key until **INCREASE** is highlighted.

*NOTE: Jog time is measured in milliseconds. 999 milliseconds is approximately one second.*

3. Select **Jog Time** key and enter 999.

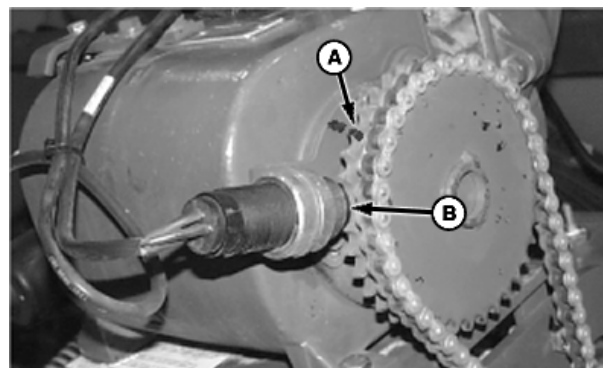
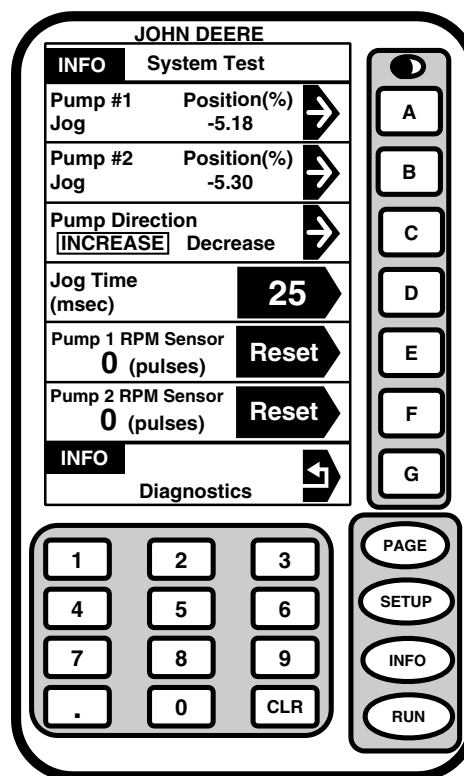
*NOTE: Each time the jog button is pressed the motor activates for one second.*

4. Select **Pump Jog** key repeatedly until motor reaches upper limit and stops. Pump Jog Position percentage is 100 percent at upper limit.
5. Select **Pump Direction** key until **DECREASE** is highlighted.
6. Select **Pump Jog** repeatedly until motor reaches lower limit and stops. Pump Jog Position percentage is zero percent at lower limit.
7. Set pump direction to increase and select **Pump RPM Sensor** reset key.
8. Mark a position sensor sprocket tooth (A) and pump housing for reference.
9. Rotate contact drive tire until pump rotates 1 revolution (black line). 35 pulses equal a full revolution.

If RPM sensor does not record 35 pulses per sprocket revolution, adjust sensor (B) to within 2 mm (5/64 in.) of sprocket teeth. Perform the test again. If sensor does not record 35 pulses per revolution, replace sensor.

**A—Sprocket Tooth**

**B—Sensor**



A50291 —19—19SEP02

A50532 —UN—01 OCT02

OUO6074,0001079 -19-13NOV07-1/1

## Fertilizer Calculator

**IMPORTANT:** Monitor must be completely set up for machine and rate configurations for calculators to function properly.

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Fertilizer** in top drop down box.
3. Select and enter **Model** from drop down box.
4. Enter fertilizer **Rate** in input box.
5. Enter **Target Speed** in input box.

**IMPORTANT:** Fertilizer suggestions are starting points only.

Fertilizer suggestions are displayed at the bottom of screen.

### Screen Area Information

**Planter Calculations** — Planter Calculations

**Calc** — Calculator

**Fertilizer** — Fertilizer

**Model** — Model

**Rate** — Rate

**gal/ac** — Gallons per Acre

**Target Speed** — Target Speed

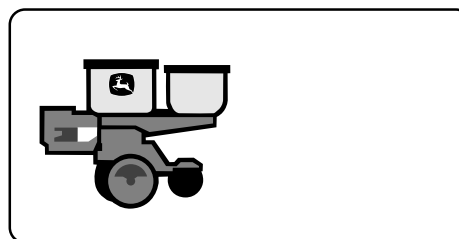
**mph** — Miles per Hour

**kph** — Kilometers per Hour

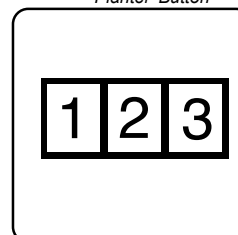
**Row Spacing** — Row Spacing

**cm** — Centimeters

**in** — Inches



Planter Button



Totals Softkey

**Pump Drive Range** — Pump Drive Range

**Lo** — Low

**Hi** — High

**Pump Setting** — Pump Setting

**Nozzle** — Nozzle

**Expected Pres\*** — Expected Pressure

**\*Not valid if using Flow Divider** — \*Not valid if using Flow Divider

**kPa** — Kilopascals

**psi** — Pounds per Square Inch

**Orifice** — Orifice

A59551 —UN—08MAR07

A59174 —UN—29JAN07

OUO6074,0000FB8 -19-15MAR07-1/1

## Warning Messages

**WARNINGS** are generated by the individual modules and Green Star Display alerting the operator to a serious condition or "situation" which has occurred of which the operator needs to be informed. Typically the operator should stop and rectify the "condition or situation" causing the WARNING before proceeding. WARNINGS are displayed as full page displays. The title displayed in the top display section is "WARNING". Examples of WARNINGS would be the indication of a planter row(s) not planting or ground speed at zero when planter is still planting (ground speed sensor failure detection). WARNINGS are the highest level of visual alarms presented to the operator. When a WARNING is cancelled without the "condition or situation" causing it being corrected, a caution is displayed on the bottom line of the display as a continued alert to the "situation". If more than one is occurring at the same time, key G can be used to toggle between WARNING alerts.

**CAUTIONS** are generated by the individual modules and Green Star Display alerting the operator to a function which is out of limits or a "situation" is or has occurred of which the operator needs to be informed. The caution message is displayed on line "G". Examples of CAUTIONs would be the indication of a planter row's population outside of the HI/LO range specified, or a low Hopper Level indication, or a "WARNING" for which the operator has acknowledged the "WARNING" reducing it to a CAUTION message, which is then displayed on line "G". CAUTIONs are the middle level of visual alarms presented to the operator.

**Advisories** are operator error messages displayed on line "G" telling the operator that an incorrect "action" has occurred such as entering a value which is out of the acceptable range for that constant. They are the lowest level of visual alarms presented to the operator.

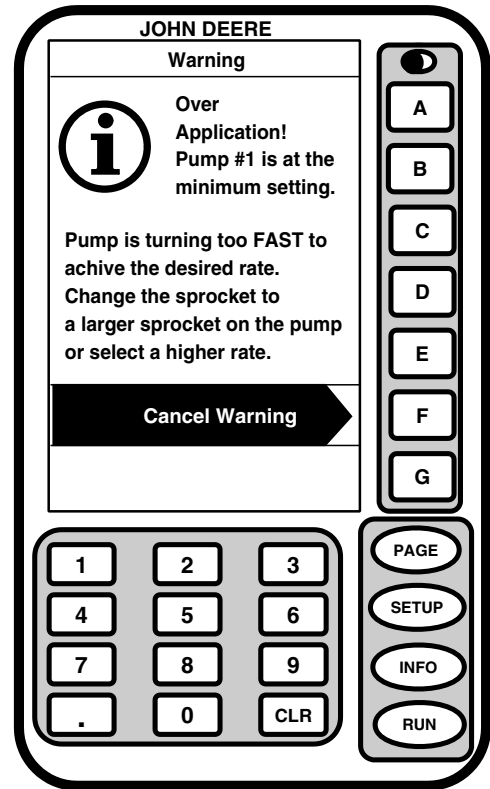
OUO6074,0000688 -19-01NOV07-1/1

## Variable Rate Fertilizer Warnings

### WARNING: Over Application!

*NOTE: This warning will be followed by a "Over Application! Pump #1 at min. setting." caution on line "G".*

This warning is issued if the pump adjusts to its lowest setting and is still overapplying. The large sprocket should be installed to change the pump speed range or a higher rate should be selected. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50791 — 19—30OCT02

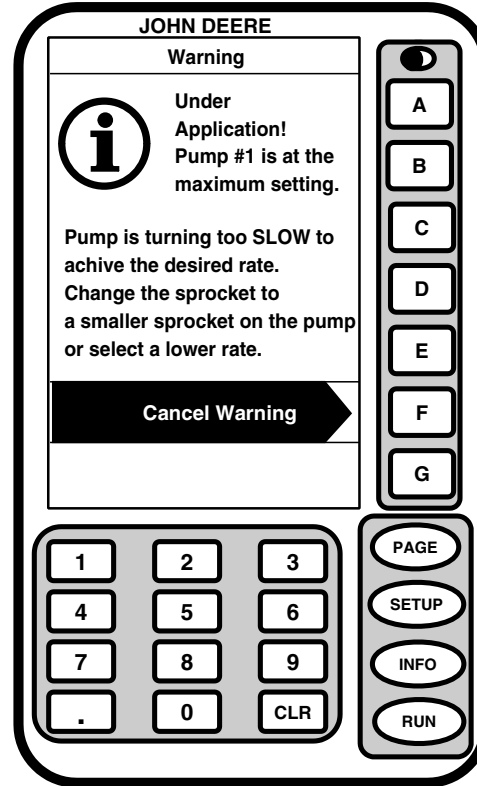
Continued on next page

OUO6074,000068C -19-01NOV07-1/7

**WARNING: Under Application!**

*NOTE: This warning will be followed by a "Under Application! Pump #1 at max. setting." caution on line "G".*

This warning is issued if the pump adjusts to its highest setting and is still underapplying. The small sprocket should be installed to change the pump speed range or a lower rate should be selected. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50792 — 19—30OCT02

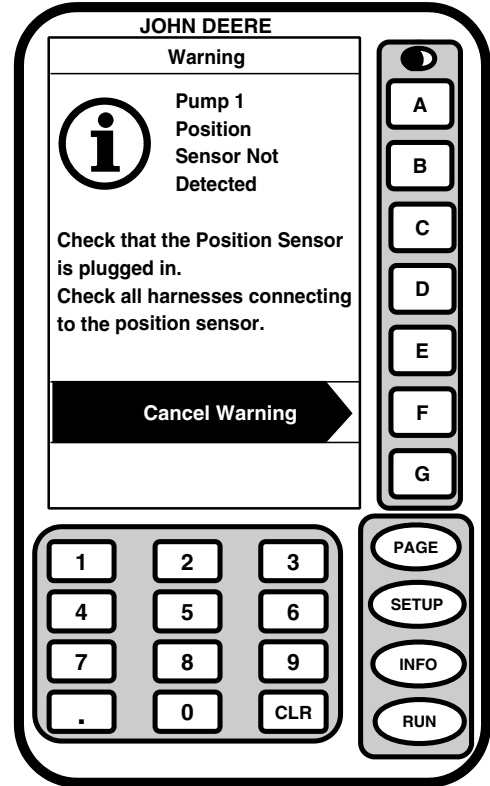
Continued on next page

OUO6074,000068C -19-01NOV07-2/7

**WARNING: Pump Position Sensor Not Detected**

*NOTE: This warning will be followed by a "Pump Sensor Fail." caution on line "G".*

This warning is issued if no signal is received from the pump position sensor. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50793 — 19—30OCT02

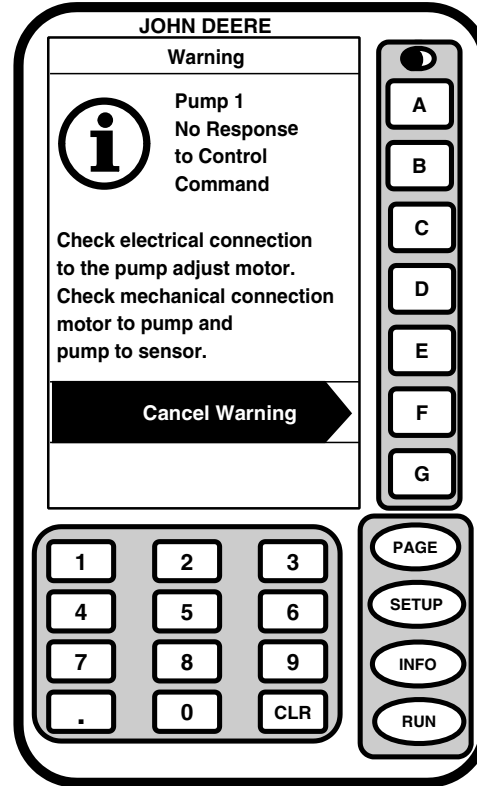
Continued on next page

OUO6074,000068C -19-01NOV07-3/7

**WARNING: No Pump Response To Control Command**

*NOTE: This warning will be followed by a "Pump not responding. Check System." caution on line "G".*

This warning is issued if no signal is received from the pump adjustment motor. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50794 —19—30OCT02

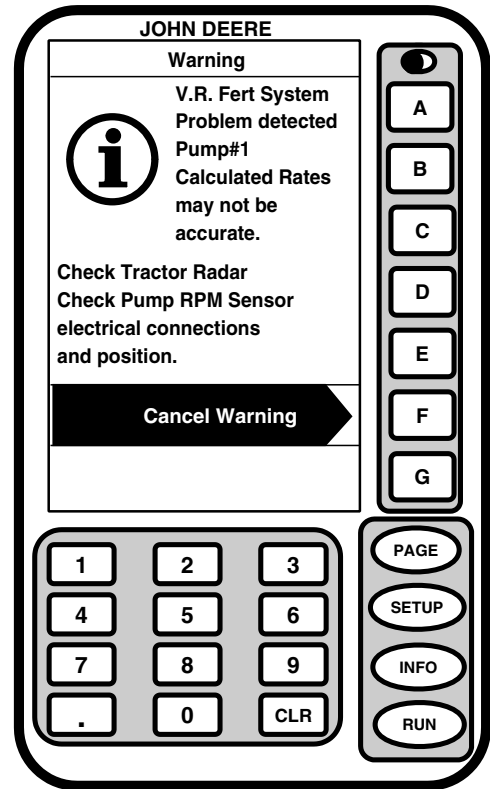
Continued on next page

OUO6074,000068C -19-01NOV07-4/7

**WARNING: V.R. Fert System Problem. Calculated rates may not be accurate.**

*NOTE: This warning will be followed by a "Pump #1 Calculated Rate more than 10% off Target." caution on line "G".*

This warning is issued if calculated rate is more than 10 percent off target rate. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50795 — 19—30OCT02

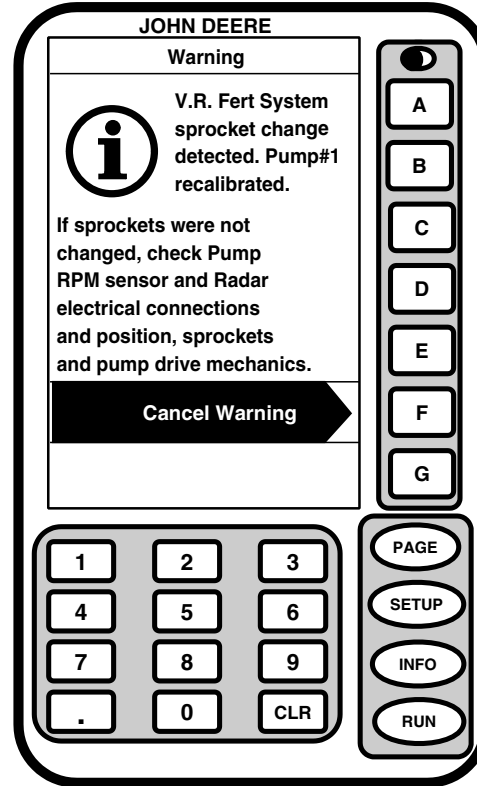
Continued on next page

OUO6074,000068C -19-01NOV07-5/7

**WARNING: V.R. Fert. System sprocket change detected.**

*NOTE: This warning will be followed by a "Pump #1 sprocket change detected" caution on line "G".*

This warning is issued if the pump application changes without a sensor detecting motor adjustment. There is a caution associated with this warning. When the warning is cleared there is a caution issued.



A50796 — 19—30OCT02

Continued on next page

OUO6074,000068C -19-01NOV07-6/7

**CAUTION: V.R. Fertilizer High/Low Voltage**

This caution is issued if variable rate fertilizer voltage is too high or too low.

**JOHN DEERE**

**RUN** **PAGE 1**

Scan **ROW** Min/Max

**0** (seed/ac) Row **2**

**0** Ave Pop (seed/ac)

Seed Rate 1 (seed/ac) 200000

**20.0** Rate B (gal/ac)

**5.0** Speed (mph)

V.R. Fertilizer Voltage is High

1 2 3  
4 5 6  
7 8 9  
. 0 CLR

PAGE  
SETUP  
INFO  
RUN

A  
B  
C  
D  
E  
F  
G

**JOHN DEERE**

**RUN** **PAGE 1**

Scan **ROW** Min/Max

**0** (seed/ac) Row **2**

**0** Ave Pop (seed/ac)

Seed Rate 1 (seed/ac) 200000

**20.0** Rate B (gal/ac)

**5.0** Speed (mph)

V.R. Fertilizer Voltage is Low

1 2 3  
4 5 6  
7 8 9  
. 0 CLR

PAGE  
SETUP  
INFO  
RUN

A  
B  
C  
D  
E  
F  
G

A50797 —19—30OCT02

A50798 —19—30OCT02

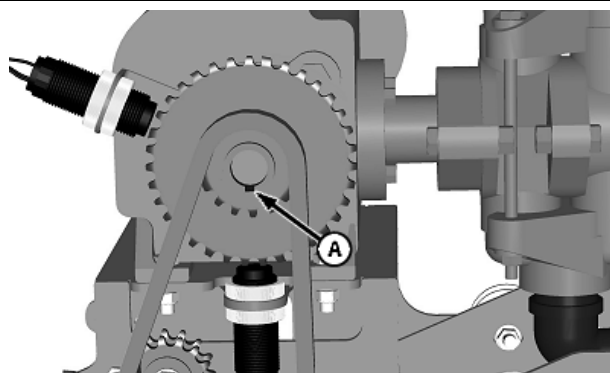
OUO6074,000068C -19-01NOV07-777

## Disabling When Not In Use

**IMPORTANT:** Double pump systems, such as the 1770NT 24 row planter, must have keyways (A) timed 90 degrees to each other when pump chains are reinstalled or machine damage will result.

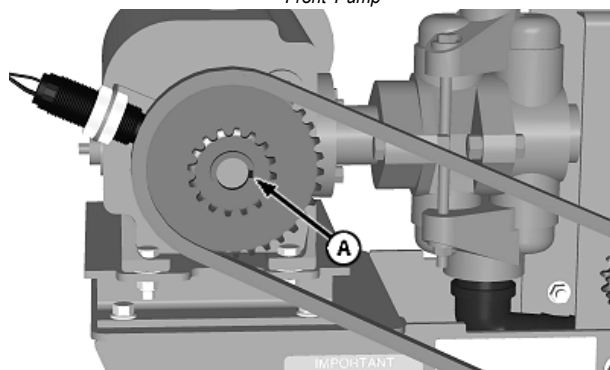
Remove drive chain from pump whenever fertilizer system is not being used.

A—Keyway



Front Pump

A54239 —UN—08APR04



Rear Pump

A54240 —UN—08APR04

OUC6074,0000C1A -19-08APR04-1/1

## Manual Override

In the event of an electronic system failure, the pump may be manually set and locked to provide a fixed application rate. This feature allows the operator to continue applying product at a fixed rate.

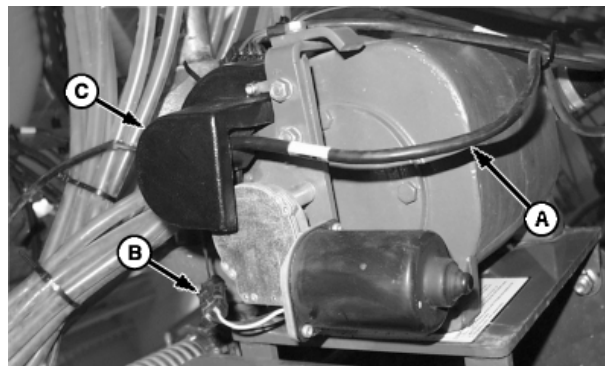
1. Determine pump setting from fertilizer rate chart in implement operator's manual.
2. Disconnect position sensor harness (A) and motor harness (B).
3. Remove cover (C).
4. Remove lock nut (D) and small sprocket (E).
5. Store cover, lock nut and small sprocket in a safe place until repairs can be made and parts reinstalled.

**NOTE:** If pump is already in lock down mode, lock down bracket (F) will have to be loosened.

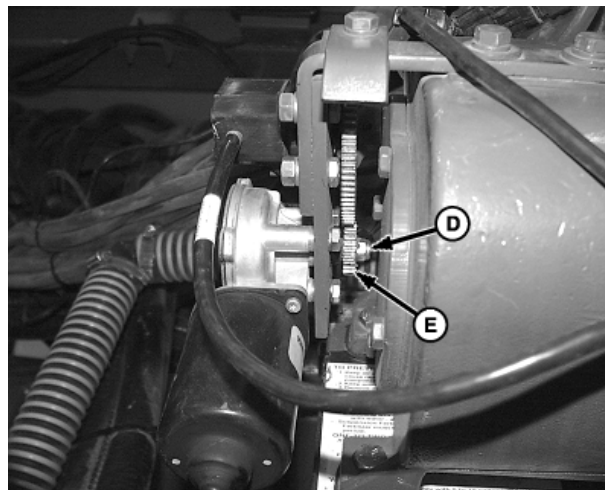
6. Rotate large gear (G) fully counter clockwise. Full counter clockwise position is pump setting "2".
7. Sight along bracket corner (H) and mark the tooth in closest alignment with a "2".
8. Count the number of teeth that pass bracket corner (H) as sprocket is rotated clockwise. See table for the number of teeth which represent pump setting numbers. The numbers may be marked on the sprocket, if desired.
9. Once setting is achieved, loosen cap screw (I) on lock down bracket (F) and rotate bracket into position so it engages sprocket teeth and locks sprocket into position. Tighten lock down bracket.

| Pump Settings Represented by Number of Teeth Past the Zero Alignment Point |                                |
|----------------------------------------------------------------------------|--------------------------------|
| Pump Setting Number                                                        | Number of Teeth                |
| Pump Setting 2                                                             | 0 Teeth Fully Counterclockwise |
| Pump Setting 3                                                             | 7 Teeth                        |
| Pump Setting 4                                                             | 14 Teeth                       |
| Pump Setting 5                                                             | 21 Teeth                       |
| Pump Setting 6                                                             | 28 Teeth                       |
| Pump Setting 7                                                             | 36 Teeth                       |
| Pump Setting 8                                                             | 45 Teeth                       |
| Pump Setting 9                                                             | 56 Teeth                       |
| Pump Setting 10                                                            | Fully Clockwise                |

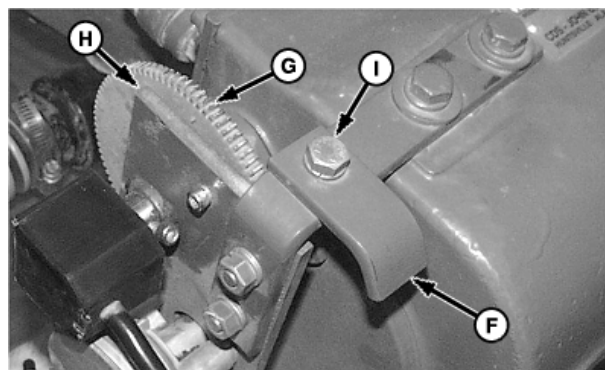
10. Verify rate after first ten minutes of use after lock down to assure lock down held and rate is as desired.



A54226 —UN—07APR04



A54227 —UN—07APR04



A54228 —UN—07APR04

A—Position Sensor Harness  
B—Motor Harness  
C—Cover  
D—Lock Nut  
E—Small Sprocket

F—Lock Down Bracket  
G—Large Gear  
H—Bracket Corner  
I—Cap Screw

OUC6074,0000608 -19-16SEP02-1/1

## Liquid Fertilizer Sensor Diagnostics

1. Turn tractor OFF. Turn key to accessory position.
2. Ensure that sensor wiring is properly connected.

If only one sensor is used, it MUST be connected to wire labeled LEFT FERT.

3. Ensure that correct number of sensors are selected.

Select **Planter** button >> **Planter Configuration** softkey >> **Sensors** tab >> **Fertilizer** drop down >> **Sensors** drop down. Enter number of sensors on machine.

4. Ensure that sensors are calibrated and zeroed correctly.

- Enter sensor calibration number of 37.5 for each sensor in calibration input box.
- Release trapped pressure in fertilizer manifold, then press ZERO button for each sensor.

5. Ensure that voltages are correct.

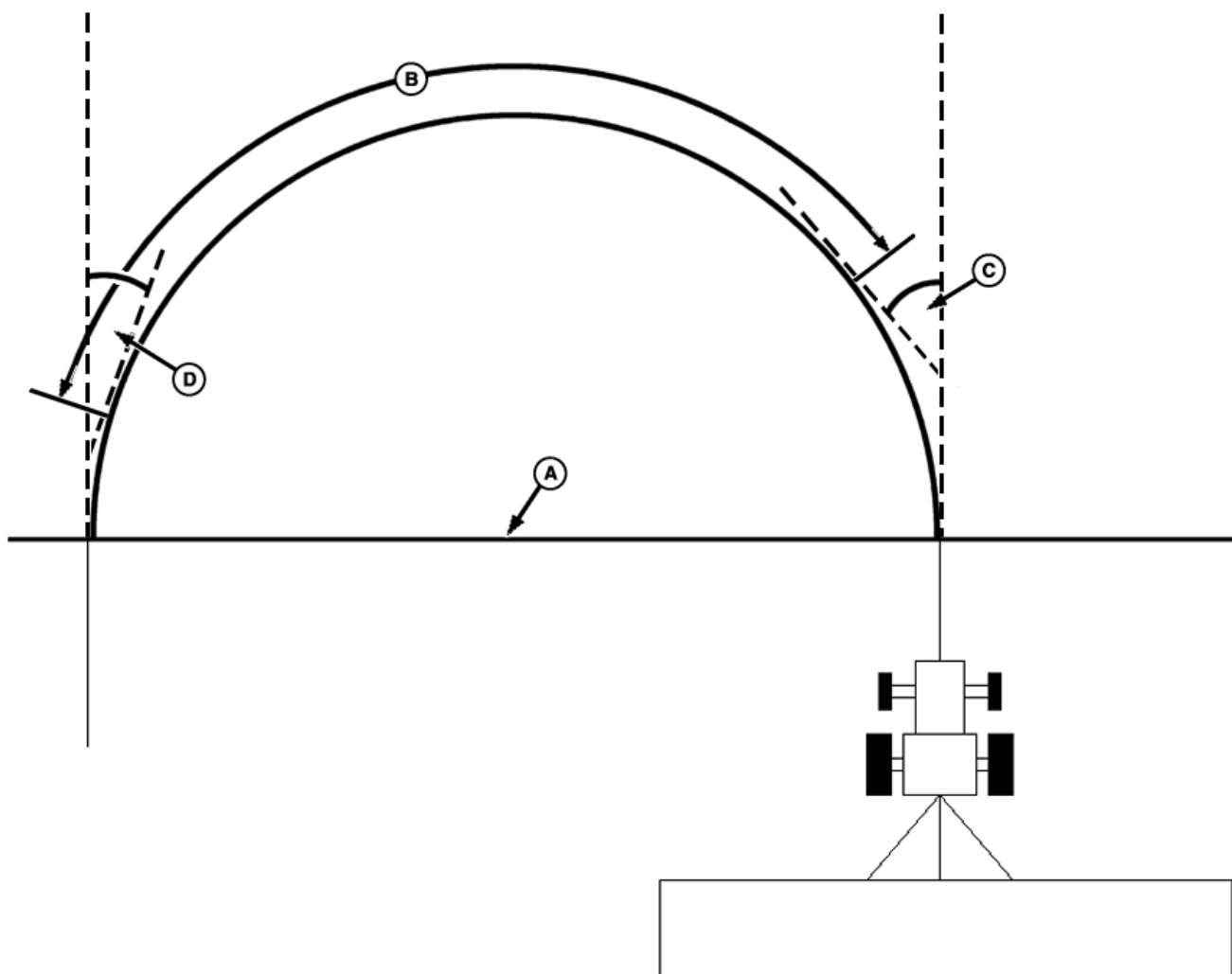
Select **Planter** button >> **Diagnostics** softkey >> **Readings** tab >> **System Voltages** drop down.

- Controller voltage MUST be 11 V or higher.
- Sensor supply value is 8.0 V.
- If voltage is ZERO, check wiring.

OUC6074,000107A -19-29JUL08-1/1

# Warning Screens

## Turning View Warning Suppression



A—Headlands

B—Warning Suppression

C—Suppression Begins 45 Degrees Away

D—Suppression Ends 13 Degrees Away

When operating with a John Deere™ GreenStar™2 (GS2) display and using John Deere™ Guidance Products, full screen seed monitor warnings can be suppressed (B) when making turns on headlands (A).

To enable turning view seed warning suppression, **Turning View** check box must be checked in GreenStar™2 Pro Guidance Setup.

The following occurs when turning view is enabled:

- Seed warning suppression and turning view begin when tractor is turned 45 degrees (C) away from the current pass using Straight Track.
- Turning View ends when tractor is within 13 degrees (D) of next pass.
- Seed warning suppression ends three seconds after turning view disappears from screen.
- Warnings are suppressed for a maximum of 22 seconds.

OUO6074,0000040 -19-25JUL08-1/1

A62927 —UN—24 JUL 08

## Warning Messages

**WARNINGS** are the highest level of an alert. Warnings alert the operator to a serious condition. It is recommended the condition causing a warning be corrected before proceeding further. Warnings are displayed as full page messages. Rows not planting is an example of a warning. If a warning is cancelled without the condition corrected, a caution is displayed on the bottom line of display as a continued alert. If more than one alert occurs at the same time, a toggle button appears so the operator is able to scroll through alerts.



A61394—UN—19NOV07

OUO6074,000107D -19-19NOV07-1/3

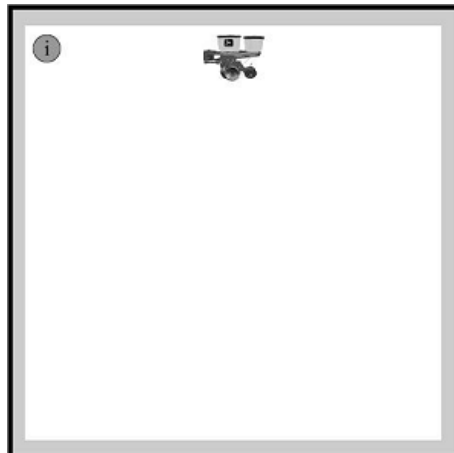
**CAUTIONS** are the medium level alert. Cautions alert the operator to conditions that are out of operational limits, but are not serious enough to stop. A population outside of the upper or lower limit is an example of a caution. A warning that has been cleared without correction also appears as a caution. Once a full page caution is cleared, the message remains on a single line at the bottom of the screen until corrected. If more than one alert occurs at the same time, a toggle button appears so the operator is able to scroll through alerts.



A61395—UN—19NOV07

OUO6074,000107D -19-19NOV07-2/3

**Advisories** are the lowest level alert. An advisory alerts the operator to valuable information that is not serious or outside a limit. When a specified target area has been met, an advisory is issued. If more than one alert occurs at the same time, a toggle button appears so the operator is able to scroll through alerts.



A61396—UN—19NOV07

OUO6074,000107D -19-19NOV07-3/3

## Warning Screens

### NOVRAM VALUE RESET

A stored value was outside its limits. The value was reset to a default value. Validate the planter settings before planting.

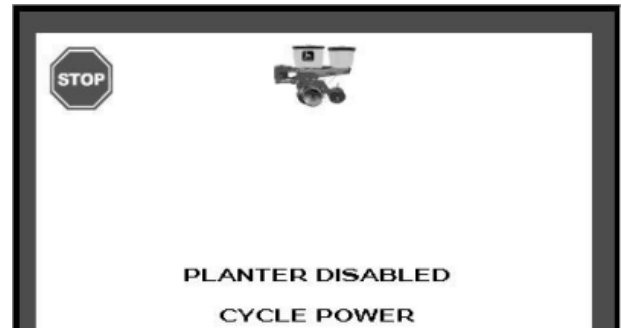


A61406 —UN—19NOV07

OUO6074,000107E -19-17NOV08-1/36

### PLANTER DISABLED CYCLE POWER

Planter is not operational. To restore operation, cycle power.



A61407 —UN—19NOV07

OUO6074,000107E -19-17NOV08-2/36

Pressing the continue button resets the system values to default values and requires power cycling the system.

Confirms prior actions taken before storing values when power is cycled.



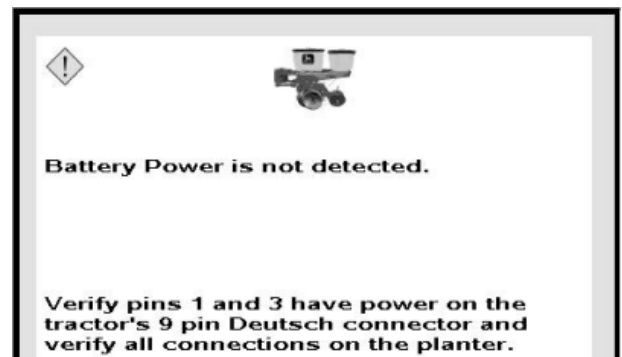
A61408 —UN—19NOV07

OUO6074,000107E -19-17NOV08-3/36

Battery power is not detected.

Verify pins 1 and 3 have power on the tractor 9 pin DEUTSCH connector and verify all connections on the planter.

Power is required on Pins 1 & 3 for normal operation.



A61409 —UN—19NOV07

Continued on next page

OUO6074,000107E -19-17NOV08-4/36

## Warning Screens

Planter module 2 not responding.

Controller PA1 is not communicating. Verify all planter electrical connections are latched securely and harnesses are not damaged.



A61410—UN—19NOV07

OUO6074,000107E -19-17NOV08-5/36

Planter module 3 not responding.

Controller PA2 is not communicating. Verify all planter electrical connections are latched securely and harnesses are not damaged.



A61411—UN—19NOV07

OUO6074,000107E -19-17NOV08-6/36

Seed monitor reset. Contact dealer, if problem persists.

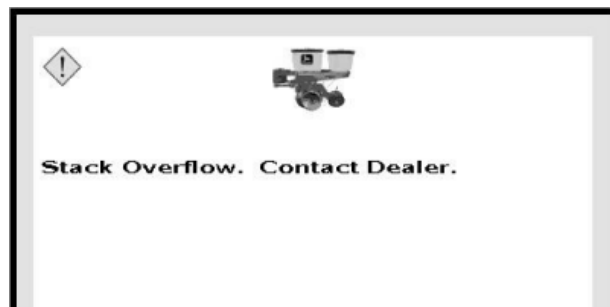
Intermittent communication problems exist. Verify all planter electrical connections are latched securely and harnesses are not damaged.



A61412—UN—19NOV07

OUO6074,000107E -19-17NOV08-7/36

Stack overflow. Restart controller. If problem persists contact dealer.



A61413—UN—19NOV07

Continued on next page

OUO6074,000107E -19-17NOV08-8/36

## Warning Screens

Tractor speed source not available.

Tractor speed not available from selected speed source. Verify connection or change speed source. See operator's manual.



A61414 —UN—19NOV07

OUO6074,000107E -19-17NOV08-9/36

Tractor speed not detected. Tractor speed not broadcasted on CAN Bus. Check tractor speed connections. See tractor operators manual.



A61415 —UN—19NOV07

OUO6074,000107E -19-17NOV08-10/36

Check ground speed source.

Ground speed indicates a different speed than tractor ground speed. Check ground speed calibration or tractor speed source. See operator's manual.



A61416 —UN—19NOV07

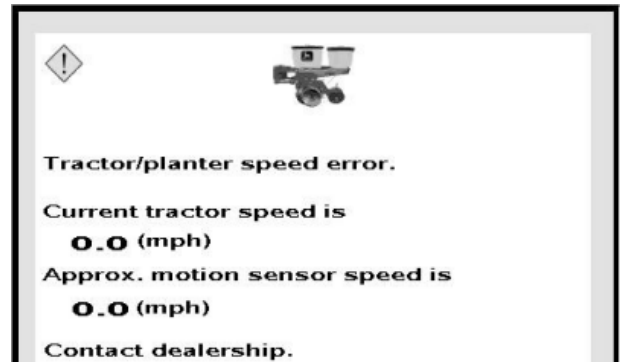
OUO6074,000107E -19-17NOV08-11/36

Tractor or planter speed error.

Current tractor speed is 0.0

Approximate motion sensor speed is 0.0

Contact dealer.



A61417 —UN—19NOV07

Continued on next page

OUO6074,000107E -19-17NOV08-12/36

## Warning Screens

Selected ground speed source is wheel.  
Use radar for VRD and seed monitoring for best results.

A61418 —UN—19NOV07



OUC6074,000107E -19-17NOV08-13/36

Selected ground speed source is manual.  
Use radar for VRD and seed monitoring for best results.

A61419 —UN—19NOV07



OUC6074,000107E -19-17NOV08-14/36

These rows are not planting.  
Ground speed is above two mph. Less than two seeds  
per second are acknowledged by seed sensor.

A61420 —UN—19NOV07



OUC6074,000107E -19-17NOV08-15/36

These seed sensors are not operational.  
Perform seed sensor test or exchange with an operational  
sensor.

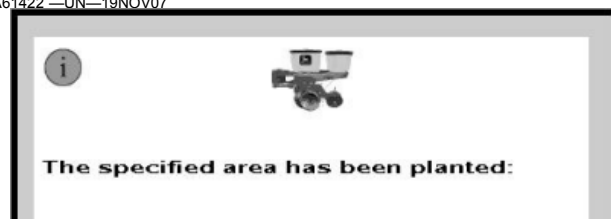
A61421 —UN—19NOV07



OUC6074,000107E -19-17NOV08-16/36

The specified area has been planted.  
Navigate to **Totals** screen to reset area.

A61422 —UN—19NOV07

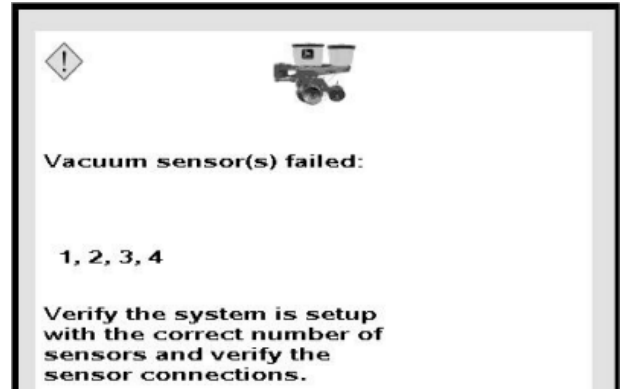


Continued on next page

OUC6074,000107E -19-17NOV08-17/36

Vacuum sensor or circuit failure.

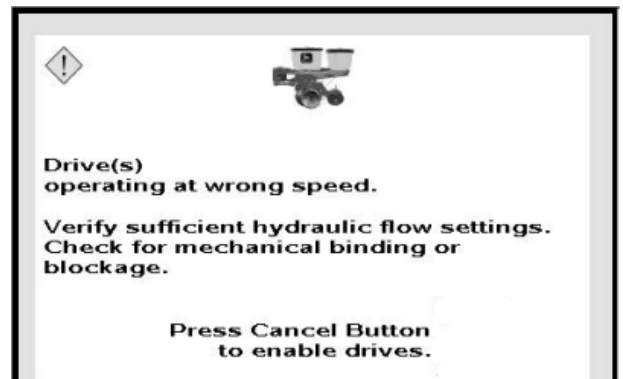
Verify that the system is set up with the correct number of sensors and verify the sensor connections.



OUO6074,000107E -19-17NOV08-18/36

Drives operating at wrong speed.

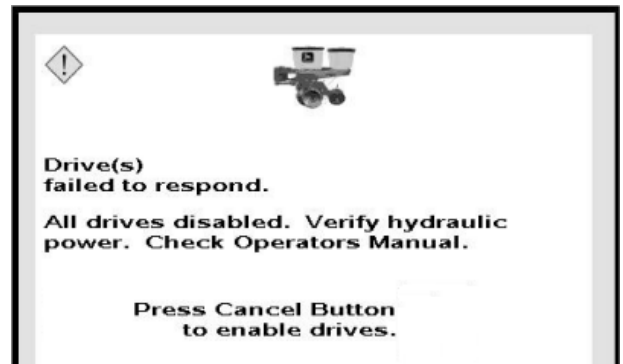
Verify sufficient hydraulic flow settings. Check for mechanical binding or blockage. Press cancel button to enable drives.



OUO6074,000107E -19-17NOV08-19/36

Drives failed to respond.

All drives disabled. Verify hydraulic power and VRD sensor connections. Check operator's manual. Press cancel button to enable drives.



Continued on next page

OUO6074,000107E -19-17NOV08-20/36

## Warning Screens

The height sensor is not calibrated.

The height sensor must be calibrated before the system operates correctly.

Refer to height sensor calibration procedures in SETUP BASIC PLANTER CONFIGURATION section of this manual.

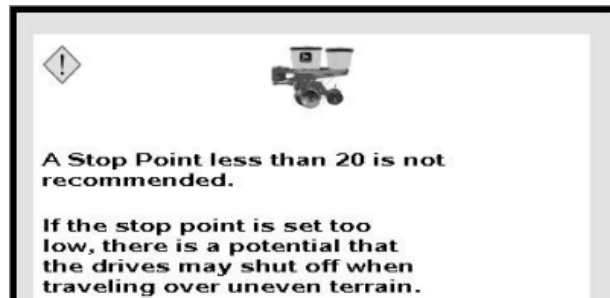


A61426 —UN—19NOV07

OUC6074,000107E -19-17NOV08-21/36

A stop point less than 20 is not recommended.

If the stop point is set too low, there is potential for the drives to shut off when traveling over uneven terrain.



A61427 —UN—19NOV07

OUC6074,000107E -19-17NOV08-22/36

No tractor speed and planter moving. All planting has stopped.

Verify ground speed sensor status.

A61428 —UN—19NOV07



OUC6074,000107E -19-17NOV08-23/36

Planter moving. Planter down.

Warning appears when using "Rotate Seed Meter" feature which requires planter, stopped and raised. Stop tractor and planter movement then raise the planter.

A61429 —UN—19NOV07



Continued on next page

OUC6074,000107E -19-17NOV08-24/36

Quick start function requirements not satisfied.

Minimum ground speed not reached.

Increase or verify tractor speed.



A61430 —UN—19NOV07

OUC6074,000107E -19-17NOV08-25/36

Fertilizer pressure is too high.

Sensor number:

Maximum pressure has exceeded operator entered value.



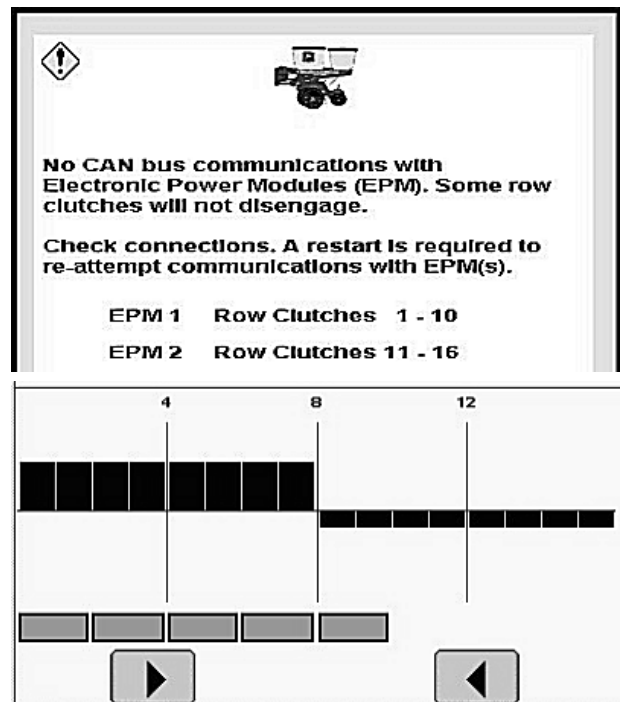
A61431 —UN—19NOV07

OUC6074,000107E -19-17NOV08-26/36

No CAN Bus communications with Electronic Power Modules (EPM). Some row clutches will not disengage.

Check connections. A restart is required to reattempt communications with EPMs.

Warning screen lists EPMs that are currently offline. Control section status bars associated with offline EPMs disappear from Main run page and half-page split run page.



A63767 —UN—07NOV08

A63768 —UN—07NOV08

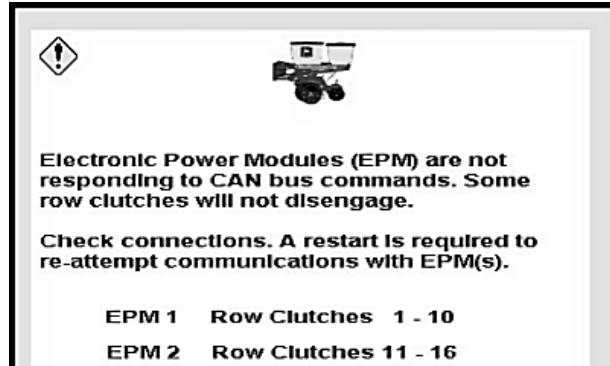
Continued on next page

OUC6074,000107E -19-17NOV08-27/36

Electronic Power Modules (EPM) are not responding to CAN Bus commands. Some row clutches will not disengage.

Check connections. A restart is required to reattempt communications with EPMs.

Warning screen lists EPMs that are currently not communicating.

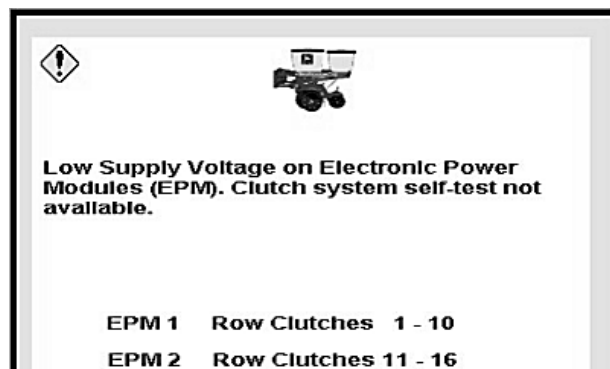


A63769—UN—07NOV08

OUO6074,000107E -19-17NOV08-28/36

Low Supply Voltage on Electronic Power Modules (EPM). Clutch system self-test is not available.

Warning screen lists EPMs with supply voltage less than 10.5 V.

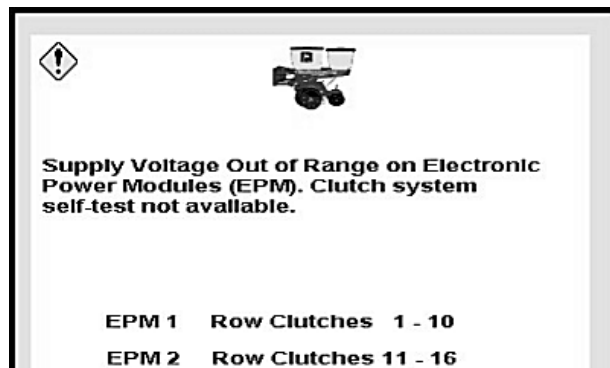


A63770—UN—07NOV08

OUO6074,000107E -19-17NOV08-29/36

Supply Voltage Out of Range on Electronic Power Modules (EPM). Clutch system self-test is not available.

Warning screen lists EPMs with supply voltage less than 9.0 V.



A63771—UN—07NOV08

Continued on next page

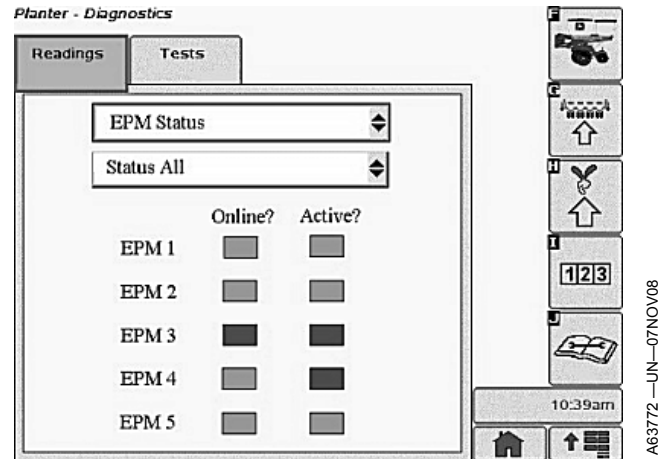
OUO6074,000107E -19-17NOV08-30/36

## EPM Status Summary Page.

This screen lists the current status for each EPM that is required for the current row configuration.

If the EPM is Online, the status box appears in green. If not online, the status box is red.

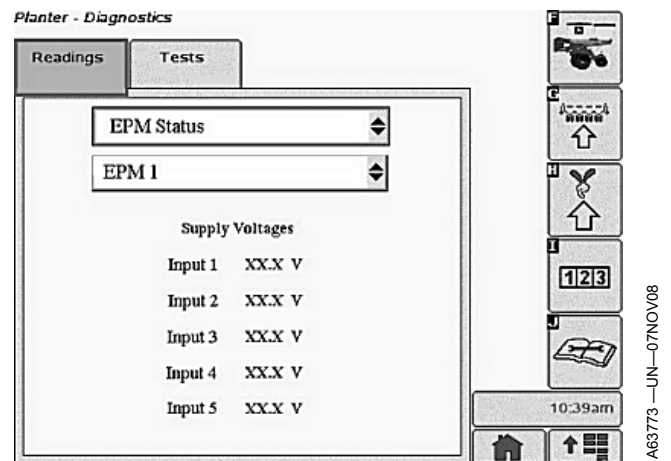
If the EPM is Active, the status box appears in green. If not active, the status box is red.



OUO6074,000107E -19-17NOV08-31/36

## Individual EPM Status Page.

This screen lists the voltage reading from each power supply input to the EPM, as an average over approximately 3 seconds. If no readings are received from the device in 3 seconds, the reading is "—"

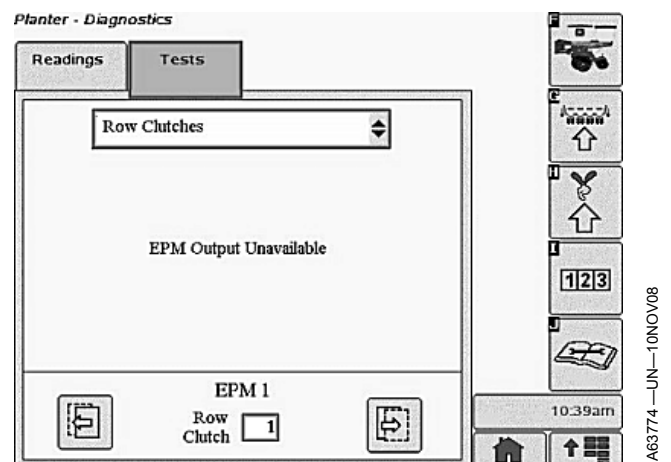


OUO6074,000107E -19-17NOV08-32/36

## Row Clutch Diagnostic Tests.

This screen appears when the operator selects the "Tests" tab on the diagnostics screen and the EPM is not available for one of the following reasons:

- EPM is offline
- EPM is not communicating
- EPM input voltage is out of range



Continued on next page

OUO6074,000107E -19-17NOV08-33/36

This screen appears when the operator selects the “Tests” tab on the diagnostics screen and EPM output is available.

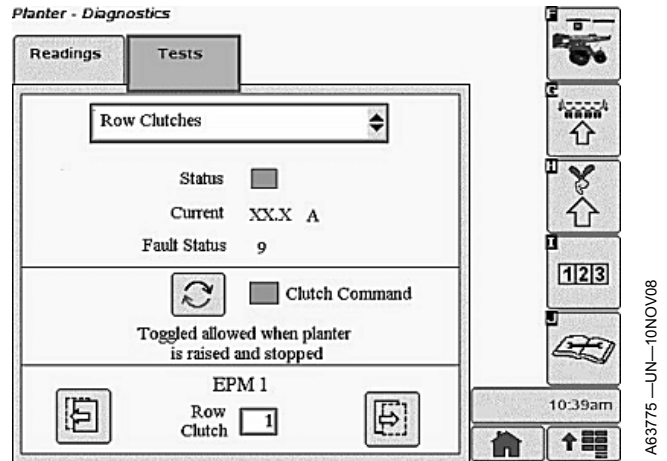
Status information derived from the driver status CAN message is displayed.

If the driver output monitor is ON, the status box appears in green.

If the driver output monitor is OFF, the status box appears in red.

The button in the center of the page is used to toggle rows on or off when the planter is stopped and raised.

The forward and backward arrows at the bottom of the page are used to toggle between row clutches.

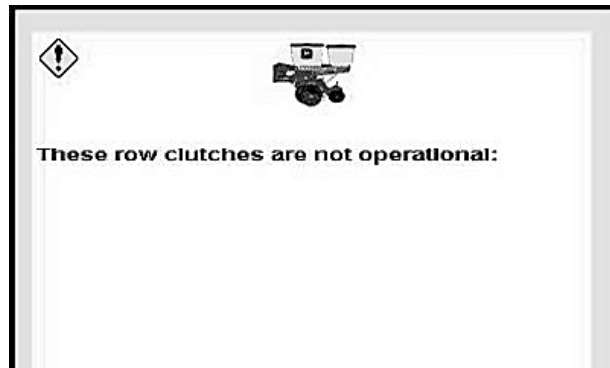


OUC6074,000107E -19-17NOV08-34/36

Row Clutch Diagnostic Self-test at Startup.

Once EPMs are determined to be online and communicating, system performs test and indicates “These row clutches are not operational”, followed by a list.

*NOTE: Under the diagnostic tab, the perform Self-test icon does not appear, unless planter is raised over height set point.*



Continued on next page

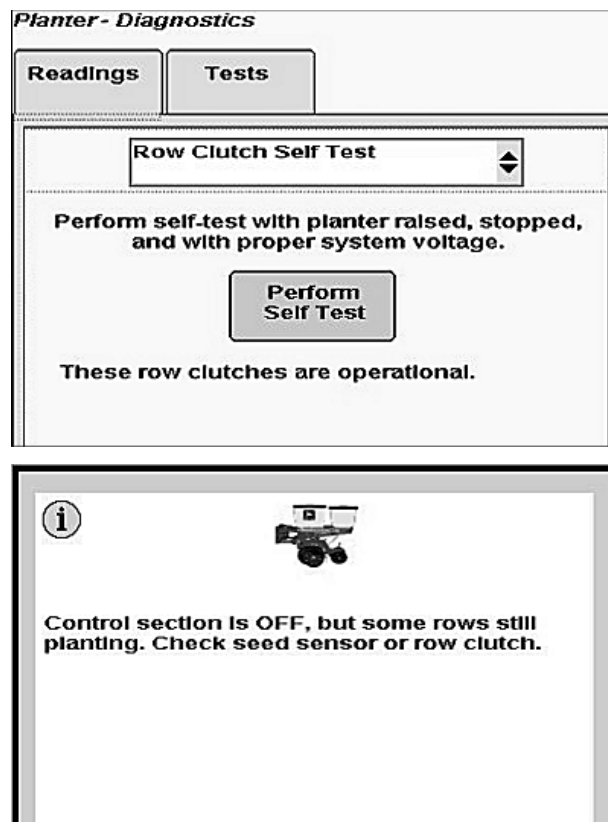
OUC6074,000107E -19-17NOV08-35/36

## Row Clutch Diagnostic Self-test During Operation.

Perform self-test with planter raised over height set point, stopped, and with proper system voltage.

After pressing self-test button, screen displays "These row clutches are operational", followed by a list.

Control section is OFF, but some rows still planting. Check seed sensor or row clutch.



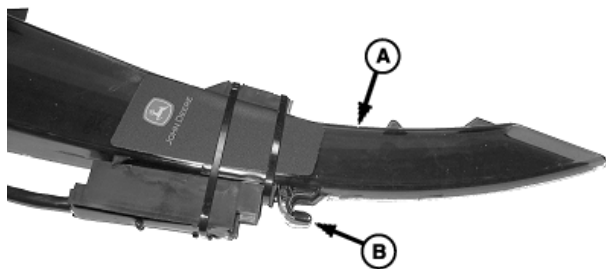
A63777 —UN—10NOV08

A63778 —UN—10NOV08

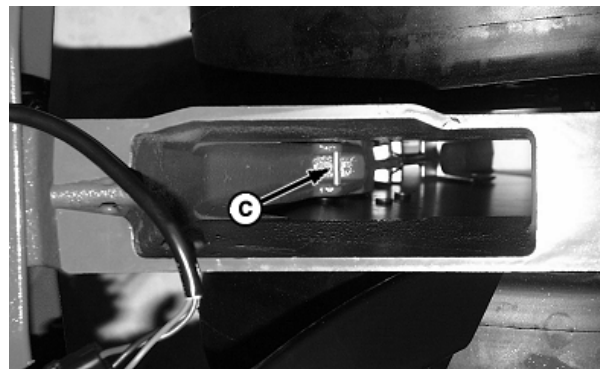
OUO6074,000107E -19-17NOV08-36/36

# Seed Tube Sensors

## Install and Remove Standard Flush Face Seed Tubes



A59900—UN—02APR07

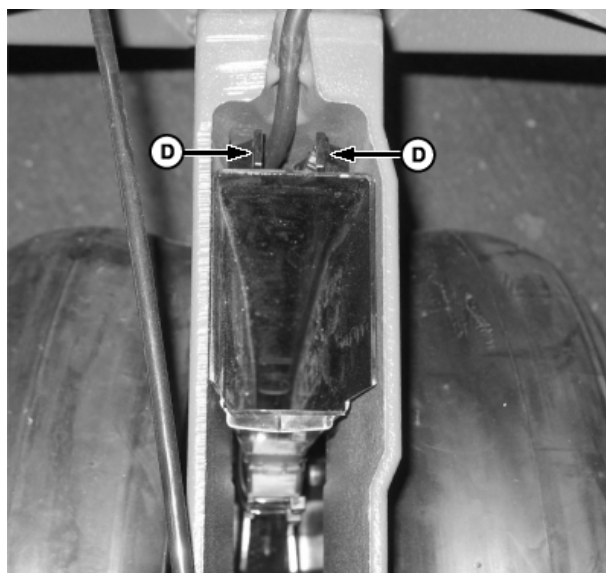


A53298—UN—03NOV03

1. Connect monitor harness to sensor harness.  
*NOTE: Place harness connector inside planting unit at same time as seed tube.*
2. Insert seed tube (A) into planting unit so the hook (B) locks on alignment pin (C).
3. Position seed tube so tabs (D) lock into holes.
4. To remove seed tube, squeeze tabs with fingers until they release from casting. Pull upward.

A—Seed Tube  
B—Hook

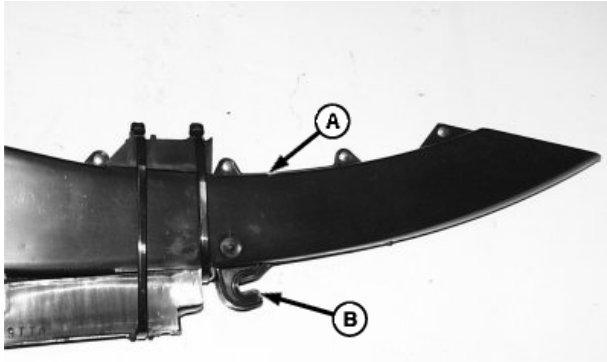
C—Pin  
D—Tabs



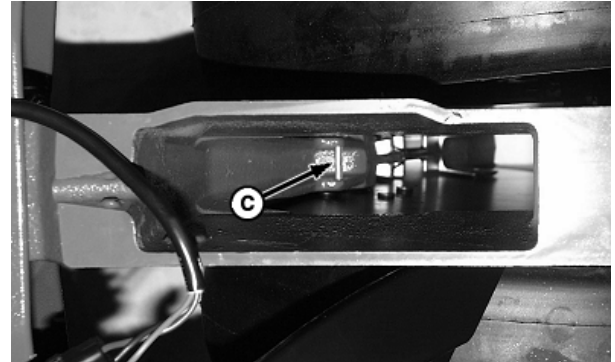
A59901—UN—02APR07

OUC6074,0000FE4 -19-13NOV07-1/1

## Install and Remove Optional Seed Tubes



A53216 —UN—27OCT03



A53298 —UN—03NOV03

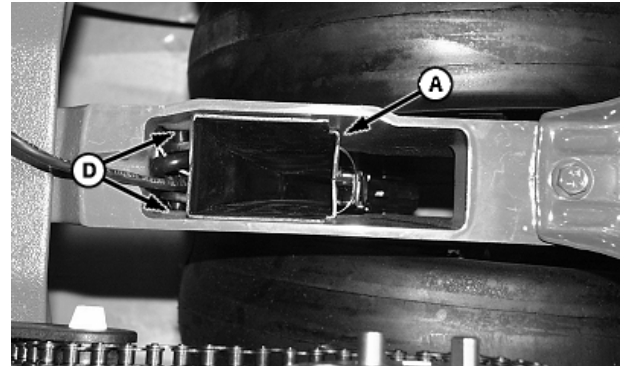
1. Connect monitor harness to sensor harness.

*NOTE: Place harness connector inside planting unit at same time as seed tube.*

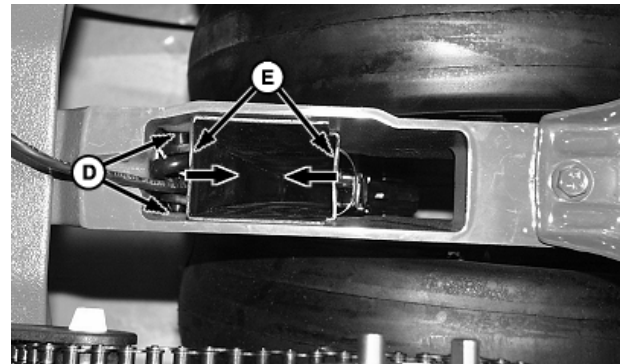
2. Insert seed tube (A) into planting unit so the hook (B) locks on alignment pin (C).
3. Position seed tube so tabs (D) lock into holes.
4. To remove seed tube, squeeze front and rear (E) of tube with fingers until tabs (D) release from casting and pull upward.

A—Seed Tube  
B—Hook  
C—Pin

D—Tabs  
E—Front and Rear



A53218 —UN—27OCT03



A54328 —UN—12MAY04

OUO6074,0000FE3 -19-13NOV07-1/1

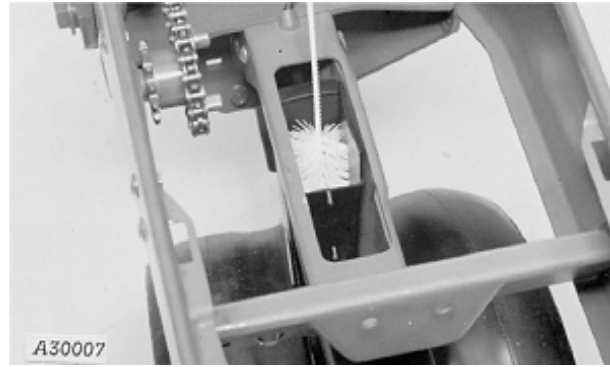
### Clean Seed Tube Sensor

It is possible for extremely dusty conditions or heavily treated seed to cause an excessive buildup of dust and seed treatment inside the seed tubes that blocks the seed sensor light. When the sensor light becomes blocked, false low population counts or false low limit warnings appear.

Periodically clean the seed sensor area inside seed tube with dry brush provided.

**IMPORTANT: Do not plant again until all interior seed tube surfaces are dry.**

If moisture enters the seed tube during a rain or when machine is washed, dust in the seed tubes turns to mud. If moisture is present or dry residue is difficult to remove



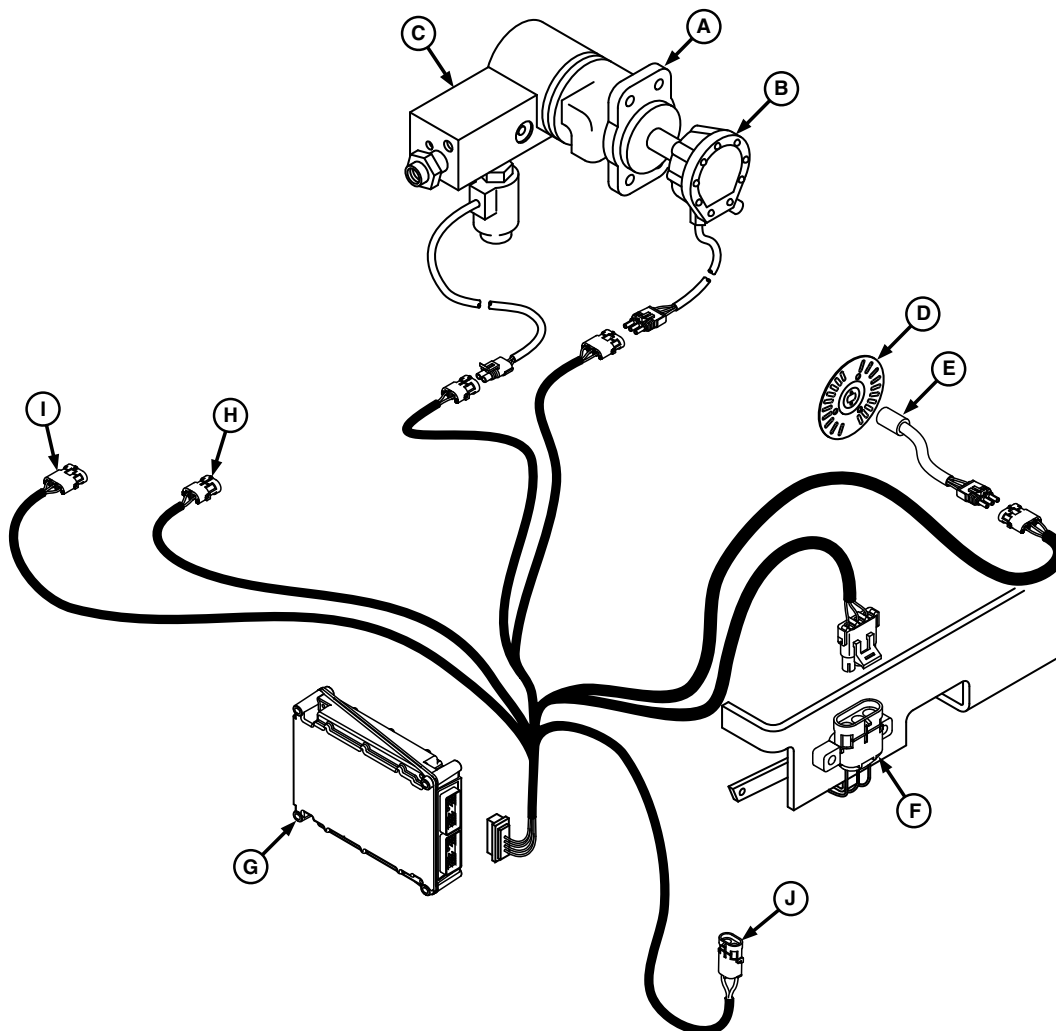
A30007—UN—06OCT88

with a dry brush, use mild detergent and water with brush. Allow interior seed tube surfaces to dry.

AG,OUO1074,849 -19-13NOV07-1/1

# Variable Rate Drive Components

## Single Motor System—Drawn Planters



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve

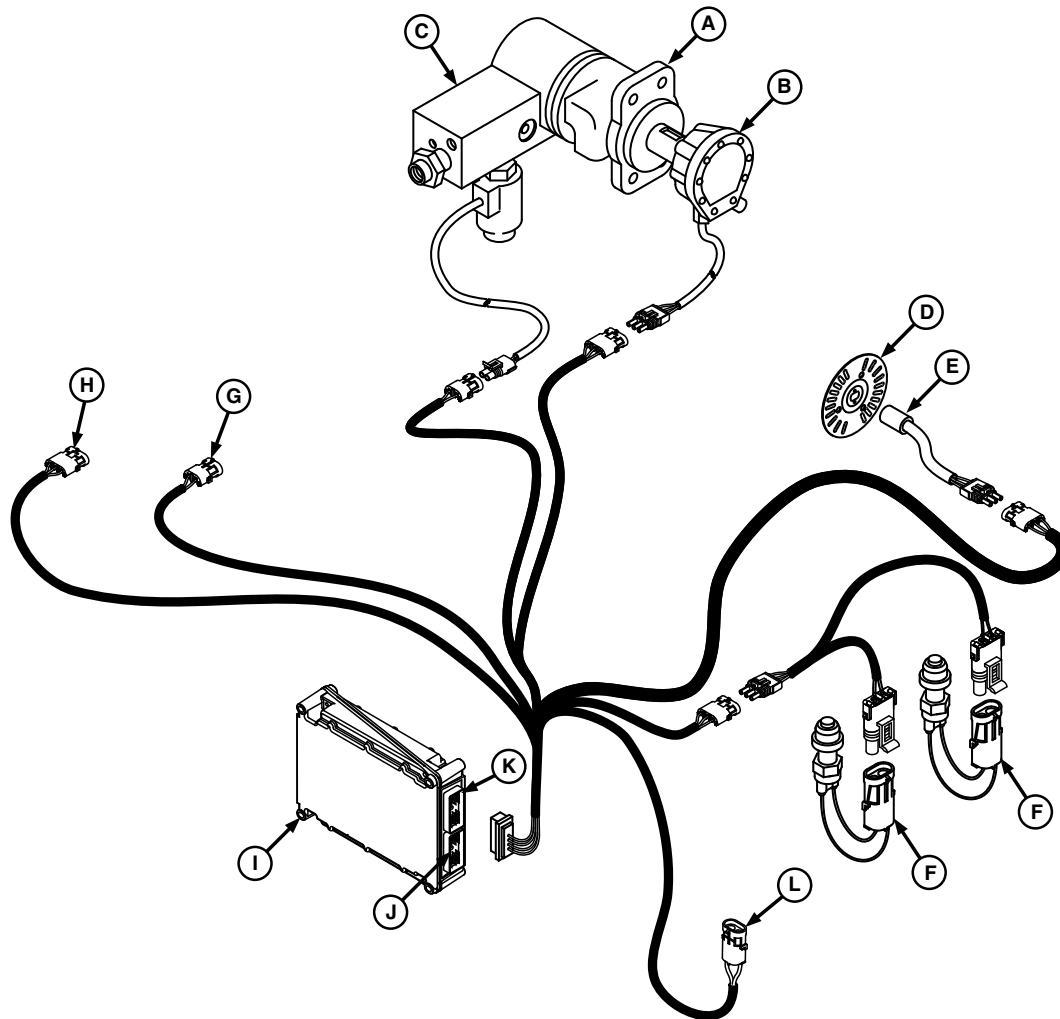
D—Sensor Disk  
E—Wheel Motion Sensor  
F—Height Sensor

G—Seed Monitor/Variable Rate  
Drive Wedgebox  
H—ECU Connector  
I— RPM Connector  
J— Mod Power

OUO6074,000105E -19-10OCT07-1/1

A52535 —UN—14AUG03

## Single Motor System—Integral Planters



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve

D—Sensor Disk  
E—Wheel Motion Sensor  
F—Height Sensor

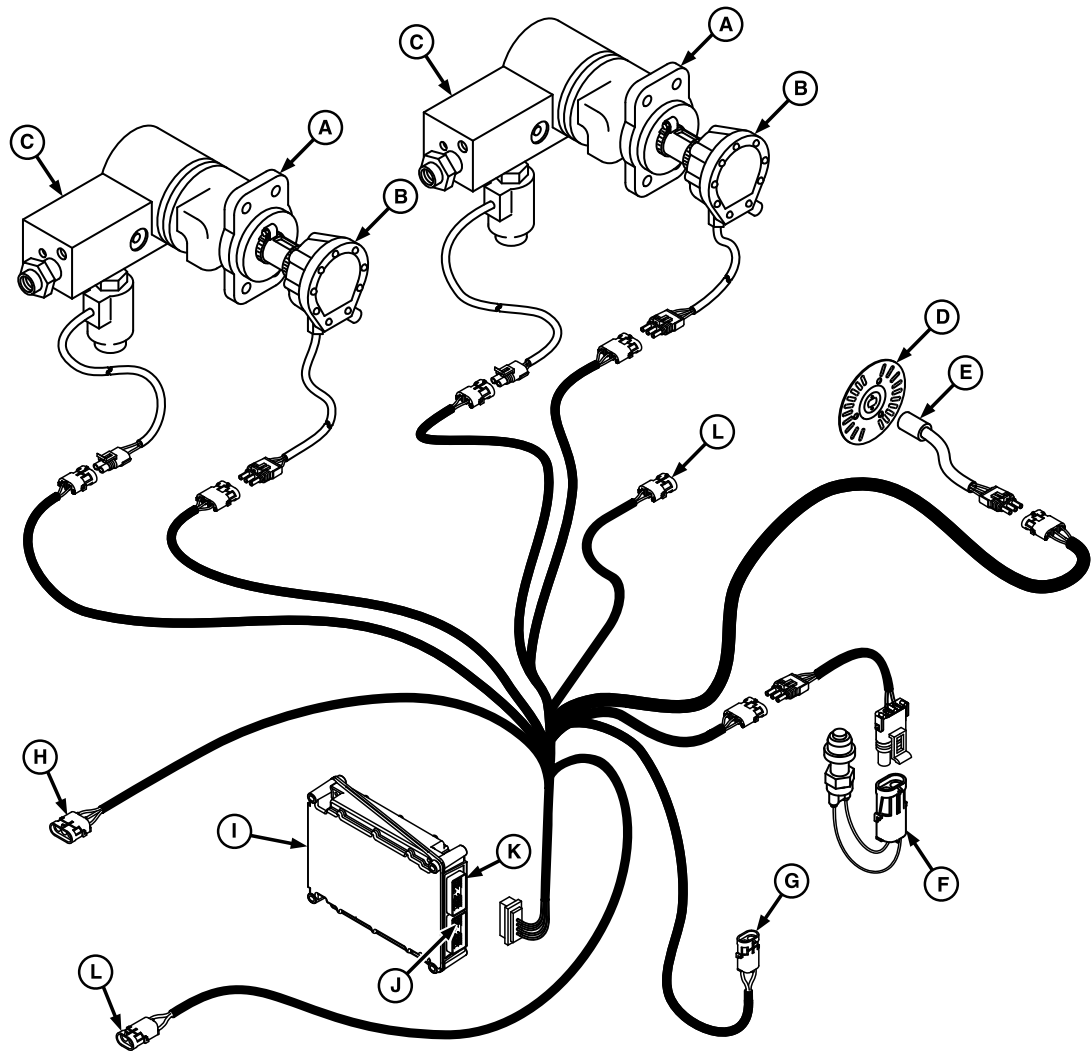
G—ECU Connector  
H—RPM Connector  
I— Wedgebox

J— Seed Monitor Connector  
K—VRD Connector  
L— Mod Power

A52536 —UN—14AUG03

OUO6074,000105F -19-23JUL08-1/1

# Dual Motor System—Integral Planters (Except 1720 16R)



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve

D—Sensor Disk  
E—Wheel Motion Sensor  
F—Height Sensor

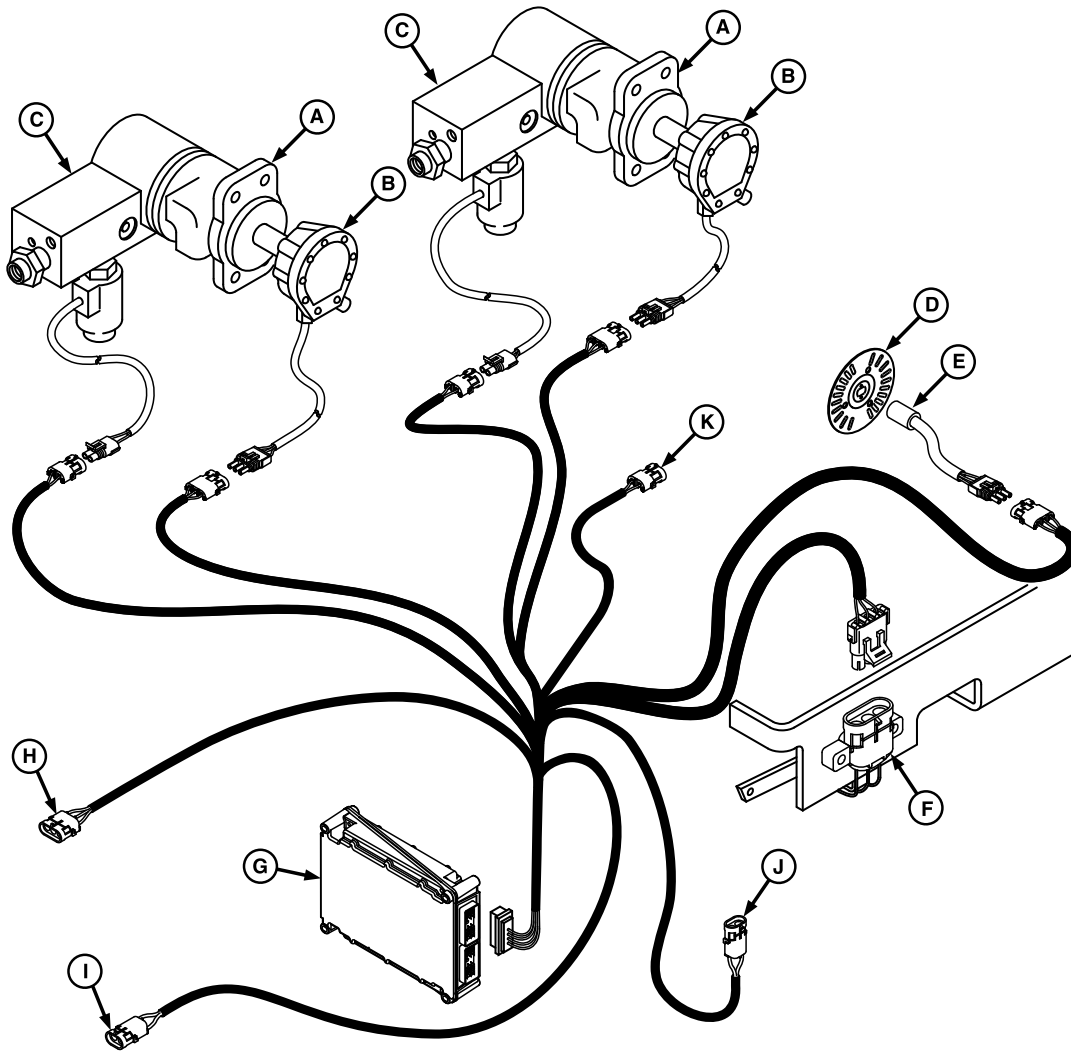
G—Mod Power  
H—RPM Connector  
I— Wedgebox

J— Seed Monitor Connector  
K—VRD Connector  
L— Right Disconnect

OUC6074,0001060 -19-10OCT07-1/1

A52538 —UN—05APR04

## Dual Motor System—Drawn Planters (And 1720 16R Integral Planter)



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve

D—Sensor Disk  
E—Wheel Motion Sensor  
F—Height Sensor

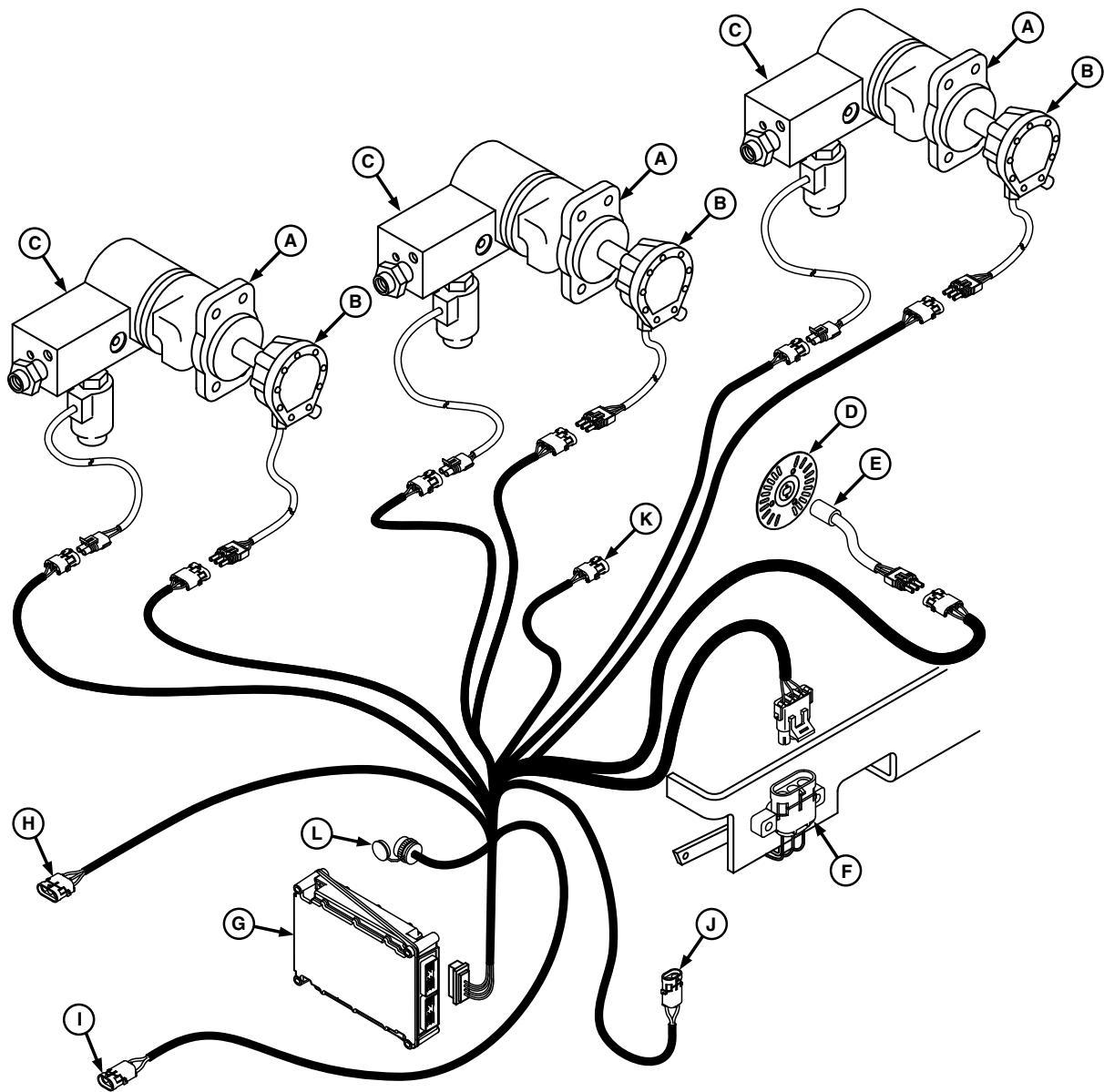
G—Seed Monitor/Variable Rate  
Drive Wedgebox  
H—RPM Connector  
I— ECU Connector

J— Mod Power  
K—Right Disconnect

A52537 —UN—05APR04

OUC6074,0001061 -19-10OCT07-1/1

### Three Motor System—1720 16RN



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve

D—Sensor Disk  
E—Wheel Motion Sensor  
F—Height Sensor

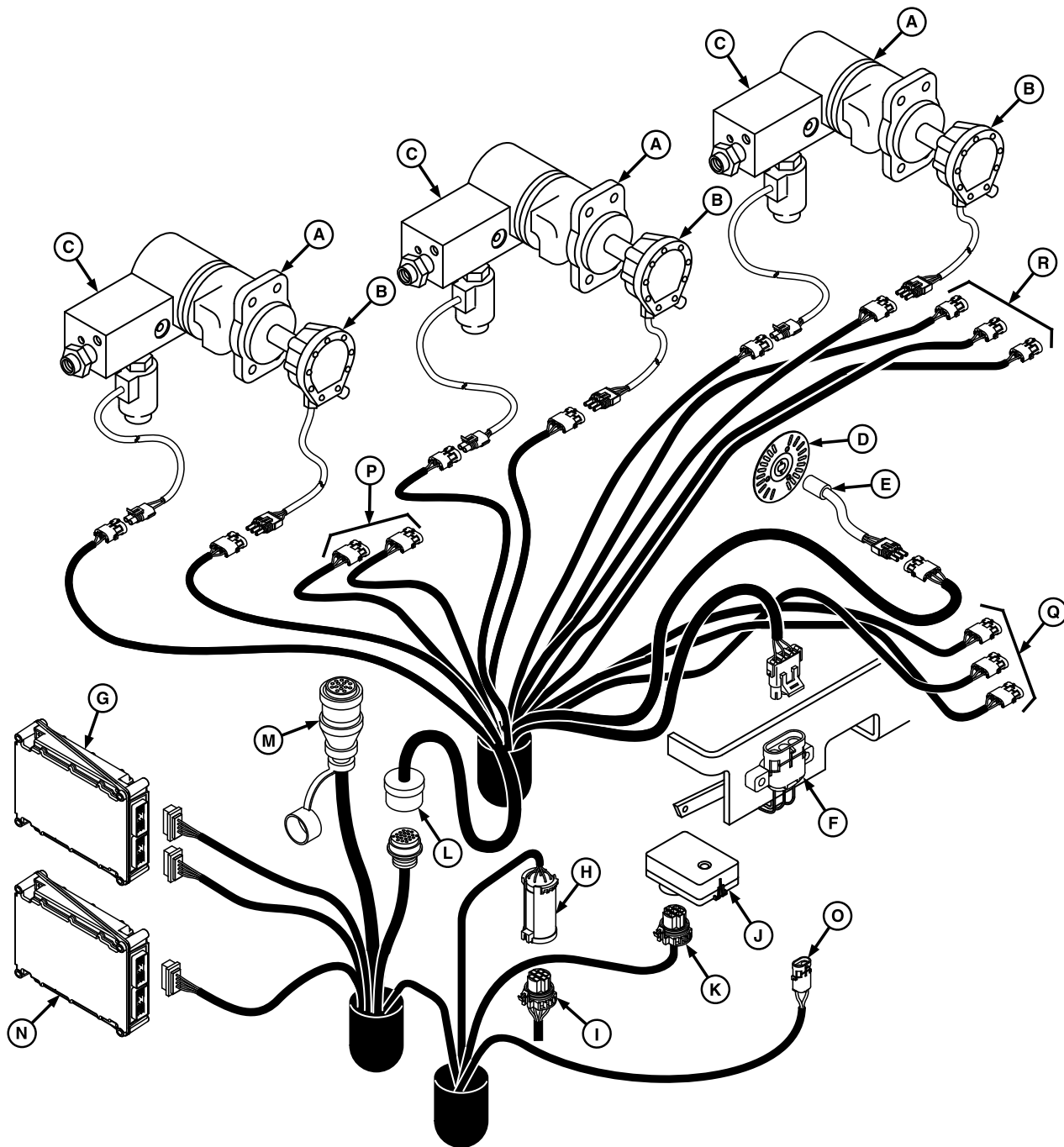
G—Mod Power  
H—RPM Connector  
I—Wedgebox

J—Seed Monitor Connector  
K—Left Clutch Jumper  
L—18-Pin Connector

OUO6074,0001062 -19-10OCT07-1/1

A58157 —UN—16JUN06

### Three Motor System—Deere/Bauer



A—Motor  
B—Speed Sensor  
C—Speed Controller Valve  
D—Sensor Disk  
E—Wheel Motion Sensor

F—Height Sensor  
G—Master Wedgebox  
H—CAN IN  
I—CAN Extension Harness  
J—Terminator

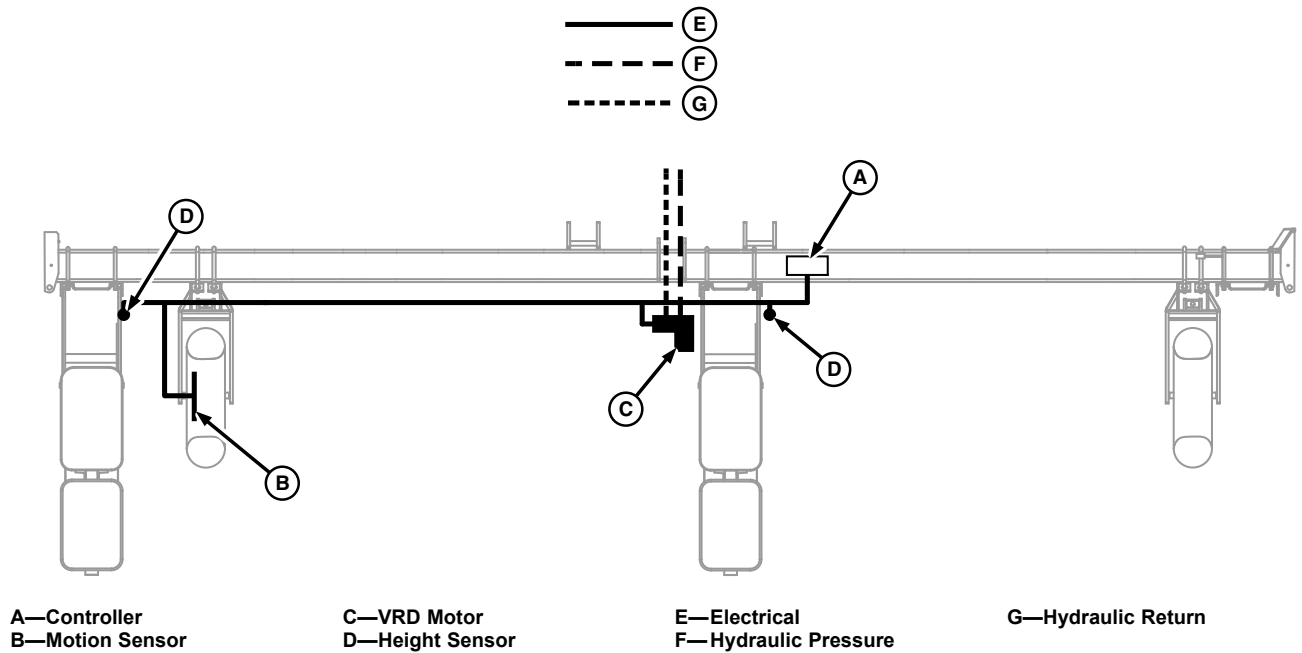
K—CAN OUT  
L—37-Pin Connector  
M—57-Pin connector  
N—Slave Wedge Box  
O—Mod Power

P—Fertilizer Pressure  
Q—Half-Width  
R—Vacuum Sensors

A52539 —UN—05APR04

OUC6074,0001063 -19-10OCT07-1/1

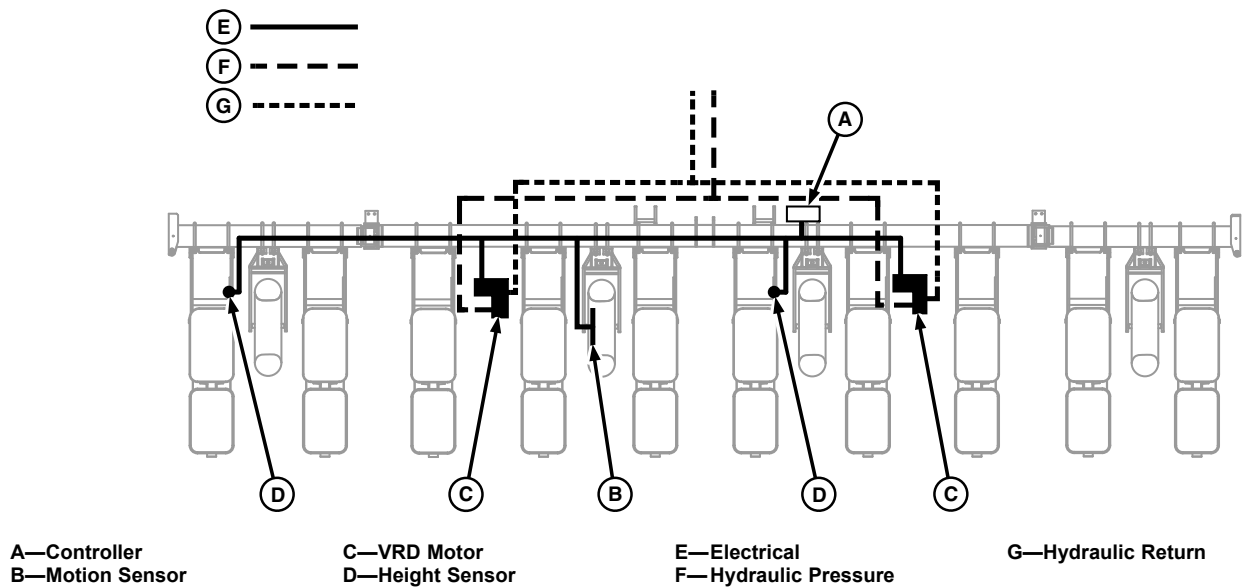
### Component Locations—1700 Planter



A61088—UN—10OCT07

OUC6074,0001049 -19-10OCT07-1/1

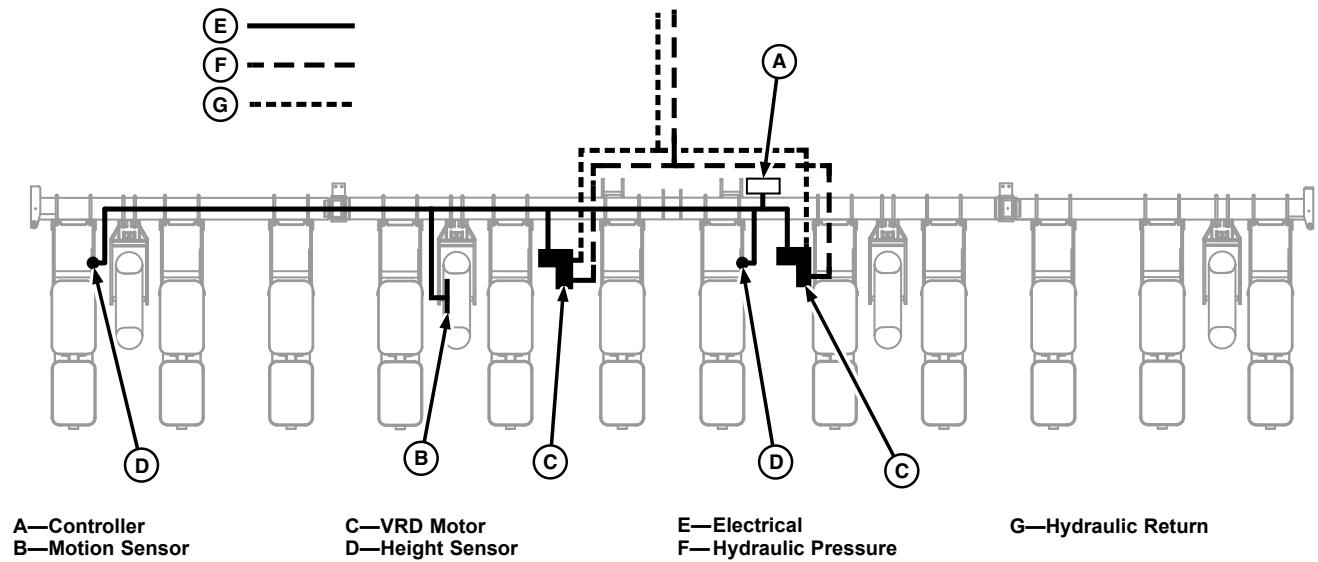
### Component Locations—1710 10 Row Planter with Dual Motors



A61070—UN—10OCT07

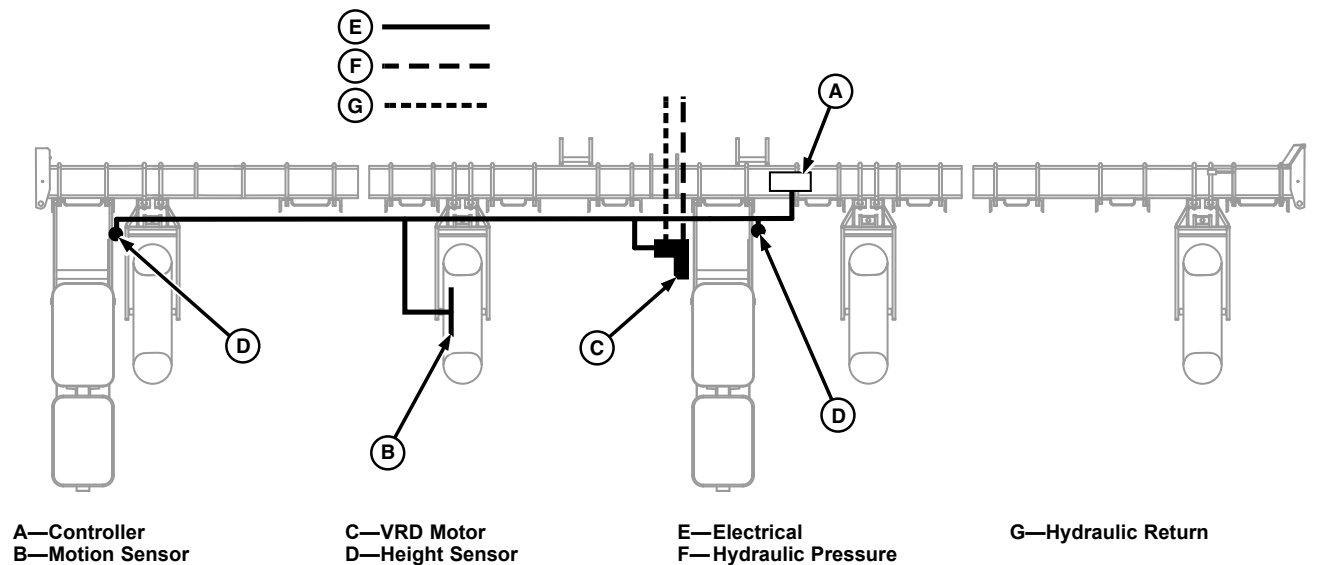
OUC6074,000104B -19-10OCT07-1/1

### Component Locations—1710 12 Row Planter with Dual Motors



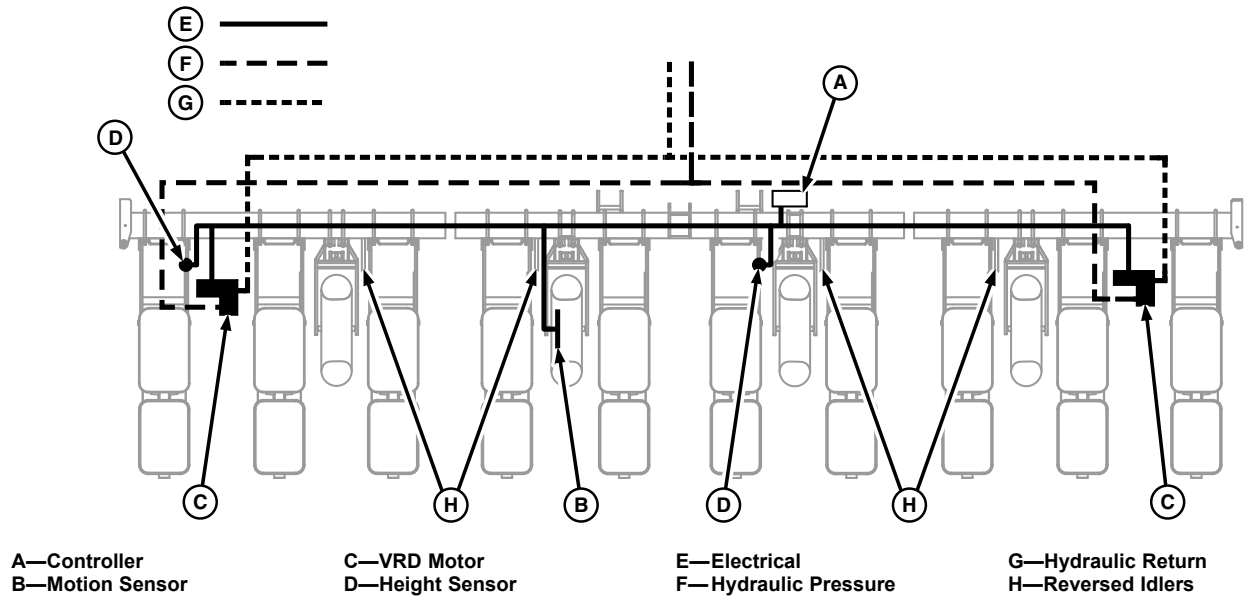
OUC6074,000104C -19-10OCT07-1/1

### Component Locations—1720 Planter with Single Motor



OUC6074,000104D -19-10OCT07-1/1

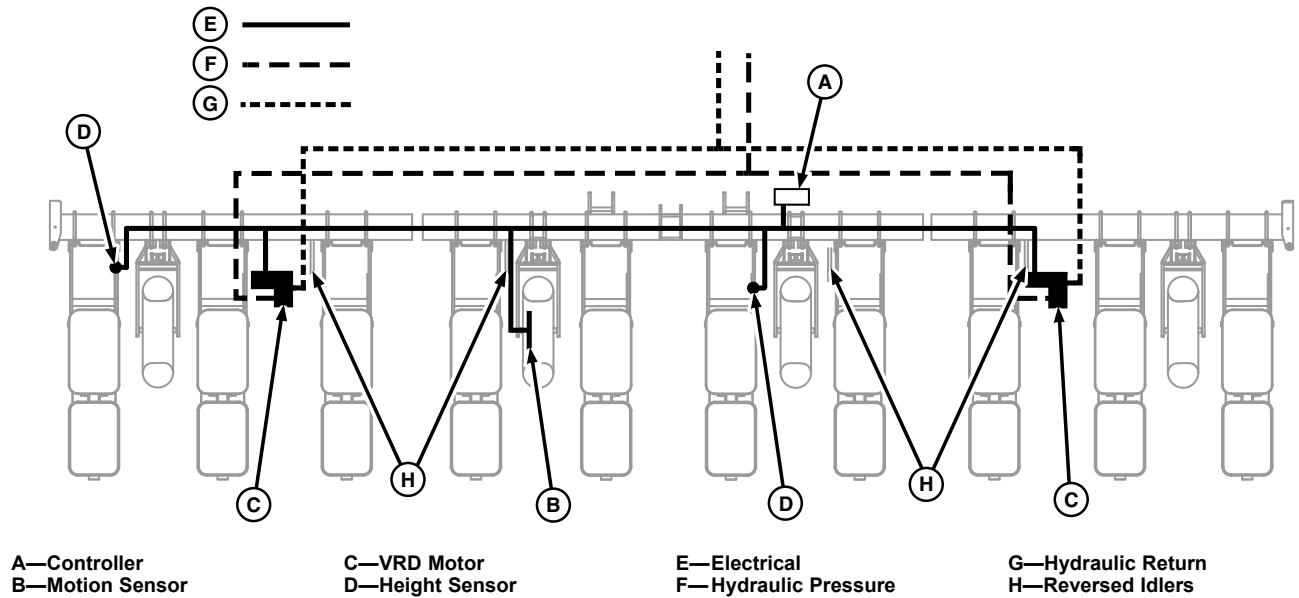
### Component Locations—1720 10 Row 91 cm (36 in.) Planters with Dual Motors



OUO6074,000104E -19-10OCT07-1/1

A61073 —UN—10OCT07

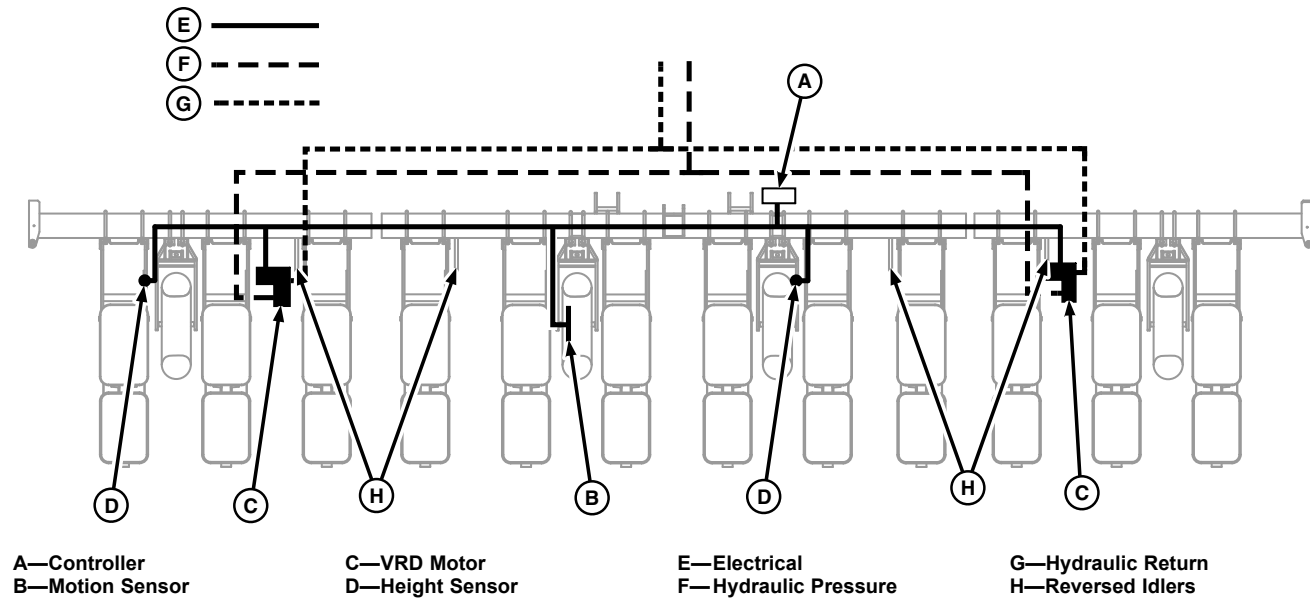
### Component Locations—1720 10 Row 97 and 102 cm (38 and 40 in.) Planters with Dual Motors



OUO6074,000104F -19-10OCT07-1/1

A61074 —UN—10OCT07

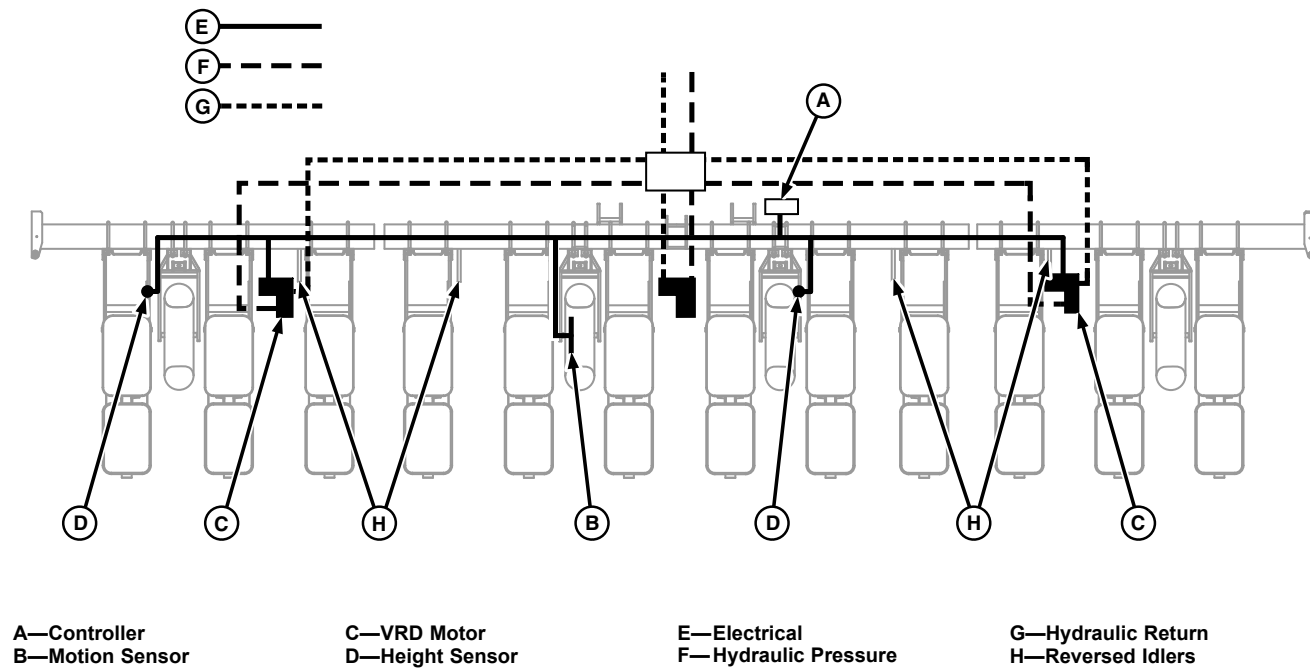
### Component Locations—1720 12 Row Planters with Dual Motors



A61075—UN—10OCT07

OUC6074,0001048 -19-10OCT07-1/1

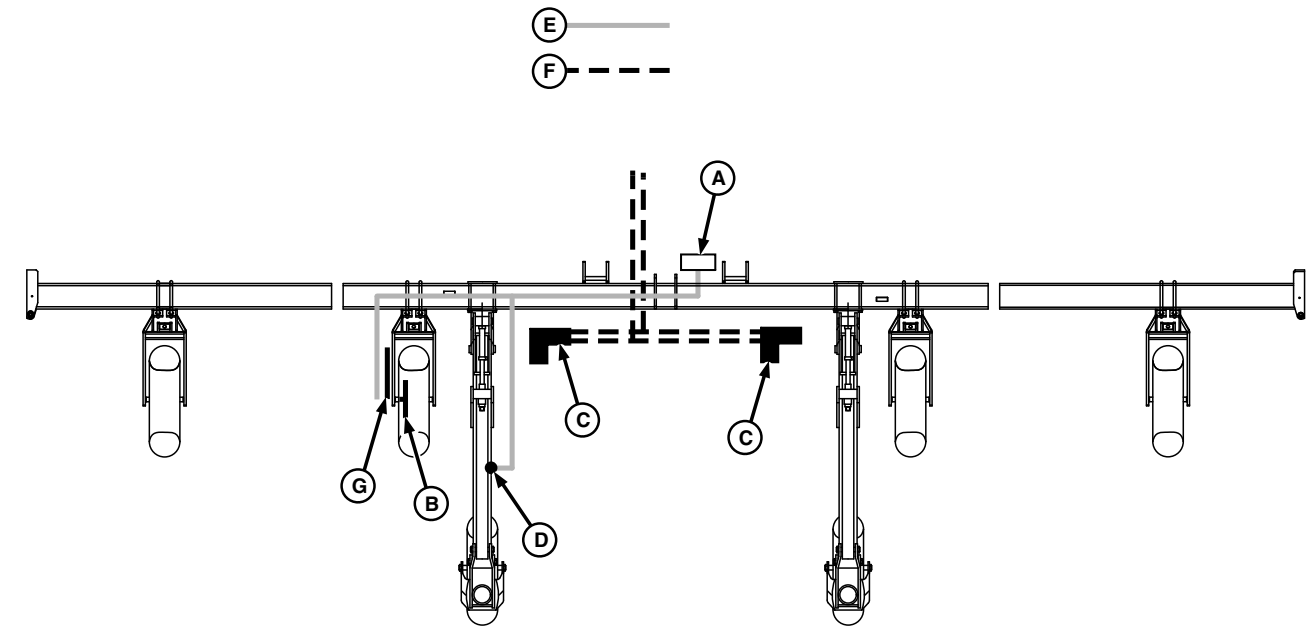
### Component Locations—1720 12 Row Planters with Three Motors



A61076—UN—11OCT07

OUC6074,0001050 -19-10OCT07-1/1

Component Locations—1720 16 Row Planter with Dual Motors



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

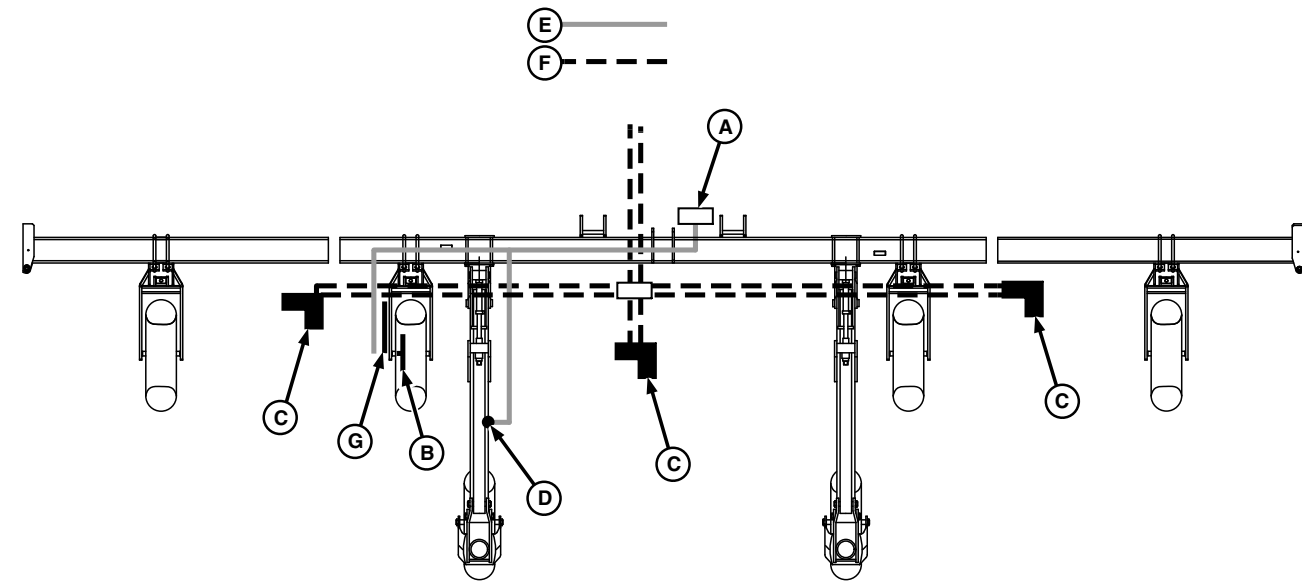
E—Electrical  
F—Hydraulic

G—Shield

A61077 —UN—11OCT07

OUC6074,0001051 -19-10OCT07-1/1

## Component Locations—1720 16 Row Planter with Three Motors



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

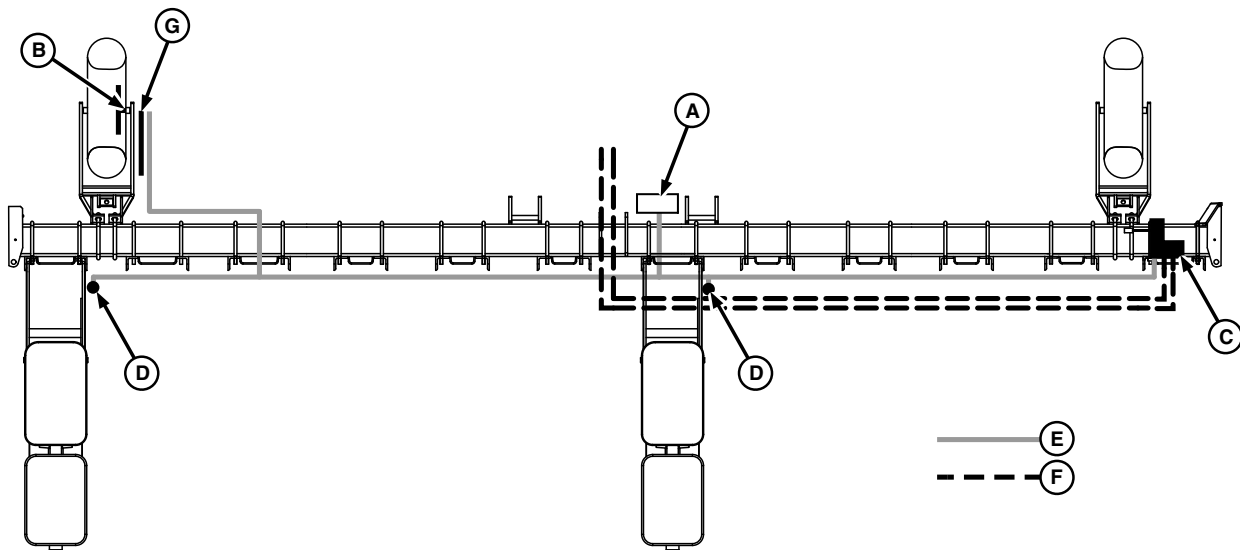
E—Electrical  
F—Hydraulic

G—Shield

A61078 —UN—11OCT07

OUC6074,0001052 -19-10OCT07-1/1

## Component Locations—1730 Planter



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

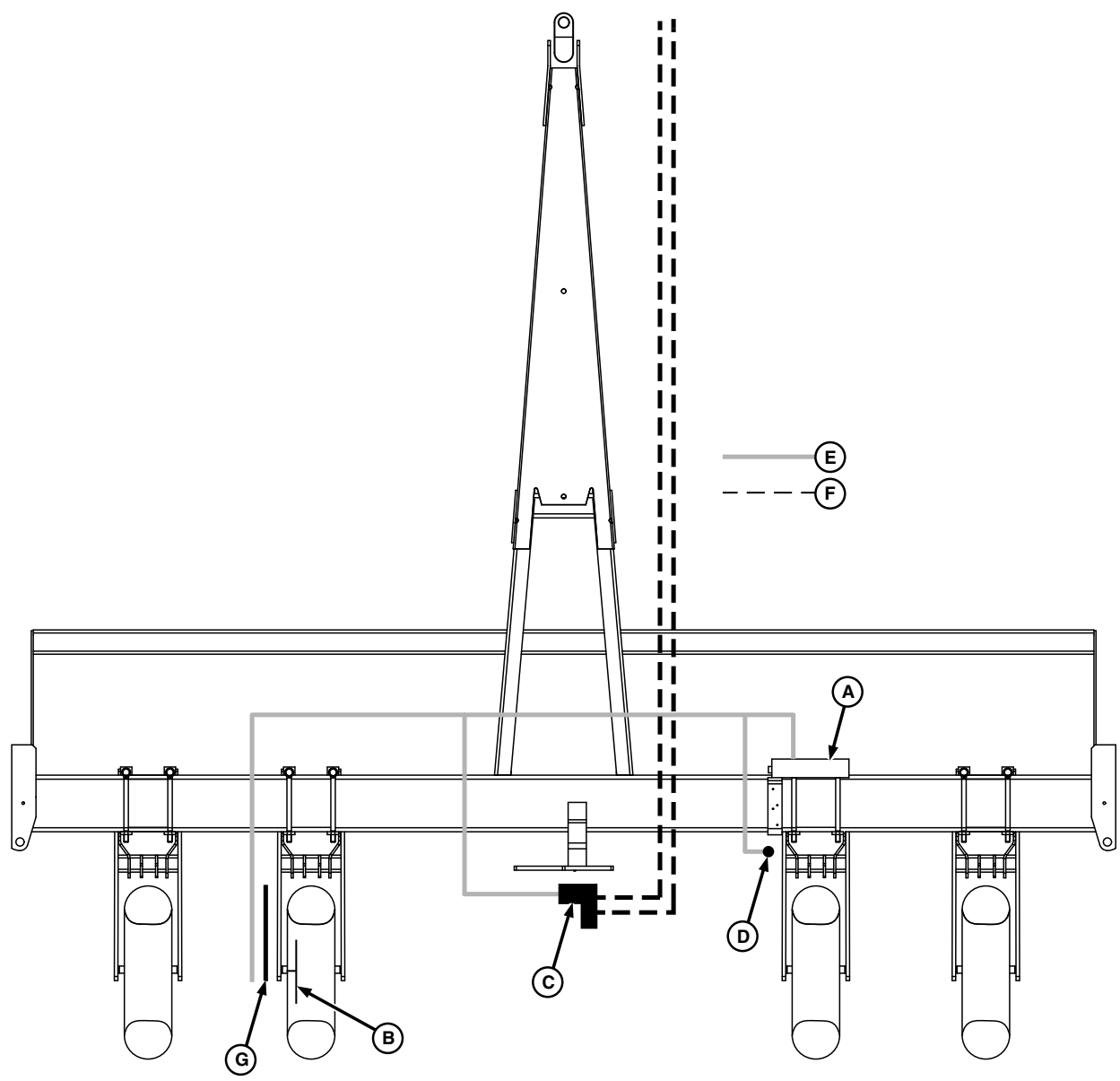
E—Electrical  
F—Hydraulic

G—Shield

A61079 —UN—11OCT07

OUC6074,0001053 -19-10OCT07-1/1

Component Locations—1750 Conservation Planter



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

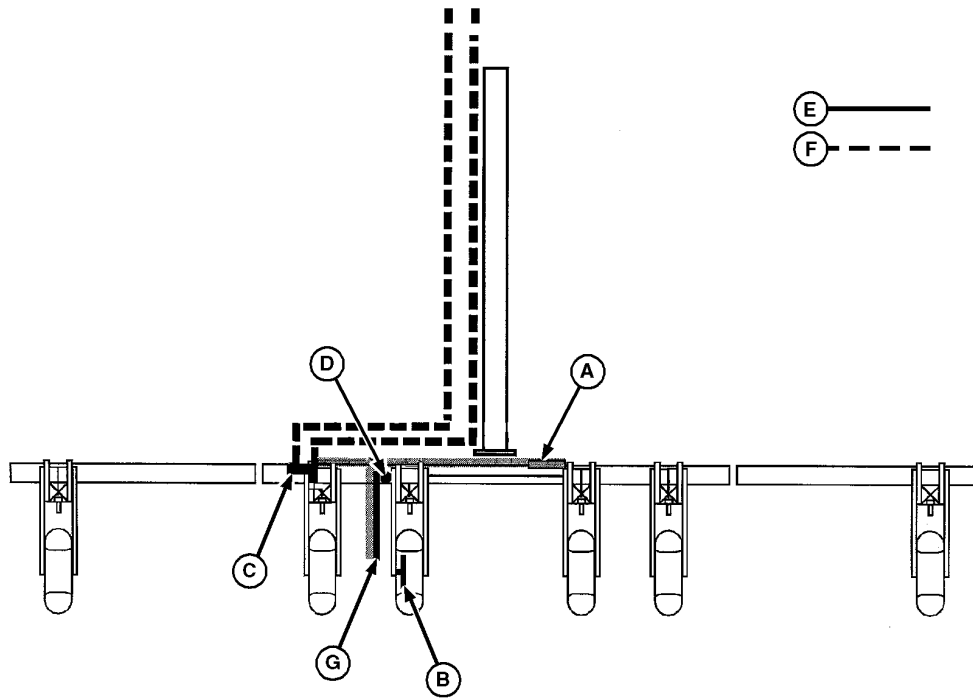
E—Electrical  
F—Hydraulic

G—Shield

A61080 —UN—11OCT07

OUC6074,0001054 -19-10OCT07-1/1

## Component Locations—1760/1760NT Planters with Single Motor



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

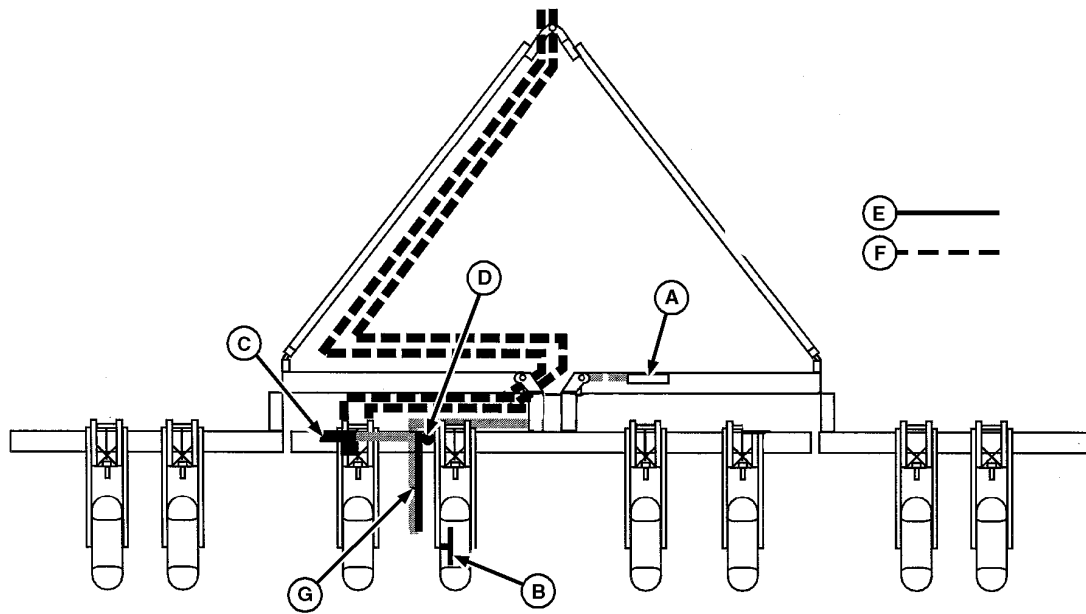
E—Electrical  
F—Hydraulic

G—Shield

OUC6074,0001055 -19-10OCT07-1/1

AG1081 —UN—11OCT07

# Component Locations—1770 12RN Planters with Single Motor



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

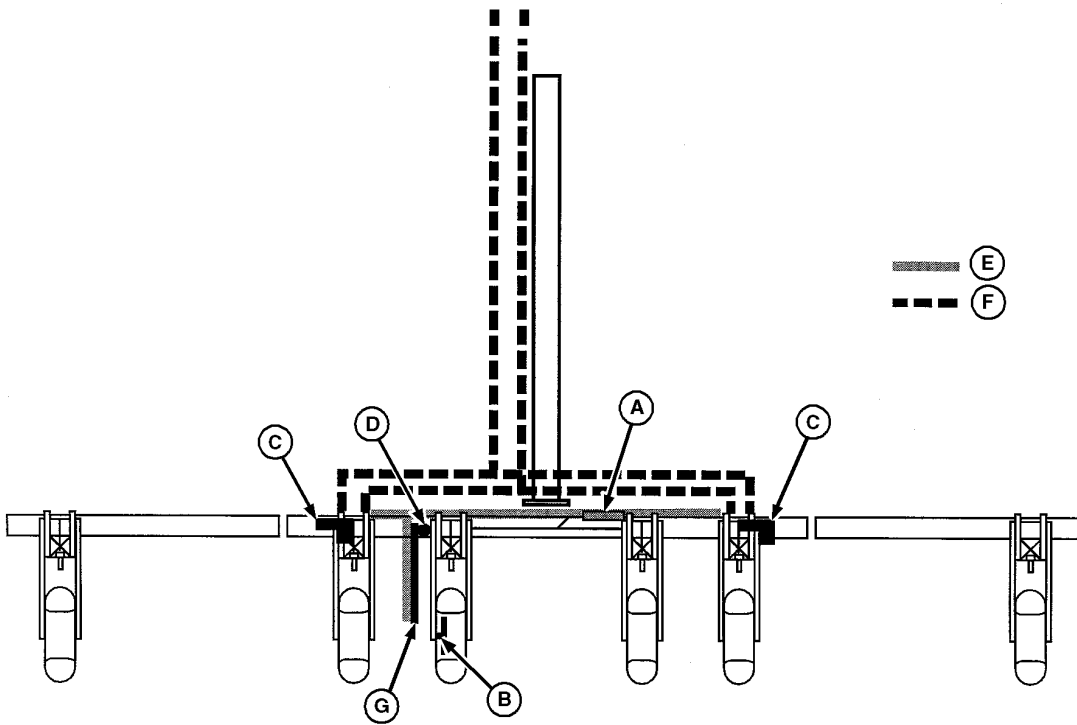
E—Electrical  
F—Hydraulic

G—Shield

OUO6074,0001056 -19-10OCT07-1/1

A61082 —UN—11OCT07

# Component Locations—1760/1760NT Planters with Dual Motors



A61083—UN—10OCT07

A—Controller  
B—Motion Sensor

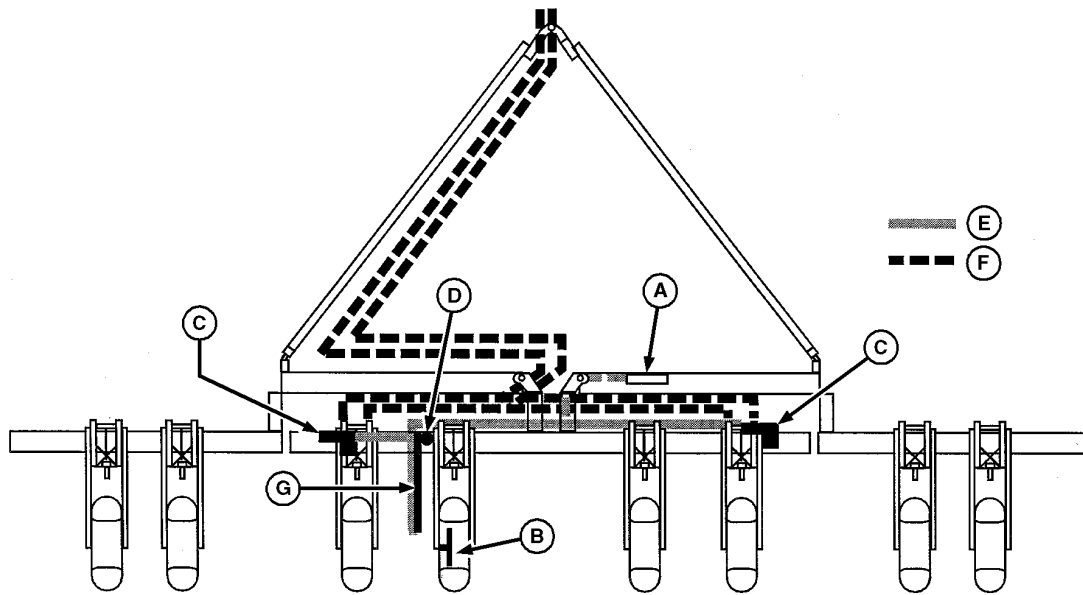
C—VRD Motor  
D—Height Sensor

E—Electrical  
F—Hydraulic

G—Shield

OUC6074,0001064 -19-10OCT07-1/1

# Component Locations—1770 12RN Planters with Dual Motors



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

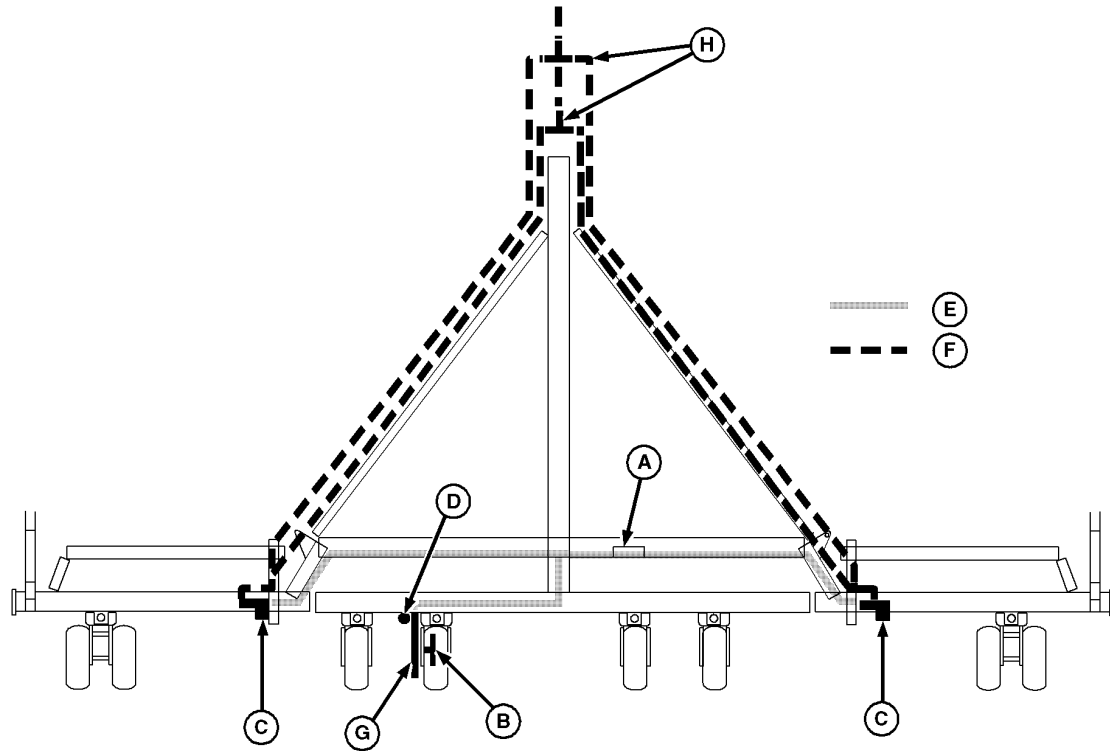
E—Electrical  
F—Hydraulic

G—Shield

OUO6074,0001065 -19-10OCT07-1/1

A61084 —UN—10OCT07

## Component Locations—1770 12 Row Wide



A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

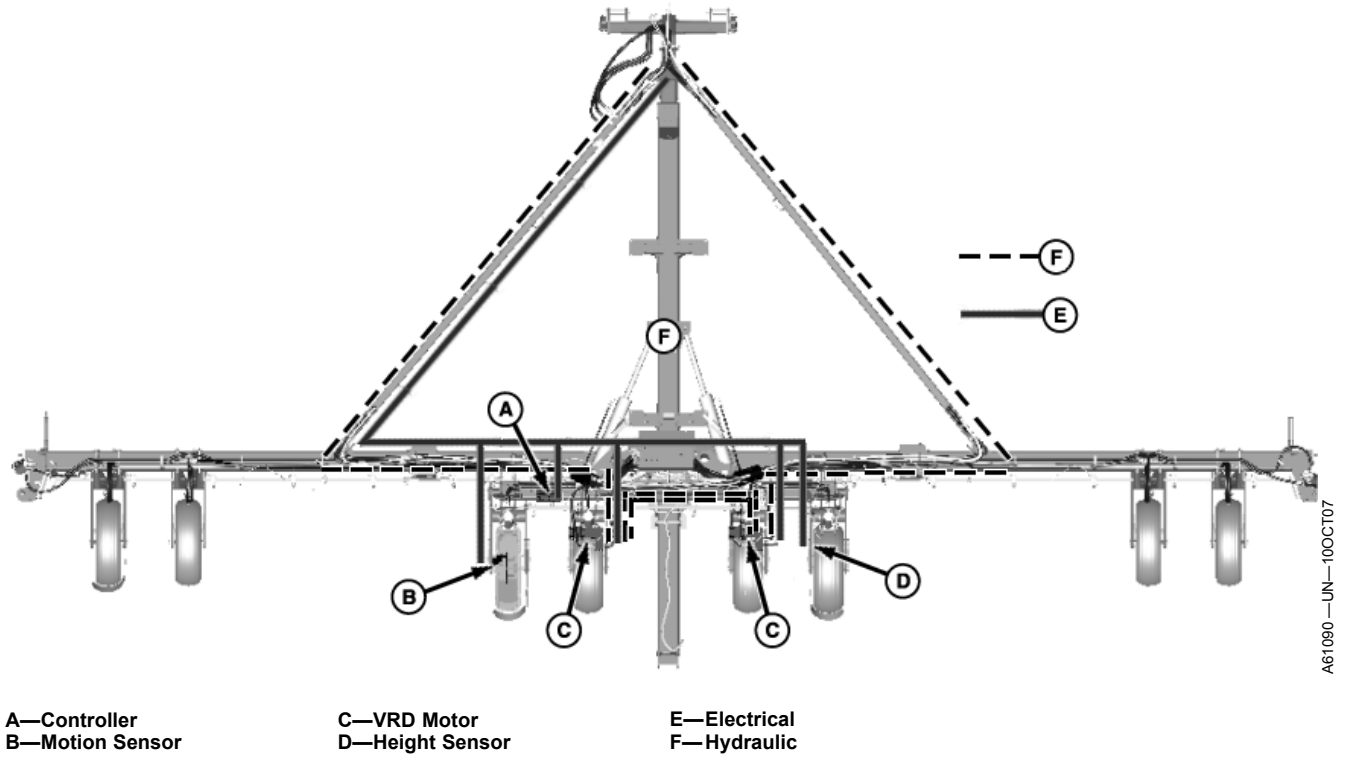
E—Electrical  
F—Hydraulic

G—Shield

A61086—UN—11OCT07

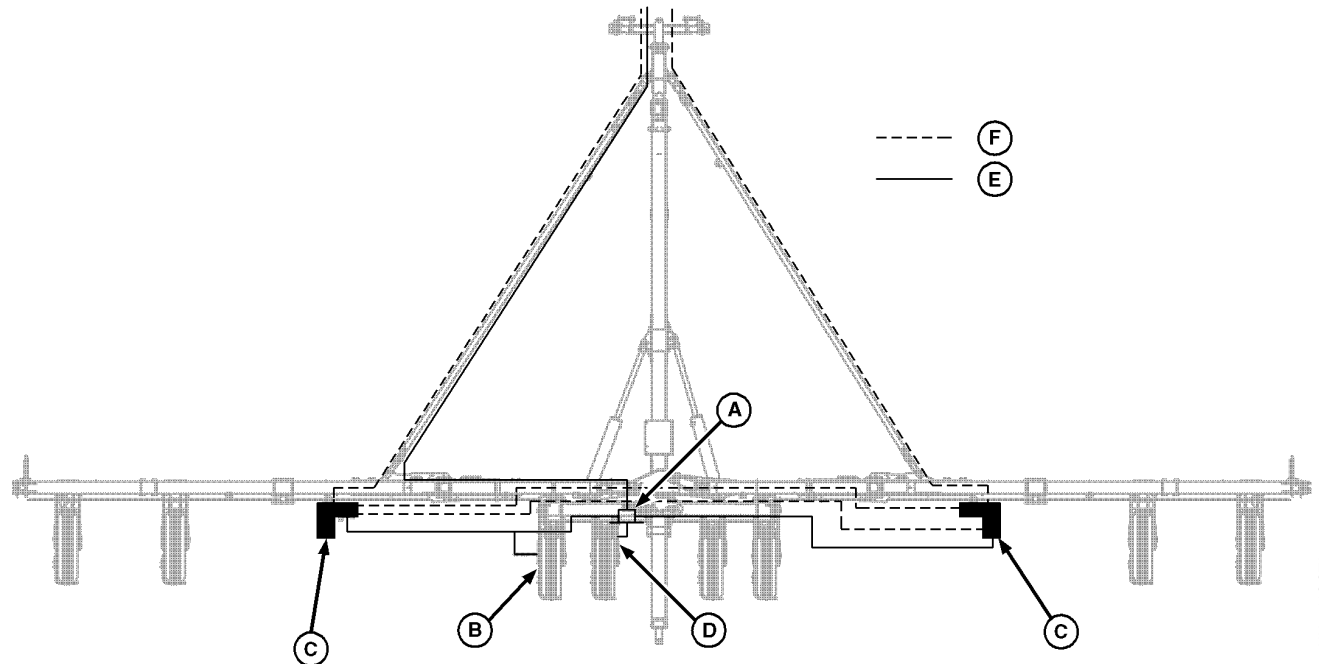
OUC6074,0001057 -19-10OCT07-1/1

## Component Locations—1770NT 12 Row and 16 Row



OUC6074,0001058 -19-10OCT07-1/1

## Component Locations—1770NT 24 Row



A—Controller  
B—Motion Sensor

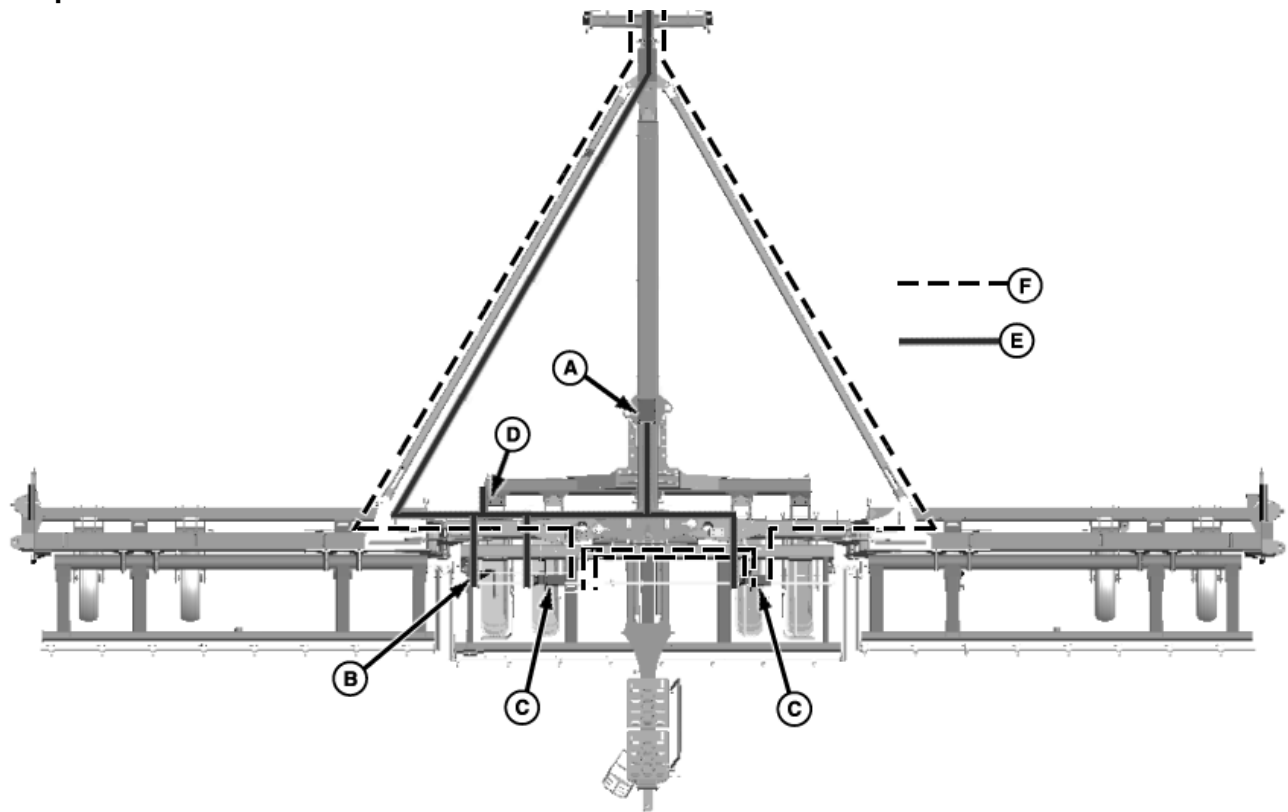
C—VRD Motor  
D—Height Sensor

E—Electrical  
F—Hydraulic

A61085—UN—11OCT07

OUC6074,0001059 -19-10OCT07-1/1

Component Locations—1790 24R20



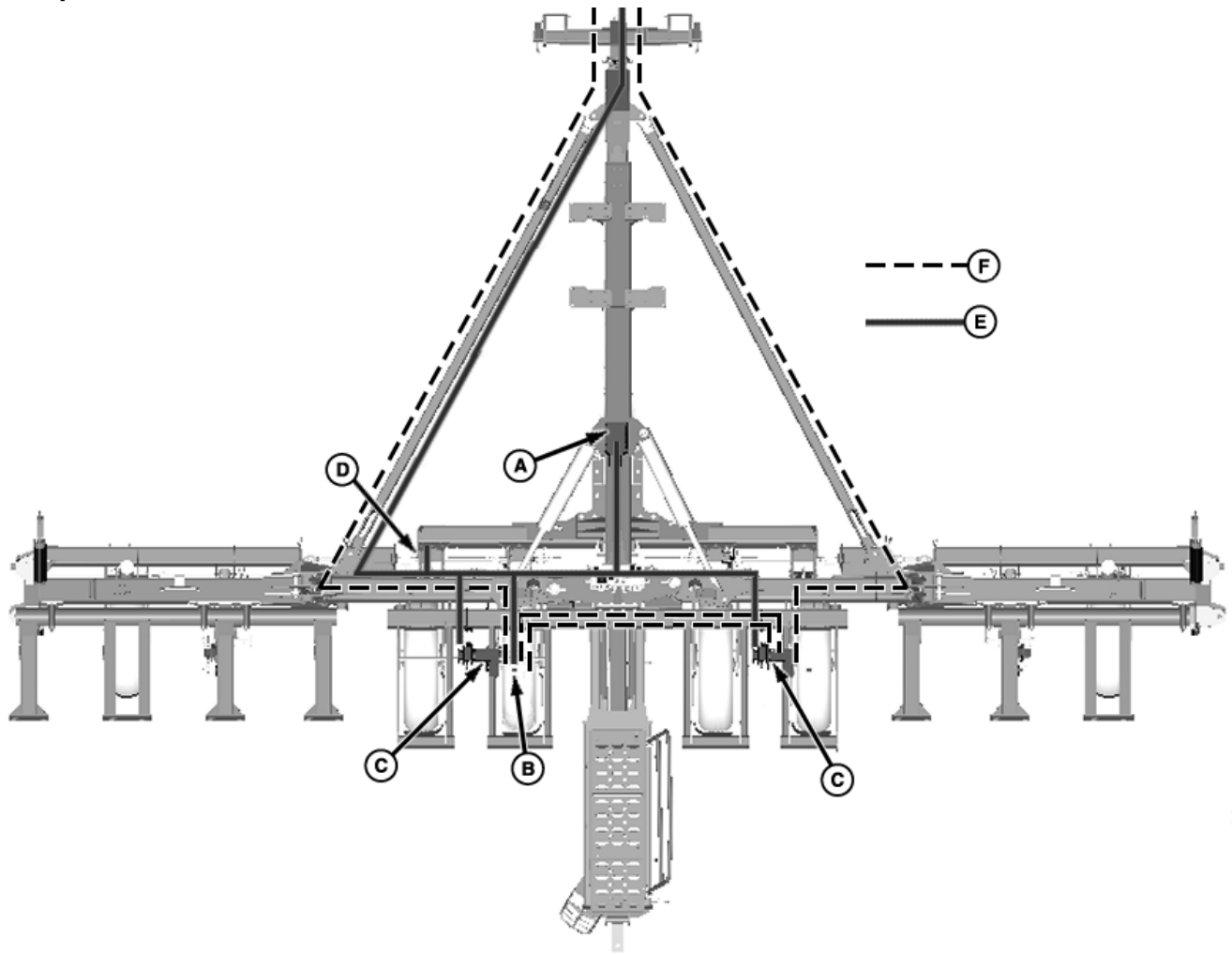
A—Controller  
B—Motion Sensor

C—VRD Motor  
D—Height Sensor

E—Electrical  
F—Hydraulic

OUC6074,000105A -19-10OCT07-1/1

# Component Locations—1790 23/24 Row 15



A—Controller  
B—Motion Sensor

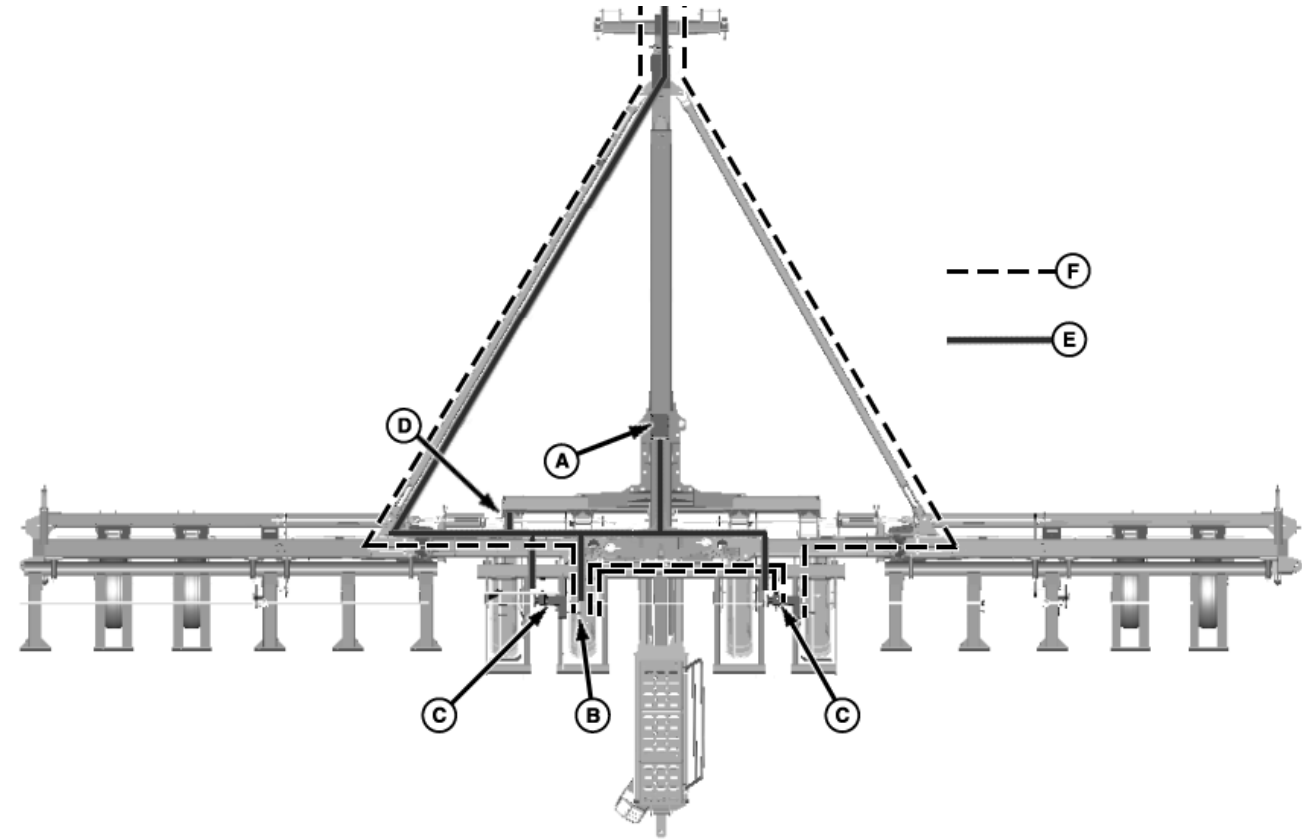
C—VRD Motor  
D—Height Sensor

E—Electrical  
F—Hydraulic

A61092 —UN—10OCT07

OUO6074,000105B -19-10OCT07-1/1

Component Locations—1790 31/32 Row 15



A—Controller  
B—Motion Sensor

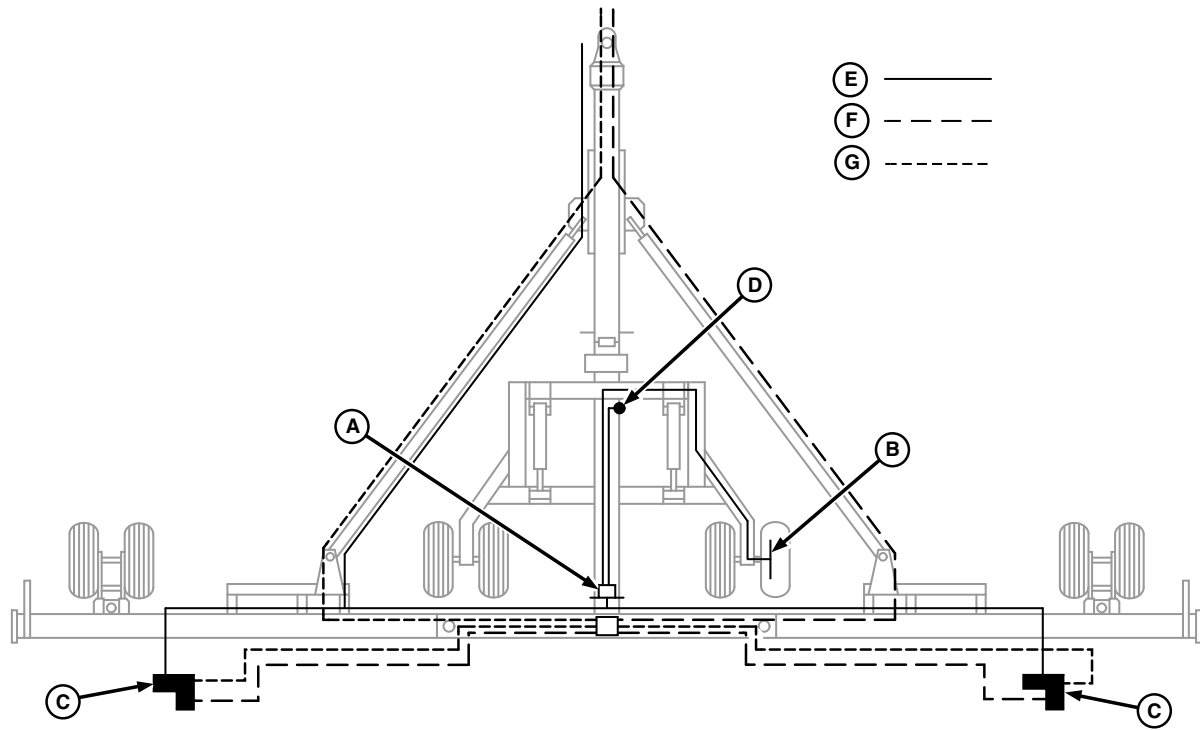
C—VRD Motor  
D—Height Sensor

E—Electrical  
F—Hydraulic

A61093 —UN—10OCT07

OOU6074,000105C -19-10OCT07-1/1

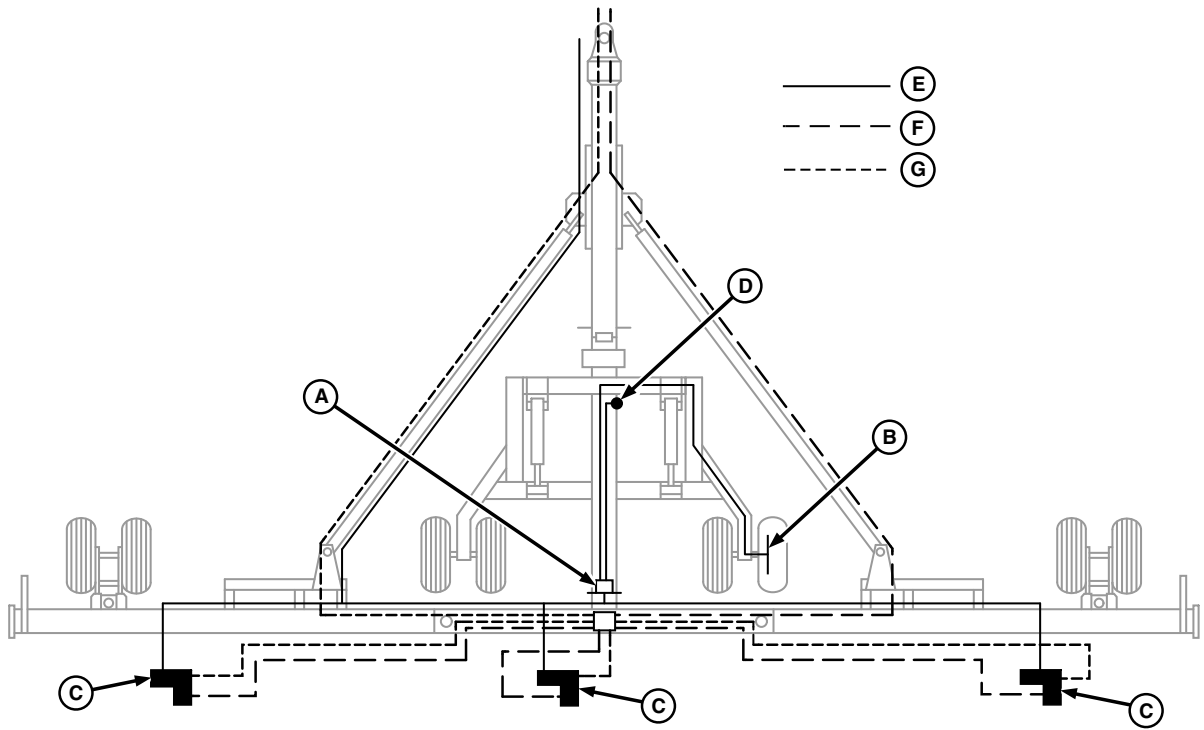
## Component Locations—Deere/Bauer with Dual Motors



A61088 —UN—11OCT07

OUO6074,000105D -19-10OCT07-1/1

**Component Locations—Deere/Bauer with Three Motors**



A61087 —UN—11OCT07

OUO6074,0001066 -19-10OCT07-1/1

# Attach and Detach Variable Rate Drive

## Use Your Tractor and Machine Operator's Manuals

Always refer to YOUR tractor and machine Operator's Manuals for specific attaching and detaching information.



TS190 —UN—17JAN89

OUC6074,0000580 -19-09AUG02-1/1

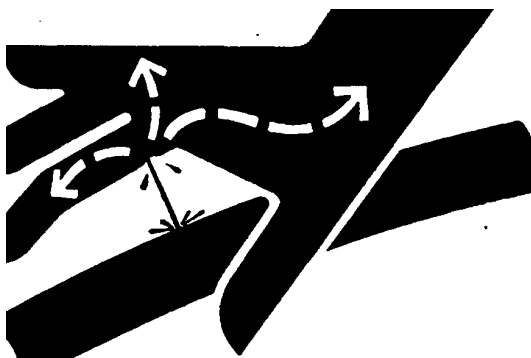
## Making Proper Hose Connections

**CAUTION:** 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 to avoid gangrene. Doctors unfamiliar with this type of injury must reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

**CAUTION:** Hydraulic hoses can fail due to physical damage, kinks, age, and exposure. Check hoses regularly. Replace damaged hoses.

**IMPORTANT:** All hydraulic couplers must be clear of debris, dust, and sand. Use protective



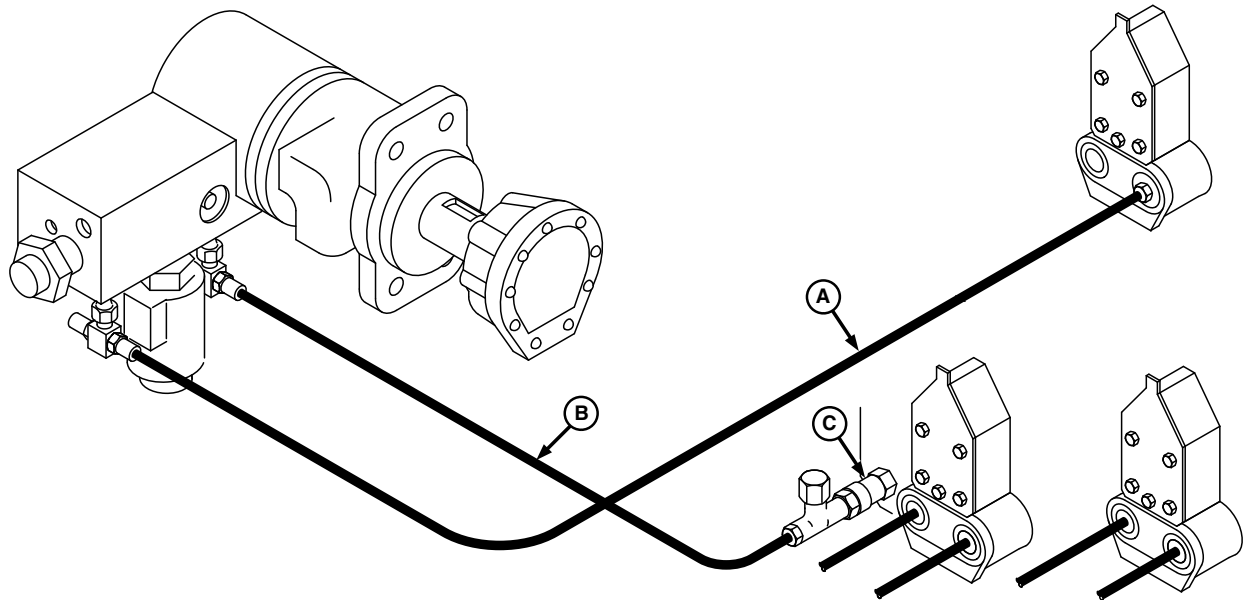
X9811 —UN—23AUG88

caps on fluid openings until ready to make connection. Foreign material can damage the hydraulic system.

VRD system is equipped with a check valve to prevent the VRD motors from turning backwards and damaging the meters and drive components. If VRD fails to operate, check hydraulic connections and SCV position.

OUC6074,0000581 -19-24JUL08-1/1

### 30—40 Series Tractors Without Power Beyond—Single Motor



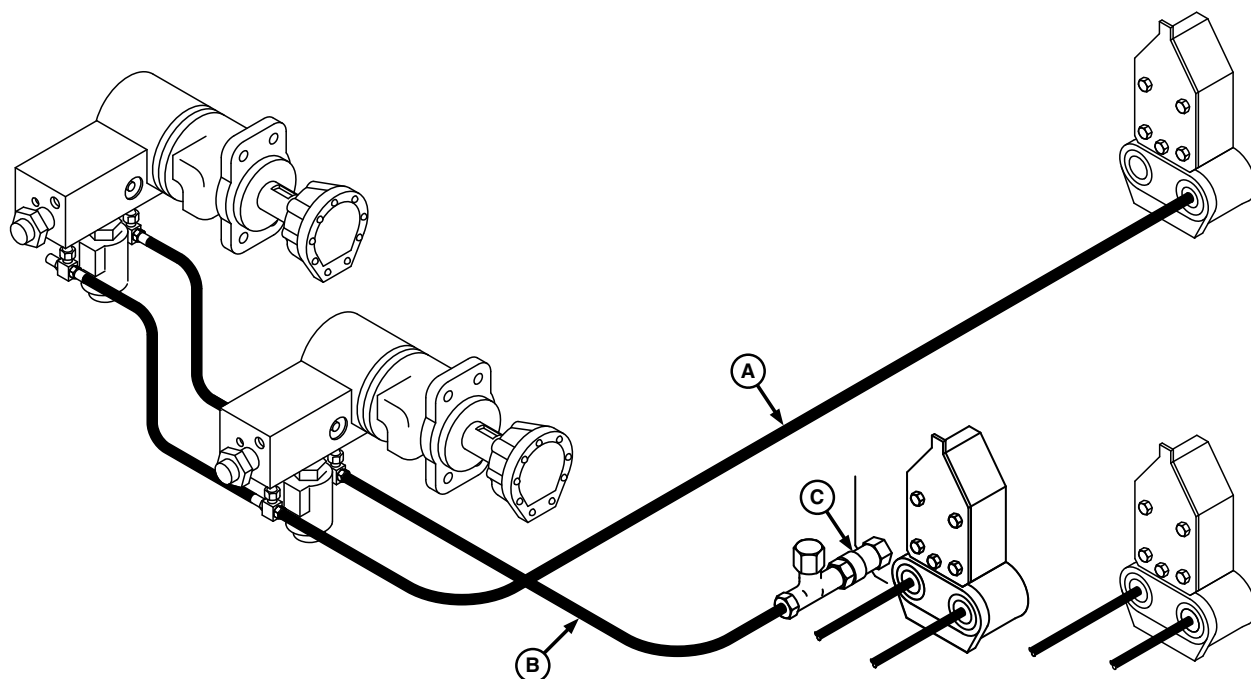
**A—Variable Drive Pressure Hose   B—Variable Drive Return Hose   C—Auxiliary Return Port**

1. Attach variable drive pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach variable drive return hose (B) into auxiliary return port (C).

OUC6074,0000582 -19-09AUG02-1/1

A48279 —UN—12NOV01

### 30—40 Series Tractors Without Power Beyond—Dual Motor



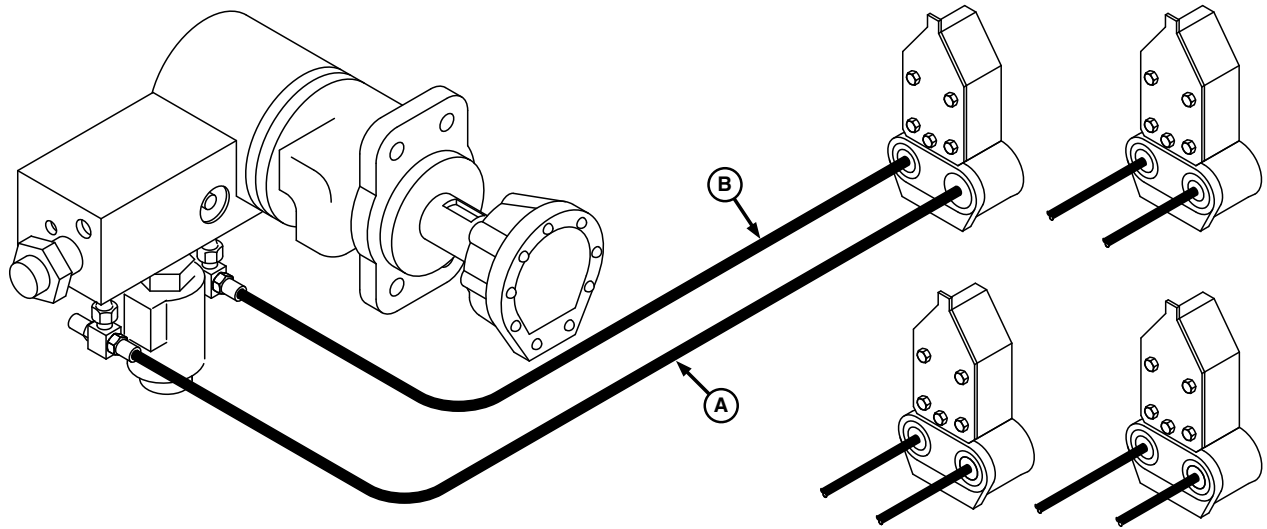
A—Variable Drive Pressure Hose B—Variable Drive Return Hose C—Auxiliary Return Port

1. Attach variable drive pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach variable drive return hose (B) into auxiliary return port (C).

A47217 —UN—26MAR01

OUC6074,0000583 -19-09AUG02-1/1

**50—70 Series Tractors Without Power  
Beyond—Single Motor**



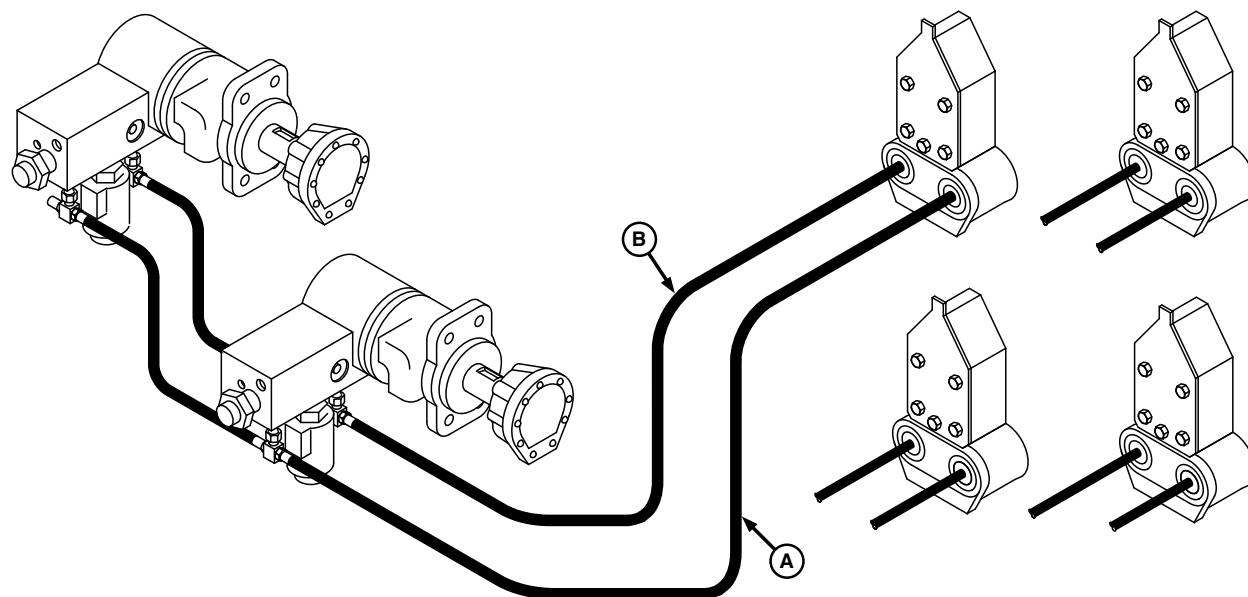
**A—Variable Drive Pressure Hose B—Variable Drive Return Hose**

1. Attach variable drive pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach variable drive return hose (B) from variable rate motor to left-hand (cylinder extend) side of SCV.

OUO6074,0000584 -19-09AUG02-1/1

A47215—UN—26MAR01

# **50—70 Series Tractors Without Power Beyond—Dual Motor**



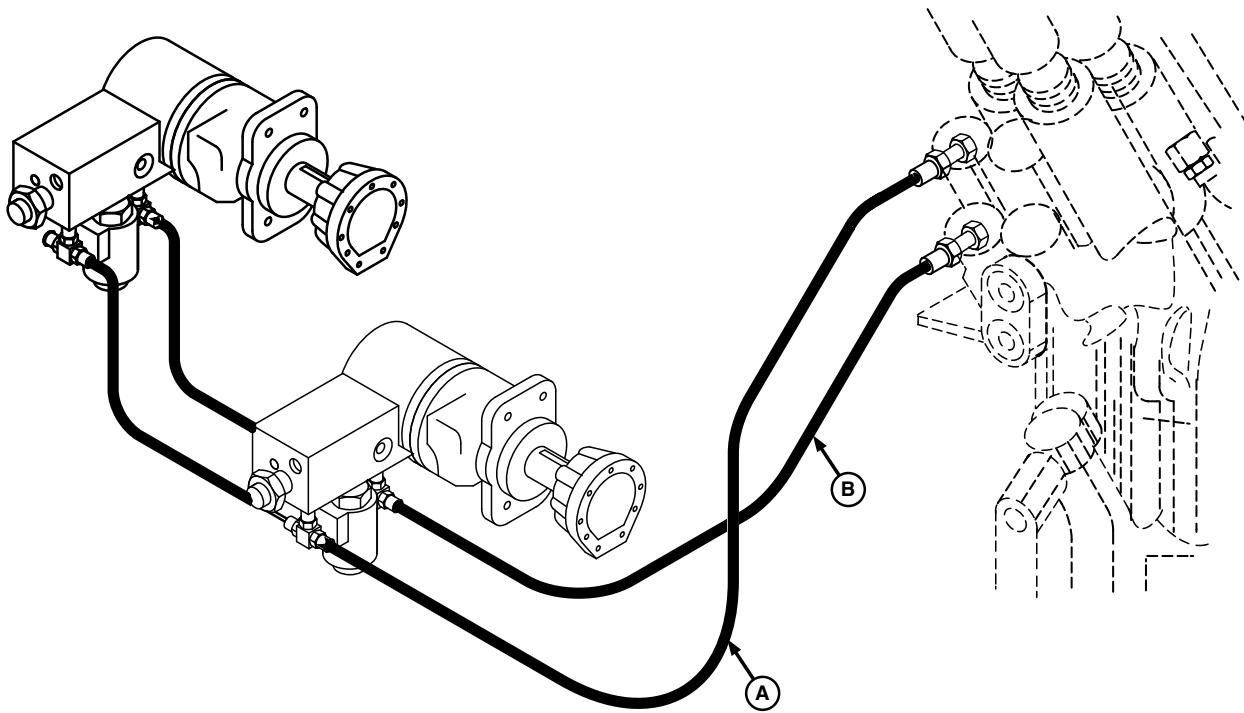
**A—Variable Drive Pressure Hose B—Variable Drive Return Hose**

1. Attach variable drive pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach variable drive return hose (B) from variable rate motor to left-hand (cylinder extend) side of SCV.

OUC6074,0000585 -19-09AUG02-1/1

A47216 —UN—26MAR01

**6000 Series Tractors Without Power  
Beyond—Single Motor**



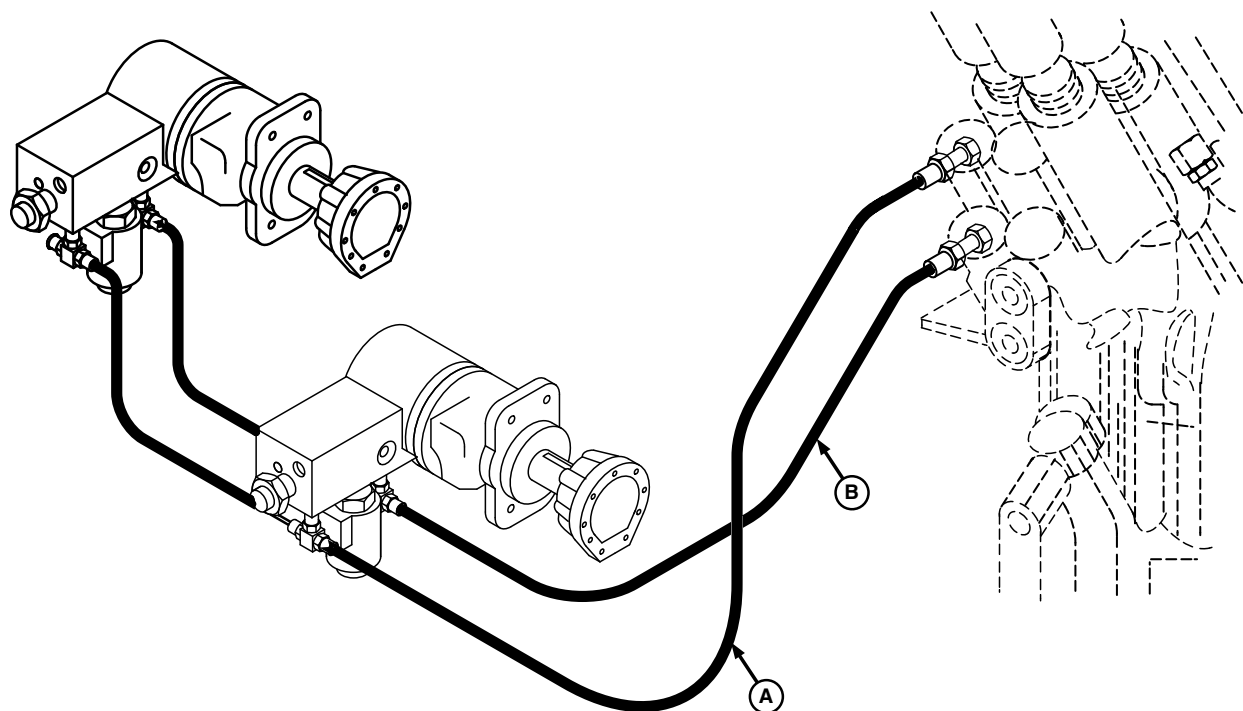
**A—Variable Drive Pressure Hose    B—Variable Drive Return Hose**

1. Attach variable drive pressure hose (A) from variable rate motor to top (cylinder retract) port of SCV.
2. Attach variable drive return hose (B) from variable rate motor to bottom (cylinder extend) port of SCV.

OUO6074,0000586 -19-09AUG02-1/1

A47212—UN—28MAR01

## 6000 Series Tractors Without Power Beyond—Dual Motor



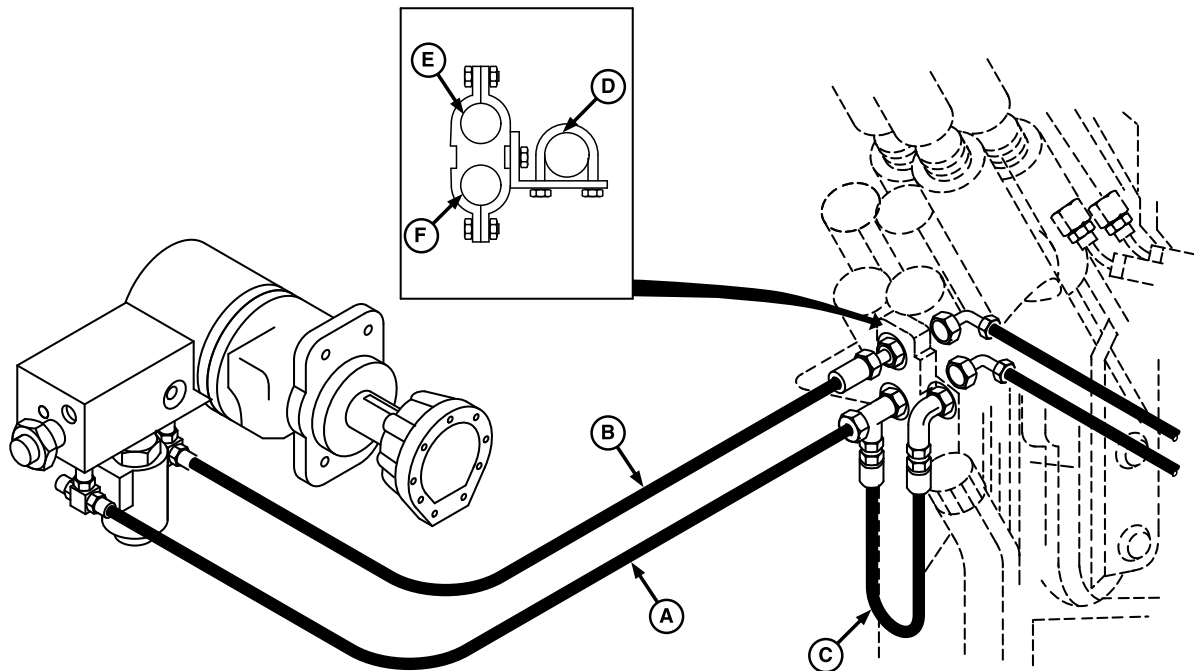
A—Variable Drive Pressure Hose B—Variable Drive Return Hose

1. Attach pressure hose (A) from variable rate motor to top (cylinder retract) port of SCV.
2. Attach return hose (B) from variable rate motor to bottom (cylinder extend) port of SCV.

OUO6074,0000587 -19-09AUG02-1/1

A47213—UN—26MAR01

## 6000 Series Tractors With Power Beyond Load Sense—Single Motor



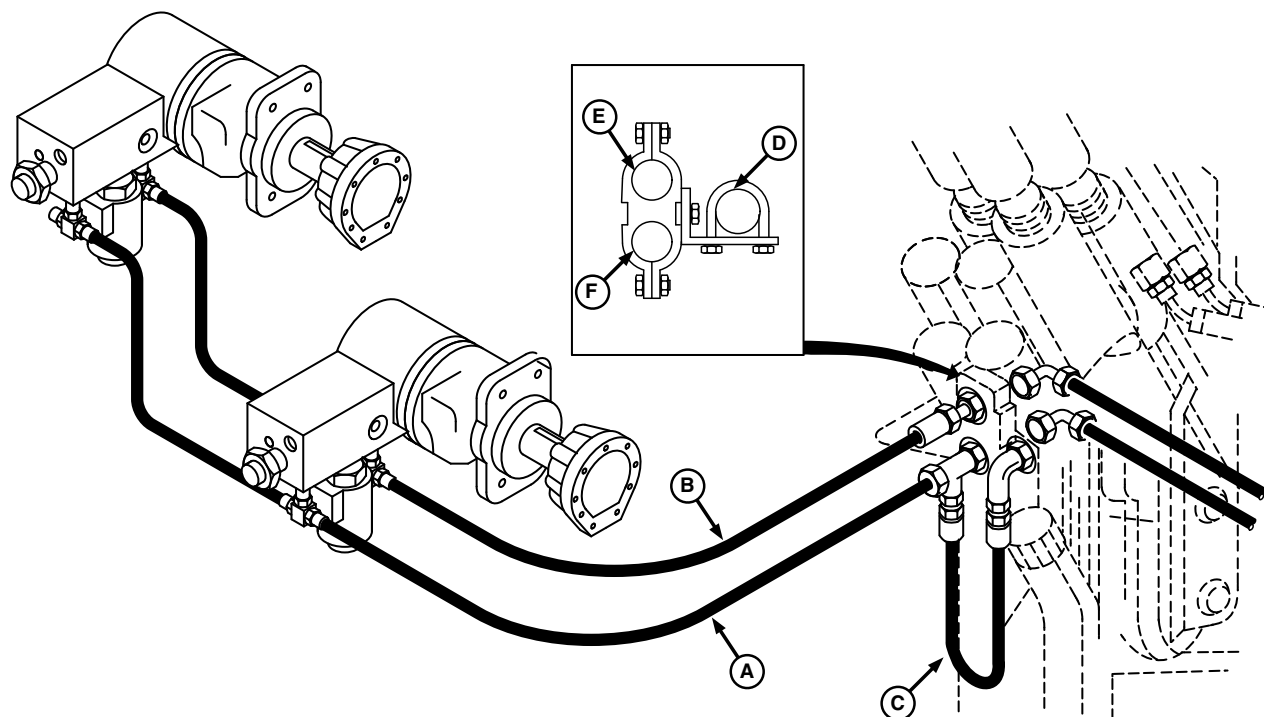
A—Variable Drive Pressure Hose    C—Jumper Hose    E—Power Beyond Return Port  
 B—Variable Drive Return Hose    D—Power Beyond Load Sensing Port    F—Power Beyond Pressure Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (F).
2. Attach variable drive return hose (B) to power beyond return port (E).
3. Attach jumper hose (C) to power beyond load sensing port (D) and pressure hose tee fitting.

OUC6074,0000588 -19-09AUG02-1/1

A47210—UN—26MAR01

## 6000 Series Tractors With Power Beyond Load Sense—Dual Motor



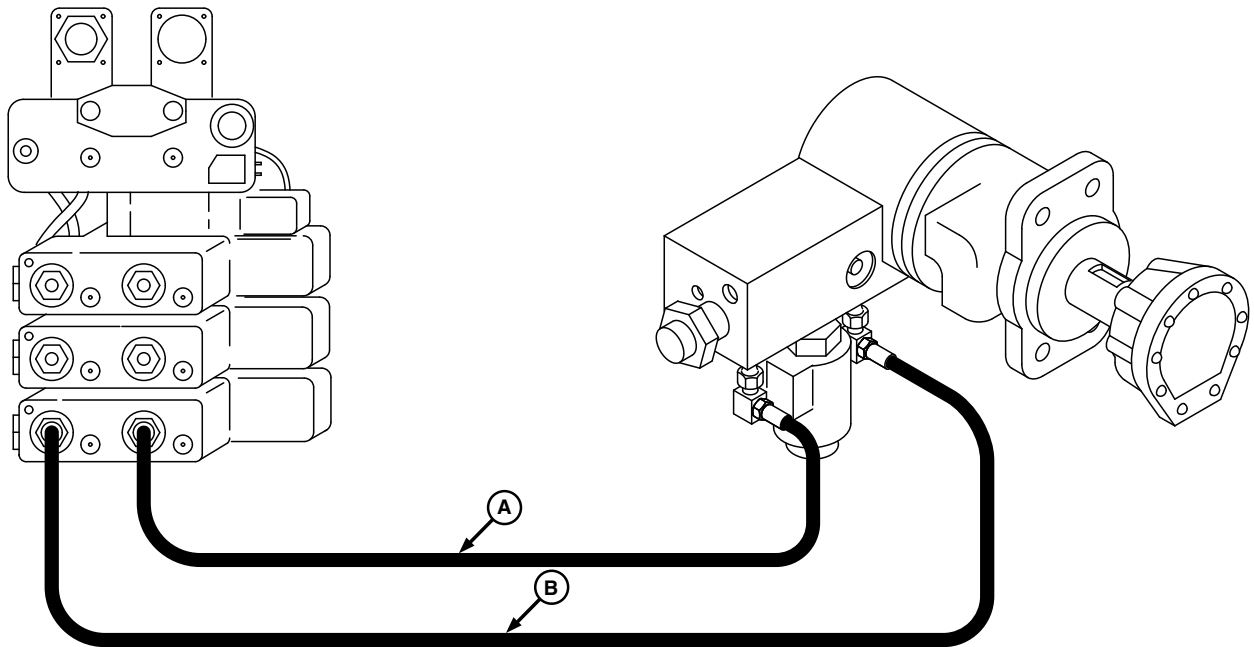
A47211—UN—26MAR01

A—Variable Drive Pressure Hose    C—Jumper Hose    E—Power Beyond Return Port  
 B—Variable Drive Return Hose    D—Power Beyond Load Sensing Port    F—Power Beyond Pressure Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (F).
2. Attach variable drive return hose (B) to power beyond return port (E).
3. Attach jumper hose (C) to power beyond load sensing port (D) and pressure hose tee fitting.

OUO6074,0000589 -19-09AUG02-1/1

**7000, 8000, 9000 Series Tractors Without  
Power Beyond—Single Motor**



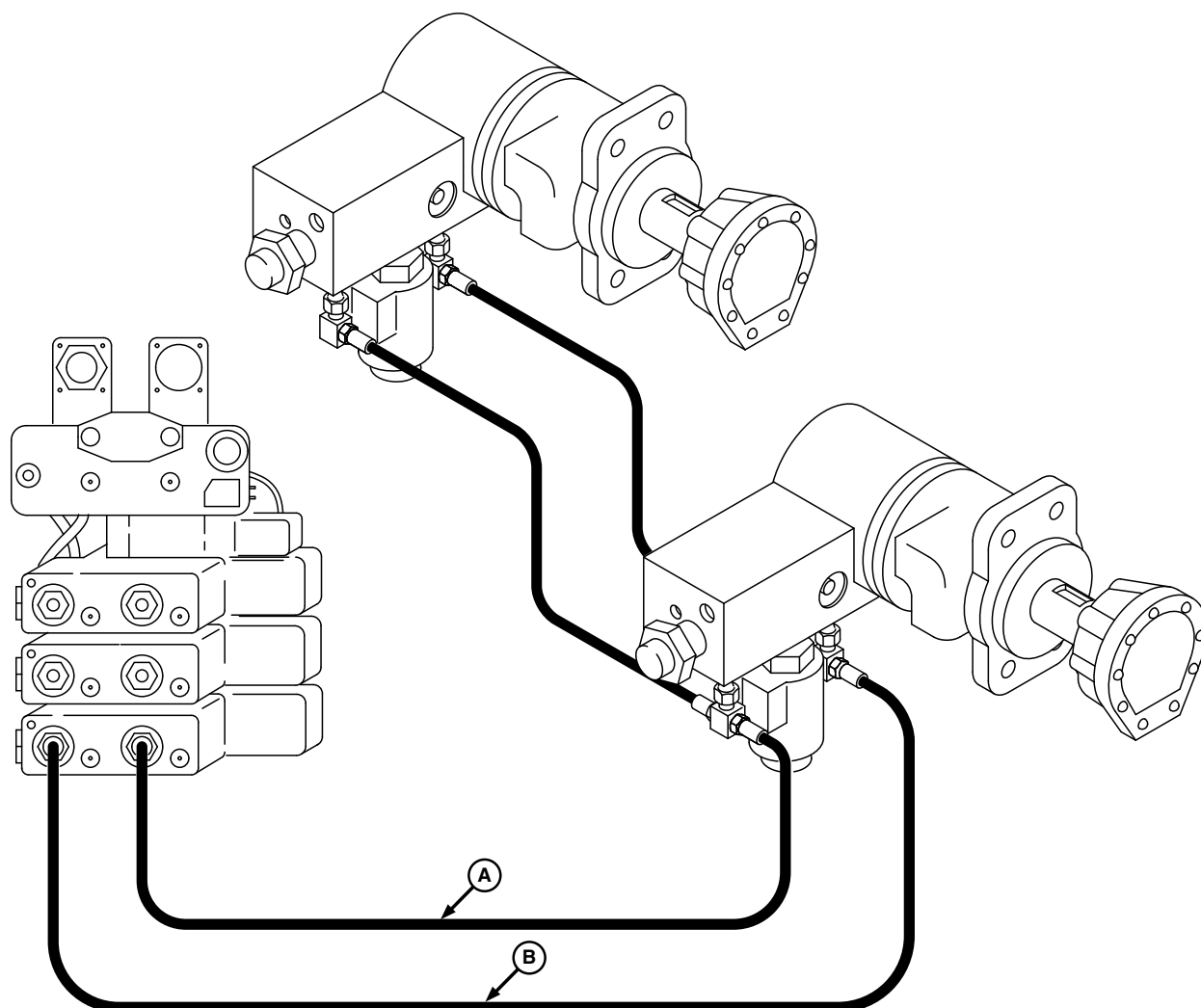
**A—Variable Drive Pressure Hose   B—Variable Drive Return Hose**

1. Attach variable drive pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach variable drive return hose (B) from variable rate motor to left-hand (cylinder extend) side of SCV.

OUO6074,000058A -19-09AUG02-1/1

A46895 —UN—14NOV00

# 7000, 8000, 9000 Series Tractors Without Power Beyond—Multiple Motor



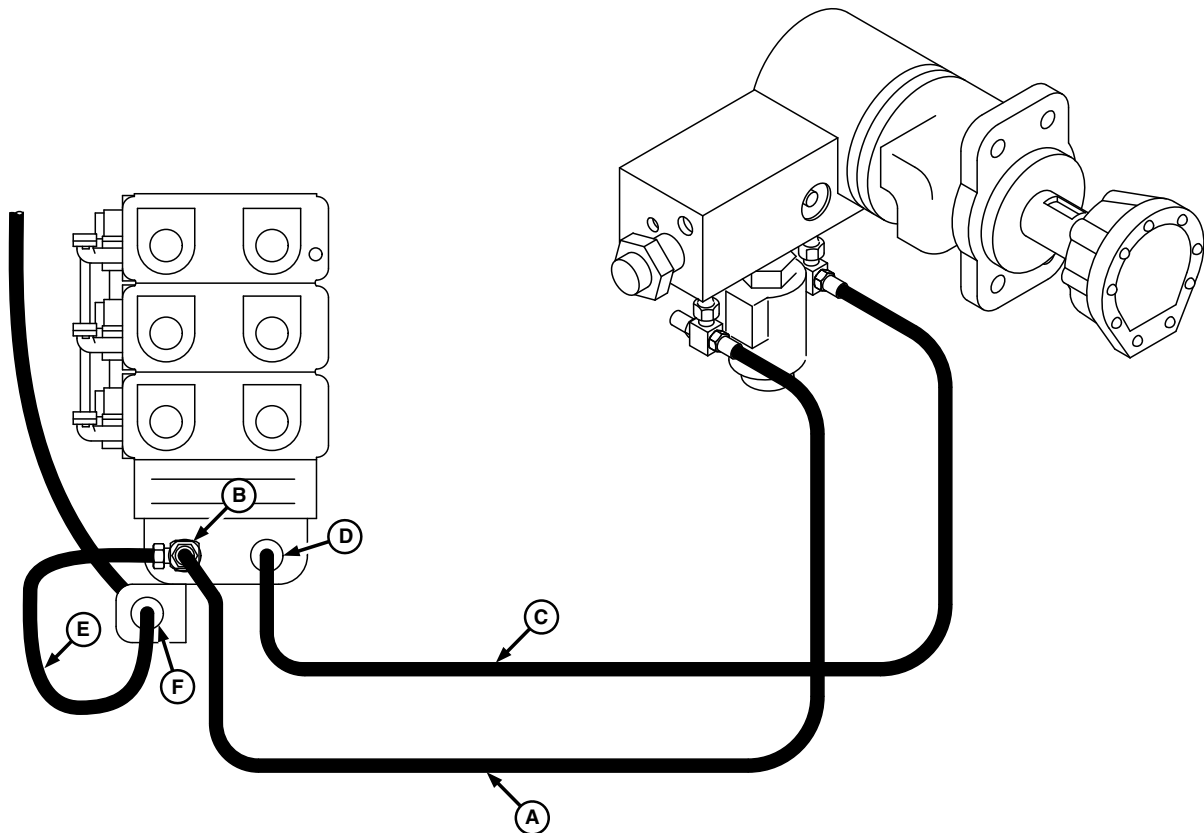
**A—Variable Drive Pressure Hose B—Variable Drive Return Hose**

1. Attach pressure hose (A) from variable rate motor to right-hand (cylinder retract) side of SCV.
2. Attach return hose (B) from variable rate motor to left-hand (cylinder extend) side of SCV.

OUO6074,000058B -19-09AUG02-1/1

A46896 —UN—14NOV00

## 7000 Series Tractors With Power Beyond Load Sense—Single Motor



A—Variable Drive Pressure Hose C—Variable Drive Return Hose  
B—Power Beyond Pressure Port D—Power Beyond Return Port

E—Jumper Hose  
F—Power Beyond Load Sense Port

**IMPORTANT:** Power beyond can not be used on 7000 series when attached to a 1770NT with CCS, because CCS fan is routed to motor return. Do not “T” other functions to CCS fan hoses or motor seal damage will occur.

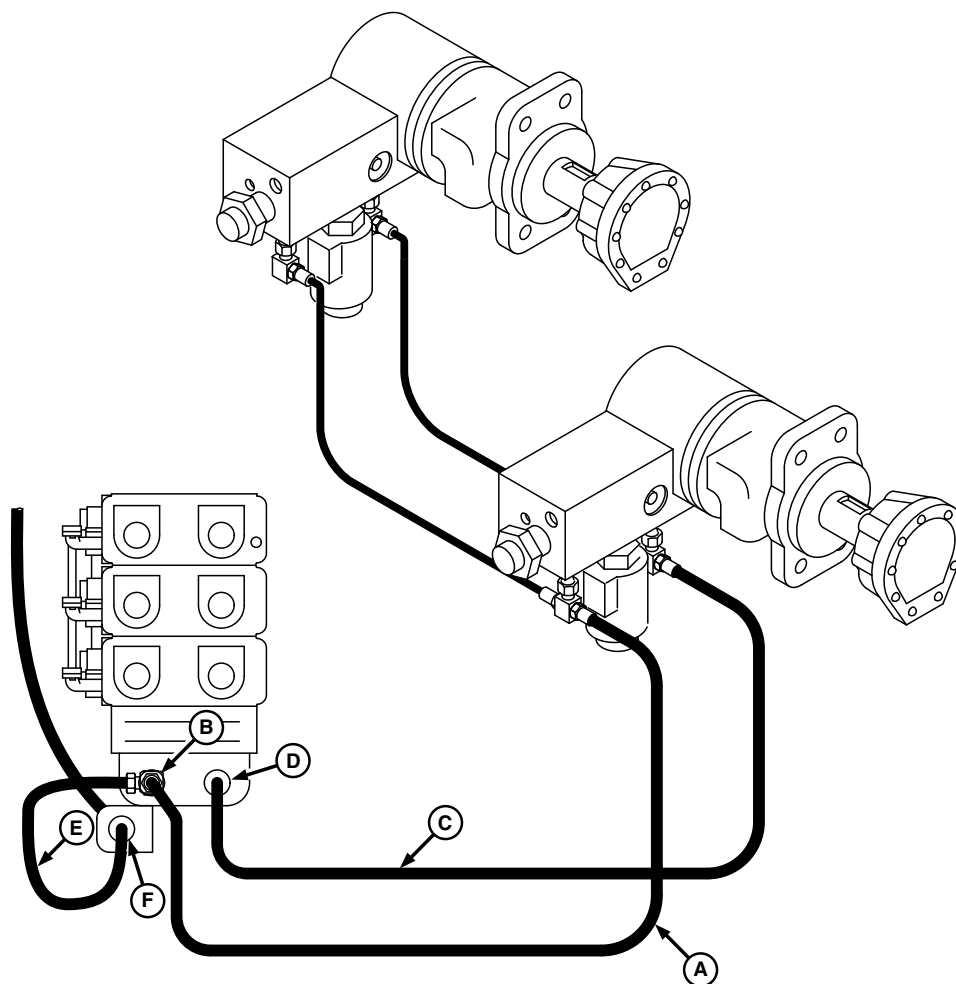
1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B) on tractor SCV.

2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

OUO6074,000058C -19-09AUG02-1/1

A46897 —UN—14NOV00

## 7000 Series Tractors With Power Beyond Load Sense—Dual Motor



A—Variable Drive Pressure Hose C—Return Hose  
 B—Power Beyond Pressure Port D—Power Beyond Return Port  
 E—Jumper Hose F—Power Beyond Load Sense Port

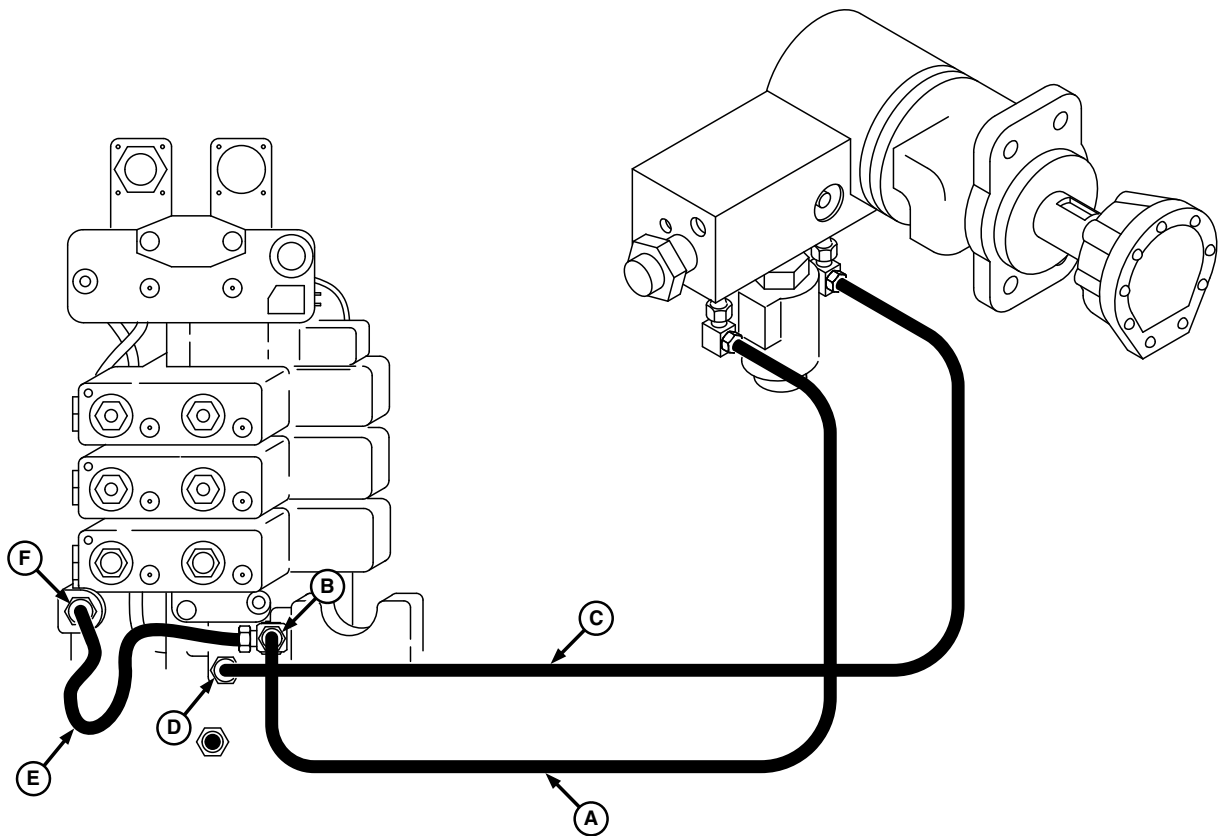
**IMPORTANT:** Power beyond can not be used on 7000 series when attached to a 1770NT with CCS, because CCS fan is routed to motor return. Do not “T” other functions to CCS fan hoses or motor seal damage will occur.

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B).
2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

A46916—UN—16NOV00

OUO6074,000058D -19-09AUG02-1/1

## 8000 Series Tractors With Power Beyond Load Sense—Single Motor



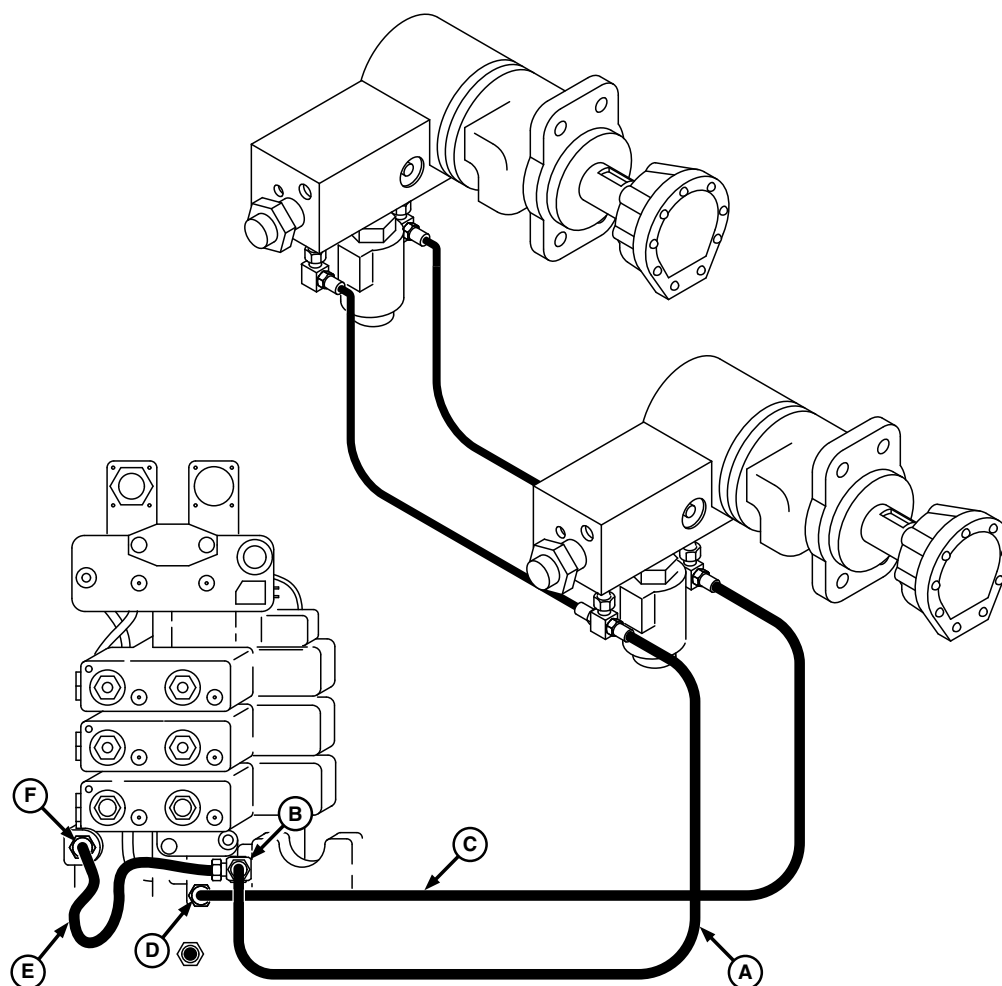
A—Variable Drive Pressure Hose    C—Variable Drive Return Hose    E—Jumper Hose  
 B—Power Beyond Pressure Port    D—Power Beyond Return Port    F—Power Beyond Load Sense Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B).
2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

OUO6074,000058E -19-09AUG02-1/1

A46898 —UN—14NOV00

## 8000 Series Tractors With Power Beyond Load Sense—Multiple Motor



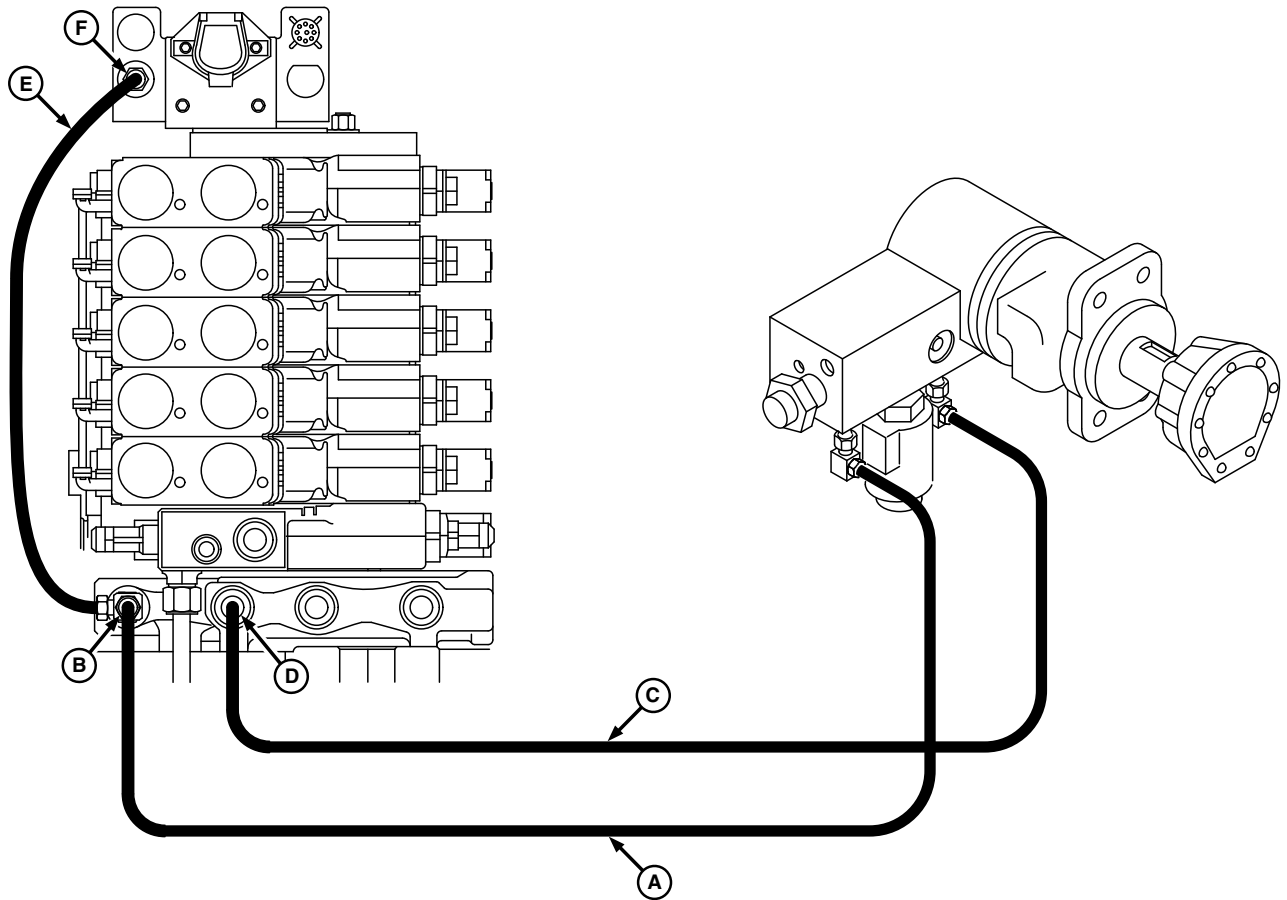
A—Variable Drive Pressure Hose    C—Variable Drive Return Hose    E—Jumper Hose  
 B—Power Beyond Pressure Port    D—Power Beyond Return Port    F—Power Beyond Load Sense Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B).
2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

A46917 —UN—16NOV00

OUO6074,000058F -19-09AUG02-1/1

# 9000 Series Tractors With Power Beyond Load Sense—Single Motor



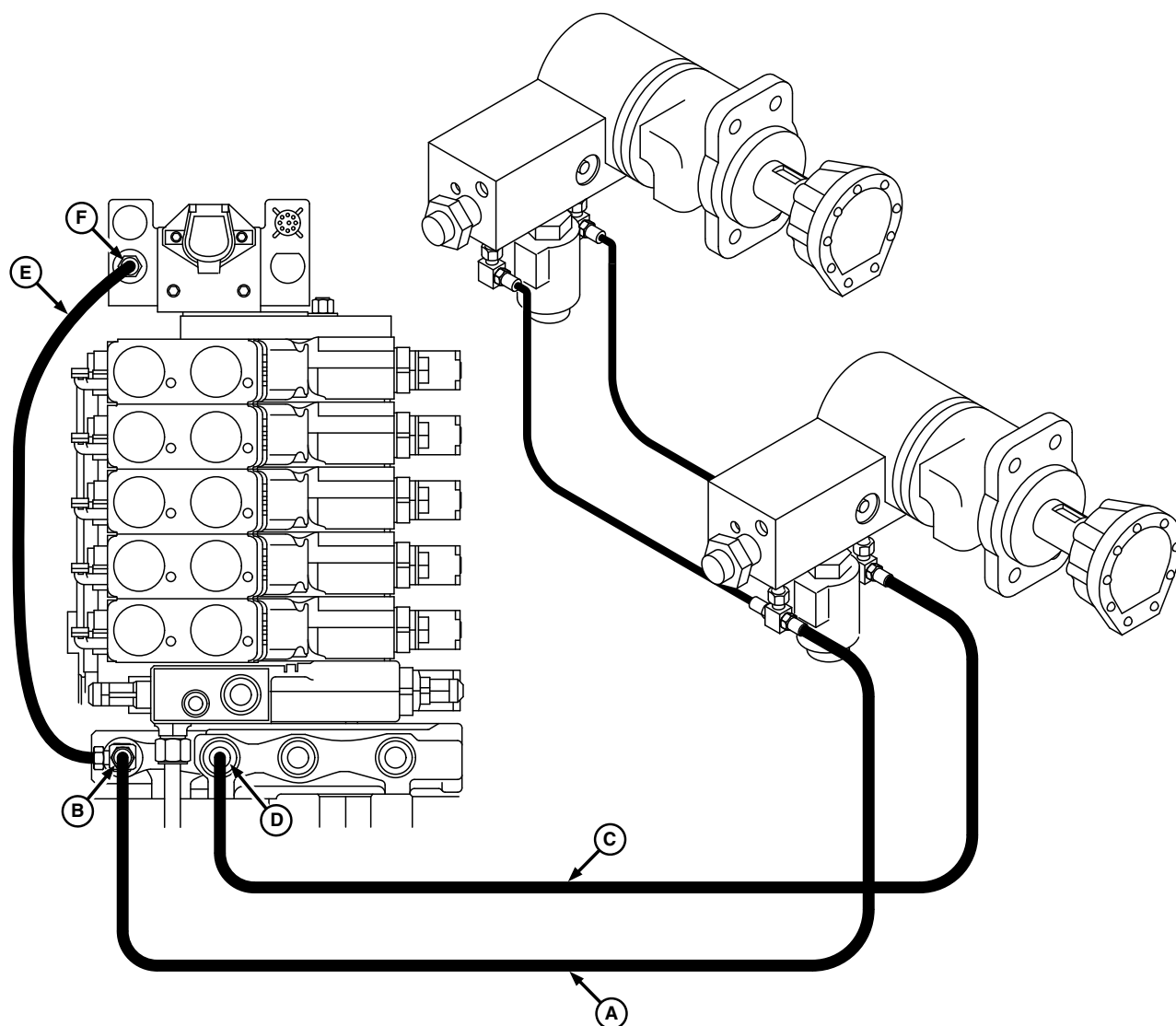
A—Variable Drive Pressure Hose    C—Variable Drive Return Hose    E—Jumper Hose  
 B—Power Beyond Pressure Port    D—Power Beyond Return Port    F—Power Beyond Load Sense Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B).
2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

OUO6074,0000590 -19-09AUG02-1/1

A46899—UN—14NOV00

## 9000 Series Tractors With Power Beyond Load Sense—Multiple Motor



A—Variable Drive Pressure Hose C—Variable Drive Return Hose E—Jumper Hose  
 B—Power Beyond Pressure Port D—Power Beyond Return Port F—Power Beyond Load Sense Port

1. Attach variable drive pressure hose (A) and tee fitting to power beyond pressure port (B).
2. Attach variable drive return hose (C) to power beyond return port (D).
3. Attach jumper hose (E) to power beyond load sense port (F) and pressure hose tee fitting.

OUC6074,0000591 -19-09AUG02-1/1

A46900 —UN—14NOV00

# Diagnostics

## Controller Hardware, Software, and Part Number Identification

There are separate hardware and software versions for the display and each controller. Use the version to identify machine controllers for your dealer. Keep both the display and planter controller(s) updated with the latest software version for best performance and latest features. Software updates are only available through your John Deere™ dealer.

Select **Menu** >> **Planter Button** >> **Diagnostic** softkey >> **Readings** tab.

Select **Hardware / Software** from top drop down box.

Select **Main** or **Auxiliary** from second drop down box to view data from each controller. Auxiliary is only an option if there is more than one controller installed on the machine.

- Hardware serial number and part number are displayed.
- Serial number is also on a tag (A) attached to controller.
- Software part number and version number are displayed.
- Total hour meter for controller is at bottom of screen.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Readings** — Readings

**Hardware / Software** — Hardware / Software

**Main** — Main

**Auxiliary** — Auxiliary

**Hardware Part #** — Hardware Part number

**Planter** — Planter

**Hardware Serial #** — Hardware Serial number

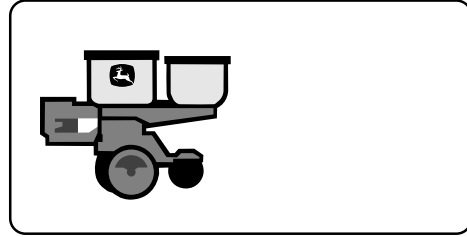
**Software Part #** — Software Part number

**Software Version #** — Software Version number

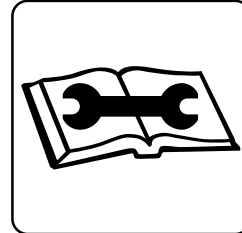
**Hour Meter** — Hour Meter

**h** — Hours

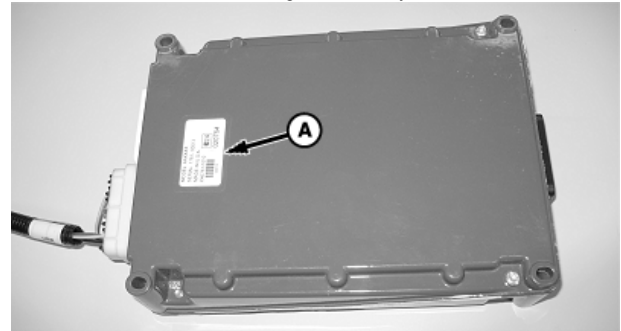
*John Deere is a trademark of Deere & Company*



Planter Button



Diagnostic Softkey



Controller

**A**—Serial Tag

A59551 —UN—08MAR07

A59567 —UN—08MAR07

A61129 —UN—11OCT07

OUO6074,0000FB9 -19-23JUL08-1/1

## Display Hardware, Software, and Part Number Identification

Use this to identify display versions for your dealer.

Select **Menu** >> **Display** button >> **Diagnostic** softkey >> **Readings** tab.

This page shows data about the display. Towards the bottom of screen are; Software Part Number, Software Version Number, Hardware Part Number, and Hardware Serial Number.

Software updates are only available through your John Deere™ dealer.

Select **About** tab to see only this information. Hardware information is also located on back of display.

Total operation hours for the display are displayed mid screen.

### Screen Area Information

**Display Diagnostics** — Display Diagnostics

**Readings** — Readings

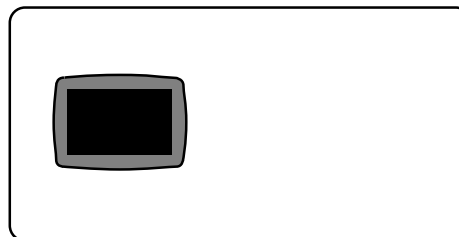
**Software Part Number** — Software Part Number

**Software Version Number** — Software Version Number

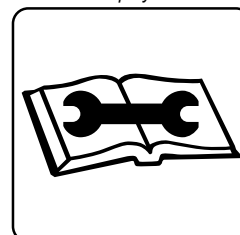
**Hardware Part Number** — Hardware Part Number

**Hardware Serial Number** — Hardware Serial Number

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Display Button



Diagnostic Softkey

A59565 —UN—08MAR07

A59567 —UN—08MAR07

**Operation Hours** — Operation Hours

**About** — About

**Application Software Build** — Application Software Build

**P/N** — Part Number

**S/N** — Software Number

OOU6074,0001067 -19-23JUL08-1/1

## Sensor Status

Use this to diagnose suspected problems with sensor outputs.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Readings** tab.
2. Select **Sensor/Status** from drop-down box.

The current readings from the sensors on the machine are shown in their respective units and voltage levels.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Readings** — Readings

**Sensor/Status** — Sensor/Status

**Ground Speed** — Ground Speed

**Vacuum Sensor** — Vacuum Sensor

**Fertilizer Sensor** — Fertilizer Sensor

**Implement Switch** — Implement Switch

**All seed sensors OK** — All seed sensors OK

**Yes** — Yes

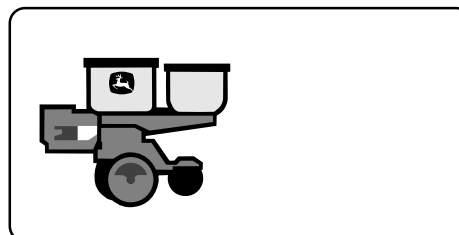
**No** — No

**On** — On

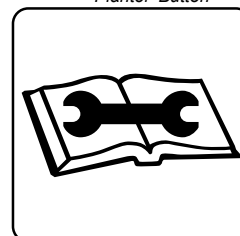
**Off** — Off

**mph** — Miles per Hour

**kph** — Kilometers per Hour



Planter Button



Diagnostic Softkey

A59551 —UN—08MAR07

A59567 —UN—08MAR07

**in** — Inches

**mm** — Millimeters

**psi** — Pounds per Square Inch

**kPa** — Kilopascals

OOU6074,0000FBA -19-23JUL08-1/1

## System Voltages

Use this to diagnose suspected power supply problems.

1. Select **Menu >> Planter** button >> **Diagnostics** softkey >> **Readings** tab.
2. Select **System Voltages** from drop down box.

The voltage for various electronics on the machine are shown.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Readings** — Readings

**System Voltages** — System Voltages

**Controller Input** — Controller Input

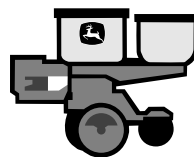
**Seed Sensor Supply** — Seed Sensor Supply

**Vacuum Sensor Supply** — Vacuum Sensor Supply

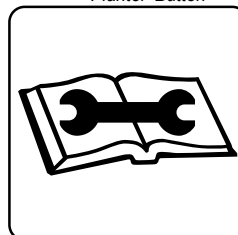
**Fertilizer Sensor Supply** — Fertilizer Sensor Supply

**Height Sensor Supply** — Height Sensor Supply

**V** — Volts



*Planter Button*



*Diagnostic Softkey*

A59551 —UN—08MAR07

A59557 —UN—08MAR07

OUO6074,0000FBB -19-11OCT07-1/1

## Variable Rate Drive Component Activity

This is the single best source to diagnose VRD problems. The following must occur for the VRD system to operate.

- A target population must be entered and turned "ON."
- VRD hydraulics must be flowing continuously at highest flow rate.
- Planter must be unfolded and lowered to planting height.
- Height sensor must be calibrated and "Planter Position" must indicate "Down."
- Planter must be moving forward at planting speed.
- Ground Speed" must indicate a ground speed (avoid radar, because use of GPS speed source is increasing).
- Wheel Sensor" must indicate "Active."

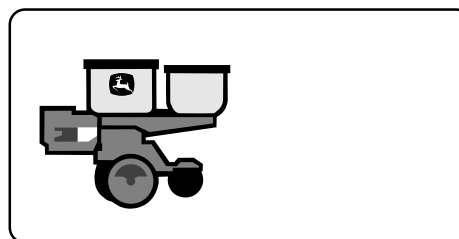
**NOTE:** If Target RPM displays CAL, operate machine in the field a short distance with VRD active. This calibrates motors.

1. Select **Menu >> Planter button >> Diagnostics** softkey >> **Readings** tab.
  2. Select **VRD Data** from drop down box.
- The status and activity for VRD components is shown.

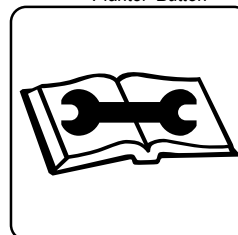
### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics  
**Readings** — Readings  
**Variable Rate Drive Data** — Variable Rate Drive Data  
**Target Population** — Target Population  
**seeds/ac** — Seeds per acre  
**seeds/ha** — Seeds per hectare  
**Ground Speed** — Ground Speed  
**mph** — Miles per hour  
**kph** — Kilometers per hour

**Wheel Sensor** — Wheel Sensor  
**Active** — Active  
**Inactive** — Inactive  
**Planter Position** — Planter Position  
**Up** — Up  
**Down** — Down  
**Motor** — Motor  
**Target rpm** — Target revolutions per minute  
**Actual rpm** — Actual revolutions per minute  
**Valve %** — Valve percentage  
**Left** — Left  
**Right** — Right  
**Open** — Open  
**Closed** — Closed



Planter Button



Diagnostic Softkey

A59551 —UN—08MAR07

A59567 —UN—08MAR07

OUC6074,0000FBC -19-24JUL08-1/1

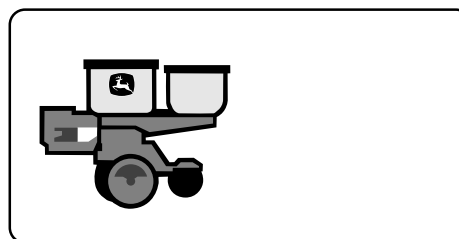
## EPM Status

Use this to check the status of EPMs on the machine.

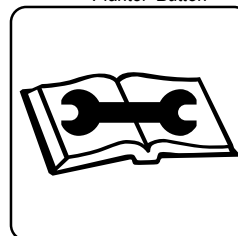
1. Select **Menu >> Planter button >> Diagnostics** softkey >> **Readings** tab.
2. Select **EPM Status** from drop down box to see which EPMs are operational. All will be displayed with online or active. Green box means true, red box means false.
3. Select drop-down to view EPMs each input status or status all to view all.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics  
**Readings** — Readings  
**EPM Status** — EPM Status  
**Online** — Online  
**Active** — Active  
**Status All** — Status All



Planter Button



Diagnostic Softkey

A59551 —UN—08MAR07

A59567 —UN—08MAR07

NS43404,00000DD -19-27OCT08-1/1

## Seed Tube Sensor Test

Use this to identify the seed sensors detected by the monitor.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **Seed Tube Sensor** from drop down box to see which sensors are operational.

### Screen Area Information

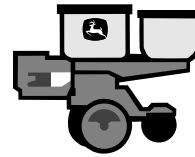
**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

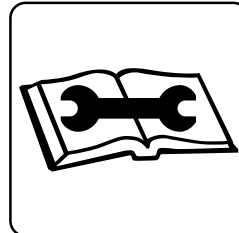
**Seed Tube Sensor** — Seed Tube Sensor

**These seed sensors are operational** — These seed sensors are operational

**None** — None



Planter Button



Diagnostic Softkey

OUO6074,0000FBE -19-12MAR07-1/1

A59551 —UN—08MAR07

A59567 —UN—08MAR07

## Seed Drop Test

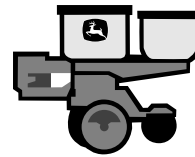
Use this to determine if a seed sensor is detecting seeds accurately.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **Seed Drop** from drop down box.
3. Select **Row** input box and enter a row unit number to observe.
4. Select **Reset** button to return a counter to zero. Select **Reset All Rows** to clear all counters.
5. Locate the row unit number identical to the number entered in input box.
6. Remove row unit meter to gain access to seed tube opening.
7. Drop a predetermined number of seeds through the seed tube, one seed at a time.
8. Observe count on monitor to verify the value is the same as number of seeds dropped.

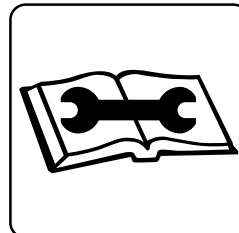
If values are significantly different, check wiring and clean or replace sensors.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics



Planter Button



Diagnostic Softkey

**Tests** — Tests

**Seed Drop** — Seed Drop

**Row** — Row

**Count** — Count

**Reset** — Reset

**Reset All Rows** — Reset All Rows

OUO6074,0000FBF -19-24JUL08-1/1

A59551 —UN—08MAR07

A59567 —UN—08MAR07

## Timed Seed Drop Test

1. Select **Menu >> Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **Timed Seed Drop** from drop down box.
3. Select **Row** input box and enter a row unit number to observe.
4. Select **Time** input box and enter number of seconds to perform test.
5. Plant at preferred speed and select **Start** button.
6. Time will count down to zero and test will stop. Select **Stop** button to stop test before time reaches zero.
7. Observe seed count on screen.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

**Timed Seed Drop** — Timed Seed Drop

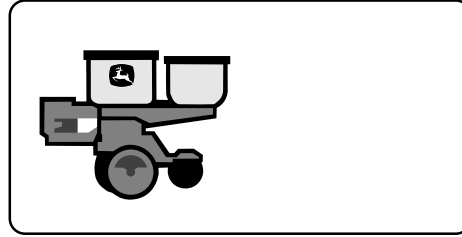
**Start** — Start

**Stop** — Stop

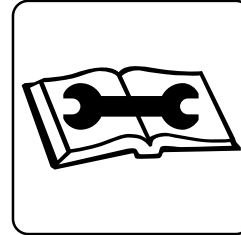
**Row** — Row

**Count** — Count

**mph** — Miles per hour  
**kph** — Kilometers per hour  
**Time** — Time  
**sec** — Seconds



*Planter Button*



*Diagnostic Softkey*

A59551 —UN—08MAR07

A59567 —UN—08MAR07

OUO6074,0000FC0 -19-11OCT07-1/1

## VRD Event Logs

Use this to record system activity for a period of time during an event. Your dealer uses this to diagnose the cause of the event.

1. Select **Menu >> Planter button >> Diagnostics** softkey >> **Tests** tab.
2. Select **VRD Event Logs** from drop down box.
3. Select **Zero** button to clear all event logs.
4. Select **Start** button to start new event log.
5. Select **Event Log** button to view stored event log data.
6. Select **Previous Page** or **Next Page** buttons to view additional pages or select **Go to Page** input box and enter a specific page number.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

**Clear all event logs** — Clear all event logs

**Start new event log** — Start new event log

**Start** — Start

**Stop** — Stop

**Event log** — Event log

**Hour Meter** — Hour Meter

**Ground Speed** — Ground Speed

**Wheel Sensor** — Wheel Sensor

**Active** — Active

**Inactive** — Inactive

**Planter Position** — Planter Position

**Motor** — Motor

**Target rpm** — Target revolutions per minute

**Actual rpm** — Actual revolutions per minute

**Valve %** — Valve percentage

**Target** — Target

**Seeds** — Seeds

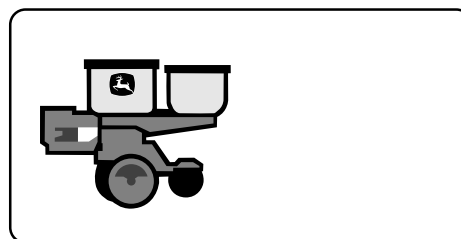
**ac** — Acre

**ha** — Hectare

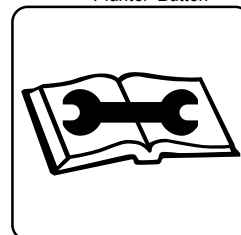
**Left** — Left

**Right** — Right

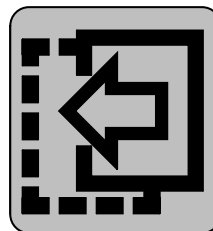
**Open** — Open



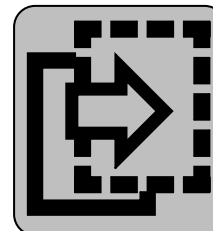
Planter Button



Diagnostic Softkey



Previous Page



Next Page



Clutch

**Closed** — Closed

A59551 —UN—08MAR07

A59567 —UN—08MAR07

A61134 —UN—12OCT07

A61135 —UN—12OCT07

A59520 —UN—23JUL08

OUO6074,0001069 -19-11OCT07-1/1

## VRD Motor/Valve Flush

Use this to flush air from VRD hydraulic system.

1. Select **Menu >> Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **VRD Motor/Valve Flush** from drop down box.
3. Select **Flush Time** input box and enter a value of 1, 2, or 3 seconds.
4. Plant at a speed greater than 4 km/h (2 mph).

Motors operate for duration indicated and flush air from system.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

**VRD Motor/Valve Flush** — Variable Rate Drive  
Motor/Valve Flush

**Ground Speed** — Ground Speed

**mph** — Miles per hour

**kph** — Kilometers per hour

**Flush Time** — Flush Time

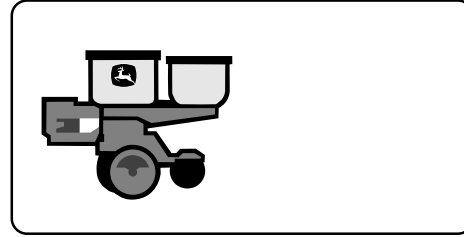
**secs** — Seconds

**Flush RPM** — Flush revolutions per minute

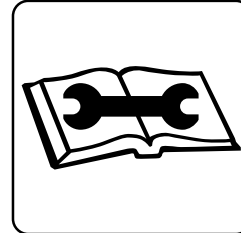
**Motor** — Motor

**Quick Start** — Quick Start

**Auto** — Auto



Planter Button



Diagnostic Softkey

**Manual** — Manual

**Speed must be greater than 4 kmh (2 mph)** — Speed must be greater than 4 km/h (2 mph)

**speed needs to be increased** — speed needs to be increased

**Value out of range** — Value out of range

A59551 —UN—08MAR07

A59567 —UN—08MAR07

OUO6074,0000FC1 -19-14MAR07-1/1

## Diagnostics Code

Diagnostics Codes should only be accessed by a trained technician. Refer to your John Deere dealer.

NS43404,00000BA -19-03OCT08-1/1

## Rotate Seed Meters

Use this to verify drillshaft and meters turn without pulling machine through a field. Planter remains stationary during this test.

1. Select **Menu >> Planter button >> Diagnostics** softkey >> **Tests** tab.
2. Select **Rotate Meters** from drop down box.
3. Select **Motor Selection** input box and select All or any single motor to rotate.
4. The following must occur for this feature to function:
  - Planter must be unfolded.
  - Planter must be in raised position.
  - Planter must be stationary.
  - Variable rate hydraulics must be active.

Select **Meter Rotation** button. An audible tone sounds when meters stop turning. Each time the icon is pressed, the meters rotate approximately one half a revolution. If meters fail to move, a warning screen appears.

Rotate Seed Meter function can be accessed from the planter main Run page.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

**Rotate Meters** — Rotate Meters

**Motor Selection** — Motor Selection

**All** — All

**Ground Speed** — Ground Speed

**mph** — Miles per hour

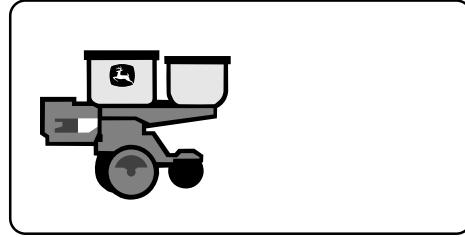
**kph** — Kilometers per hour

**Wheel Sensor** — Wheel Sensor

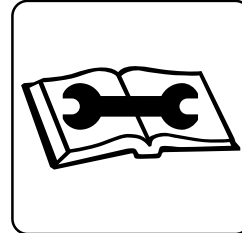
**Active** — Active

**Inactive** — Inactive

**Planter Position** — Planter Position



Planter Button



Diagnostic Softkey



Meter Rotation Button

**Up** — Up

**Down** — Down

**Motor** — Motor

**Target rpm** — Target revolutions per minute

**Actual rpm** — Actual revolutions per minute

**Valve %** — Valve percentage

A59551 —UN—08MAR07

A59567 —UN—08MAR07

A59898 —UN—02APR07

OUO6074,0001068 -19-24JUL08-1/1

## Row Clutches

Use this to identify the row clutches detected by the monitor.

1. Select **Menu >> Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **Row Clutches** from drop down box to see status of each row clutch. Green box means true, red box means false.
3. Select toggle icon to enable clutch command. Green box means true, red box means false.
4. Select row clutch input box and enter desired row clutch to view or press next page icon and previous page icon to navigate.

### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

**Tests** — Tests

**Row Clutches** — Row Clutches

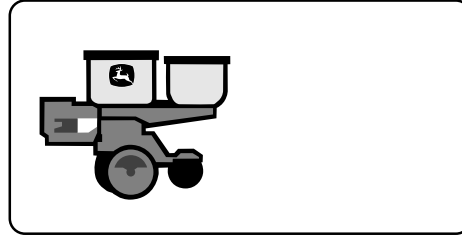
**Status** — Status

**Current** — Current

**Fault Status** — Fault Status

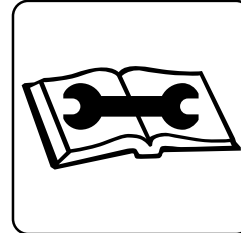
**Clutch Command** — Clutch Command

**Row Clutch** — Row Clutch



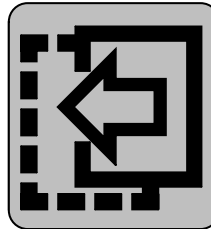
Planter Button

A59551 —UN—08MAR07



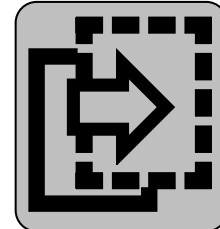
Diagnostic Softkey

A59567 —UN—08MAR07



Previous Page

A61134 —UN—12OCT07



Next Page

A61135 —UN—12OCT07



Toggle

A63529 —UN—27OCT08

NS43404,00000DE -19-07NOV08-1/1

## Row Clutches Self Test

Use this to identify the row clutches detected by the monitor.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. Select **Row Clutches Self Test** from drop down box to see status of each row clutch.
3. Select perform self test button and system will perform a self test on row clutches.

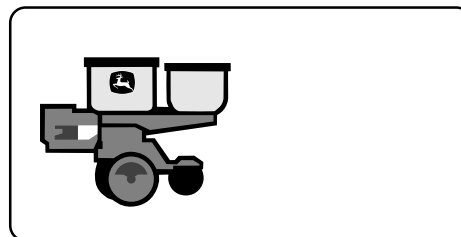
### Screen Area Information

**Planter Diagnostics** — Planter Diagnostics

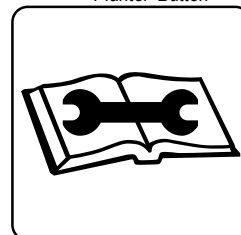
**Tests** — Tests

**Row Clutches Self Test** — Row Clutches Self Test

**Perform Self Test** — Perform Self Test



Planter Button



Diagnostic Softkey

NS43404,00000DF -19-07NOV08-1/1

A59551 —UN—08MAR07

A59567 —UN—08MAR07

## Vacuum Sensor

Use this to verify proper sensor connection and calibration.

1. Verify vacuum wiring is properly connected.

If only one vacuum sensor is used, it MUST be connected to LEFT VAC wire.

2. Verify vacuum hose is properly connected.

Connect hose to P2 port (A).

3. Check for air leaks in hose between sensor and vacuum meter.

4. Turn tractor OFF. Turn key to ACC (Accessory).

5. Verify correct number of vacuum sensors are configured.

Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab >> **Vacuum** drop down.

**Number of Sensors** selected must match number of sensors on machine.

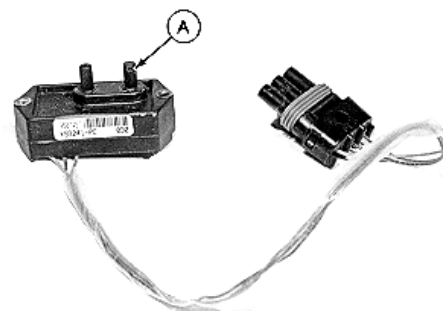
6. Select **Sensor** drop down and select each sensor one at a time. Select **Cal Value** and enter 5.66.

7. Select each sensor one at a time and select **Zero Sensor** button.

8. Verify voltages are correct.

Select **Diagnostic** softkey >> **Readings** tab >> **System Voltages** drop down.

- Controller Input value MUST be 11 vdc or higher.
- Vacuum Sensor Supply value is 8.0 vdc.
- If voltage is ZERO, check wiring.



A—P2 Port

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensor** — Sensor

**Vacuum** — Vacuum

**Sensors** — Sensors

**Sensor** — Sensor

**Cal Value** — Calibration Value

**V in** — Inches of Vacuum

**Planter Diagnostics** — Planter Diagnostics

**Readings** — Readings

**System Voltages** — System Voltages

**Controller Input** — Controller Input

**Vacuum Sensor Supply** — Vacuum Sensor Supply

**V** — Volts

OUC6074,0000FCB -19-24JUL08-1/1

A40613 —UN—30DEC96

## Liquid Fertilizer Sensor

Use this to verify proper sensor connection and calibration.

1. Turn tractor OFF. Turn key to ACC.
2. Verify sensor wiring is properly connected.

If only one sensor is used, it MUST be connected to LEFT FERT wire.

3. Verify correct number of sensors are selected.

Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab >> **Fertilizer** drop down.

**Number of Sensors** selected must match number of sensors on machine.

Select **Sensor** drop down and select each sensor one at a time. Select **Cal Value** and enter 37.5.

4. Release trapped pressure in fertilizer system. Select each sensor one at a time and select **Zero Sensor** button.
5. Verify voltages are correct.

Select **Diagnostic** softkey >> **Readings** tab >> **System Voltages** drop down.

- Controller Input value MUST be 11 vdc or higher.
- Fertilizer Sensor Supply value is 8.0 vdc.
- If voltage is ZERO, check wiring.

### Screen Area Information

**Planter Configuration** — Planter Configuration

**Sensor** — Sensor

**Fertilizer** — Fertilizer

**Sensors** — Sensors

**Sensor** — Sensor

**Cal Value** — Calibration Value

**Pressure** — Pressure

**Planter Diagnostics** — Planter Diagnostics

**Readings** — Readings

**System Voltages** — System Voltages

**Controller Input** — Controller Input

**Fertilizer Sensor Supply** — Fertilizer Sensor Supply

**V** — Volts

OUO6074,0000FCC -19-24JUL08-1/1

## Error and Fault Codes

### WARNING Fault Codes

- **020 Implement Disconnected**

One or more Controllers disconnected. This fault code happens when an implement controller fails to respond to the GreenStar™ display signal. It is often accompanied by fault code 110 due to the brief intermittent connection that occurs as an implement is disconnected.

This fault code is the expected result when an operator disconnects an implement or is caused by an intermittent CAN connection. It also occurs if an implement stops communication on the CAN bus, such as power loss or internal faults.

- **021 Display Conflict**

This fault code occurs when a Controller requests a display allocation that is already part of an existing allocation. The fault code indicates that some controller did not display information as intended.

The proper response to this fault code is to run a Standard Layout with all CAN subsystems connected that are used in the application. This function is found on the SETUP—Run Page Layout screen.

- **030 Too Many Devices on CAN Bus**

This fault code appears when more than eight CAN controllers (implements) attempt to log in to the GreenStar™ Display.

- **031 GreenStar™ Display Overload**

This fault code occurs when an unusually high amount of CAN messages are sent to the display in a short period of time. When this fault code occurs, the display has missed some messages and is out of synchronization with the controllers. Cycle power to synchronize the entire system.

This fault code also occurs when a CAN node sends out messages that are properly received by the display, but the transmitting node does not recognize the acknowledge signal and endlessly re-sends the original message.

- **033 Memory Failure**

This fault code occurs when a stored parameter is not stored after three consecutive write attempts and indicates a probable permanent memory failure.

### Caution Fault Codes

- **110 CAN Bus Communications Problem**

This fault code is the one most commonly seen. Any type of problem with the CAN bus (wiring harness, electrical interface in each CAN node, terminators) will likely cause a Fault Code 110. Some of the potential problems include; faulty terminators, electrical wiring intermittent short or open, damaged CAN interface in a controller, loose connector or connection.

An improperly wired CAN cable also produces a 110 fault code.

In addition, this fault code is caused by out-of-sequence or missing CAN messages or improper commands.

- **111 CAN to CCD Queue Overflow**

This fault code occurs when the CCD transmit queue overflows, usually as a result of a CCD bus problem.

- **112 Display Conflict**

This fault code occurs when a controller requests a display allocation that is already part of an existing allocation. The fault code indicates that a controller was not able to display information on the RUN page as intended.

The proper response to this fault code is to run a Standard Layout with all CAN subsystems connected that are used in the application. This function is found on the SETUP—Run Page Layout screen.

- **113 Incompatible Monitor/Controller**

This fault code occurs when a CAN command is received that the display does not know how to process. This indicates a possible mismatch between controller and display software versions.

OUC6074,000106B -19-12OCT07-1/1

# Troubleshoot

## Troubleshoot GreenStar™ Display

| Symptom                            | Problem                                                                                   | Solution                                                                        |
|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Screen not readable.</b>        | Contrast incorrectly set.                                                                 | Adjust contrast.                                                                |
|                                    | Screen backlight set too low.                                                             | Increase backlight adjustment.                                                  |
| <b>Incorrect speed displayed.</b>  | Incorrect calibration.                                                                    | Enter correct radar calibration value or recalibrate on 122 m (400 ft.) course. |
|                                    | Incorrect units of measure set.                                                           | Set correct units.                                                              |
|                                    | Speed reading erratic.                                                                    | Radar mount loose or vibrates.                                                  |
| <b>No radar speed reading.</b>     | No calibration value entered.                                                             | Calibrate radar.                                                                |
|                                    | Windy or dusty conditions.                                                                | Change to a different speed source.                                             |
| <b>No radar calibration value.</b> | Display installed on 7000/8000/9000 Series or newer tractor with factory installed radar. | Calibrate radar per tractor operator's manual.                                  |

OUO6074,000106C -19-11OCT07-1/1

## Troubleshoot SeedStar™

| Symptom                                       | Problem                                        | Solution                                                                                                                                     |
|-----------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Warning: Verify power on pins 1 and 3.</b> | Machine not equipped with variable rate drive. | If machine is not equipped with VRD, change drive source. (See CONFIGURE PLANTER DRIVE SOURCE in SETUP Basic Planter Configuration section.) |
|                                               | Machine is equipped with variable rate drive.  | Check pins 1 and 3 for 12 volt power at ISO coupler.                                                                                         |
| <b>No vacuum reading.</b>                     | Faulty wire connection.                        | Check wiring harness and repair.                                                                                                             |
|                                               | Blower not running.                            | Start blower motor.                                                                                                                          |
|                                               | Vacuum line on wrong fitting on sensor.        | Install vacuum line to sensor P2 fitting.                                                                                                    |
|                                               | Incorrect planter configuration.               | Enter correct number of vacuum sensors. (See VACUUM SENSORS in SETUP Basic Planter Configuration section.)                                   |
|                                               | Vacuum section not displayed on RUN screen.    | Enter correct number of vacuum sensors. (See VACUUM SENSORS in SETUP Basic Planter Configuration section.)                                   |
| <b>Wrong vacuum reading.</b>                  | Sensor connected to wrong wire harness lead.   | If only one vacuum sensor is used, correct to wire labeled LEFT VACUUM.                                                                      |
|                                               | Vacuum sensor not calibrated.                  | Stop blower motor and zero the sensor. (See VACUUM SENSORS in SETUP Basic Planter Configuration section.)                                    |
|                                               | Wrong calibration value.                       | Enter correct calibration value (5.66). (See VACUUM SENSOR in Diagnostics section.)                                                          |
|                                               | Faulty vacuum sensor.                          | Replace sensor.                                                                                                                              |
| <b>No high or low population reading.</b>     | Dirty seed tube sensors.                       | Clean sensors. (See Seed Tube Sensors section.)                                                                                              |
|                                               | No radar speed.                                | Connect and calibrate radar or other speed source.                                                                                           |
|                                               | Seed sensors turned off.                       | Turn split row option off. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)      |

Continued on next page

OUC06074.000106D -19-24JUL08-1/3

| Symptom                          | Problem                                              | Solution                                                                                                                                  |
|----------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                  |                                                      | Turn rows on. (See SEED SENSORS ON/OFF in SETUP Basic Planter Configuration section.)                                                     |
|                                  | Faulty wire harness connection.                      | Check wiring harness connections.                                                                                                         |
|                                  |                                                      | Correct wire harness connection. See Technical Manual TM1023.                                                                             |
| <b>Wrong population reading.</b> | Dirty seed tube sensors.                             | Clean sensors. (See Seed Tube Sensors section.)                                                                                           |
|                                  | Row spacing incorrect.                               | Enter correct row spacing. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)   |
|                                  | Speed reading incorrect.                             | Enter correct radar calibration or troubleshoot radar.                                                                                    |
|                                  | Windy or dusty conditions.                           | Change to a speed source other than radar. (See GROUND SPEED SOURCE in SETUP Basic Planter Configuration section.)                        |
|                                  | Wrong units of measure.                              | Enter correct units. (See CONFIGURE LANGUAGE AND UNITS OF MEASURE in Monitor Settings section.)                                           |
|                                  | Speed reading too high.                              | See wrong speed reading above.                                                                                                            |
|                                  | Planting seed at a rate exceeding sensor capability. | Install AccuCount™ sensors or use Population Adjust.                                                                                      |
|                                  | Planting Hill-Drop cotton.                           | Multiple seeds pass seed sensor at one time.                                                                                              |
| <b>Row failure warning.</b>      | Meter not planting.                                  | Seed hopper empty, fill with seed.                                                                                                        |
|                                  | Harness problem.                                     | Inspect harness and connections.                                                                                                          |
|                                  | Planting in rocky conditions.                        | Seeds knocked off disk, adjust row unit down force.                                                                                       |
|                                  | Dirty seed tube sensors.                             | Clean sensors. (See Seed Tube Sensors section.)                                                                                           |
| <b>Wrong area reading.</b>       | Planter width incorrect.                             | Enter correct planter width. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.) |

Continued on next page

OUO6074,000106D -19-24JUL08-2/3

| Symptom                                 | Problem                                      | Solution                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | Half-width or third-width disconnect on.     | Select "Reduce Area by these Rows" when using disconnect feature.                                                                                                                                                                                                                                                           |
|                                         | Radar problem.                               | Correct radar calibration or troubleshoot radar.                                                                                                                                                                                                                                                                            |
| <b>No planter monitor reading.</b>      | Electrical connections not correct.          | Check fuses in tractor. Check connections on back of rear tractor connector. C and D connections must be tight (C-red, D-black). Remove splash-shield by inserting finger and prying up on front of cover to remove. Insert wires in C and D until tight. Pin removal tool will be required if wires are in wrong position. |
| <b>No liquid fertilizer reading.</b>    | There is no pressure.                        | Drive planter forward and verify pump is primed.                                                                                                                                                                                                                                                                            |
|                                         | Incorrect planter options.                   | Enter correct number of fertilizer sensors. (See LIQUID FERTILIZER SENSORS in SETUP Basic Planter Configuration.)                                                                                                                                                                                                           |
|                                         | Sensor connected to wrong wire harness lead. | If only one liquid sensor is used, it must be connected to wire labeled LEFT FERT.                                                                                                                                                                                                                                          |
|                                         | Faulty wire connection.                      | Check wiring harness and repair.                                                                                                                                                                                                                                                                                            |
| <b>Wrong liquid fertilizer reading.</b> | Wrong calibration valve.                     | Enter calibration value (37.5). (See LIQUID FERTILIZER SENSOR in Diagnostics section.)                                                                                                                                                                                                                                      |
|                                         | Erroneous ZERO valve.                        | Relieve trapped pressure in fertilizer manifold. ZERO sensor. (See LIQUID FERTILIZER SENSORS in SETUP Basic Planter Configuration section.)                                                                                                                                                                                 |
|                                         | Faulty liquid fertilizer sensor.             | Replace sensor.                                                                                                                                                                                                                                                                                                             |
|                                         | Sensor plugged.                              | Remove sensor and flush with warm water. Do NOT insert hard object into sensor when cleaning. Sensing unit may be damaged.                                                                                                                                                                                                  |

OUO6074,000106D -19-24,JUL08-3/3

## Troubleshoot RowCommand™

| Symptom                                                                                                                                                                                                                  | Problem                                                                                     | Solution                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Caution: No CAN Bus communications with Electronic Power Modules (EPM). Some row clutches will not disengage.</b><br><br><b>Check Connections. A restart is required to attempt communications with EPMS.</b>         | EPM is off line and not communicating with controller.                                      | Check all connections on EPM that is not communicating.<br><br><br>See your John Deere dealer.                                                                                       |
| <b>Caution: Electronic Power Modules (EPM) are not responding to CAN Bus commands. Some row clutches will not disengage.</b><br><br><b>Check connections. A restart is required to attempt communications with EPMS.</b> | EPM has failed to respond to CAN Bus commands.<br><br><br>EPMS not active                   | Check all harness connections to EPM that is not responding.<br><br><br>Switch failed EPM with known EPM that is functioning and retest.<br><br>See your John Deere dealer.          |
| <b>Caution: Low Supply Voltage on Electronic Power Modules (EPM). Clutch system self-test not available.</b>                                                                                                             | Voltage has fallen below 10.5 V on any input supply on individual EPM.                      | Check EPM fuse.<br><br><br>Check all harness connections on EPM with low voltage.<br><br>Increase engine speed to increase alternator output.<br><br>See your John Deere dealer.     |
| <b>Caution: Supply Voltage Out of Range on Electronic Power Modules (EPM). Clutch system self-test not available.</b>                                                                                                    | Voltage has dropped below 9.0 V on any input supply on individual EPM.                      | Check EPM fuse.<br><br><br>Check all harness connections to EPM that has low voltage.<br><br>Increase engine speed to increase alternator output.<br><br>See your John Deere dealer. |
| <b>Clutch self-test does not function.</b>                                                                                                                                                                               | An EPM is not communicating or voltage feed out of range, and clutch test is not available. | Check EPM fuse.<br><br><br>Check harness connections to non responsive EPM.                                                                                                          |

Continued on next page

NS43404,00000EE -19-24NOV08-1/4

| Symptom                                                                | Problem                              | Solution                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                        |                                      | <p>Increase engine speed to increase alternator output.</p> <p>See your John Deere dealer.</p>                                                                                                                                                                                                                                                                                 |
| <b>RowCommand™ row section not visible on display.</b>                 | Row section electrical problem.      | <p>Determine which row of the section is at fault. Refer to Diagnostics tab , Tests, Row Clutches. Exchange RowCommand™ row clutch from identified failed row to an operational row. Retest.</p> <p>Exchange RowCommand™ row unit clutch harness from failed row to an operational row. Retest. Inspect harness from defective row to EPM for loose connections or damage.</p> |
| <b>RowCommand™ row sections for rows 1-10 not visible on display.</b>  | EPM not communicating or not active. | <p>Inspect fuse for EPM 1 (10 amp) on EPM harness.</p> <p>Determine if EPM 1 is operational. Refer to Diagnostics tab, Tests, EPM status.</p> <p>Inspect harness from EPM to appropriate rows for loose connections or damage.</p> <p>Exchange EPM with a functional EPM to verify harness or EPM problem.</p> <p>Contact your John Deere dealer.</p>                          |
|                                                                        | Supply voltage out of range.         | <p>Inspect fuse for EPM 1 (10 amp) on EPM harness.</p> <p>Determine if EPM 1 is operational. Refer to Diagnostics tab, Tests, EPM status.</p> <p>Inspect harness from EPM to appropriate rows for loose connections or damage.</p> <p>Exchange EPM with a functional EPM to verify harness or EPM problem.</p> <p>Contact your John Deere dealer.</p>                          |
| <b>RowCommand™ row sections for rows 11-20 not visible on display.</b> | EPM not communicating or not active. | <p>Inspect fuse for EPM 2 (10 amp) on EPM harness.</p>                                                                                                                                                                                                                                                                                                                         |

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NS43404,00000EE -19-24NOV08-2/4

| Symptom                                                                | Problem                              | Solution                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                        |                                      | <p>Determine if EPM 2 is operational. Refer to Diagnostics tab, Tests, EPM status.</p> <p>Inspect harness from EPM to appropriate rows for loose connections or damage.</p> <p>Exchange EPM with a functional EPM to verify harness or EPM problem.</p> <p>Contact your John Deere dealer.</p>                                                        |
| <b>RowCommand™ row sections for rows 21-30 not visible on display.</b> | EPM not communicating or not active. | <p>Inspect fuse for EPM 3 (10 amp) on EPM harness.</p> <p>Determine if EPM 3 is operational. Refer to Diagnostics tab, Tests, EPM status.</p> <p>Inspect harness from EPM to appropriate rows for loose connections or damage.</p> <p>Exchange EPM with a functional EPM to verify harness or EPM problem.</p> <p>Contact your John Deere dealer.</p> |
| <b>RowCommand™ row sections for rows 31-40 not visible on display.</b> | EPM not communicating or not active. | <p>Inspect fuse for EPM 4 (10 amp) on EPM harness.</p> <p>Determine if EPM 4 is operational. Refer to Diagnostics tab, Tests, EPM status.</p> <p>Inspect harness from EPM to appropriate rows for loose connections or damage.</p> <p>Exchange EPM with a functional EPM to verify harness or EPM problem.</p> <p>Contact your John Deere dealer.</p> |
| <b>RowCommand™ row sections for rows 41-48 not visible on display.</b> | EPM not communicating or not active. | <p>Inspect fuse for EPM 5 (10 amp) on EPM harness.</p> <p>Determine if EPM 5 is operational. Refer to Diagnostics tab, Tests, EPM status.</p>                                                                                                                                                                                                         |

Continued on next page

NS43404,00000EE -19-24NOV08-3/4

| Symptom                                                                                  | Problem                    | Solution                                                                      |
|------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------|
| <b>Low voltage warning when all RowCommand™ clutches are powered (meter disengages).</b> | Excessive electrical load. | Inspect harness from EPM to appropriate rows for loose connections or damage. |
|                                                                                          |                            | Exchange EPM with a functional EPM to verify harness or EPM problem.          |
|                                                                                          |                            | Contact your John Deere dealer.                                               |
|                                                                                          |                            | Decrease electrical load.                                                     |
|                                                                                          |                            | Increase engine RPM to increase alternator output.                            |
|                                                                                          |                            | Verify that alternator output is within specifications.                       |

NS43404,00000EE -19-24NOV08-4/4

## Troubleshoot Variable Rate Drive

| Symptom                                                                                                                                                                                                                                                                                                            | Problem                                                  | Solution                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Warning: Verify power on pins 1 and 3.</b></p> <p><b>WARNING SCREEN: Motor 1, 2 disabled. Drive failed to respond. Verify hydraulic power. Check operator's manual.</b></p> <p><i>NOTE: This warning occurs when motor speed should be greater than 18 rpm and the motors are currently not turning.</i></p> | No 12 volt power on ISO coupler pins 1 and 3.            | Check pins 1 and 3 for 12 volt power.                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                    | No hydraulic pressure or flow.                           | <p>Make sure hoses are plugged into tractor SCV or power beyond.</p> <p>Verify correct location of pressure and return lines. A one way check valve is installed in the return line hose tip.</p> <p>Set tractor SCV to continuous detent and flow. (See MAKING PROPER HOSE CONNECTIONS in the ATTACH AND DETACH VARIABLE RATE DRIVE section.)</p> <p>Activate tractor SCV.</p> |
|                                                                                                                                                                                                                                                                                                                    | Low hydraulic pressure or flow to variable drive motors. | <p>Maintain full tractor engine rpm.</p> <p>Increase tractor SCV flow setting.</p> <p>Minimize flow to other hydraulic functions.</p> <p>Verify tractor hydraulic system performance.</p>                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                    | No motor speed detected by variable drive controller.    | <p>Verify motor speed sensor electrical connections. Note: If this condition exists, the motor without any speed sensor feedback will rotate at a very high RPM for several seconds before full page warning is issued.</p> <p>Verify set screw in motor coupler is tightened to motor speed shaft.</p> <p>Verify hydraulic valve electrical connection.</p>                    |
|                                                                                                                                                                                                                                                                                                                    | Mechanical binding causing high torque.                  | <p>Wing to mainframe drive shaft couplers misaligned. Align drive shaft couplers.</p> <p>Failed drive shaft support bearings. Replace failed bearings.</p> <p>Misaligned seed meter and/or chemical hopper disconnects. Inspect and adjust seed meter and/or chemical hopper disconnects.</p> <p>Identify and repair any other sources of mechanical binding.</p>               |

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OUC6074,000106E -19-24OCT08-1/8

| Symptom                                                                                                                                                                                                                                                           | Problem                                                                                                                                                                                                                                                                                                                                                            | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                   | A one hydraulic motor system is setup for two hydraulic motors.                                                                                                                                                                                                                                                                                                    | Set number of hydraulic motors to one. (See ASSIGN MOTOR—ROWS, SPROCKETS, AND WIDTH DISCONNECT in SETUP Variable Rate Drive section.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>WARNING SCREEN: Motor 1,2 disabled. Drive failed to respond. Verify hydraulic power. Check operators manual. Minimum ground speed is.</b><br><br><i>NOTE: This warning occurs when motor speed is expected between 11.5 RPM and 18 RPM, but not occurring.</i> | <p>Motors are not designed to operate less than 18 RPM. For motors to operate above 18 RPM, the ground speed must be above the minimum. The minimum ground speed varies depending on SETUP.</p> <p>No hydraulic pressure or flow.</p> <p>Low hydraulic pressure or flow to variable drive motors.</p> <p>No motor speed detected by variable drive controller.</p> | <p>Operate planter above minimum ground speed.</p> <p>Make sure hoses are plugged into tractor SCV or power beyond.</p> <p>Verify correct location of pressure and return lines. A one way check valve is installed in the return line hose tip.</p> <p>Set tractor SCV to continuous detent and flow.</p> <p>Activate tractor SCV.</p> <p>Maintain full tractor engine RPM.</p> <p>Increase tractor SCV flow setting.</p> <p>Minimize flow to other hydraulic functions.</p> <p>Verify tractor hydraulic system performance.</p> <p>Verify motor speed sensor electrical connection. Note: If this condition exists, the motor without any speed sensor feedback will rotate at a very high RPM for several seconds before a full page warning is issued.</p> <p>Verify set screw in motor coupler is tightened to motor speed shaft.</p> <p>Verify hydraulic valve electrical connection.</p> |

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OUC6074,000106E -19-24OCT08-2/8

| Symptom                                                                                                                                                                                                                                            | Problem                                                                                                                                                                                                                                                                                      | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>WARNING SCREEN: Motor 1,2 is operating at wrong speed.</b></p> <p><i>NOTE: This warning occurs when the motor speed is less than 70 percent or greater than 120 percent of the correct motor speed for the selected population rate.</i></p> | Mechanical binding causing high torque.                                                                                                                                                                                                                                                      | <p>Wing to mainframe drive shaft couplers misaligned. Align drive shaft couplers.</p> <p>Failed drive shaft support bearings. Replace failed bearings.</p> <p>Misaligned seed meter or chemical hopper disconnects. Inspect and adjust seed meter and/or chemical hopper disconnects.</p> <p>Identify and repair any other sources of mechanical binding.</p>                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                    | A one hydraulic motor system is setup for two hydraulic motors.                                                                                                                                                                                                                              | Set number of hydraulic motors to one. (See ASSIGN MOTOR—ROWS, SPROCKETS, AND WIDTH DISCONNECT in SETUP Variable Rate Drive section.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                    | Proportional valve contaminated.                                                                                                                                                                                                                                                             | Perform hydraulic motor/valve flush. (See VRD MOTOR/VALVE FLUSH in Diagnostics section.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                    | <p>Motors are not designed to operate less than 18 RPM. For motors to operate above 18 RPM, the ground speed must be above mph shown in Configuration Summary. The minimum ground speed varies depending on variable setup.</p> <p>Mechanical binding causing torque/speed fluctuations.</p> | <p>Operate planter above minimum ground speed.</p> <p>Loose chain on drive system causing chain to jump sprocket teeth. Tighten chain idler.</p> <p>Misaligned chains causing chain to jump sprocket teeth. Align drive and driven sprockets. Align chain idler.</p> <p>Wing to mainframe drive shaft couplers misaligned. Align drive shaft couplers.</p> <p>Failed drive shaft support bearings. Replace failed bearings.</p> <p>Misaligned seed meter and/or chemical hopper disconnects. Inspect and adjust seed meter and/or chemical hopper disconnects.</p> <p>Identify and repair any other sources of mechanical binding.</p> |

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OUC6074,000106E -19-24OCT08-3/8

| Symptom                                                                                                                                                                                                                                                                                                                                                                                                                                                | Problem                                                                             | Solution                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Seed rate selection line appears black with white lettering.</b>                                                                                                                                                                                                                                                                                                                                                                                    | Motor speed sensor detects no motion/motors are not turning.                        | Check connection to speed sensor.                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Faulty motor speed sensor.                                                          | Replace motor speed sensor.                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seal blown in motor.                                                                | See your John Deere dealer.                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hose clamps on motor speed sensor coupler loose.                                    | Tighten clamps.                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Valve on hydraulic motor not getting any power.                                     | Check connection to valve.                                                                                                                                                                                                       |
| <b>WARNING SCREEN: STOP. Power Interruption. Possible skip.</b>                                                                                                                                                                                                                                                                                                                                                                                        | Power lost to controller.                                                           | Check connection of 30-way METRAPAK™ connector on controller.                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                     | Check 9-pin connector.                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                     | Check 3-pin convenience outlet connector.                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                     | See your John Deere dealer.                                                                                                                                                                                                      |
| <b>WARNING SCREEN: No Tractor Speed, Planter Moving.</b><br><b>WARNING SCREEN: Tractor/Planter Speed Error.</b><br><br><i>NOTE: This warning occurs when radar speed is significantly different from planter motion sensor speed.</i><br><br><i>Extremely windy, dusty conditions will give radar false readings and cause this warning.</i><br><br><i>Excessive wheel slippage on tire with motion sensor mounted to it, will cause this warning.</i> | The radar signal has been lost for a period of three seconds.                       | Verify radar connection.                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Faulty radar.                                                                       | Verify radar connection.                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                     | Consult dealer or technical manual for further diagnostics.                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Faulty motion sensor.                                                               | Verify motion sensor connection.<br><br>Verify motion sensor-to-disk clearance is 2—4 mm (0.08—0.16 in.) and wheel bearing is tight. Verify wheel is turning.<br><br>Consult dealer or technical manual for further diagnostics. |
| <b>No row failed warnings from planter monitor when drive motors stop.</b>                                                                                                                                                                                                                                                                                                                                                                             | Normal condition for planter monitor not to issue row failed warning below two mph. | Operate planter above two mph.                                                                                                                                                                                                   |

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OUO6074,000106E -19-24OCT08-4/8

| Symptom                                              | Problem                                                                                                                                                                                                                                                              | Solution                                                                                                                                                                                                                                                                         |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hydraulic motors do not turn or stop turning.</b> | Normal condition when ground speed is less than one mph under all conditions/setup. Depending on variable drive setup, the minimum speed the system will function at may be higher. Note: Planter monitor will not provide row failure warning under 3 km/h (2 mph). | Operate planter at ground speeds greater than minimum ground speed.                                                                                                                                                                                                              |
|                                                      | A population of zero has been selected.                                                                                                                                                                                                                              | Population set rate must be greater than zero.                                                                                                                                                                                                                                   |
|                                                      | No hydraulic pressure or flow.                                                                                                                                                                                                                                       | <p>Make sure hoses are plugged into tractor SCV or power beyond.</p> <p>Verify correct location of pressure and return lines. A one way check valve is installed in the return line hose tip.</p> <p>Set tractor SCV to continuous detent/flow.</p> <p>Activate tractor SCV.</p> |
|                                                      | Low hydraulic pressure/flow to variable drive motors.                                                                                                                                                                                                                | <p>Maintain full tractor engine RPM.</p> <p>Increase tractor SCV flow setting.</p> <p>Minimize flow to other hydraulic functions.</p> <p>Verify tractor hydraulic system performance.</p>                                                                                        |
|                                                      | Height sensor not calibrated.                                                                                                                                                                                                                                        | Calibrate height sensor. (See height sensor calibration in SETUP Variable Rate Drive section.)                                                                                                                                                                                   |
|                                                      | Height sensor STOP position set too low (drawn machines).                                                                                                                                                                                                            | Set height sensor STOP position at a frame height that allows the row unit opener blades to just touch the ground. If the stop position is set too low, the drive motors may turn on/off while planting due to wheel module float over rough ground conditions.                  |
|                                                      | Height sensor bracket not adjusted to specification (integral machines).                                                                                                                                                                                             | Adjust height switches. (See ADJUST PARALLEL ARM HEIGHT SWITCH in SETUP Variable Rate Drive section.)                                                                                                                                                                            |

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OUC6074,000106E -19-24OCT08-5/8

| Symptom                                                                     | Problem                                                                                                                                                                                             | Solution                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                             | Planter motion sensor not active when planter is moving.                                                                                                                                            | <p>Verify motion sensor is active when planter is operating. (See VARIABLE RATE DRIVE COMPONENT ACTIVITY in Diagnostics section.)</p> <p>Verify electrical connections to motion sensor.</p> <p>Check 2 mm (0.08 in.) gap between motion sensor and tone wheel bolted to the wheel.</p> <p>Wheel bearings may be loose or failed causing an increasing/decreasing gap on wheel motion sensor.</p> |
|                                                                             | Mechanical binding causing high torque.                                                                                                                                                             | <p>Wing to mainframe drive shaft couplers misaligned. Align drive shaft couplers.</p> <p>Failed drive shaft support bearings. Replace failed bearings.</p> <p>Misaligned seed meter and/or chemical hopper disconnects. Inspect and adjust seed meter and/or chemical hopper disconnects.</p> <p>Identify and repair any other sources of mechanical binding.</p>                                 |
| <b>Hydraulic motor(s) continue to turn when planter is raised.</b>          | Motor proportional valve stuck from hydraulic oil contamination.                                                                                                                                    | <p>Perform flush motor procedure.</p> <p>Consult dealer or Technical Manual TM1601 for proportional valve cleaning procedure.</p> <p>Replace hydraulic oil and oil filters in tractor.</p>                                                                                                                                                                                                        |
| <b>Only one hydraulic motor of a two hydraulic motor system is turning.</b> | <p>Half width disconnect OPEN on either left or right side.</p> <p>Variable drive setup for only one motor. This condition will only engage the right hand side of the machine.</p>                 | <p>Close half width disconnect switch.</p> <p>Set number of hydraulic motors to two. (See ASSIGN MOTOR—ROWS, SPROCKETS, AND WIDTH DISCONNECT in SETUP Variable Rate Drive section.)</p>                                                                                                                                                                                                           |
| <b>Motors turning backwards.</b>                                            | <p>Full tractor pressure is being applied to the "T" port on the hydraulic valve manifold.</p> <p>Motor orientation on planter backwards.</p> <p>Valve manifold orientation on motor backwards.</p> | <p>Plumb hydraulic lines so hydraulic pressure is applied to the port labeled "P".</p> <p>See installation instructions for correct orientation.</p> <p>See installation instructions for correct orientation.</p>                                                                                                                                                                                |

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OUC6074,000106E -19-24OCT08-6/8

| Symptom                                                                                                                                            | Problem                                                                                                                                                                                  | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hydraulic motors turn at an erratic speed.</b>                                                                                                  | Proportional valve contaminated.                                                                                                                                                         | Perform hydraulic motor/valve flush. (See VRD MOTOR/VALVE FLUSH in Diagnostics section.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                    | Low hydraulic pressure/flow to variable drive motors.                                                                                                                                    | Maintain full tractor engine rpm.<br>Increase tractor SCV flow setting.<br>Minimize flow to other hydraulic functions.<br>Verify tractor hydraulic system performance.                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                    | Mechanical binding causing torque/speed fluctuations.                                                                                                                                    | Loose chain on drive system causing chain to jump sprocket teeth. Tighten chain idler.<br>Misaligned chains causing chain to jump sprocket teeth. Align drive and driven sprockets. Align chain idler.<br>Wing to mainframe drive shaft couplers misaligned. Align drive shaft couplers.<br>Failed drive shaft support bearings. Replace failed bearings.<br>Misaligned seed meter and/or chemical hopper disconnects. Inspect and adjust seed meter and/or chemical hopper disconnects.<br>Identify and repair any other sources of mechanical binding. |
| <b>When starting to plant from a stopped position, hydraulic motor(s) do not turn for a brief period. This creates a seeding gap in the field.</b> | Motors are not designed to operate less than 18 rpm. For motors to operate above 18 rpm, the ground speed must be above the minimum. The minimum ground speed varies depending on SETUP. | Operate planter above minimum ground speed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                    | Normal operation to have an approximate 0.9 m (3 ft) seeding gap using Quick Start or a 9 m (10 ft) skip without Quick Start.                                                            | Lower planter a short distance ahead of where seed must reach the ground. This may require backing up, if planter is stopped in the middle of the field. Do not back up while planter is lowered.                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                    | <i>NOTE: These approximate distances will be longer if seed is not loaded on the seed meter disk.</i>                                                                                    | Use Quick Start feature to minimize skip.<br>Load seed on the seed meter disk prior to the start of productive seeding by lowering the planter into the DOWN position and driving forward with the vacuum on if required.                                                                                                                                                                                                                                                                                                                                |

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OUC6074,000106E -19-24OCT08-7/8

| Symptom                                                                                           | Problem                                                                 | Solution                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                   |                                                                         | When using Quick Start, begin forward travel in a low gear to take off slower. By taking off slow and then shifting gear to speed up, the skip becomes smaller.                                                          |
| <b>Many seeds on end of row when stopping abruptly.</b>                                           | VRD system requires a brief delay to shut off.                          | Start downshifting prior to end of row to reduce forward travel speed prior to stopping at end. This will allow VRD system more time to slow down and reduce the amount of seeds dropped at end when planter is stopped. |
| <b>Set population does not match monitored population.</b>                                        | Vacuum set too low/high.                                                | Adjust vacuum to appropriate level.                                                                                                                                                                                      |
|                                                                                                   | Problem with seed meter.                                                | See operator manual for troubleshooting solutions.                                                                                                                                                                       |
|                                                                                                   | Wrong seed disk selected in variable drive setup.                       | Enter correct seed disk or meter. (See VRD MACHINES—CONFIGURE METER, CROP, DISK, AND RATES in SETUP Seed Rates section.)                                                                                                 |
|                                                                                                   | Wrong sprocket combination selected in variable drive setup.            | Enter correct sprocket combination. (See ASSIGN MOTOR—ROWS, SPROCKETS, AND WIDTH DISCONNECT in SETUP Variable Rate Drive section.)                                                                                       |
|                                                                                                   | Wrong row spacing.                                                      | Enter correct row spacing. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)                                                                                  |
|                                                                                                   | Wrong units of measure.                                                 | Enter correct units. (See CONFIGURE LANGUAGE AND UNITS OF MEASURE in Monitor Settings section.)                                                                                                                          |
|                                                                                                   | Wrong row unit type selected.                                           | Select correct row unit type. (See SET METER TYPE AND ROW UNIT DRIVE TYPE in SETUP Variable Rate Drive section.)                                                                                                         |
|                                                                                                   | Seed sensors can not count seeds passing through sensors at high rates. | Normal operation of planter monitor. (See POPULATION ADJUST in the SETUP Seed Rates section.)                                                                                                                            |
| <b>Wrong seed population based on seed used/acre but selected rate and planter monitor agree.</b> | Radar not calibrated.                                                   | Calibrate radar. (See RADAR CALIBRATION in Performance Monitor section.)                                                                                                                                                 |

OUC6074,000106E -19-24OCT08-8/8

| Symptom                                                                                                            | Problem                                                                                                    | Solution                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Calculated acres do not match actual acreage.</b>                                                               | Machine width not correct in planter monitor setup.                                                        | Verify machine width. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)                                                               |
|                                                                                                                    | When row failed warning was issued, seed sensors were ignored and machine width reduced.                   | This is a normal planter monitor mode selected by the operator. This is a temporary condition that resets when ground speed is reduced below 3 km/h (2 mph) then increases above 3 km/h (2 mph). |
|                                                                                                                    | Radar not calibrated.                                                                                      | Calibrate radar. (See RADAR CALIBRATION in Performance Monitor section.)                                                                                                                         |
| <b>Radar speed displayed on GreenStar™ display different than tractor performance monitor/corner post display.</b> | Either the GreenStar™ display or tractor performance monitor/corner post display not calibrated for radar. | Calibrate radar. (See RADAR CALIBRATION in Performance Monitor section.) See tractor operators manual to calibrate tractor performance monitor/corner post display.                              |

Continued on next page

OUC6074,000106E -19-24OCT08-9/8

## Troubleshoot Variable Rate Fertilizer

| Symptom                                                                                                                  | Problem                                                 | Solution                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>WARNING Screen: Pump Motor Drive Power is not detected. Turn off all power. Connect the 7-pin connector. Restart.</b> | Power lost to motor.                                    | Ensure 7-pin connector is plugged into tractor.                                                                                                                                      |
|                                                                                                                          | Loose connector or pin.                                 | Check 7-pin connector for proper voltage and inspect pins. See TM1023 or your John Deere dealer.                                                                                     |
|                                                                                                                          | Pinched wires in harness.                               | Inspect harness for damage. See TM1023 or your John Deere dealer.                                                                                                                    |
|                                                                                                                          | Blown fuse.                                             | Check tractor fuses.                                                                                                                                                                 |
| <b>WARNING Screen: Pump # Position Sensor not detected. Unable to adjust rate/ calculated rate goes to zero.</b>         | Pump position sensor harness lead has an open or short. | Inspect position sensor leads for damage and proper connection.<br><br>Check position sensor circuit on wiring harness. See TM1023 or your John Deere dealer for sensor diagnostics. |
|                                                                                                                          |                                                         |                                                                                                                                                                                      |
| <b>Unable to adjust rate. Calculated rate goes to zero.</b>                                                              | Pump RPM sensor harness has an open or short.           | Inspect pump RPM sensor leads for damage and proper connection.<br><br>Check pump RPM sensor lead wiring harness. See TM1023 or your John Deere dealer.                              |
|                                                                                                                          |                                                         |                                                                                                                                                                                      |
| <b>WARNING Screen: Pump # No Response to Control Command. Unable to adjust rate.</b>                                     | Pump position sensor harness has an open or short.      | Check pump position sensor leads for damage and proper connection.<br><br>Check pump position sensor circuit on wiring harness. See TM1023 or your John Deere dealer.                |
|                                                                                                                          | Loose set screw on sensor.                              | Check motor set screw for tightness.                                                                                                                                                 |
|                                                                                                                          | Motor does not turn.                                    | See TM1023 or your John Deere dealer for motor diagnostics.<br><br>Check motor wiring harness for damage.                                                                            |
|                                                                                                                          |                                                         |                                                                                                                                                                                      |
| <b>GreenStar™ display shows "Controller Disconnected".</b>                                                               | Signal lost after power up.                             | Perform CAN diagnostics. See TM1023 or your John Deere dealer.                                                                                                                       |
| <b>WARNING Screen: All Devices Unable to Communicate.</b>                                                                | CAN signal lead short to power or ground.               | Perform CAN diagnostics. See TM1023 or your John Deere dealer.                                                                                                                       |
| <b>Motor does not adjust or blown fuse.</b>                                                                              | Pinched wires.                                          | Inspect for pinched wires and repair.                                                                                                                                                |
|                                                                                                                          | Damaged connector pin.                                  | Inspect connector pins and repair.                                                                                                                                                   |

Continued on next page

OUC6074,000106F -19-24JUL08-1/2

## Troubleshoot

| Symptom                                                                                                                                                                         | Problem                                  | Solution                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------|
| <b>WARNING Screen: Over Application.</b><br><b>WARNING Screen: Under Application.</b><br><b>WARNING Screen: V.R. Fert System Problem. Calculated rates may not be accurate.</b> | Stretched wires due to improper routing. | Inspect for damaged wires and repair.                                         |
|                                                                                                                                                                                 | Small rate sprocket used on pump.        | Use large sprocket.                                                           |
|                                                                                                                                                                                 | Large rate sprocket used on pump.        | Use small sprocket.                                                           |
|                                                                                                                                                                                 | Drive wheel slippage.                    | Increase pressure in variable rate fertilizer pneumatic contact wheel spring. |
|                                                                                                                                                                                 | Incorrect RPM sensor signal.             | Adjust sensor for correct gap. If gap is correct, replace sensor.             |

OUC6074,000106F -19-24JUL08-2/2

# Storage

## Beginning of the Season Service

Before using the monitor after it has been stored, inspect for cleanliness and damage.

Thoroughly inspect monitor display, controller wedgebox, harnesses, radar and sensors for loose parts and adjust as necessary.

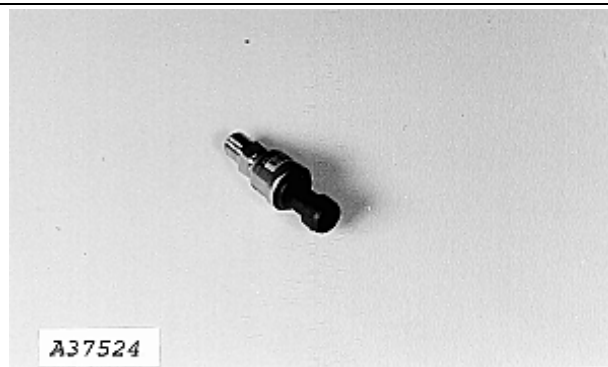
Clean any dirt or grease that may have accumulated before operating.

AG,OUO1074,1591 -19-12MAY04-1/1

## Liquid Fertilizer Sensor

Remove sensor and flush with clean water.

Do not insert any object or tool into fluid port.



A37524 —UN—13SEP95

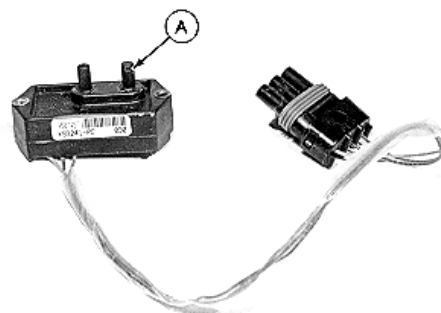
AG,OUO1074,1592 -19-24APR00-1/1

## Vacuum Sensor

*NOTE: P2 port (A) used for hose connection.*

Protect when using water to wash planter.

**A—P2 Port**

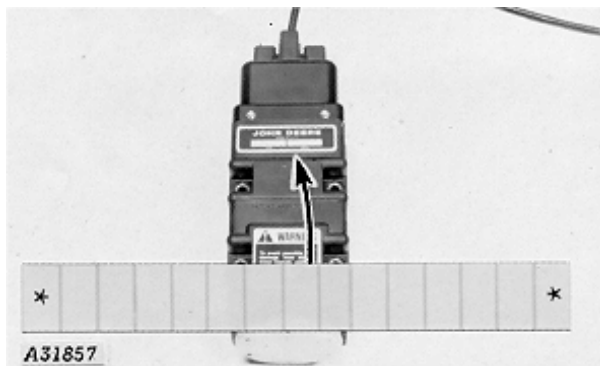


A40613 —UN—30DEC96

AG,OUO1074,1593 -19-24APR00-1/1

# Specifications

## Record Serial Numbers



Radar Serial Number



Seed Monitor/Variable Rate Drive Controller



Second Seed Monitor/Variable Rate Drive Controller on Machines Over 24 Rows

OOU6074,0000FCD -19-02APR07-1/1

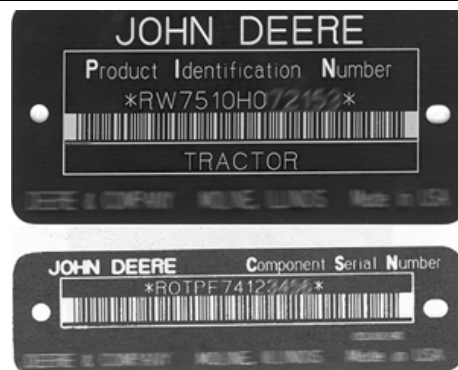
## Record Planter Options

Number of Rows \_\_\_\_\_  
 Row Spacing \_\_\_\_\_  
 Planter Width \_\_\_\_\_  
 Radar Calibration Number \_\_\_\_\_  
 Number of Seed Sensors  
 Turned Off \_\_\_\_\_  
 Display Software Version \_\_\_\_\_  
 Planter Controller Software  
 Version \_\_\_\_\_

AG,OOU1074,1631 -19-12MAY04-1/1

## Keep Proof of Ownership

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
  - Mark your machine with your own numbering system
  - Take color photographs from several angles of each machine

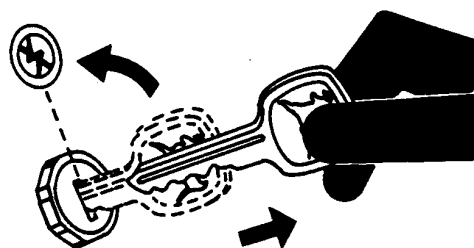


TS1680 —UN—09DEC03

DX,SECURE1 -19-18NOV03-1/1

## Keep Machines Secure

1. Install vandal-proof devices.
2. When machine is in storage:
  - Lower equipment to the ground
  - Set wheels to widest position to make loading more difficult
  - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify your John Deere dealer of any losses.



TS230 —UN—24MAY89

DX,SECURE2 -19-18NOV03-1/1



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