SeedStar 2 and SeedStar XP Monitor for 1745 MaxEmerge5 Planter MY2020 Operator's Manual

(Serial No. 790101 -)

JOHN DEERE

OPERATOR'S MANUAL

SeedStar 2 and SeedStar XP Monitor for 1745 MaxEmerge 5 Planter

OMKK76021 ISSUE K0 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Mexico
North American Edition
PRINTED IN U.S.A

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.

PB21958,000039C-19-29JAN18

Identification Views

Monitor's

APY01358—UN—11DEC17

GreenStar™ 2630 Touch Screen Monitor

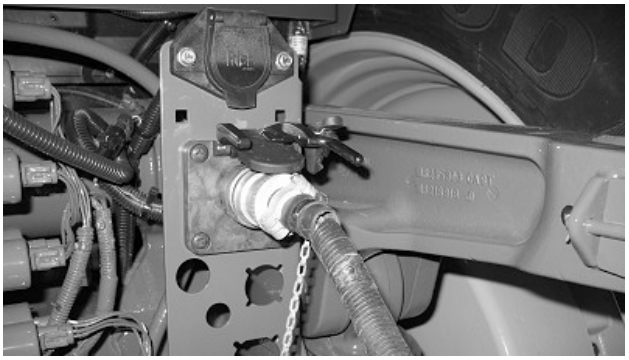
A61842—UN—22JAN08

GreenStar™ 2100 and GreenStar™ 2600 Touch Screen Monitor

A61843—UN—22JAN08

GreenStar™ 1800 Control Pad Monitor

SeedStar™ 2 Seed Monitoring

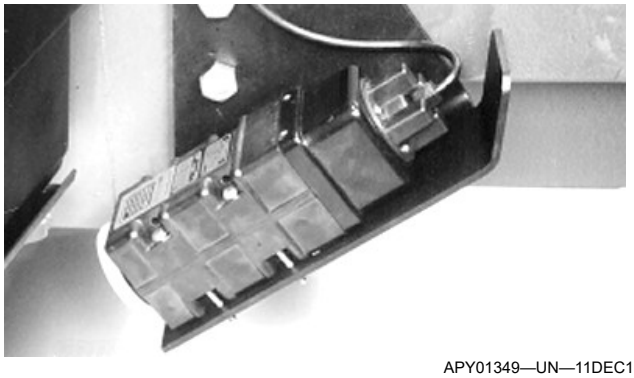


APY01350—UN—11DEC17

CAN Harness Connection

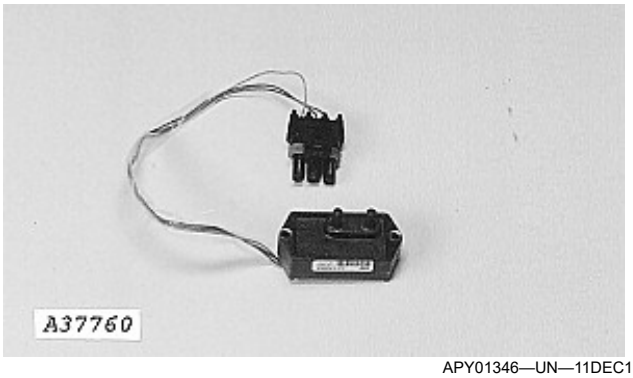
A50167—UN—09SEP02

Planter Main 1 Controller (PM1)



APY01349—UN—11DEC17

External Radar (Optional)

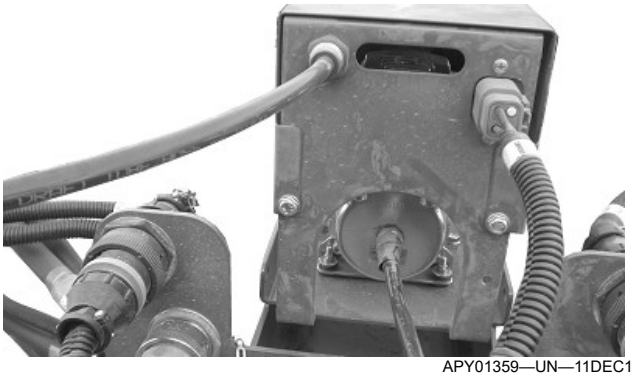


APY01346—UN—11DEC17

Vacuum Sensor

APY01354—UN—11DEC17

Dual Radar

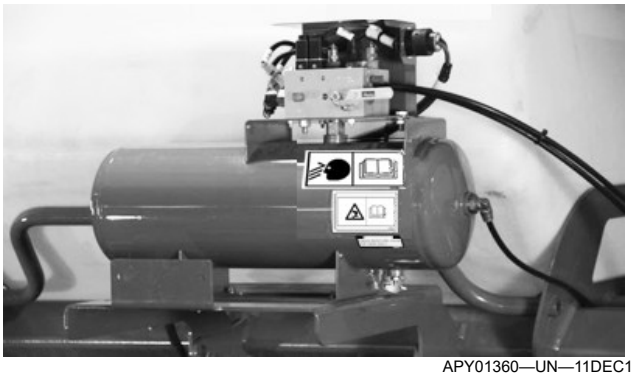


APY01359—UN—11DEC17

Air Compressor (Single Set-Point Down Force)

APY01355—UN—11DEC17

GPS Receiver

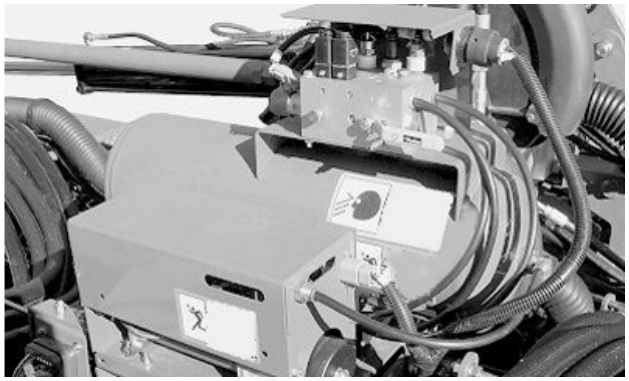


APY01360—UN—11DEC17

Pneumatic Down Force Air Tank and Solenoid Control Valve - Drawn Planters With CCS (Single Set-Point Down Force)

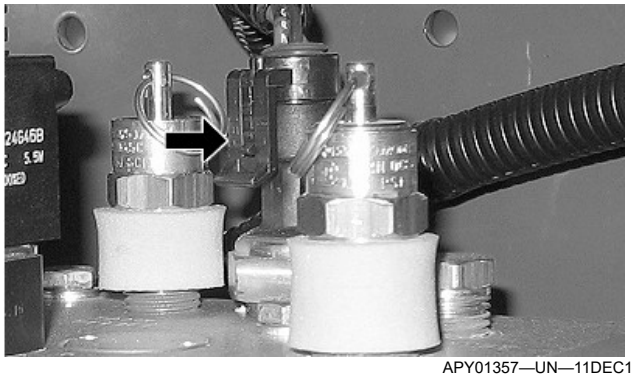
APY01356—UN—11DEC17

Seed Tube with Seed Sensor



APY01361—UN—11DEC17

Pneumatic Down Force Air Tank and Solenoid Control Valve - Integral Planters (Single Set-Point Down Force)



APY01357—UN—11DEC17

Pneumatic Down Force Pressure Sensor

SeedStar™ XP Seed Monitoring

APY01352—UN—11DEC17

Planter Main 2 Controller

APY01353—UN—13DEC17

Ride Dynamic Sensor

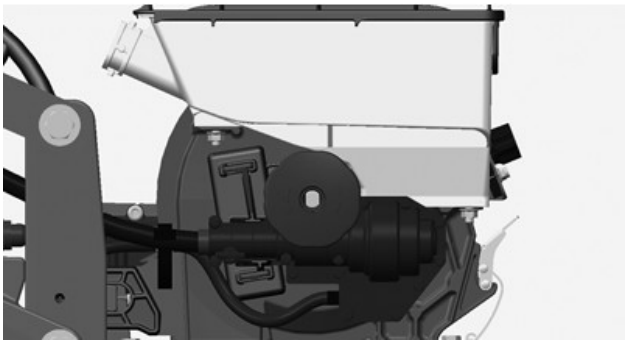
APY01384—UN—13DEC17

Gauge Wheel Down Force Sensor

RowCommand™

APY01351—UN—19DEC17

RowCommand™ Electronic Power Module (EPM)



APY01362—UN—19DEC17

Pro-Shaft RowCommand™ Clutch

PX03972,000185D-19-27APR20

A Message to Our Customers

We appreciate the confidence placed in us by your purchase of this machine. Before this machine was brought to market, countless hours were spent designing and testing to ensure that its performance would be at the highest level. To achieve maximum performance, it is imperative this machine be operated in accordance with the procedures outlined in this manual.

Information in this manual is divided into sections. These sections are identified at the top of each page. Specific information within each section is organized into modules.

These modules are encased in boxes with principle modules identified with a heading at the top left side of the box. Two-part page numbers identify both the section and page of that section.

By reviewing this manual often, one will quickly learn which section to go to for specific information. For instance, machine adjustments would be found in the Operating the Machine section, lubrication intervals in the Lubrication section, seed opener maintenance in the Service section. A detailed Table of Contents is found immediately behind this page, and an Index is provided at the back of the manual.

Thanks again for purchasing this machine.

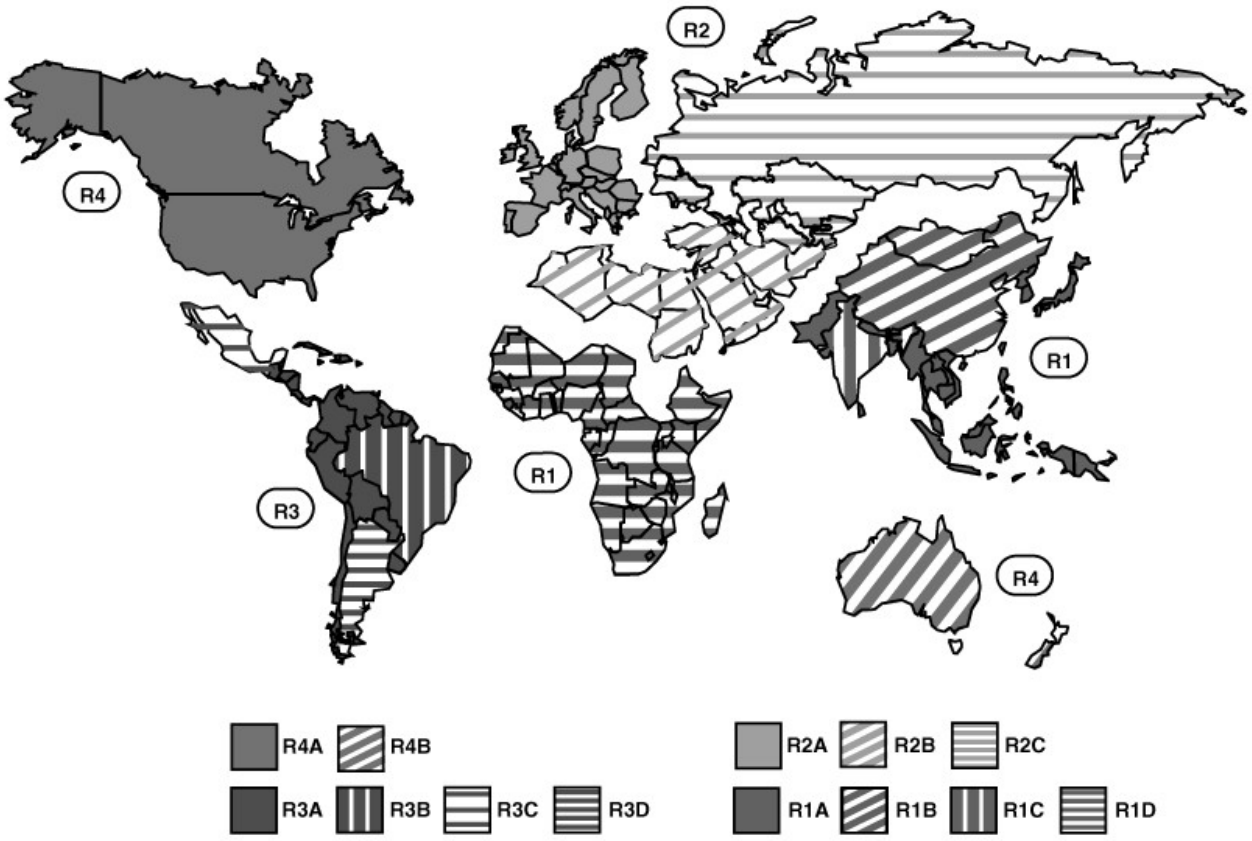
PB21958,00004E8-19-26FEB18

Preliminary Checks

To inspect items before operation, use the following list as a reminder. Detailed operation and service information is available in other sections.

Check and Inspect Equipment		OK / Not OK
After final assembly, adjustment, lubrication, and before machine use; conduct inspections.	Review manual and machine for safety signs.	
	Review manual for proper operation, adjustment, and service.	
	Review manual for regular lubrication points and intervals.	
	Review manual for lighting and devices available when transporting machine.	
	Review manual for attachment / connection process to tractor and control devices (hitch, hydraulic, and electrical).	
	Review additional documentation (instructions, warranty, serial numbers).	
	Machine is assembled according to instructions (nuts and bolts tightened properly).	
	Equipment is lubricated, rotates, or moves freely (without dragging or interference).	
	Transport link is adjusted to reach lug when the cylinder is fully extended.	
	Paint all unpainted bolts and nuts or any parts scratched in shipment.	
	Properly connect machine to tractor drawbar.	
	Axle lift fittings are installed and lubricated.	
	All grease fittings are installed.	
During the first season of operation; inspect proper operating conditions.	Check entire machine for loose or missing hardware (replace or retorque as necessary).	
	Check entire machine for broken, damaged, or missing parts (repair as necessary).	
	If possible; operate machine to check for proper functionality.	
	Review manual for proper safety, operation, lubrication, and service of machine.	
	Contact John Dealer for assistance (checks, inspections, operation, lubrication, service, or additional equipment).	
Daily inspect machine lubrication and operation.	Lubricate machine according to service intervals.	
	Check for loose or missing hardware or damaged parts.	
	Check machine connections to tractor (hitch, hydraulic, and electrical).	
	Check machine and tractor operating controls.	

Regions and Country Versions



RXA0150915—UN—01FEB16

R1—Asia and Sub-Saharan Africa
R1A—Far East, Sri Lanka, and Pakistan
R1B—China
R1C—India
R1D—Sub-Saharan Africa
R2—Europe, North Africa, Mid East, CIS
R2A—European Union (EU 28+)
R2B—North Africa and North Middle East (NANME)
R2C—Common Wealth of Independent States (CIS)
R3—Central and South America
R3A—Latin America (JDLA)
R3B—Brazil
R3C—Mexico
R3D—Argentina
R4—North America
R4A—USA and Canada
R4B—Oceania (Australia and New Zealand)

Regions 1, 2 and 3 are equipped with **ECE** (ECONOMIC COMMISSION FOR EUROPE) electrical systems.

Regions 4 are equipped with **SAE** (SOCIETY OF AUTOMOTIVE ENGINEERS) electrical systems.

NOTE: The main difference between ECE and SAE electrical systems is the turn-signal light. The turn-signal lights operate in different ways. With SAE electrics, the turn signal flashes on the side selected, while the light on the opposite side comes on but does not FLASH. With ECE electrics, all that happens is that the turn signal flashes on the side selected.

PB21958,00004EA-19-06JUL20

Machine Overview

IMPORTANT: READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may be available in other languages. See your John Deere dealer for specific language requirements and to place an order.

Review manual Controls and Transporting sections before operation.

APY03846—UN—27FEB18

Operating the Machine Introduction:

See relevant section in the operator manual for operating procedures.

- Controls
- Specifications

Preliminary Overview

Inspect the machine before operation, use the following list as a reminder. Detailed operation and service information is available in this operator manual.

- Review manual and machine for safety information and safety signs.
- Review manual for proper operation, adjustment, and service.
- Review manual for control devices (hydraulic and electrical).
- Review manual for regular lubrication points and intervals.
- Check machine mechanical, hydraulic, and electrical connection points.
- Check for visual signs of leaks, damage, and failures.
- Perform machine daily maintenance.

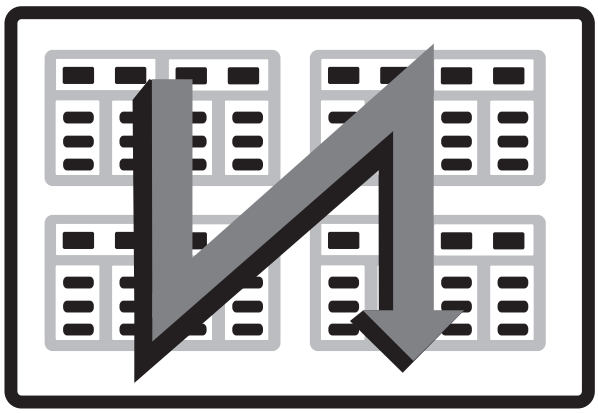
Using this Manual:

The information provided in this manual is divided into sections. The sections are organized with the typical machine features or functional systems together. These sections are identified at the top of each page. Specific information within each section is organized into modules. The main modules are identified with a heading at the top left. Page numbers identify the section as well as the number of the page in the section.

By reviewing this manual frequently you learn which section to turn to for specific information. For example, the safety information is covered at the beginning, the operation of all features and systems is covered in the first half of the manual. Maintenance intervals are in the middle of the manual, the maintenance of all the features and systems is covered in the second half of the manual. The specifications are covered at the end.

A detailed table of contents appears before safety information and there is an alphabetical index at the very end of the manual.

The Operator's Manual content flows as the sequential reading down one column of text and graphic then over to the top of the next column as shown.



W28329—UN—18OCT17
PB21958,00004EB-19-06JUL20

Contents

Continued on next page

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

Recognize Safety Information

T81389—UN—28JUN13

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

Follow recommended precautions and safe operating practices.

DX,ALERT-19-29SEP98

Understand Signal Words

TS187—19—30SEP88

DANGER; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

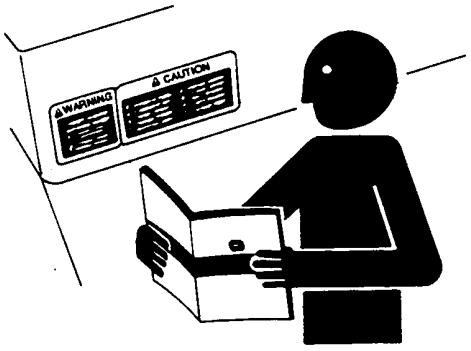
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION; The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards. DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

DX,SIGNAL-19-05OCT16

Follow Safety Instructions



TS201—UN—15APR13

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.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

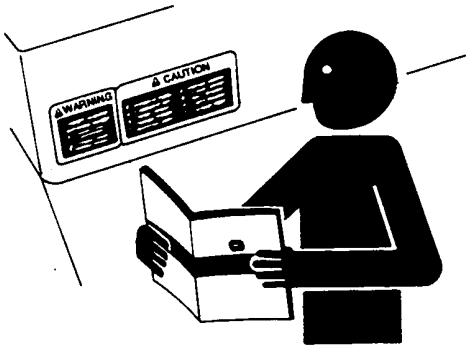
Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

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

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

DX,READ-19-16JUN09

Replace Safety Signs



TS201—UN—15APR13

Replace missing or damaged safety signs. Use this operator’s manual for correct safety sign placement.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

DX,SIGNS-19-18AUG09

Prevent Machine Runaway

TS177—UN—11JAN89

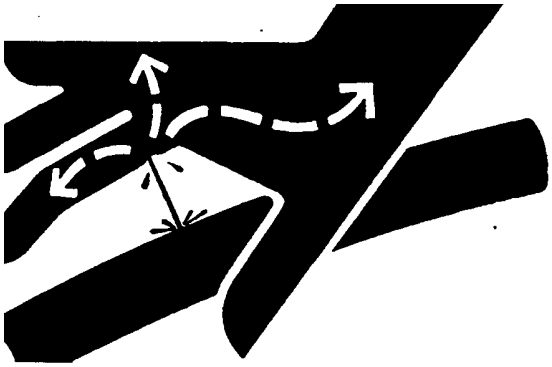
Avoid possible injury or death from machinery runaway.

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.

DX,BYPAS1-19-29SEP98

Avoid High-Pressure Fluids



X9811—UN—23AUG88

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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 in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

Prevent Battery Explosions

TS204—UN—15APR13

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).

DX,SPARKS-19-03MAR93

Welding Near Electronic Control Units

TS953—UN—15MAY90

IMPORTANT: Do not jump-start engines with arc welding equipment. Currents and voltages are too high and may cause permanent damage.

1. Disconnect the negative (-) battery cable(s).
2. Disconnect the positive (+) battery cable(s).
3. Connect the positive and negative cables together. Do not attach to vehicle frame.

4. Clear or move any wiring harness sections away from welding area.
5. Connect welder ground close to welding point and away from control units.
6. After welding, reverse Steps 1—5.

DX,WW,ECU02-19-14AUG09

Keep Electronic Control Unit Connectors Clean

IMPORTANT: Do not open control unit and do not clean with a high-pressure spray. Moisture, dirt, and other contaminants may cause permanent damage.

1. Keep terminals clean and free of foreign debris. Moisture, dirt, and other contaminants may cause the terminals to erode over time and not make a good electrical connection.
2. If a connector is not in use, put on the proper dust cap or an appropriate seal to protect it from foreign debris and moisture.
3. Control units are not repairable.
4. Since control units are the components LEAST likely to fail, isolate failure before replacing by completing a diagnostic procedure. (See your John Deere dealer.)
5. The wiring harness terminals and connectors for electronic control units are repairable.

DX,WW,ECU04-19-11JUN09

Safety Signs

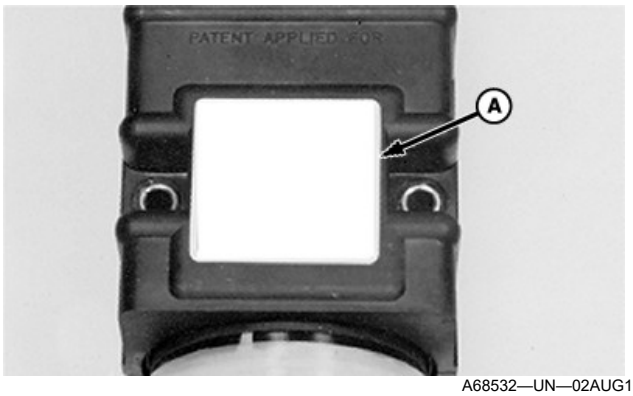
Pictorial Safety Signs

TS231—19—07OCT88

At several important places of this machine safety signs are affixed intended to signify potential danger. The hazard is identified by a pictorial in a warning triangle. An adjacent pictorial provides information how to avoid personal injury. These safety signs, their placement on the machine and a brief explanatory text are shown below.

PB21958,000039B-19-29JAN18

Safety Sign



A68532—UN—02AUG10

External Radar (Optional)

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

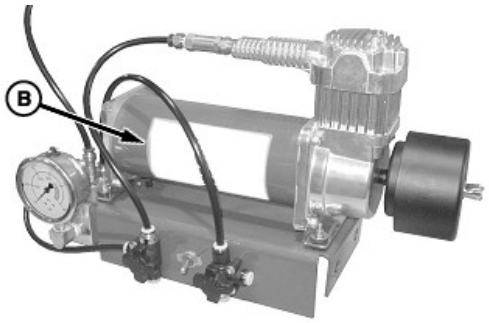
P18682—UN—24APR20

A—Warning
B—Warning

A—Warning Avoid exposure to airborne chemicals.

This tank may be pressurized. Lid may fly upward if lid is opened while fan is operating. Dust and fumes will be exhausted if tank lid is opened.

B—Warning Avoid serious injury from falling. Do not ride on machine

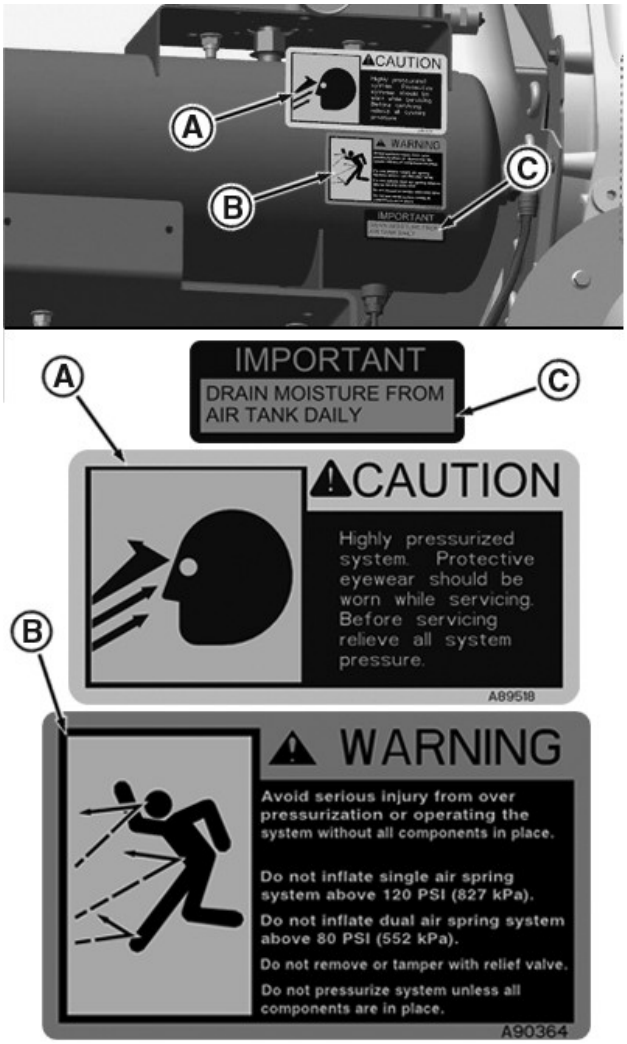


APY01380—UN—12DEC17

Pneumatic Down Force Compressor (SeedStar™ 2 Without on-screen PDF Control)

A—Caution Highly pressurized system. Protective eyewear is worn while servicing. Before servicing, relieve system pressure.

B—Warning Avoid serious injury from exploding parts due to over pressurization or operating the system without all components in place. Do not inflate single bag system above 827 kPa (8.27 bar) (120 psi). Do not pressurize system until all the row unit components are in place.



APY13615—UN—20SEP18

Integrated Pneumatic Downforce

A—Caution
B—Warning
C—Important

CAUTION: Highly pressurized system. Protective eyewear should be worn while servicing. Before servicing, relieve all system pressure.

WARNING: Avoid serious injury from over pressurization or operating the system without all components in place.

Do not inflate single air spring system above 120 PSI (827 kPa).

Do not inflate dual air spring system above 80 PSI (552 kPa).

Do not remove or tamper with relief valve.

IMPORTANT : Drain moisture form air tank daily.

PX03972,000185E-19-06JUL20

Use with GreenStar™ Monitors

A61843—UN—22JAN08

Control Pad Monitor

A71621—UN—20MAY11

GreenStar™ 2630 Touch Screen Monitor

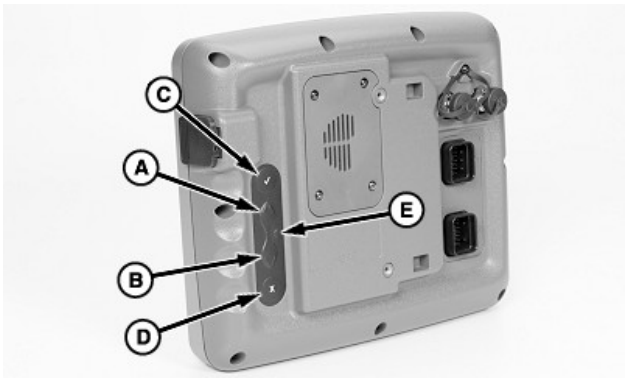
The information presented in this manual describes how to use John Deere™ displays. Learning SeedStar is best accomplished when the display is connected to an operational system.

PB21958,0000352-19-26JAN18

Monitor Controls

A71621—UN—20MAY11

GreenStar™ 2630 Touch Screen Monitor



A71622—UN—20MAY11

GreenStar™ 2630 Touch Screen Monitor

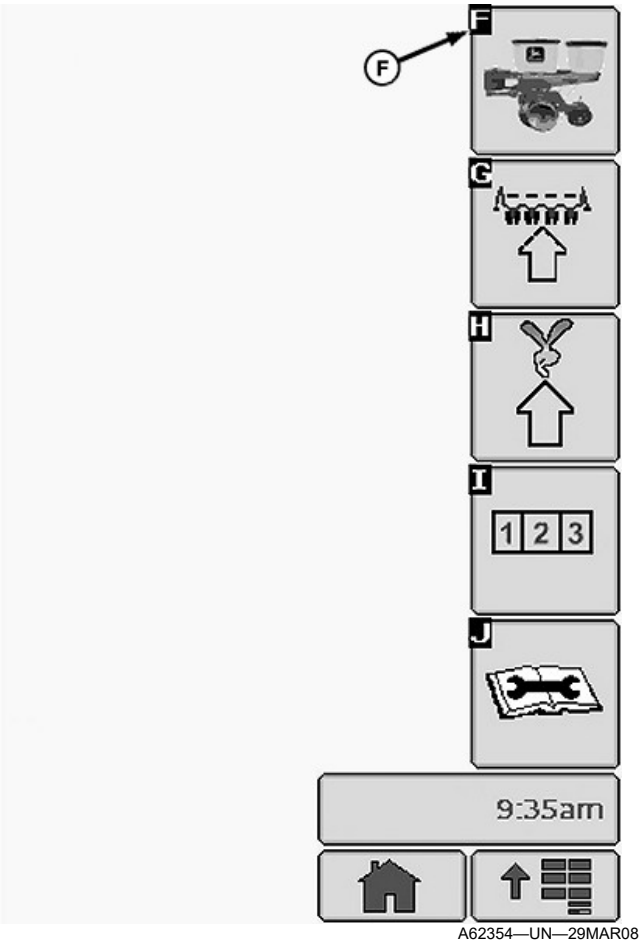
A—Up Arrow
B—Down Arrow
C—Check Mark
D—Clear or Cancel
E—Reset

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.

A62351—UN—29MAR08

John Deere is a trademark of Deere & Company



A62354—UN—29MAR08

A—Thumbwheel
B—Enter
C—Cancel
D—Menu
E—Home
F—Quick Select Buttons

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.

PB21958,00001D4-19-11DEC17

Monitor Power up and Power Down

Upon power-up, wait for display to detect data from a control unit of implement 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 the monitor to go out and wait an additional 30 seconds before another power-up.

PB21958,0000353-19-26JAN18

Virtual Terminal Displays

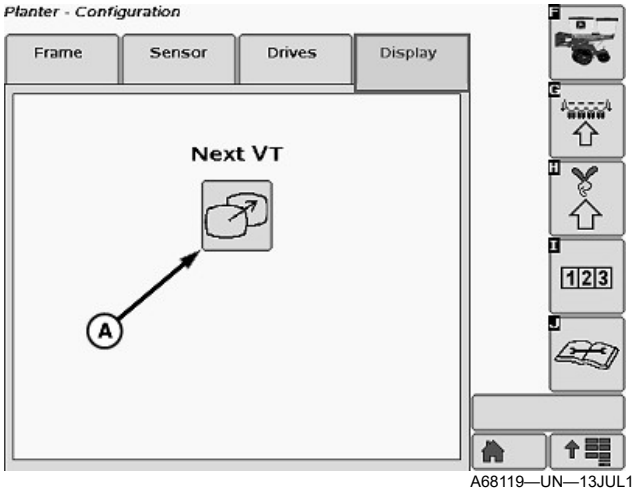
When using only the John Deere Tractor CommandCenter™ to display planter monitor:

1. Turn on key power and allow the application to load. Select Main menu, then select Display (button I).
2. Select Settings button (button J), then select the Multiple Displays button (button H)
3. On the multiple displays set up page, check the box next to “Implement Bus Virtual Terminal” to allow the CommandCenter to communicate on the Implement Bus.
4. Once this box is checked, turn off key power, allowing the display to save the changes.
5. Turn off key power, allow application to load, and press the main menu button. Allow main menu to be displayed on the screen for several seconds. An hour glass FLASH indicates that the planter software is loading on the display. After the hour glass FLASH, the planter icon appears on the main menu.

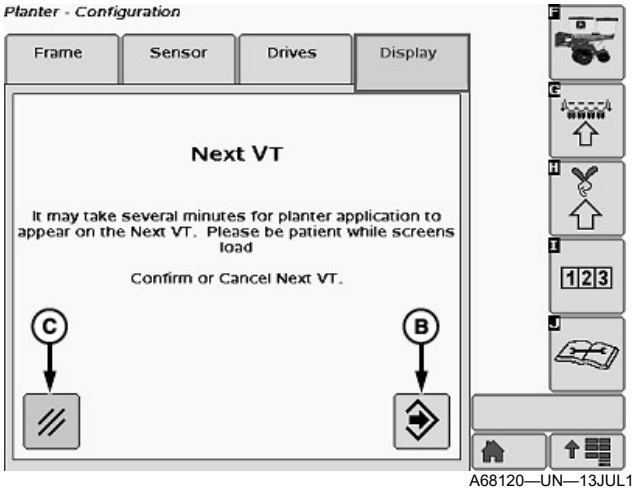
When using the John Deere Tractor CommandCenter™ display and an additional GreenStar™ display:

1. Turn on key power and allow both displays to load. Select Menu on the CommandCenter, then select the Display icon (button I).
2. Select Settings button (button J), then select the Multiple Displays button (button H)
3. For SeedStar™ to communicate with the GreenStar™ display. On the Multiple Displays set up page, make sure “Implement Bus Virtual Terminal” box is not checked.
4. Turn off key power to save changes.
5. Turn on key power, allow application to load, select Menu on GreenStar™ display. Allow menu to be displayed on the screen for several seconds. An hour glass FLASH indicates that the planter software is loading on the display. After the hour glass FLASH, the planter icon appears on the main menu.

To move planter application from one display to another:



A68119—UN—13JUL10



A68120—UN—13JUL10

A—Next VT (Next Virtual Terminal)
B—Confirm
C—Cancel

1. With tractor power off, ensure GreenStar™ monitor (2630, 2600, or 1800) is connected to tractor corner post.
2. Make sure that all electrical connections have been made between tractor and planter.
3. Turn on key power. Allow both CommandCenter™ display and GreenStar™ to load. Select main menu button on CommandCenter™ display and select the planter application.

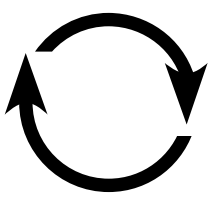
NOTE: The Display tab only appears if two or more ISO compatible displays are on the implement CAN bus. Next VT feature is not available when actively planting.

4. Once on planter home page, select Planter Setup button (button G). Select Display tab.
5. Select “Next VT” button (A) (It stands for Next Virtual Terminal) to move planter information to the GreenStar™ display.
6. Select Confirm (B) or Cancel (C). Controller restarts.

NOTE: Depending on display configuration, it can take up to 255 seconds for planter application to appear on desired display.

PB21958,00001D5-19-06JUL20

Standard Buttons

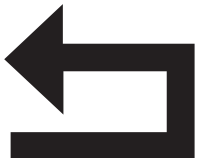


A59322—UN—19FEB07
Toggle

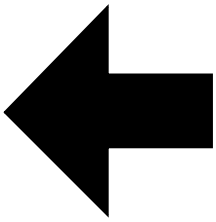
H85801—UN—14JUN06
Enter or Continue

H85814—UN—14JUN06
Cancel

H85815—UN—14JUN06
Clear



H85816—UN—14JUN06
Previous



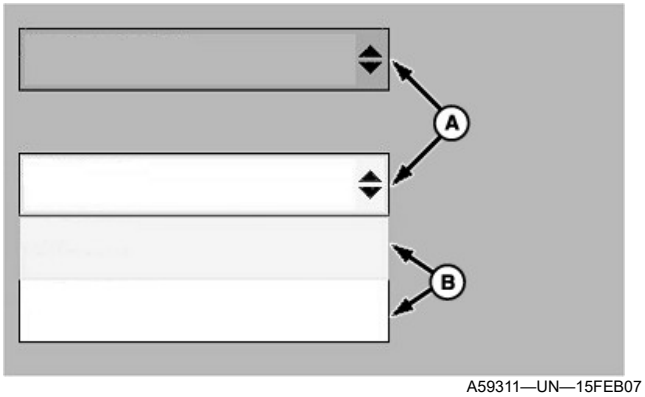
A59323—UN—22FEB07
Back

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

- **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 the previous screen or selection.
- **Back:** Moves cursor back one space.
- **Toggle:** Alternates a selection back and forth.

PB21958,0000354-19-26JAN18

Input Entry Methods



A59311—UN—15FEB07

A—Drop-Down Box
B—List

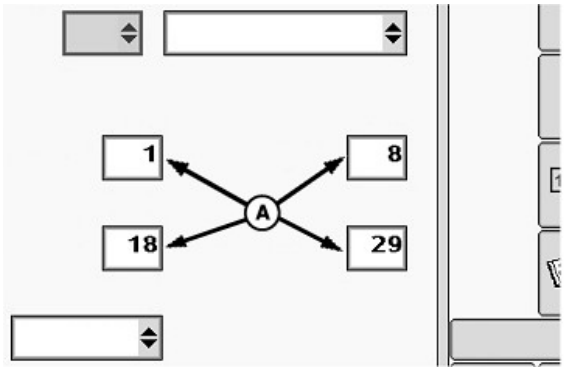
There are various ways the monitor accepts data entry. Following are some examples:

Drop-Down Box

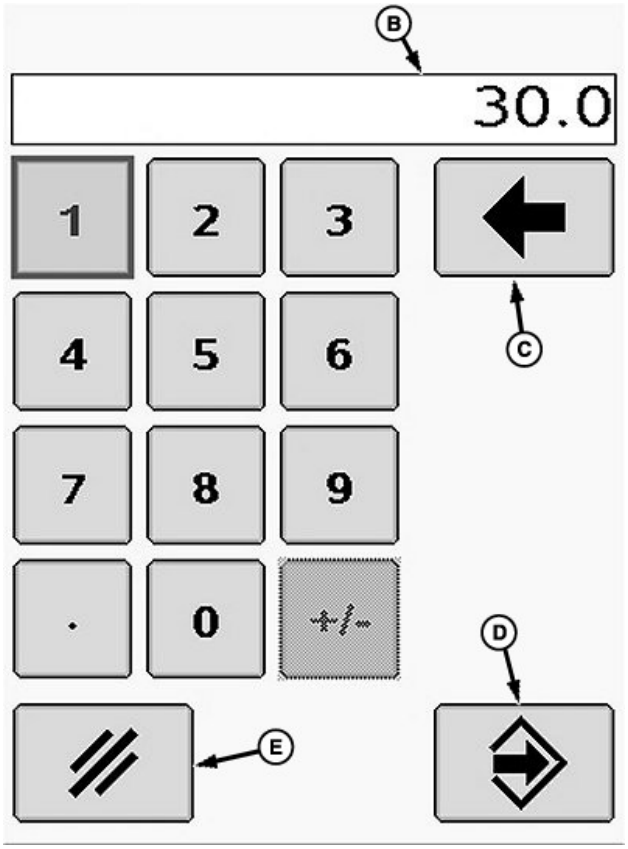
A drop-down box (A) contains a list (B) of items. Select a drop-down box to see list. Select an item from the list to make it the active item in the drop-down box.

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.



A59312—UN—11NOV08



A59357—UN—21MAR07

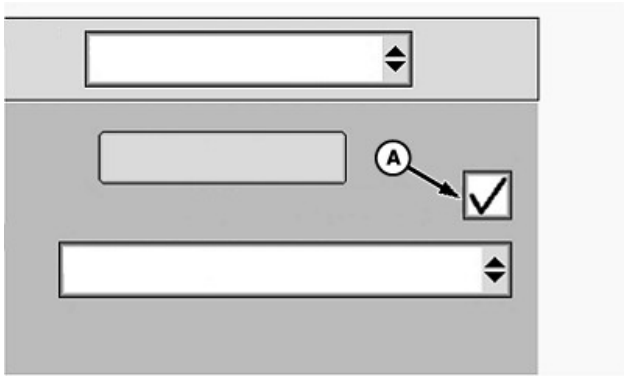
Numeric Keypad

A—Input Box
B—Bounding Box
C—Back Arrow
D—Enter
E—Cancel

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 **Cancel** (E) button to deactivate keypad without confirming a new value.



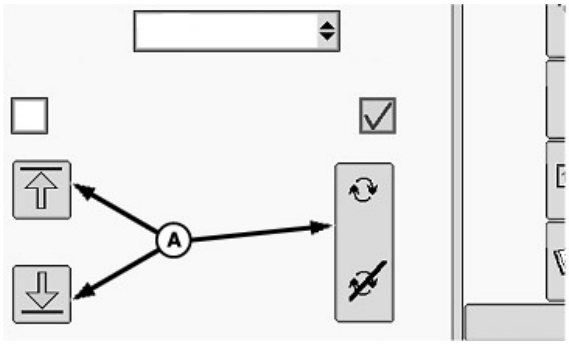
A59313—UN—15FEB07

Check Box Example

A—Check Box

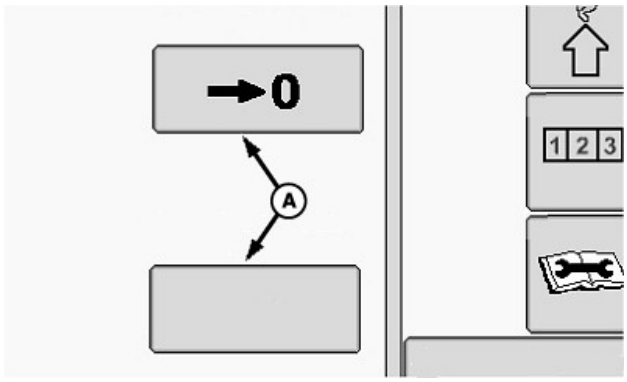
Check Box

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.



A59314—UN—11NOV08

Button Examples



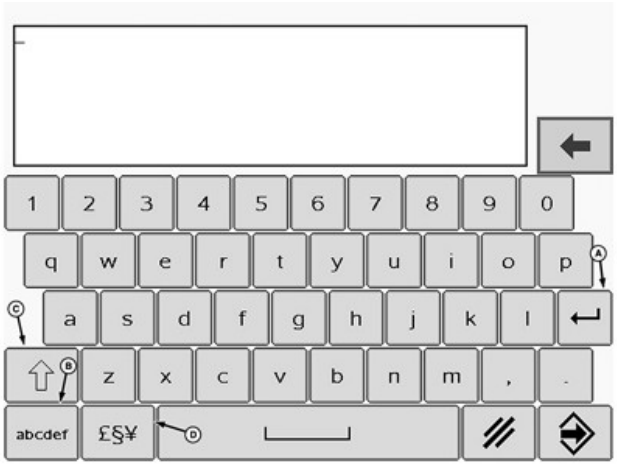
A59315—UN—15FEB07

Button Examples

A—Button

Button

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



APY01381—UN—12DEC17

Custom Input Keypad

A—Return
B—Appearance
C—Case
D—Symbols

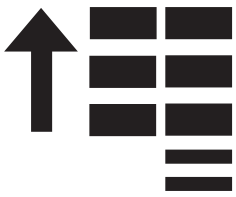
Custom Input Keypad

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 the 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.

PB21958,00001D6-19-06JUL20

Screen Layout Manager

IMPORTANT: Planter screen is only available in the 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.



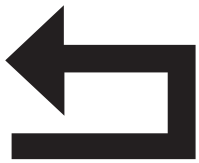
A59325—UN—19FEB07

Primary Menu

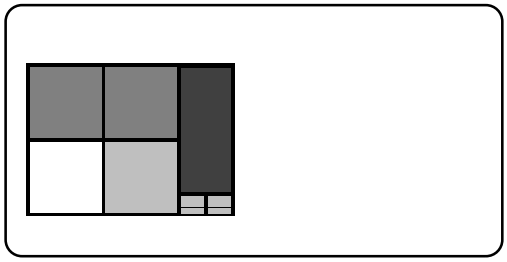
H85801—UN—14JUN06

Enter

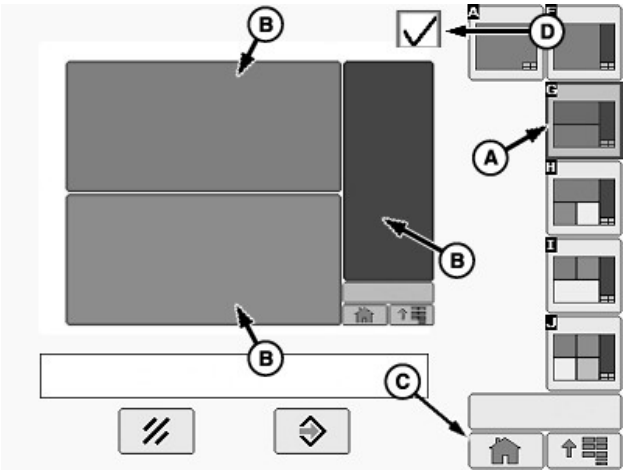
H85814—UN—14JUN06
Cancel



H85816—UN—14JUN06
Previous



A61062—UN—09OCT07
Layout Manager Button



A64359—UN—11MAR09

A—Layout Patterns
B—Selection Areas
C—Home Page
D—Home Page Collection Box

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-hand of screen.
5. Select **Include in Home Page Collection** checkbox (D). Add a check to include this page. To remove a page from the collection, clear the box.
6. Select an area of screen (B) to change.

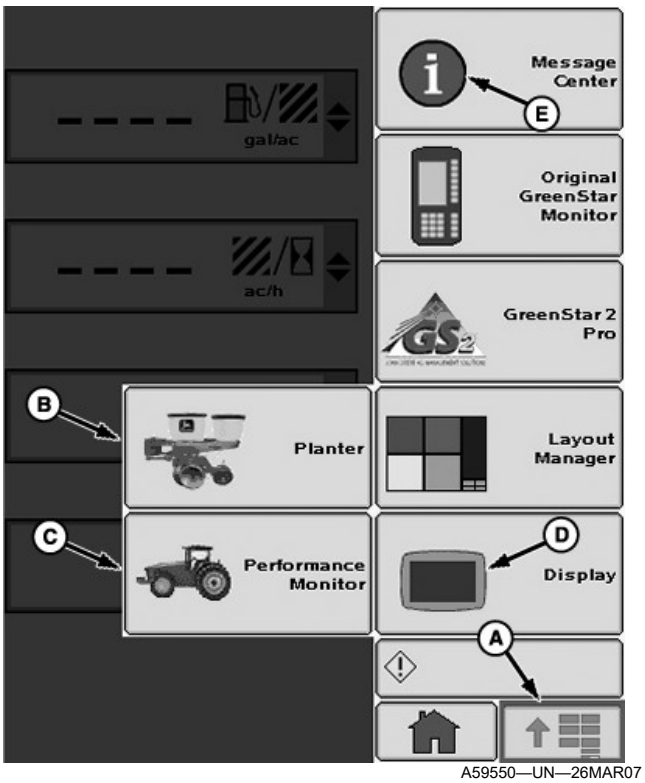
*NOTE: If single-window layout is selected, select **Enter** button after option is chosen. No need to select the preview.*

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 that 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 (C).

PB21958,0000355-19-07JUL20

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.



A59550—UN—26MAR07
Menu Buttons

A—Primary Menu
B—Planter Application Button
C—Performance Monitor Button
D—Display Button
E—Message Center Button

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.

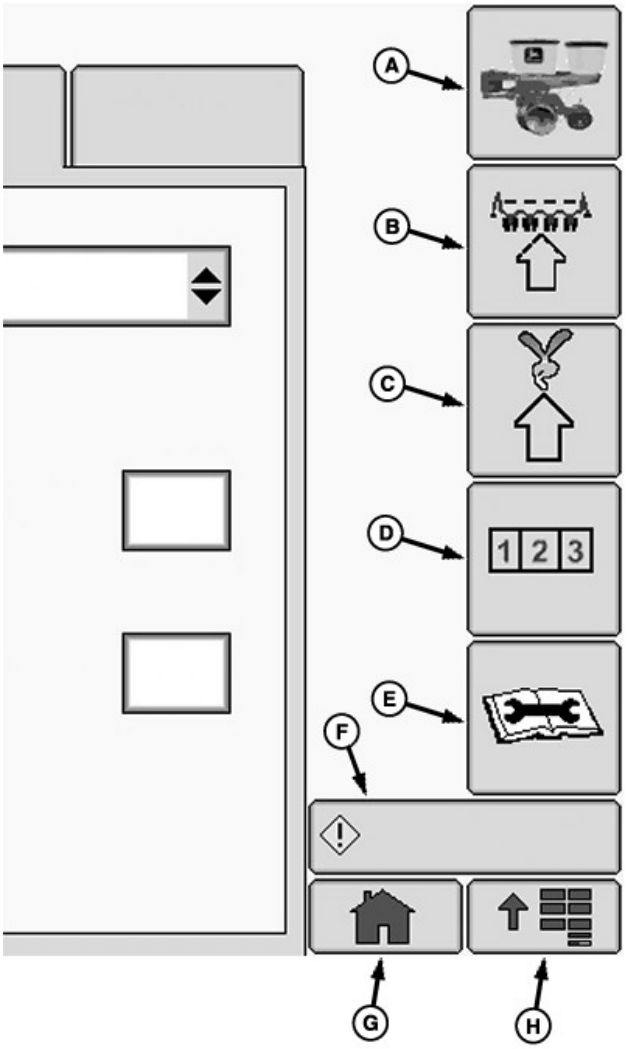
Select a button to transfer to the desired application. The following are a few examples.

- (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.

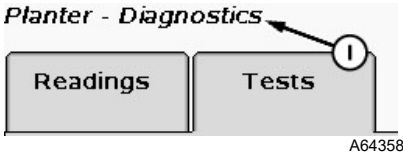
The following screen area information is for translation purposes to assist an operator using a screen with English text when the operator does not read English. The left side of the list remains English to match the screen and the right side of the list is translated along with the rest of this manual. The operator matches the English words on screen with English words listed on the 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
GreenStar 2 Pro—GreenStar 2 Pro
Layout Manager—Layout Manager
Display—Display



A59326—UN—15FEB07



A64358—UN—11MAR09

Softkey Title

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
I—Title

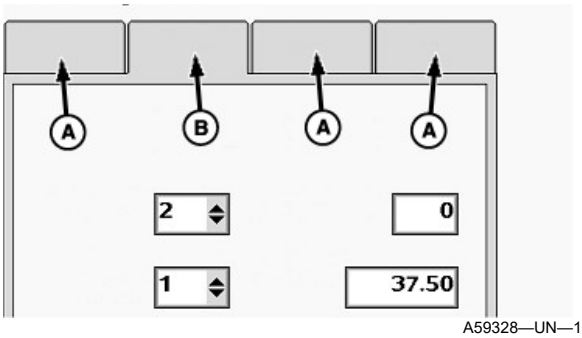
Planter Application Screens

Select **Softkeys** (A) through (E) to transfer to various planter screens. A title (I) 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 the 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 the Home screen.
- (H) Transfers to primary Menu screen with buttons for different applications.

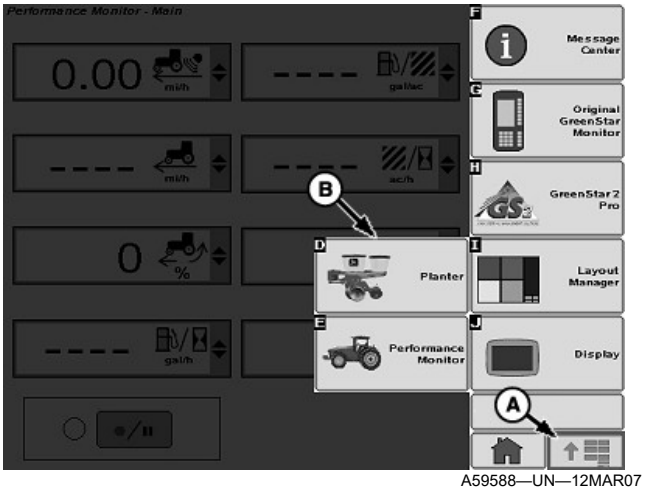


A59328—UN—11NOV08

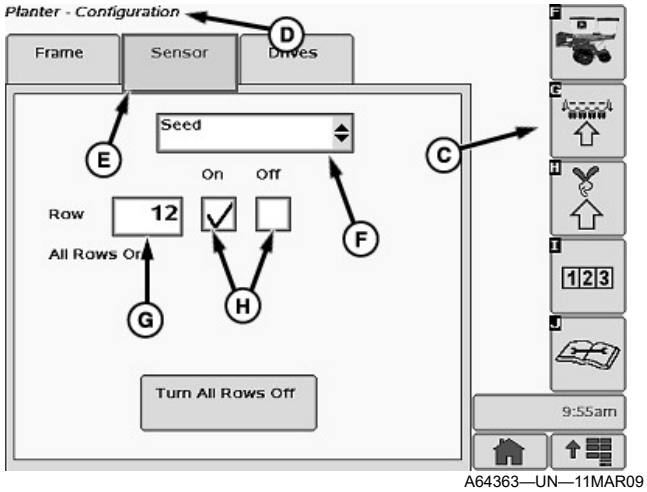
A—Inactive Tab
B—Active Tab

Function Tabs

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



A59588—UN—12MAR07



A64363—UN—11MAR09

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

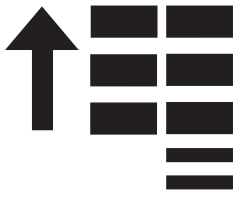
Navigation Example A:

Refer to the following procedure using an active monitor.

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.

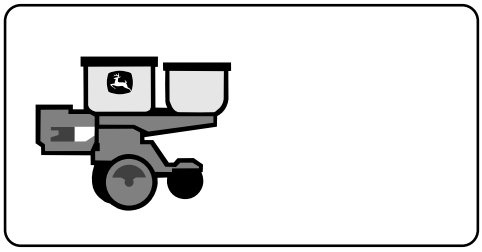
Screen Area Information

Planter Configuration—Planter Configuration
Sensor—Sensor
Seed—Seed
Row—Row
On—On
Off—Off



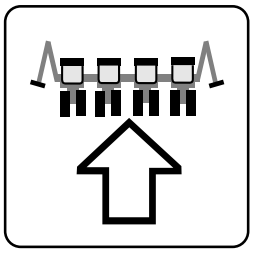
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

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 to accomplish a task. It is not necessary to begin at the Primary Menu if the display is already on the destination screen.

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

1. Select **Primary Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Seed** from the 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

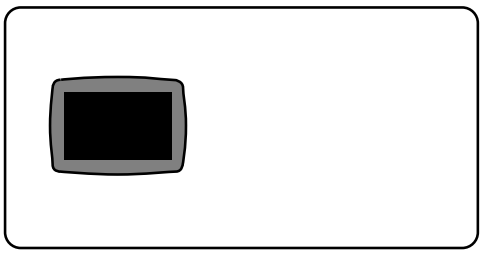
Planter Configuration—Planter Configuration
Sensor—Sensor
Seed—Seed
Row—Row
On—On
Off—Off

PB21958,00001D7-19-07JUL20

Configure Brightness, Volume, and Color

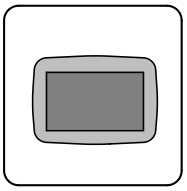
A59325—UN—19FEB07

Menu



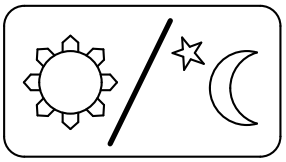
A59565—UN—08MAR07

Display Button



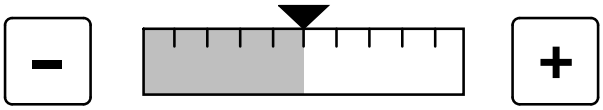
A59591—UN—15MAR07

Display Softkey



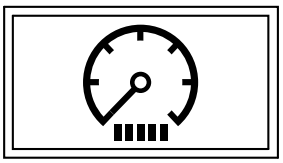
A59594—UN—15MAR07

Day / Night Button



A59595—UN—15MAR07

Scale Indicator



A59593—UN—15MAR07

Instant Darken Button

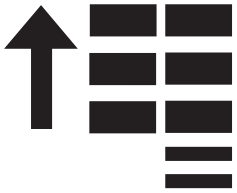
1. Select **Menu** >> **Display** button >> **Display** softkey.
2. Two brightness levels are available. To toggle screen brightness between the day level and night level, select **Day/Night** button. Sun and moon images at top left of screen alternately highlight to show active selection. To adjust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

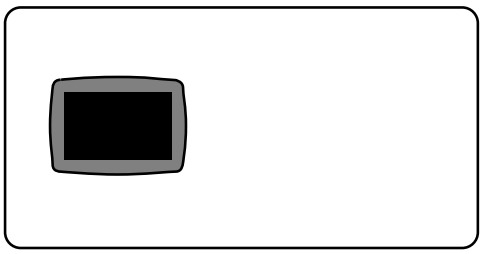
PB21958,0000359-19-26JAN18

Configure Language and Units of Measure



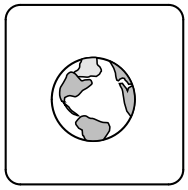
A59325—UN—19FEB07

Menu



A59565—UN—08MAR07

Display Button



A59592—UN—15MAR07

Settings Softkey

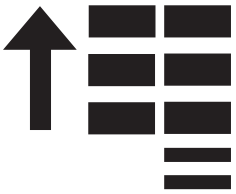
1. Select **Menu** >> **Display** button >> **Settings** softkey.
2. Select **Regional** tab.
3. Select each drop-down box and choose a **Country**, **Language**, **Numeric Format**, and the **Units** of measure. To select different units of measure for different options, proceed as follows.
4. Select **Units** 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
Area—Area
Volume—Volume
Mass—Mass
Temperature—Temperature
Pressure—Pressure
Force—Force

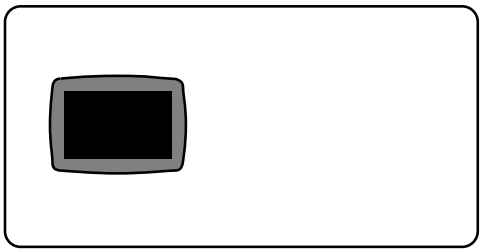
PB21958,000035C-19-26JAN18

Configure Date and Time



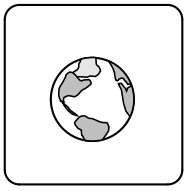
A59325—UN—19FEB07

Menu



A59565—UN—08MAR07

Display Button



A59592—UN—15MAR07

Settings Softkey

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 observing daylight saving time, select **Daylight Saving 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 the drop-down box.
8. If equipped with GPS, perform the following:

a. To synchronize time, Select **GPS Time Sync** check box.

b. Select **GMT Offset** in the drop-down box and select a number representing the number of hours current locations varies from Greenwich Mean Time.

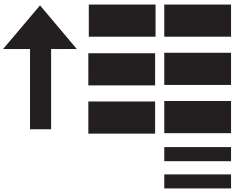
c. Select **Local Offset** in the drop-down box and enter the number of minutes current locations is past local time zone.

Screen Area Information

Display Settings—Display Settings
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

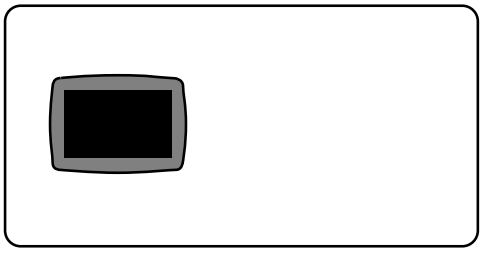
PB21958,000035A-19-07JUL20

Touchscreen Calibration



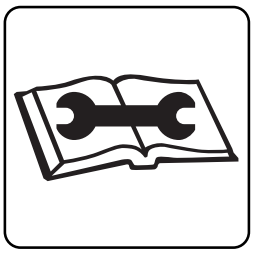
A59325—UN—19FEB07

Menu



A59565—UN—08MAR07

Display Button



A59567—UN—08MAR07

Diagnostic Softkey

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 the tip of finger. If target image does not appear when the 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 that calibration was successful or unsuccessful.

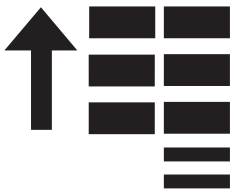
To end the touch screen test and navigate back to desired screen or application, select primary menu button.

Screen Area Information

Display—Display
Display Diagnostics—Display Diagnostics
Tests—Tests
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

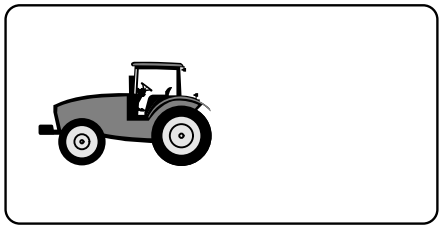
PB21958,000035B-19-26JAN18

Check Implement Width in Performance Monitor



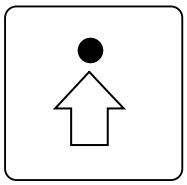
APY01387—UN—18DEC17

Menu



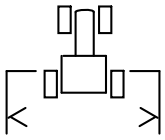
APY01391—UN—18DEC17

Performance monitor Button



APY01393—UN—18DEC17

Settings Softkey



A59378—UN—22FEB07

Implement Width

To view current width in the performance monitor, select **Menu** >> **performance monitor** application >> **Settings** softkey.

IMPORTANT: If implement width is changed in the tool application, cycle the display power to update the new settings. For example, changing implement width from corn to soybeans on a split row planter.

Implement width appears next to implement the width icon.

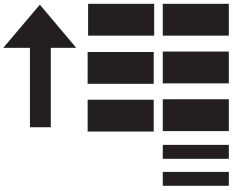
The performance monitor operates in two modes on the GreenStar™ Display. Basic performance monitor mode (BPM) is included in base equipment with every GreenStar™ Display. Advanced performance monitor (APM) is a tractor application and is only available when connected to specific John Deere™ tractors.

Implement width is sent to the Basic performance monitor by the planter and cannot be changed as long as the planter is connected to the tractor.

Refer to your GreenStar™ Display operator's manual for more information.

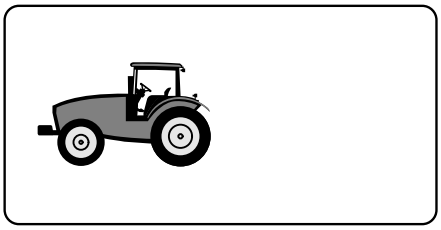
PB21958,00001D9-19-19DEC17

Radar Configuration



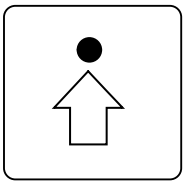
APY01387—UN—18DEC17

Menu



APY01391—UN—18DEC17

Performance Monitor Button



APY01393—UN—18DEC17

Settings Softkey

APY01390—UN—18DEC17

GPS or Ground Radar Connected to Display Check Box

Select **Menu** >> **performance monitor** button >> **Settings** softkey.

- Clear the **GPS or Ground Radar Connected to the 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**

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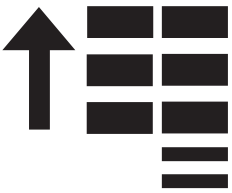
Connected to the Display. Check box for John Deere™ tractor models earlier than 00 Series with radar connected directly to the GreenStar™ Cab Harness.

- Place a check in the **GPS or Ground Radar Connected to the 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 refer to your GreenStar™ Display Operator's Manual or see your John Deere™ dealer. Many configurations are possible.

PB21958,00001DA-19-07JUL20

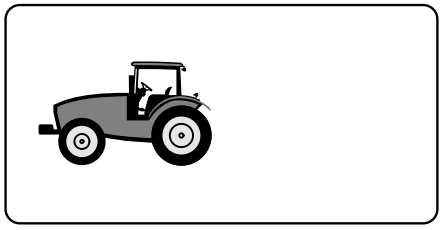
Radar Calibration

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 the tire sidewall.



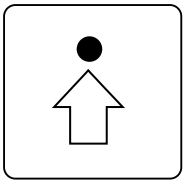
APY01387—UN—18DEC17

Menu



APY01391—UN—18DEC17

Performance monitor Button



APY01393—UN—18DEC17

Settings Softkey

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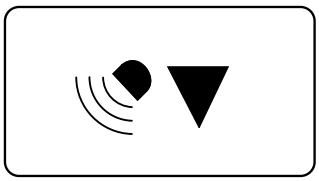


APY01394—UN—18DEC17

Radar Calibration Button

Accurate system performance is dependant upon accurate radar calibration.

Some radars are integrated into the tractor system. Calibrate radar according to the 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 the 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.

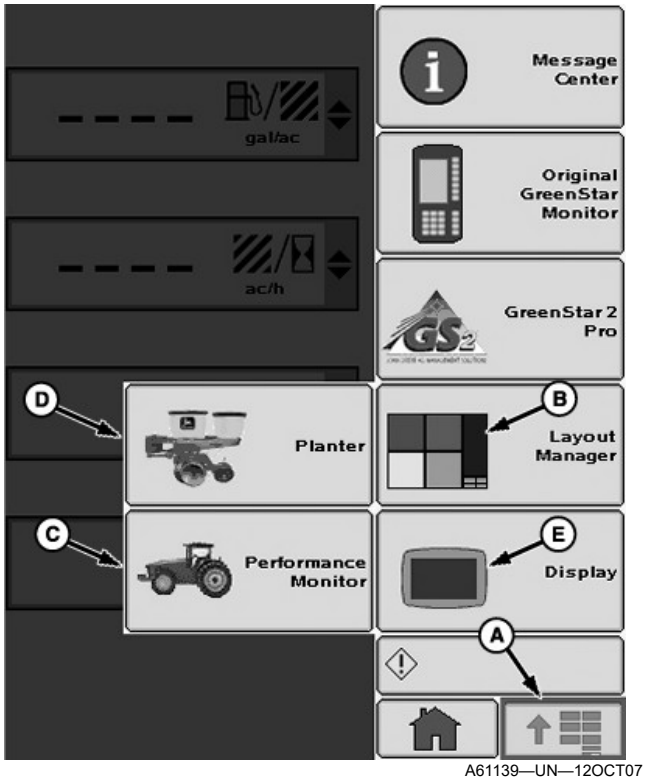
   Step 2: Maintain speed. Select **Radar Calibration** button as front tires cross mark at other end.

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

PB21958,00001DB-19-18DEC17

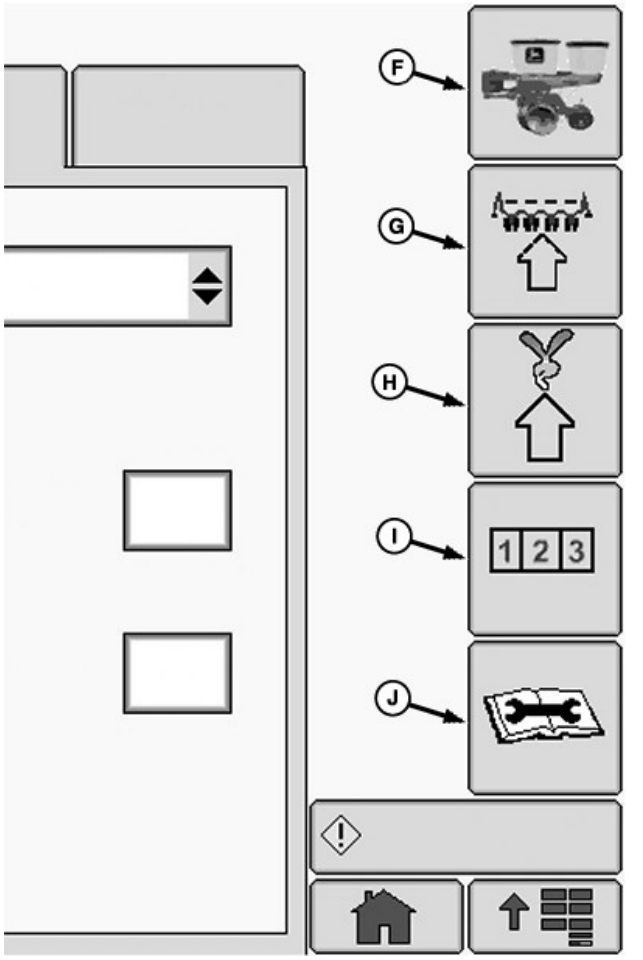
Quick Reference Setup for Ground Driven Machines



A61139—UN—12OCT07

Main Menu Screen

A—Main Menu
B—Layout Manager
C—Performance monitor
D—Planter Application
E—Display Application



A61140—UN—15OCT07

Planter Application Screen

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	To assign an application, select a screen area.
	>> 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 button. If monitor reset button is ever pressed, these values are erased.
	>> Check Box	Select GPS or radar connected directly to the planter application or not. Check indicates connected. Empty indicates that radar is part of the tractor system.
	>> the input box	Verify that implement width matches the planter width shown on the planter monitor. Cycle power if they do not match.
	>> Calibrate Button	Follow calibration procedure if radar is connected to display.
The planter Drive Configuration		Select Menu >> the planter button >> Configure the softkey >> Drives tab >> Drive Configuration drop-down >> Settings button.

Quick Reference			
	>> Drive Source	Ground Driven. If the drive source is changed, all setup data is lost.	
	>> Meter Type	Vacuum or Mechanical	
The planter Drive Section Configuration		Select Menu >> the planter button >> Configure softkey >> Drives tab >> Drive Sections drop-down box >> Settings button.	
	>> Number of Sections	Enter number of sections on machine.	
	>> RowCommand™	Place a Check Mark in Box to activate.	
		>> Select Enter button	
The planter RowCommand™ Configuration		Select Menu >> the planter button >> Configure softkey >> Drives tab >> Drive Section >> Row Control Sections drop-down >> Settings button.	
	>> Number of Sections the 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		
Frame Configuration		Select Menu >> the planter button >> Configuration softkey >> Frame tab>>Frame Configuration.	
	>> Row Configuration Drop-Down Box	Select single row, the split row, or twin row depending on the planter design.	
	>> Rows the input box	Enter total number of rows. Total means all rows, even if the planter is the split row or twin row machine, and half the rows are currently inactive.	
	>> Row Spacing the input box	Enter row spacing. Spacing is the distance between the rows side by side. Do not skip an inactive row and measure to the next active row on the split row or twin row machines.	
	>> the planter Width	Enter the planter width in the unit of measure shown. Cycle power.	
	>> Clutch Disconnect Warning	Check this box if machine is equipped with multiple width disconnects and a warning is desired when some rows are inactive.	
	>> Transport Mode Button	Press this button when machine is in transport to put the planter control unit in quiet mode. There are no warnings from the planter and no functionality from the planter until Transport Mode is disabled.	
The planter Sensor Configuration		>> Sensor Tab	
	>> Seed	>> Row the input box	Use this box to set specific row sensors. Do not change for the split row or twin row configuration on this page. 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.
		>> Headland Suppression Warning Check Box	To suppress rows not planting warning when the planter is raised, check this box.
	>> 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 the input box. John 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	To trigger an alarm, enter a value
		>> Sensor	Residual fluid pressure must be released from system. Select each sensor, one at a time, and enter Calibration Value in the input box. John 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 the input box. Select Enter. **Separate**: Select Start/Stop button. From lowered position, raise machine to the motor stop point and select Stop Height button or enter value in the input box. From raised position, lower machine to the motor start point and select Start Height button or enter value in the input box. Select Enter.
	>> Tractor Speed	To allow display to determine optimal ground speed source (recommended), select Auto check box . If unchecked, a drop-down appears. Select drop-down menu and chose sensor source.	
Seed Rate Configuration		>> Rates the softkey	
	>> Crop Name Drop Down	Select corn, soybeans or one of the custom crop names.	

Quick Reference			
	>> Edit Crop Name	Select to edit names of crops in the crop name drop-down.	
	>> Target the input box	Program target rate.	
	>> High and Low the 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 the split row and twin row machine configurations. These boxes are where rows actively planting is selected.	
The planter Calculators		>> Totals the softkey	
	>> Seed Estimator	>> Calculators Tab >> Seed Estimator	Select one of three estimators; Bag, the 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 the input box	Enter target population.
		>> Disk Type Drop Down	Select vacuum disk type installed in meter or select the finger pickup or radial bean at bottom of list.
		>> Seed Disk Drop Down (Vacuum Only)	Select disk installed in meter.
	>> Vacuum Calculator (Vacuum meters only when vacuum meters are set up)	>> Calculators Tab >> Vacuum	
		>> Top Drop Down	Select Vacuum
		>> Seeds per kg (lb) the 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.
	Area Calculators	>> Totals Tab	Select any input box. Change values or zero with Zero button.
Diagnostics			
	>> Diagnostic the softkey >> Readings tab	>> Hardware/Software	Provides system data. On the large frame the planters with more than one control unit, select each control unit 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 the unit.
		>> Diagnostics Code	
		>> Rotate Meters	Verify drillshaft and meters turn without pulling the machine through field.
		Row Clutches test	Used to test each RowCommand™ row clutch circuit.
		Row Clutch Self-test	Used to test all RowCommand™ clutches.

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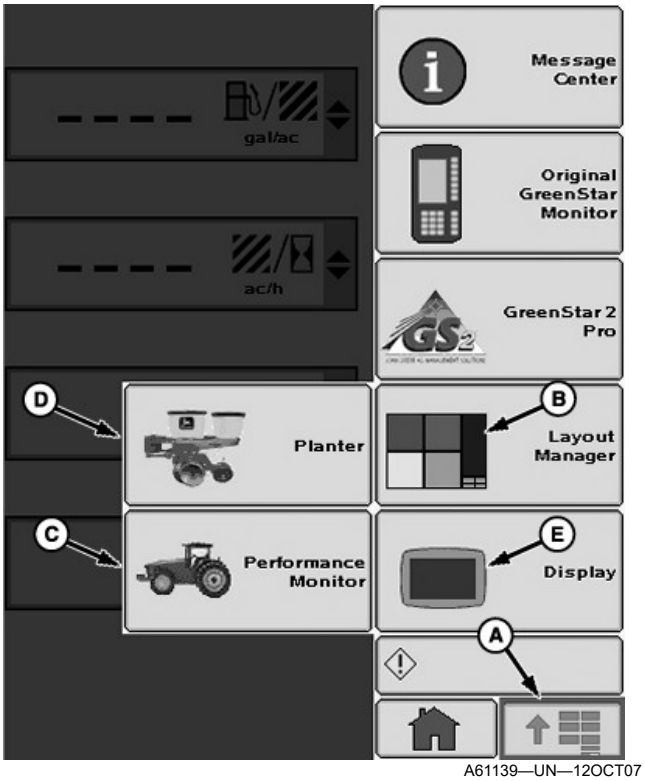
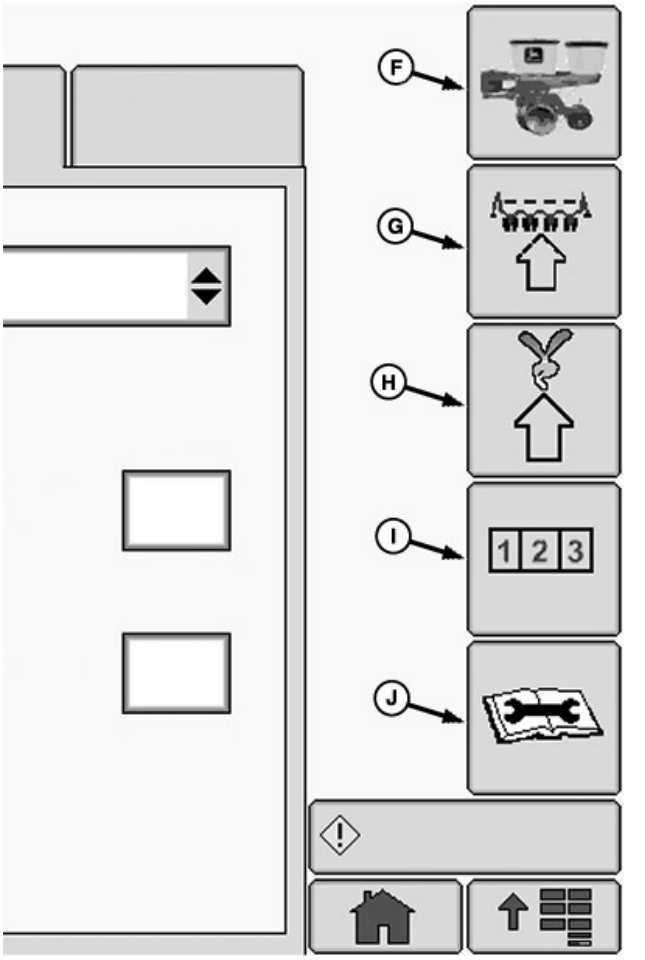
Additional Quick Reference Setup for Seedstar™ XP



A61139—UN—12OCT07

Main Menu Screen

A—Main Menu
B—Layout Manager
C—Performance Monitor
D—Planter Application
E—Display Application



A61140—UN—15OCT07

Planter Application Screen

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.

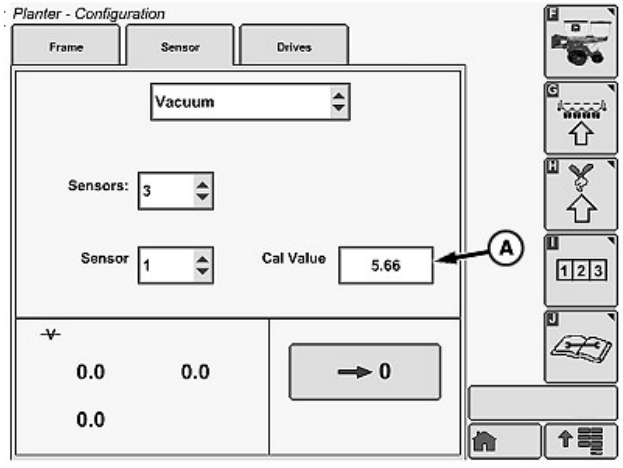
Quick Reference			
Down Force at a Glance Run Screen		>>Active PDF Check Box.	Select to enable or disable Active Down Force Visible in Active PDF capable the planters only. When disabled, downforce display values switch to the readings taken from the PDF air pressure sensors.
The planter Sensor Configuration		>> Sensor Tab	
	>> Down Force	>> Sensors: Drop Down	Select number of downforce sensors on machine.
		>> Sensor Drop Down	Select sensor.
		>> Row Drop Down	Select row.
		>>Rank Drop Down	Select rank. The rank drop-down box is only visible when the split row is selected on the Frame Configuration screen.
		>> Check Box	Enable or disable the sensor.

Quick Reference			
		>>Calibration Value the input box	Enter calibration value for each gauge wheel down the force sensor. John Deere™ sensors are 1394.
		>>Zero Button	Zero each gauge wheel down the force sensor.
	>> Ride Quality	>> Sensors: Drop Down	Select number of ride quality sensors on machine.
		>> Sensor Drop Down	Select sensor.
		>> Row Drop Down	Select row.
		>> Check Box	Enable or disable the sensor.
	PDF Air Pressure (Set-Point downforce)	>>Calibration Value the input box	Configures the value used by the air pressure sensor to determine actual air pressure value. John Deere™ sensor calibration value is 494.
		>>Continue Button	Select this button to zero air pressure sensor.
	PDF Air Pressure (Active Down Force Single Rank)	>>Number of Ranks Drop Down Box	Select rank.
		>>Calibration Value the input box	Configures the value used by the air pressure sensor to determine actual air pressure value. John Deere™ sensor calibration value is 494.
		>>Continue Button	Select this button to zero air pressure sensor.
	PDF Air Pressure (Active Down Force Dual Rank)	>>Number of Ranks Drop Down Box	Select rank.
		>>Sensor Drop Down Box	Select Sensor.
		>>Calibration Value the input box	Configures the value used by the air pressure sensor to determine actual air pressure value. John Deere™ sensor calibration value is 494.
		>>Continue Button	Select this button to zero air pressure sensor.
Diagnostics			
	>> Diagnostic the softkey >> Readings tab	>> Sensors/Status	Observe readings of programmed sensors.
		>> System Voltages	Provides system data.
		Down Force	Displays downforce sensor pressure and voltage.
		Ride Quality	Displays ride quality sensor percentages.
The planter at a Glance — User Settings		>> Select and hold the Screen Scan button for 4 seconds.	
Alarms and Limits Set up Page		>> Select and hold any of the SeedStar™ XP buttons for 4 seconds.	

PB21958,00001DD-19-07JUL20

The Planter Defaults

Vacuum Sensors



A72651—UN—19SEP11

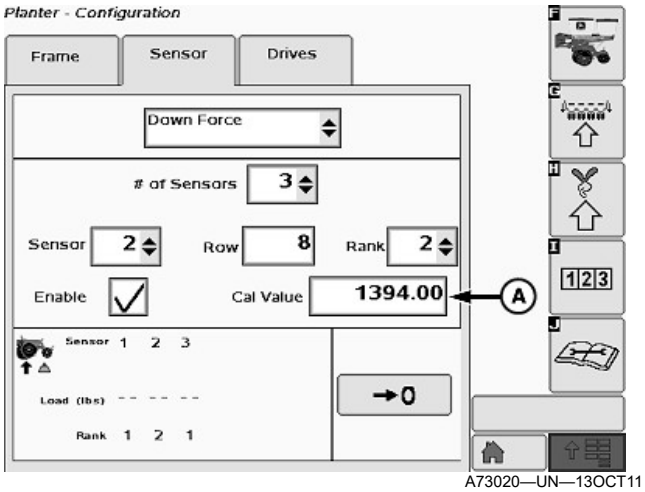
A—Calibration Value

Default calibration value for John Deere™ vacuum sensors is 5.66.

Screen Area Information

Planter Configuration—Planter Configuration
Frame—Frame
Sensor—Sensor
Drives—Drives
Vacuum—Vacuum
Sensors:—Sensors:
Cal Value—Calibration Value

Down Force Sensors



A73020—UN—13OCT11

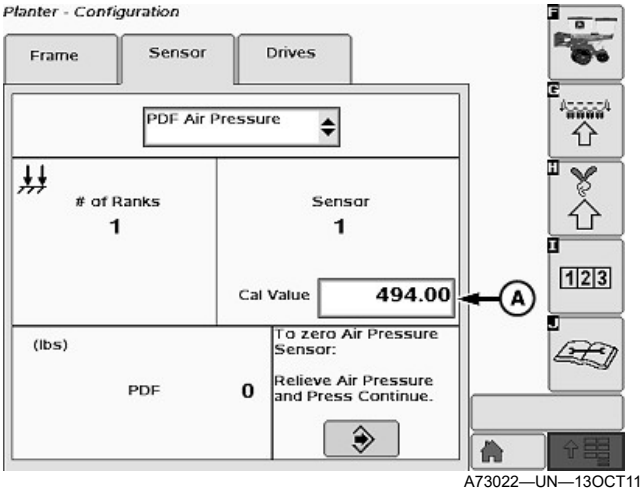
A—Calibration Value

Default calibration value for John Deere™ down force sensors is 1394.00.

Screen Area Information

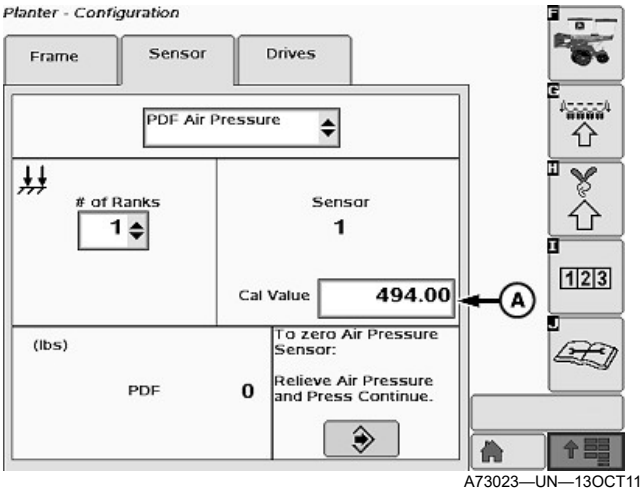
Planter Configuration—Planter Configuration
Frame—Frame
Sensor—Sensor
Drives—Drives
Down Force—Down Force
# of Sensors—Number of Sensors
Sensors—Sensors
Row—Row
Rank—Rank
Enable—Enable
Cal Value—Calibration Value
Load—Load

Pneumatic Down Force Air Pressure Sensors



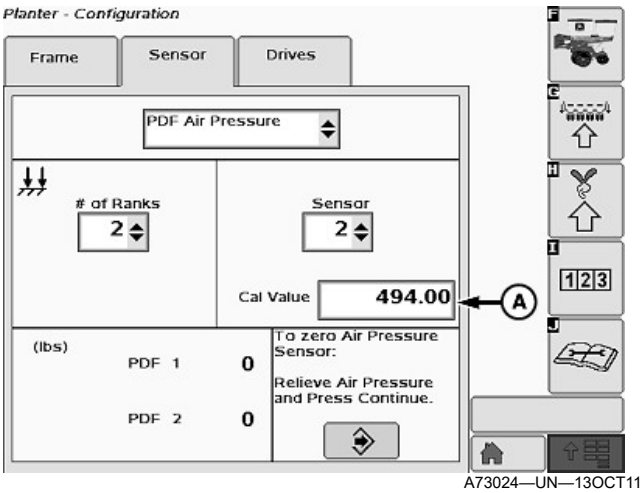
A73022—UN—13OCT11

Set-Point PDF Air Pressure Sensor



A73023—UN—13OCT11

Active PDF Air Pressure Sensor (Single Rank)



A73024—UN—13OCT11

Active PDF Air Pressure Sensors (Dual Rank)

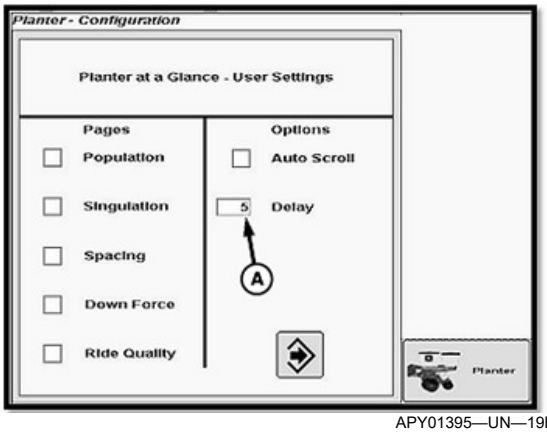
A—Calibration Value

Default calibration value for John Deere™ pneumatic downforce of air pressure sensors is 494.00.

Screen Area Information

Planter Configuration—Planter Configuration
Frame—Frame
Sensor—Sensor
Drives—Drives
PDF Air Pressure—Pneumatic Down Force Air Pressure
# of Ranks—Number of Ranks
Cal Value—Calibration Value
PDF 1—Pneumatic Down Force Sensor 1
PDF 2—Pneumatic Down Force Sensor 2
To Zero Air Pressure Sensor—To Zero Air Pressure Sensor
Relieve Air Pressure and Press Continue—Relieve Air Pressure and Press Continue

The Planter at a Glance - User Settings



APY01395—UN—19DEC17

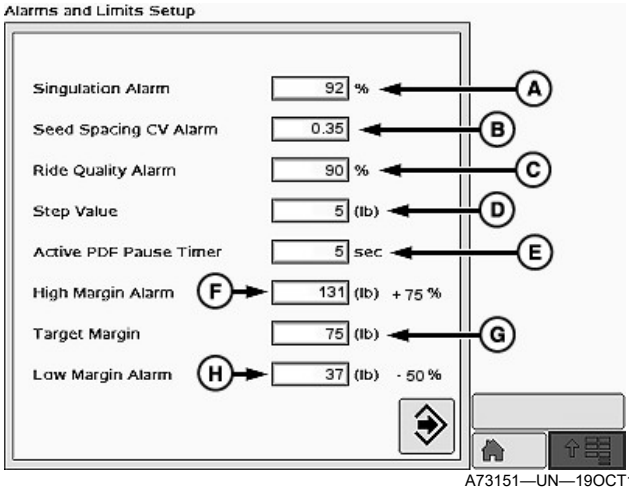
A—Screen Scan Delay

Default setting for screen scan delay 5 seconds.

Screen Area Information

Planter Configuration—Planter Configuration
Planter at a Glance - User Settings—Planter at a Glance - User Settings
Pages—Pages
Population—Population
Singulation—Singulation
Spacing—Spacing
Down Force—Down Force
Ride Quality—Ride Quality
Options—Options
Auto Scroll—Auto Scroll
Delay—Delay

Alarms and Limits Setup



A73151—UN—19OCT11

A—Singulation Alarm
B—Seed Spacing CV Alarm
C—Ride Quality Alarm
D—Step Value
E—Active PDF Pause Timer
F—High Margin Alarm
G—Target Margin
H—Low Margin Alarm

Default singulation alarm setting is 92 percent.

Default seed spacing coefficient of the variation alarm setting is 0.35.

Default ride quality of the alarm setting is 90 percent.

Default step value setting is 5.

Default active PDF pause timer is 5 seconds.

Default high margin alarm setting is 75 percent (131 lb).

Default target margin setting is 75 lb.

Default low margin alarm setting is 50 percent (37 lb).

Screen Area Information

Planter Configuration—Planter Configuration
Alarms and Limit Setup—Alarms and Limit Setup

PB21958,00001DC-19-07JUL20

SeedStar™ 2 SETUP Initial System Configuration

SeedStar™ 2 System Overview

The SeedStar™ 2 monitoring system is a full-featured, color planter monitor that works with your GreenStar™ 2 or ISO 11783 compliant display. It provides all vital planting information in one location.

SeedStar™ 2 provides the following information:

- Planter average and individual row seed population.
- Vacuum level monitoring.
- Fertilizer pressure monitoring.
- Area counters and productivity monitoring.
- RowCommand™ control and monitoring.
- Single Set-point integrated pneumatic downforce control and monitoring.
- Alarms, cautions, and diagnostics.

The SeedStar™ 2 planter monitoring system works with a GreenStar™ 2 or competitive ISO 11783 compliant display. It is fully compatible with John Deere™ AMS applications such as Field Doc™, Swath Control Pro™ for planters, GreenStar™, AutoTrac™ Assisted Steering System, Apex™ Farm Management Software, Field Doc™ Data Collection, iGuide™, and others.

The Planter Main 1 (PM1) control unit accepts signals from the control units and sensors on the tractor and planter. It communicates them via CAN bus communication to the display in the tractor cab.

Machines equipped with Set-Point Integrated Pneumatic downforce have an additional control unit to adjust and monitor the pneumatic downforce system of the row unit. The Planter Main 2 (PM2) control unit receives inputs from the GreenStar™ display and controls the solenoid valves at the air storage tank to achieve faster changes in the row unit downforce from the cab. A low-pressure alarm is provided to alert the operator of system leaks.

PX03972,0001840-19-31MAR20

System Components

A62921—UN—23JUL08

CAN Harness Connection

CAN Harness Connection

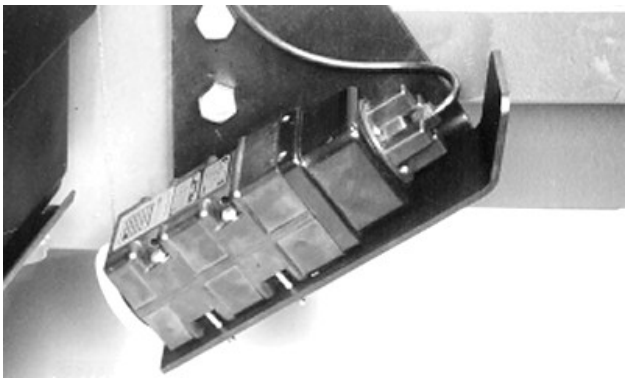
The ISO standard Controller Area Network (CAN) Harness connection is the primary connection between the implement and the tractor for the SeedStar™ monitor system.

A50167—UN—09SEP02

Planter Main 1 Controller (PM1)

This control unit:

- Provides the main planter software application and user interface on the GreenStar™ display.
- Contains all the setup information for the planter.
- Receives and processes signals from the seed sensors.
- Controls the variable rate drive system (if equipped).
- Controls the RowCommand™ system (if equipped).

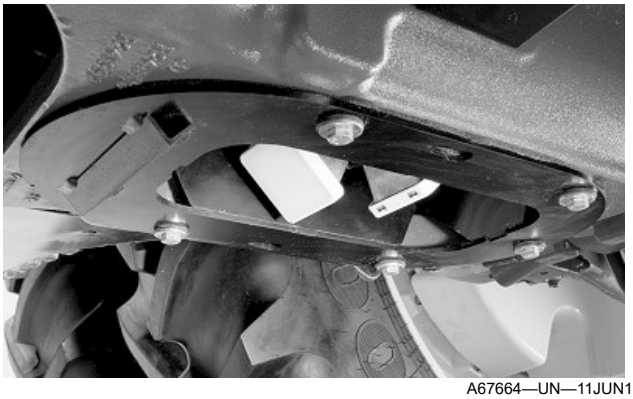


A48199—UN—26OCT01

External Radar (Optional)

External Radar (Optional)

An external radar unit can be used to provide the ground speed signal for the SeedStar™ monitoring system. If the tractor is not equipped with a GPS receiver or a factory-installed radar see RADAR CONFIGURATION in the performance monitor Section.



A67664—UN—11JUN10

John Deere Dual Beam Radar

Factory Installed Radar

The John Deere™ dual beam radar is an example of a factory installed tractor radar. The radar provides the ground speed signal for the SeedStar™ monitoring system. Refer to your tractor operator's manual for calibration information.

A67665—UN—11JUN10

Global Positioning System (GPS) Receiver

GPS Receiver

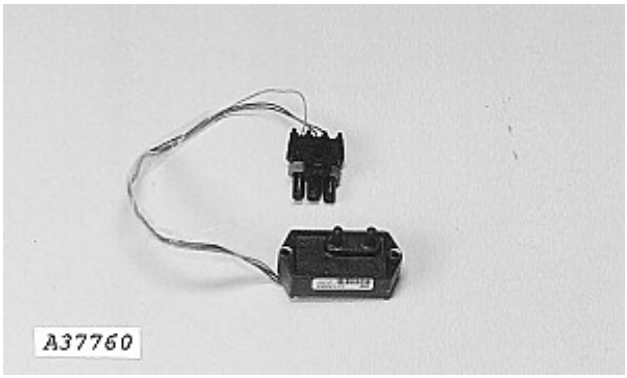
Certain Global Positioning System (GPS) receivers can also be used to provide a ground speed signal for the SeedStar™ monitoring system. Since many configurations are possible, refer to your GreenStar™ operator's manual or see your John Deere™ dealer.

A67677—UN—11JUN10

Seed Tube with Seed Sensor

Seed Tube with Seed Sensor

The seed sensor is used to monitor seed activity at each row unit. Seed information is processed with the Planter Main 1 (PM1) control unit and displayed on the GreenStar™ display. SeedStar™ 2 monitoring systems use seed sensor data to calculate and display individual row and planter average seed population to the operator.

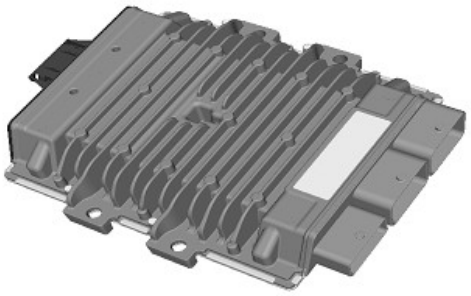


A37760—UN—06SEP95

Vacuum Sensor

Vacuum Sensor

The vacuum sensors provide the vacuum level signal to the Planter Main 1 (PM1) control unit. There is one vacuum sensor for each vacuum fan on the planter.



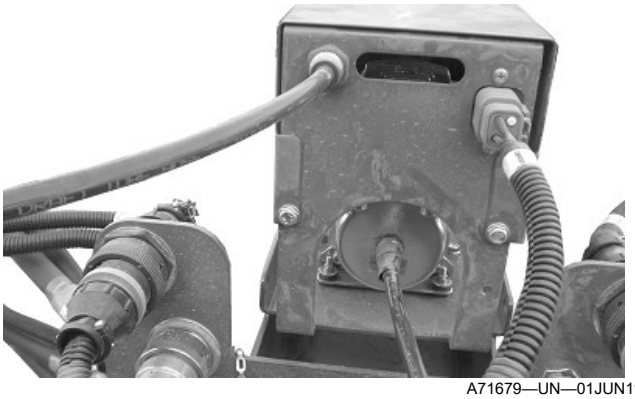
A66613—UN—22FEB10

Planter Main 2 (PM2) Controller (Machines With Integrated Pneumatic downforce)

Planter Main 2 (PM2) Controller (Machines With Integrated Pneumatic downforce)

This control unit:

- Controls and monitors the pneumatic downforce system.

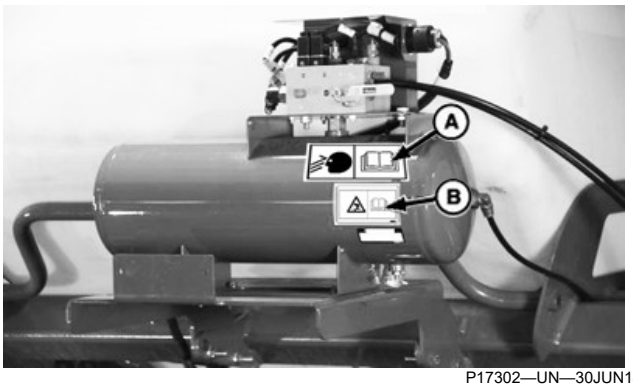


A71679—UN—01JUN11

Pneumatic Downforce Air Compressor (Machines with single set-point integrated pneumatic downforce)

Pneumatic downforce system air compressor (Machines with single set-point integrated pneumatic downforce)

The pneumatic downforce air compressor supplies pressurized air to the air storage tanks on SeedStar™ 2 Set-Point Integrated Pneumatic downforce planters. Electrical power for the air compressor is provided using the tractor convenience outlet or directly from the tractor battery. A pressure switch on the pneumatic downforce control valve operates a relay on the compressor unit to turn the compressor on and off.

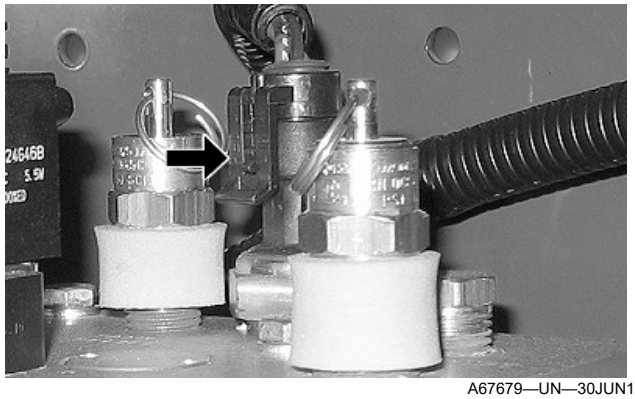


P17302—UN—30JUN14

Pneumatic Downforce Air Tank and Solenoid Control Valve - Drawn Planters With CCS (Machines with single set-point integrated pneumatic downforce)

Pneumatic downforce air tank and solenoid control valve (Machines with single set-point integrated pneumatic downforce)

The pneumatic downforce air storage tanks provide extra air capacity to make fast downforce changes of row unit on SeedStar 2™ Single Set-Point Integrated downforce planters. The Planter Main 2 (PM2) control unit controls and monitor the solenoid control valve on top of the main tank.



A67679—UN—30JUN10

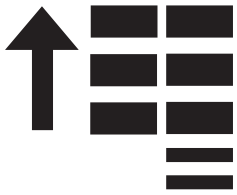
Pneumatic Downforce Pressure Sensor (Machines with integrated pneumatic downforce)

Pneumatic downforce pressure sensor (Machines with integrated pneumatic downforce)

The pneumatic downforce pressure sensor senses the amount of air pressure in the air spring circuit. The planter main 2 (PM2) control unit uses the pressure sensor signal to adjust the pressure in the air spring circuit to achieve the downforce setting entered by the operator.

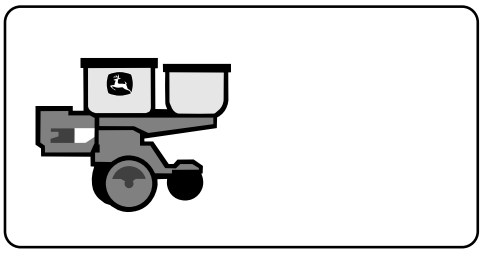
PB21958,000035E-19-07JUL20

Configure Planter Drive Source



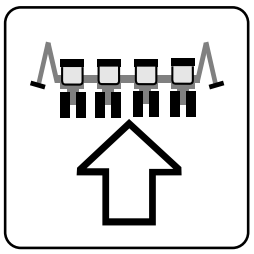
A59325—UN—19FEB07

Menu



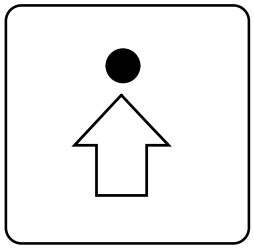
A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey



A59377—UN—23FEB07

Settings Button

H85801—UN—14JUN06

Enter

H85814—UN—14JUN06

Cancel

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** the softkey >> **Drives** tab >> **Drive Configure** the drop-down box >> **Settings** button.

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

2. Select **Drive Source** drop down menu and choose the type of the drive source on machine.

*NOTE: Selecting **Cancel** returns you to the **Drives** tab.*

3. Select **Enter** button to acknowledge control unit reset warning.

NOTE: Wait 30 seconds between power cycles.

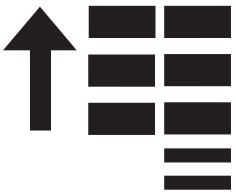
4. Cycle power.

Screen Area Information

Planter Configuration—Planter Configuration
Drives—Drives
Drive Config—Drive Configuration
Drive Source:—Drive Source:
Ground Driven—Ground Driven
Variable Rate—Variable Rate

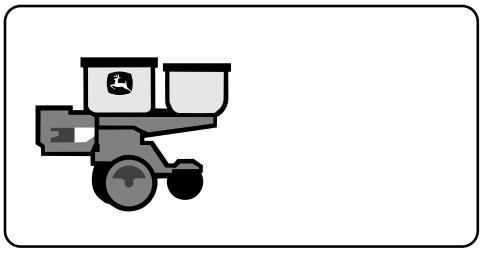
PB21958,00001F6-19-07JUL20

Set Meter Type



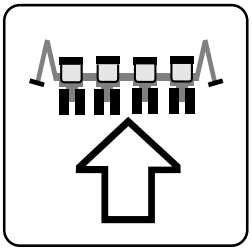
A59325—UN—19FEB07

Menu



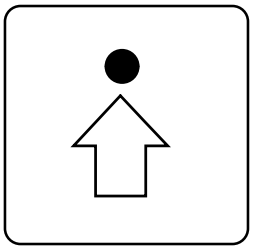
A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey



A59377—UN—23FEB07

Settings Button

H85801—UN—14JUN06
Enter

H85814—UN—14JUN06
Cancel

1. Select **Menu** >> **Planter** button >> **Configure** the softkey >> **Drives** tab >> **Drive Configuration** >> **Settings** button.
2. Select **Meter Type** drop down menu and choose the type of meter on machine.

*NOTE: Selecting **Cancel** returns you to the **Drives** tab.*

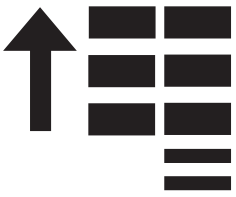
3. When complete select **Enter**.

Screen Area Information

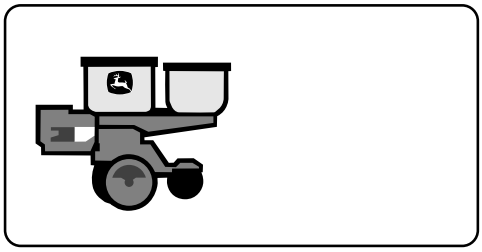
Planter Configuration—Planter Configuration
Drives—Drives
Drive Source—Drive Source
Meter Type—Meter Type
Vacuum—Vacuum
Mechanical—Mechanical

PB21958,00001F7-19-07JUL20

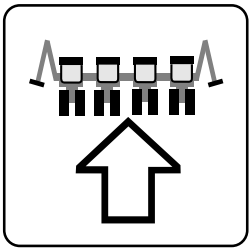
Configure Frame Layout, Row Layout, and Drive Disconnect Warning



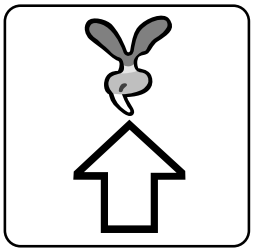
A59325—UN—19FEB07
Menu



A59551—UN—08MAR07
Planter Button

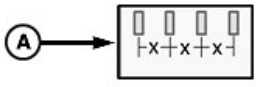


A59172—UN—29JAN07
Configuration Softkey

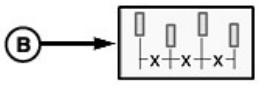


A59173—UN—29JAN07
Rates Softkey

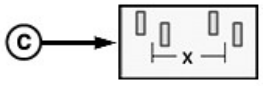
1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Frame** tab >> **Frame Configuration** the drop-down box.
2. Select **Row Configuration** the drop-down box.



A72709—UN—21SEP11
Single Row Spacing



A72710—UN—21SEP11
Split Row Spacing



A72711—UN—21SEP11
Twin Row Spacing

A—Single Row Configuration
B—Split Row Configuration
C—Twin Row Configuration

Single Row Configuration (A): Use this configuration when planter is only a single row design.

Split Row Configuration (B):

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.

If machine is a split row design, select **Split Row** from the drop-down box. Split Row must always remain selected for planters of this design. To toggle between wide and narrow rows when planting, perform the following:

1. Select **Rates** the softkey.
2. To change between split rows and all rows, select **Rows Planting** check box.

NOTE: To ensure all settings update; actively select the rows planting check box even if a check mark is already in the box.

Cycle power to ensure that all new settings are updated.

Twin Row Configuration (C):

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

If machine is a twin row design, select **Twin Row** from the drop-down box. Twin Row must always remain selected for planters of this design. To toggle between twin and single rows when planting, perform the following:

1. Select **Rates** the softkey.
2. To change between single rows and all rows, select **Rows Planting** check box .

Cycle power to ensure that all new settings are updated.

NOTE: If the number of rows is changed, RowCommand™ must be enabled again. (Refer to drive section configuration.)

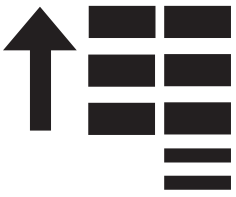
3. Select **Rows** input box. Enter total number of rows on machine.
4. Select **Row Spacing** input box. Enter distance between each row unit.
5. Planter **Width** is automatically calculated. To enter the width manually, select input box and enter a value.
6. To enable or disable the partial width alarm, select **Clutch Disconnect Warning** check box. 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 the softkey and monitor beeps every 15 seconds as a reminder.
7. To place monitor in transport mode when moving planter to and from fields, select **Transport Mode** button

Screen Area Information

Planter Configuration—Planter Configuration
Frame Configuration—Frame Configuration
Planter Data—Planter Data
Planter Dimensions—Planter Dimensions
GPS Dimensions—GPS Dimensions
Total—Total
Rows—Rows
Planter Width—Planter Width
Single Row—Single Row
Split Row—Split Row
Twin Row—Twin Row
Clutch Disconnect Warning—Clutch Disconnect Warning
Transport Mode—Transport Mode
Rows Planting—Rows Planting

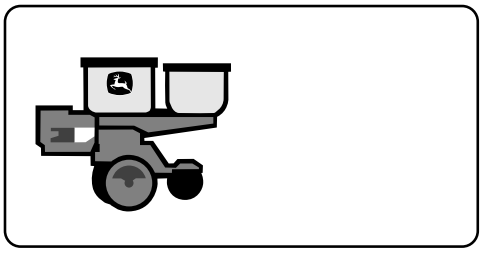
PB21958,00001F8-19-07JUL20

Seed Sensors On-off



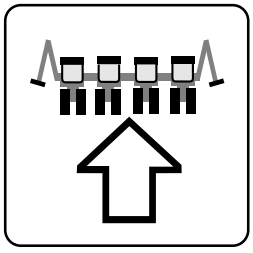
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

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

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

2. Select **Seed** from the 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. To configure selected row, Select **On** or **Off** check box.

   On-Off selections are only available for active rows. Example: If a split row or twin row machine is set to plant in the wide row configuration, the intermediate rows are not selectable.
4. To suppress warnings while making turns in headlands, select the Headland Warning Suppression check box

Screen Area Information

Planter Configuration—Planter Configuration
Sensor—Sensor
Seed—Seed
On—On
Off—Off
Row—Row
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
Headland Warning Suppression—Headland Warning Suppression

PB21958,00001F9-19-07JUL20

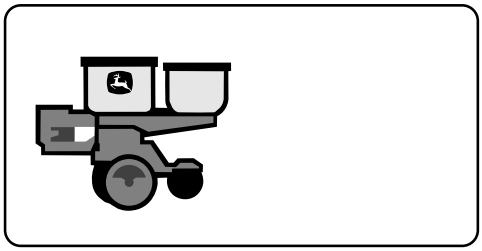
Vacuum Sensor Configuration

Sensor Quantities and Locations, when Vacuum Metering Selected (1.6Bu & 3.0Bu) Including Mini Hopper		
Machine	**Quantity of Vacuum Sensors**	**Row Location of Vacuum Sensors**
1745 8 Row	1	5
1745 15 Row	1	5

NOTE: This option is only visible on the run screen if one or more vacuum sensors are selected.

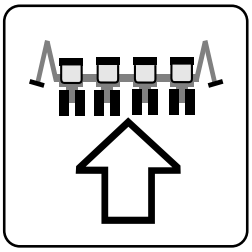
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration the softkey

A59369—UN—20FEB07

Zero Sensor Button

1. Select **Menu** >> **Planter** button >> **Configuration** the softkey >> **Sensor** tab.
2. Select **Vacuum** from the drop-down box.

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

3. Select number of vacuum sensors on the machine from **Sensors:** the drop-down box.

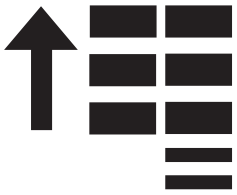
Screen Area Information

Planter Configuration—Planter Configuration
Sensor—Sensor
Vacuum—Vacuum
V (in.)—inches of Vacuum
Sensors:—Sensors:
Sensor—Sensor
Cal Value—Calibration Value
Turn Vacuum Off—Turn Vacuum Off
Select—Select

PX03972,000185F-19-27APR20

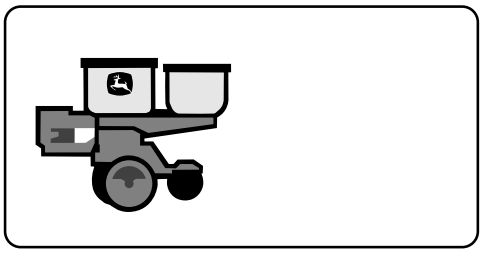
Vacuum Sensor Calibration

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



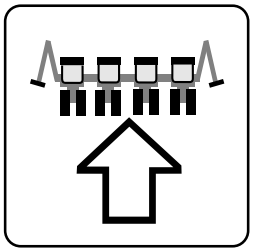
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

A59369—UN—20FEB07

Zero Sensor Button

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Vacuum** from the 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 (English units) or 143.76 (Metric units).

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

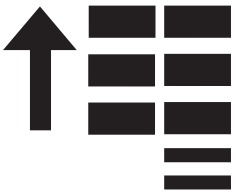
5. Shut off vacuum hydraulics before depressing the **Zero Sensor** button.

Screen Area Information

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

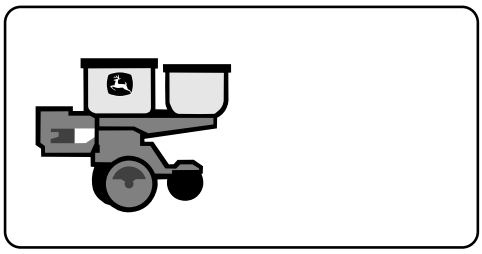
PB21958,00001FB-19-07JUL20

Pneumatic Downforce—Air Pressure Sensor



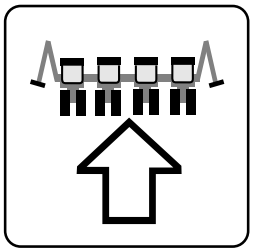
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

H85801—UN—14JUN06

Continue

A59369—UN—20FEB07

Zero Sensor Button

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **PDF Air Pressure** from the drop-down box.

NOTE: Step value option is only displayed in the Pneumatic downforce—Air Pressure Sensor setup screen for Non-XP (Enhanced Monitoring) equipped machines.

3. Select **Step Value**, enter a value for the pneumatic downforce system to increase or decrease when adjustment arrows (on the run screen) are used for adjustment.

NOTE: PDF low alarm option is only displayed in the Pneumatic downforce—Air Pressure Sensor setup screen for Non-XP (Enhanced Monitoring) equipped machines.

4. To set the pressure to determine margin, select **PDF Low Alarm**. The default setting from the factory is (40 lb).
5. Select **cal Value** input box and enter the calibration value of 494.00.

NOTE: Current downforce is displayed on bottom left of screen.

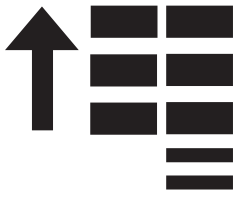
6. Relieve air pressure before selecting the **Zero Sensor** button.

Screen Area Information

Planter Configuration—Planter Configuration
Sensor—Sensor
PDF Air Pressure—PDF Air Pressure
Cal Value—Calibration Value
To Zero Air Pressure Sensor:—To Zero Air Pressure Sensor:
Relieve Air Pressure and Press Continue—Relieve Air Pressure and Press Continue

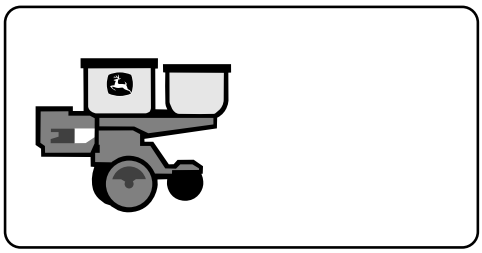
PB21958,00001FC-19-07JUL20

Calibrate Common Start and Stop Height



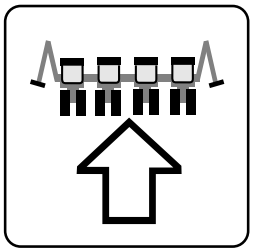
A59325—UN—19FEB07

Menu



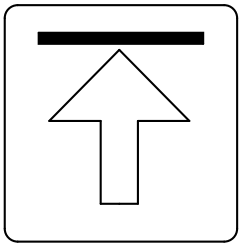
A59551—UN—08MAR07

Planter Button



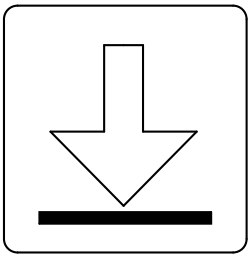
A59172—UN—29JAN07

Configuration Softkey



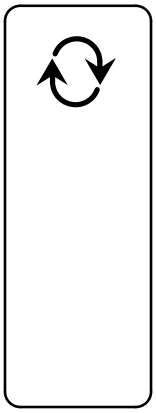
A59528—UN—08MAR07

Planter Raised



A59529—UN—09MAR07

Planter Lowered



A59530—UN—08MAR07

Start/Stop

H85801—UN—14JUN06

Enter

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

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

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

NOTE: A set point less than 20 is not recommended with a height sensor for the wheel frame .

9. With the wheel 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 the soil surface.
10. If setting needs slight adjustment after planting begins, select input box and adjust value in small increments.
11. 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

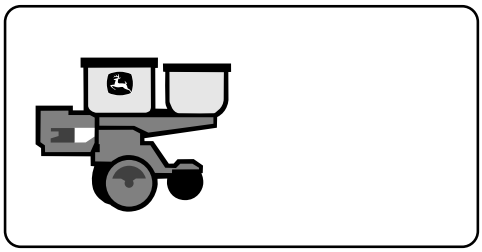
PX03972,0001841-19-07JUL20

Calibrate Separate Start and Stop Height

We commonly have 2 RU Height Sensors on each row side (R1 & R15) with Seedstar 2 or Seedstar XP, when CCS is selected, an additional Height Sensor is included on RU9			
Machine	**Drive Sections (Ground Drive)**	**Row Location of Height Sensors**	**Row Location of Height Sensor when CCS is selected**
1745 8 Row	1	1, 15	9
1745 15 Row	1	1, 15	9

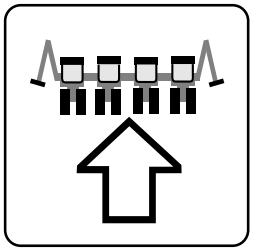
A59325—UN—19FEB07

Menu



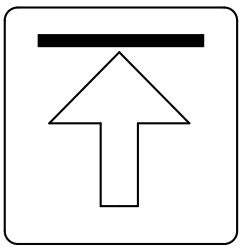
A59551—UN—08MAR07

Planter Button



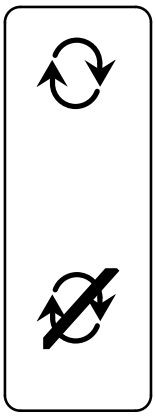
A59172—UN—29JAN07

Configure the softkey



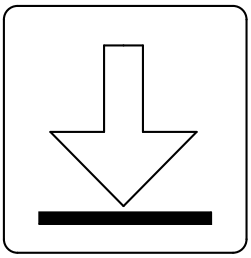
A59528—UN—08MAR07

Planter Raised



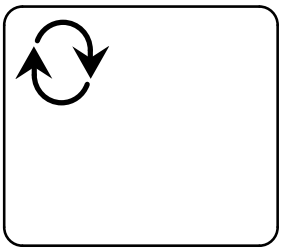
A59531—UN—08MAR07

Start/Stop



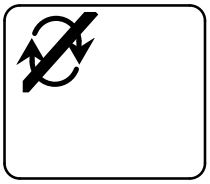
A59529—UN—09MAR07

Planter Lowered



A59526—UN—08MAR07

Start Height



A59527—UN—08MAR07

Stop Height

H85801—UN—14JUN06

Enter

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

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

1. Select **Height** from the drop-down box.
2. Select **Separate**.
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 height must be a larger value than stop height.

NOTE: A set point less than 20 is not recommended with a height sensor for the wheel frame .

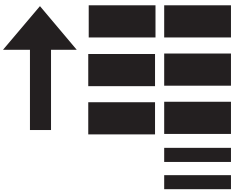
8. From the fully lowered position, raise machine until motor stop height is achieved and select **Stop Height** button. Recommended setting is just before openers exit soil.
9. Fully raise machine.
10. From the fully raised position, lower machine until motor start height is achieved and select **Start Height** button. Recommended setting is just before openers contact soil.
11. To adjust settings slightly after planting begins, select input boxes and adjust values in small increments.
12. 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

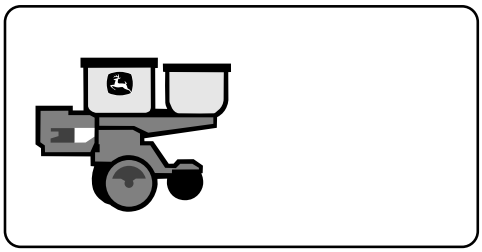
PX03972,0001860-19-07JUL20

Ground Speed Source



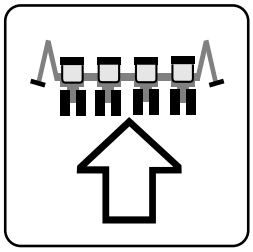
A59325—UN—19FEB07

Menu



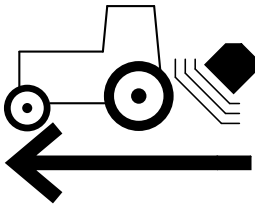
A59551—UN—08MAR07

Planter Button



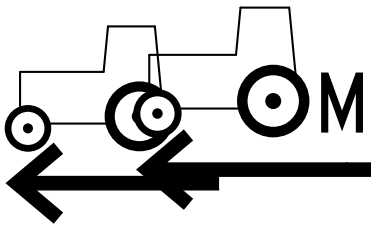
A59172—UN—29JAN07

Configuration Softkey



A62104—UN—22FEB08

Radar Speed



A62103—UN—03MAR08

Wheel Speed

A62106—UN—22FEB08

Manual Speed

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Tractor Speed** from the 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: Entering a manual speed is an option. A single speed value must be entered. The monitor assumes that the planter is always traveling 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.

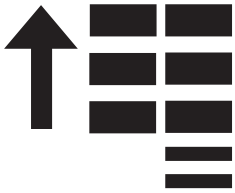
5. Select a single speed source; **Radar**, **Wheel Speed**, or **Manual**.

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

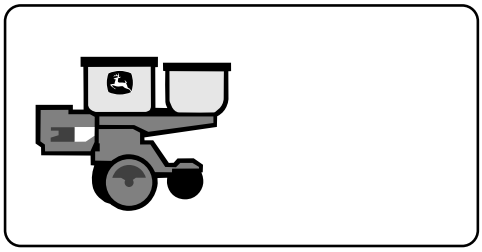
PB21958,00001FF-19-07JUL20

Configure Drive Sections



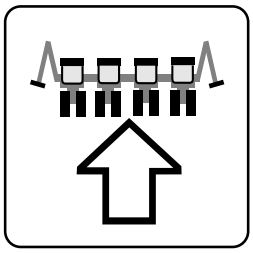
A59325—UN—19FEB07

Menu



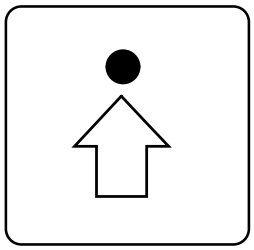
A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey



A59377—UN—23FEB07

Settings Button

H85801—UN—14JUN06

Enter

NOTE: Verify that Drive Source is configured to Ground Drive. (See CONFIGURE DRIVE SOURCE in Initial System Configuration.)

Configure drive sections.

1. Select **Menu** >> **Planter** button >> **Configure** softkey >> **Drives** tab >> **Drive Sections** the drop-down box >> **Settings** button.
2. Select number of sections (number of clutches) from the drop-down box.
3. Select next page icon.
4. Verify that the Start and End Rows match the Left and Right clutch configuration on machine.
5. To enable Row Command, check the **Row Command** box.

Planter Configuration—Planter Configuration
Drives—Drives
Drive Sections—Drive Sections
Motor—Motor
Start Row—Start Row
End Row—End Row
Left—Left
Right—Right
Number of Sections—Number of Sections
Row Command: No—Row Command: No
Row Command: Yes—Row Command: Yes

PB21958,000035F-19-07JUL20

RowCommand™ Overview

The RowCommand™ system uses electric clutches at each row unit to shut off the seed meters when commanded by the operator or by Swath Control Pro™ software. RowCommand™ clutches are designed so that the seed meter turns when the clutch is not powered. To turn a row unit clutch on or off, the SeedStar™ 2 control unit sends a CAN bus message to the Electronic Power Module (EPM) for that clutch. The EPM processes the message and applies electrical power to the clutch solenoid to turn it off and removes electrical power to turn it on. The RowCommand™ system allows up to 16 control sections to be set up for the planter. Control sections cannot go across VRD drive sections and need to be a minimum of 60 inches wide for best performance with the Swath Control Pro™. When used with the Swath Control Pro™, RowCommand™ on and off times must be calibrated for the specific tractor and planter configuration being used. Refer to the Swath Control Pro™ section of your GreenStar™ Display Operator's Manual for detailed setup information.

PB21958,0000366-19-07JUL20

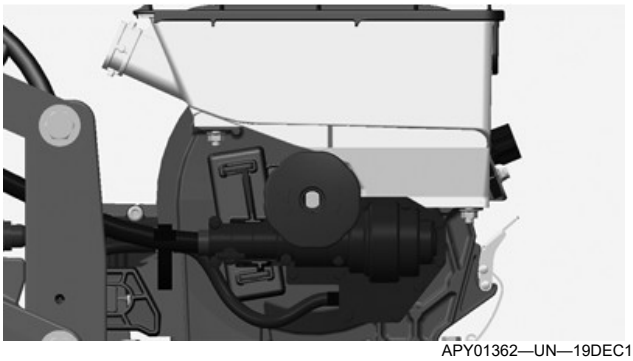
System Components

APY01351—UN—19DEC17

RowCommand™ Electronic Power Module

RowCommand™ Electronic Power Module

The Electronic Power Module receives CAN bus messages from the Planter Main 1 (PM1) control unit and switches electrical power to the RowCommand™ clutches on and off.



APY01362—UN—19DEC17

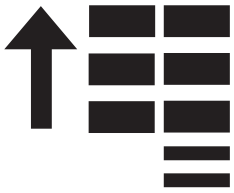
Pro-Series Pro-Shaft Row Command Clutch

Pro-Series Pro-Shaft RowCommand™ Clutch

The RowCommand™ Clutch is engaged (seed meter turning) when there is no electrical power applied to the clutch solenoid. The clutch is disengaged when the electronic power module (EPM) supplies electrical power to the clutch solenoid.

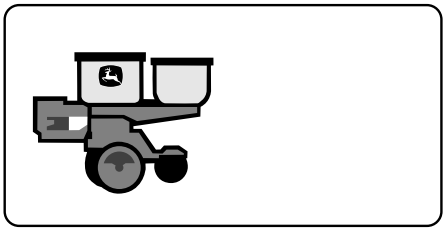
PB21958,00001E2-19-13DEC17

Configure RowCommand™



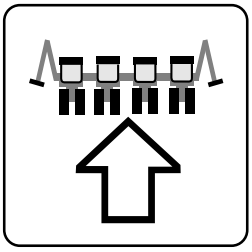
APY01387—UN—18DEC17

Menu



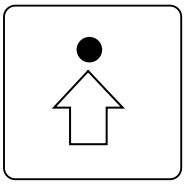
APY01388—UN—18DEC17

Planter Button



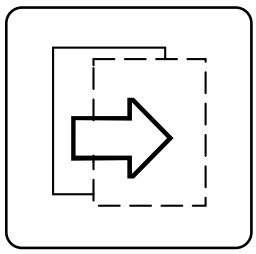
A59172—UN—29JAN07

Configuration Softkey



APY01393—UN—18DEC17

Settings Button



A62277—UN—23JUL08

Next Page

H85801—UN—14JUN06

Enter

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Drives** tab >> **Drive Sections** drop-down box >> **Settings** button.
2. Check **RowCommand**™ box to enable. 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 the screen. Select **Next Page** icon until set up row control sections appears on the screen:
   a. Enter number of RowCommand™ control sections in the 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 the planter is on 76 cm (30 in) row spacing a minimum of 2 rows must be entered.

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

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

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

   If **Row Control Sections** does not appear in the drop-down box, RowCommand™ has not been enabled. Repeat RowCommand™ configuration procedure.
4. Calibrate start and stop height for planter. See CALIBRATE COMMON START AND STOP HEIGHT or CALIBRATE SEPARATE START AND STOP HEIGHT in the SeedStar™ 2 SETUP Initial System Configuration Section.

The 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

PB21958,0000225-19-07JUL20

Recommended RowCommand™ Section Configurations

Machine	Number of Rows	Drive Sections (Ground Drive)	Control Sections	Number of Rows Per Section
1745 8 Row	8	1	4	2, 2, 2, 2
1745 15 Row	15	1	4	4, 3, 4, 4

PX03972,0001861-19-09JUN20

SeedStar™ XP Monitoring System Overview

SeedStar™ XP is an optional monitoring system that provides more detailed information about the planting operation to the operator. SeedStar™ XP retains all the features and capabilities of SeedStar™ 2 and adds the following functions:

- Seed Singulation Monitoring
- Seed Spacing Monitoring
- Set-Point Row Unit downforce Monitoring
- Optional Active downforce Control
- Row Unit Ride Quality Monitoring

The Planter Main 1 control unit (PM1) uses signals from the existing seed sensors to provide Seed Singulation and Seed Spacing information for a more detailed indication of seed meter and overall seed spacing performance of the planter.

The Planter Main 2 control unit (PM2) uses data from the control units of sensor node and gauge wheel downforce sensors to calculate row unit downforce and information of ride quality of row unit . This information is sent to the Planter Main 1 control unit and displayed on the monitor to enable the operator to fine-tune the planter to optimize row unit penetration, seed depth control, and seed to soil contact.

PB21958,0000367-19-07JUL20

System Components

A66613—UN—22FEB10

Planter Main 2 (PM2) Controller

Planter Main 2 (PM2) Controller

This control unit:

- Collects data from control units of the sensor node .
- Communicates row unit ride dynamic and downforce information to Planter Main (PM1) control unit.
- Controls and monitors pneumatic downforce system.

A66615—UN—22FEB10

Sensor Node Controller

Sensor Node Controller

This control unit:

- Collects downforce loads from the downforce sensors of the gauge wheel .
- Senses dynamics of the row unit ride.
- Communicates row unit dynamic and gauge wheel downforce information to Planter Main 2 (PM2) control unit.

Depending on the planter model, there are from 3 through 7 sensor nodes on the planter, with one sensor node per frame section. In most cases, extra wiring harness length is provided to allow the sensor node to be moved one row to either side of the factory location.

A66614—UN—22FEB10

Gauge Wheel downforce Sensor

Gauge Wheel downforce Sensor

This component senses the amount of load that the gauge wheels of the row unit are carrying. The signal from gauge wheel load is processed with the control unit of sensor node and communicated to the Planter Main 2 (PM2) control unit. Depending on the planter model, there are from 3 through 7 downforce sensors of the gauge wheel on the planter, with one sensor per frame section.

A66648—UN—01MAR10

Seed Sensor

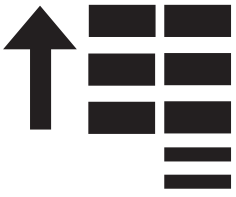
Seed Sensor

The seed sensor is used to monitor seed activity at each row unit. Seed information is processed with the Planter Main (PM1) control unit and displayed on the GreenStar™ display. SeedStar™ XP monitoring systems use seed sensor data to calculate and display seed singulation and seed spacing information, in addition to seed population.

PB21958,0000368-19-07JUL20

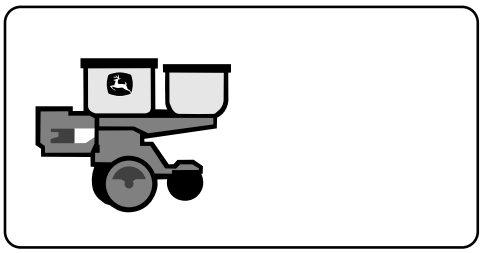
Ride Dynamics Sensor Configuration

NOTE: The Number of Sensors Input List, the Sensor Number Input List, and the Row Location Input Number Field are the same field for the downforce and the Ride Dynamics Configuration screens. Changing the valve in one screen, changes the other.



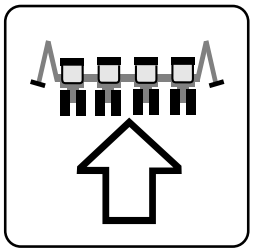
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **Ride Quality** from the drop-down box.
3. Select number of ride quality sensors on the machine from **Sensors:** drop-down box.

NOTE: Current load is displayed on bottom left of screen.

4. Select each sensor, one at a time, from the **Sensor** drop-down box.
5. Identify which row the first sensor is installed. See Sensor Quantities and Locations chart. Select **Row** and assign the row number to the selected sensor.
6. Select **Enable** check box to enable or disable the sensor.
7. Repeat row assignment for additional sensors.

NOTE: Controller must be restarted when ride dynamic sensors are enabled or disabled for all settings to take effect.

8. Power of Cycle key switch.

Screen Area Information

Planter Configuration—Planter Configuration
Ride Quality—Ride Quality
Sensors:—Sensors:
Sensor—Sensor
Row—Row
Enable—Enable

Sensor Quantities and Locations		
Planter Model	**Quantity of Sensor Nodes and downforce Sensors**	**Row Location of Sensor Nodes and downforce Sensors[a]**
1745 8 Row	3	3, 7, 13
1745 15 Row	3	3, 7, 13

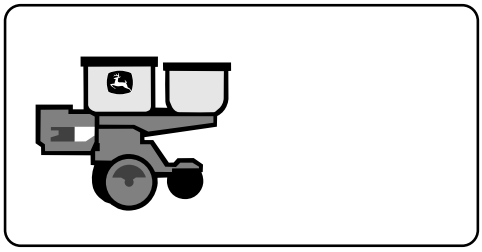
[a] *Row locations for sensor nodes and downforce sensors can be moved one row-unit next to the factory-installed placement for desired application.*

PX03972,0001858-19-07JUL20

Integrated Pneumatic Downforce—Air Pressure Sensor

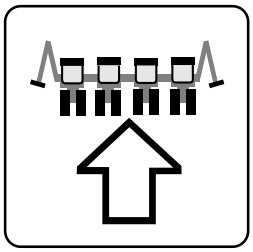
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

H85801—UN—14JUN06

Continue

A59369—UN—20FEB07

Zero Sensor Button

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **PDF Air Pressure** from the drop-down box.
3. Select **# of Ranks** in the drop-down box and enter the rank number for the air pressure sensor.
4. Select **Sensor** the drop-down box and select sensor
5. Select **cal Value** input box and enter the calibration value of 494.00.

NOTE: Current downforce is displayed on bottom left of screen.

6. Relieve air pressure before selecting the **Zero Sensor** button.

IMPORTANT: To ensure downforce system accuracy, zero sensor annually or whenever system does not read 0 with the air bags deflated.

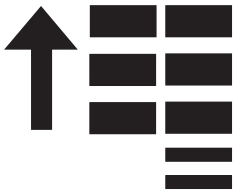
Screen Area Information

Planter Configuration—Planter Configuration
Sensor—Sensor
PDF Air Pressure—PDF Air Pressure
# of Rank—Rank Number
Sensor—Sensor
Cal Value—Calibration Value
To Zero Air Pressure Sensor:—To Zero Air Pressure Sensor:
Relieve Air Pressure and Press Continue—Relieve Air Pres-

sure and Press Contin-
ue
PB21958,000036A-19-26JAN18

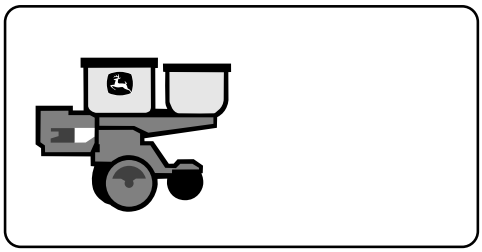
Downforce Sensor Configuration

NOTE: The Number of Sensors Input List, the Sensor Number Input List, and the Row Location Input Number Field are the same field for the downforce and the Ride Dynamics Configuration screens. Changing the value in one screen changes the value on the other.



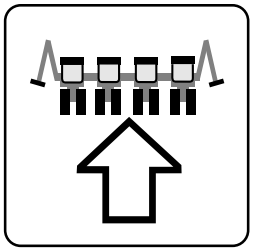
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey

A59369—UN—20FEB07

Zero Sensor Button

1. Select **Menu** >> **Planter** button >> **Configuration** softkey >> **Sensor** tab.
2. Select **downforce** from the drop-down box.
3. Select number of downforce sensors on the machine from **# of Sensors:** the drop-down box.
4. Select each sensor, one at a time, from the **Sensor** the drop-down box.
5. Identify which row the first sensor is installed. See Sensor Quantities and Locations chart. Select **Row** and assign the row number to the selected sensor.
6. Select rank, for each sensor, from the **Rank** drop-down box. See Sensor Quantities and Locations chart for rank information.
7. Select **Enable** check box to enable or disable the sensor.
8. Select **cal Value** input box and enter the downforce sensor calibration value. John Deere™ planters with factory equipped sensors have a calibration value of 1394.

NOTE: Current load is displayed on bottom left of screen.

NOTE: To zero downforce sensors, planter must be raised and stopped.

9. Select **Zero Sensor** button.
10. Repeat row assignment for additional sensors.

Screen Area Information

Planter Configuration—Planter Configuration
downforce—Downforce
Sensors:—Sensors:
Sensor—Sensor
Row—Row
Enable—Enable
Cal Value—Calibration Value
lbs—Pounds

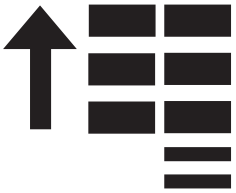
Sensor Quantities and Locations		
Planter Model	**Quantity of Sensor Nodes and downforce Sensors**	**Row Location of Sensor Nodes and downforce Sensors[a]**
1745 8 Row	3	3, 7, 13
1745 15 Row	3	3, 7, 13

[a]Row locations for sensor nodes and downforce sensors can be moved one row-unit next to the factory-installed placement for desired application.

PX03972,0001859-19-07JUL20

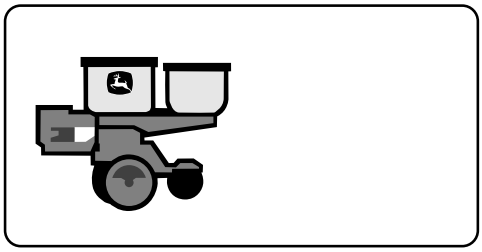
Planter at a Glance - User Settings

The Planter at a Glance - User Settings screen allows the operator to choose which SeedStar™ XP monitor features are displayed when Auto Scroll is enabled.



A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button

A67761—UN—16JUN10

Screen Scan

H85801—UN—14JUN06

Enter

1. Select **Menu** >> **Planter** button >> **Screen Scan** button.
2. Select and hold **Screen Scan** button for 4 seconds.
3. Check box next to each SeedStar™ XP page that gets displayed when **Auto Scroll** is selected.
4. To enable **Auto Scroll, Check box**.
5. Select **Delay** box, set the delay time of page scan . Value represented in seconds.
6. When complete select **Enter**.
7. When the auto scroll is enabled, select the Screen Scan button to engage the scroll on the run screen. Select Screen Scan button at any time to disengage the scroll.

Screen Area Information

Planter Configuration—Planter Configuration
Planter at a Glance - User Settings—Planter at a Glance - User Settings

Pages—Pages
Population—Population
Singulation—Singulation
Ride Quality—Ride Quality
Spacing—Spacing
downforce—Downforce
Options—Options
Auto Scroll—Auto Scroll
Delay—Delay

PB21958,000036C-19-26JAN18

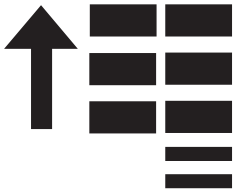
Alarms and Limits Setup Page

The Alarms and Limits Setup Screen allows the operator to adjust the levels at which cautions and alarms occur for each of the SeedStar™ XP monitor features.

For Set-Point, Pneumatic downforce controlled machines, Target Margin must be set and adjusted from this screen.

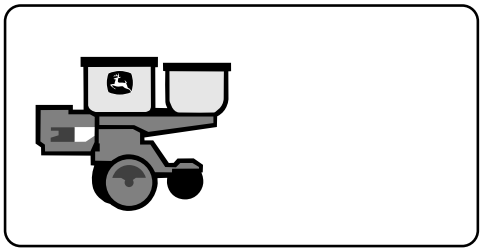
If any of the monitored values go beyond the alarm set point, the bar graph and background of the numerical display changes to red.

Enter “0” in any of the alarm set point boxes to disable the alarm for that function.



A59325—UN—19FEB07

Menu

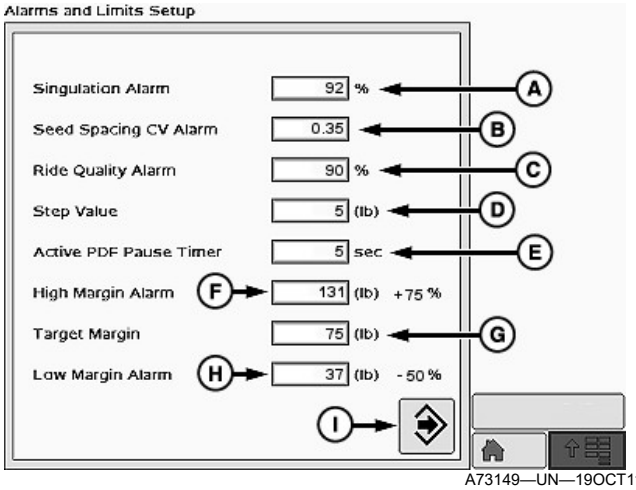


A59551—UN—08MAR07

Planter Button

A67768—UN—16JUN10

SeedStar XP Monitor Buttons



A73149—UN—19OCT11

A—Singulation Alarm
B—Spacing CV Alarm
C—Ride Quality Alarm
D—Step Value
E—Active PDF Pause Timer
F—High Margin Alarm
G—Target Margin
H—Low Margin Alarm
I—Enter

1. Select **Menu** >> **Planter** button.
2. Select and hold any **SeedStar™ XP Monitor** button for 4 seconds.
3. To enter the minimum acceptable singulation percentage, select **Singulation Alarm Box** (A) . Default singulation alarm setting is 92 percent.
4. To enter the minimum acceptable coefficient of variation value, select **Spacing CV Alarm Box** (B). Default spacing alarm setting is 0.35.
5. To enter the minimum acceptable ride quality percentage, Select **Ride Quality Alarm Box** (C). Default setting of ride quality alarm is 90 percent.
6. To enter the incremental value the downforce changes when the increase or decrease arrows are used to adjust the pneumatic downforce. Increments can be set from 1 through 50.

NOTE: Active PDF pause timer box is only available for Active Pneumatic downforce controlled machines.

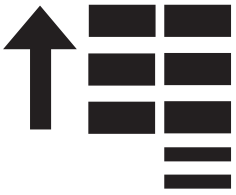
7. To set the amount of time that the Active PDF system is inactive when the Pause button is depressed on the main run screen, Select **Active PDF Pause Timer Box** (E).
8. To enter the high range for the downforce margin of the row unit, Select **High Margin Alarm Box** (F). Default margin alarm setting is 75 percent above the target margin.
9. To set and adjust target margin from this screen, Select **Target Margin Box** (G). If equipped with Active Pneumatic downforce, target margin can also be set on the run page.
10. To enter the low range for the row unit down force margin, select **Low Margin Alarm Box** (H). Default margin alarm setting is 50 percent below the target margin.
11. When complete select **Enter** (I).

Screen Area Information

Planter Configuration—Planter Configuration
Alarms and Limit Setup—Alarms and Limit Setup

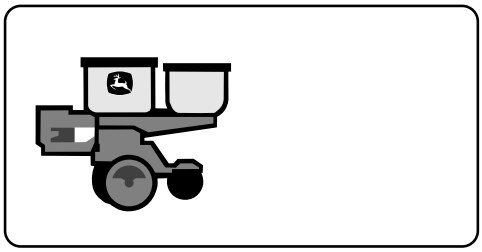
PB21958,000036D-19-07JUL20

Ground Driven Machines—Target Population and High-Low Warnings



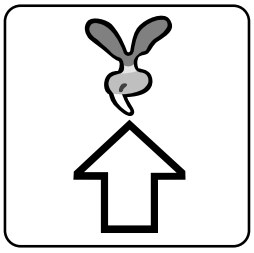
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59173—UN—29JAN07

Rates Softkey

1. Select **Menu** >> **Planter** button >> **Rates** softkey.
2. To choose corn, soybeans, or one of the custom crop names, select **Crop Name** from the drop-down box.
3. To change crop name, select **Edit Crop Name** button .
4. Select **Target Rate** input box and enter value.
5. 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.

6. Select **Population Adjust** input box and enter value.

NOTE: Number of rows planting check boxes are only visible if monitor is configured for a split row and twin row machines. (See CONFIGURE FRAME layout, ROW layout, AND DRIVE DISCONNECT WARNING in SETUP Initial System Configuration section.)

NOTE: To ensure all settings update; actively select the rows planting check box even if a check mark is already in the box.

7. Select **Rows Planting** check box for appropriate rows planting configuration.

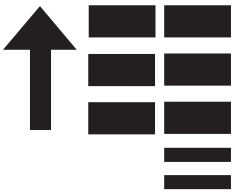
Screen Area Information

Planter Rates—Planter Rates
Crop Name—Crop Name
Corn—Corn
Soybeans—Soybeans
the custom—The custom
Edit Crop Name—Edit Crop Name
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

PX03972,0001846-19-07JUL20

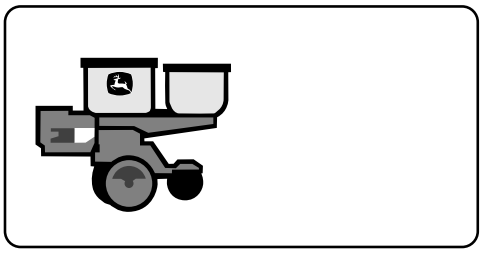
Population Adjust (PA)

IMPORTANT: Ensure that seed meters are properly adjusted and perform in field population. Check BEFORE using Population Adjust.



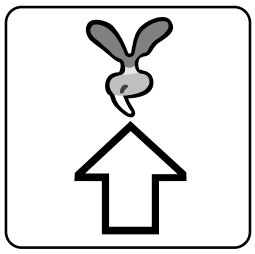
A59325—UN—19FEB07

Menu



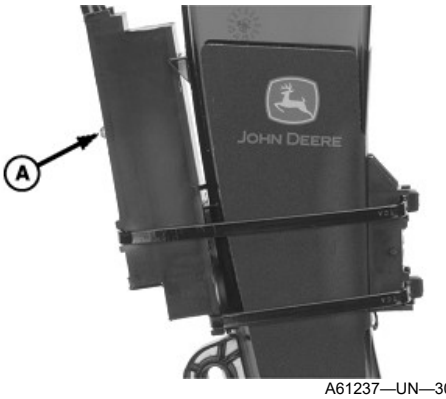
A59551—UN—08MAR07

Planter Button



A59173—UN—29JAN07

Rates Softkey



A61237—UN—30OCT07

A—Sensor LED

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 ÷ 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 with a red LED (A) on the outside of the sensor housing.

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

Screen Area Information

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

PB21958,0000370-19-07JUL20

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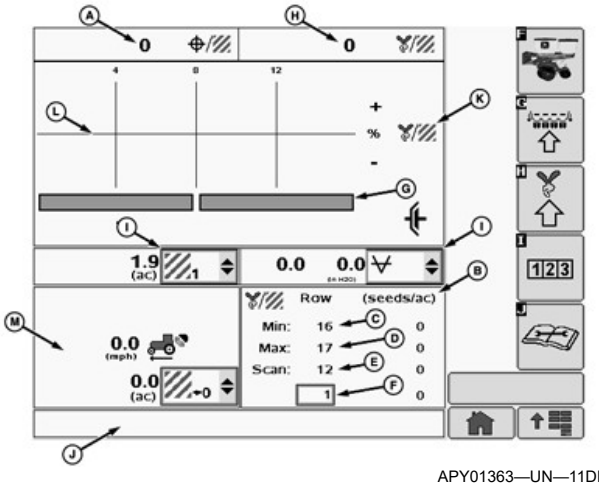
SeedStar™ 2 Main Run Screens

Ground Driven Machines



APY01363—UN—11DEC17

A—Target Population Rate
B—Seeds Per Area
C—Row With Minimum
D—Row With Maximum
E—Scanned Row Number
F—Row Selected
G—Drive Indicator
H—Area Counter
I—List Boxes
J—Planter Cautions
K—Planter-At-A-Glance
L—Target Population Bar
M—Counters and Speed

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 full page as shown, half page Scan mode, or half page Planter-At-A-Glance mode. See HALF SCREEN layout in this section.

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

(A) Target Population Rate (seeds per area).

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

(C) Row number delivering minimum population.

(D) Row number delivering maximum population.

(E) Active Scan Row (Scan mode).

(F) Selected row.

(G) 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 Planter-At-A-Glance population bars become active once all rows in the disconnected drive section deliver greater than two seeds per second.

(H) Average population across the entire machine (seeds per area).

(I) List boxes contain functional options for the operator to select for display.

(J) Planter Cautions.

(K) Planter-At-A-Glance screen area.

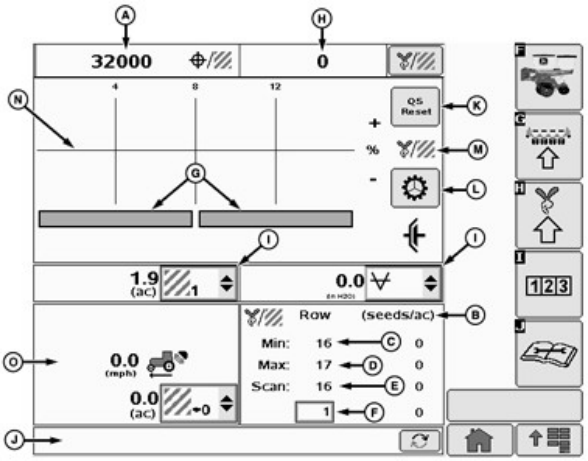
L) Target Population Bar. Bars turn orange when planting above or below alarm set points. Bars turn red when not planting.

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

Planter-At-A-Glance Bar Graph: The line in the middle is the target population. When a row approaches the upper or lower alarm 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. If ground speed falls below 2 mph (3.2 km/hr), the planter monitor is unable to calculate population. Field Doc™ as-applied coverage maps unable to get created during these conditions. The top of the graph is the programmed upper alarm limit. The bottom of the graph is the programmed lower alarm limit. Refer to SETUP Seed Rates section.

PB21958,00001E3-19-07JUL20

Variable-Rate Drive Machines



APY01364—UN—11DEC17

A—Target Population Rate
B—Seeds Per Area
C—Row With Minimum
D—Row With Maximum
E—Scanned Row Number
F—Row Selected
G—Drive Indicator
H—Average Population
I—List Boxes
J—Planter Cautions
K—Quick Start Button
L—Rotate Seed Meters Button

Field Doc is a trademark of Deere & Company

M—Planter At A Glance
N—Population Bar
O—Counters and Speed

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

(A) Target Population Rate (seeds per area). If multiple variable-rate motors deliver different rates, the bar is divided.

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

(C) Row number delivering minimum population.

(D) Row number delivering maximum population.

(E) Active Scan Row (Scan mode).

(F) Selected row.

(G) 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.

(H) Average population across the entire machine (seeds per area).

(I) List boxes contain functional options for the operator to select for display.

(J) Planter Cautions.

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

(L) Rotate seed meters button.

(M) Planter at a glance screen area.

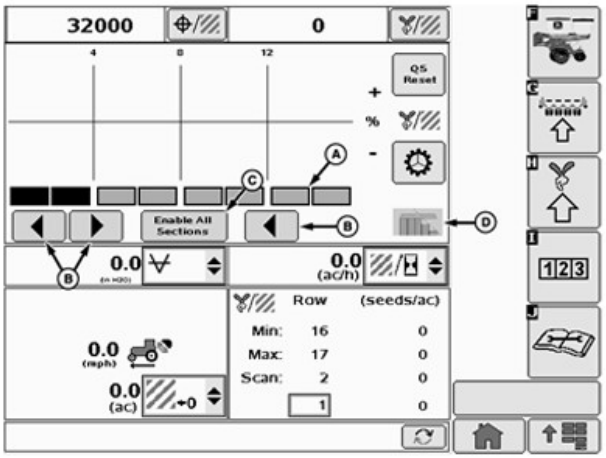
(N) Population Bar. Orange when planting above or below alarm set points. Red when not planting.

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

Planter-At-A-Glance Bar Graph 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. If ground speed falls below 2 mph (3.2 km/hr), the planter monitor is unable to calculate population. Field Doc™ as-applied coverage maps unable to get created during these conditions. The top of the graph is the programmed upper limit. The bottom of the graph is the programmed lower limit.

PB21958,00001E5-19-07JUL20

Machines with RowCommand™



APY01365—UN—11DEC17

A—Drive Indicator
B—Command Buttons
C—All On Button
D—Section Control Icon (If Equipped)

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

To turn sections on and off manually starting from the outside of the planter, select buttons (B). To enable all sections, select the button (C). Section control icon (D) indicates sections controlled by John Deere Section Control™.

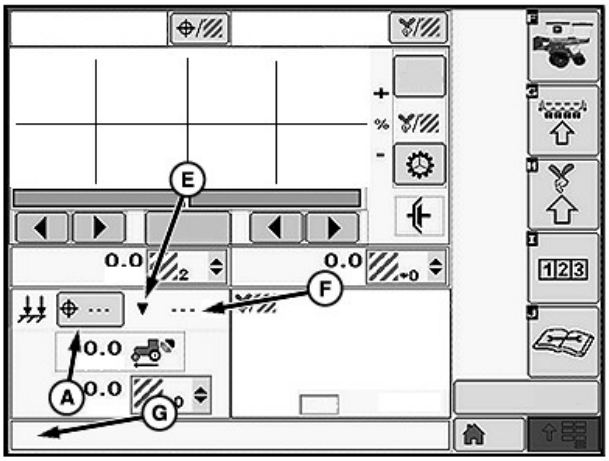
NOTE: If numerous RowCommand™ clutches are simultaneously energized (meters disengaged), a tractor "Low Voltage" warning can occur due to limited alternator output. Reduce electrical load or increase engine RPM.

RowCommand™ Indicators (A)	
Indicator Color	RowCommand™ Activity
Green	Section is active and detected by system. (Meter engaged)
Black	Section deactivated manually by operator using arrows or half width disconnect switch.
Neutral With Black Border	Section deactivated by John Deere Section Control™ prescription.
Not Visible	Section is not responsive. Row continues to plant, but section cannot be controlled with RowCommand™. A warning alerts operator to failure.

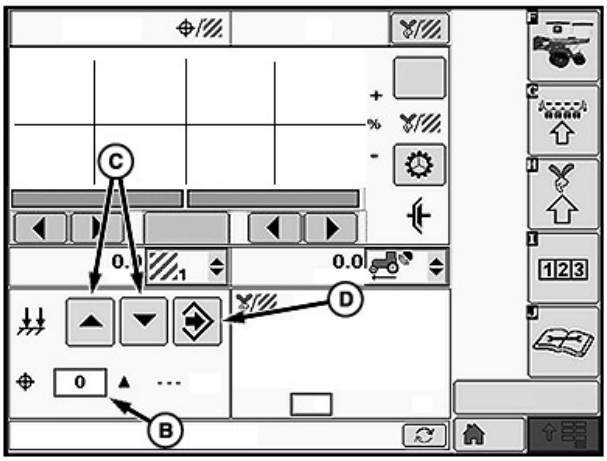
Field Doc is a trademark of Deere & Company

PB21958,00001E6-19-11DEC17

Setting Single Set-Point Target Downforce



A72548—UN—15SEP11



A72549—UN—15SEP11

A—Down Force Target Button
B—Target Down Force Input Box
C—Increase and Decrease Arrows
D—Enter
E—Indicator Arrows
F—Actual Down Force
G—Warning Message Area

Setting Target Down Force

To open the target downforce input screen, select the downforce target button (A) .

Set target row unit downforce by using the target downforce input box (B) or the increase or decrease arrows (C).

When complete, select enters (D).

Indicator arrows (E) are displayed as a visual indication that the system is increasing or decreasing pneumatic down force pressure.

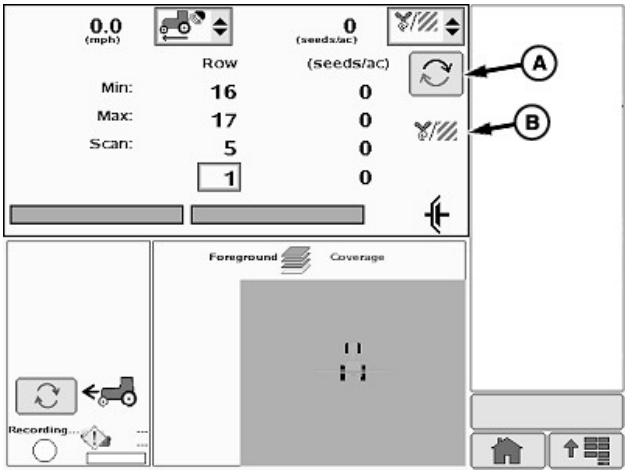
Actual downforce (F) is checked on a timed interval and automatically adjusted if necessary to match the target down force. If the actual downforce (F) deviates below the target at an unacceptable rate, a warning appears in the warning message area (G) stating "Check pneumatic down force for leaks". Depending on the severity of the leak, the actual downforce number (F) is highlighted orange or red.

PB21958,0000371-19-07JUL20

Half Screen Layout

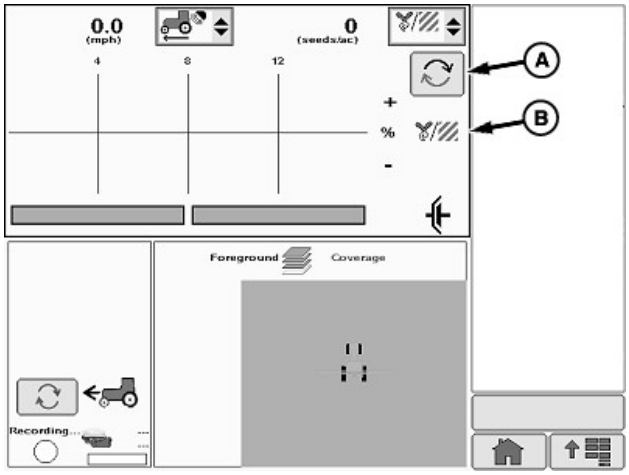
NOTE: Half screen layout and multiple home pages are only available when John Deere™ SeedStar™ 2 Monitor is used with a John Deere™ Greenstar™ display.

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



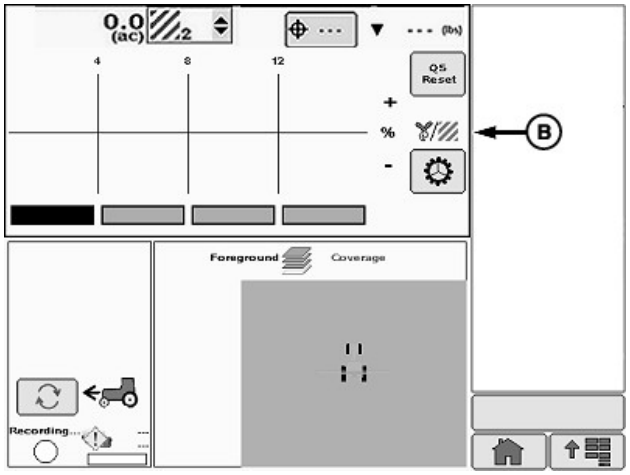
A67778—UN—30JUN10

Scan Mode



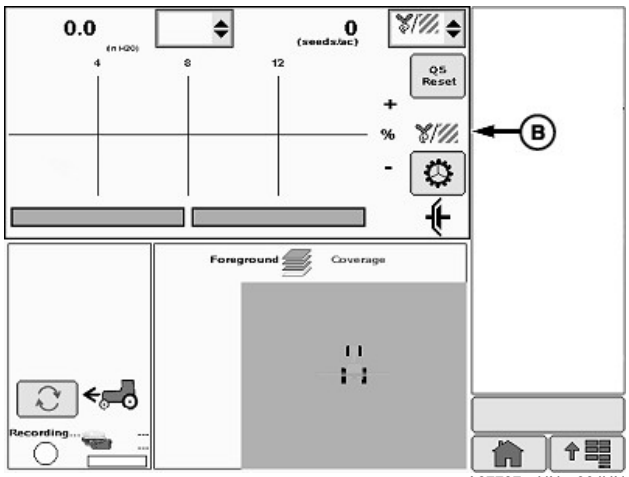
A67779—UN—30JUN10

Planter at a Glance Mode



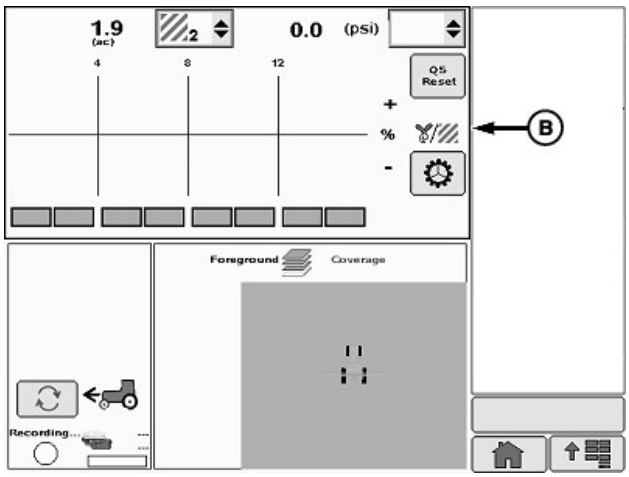
A72550—UN—15SEP11

Planter at a Glance (Single Set-Point Pneumatic downforce)



A67787—UN—30JUN10

Planter at a Glance (Variable Rate Drive)



A67789—UN—30JUN10

Planter at a Glance (RowCommand™)

A—Toggle Button
B—Half Screen

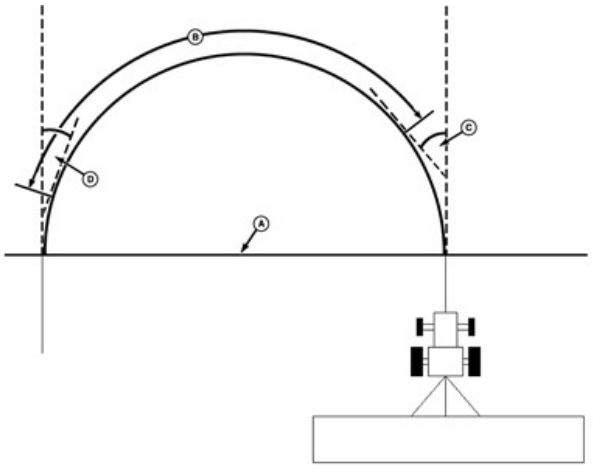
Select toggle button (A) to switch between Scan Mode and Planter at a Glance Mode. When half screen (B) layout is selected, less information is presented in screen area. Error messages do not appear on half screen. Return to full screen mode to view error messages when an audible alert signals an error.

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.

PB21958,0000372-19-27JAN18

Turning View Warning Suppression



APY01366—UN—11DEC17

A—Headlands
B—Warning Suppression
C—Suppression Begins 45 Degrees Away
D—Suppression Ends 13 Degrees Away

When operating with a John Deere™ GreenStar™

display and using John Deere™ Guidance Products, full screen seed monitor warnings can be suppressed (B) when making turns on headlands (A).

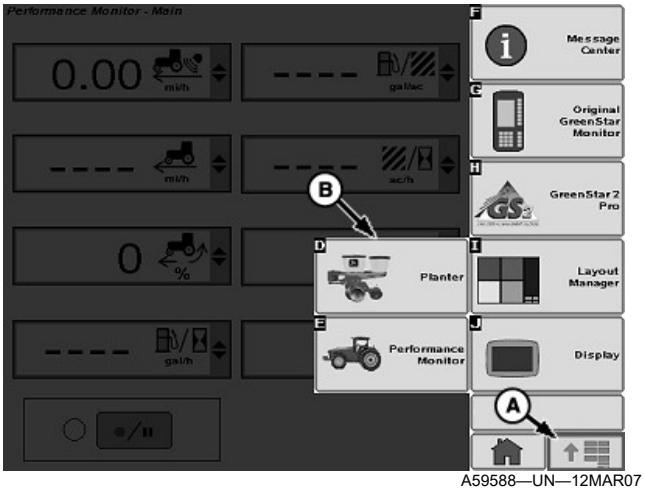
To enable turning view seed warning suppression, **Turning View** check box must be checked in Greenstar™2 Pro Guidance Setup.

The following occurs when turning view is enabled:

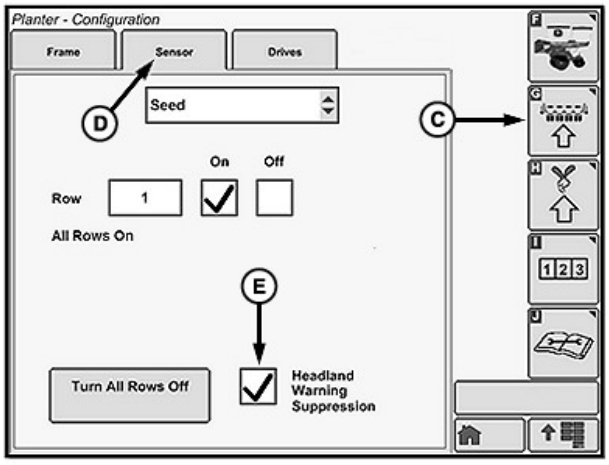
- Seed warning suppression and turning view begin when tractor is turned 45 degrees (C) away from the current pass using Straight Track.
- Turning View ends when the tractor is within 13 degrees (D) of the next pass.
- Seed warning suppression ends three seconds after turning view disappears from screen.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

PB21958,00001E4-19-11DEC17

Headland Warning Suppression



A59588—UN—12MAR07



A72705—UN—20SEP11

A—Menu Button
B—Planter Button
C—Configure Softkey
D—Sensor Tab
E—Box

Headland Warning Suppression ONLY suppresses the Rows Not Planting warnings when the height sensor or switch indicates that the planter frame is raised. It does not disable any other planter warnings.

To enable Headland Warning Suppression:

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

Place a check mark in the Headland Warning Suppression box (E).

To disable Headland Warning Suppression, remove check mark from the box.

On **Ground Driven planters without RowCommand™**, a height sensor MUST be installed and calibrated for Headland Warning Suppression to function. See your John Deere dealer.

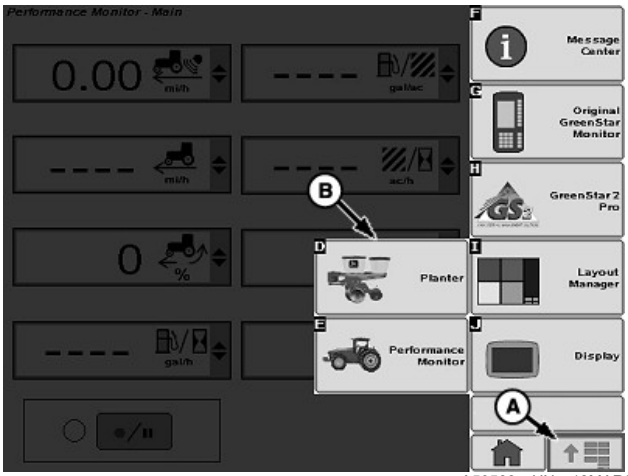
Planters equipped with Variable Rate Drive and ground driven planters equipped with RowCommand™ have a height sensor installed.

Screen Area Information

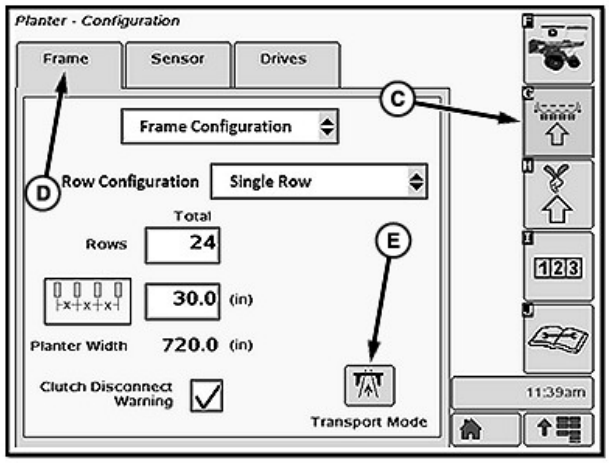
Planter Configuration—Planter Configuration
Frame—Frame
Sensor—Sensor
Drives—Drives
Seed—Seed
Row—Row
On—On
Off—Off
All Rows On—All Rows On
Turn All Rows Off—Turn All Rows Off
Headland Warning Suppression—Headland Warning Suppression

PB21958,0000373-19-07JUL20

Transport Mode



A59588—UN—12MAR07



A72577—UN—15SEP11

A—Menu Button
B—Planter Button
C—Configure Softkey
D—Frame Tab
E—Transport Mode Softkey

Transport Mode puts the planter control unit in quiet mode. There are no warnings from planter and no functionality from planter until Transport Mode is disabled.

To enable Transport Mode:

Select **Menu** >> **Planter** button >> **Configure** the softkey >> **Frame** tab

Select Transport Mode softkey (E).

To disable Transport Mode, select the Transport Mode softkey on screen, monitor then returns to run page.

Screen Area Information

Planter Configuration—Planter Configuration
Frame—Frame
Sensor—Sensor
Drives—Drives
Frame Configuration—Frame Configuration
Row Configuration—Row Configuration
Single Row—Single Row
Rows—Rows
Total—Total
Planter Width—Planter Width
Clutch Disconnect Warning—Clutch Disconnect Warning
Transport Mode—Transport Mode

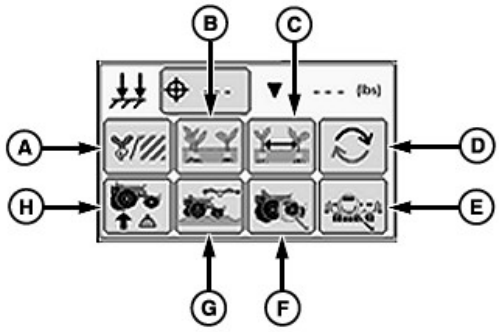
PB21958,0000374-19-27JAN18

SeedStar™ XP Main Run Screens

SeedStar™ XP Navigation Buttons

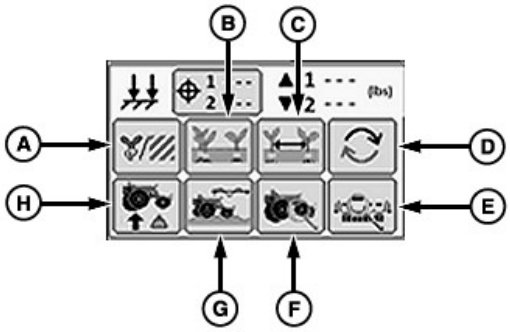
NOTE: This section explains the operation and features of the optional SeedStar™ XP monitoring system.

Refer to SeedStar™ 2 Main Run Screens section for the basic monitor functions, Variable Rate Drive, and RowCommand™.



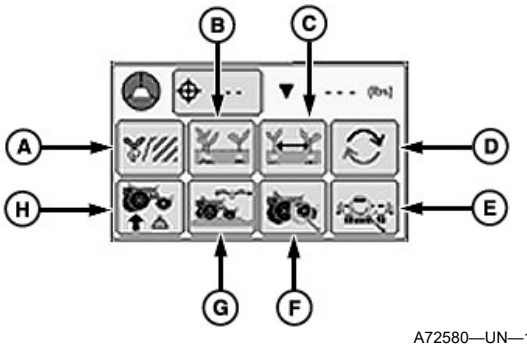
A72578—UN—16SEP11

SeedStar™ XP Navigation Buttons (Single Set-Point PDF)



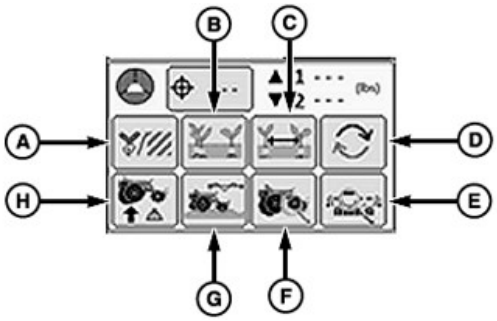
A72579—UN—16SEP11

SeedStar™ XP Navigation Buttons (Dual Set-Point PDF)



A72580—UN—16SEP11

SeedStar™ XP Navigation Buttons (Active PDF One Sensor)



APY01386—UN—13DEC17

SeedStar™ XP Navigation Buttons (Active PDF Two Sensors)

A—Seed Population Button
B—Seed Singulation Button
C—Seed Spacing CV Button
D—SeedStar™ XP Screen Scan Button
E—Planters Details Button
F—Row Details Button
G—Ride Dynamics Button
H—Row Unit downforce Button

The SeedStar™ XP Navigation Buttons allow the operator to view detailed information for each SeedStar™ XP monitor function. Selecting each button displays graphical information in the Planter-at-a-Glance screen area and numerical information in the field to the right of the SeedStar™ XP Navigation Panel.

SeedStar™ Navigation Buttons turn orange when the monitored function nears the alarm limit and red when the monitored function goes outside of the alarm limit. It alerts the operator that a function is not performing optimally when the function is not selected for display. To adjust alarm set points, see ALARMS AND LIMITS SETUP PAGE in SeedStar™ XP SETUP Enhanced Monitor System section.

SeedStar™ XP buttons are:

(A) Seed Population button. See SEED POPULATION in this section.

(B) Seed Singulation button. See SEED SINGULATION in this section.

(C) Seed Spacing CV button. See SEED SPACING COEFFICIENT OF VARIATION in this section.

(D) SeedStar™ XP Screen Scan button. Selecting the button advances the displayed monitor page as follows.

- Seed Population
- Seed Singulation
- Seed Spacing CV
- Down Force
- Ride Dynamics

(E) Planters Details button. See PLANTER DETAILS in this section.

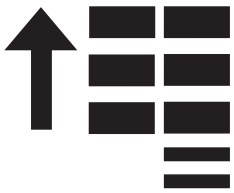
(F) Row Details button. See ROW DETAILS in this section.

(G) Ride Dynamics button. See RIDE DYNAMICS in this section.

(H) Row Unit downforce button. See downforce in this section.

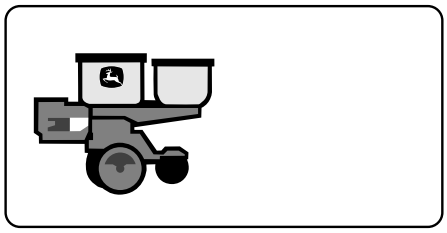
PB21958,000020B-19-13DEC17

Seed Population



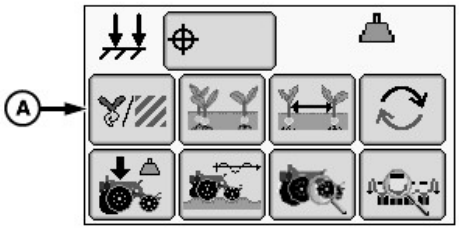
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



APY03301—UN—20DEC17

Seed Population Button

A—Seed Population Button

Select **Menu** >> **Planter** button.

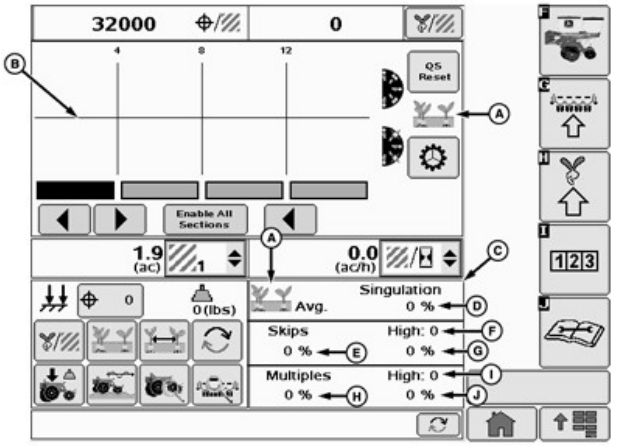
When seed population button (A) is selected, the seed population run screen is displayed.

The Seed Population main run screen displays seeding rate information for the planter. The Planter Main 1 (PM1) control unit receives data from the seed sensors and uses tractor speed and implement width to calculate the seed rate.

Population at a Glance bar graph:

The line in the middle is the target population. When a row approaches the upper or lower alarm limit, the bar for that row turns orange and an audible 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. If ground speed falls below 2 mph (3.2 km/hr), the planter monitor will not calculate population. Field Doc™ as-applied coverage maps will not be created during these conditions. The top of the graph is the programmed upper alarm limit. The bottom of the graph is the programmed lower alarm limit. Refer to SETUP Seed Rates section.



APY01374—UN—11DEC17

A—Seed Population Icon
B—Percent High and Low Graph
C—Seed Population Details Screen
D—Minimum Row Population
E—Maximum Row Population
F—Scan Row Population
G—Row Entry Box
H—Average Population
I—Target Population
J—Average Population

Seed Population at a Glance Screen

(A) Population icon

(B) Population At a Glance bar

(C) Seed population details screen contains the information of the current bar graph.

(D) Minimum row population

(E) Maximum row population.

(F) Scan row population.

(G) User entered row number.

(H) User entered average population

(I) Target population

(J) Average population

Screen Area Information

QS Reset—QS Reset
Enable All Sections—Enable All Sections
Row—Row

PB21958,0000200-19-07JUL20

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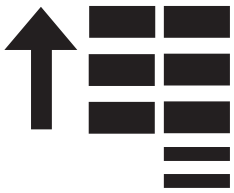
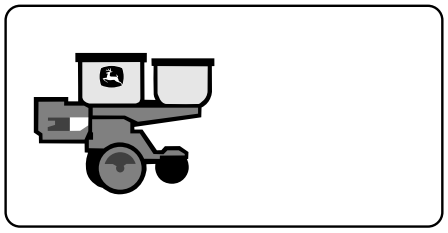
Seed Singulation



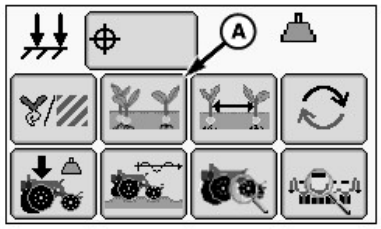
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



APY03302—UN—20DEC17

Seed Singulation Button

A—Seed Singulation Button

Select **Menu** >> **Planter** button.

NOTE: This feature is not available on planters with more than 48 rows.

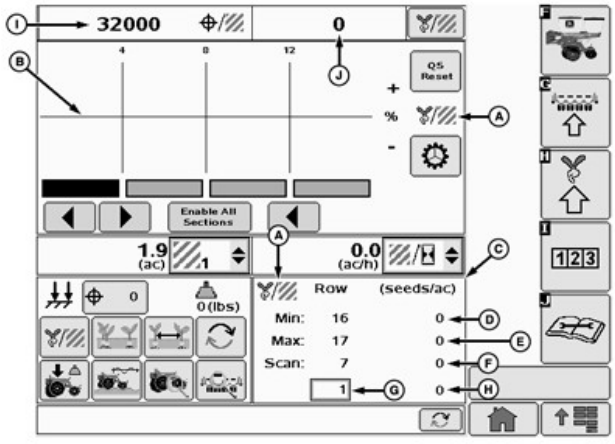
When seed singulation button (A) is selected the seed singulation at a glance screen is displayed.

NOTE: Since singulation measurements are taken at the seed sensor, the appearance of the emerged crop may not be the same as the information displayed on the monitor. For example, seed roll and bounce in the furrow due to excessive ground speed causes spacing of emerged seed to appear worse than what the monitor indicated.

The Seed Singulation run screen provides the operator with information about the performance of each seed meter. The Planter Main 1 (PM1) control unit measures the timing of the counts from the seed sensors at each row to determine whether they indicate a skip, multiple, or acceptable spacing, and displays the information on the GreenStar™ Display.

The center line of the Singulation at a Glance graph represents perfect singulation (zero skips and zero multiples). When the Singulations at a Glance bars are above the center line the percentage of doubles is increasing. When the Singulations at a Glance bars are below the center line the percentage of skips is increasing. Bars appear both above and below the center line when an improperly adjusted meter has doubles and skips.

To improve meter singulation performance, choose the correct seed disk for the crop being planted, adjust vacuum level, adjust double eliminator setting (if used), and use the correct amount of meter lubricant. Refer to your Rate Charts and Settings Manual for meter adjustments and recommendations.



APY01375—UN—11DEC17

A—Seed Singulation Icon
B—Percent Multiples and Skips Graph
C—Seed Singulation Details Screen
D—Planter Average Singulation Percentage
E—Planter Average Percent Skips
F—Row With Highest Skips
G—High Row Skip Percentage
H—Planter Average Percent Multiples
I—Row With Highest Multiples
J—High Row Multiple Percentage

Seed Singulation at a Glance Screen

(A) Seed singulation icon

(B) Percent multiples and skips graph

(C) Seed singulation details screen contains the information of the current bar graph.

(D) Planter average singulation percentage

(E) Planter average percent skips

(F) Row with highest skips.

(G) High row skip percentage

(H) Planter average percent multiples.

(I) Row with highest multiples.

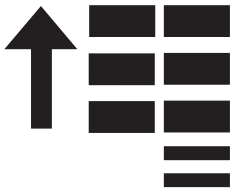
(J) High row multiple percentage

Screen Area Information

QS Reset—QS Reset
Enable All Sections—Enable All Sections
Avg.—Average

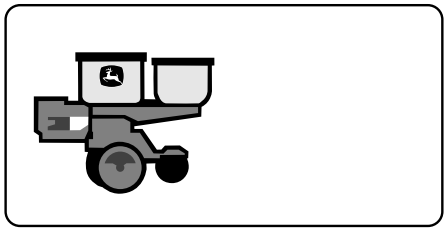
PB21958,0000201-19-20DEC17

Seed Spacing Coefficient of Variation



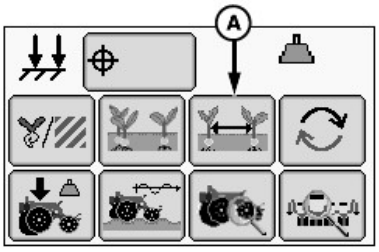
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



APY01400—UN—19DEC17

Seed Spacing Coefficient of Variation Button

A—Seed Spacing Coefficient of Variation Button

Select **Menu** >> **Planter** button.

NOTE: This feature is not available on planters with more than 48 rows.

When the seed spacing coefficient of the variation button (A) is selected, the seed spacing coefficient of variation at a glance screen is displayed.

The Seed Spacing Coefficient of Variation (CV) run screen provides information about overall planter in-row seed spacing performance.

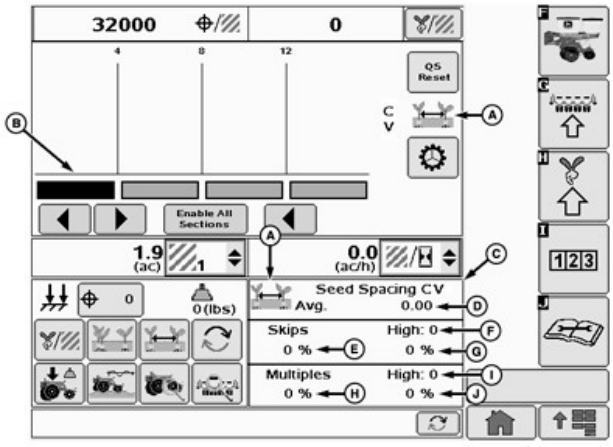
The Planter Main 1 (PM1) control unit measures the consistency of the timing of the seed counts from the seed sensors to determine seed spacing performance for the planter. These spacing measurements are used to calculate the seed spacing coefficient of variation (CV) on a whole planter average and individual row basis.

NOTE: Coefficient of Variation (CV) measurements are only available for target seed rates below 40 seeds per second at 12.9 km/h (8 mph). For example, CV information is only displayed for target seed rates less than 148 250 seeds/hectare on 76 cm rows (60 000 seeds/acre on 30 inch rows). For target seed rates above 40 seeds per second at 12.9 km/h (8 mph), dashes (- -) are displayed in place of CV values.

Seed spacing coefficient of variation (CV) is defined as seed spacing standard deviation divided by the average spacing. Coefficient of Variation allows the operator to evaluate planter performance over a wide range of crops and target populations. Coefficient of variation is expressed as a decimal, with lower numbers indicating better in-row seed spacing.

Coefficient of Variation at a glance bars increase in height as seed spacing consistency gets worse. Maximum bar height indicates a Coefficient of Variation (CV) of 0.50. In typical planting conditions, operators expect the coefficient of variation measurements to range from 0.10 to 0.30. CV values vary with different crops, seed disks, planting conditions, and ground speeds. Verify performance of planter seed spacing with in-ground population and spacing checks.To improve overall planter seed spacing performance, ensure meter drives are operating properly, check meter settings, adjust row unit down force, and reduce ground speed.

NOTE: Since CV measurements are taken at the seed sensor, the appearance of the emerged crop may not be the same as the information displayed on the monitor. For example, seed roll and bounce in the furrow due to excessive ground speed causes spacing of emerged seed to appear worse than what the monitor indicated..



APY01376—UN—11DEC17

A—Seed Spacing Coefficient of Variation Icon
B—Coefficient of Variation Bar Graph
C—Seed Spacing Coefficient of Variation Details Screen

D—Planter Average Coefficient of Variation (CV)
E—Planter Average Percent Skips
F—Row With Highest Skips
G—High Row Skip Percentage
H—Planter Average Percent Multiples
I—Row With Highest Multiples
J—High Row Multiple Percentage

Seed Spacing Coefficient of Variation at a Glance Screen

(A) Coefficient of the Variation icon

(B) Coefficient of variation bar graph

(C) Seed spacing coefficient of variation details screen contains the information of the current bar graph.

(D) Good spacing.

(E) Planter average percent skips

(F) Row with highest skips.

(G) High row skip percentage

(H) Planter average percent multiples.

(I) Row with highest multiples.

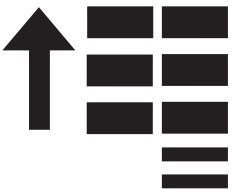
(J) High row multiple percentage

Screen Area Information

QS Reset—Quick Start Reset
Enable All Sections—Enable All Sections
Avg.—Average

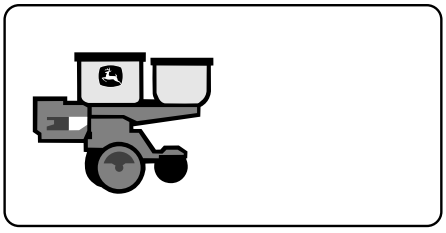
PB21958,0000202-19-07JUL20

Down Force



APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button

A72739—UN—23SEP11

Down Force Button (Single Set-Point PDF)

A72740—UN—23SEP11

Down Force Button (Dual Set-Point PDF)

A72767—UN—23SEP11

Down Force Button (Active PDF One Sensor)

A72768—UN—23SEP11

Down Force Button (Active PDF Two Sensors)

A—Down Force Button

Select **Menu** >> **Planter** button.

When downforce button (A) is selected, the downforce at a glance screen is displayed.

The downforce run screen displays average gauge wheel down force margin for each row unit equipped with a sensor node control unit and gauge wheel down force sensor.

The gauge wheel down force sensor measures the amount of load that the gauge wheels are carrying as the row units move through the field. The load on the gauge wheels changes frequently when the planter is in motion and is displayed as margin on the display.

Down force margin is the amount of extra downforce being applied to the row unit, over and above what is required for the opener disks to penetrate the soil and achieve full planting depth. The extra downforce can come from the weight of the row unit and meter, weight of seed in the seed hoppers, the pneumatic down force system, or external down force springs.

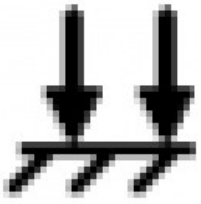
IMPORTANT: Always perform an in-field check BEFORE adjusting the target down force margin. Once depth and seed furrow has been verified, target margin can be adjusted accordingly.

A **target down force margin** must be entered based on the operator's judgment of planting conditions. Refer to ALARMS AND LIMITS SETUP PAGE in SeedStar™ XP SETUP Enhanced Monitor System section. Set downforce margin high enough to create a defined seed furrow but not so high that the side wall of the furrow is compacted.

High and Low Margin alarm set points are defined on the Alarms and Limits Setup Page. The margin alarm activates if the planter average down force margin goes above or below the target margin by the amount entered on the Alarms and Limits Setup Page.

The center line of the downforce at a Glance chart is the **target margin**. Down Force at a Glance bars above the center line indicates downforce margin above the target set point. Bars below the center line indicate downforce margin below the target set point. If downforce margin is consistently low on monitor screen, increase pneumatic row unit down force setting or reduce target margin set point based on your judgment of planting conditions and uniformity of seed depth. If downforce margin is consistently high on monitor screen, decrease pneumatic row unit down force setting or increase target margin set point.

IMPORTANT: To ensure downforce sensor accuracy, zero sensors annually or whenever sensors do not read 0 lbs. when planter is raised.



APY01399—UN—19DEC17

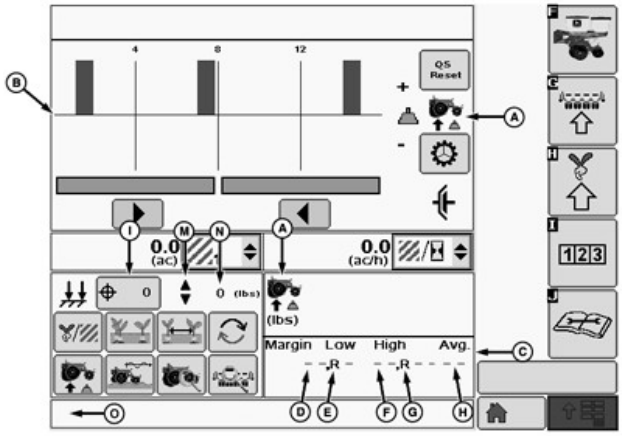
Set-Point downforce system allows the operator to adjust the force in the air spring circuit manually through the display in the cab. Data from the air pressure sensor located in the air tank valve block is sent to the Planter Main 2 (PM2) control unit and then displayed as downforce on the monitor.

The operator selects a desired down force target that produces the most optimal seed furrow. When soil conditions change, the operator can increase or decrease the pneumatic downforce to maintain target margin, depth control, and avoid compacting the furrow.

Data from the row unit gauge wheel sensors is sent to the Planter Main 2 (PM2) control unit and then displayed as downforce margin on the monitor.

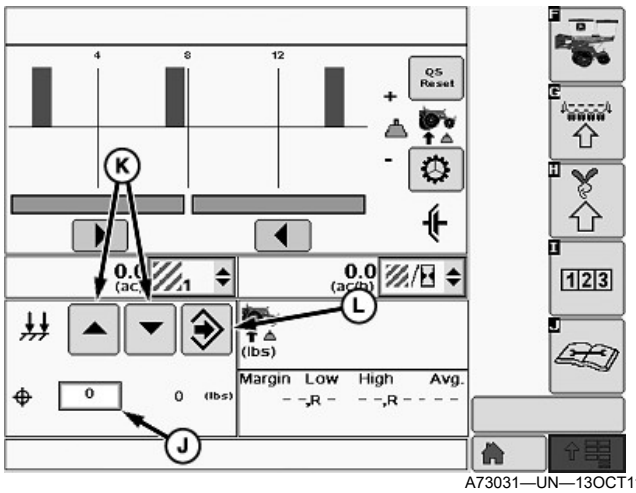
IMPORTANT: Always perform an in-field check BEFORE adjusting the target down force margin. Once depth and seed furrow has been verified, target margin can be adjusted accordingly.

Single Set-Point Pneumatic Downforce



APY01378—UN—11DEC17

A—Down Force Icon
B—Down Force Margin Graph
C—Numeric Down Force Margin Details
D—Low Margin Value
E—Low Margin Row
F—High Margin Value
G—High Margin Row
H—Average Margin
I—Down Force Target Button
M—Indicator Arrows
N—Actual Down Force
O—Warning Message Area



A73031—UN—13OCT11

Down Force

J—Down Force Input Box
K—Increase and Decrease Arrows
L—Enter Button

(A) Down force icon.

(B) Down force margin bar graph.

(C) Numeric down force margin detail contains the information of the current bar graph.

(D) Low margin value displays the lowest down force margin value obtained by the gauge wheel sensors.

(E) Low margin row displays the row unit associated with the lowest down force margin.

(F) High margin value displays the highest down force margin value obtained by the gauge wheel sensors.

(G) High margin row displays the row unit associated with the highest down force margin.

(H) Average Margin displays the average down force margin of all the gauge wheel sensor data.

Setting Target Down Force

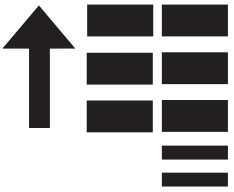
1. To open the target down force input screen, select the downforce target button (I).
2. Set target row unit down force by using the target down force input box (J) or the increase or decrease arrows (K).
3. When complete, select enter (L).
4. Indicator arrows (M) are displayed as a visual indication that the system is increasing or decreasing pneumatic down force pressure.
5. Actual downforce (N) is checked on a timed interval and automatically adjusted if necessary to match the target down force. If Actual downforce (N) deviates below the target at an unacceptable rate, a warning appears in the warning message area (O) stating "Check pneumatic down force for leaks". Depending on the severity of the leak, the actual down force number (N) is highlighted orange or red.

Screen Area Information

QS Reset—QS Reset

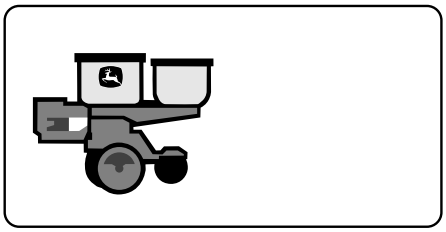
PB21958,0000203-19-07JUL20

Ride Dynamics



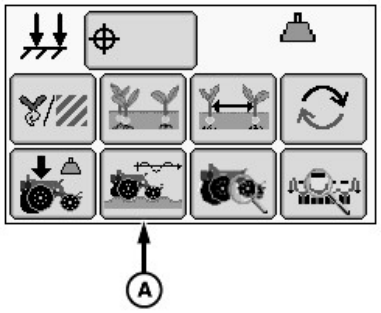
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



A67118—UN—12MAY10

Ride Dynamics Button

A—Ride Dynamics Button

Ride Dynamics

Select **Menu** >> **Planter** button >> **Ride Dynamics** button.

When ride dynamics button (A) is selected, the ride dynamics at-a-glance screen is displayed.

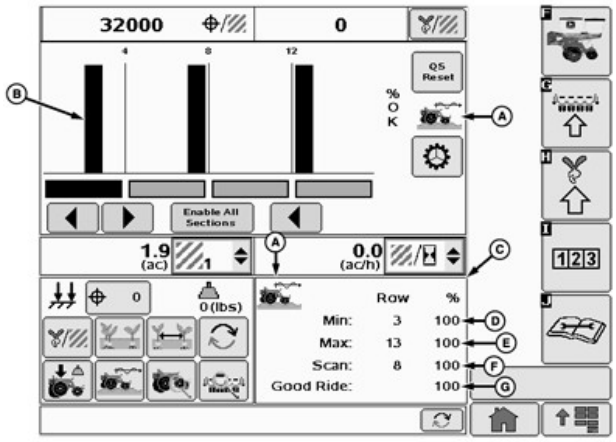
The ride dynamics run screen displays row unit ride quality information for each row unit equipped with a sensor node control unit. An accelerometer in each sensor node measures the severity of row unit movements.

Row Unit ride information is displayed as a percentage. 100% good ride represents optimum row unit ride quality and 0% represents the poorest ride quality. The Ride Quality at a Glance bars decrease in height as row unit ride gets worse.

Excessive row unit movement and bounce can affect meter performance, in-row seed spacing, and seed depth consistency.

To improve ride quality, reduce ground speed or increase row unit down force.

The ride quality alarm set point can be set on the Alarms and Limits Setup Page. Default value is 90 percent.



APY01373—UN—11DEC17

A—Ride Dynamics Icon
B—Percent Good Ride Graph
C—Ride Dynamic Details Screen
D—Minimum Row Good Ride
E—Maximum Row Good Ride
F—Scan Row Good Ride
G—Planter Average Good Ride

Ride Dynamics at a Glance Screen

(A) Ride dynamics icon

(B) Percent good ride graph

(C) Ride dynamic details screen contains the information of the current bar graph.

(D) Minimum row good ride

(E) Maximum row good ride

(F) Scan row good ride

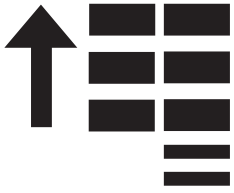
(G) Planter average good ride

Screen Area Information

QS Reset—QS Reset
Enable All Sections—Enable All Sections
Row—Row

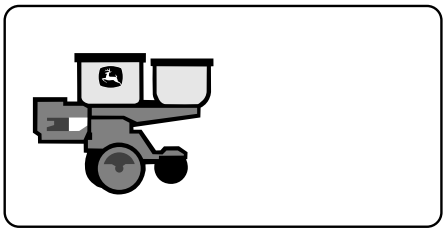
PB21958,0000204-19-07JUL20

Row Details



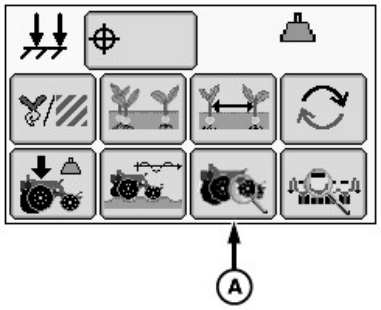
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



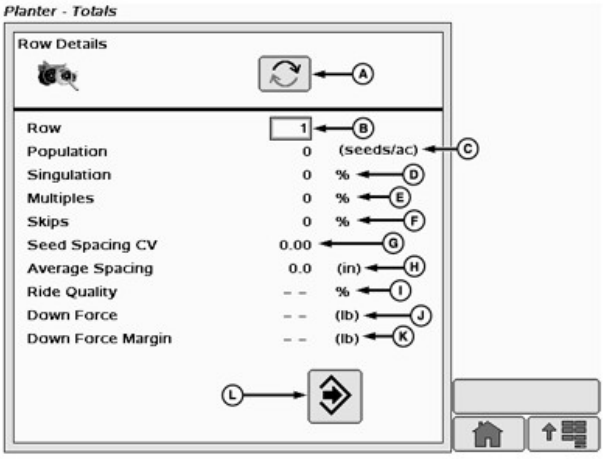
A67004—UN—30APR10

Row Details Button

A—Row Details Button

Select **Menu** >> **Planter** button.

When row details page button (A) is selected, the row detail page is displayed.



APY01372—UN—11DEC17

A—Row Advance Button
B—Row Selection Input Box
C—Population Field
D—Singulation Field
E—Multiples Field
F—Skips Field
G—Seed Spacing Coefficient of Variation
H—Average Spacing Field
I—Ride Quality
J—Down Force Field
K—Down Force Margin Field
L—Return to Main Button

This screen displays active planting data on a per row

basis and allows the operator to compare the operation of one row to another.

(A) Row advance button changes row details column to the next row in sequence.

(B) Row selection input box allows operator to input row number to view.

(C) Population field displays seed per area.

(D) Singulation percentage

(E) Multiples percentage

(F) Skips percentage

(G) Seed spacing Coefficient of Variation (CV)

(H) Average spacing

(I) Ride Quality

(J) Down force

(K) Down force margin

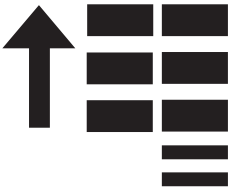
(L) Return to main button changes screen back to previous view.

Screen Area Information

Planter - Totals—Planter - Totals
Row Details—Row Details
Row—Row
Population—Population
Singulation—Singulation
Multiples—Multiples
Skips—Skips
Seed Spacing CV—Seed Spacing CV
Average Spacing—Average Spacing
Ride Quality—Ride Quality
Down Force—Down Force
Down Force Margin—Down Force Margin

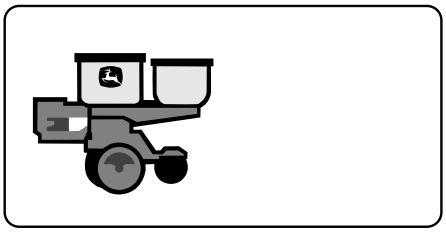
PB21958,0000205-19-07JUL20

Planter Details



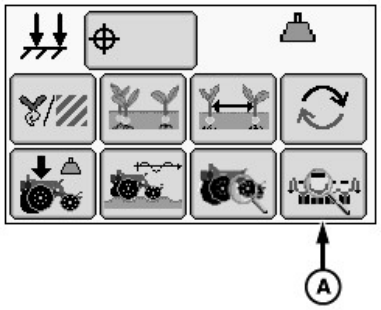
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button

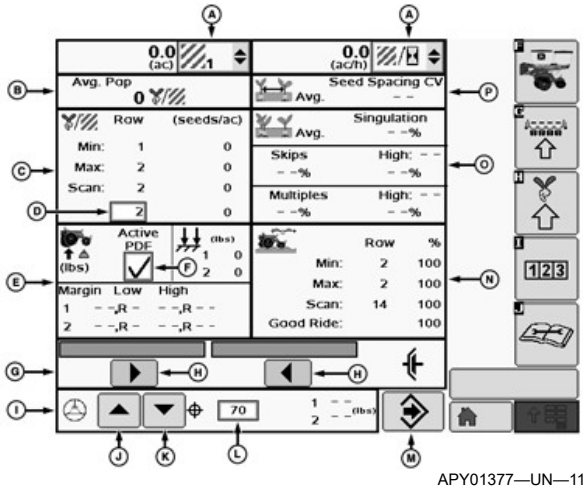


A67003—UN—30APR10

A—Planter Details Page Button

Select **Menu** >> **Planter** button.

When planter details page button (A) is selected, the planters detail page is displayed.



APY01377—UN—11DEC17

A—List Boxes
B—Average Population
C—Seed Population
D—Row Selection Input Box
E—Down Force (Active Down Force Shown)
F—Active PDF Check Box
G—Section Control
H—Section Control Buttons
I—Pneumatic Down Force Adjust
J—Step Increase Button
K—Step Decrease Button
L—Pneumatic Down Force Target Margin Input Box
M—Return Button
N—Ride Dynamics
O—Seed Singulation
P—Seed Spacing Coefficient of Variation

When planting, the planter details screen displays active planting information. Screens do not update while machine is stopped. Once machine begins moving, the screen resumes updating.

Planter Details page includes the following:

(A) List Boxes display the following information and options:

- Field area 0
- Field area 1
- Field area 2
- Area per hour
- Vacuum sensor readings
- Tractor speed

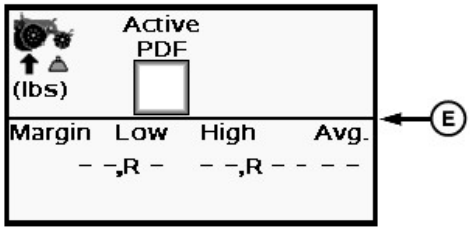
(B) Average Population displays the following information:

- Average population

(C) Seed Population displays the following information and options:

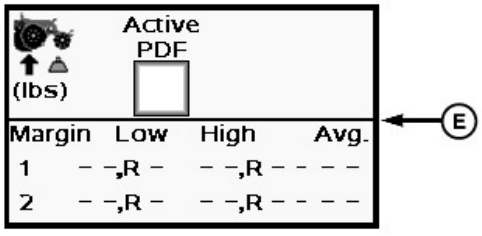
- Minimum row population
- Maximum row population
- Scan row population
- Row Selection Input Box

Row selection input box (D) allows operator to select an individual row to monitor population.



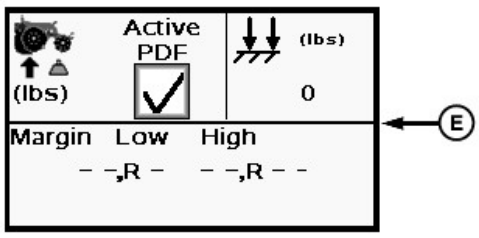
A73037—UN—13OCT11

Single Set-Point (Active Capable)



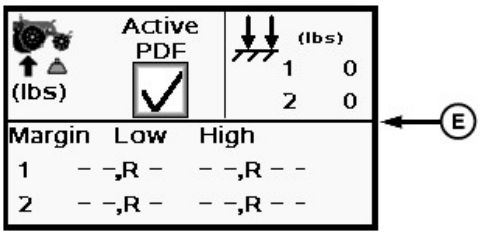
A73038—UN—13OCT11

Dual Set-Point



A73039—UN—13OCT11

Active Control (Single Rank)



A73040—UN—13OCT11

Active Control (Dual Rank)

E—Down Force Displays

(E) Down Force displays the following information:

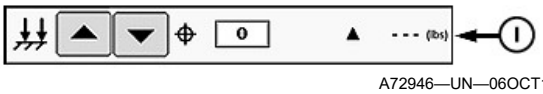
- Total margin
- Low row margin
- High row margin
- Average down force margin

(F) Active PDF check box allows operator to enable or disable active downforce (if equipped).

(G) Section Control displays the following information and options:

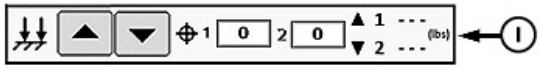
- Active rows planting.
- Row disabled.
- Manual Section Control buttons (H).

(H) Section Control buttons allow the operator to turn on and off row units manually as needed for headlands and water ways.



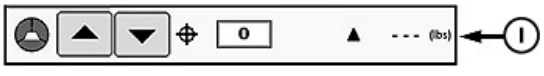
A72946—UN—06OCT11

Single Set-Point Down Force



A72947—UN—06OCT11

Dual Set-Point Down Force



A72949—UN—06OCT11

Single Rank Active Margin

A72948—UN—06OCT11

Dual Rank Active Margin

I—Pneumatic Down Force Adjust Displays

(I) Pneumatic Down Force Adjust displays the following information and options:

- Step increase button
- Step decrease button
- Pneumatic downforce target input box
- Actual pneumatic down force output field

(J) Step increase button raises downforce pressure by the amount set up in the step values input box. See INTEGRATED PNEUMATIC downforce AIR PRESSURE SENSOR in the SeedStar™ 2 SETUP Basic Planter Configuration section.

(K) Step decrease button lowers downforce pressure by the amount setup in the step values input box. See INTEGRATED PNEUMATIC downforce AIR PRESSURE SENSOR in the SeedStar™ 2 SETUP Basic Planter Configuration section.

Pneumatic downforce target margin input box (L) allows the operator to input a specific target pressure for the system to monitor.

(M) Return button returns operator to main planter screen.

(N) This area displays the following Ride Dynamics percentages:

- Minimum row good ride
- Maximum row good ride
- Scan row good ride
- Total planter good ride

(O) This area displays the following Seed Singulation percentages:

- Total singulation
- Total skips
- Row with highest skips
- Total multiples
- Row with highest multiples

(P) Seed Spacing Coefficient of Variation (CV) displays the following information:

- Average Coefficient of Variation value for the whole planter.

Screen Area Information

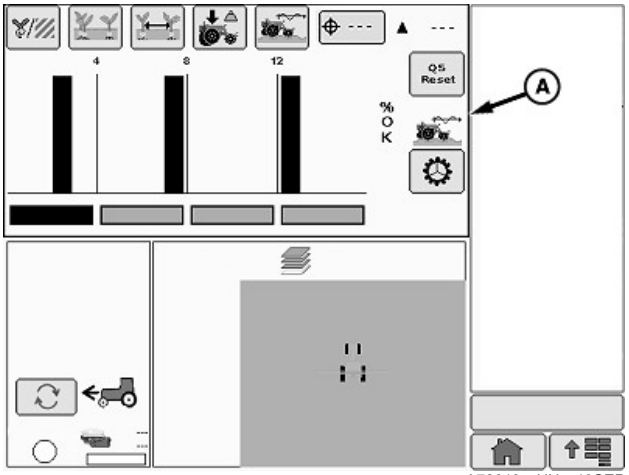
Avg. Pop—Average Population
Row—Row
Min:—Minimum
Max:—Maximum
Scan:—Scan
Active PDF—Active PDF
Low:—Low
High:—High
Avg.—Average
Seed Spacing CV—Seed Spacing CV
Singulation—Singulation
Skips—Skips
Multiples—Multiples
Good Ride:—Good Ride

PB21958,0000206-19-07JUL20

Half Screen Layout

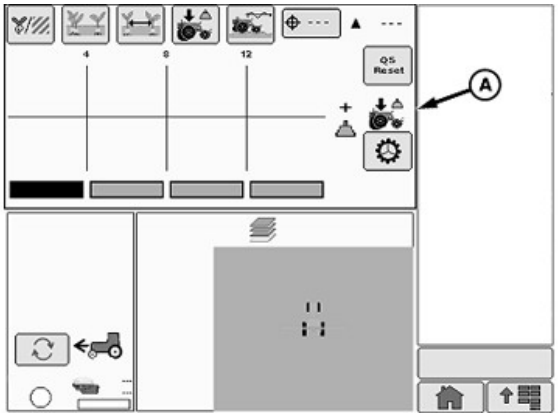
NOTE: Half screen layout and multiple home pages are only available when John Deere™ SeedStar™ 2 Monitor is used with a John Deere™ Greenstar™ display.

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



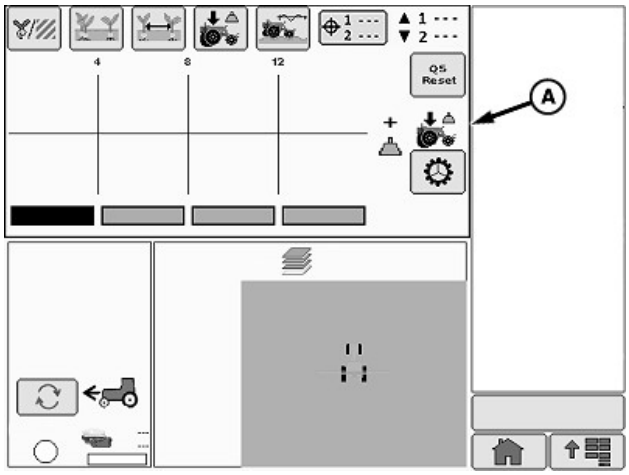
A72613—UN—19SEP11

Planter at a Glance (Ride Dynamics)



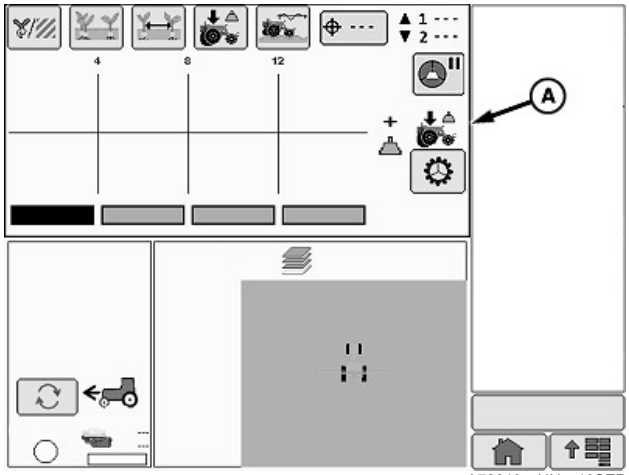
APY03303—UN—21DEC17

Planter at a Glance (Single Set-Point Down Force)



A72618—UN—19SEP11

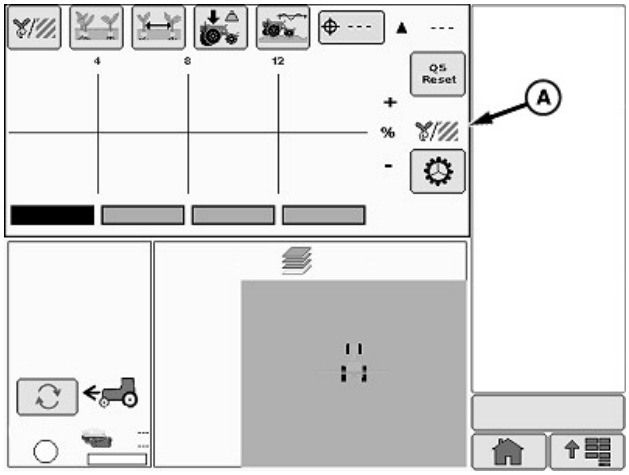
Planter at a Glance (Dual Set-Point Down Force)



A72619—UN—19SEP11

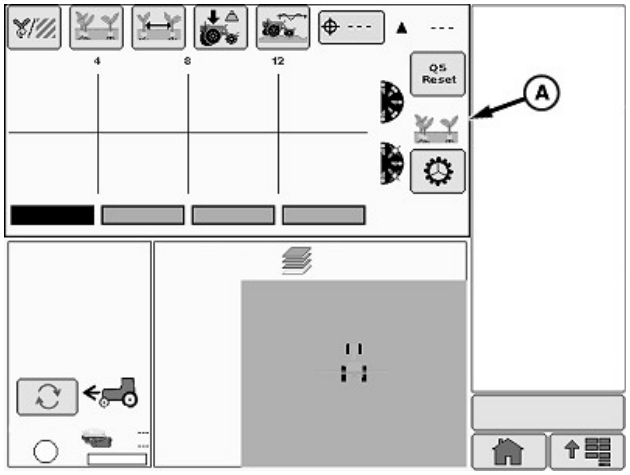
Planter at a Glance (Active downforce (2 Sensors))

A—Half Screen



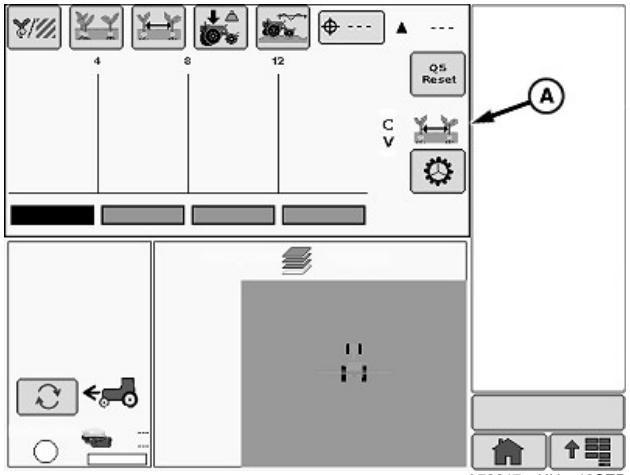
A72615—UN—19SEP11

Planter at a Glance (Seed Population)



A72616—UN—19SEP11

Planter at a Glance (Seed Singulation)



A72617—UN—19SEP11

Planter at a Glance (Seed Spacing Coefficient of Variation)

A—Half Screen

When half screen (A) 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 audible alert signals an error.

To set up screen layout, see SCREEN layout MANAGER in How to Use Monitor section.

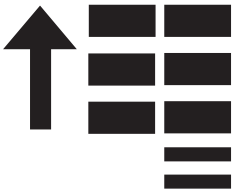
To enter full screen mode and access configuration, totals, and diagnostic softkeys, select **Menu** >> **Planter** application button.

Screen Area Information

QC Reset—QC Reset

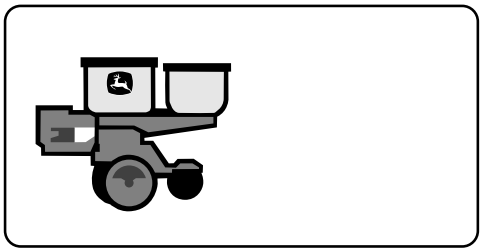
PB21958,0000228-19-07JUL20

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



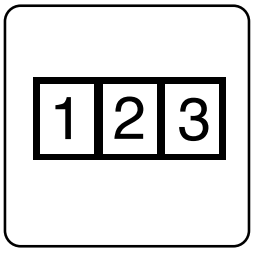
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button

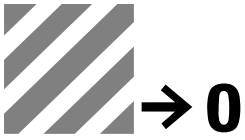


A59174—UN—29JAN07

Totals Softkey

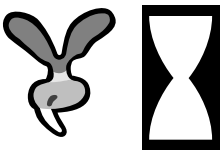
A59547—UN—08MAR07

Area Counter



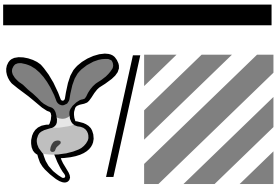
A59553—UN—08MAR07

Area Until Empty



A59548—UN—08MAR07

Seeding Hours



A62922—UN—23JUL08

Average Seeds Per Area

A59369—UN—20FEB07

Zero Button

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. To continue a previous count, select **Area Counter** one or two input box and enter zero to clear the counter or enter a value.
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 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.

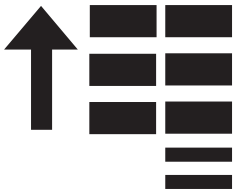
Screen Area Information

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

PB21958,0000375-19-27JAN18

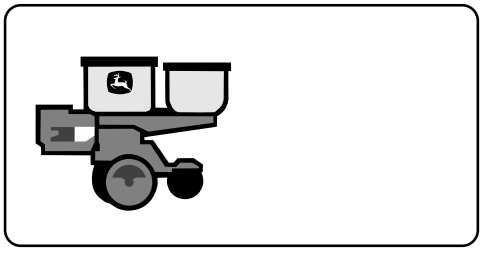
Transmission Sprocket Calculator

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



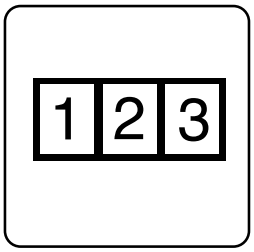
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59174—UN—29JAN07

Totals Softkey

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

   Recommended transmission values appear.

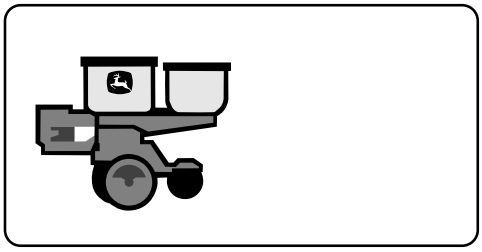
PB21958,0000376-19-27JAN18

Seed Estimator by Bag

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

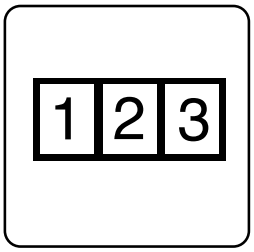
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59174—UN—29JAN07

Totals Softkey

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in the 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 the 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. To set alarm before hoppers are empty, enter a slightly smaller value.

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.

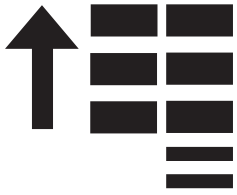
Screen Area Information

Planter Calculations—Planter Calculations
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

PB21958,0000377-19-27JAN18

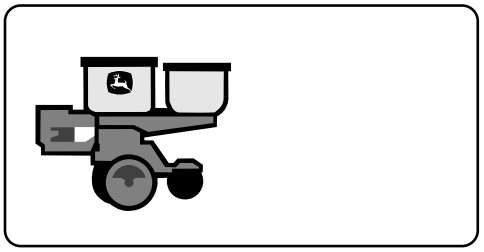
Seed Estimator by Unit

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



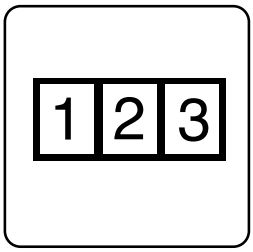
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59174—UN—29JAN07

Totals Softkey

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in the 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 the 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. To set alarm before hoppers are empty, enter a slightly smaller value.

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.

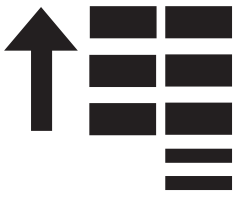
Screen Area Information

Planter Calculations—Planter Calculations
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

PB21958,0000378-19-07JUL20

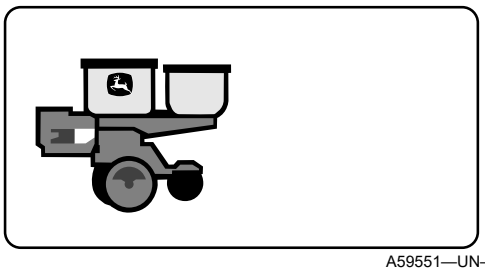
Seed Estimator by Weight

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



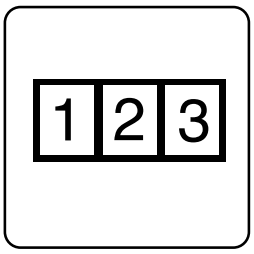
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59174—UN—29JAN07

Totals Softkey

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Seed Estimator** in the 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. To set alarm before hoppers are empty, enter a slightly smaller value.

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

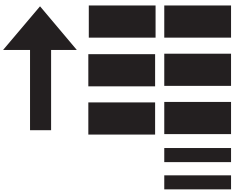
Planter Calculations—Planter Calculations
Calc—Calculator
Seed Estimator—Seed Estimator
Calculated By—Calculated By
Weight—Weight
Population—Population
seeds/ac—Seeds per acre
seeds/ha—Seeds per Hectare
Seed Size—Seed Size
seeds/lb—Seeds per Pound
seeds/kg—Seeds per Kilogram
Area—Area
ac—acre
ha—Hectare
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

PB21958,0000379-19-07JUL20

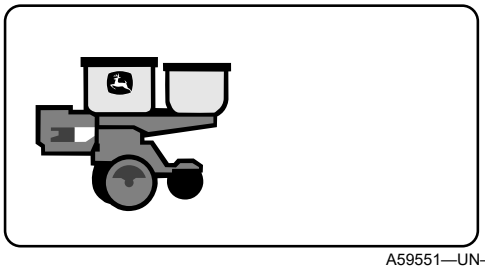
Vacuum Calculator

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



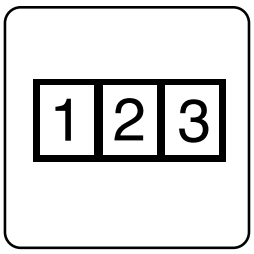
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59174—UN—29JAN07

Totals Softkey

1. Select **Menu** >> **Planter** button >> **Totals** softkey >> **Calc** tab.
2. Select **Vacuum** in the 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 the 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.

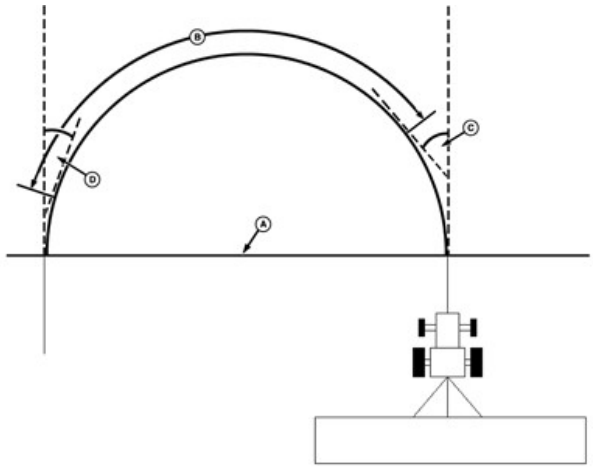
Screen Area Information

Planter Calculations—Planter Calculations
Calc—Calculator
Vacuum—Vacuum
seeds/lb—Seeds per Pound
seeds/kg—Seeds per Kilogram
Disk Type—Disk Type
Corn—Corn
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

PB21958,000037A-19-07JUL20

Warning Screens

Turning View Warning Suppression



APY01366—UN—11DEC17

A—Headlands
B—Warning Suppression
C—Suppression Begins 45 Degrees Away
D—Suppression Ends 13 Degrees Away

When operating with a John Deere™ GreenStar™ 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 the tractor is within 13 degrees (D) of the next pass.
- Seed warning suppression ends three seconds after turning view disappears from screen.
- Warnings are suppressed for a maximum of 22 seconds.

PB21958,00001E7-19-11DEC17

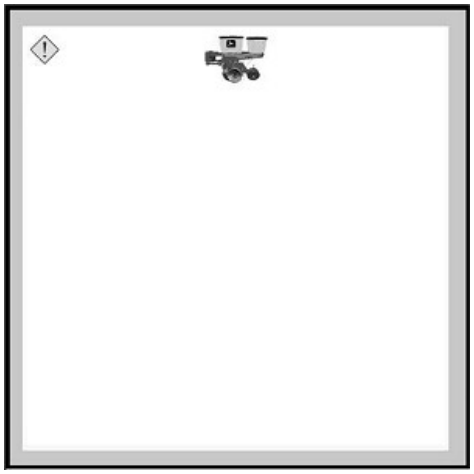
Warning Messages

A61394—UN—19NOV07

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 canceled 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.

IMPORTANT: Full page warnings occur when not on main Planter RUN page to ensure that operator is aware of the issue.

IMPORTANT: When a planter run screen is visible on the display, warning screens are contained to the portion of the screen the planter occupies. Full screen warnings occur when a planter RUN screen is not visible on the Display to ensure that the operator is aware of the issue.

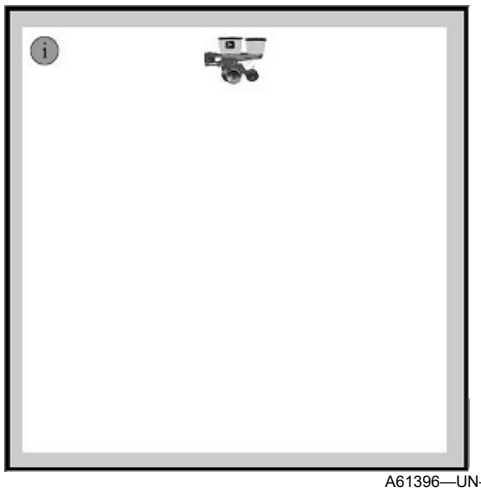


A61395—UN—19NOV07

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.

IMPORTANT: When a planter run screen is visible on the display, caution screens are contained to the portion of the screen the planter occupies. Full screen cautions occur when a planter RUN screen is not visible on the Display to ensure that the operator is aware of the issue.



A61396—UN—19NOV07

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.

PB21958,000037B-19-28JAN18

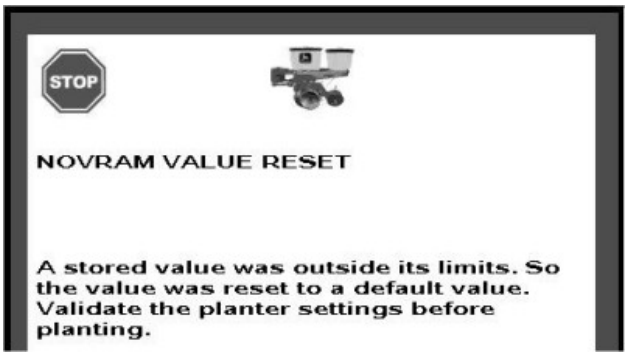
Warning Screens for SeedStar™ 2

A67965—UN—01JUL10

Communication error related to Planter Main 2. Planter Main 2 is offline. Check wiring. Enter diagnostic code 111111 to disable this alarm check.

A72620—UN—19SEP11

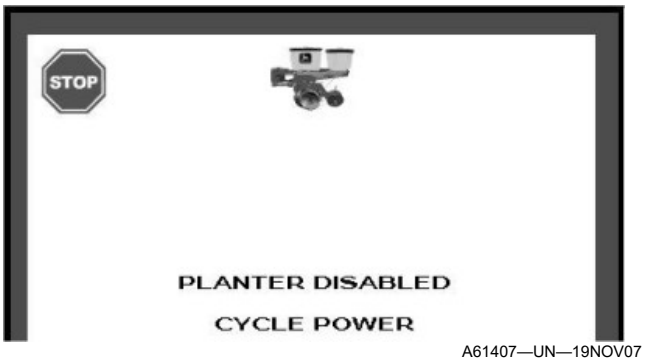
Communication error related to Planter Main 2. Planter Main 2 is online but not responding to CAN bus messages. Check wiring.



A61406—UN—19NOV07

NOVRAM VALUE RESET

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



A61407—UN—19NOV07

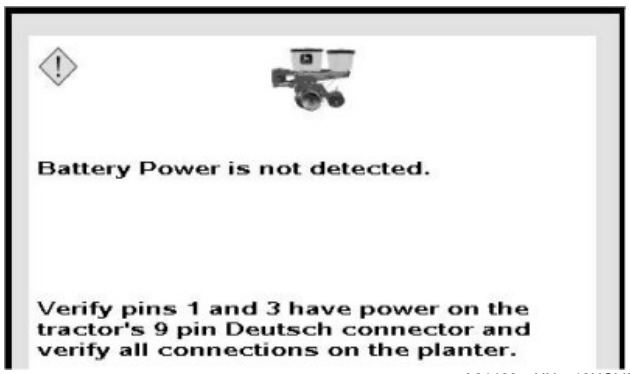
PLANTER DISABLED CYCLE POWER

Planter is not operational, to restore planter operation, cycle power.

A61408—UN—19NOV07

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.



A61409—UN—19NOV07

Battery power is not detected.

12 V DC is not present across pin 1 (ground) and pin 3 (12 V DC) of 9-pin ISO connector. Refer to the tractor operator's manual and check fuses.

A61410—UN—19NOV07

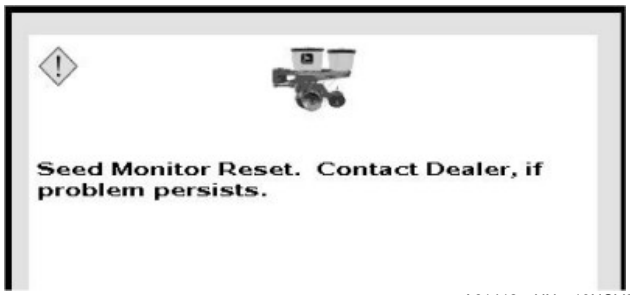
Planter module 2 is not responding if the planters with more than 24 rows.

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

A61411—UN—19NOV07

Planter module 3 is not responding if the planters with more than 48 rows.

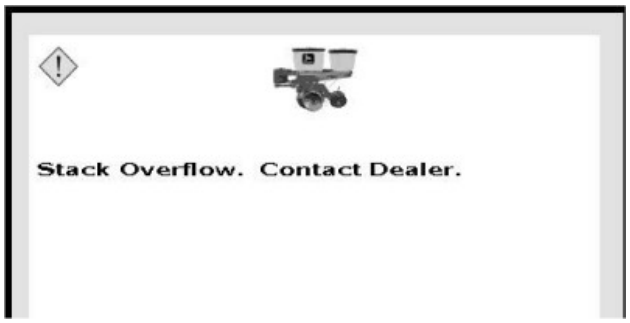
Controller PA2 is not communicating. Verify all planter electrical connections are latched securely and harnesses are not damaged.



A61412—UN—19NOV07

Seed monitor reset. If the problem persists, contact your authorized dealer.

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



A61413—UN—19NOV07

Stack overflow. Restart control unit. If the problem persists, contact your authorized dealer.

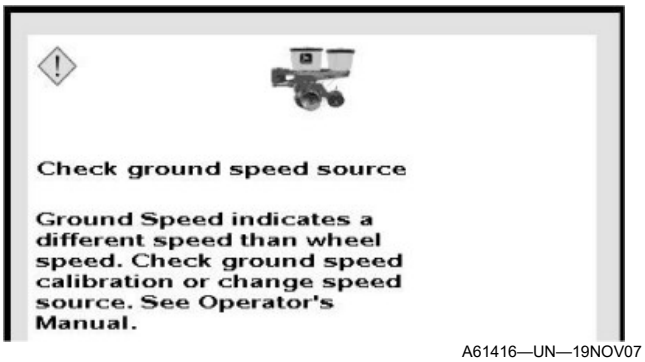
A61414—UN—19NOV07

Tractor speed source not available.

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

A61415—UN—19NOV07

Tractor speed not detected. Tractor speed not broadcasted on CAN bus. Check tractor speed connections. See tractor operator's manual.



A61416—UN—19NOV07

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.

A61420—UN—19NOV07

These rows are not planting.

Ground speed is above 2 mph and the seed sensor counts fewer than two seeds per second.

On display, press OK button to ignore sensors.

A61421—UN—19NOV07

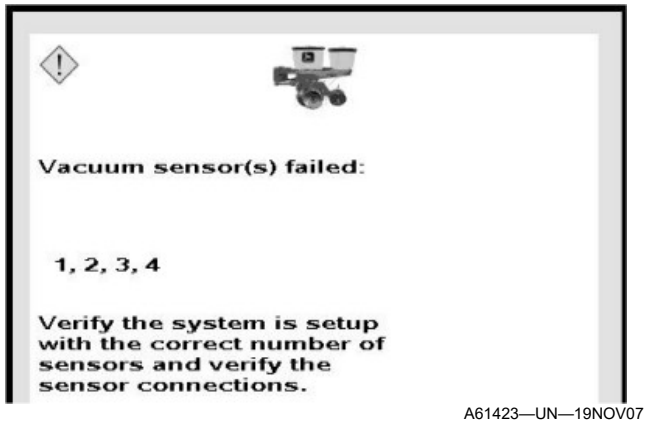
These seed sensors are not operational.

Perform seed sensor test or exchange with an operational sensor.

A61422—UN—19NOV07

The specified area has been planted.

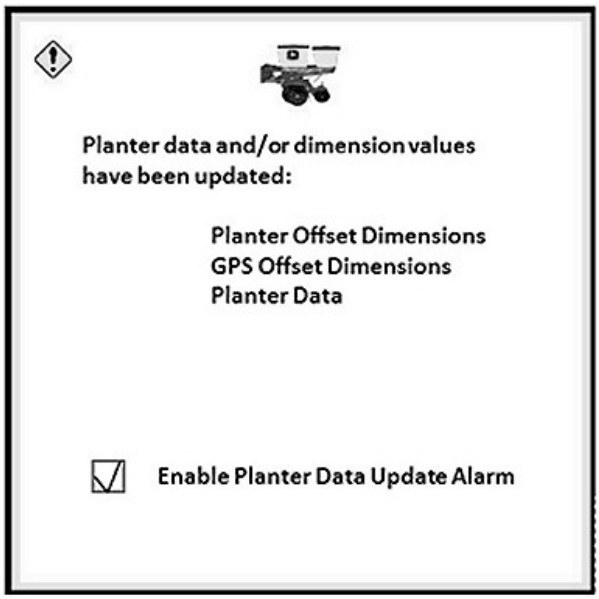
To reset area, navigate to the **Total** screen.



A61423—UN—19NOV07

Vacuum sensor or circuit failure.

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



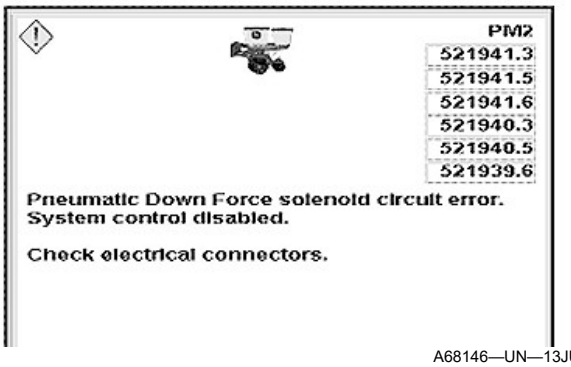
A72622—UN—19SEP11

Planter data and/or dimension values have been updated: Planter Offset Dimensions, GPS Offset Dimensions, Planter Data, Enable Planter Data Update Alarm.

Warning alerts the operator when a value associated with Planter/GPS Offset Dimensions or Planter Data has been changed.

PX03972,0001847-19-08JUL20

Warning Screens for SeedStar™ 2 (Machines with Single Set-Point Pneumatic Downforce)



A68146—UN—13JUL10

Pneumatic downforce solenoid circuit error. The system control disabled. Check electrical connectors. Open circuit or short circuit in pneumatic downforce solenoid circuit. Check wire harness and connectors for damage. Check continuity of solenoid coils.

A68147—UN—13JUL10

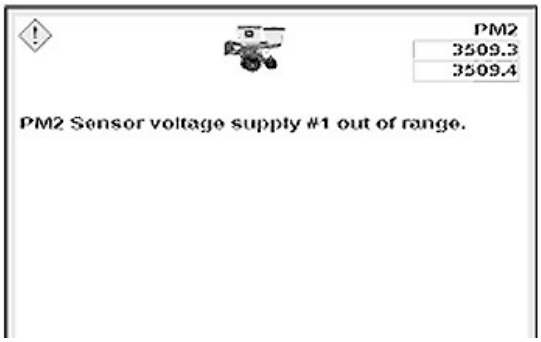
Pneumatic downforce pressure sensor circuit error.

Open circuit or short circuit in pneumatic downforce pressure sensor circuit. Check wire harness and connectors for damage.

A68148—UN—13JUL10

Pneumatic downforce pressure sensor calibration error.

Sensor zero voltage out of range. Remove all pressure from the air spring circuit and attempt to calibrate. Call your John Deere™ dealer.



A68149—UN—13JUL10

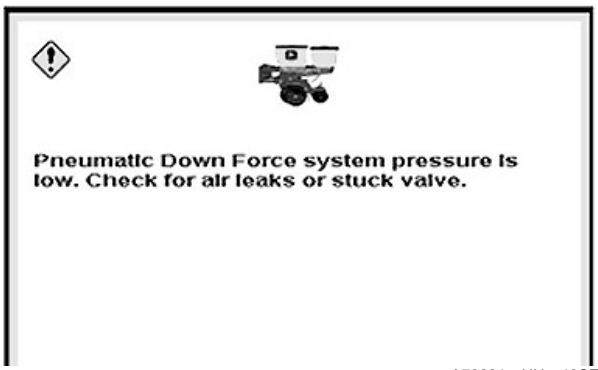
PM2 Sensor voltage supply #1 is out of range.

5 V DC sensor supply voltage on PM2 out of range high or low. Check wire harness and connectors for damage.

A68150—UN—13JUL10

Air compressor operating time limit exceeded. Check for air leaks.

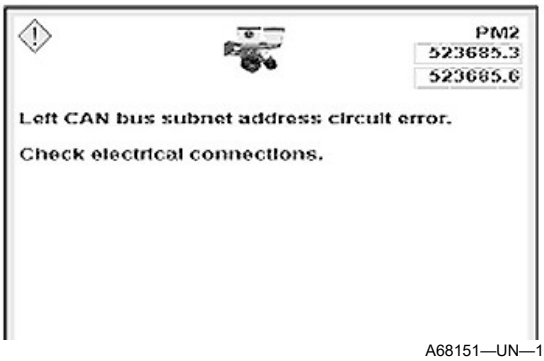
Air compressor has been operating for more than 30 continuous minutes. Check air lines between the tank and compressor for leaks. Verify that tank relief valve and compressor pressure switch are not leaking.



A72621—UN—19SEP11

Pneumatic downforce system pressure is low. Check for air leaks or stuck valve.

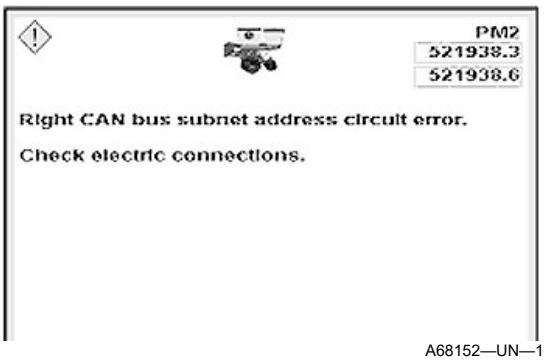
Row unit downforce pressure is not in limit set on PDF air pressure sensor setup page. Check air lines between the tank and compressor for leaks. Verify that tank relief valve and compressor pressure switch are not leaking.



A68151—UN—13JUL10

Left CAN bus subnet address circuit error. Check electrical connections.

Check wire harness and connectors for damage. See your John Deere™ dealer.



A68152—UN—13JUL10

Right CAN bus subnet address circuit error. Check electric connections.

Check wire harness and connectors for damage. See your John Deere™ dealer.

A68153—UN—13JUL10

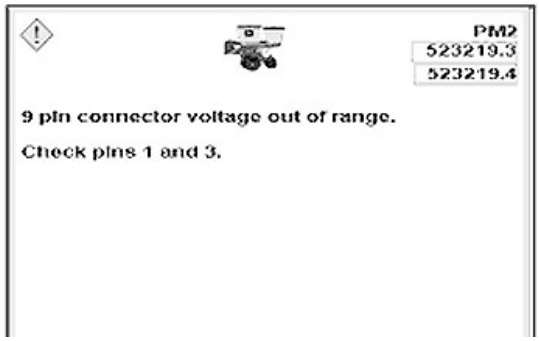
Communication error. Seed monitor is offline.

PM2 control unit is online but does not detect PM1 control unit on the CAN bus. Cycle key switch power and wait for the system to load. See your John Deere™ dealer.

A68154—UN—13JUL10

Communication error. Seed monitor online but not responding to CAN bus messages.

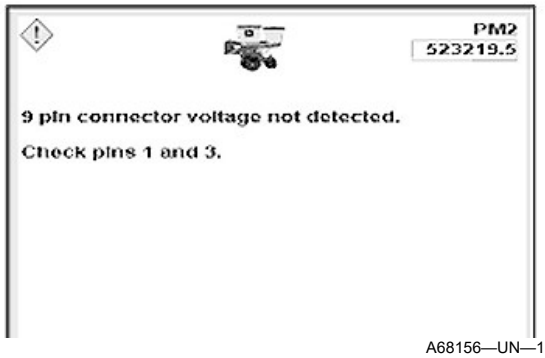
PM2 detects PM1 control unit on the CAN bus, but PM1 control unit is not responding. Cycle key switch power and wait for the system to load. See your John Deere™ dealer.



A68155—UN—13JUL10

9-pin connector voltage out of range. Check pins 1 and 3.

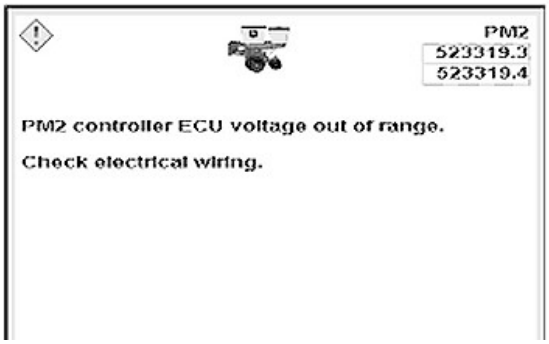
Voltage across pin 1 (ground) and pin 3 (12 V DC) of 9-pin ISO connector is out of range high or low. Check wire harness and battery connections.



A68156—UN—13JUL10

9-pin connector voltage not detected. Check pins 1 and 3.

No voltage is present across pin 1 (ground) and pin 3 (12 V DC) of 9-pin ISO connector. Refer to the tractor operator's manual and check fuses.



A68161—UN—13JUL10

PM2 control unit ECU voltage out of range. Check electrical wiring.

12 V DC power for PM2 control unit out of range high or low. See your John Deere™ dealer.

PB21958,000037D-19-08JUL20

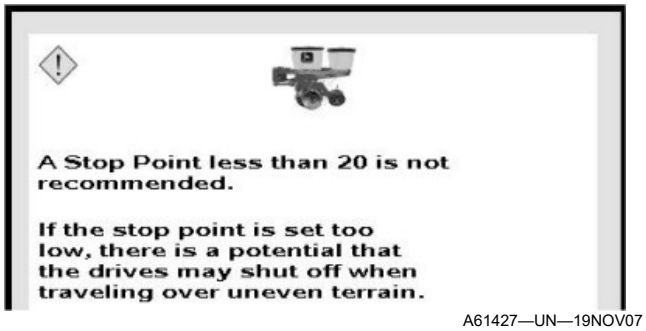
Warning Screens for RowCommand™

A61426—UN—19NOV07

The height sensor is not calibrated.

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

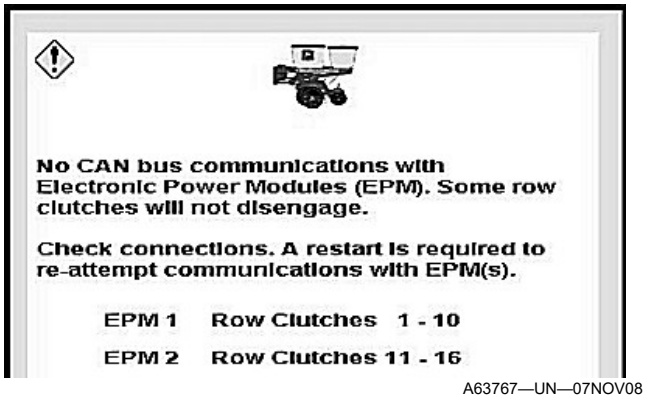
Refer to height sensor for calibration procedures in SETUP BASIC PLANTER CONFIGURATION section of this manual.



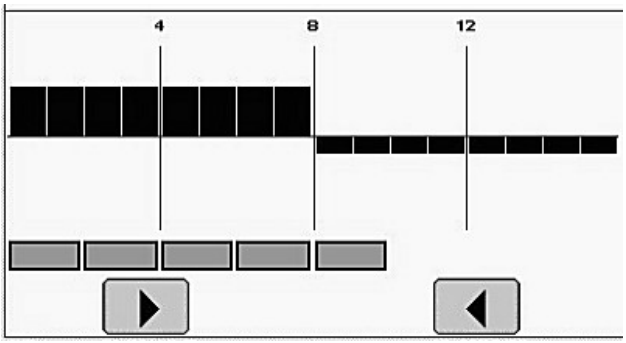
A61427—UN—19NOV07

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.



A63767—UN—07NOV08

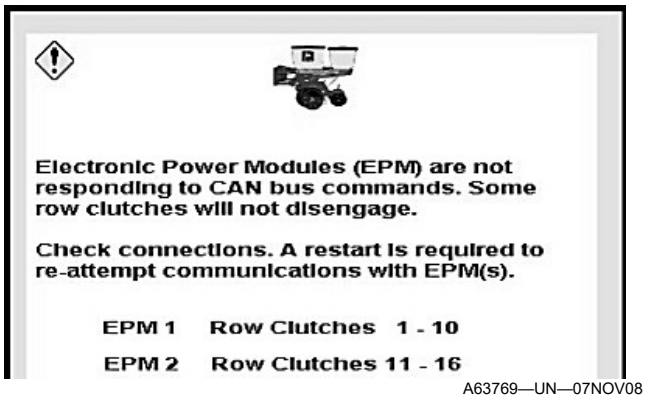


A63768—UN—07NOV08

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

Check connections. A restart is required to re-attempt communications with EPM(s).

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

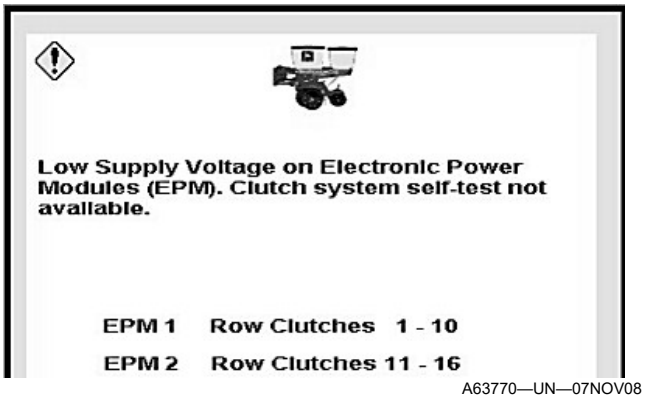


A63769—UN—07NOV08

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

Check connections. A restart is required to re-attempt communications with EPM(s).

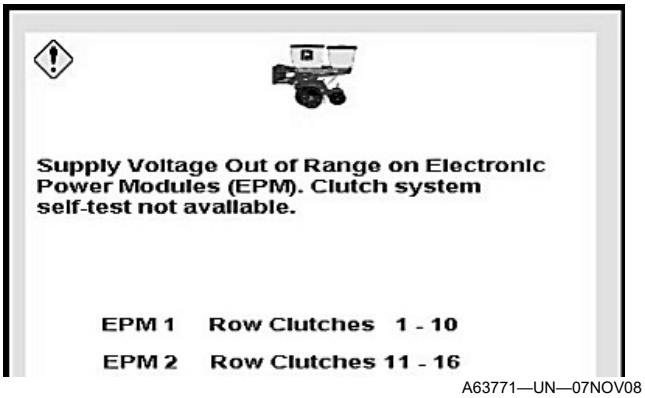
Warning screen lists EPMs that are currently not communicating.



A63770—UN—07NOV08

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

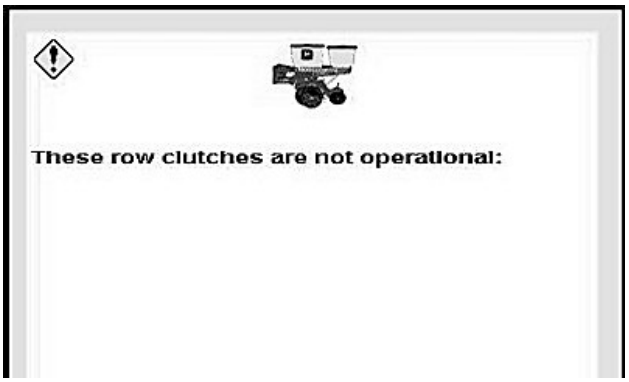
Warning screen lists EPMs with supply voltage less than 10.5 V.



A63771—UN—07NOV08

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

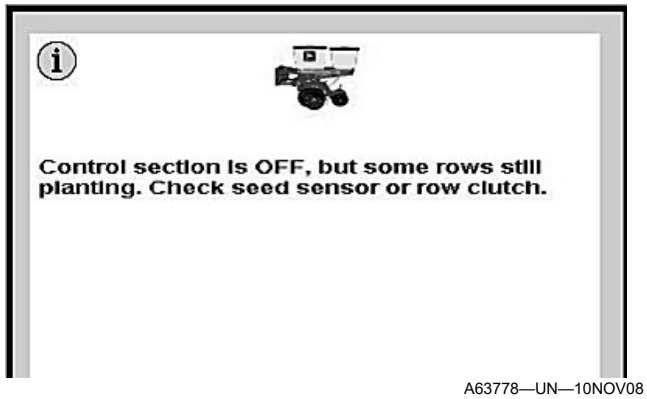
Warning screen lists EPMs with supply voltage less than 9.0 V.



A63776—UN—11NOV08

Row Clutch Diagnostic Self-test at Startup.

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

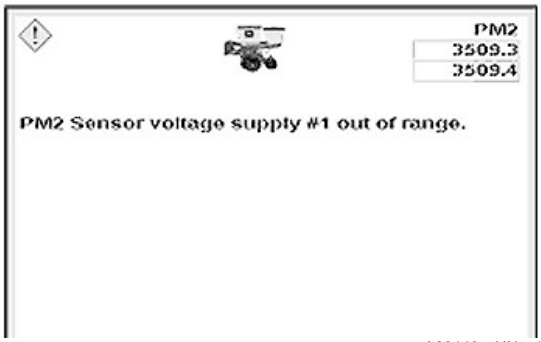


A63778—UN—10NOV08

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

PB21958,000037E-19-08JUL20

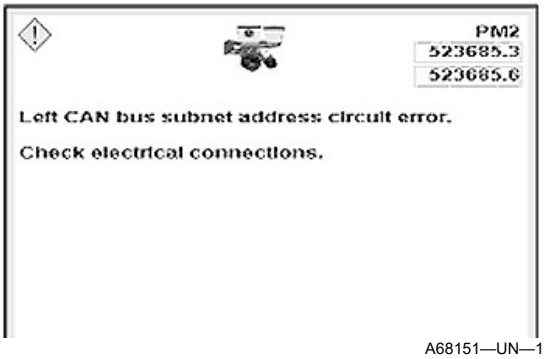
Warning Screens for SeedStar™ XP



A68149—UN—13JUL10

PM2 Sensor voltage supply #1 is out of range.

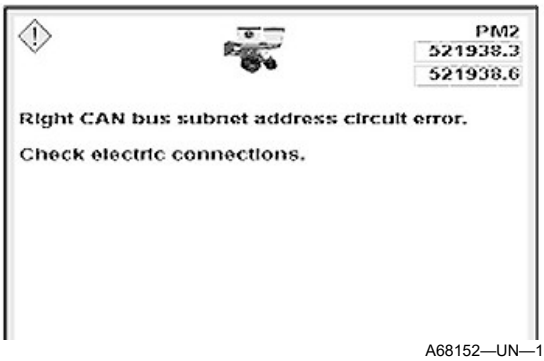
5 V DC sensor supply voltage on PM2 out of range high or low. Check wire harness and connectors for damage.



A68151—UN—13JUL10

Left CAN bus subnet address is showing circuit error. Check electrical connections.

Check wire harness and connectors for damage. See your John Deere™ dealer.



A68152—UN—13JUL10

Right CAN bus subnet address is showing circuit error. Check electric connections.

Check wire harness and connectors for damage. See your John Deere™ dealer.

A68153—UN—13JUL10

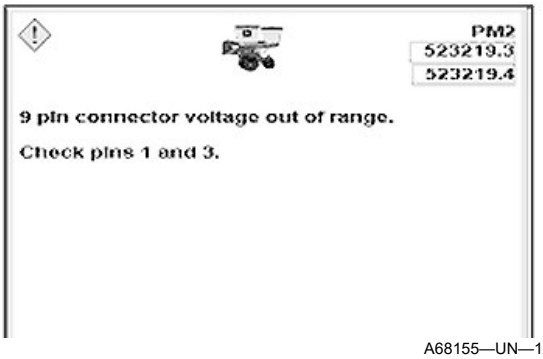
Communication error. Seed monitor is offline.

PM2 control unit is online but does not detect PM1 control unit on the CAN bus. Cycle key switch power and wait for the system to load. See your John Deere™ dealer.

A68154—UN—13JUL10

Communication error. Seed monitor online but not responding to CAN bus messages.

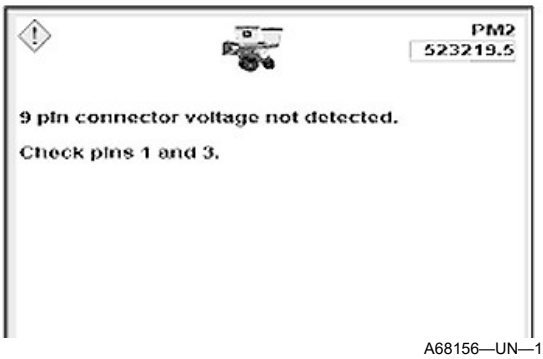
PM2 detects PM1 control unit on the CAN bus, but PM1 control unit is not responding. Cycle key switch power and wait for the system to load. See your John Deere™ dealer.



A68155—UN—13JUL10

9-pin connector voltage is out of range. Check pins 1 and 3.

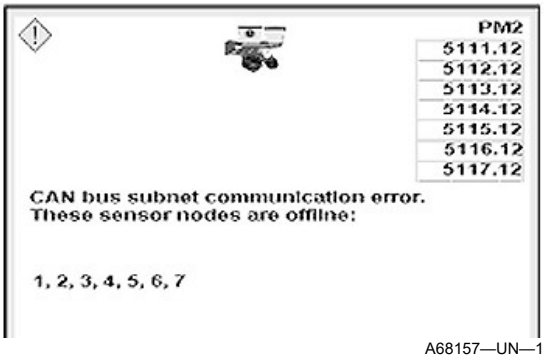
Voltage across pin 1 (ground) and pin 3 (12 V DC) of 9-pin ISO connector is out of range high or low. Check wire harness and battery connections.



A68156—UN—13JUL10

9-pin connector voltage not detected. Check pins 1 and 3.

No voltage is present across pin 1 (ground) and pin 3 (12 V DC) of 9-pin ISO connector. Refer to the tractor operator's manual and check fuses.

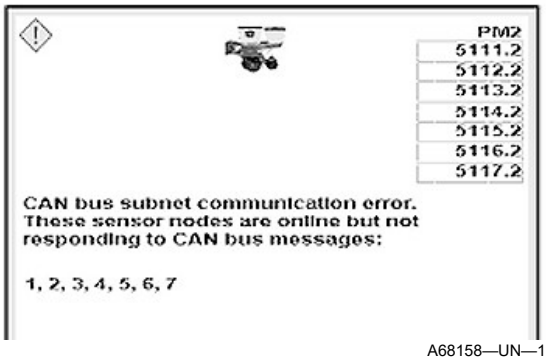


A68157—UN—13JUL10

CAN bus subnet communication error. These sensor nodes are offline:

1, 2, 3, 4, 5, 6, 7

Sensor node control units listed are offline. Check wire harness and connectors for damage. See your John Deere™ dealer.

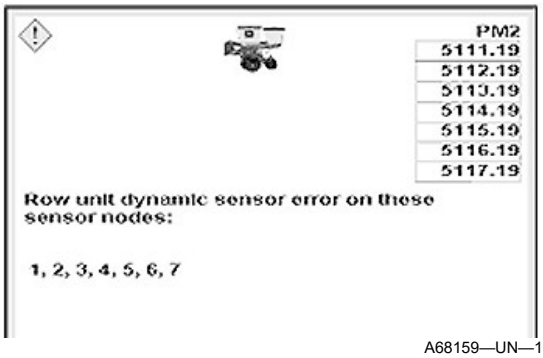


A68158—UN—13JUL10

CAN bus subnet communication error. These sensor nodes are online but not responding to CAN bus messages:

1, 2, 3, 4, 5, 6, 7

Sensor node control units listed are online, but not communicating with the PM2 control unit. See your John Deere™ dealer.

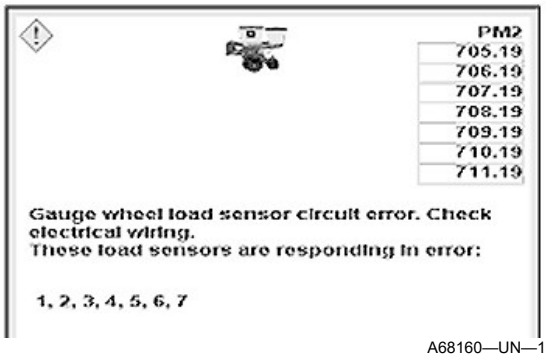


A68159—UN—13JUL10

Row unit dynamic sensor error on these sensor nodes:

1, 2, 3, 4, 5, 6, 7

There is a problem with the dynamic sensor inside the sensor node control units listed. See your John Deere™ dealer.



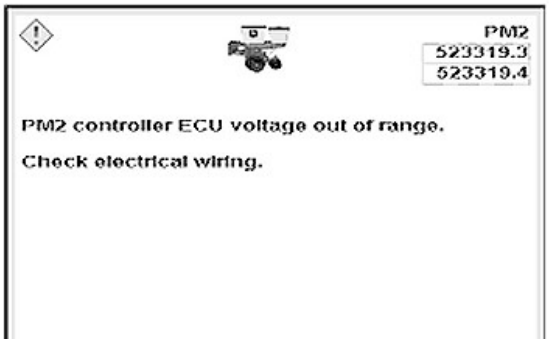
A68160—UN—13JUL10

Gauge wheel load sensor is showing circuit error. Check electrical wiring.

These load sensors are responding in error:

1, 2, 3, 4, 5, 6, 7

The sensor node control units listed are detecting a problem with the gauge wheel load sensor. Check load sensor wire harness for damage.



A68161—UN—13JUL10

PM2 control unit ECU voltage out of range. Check electrical wiring.

12 V DC power for PM2 control unit out of range high or low. See your John Deere™ dealer.

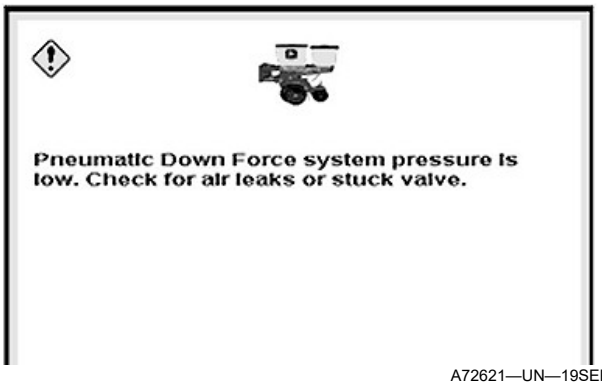
PB21958,0000380-19-08JUL20

Warning Screens for SeedStar™ XP

A68150—UN—13JUL10

Air compressor operating time limit exceeded. Check for air leaks.

Air compressor has been operating for more than 30 continuous minutes. Check air lines between the tank and compressor for leaks. Verify that tank relief valve and compressor pressure switch are not leaking.



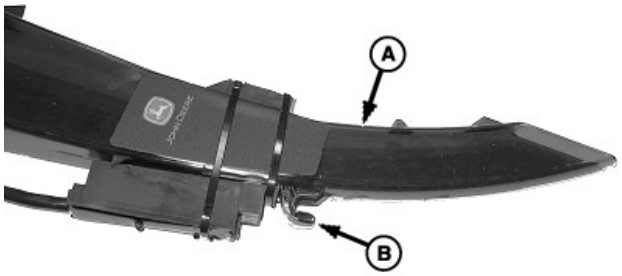
A72621—UN—19SEP11

Pneumatic downforce the system pressure is low. Check for air leaks or stuck valve.

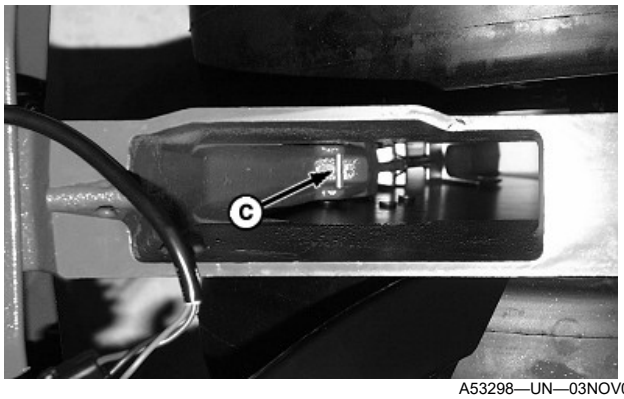
Row unit downforce pressure is not in limit set on PDF air pressure sensor setup page. Check air lines between the tank and compressor for leaks. Verify that tank relief valve and compressor pressure switch are not leaking.

PB21958,0000381-19-08JUL20

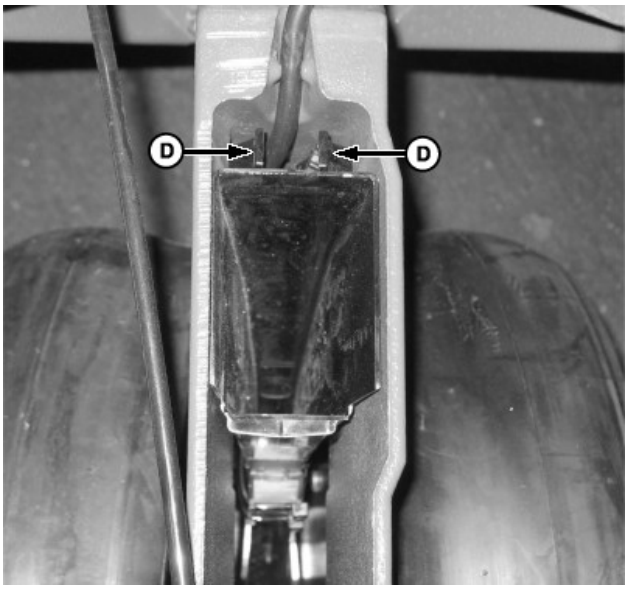
Install and Remove Standard Flush Face Seed Tubes



A59900—UN—02APR07



A53298—UN—03NOV03



A59901—UN—02APR07

A—Seed Tube
B—Hook
C—Pin
D—Tabs

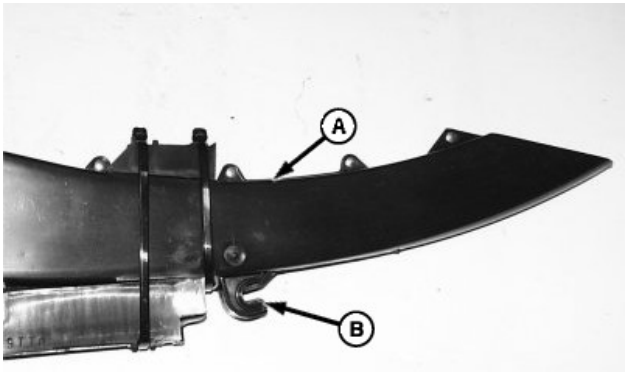
1. Connect monitor harness to sensor harness.

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

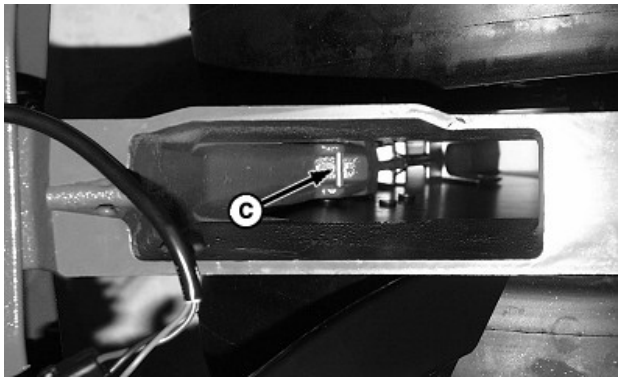
2. Insert the seed tube (A) into planting the unit so the hook (B) locks on the alignment pin (C).
3. Position the seed tube so tabs (D) lock into holes.
4. To remove seed tube, squeeze tabs with fingers until they release from casting. Pull upward.

PB21958,00001E8-19-08JUL20

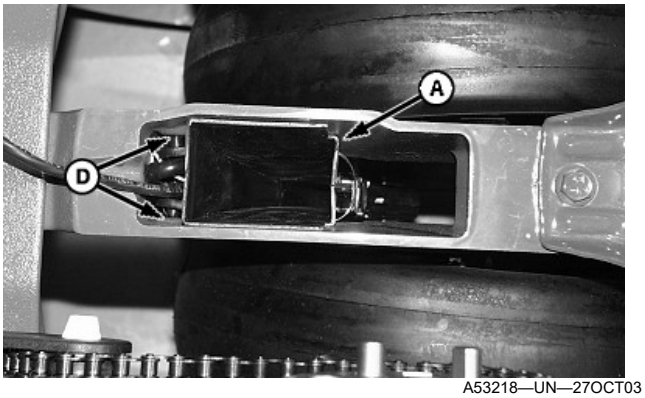
Install and Remove Optional Seed Tubes



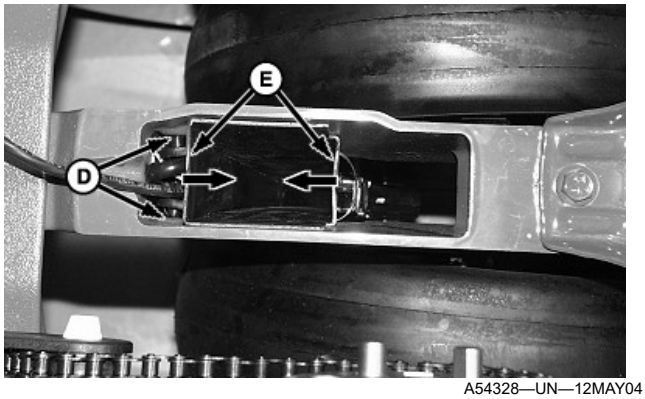
A53216—UN—27OCT03



A53298—UN—03NOV03



A53218—UN—27OCT03



A54328—UN—12MAY04

A—Seed Tube
B—Hook
C—Pin
D—Tabs
E—Front and Rear

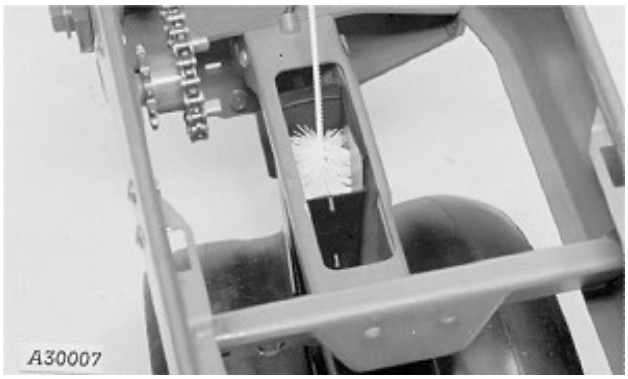
1. Connect monitor harness to sensor harness.

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

2. Insert the seed tube (A) into planting the unit so the hook (B) locks on the alignment pin (C).
3. Position the 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.

PB21958,00001E9-19-08JUL20

Clean the Seed Tube Sensor



A30007—UN—06OCT88

It is possible for dusty conditions or heavily treated seed to cause an excessive buildup of dust and seed treatment inside the seed tube 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 of the seed tube with the dry brush provided.

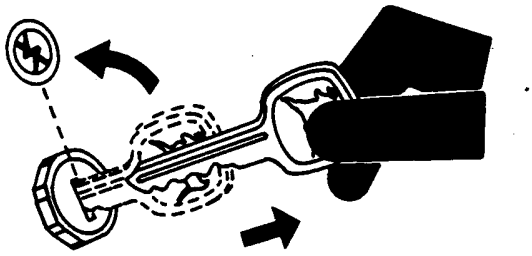
IMPORTANT: Do not plant again until all of the seed tube surfaces are dry.

If moisture enters the seed tube during a rain or when machine is washed, dust in the seed tube turns to mud. If moisture is present or dry residue is difficult to remove with a dry brush, use a mild detergent and water with the brush. Allow the interior of the seed tube surface to dry.

PB21958,0000382-19-28JAN18

Integrated Pneumatic Downforce

Service Machine Safely



TS230—UN—24MAY89

To help prevent personal injury caused by unexpected movement, be sure to service machine on the level surface.

If machine is connected to tractor, engage park brake and/or place transmission in “PARK”, shut off engine and remove key.

If machine is detached from tractor, block wheels and use safety stands to prevent movement.

PB21958,0000385-19-28JAN18

Pneumatic Downforce

CAUTION: Avoid serious injury from exploding parts due to over-pressurization or operating the system without all components in place.

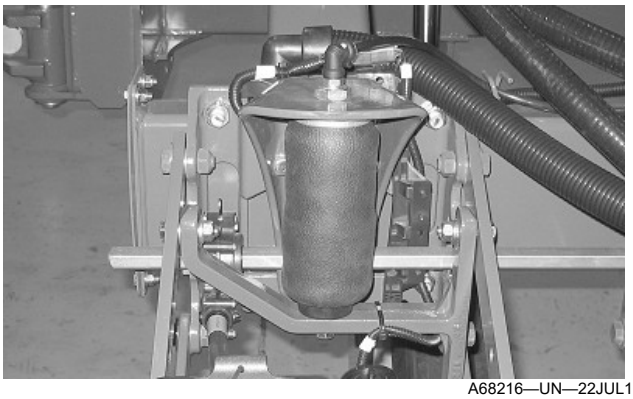
- **Do not inflate system above 1779 N (400 lb down force) (827 kPa (8.2 bar) (120 psi)).**
- **Do not remove pressure relief valve.**
- **Do not pressurize the system until all row unit components are in place.**

IMPORTANT: Do not lower machine with zero air pressure in system. Maintain 76—120 N (17—27 lb down force) (34 — 55 kPa) (0.3 — 0.5 bar) (5 — 8 psi)) in system or air springs can kink. If air spring kinks, raise machine and pressurize the system until air springs straighten out.

IMPORTANT: Do not operate if a pinched or unrolled air spring occurs. Lower system pressure until air springs can be rolled by hand. Roll back air spring over lower piston. Incremental lowering of machine is required to start air spring rolling over lower piston.

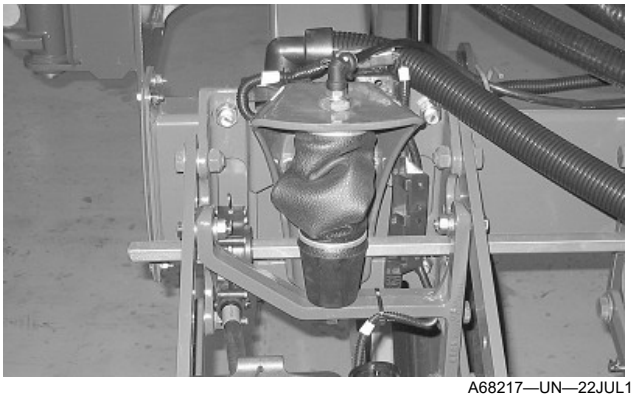
NOTE: It is normal for system air pressure to drop when frame is raised and increase when frame is lowered.

NOTE: Some additional down force on row units that follow in the tractor tire tracks can be required. An extra single downforce spring can be installed on these row units, without affecting the other row units. See your John Deere™ dealer for more information.



A68216—UN—22JUL10

Properly Rolled Air Spring

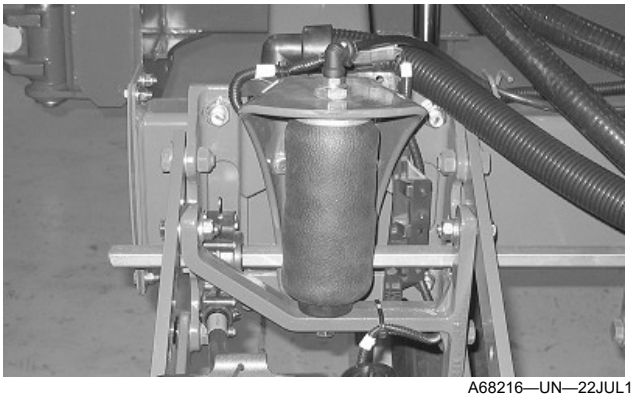


A68217—UN—22JUL10

Improperly Rolled Air Spring

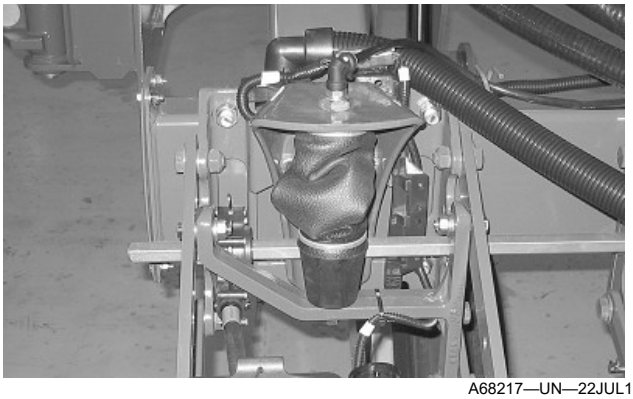
PX03972,000185A-19-08JUL20

Pressurize Pneumatic Downforce System



A68216—UN—22JUL10

Properly Rolled Air Spring



A68217—UN—22JUL10

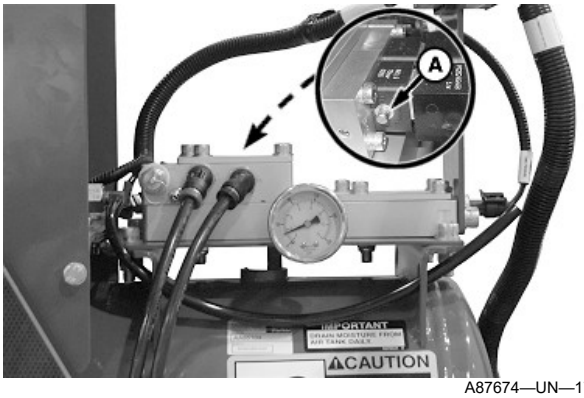
Improperly Rolled Air Spring

- To fill the planters down force air springs for the first time after removing from storage:
  - In Auto mode, system begins filling the air springs to achieve the target margin when lowered to planting position.
  - In Set-Point mode, system begins filling the air springs to achieve the target downforce when lowered to planting position.
- Pressurize system to a minimum of 16 kg (35 lb) of downforce displayed on monitor or approximately 83 kPa (0.8 bar) (12 psi) on gauge.
- Minimum down force during operation is 16 kg (35 lb) displayed on monitor or approximately 103 kPa (1.0 bar) (15 psi) on gauge. Failure to maintain this pressure can result in damage to air springs.

PB21958,0000386-19-28JAN18

Depressurize Single Rank Pneumatic Downforce System

NOTE: Location and orientation of the air reservoir varies based on the planter model. Procedure is similar for all models.

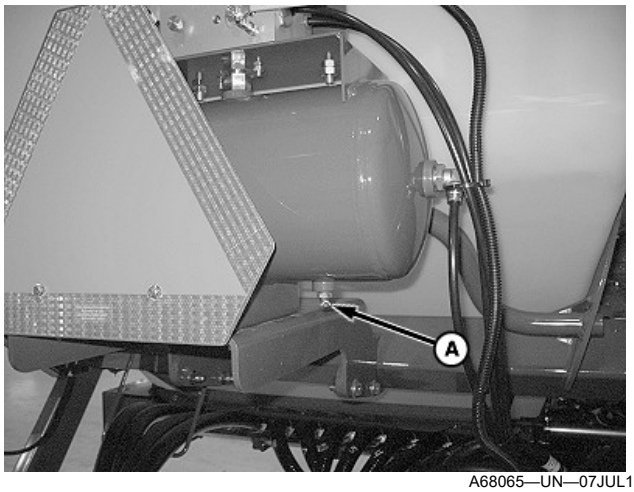


A87674—UN—17SEP15

Exhaust Manual Override

A—Manual Override Button

1. Lower planter to planting position.
2. On the SeedStar™ Monitor, reduce downforce pressure to 66 N (15 lb).
3. On the rear of the valve stack left-hand side, press manual override button (A) to release residual air pressure from the air spring circuit.



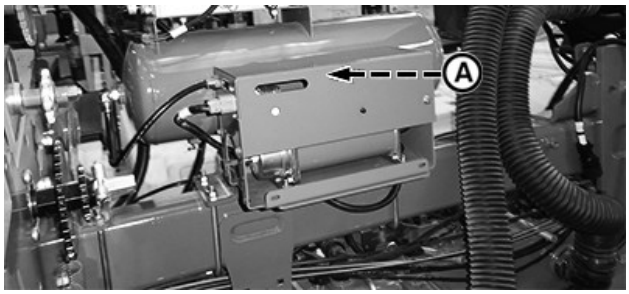
A68065—UN—07JUL10

A—Drain Valve

4. Release reservoir air pressure by opening drain valve (A).

PB21958,0000387-19-28JAN18

Single Set-Point Compressor Relay Location



P18683—UN—24APR20

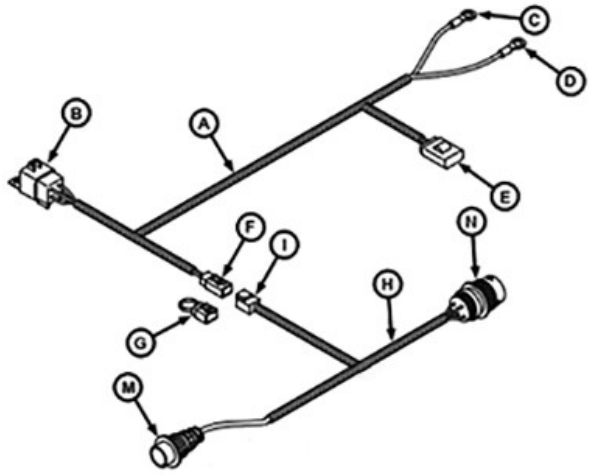
Compressor Relay

A—Relay

PX03972,000185B-19-24APR20

SeedStar is a trademark of Deere & Company

Electric Compressor—Relay and Fuse Location for Power Harness

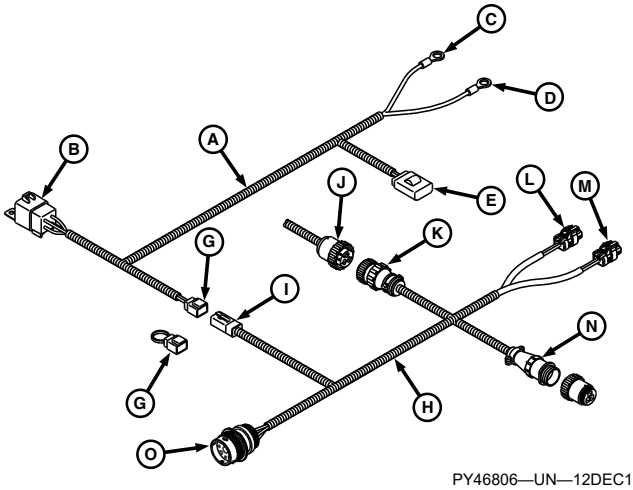


P18695—UN—29APR20

All Planters Except DB Series

A—Compressor Battery Harness
B—40A Relay
C—Battery Terminal (+)
D—Battery Terminal (-)
E—40A Fuse
F—Convenience (4-pin)
G—Jumper Connector
H—9-Pin Bulkhead Harness
I—Battery Power
M—CAN Connector (Planter Bulkhead)
N—CAN Connector (Tractor)

The compressor battery harness (A) supplies power from the tractor battery to the planter 9-pin bulkhead harness (H) through connectors (F) and (I).



PY46806—UN—12DEC17

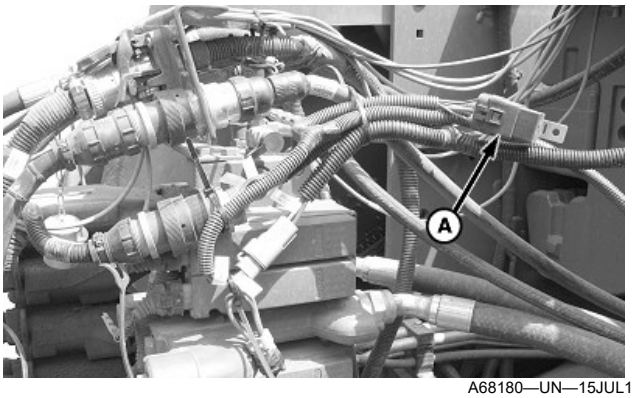
DB Series

A—Compressor Battery Harness
B—40A Relay
C—Battery Terminal (+)
D—Battery Terminal (-)
E—40A Fuse
F—Convenience (4-pin)
G—Jumper Connector
H—AMS and Compressor Power Harness
I—Convenience (4-pin)
J—CIS Harness (If Equipped)
K—Convenience Plug 2
L—Switch Box
M—Foot Switch
N—Convenience Plug 1
O—Convenience (9-pin)

The compressor battery harness (A) supplies power from the tractor battery to the pneumatic downforce compressor and to the other monitor functions (for example, GreenStar™ Rate Controller and iGuide™).

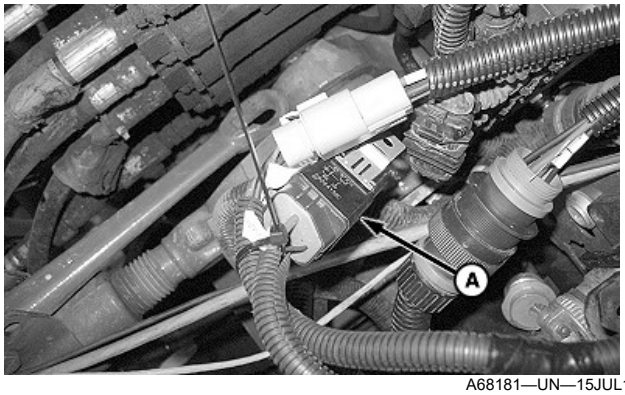
Battery power is supplied to the compressor through connector (O).

The following images show fuse and relay locations on the tractors.



A68180—UN—15JUL10

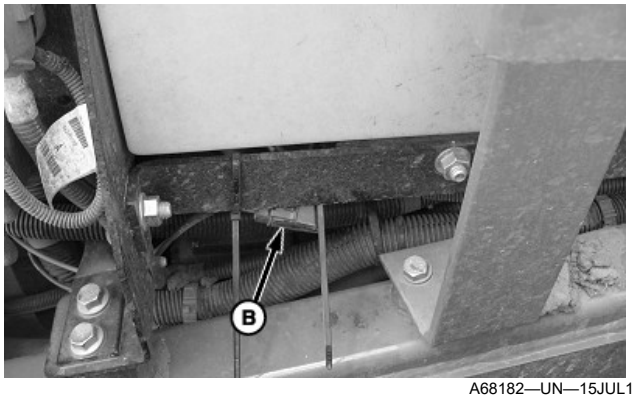
Relay, Four-Wheel Drive Tractor



A68181—UN—15JUL10

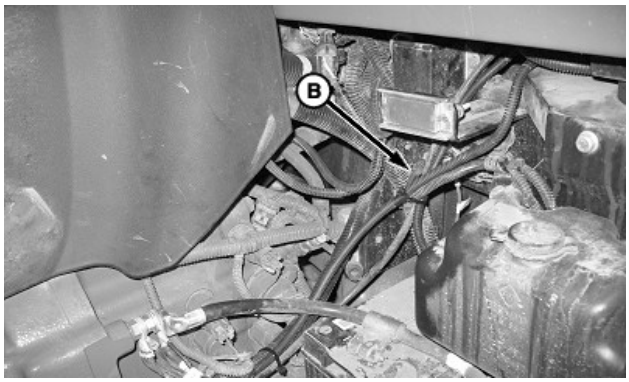
Relay, Row Crop Tractor

GreenStar is a trademark of Deere & Company
iGuide is a trademark of Deere & Company



A68182—UN—15JUL10

Fuse, Four-Wheel Drive Tractor



A68183—UN—15JUL10

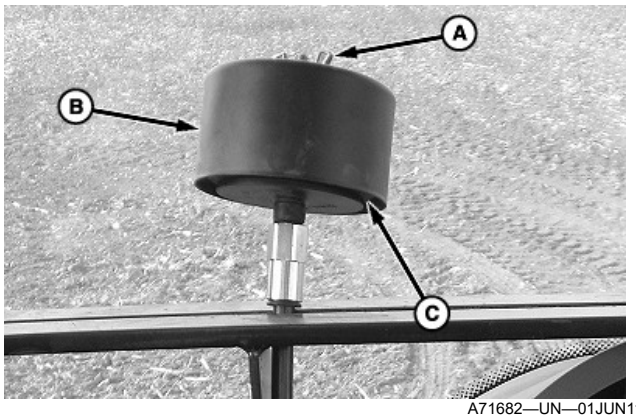
Fuse, Row Crop Tractor

A—Relay
B—Fuse

PX03972,0001862-19-08JUL20

Clean or Replace Electric Air Compressor Filter

IMPORTANT: Filter cleanliness is critical to maintain the performance and service life of the air compressor. Clean or replace the air filter element yearly or at the beginning of each season.



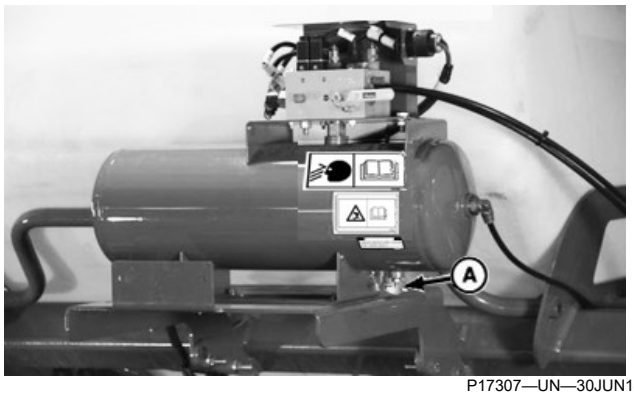
A71682—UN—01JUN11

A—Wing Nut and Seal Washer
B—Weather Shield
C—Filter

1. Remove and retain wing nut and seal washer (A).
2. Remove weather shield (B) and filter element (C).
3. Wipe dust from the filter base.
4. Replace filter and weather shield.
5. Reinstall seal washer, tighten wing nut.

PB21958,0000389-19-28JAN18

Drain Air Storage Tank



P17307—UN—30JUN14

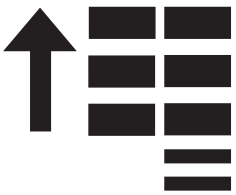
Single Set-Point Air Tank Drain Valve (Drawn Planters)

A—Water Drain Valve

Open water drain valve (A). Keep valve open until all water is drained from tank. Drain air storage tank daily and before placing planter in storage.

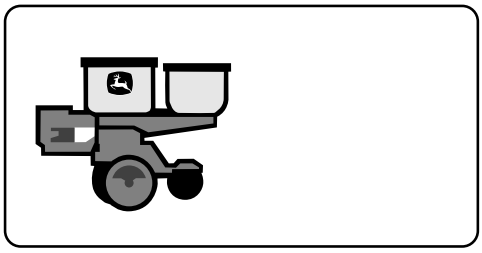
PB21958,000038A-19-28JAN18

Controller Hardware, Software, and Part Number Identification



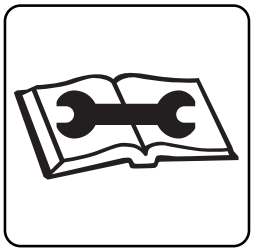
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

A61129—UN—11OCT07

Controller

A—Serial Tag

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

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

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

To view data from each control unit, select **Main** or **Auxiliary** from the second drop-down box. Auxiliary is only an option if there is more than one control unit installed on the machine.

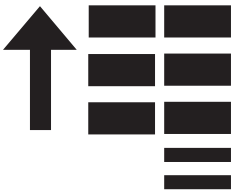
- Hardware serial number and part number are displayed.
- Serial number is also on a tag (A) attached to control unit.
- Software part number and version number are displayed.
- Total hour meter for the control unit is at bottom of screen.

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

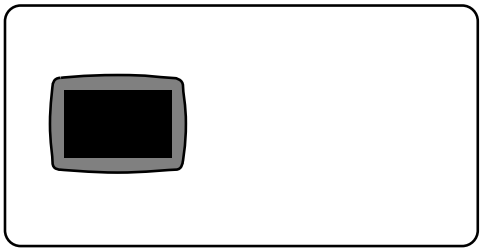
PB21958,000038B-19-08JUL20

Display Hardware, Software, and Part Number Identification



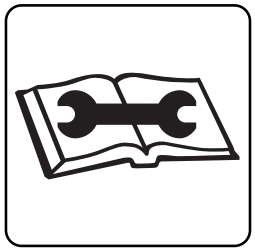
A59325—UN—19FEB07

Menu



A59565—UN—08MAR07

Display Button



A59567—UN—08MAR07

Diagnostic Softkey

Use the version 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.

Hardware information is also on back of display. To see only this information, select **About** tab.

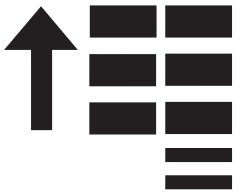
Total operation hours for the display are displayed mid screen.

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
Operation Hours—Operation Hours
About—About
Application Software Build—Application Software Build
P/N—Part Number
S/N—Software Number

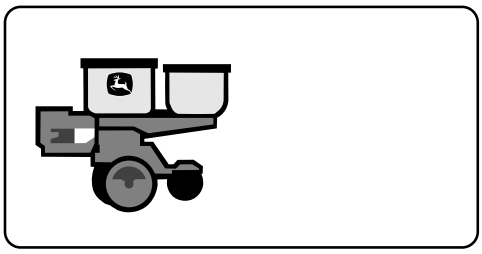
PB21958,000038C-19-28JAN18

Sensor Status



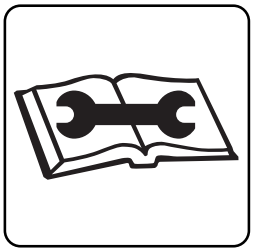
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

Use the version to diagnose suspected problems with sensor outputs.

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

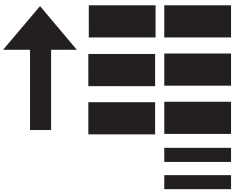
   The current readings from the sensors on the machine are shown in their respective units and voltage levels.

Screen Area Information

Planter Diagnostics—Planter Diagnostics
Readings—Readings
Sensor/Status—Sensor/Status
Tractor Speed—Tractor Speed
Vacuum Sensor—Vacuum Sensor
Fertilizer Sensor—Fertilizer Sensor
mph—Miles per Hour
kph—Kilometers per Hour
in—inches
mm—Millimeters
psi—Pounds per Square inch
kPa—Kilopascals
V—Volts

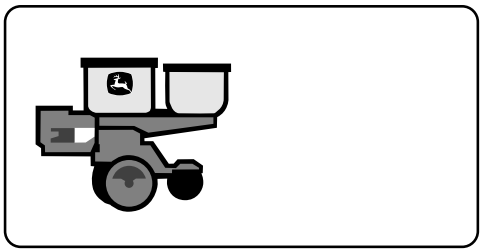
PB21958,000038D-19-28JAN18

System Voltages



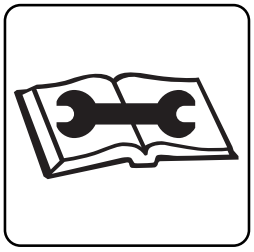
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

To diagnose suspected power supply problems.

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

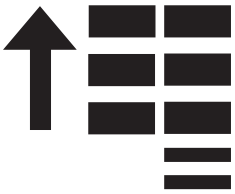
   The voltage for various electronics on the machine is shown.

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

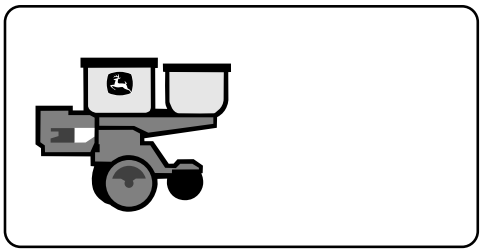
PB21958,000038E-19-28JAN18

Seed Tube Sensor Test



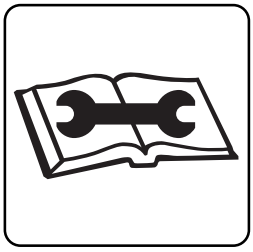
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

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

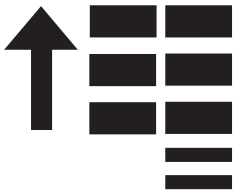
1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. To see which sensors are operational, select **Seed Tube Sensor** from the drop-down box.

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

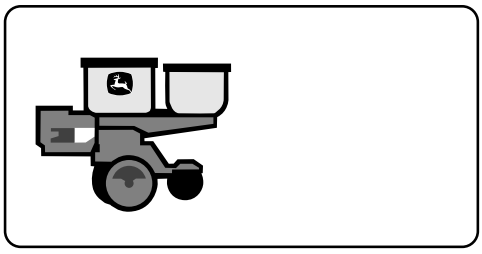
PB21958,000038F-19-28JAN18

Seed Drop Test



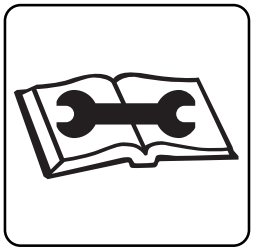
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

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

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

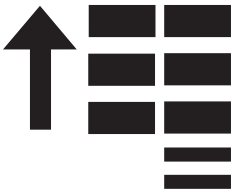
   If values are different, check wiring and clean or replace sensors.

Screen Area Information

Planter Diagnostics—Planter Diagnostics
Tests—Tests
Seed Drop—Seed Drop
Row—Row
Count—Count
Reset—Reset
Reset All Rows—Reset All Rows

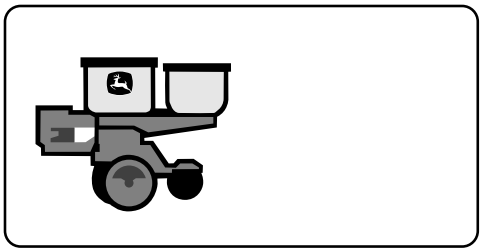
PB21958,0000390-19-28JAN18

Timed Seed Drop Test



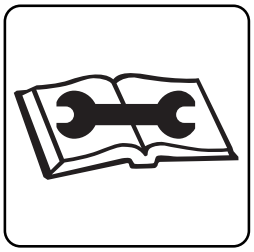
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

Diagnostic Softkey

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

Screen Area Information

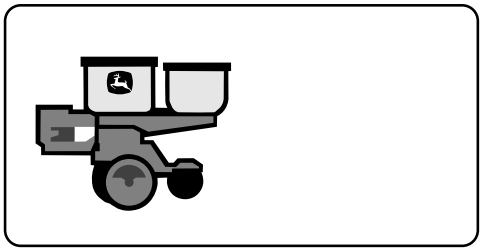
Planter Diagnostics—Planter Diagnostics
Tests—Tests
Timed Seed Drop—Timed Seed Drop
Start—Start
Stop—Stop
Row—Row
Count—Count
mph—Miles per hour
kph—Kilometers per hour
Time—Time
sec—Seconds

PB21958,0000391-19-28JAN18

Vacuum Sensor

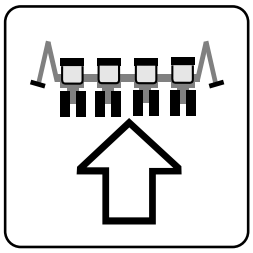
A59325—UN—19FEB07

Menu



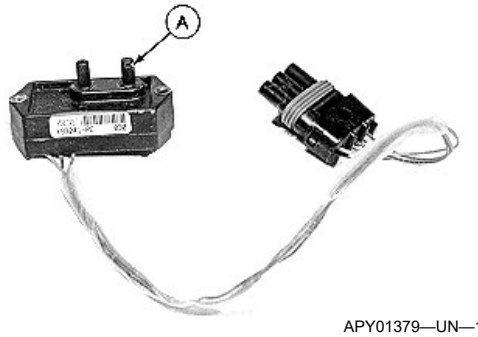
A59551—UN—08MAR07

Planter Button



A59172—UN—29JAN07

Configuration Softkey



APY01379—UN—19DEC17

A—P2 Port

Use the version to verify proper sensor connection and calibration.

1. Verify that vacuum wiring is properly connected.

   If only one vacuum sensor is used, it MUST be connected to LEFT VAC wire.

2. Verify that vacuum hose is properly connected.

   Connect hose to the 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 that 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** from the drop-down and select each sensor one at a time. Select **cal Value** and enter 5.66 (English units) or 143.76 (Metric units).
7. Select each sensor one at a time and select **Zero Sensor** button.
8. Verify that voltages are correct.

   Select **Diagnostic** softkey >> **Readings** tab >> **System Voltages** drop down.

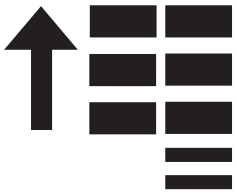
   - Controller Input value MUST be 11 V DC or higher.
   - Vacuum Sensor Supply value is 8.0 V DC.
   - If voltage is ZERO, check wiring.

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

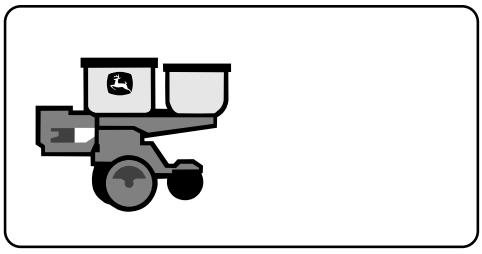
PB21958,00001EB-19-08JUL20

EPM Status



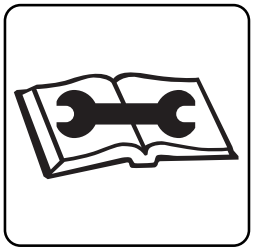
A59325—UN—19FEB07

Menu



A59551—UN—08MAR07

Planter Button



A59567—UN—08MAR07

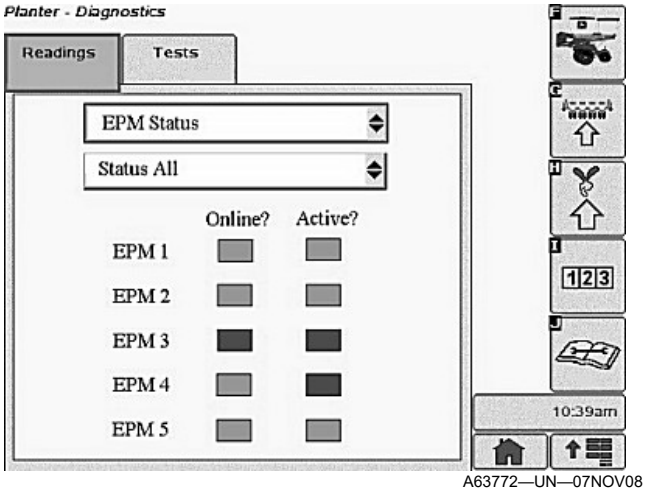
Diagnostic Softkey

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

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Readings** tab.
2. To see which EPMs are operational, select **EPM Status** from the drop-down box. All are displayed with online or active. Green box means true and 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



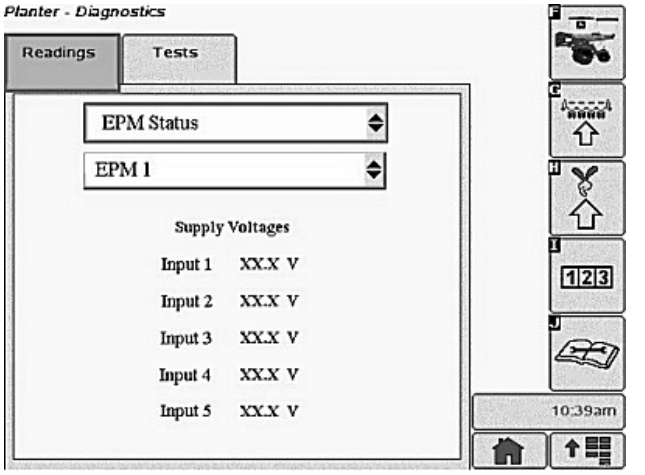
A63772—UN—07NOV08

EPM Status Summary Page.

This screen lists the 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.

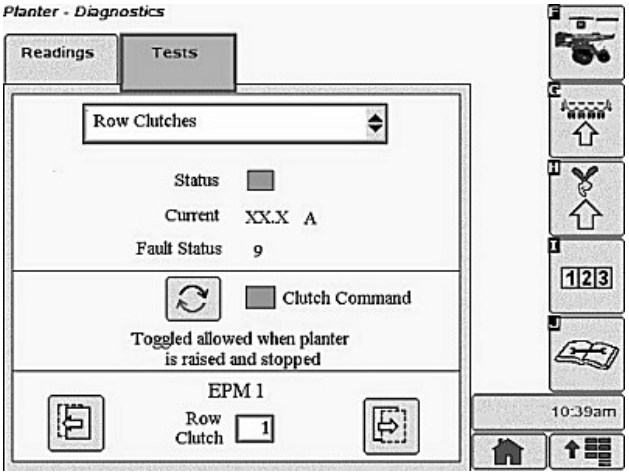
If the EPM is Active, the status box appears in green. If not active, the status box is red.



A63773—UN—07NOV08

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 "— —"



A63775—UN—10NOV08

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.

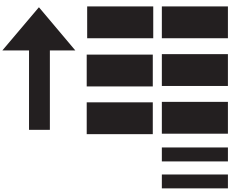
The button in the center of the page is used to toggle rows on or off when the planter is stopped and raised.

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

A specific RowCommand™ clutch can be selected by entering a row number.

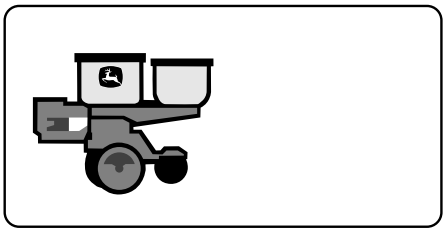
PB21958,0000392-19-29JAN18

Row Clutches



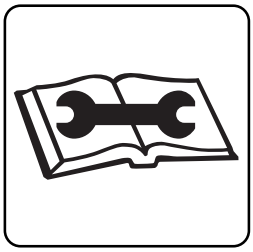
APY01387—UN—18DEC17

Menu



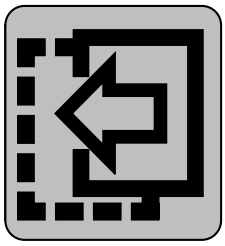
APY01388—UN—18DEC17

Planter Button



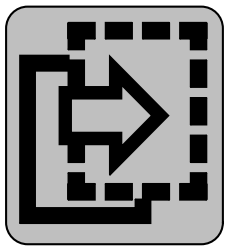
A59567—UN—08MAR07

Diagnostic Softkey



A61134—UN—12OCT07

Previous Page



A61135—UN—12OCT07

Next Page

A63529—UN—27OCT08

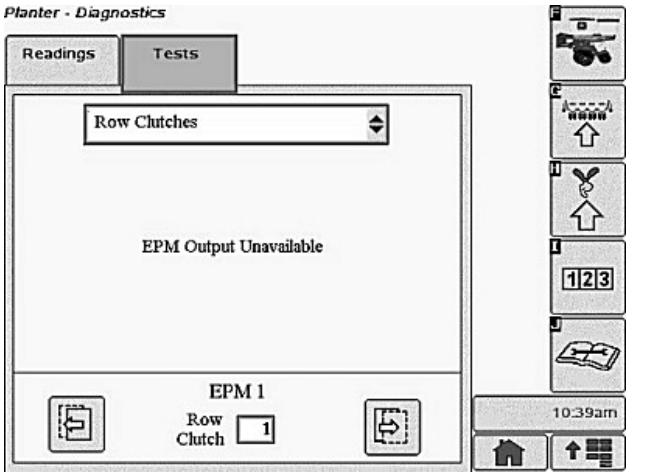
Toggle

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

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. To see status of each row clutch, select **Row Clutches** from the drop-down box . Green box means true and red box means false.
3. To enable clutch command, select the toggle icon. Green box means true and red box means false.
4. To view or press next page icon and previous page icon to navigate, select row clutch from the input box and enter desired row clutch.

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



A63774—UN—10NOV08

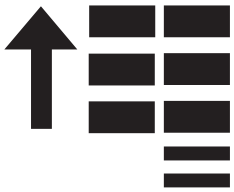
Row Clutch Diagnostic Tests.

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

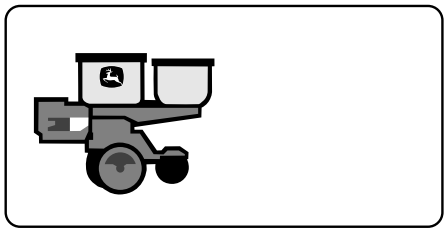
PB21958,00001EC-19-19DEC17

Row Clutches Self-Test



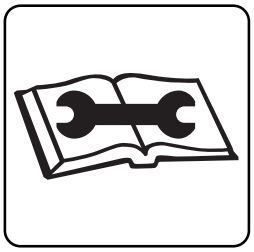
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



A59567—UN—08MAR07

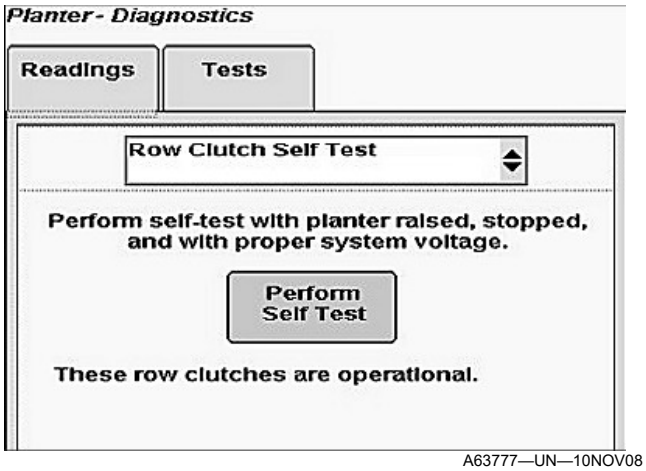
Diagnostic Softkey

Use the version to identify the operational row clutches detected by the monitor.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Tests** tab.
2. To see status of each row clutch, select **Row Clutches Self-Test** from the drop-down box.
3. Select the perform self-test button and system performs 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



A63777—UN—10NOV08

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

Row Clutch Diagnostic Self-test During Diagnostics.

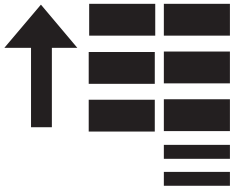
Perform self-test with planter raised over the height set point, stopped, and with proper system voltage.

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

PB21958,00001ED-19-19DEC17

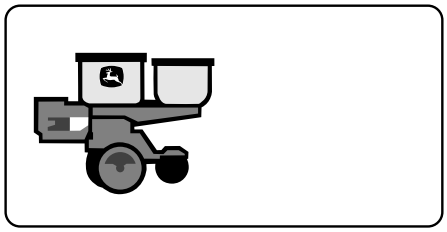
Ride Dynamics Sensor Diagnostics

IMPORTANT: Remove system power before disconnecting sensor node harness.



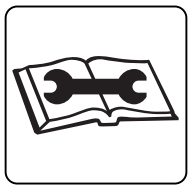
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



APY03305—UN—25DEC17

Diagnostic Softkey

This screen is used to monitors the ride dynamics of sensor data for all rows on one screen.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Readings** tab.
2. Select **Ride Dynamics** from the drop-down box.

   The percentages for ride quality sensors on the machine are shown. If the sensor is present but no data is being received, dashes "- -" are displayed.

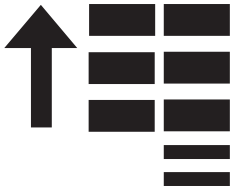
Screen Area Information

Planter Diagnostics—Planter Diagnostics
Readings—Readings
Ride Quality Sensor—Ride Quality Sensor
%—Percentages

PB21958,00001F2-19-25DEC17

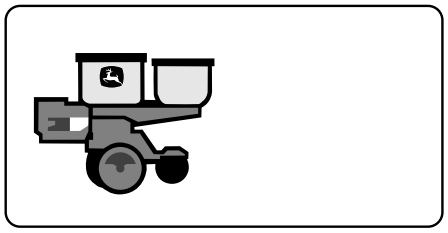
Down Force Sensor Diagnostics

IMPORTANT: Remove system power before disconnecting sensor node harness.



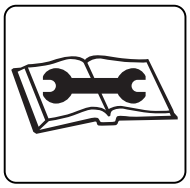
APY01387—UN—18DEC17

Menu



APY01388—UN—18DEC17

Planter Button



APY03305—UN—25DEC17

Diagnostic Softkey

This screen is used to monitor downforce sensor data for all rows on one screen.

1. Select **Menu** >> **Planter** button >> **Diagnostics** softkey >> **Readings** tab.
2. Select **Down Force** from the drop-down box.

   The gauge wheel load in pounds or Newtons for downforce sensors on the machine is shown. If the sensor is present but no data is being received, dashes "- -" are displayed.

Screen Area Information

Planter Diagnostics—Planter Diagnostics
Readings—Readings
PDF Pressure Sensor—PDF Pressure Sensor
Down Force Sensor—Down Force Sensor
lbs—Pounds
N—Newtons

PB21958,00001F1-19-25DEC17

Diagnostics Code

Diagnostic Codes are only accessed by a trained technician. Refer to your John Deere dealer.

PB21958,00001F0-19-11DEC17

SeedStar™ 2 and SeedStar™ XP Troubleshooting

The SeedStar™ 2 and SeedStar™ XP monitoring system is equipped with a variety of self-tests, diagnostic screens, diagnostic tests, and Caution and Warning Screens. It helps operators and dealer technicians locate the cause of a potential problem.

Familiarize yourself with the warning screens (see Warning Screens section in this manual) and diagnostics (see Diagnostics section in this manual). Perform the basic troubleshooting steps in this section before calling your John Deere™ dealer.

PB21958,0000393-19-29JAN18

Troubleshoot GreenStar™ Display

Symptom	Problem	Solution
Screen not readable.	Contrast incorrectly set.	Adjust contrast.
	Screen backlights set too low.	Increase backlight adjustment.
Incorrect speed displayed.	Calibration is incorrect	Enter correct radar calibration value or recalibrate on 122 m (400 ft) course.
	Unit of measure set is incorrect.	Set correct units.
	Speed reading erratic.	Radar mounting is loose or vibrating.
No radar speed reading.	No calibration value entered.	Calibrate radar.
	Windy or dusty conditions.	Change to a different speed source.
No radar calibration value.	Display installed on 7000/8000/9000 Series or newer tractor with factory installed radar.	Calibrate radar per tractor operator's manual.

PB21958,00001F3-19-08JUL20

Troubleshoot SeedStar™ 2

Symptom	Problem	Solution
Planter icon does not appear on the main menu.	Controllers are not communicating on CAN bus.	Select main menu, select the message center button. Select CONTROL UNIT INFO button. Select implement CAN from the drop-down box. Search for Control Unit PM1 (0xC0) and PA1 (0xC1). If you cannot find any of these addresses, the planter control units are not communicating on the CAN bus. Check ECU power, ECU ground, CAN high, and CAN low at the 9-pin connector on back of tractor and planter control units. (Use Service Advisor to find the pin locations for these connections

Symptom	Problem	Solution
Warning: Verify power on pins 1 and 3.	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.
No vacuum reading.	Faulty wire connection.	Check wiring harness and repair.
	Vacuum blower not running.	Start vacuum blower motor.
	Vacuum line on the wrong fitting on sensor.	Install vacuum line to the sensor P2 fitting.
	Planter configuration is incorrect.	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.)
	Sensor connected to wrong wire harness lead.	If only one vacuum sensor is used, connect to wire labeled LEFT VACUUM.
Wrong vacuum reading.	Vacuum sensor not calibrated.	Stop vacuum blower motor and zero the sensor. (See VACUUM SENSORS in SETUP Basic Planter Configuration section.)
	Wrong calibration value.	Enter correct calibration value 5.66 (English units) or 143.76 (Metric units). (See VACUUM SENSOR in Diagnostics section.)
	Faulty vacuum sensor.	Replace sensor.
No high or low population reading.	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 off split row option. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)

Symptom	Problem	Solution
		Turn on rows. (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 TM111219.
Wrong population reading.	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.
	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.
	Population Adjust value set incorrectly.	Verify actual field planting population. Compare to the population reading. Adjust Population Adjust setting as needed.
Row failure warning.	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.)

Symptom	Problem	Solution
	CCS system plugging or bridging.	Clear plug or bridge. Refer to the planter operator's manual. Adjust CCS pressure as required.
Wrong area reading.	Planter width incorrect.	Enter correct planter width. (See CONFIGURE FRAME, SPLIT ROW, AND DRIVE DISCONNECT WARNING in SETUP Basic Planter Configuration section.)
	Half-width or third-width disconnects on.	Select “Reduce Area by these Rows" when using disconnect feature.
	Radar problem.	Correct radar calibration or troubleshoot radar.
No planter monitor reading.	Electrical connections not correct.	Check fuses in tractor. Check connections on back of rear tractor connector.

PB21958,0000394-19-08JUL20

Troubleshoot RowCommand™

Symptom	Problem	Solution
Caution: No CAN bus communications with Electronic Power Modules (EPM). Some row clutches unable to disengage. Check Connections. A restart is required to attempt communications with EPMs.	EPM is off line and not communicating with the control unit.	Check all connections on EPM that is not communicating.
		See your John Deere dealer.
Caution: Electronic Power Modules (EPM) are not responding to CAN bus commands. Some row clutches unable to disengage. Check connections. A restart is required to attempt communications with EPMs.	EPM has failed to respond to CAN bus commands.	Check all harness connections to EPM that is not responding.
	EPMs not active	Switch failed EPM with known EPM that is functioning and retest.
		See your John Deere dealer.
Caution: Low Supply Voltage on Electronic Power Modules (EPM). Clutch systems self-test not available.	Voltage has fallen below 10.5 V on any input supply on individual EPM.	Check EPM fuse.
		Check all harness connections on EPM with low voltage.

Symptom	Problem	Solution
		Increase engine speed to increase alternator output.
		See your John Deere dealer.
Caution: Supply Voltage Out of Range on Electronic Power Modules (EPM). Clutch system self-tests not available.	Voltage has dropped below 9.0 V on any input supply on individual EPM.	Check EPM fuse.
		Check all harness connections to EPM that has low voltage.
		Increase engine speed to increase alternator output.
		See your John Deere dealer.
Clutch self-test at start-up does not function.	An EPM is not communicating or voltage feed out of range, and clutch test is not available.	Check EPM fuse.
		Check harness connections to non-responsive EPM. See your John Deere dealer.
RowCommand™ row sections for rows 1-10 not visible on display.	EPM 1 not communicating or not active.	Inspect fuse for EPM 1 (10 A) on EPM harness.
		Determine if EPM 1 is operational. Refer to Diagnostics tab, Tests, EPM status.
		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.
	Supply voltage out of range.	Inspect fuse for EPM 1 (10 A) on EPM harness.
		Determine if EPM 1 is operational. Refer to Diagnostics tab, Tests, EPM status.
		Inspect harness from EPM to appropriate rows for loose connections or damage.
		Exchange EPM with a functional EPM to verify harness or EPM problem.

Symptom	Problem	Solution
		Contact your John Deere dealer.
RowCommand™ row sections for rows 11-20 not visible on display.	EPM 2 not communicating or not active.	Inspect fuse for EPM 2 (10 A) on EPM harness.
		Determine if EPM 2 is operational. Refer to Diagnostics tab, Tests, EPM status.
		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.
RowCommand™ row sections for rows 21-30 not visible on display.	EPM 3 not communicating or not active.	Inspect fuse for EPM 3 (10 A) on EPM harness.
		Determine if EPM 3 is operational. Refer to Diagnostics tab, Tests, EPM status.
		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.
Low voltage warning when all RowCommand™ clutches are powered (meter disengages).	Excessive electrical load.	Decrease electrical load.
		Increase engine rpm to increase alternator output.
		Verify that alternator output is within specifications.

PB21958,0000396-19-08JUL20

Troubleshoot SeedStar™ XP

IMPORTANT: Remove system power before disconnecting sensor node harness.

Symptom	Problem	Solution

Symptom	Problem	Solution
Gauge wheel load sensor circuit error.	Sensor node control unit on the rows listed has detected an open circuit or short circuit in the gauge wheel load sensor circuit.	Check wiring harness and electrical connectors from gauge wheel load sensor to sensor node control unit. See your John Deere™ dealer.
Seed Singulation percentage low.	Meter not adjusted properly.	Refer to Rate Charts and Settings Manual. Confirm correct disk type and vacuum level for seed being used. Confirm brush type and meter hub adjustment. Confirm correct talc usage and mixing. Check and adjust double eliminator setting (if used).
	Excessive ground speed.	Increase row unit downforce first. If singulation does not improve, reduce ground speed.
	Excessive row unit dynamics (bounce).	Increase row unit downforce first. If singulation does not improve, reduce ground speed.
	Erratic Drive line Operation.	Check meter drive line. Check chains, bearings, drillshaft bearings, drillshaft couplers for proper alignment, lubrication, and smooth operation. Refer to the planter operator's manual.
	Alarm setpoint too high.	Reduce alarm set point. Factory default setting is 92 percent. Press and hold Singulation button for 4 seconds to go to Alarms and Limits Set up Screen. Enter "0" to turn off singulation alarm.
Seed Spacing Coefficient of Variation (CV) percentage high.	Excessive ground speed.	Increase row unit downforce first. If singulation does not improve, reduce ground speed.
	Excessive row unit dynamics (bounce).	Increase row unit downforce first. If singulation does not improve, reduce ground speed.
	Erratic Driveline Operation.	Check meter drive line. Check chains, bearings, drillshaft bearings, drillshaft couplers for proper alignment, lubrication, and smooth operation. Refer to the planter operator's manual.
	Meter not adjusted properly.	Refer to Rate Charts and Settings Manual. Confirm correct disk type and vacuum level for seed being used. Confirm brush type and meter hub adjustment. Confirm correct talc usage and mixing. Check and adjust double eliminator setting (if used).

Symptom	Problem	Solution
	Alarm set point too low.	Increase alarm set point. Factory default setting is 0.35. Press and hold Seed Spacing CV button for 4 seconds to go to Alarms and Limits Set up Screen. Enter "0" to turn off Seed Spacing alarm.
Down force margin too low.	Pneumatic downforce setting exceeds frame or wing weight and causes planter frame to "float".	Reduce downforce setting if possible. See your John Deere dealer for frame ballast options.
	Target margin set point too high for planting conditions.	Reduce target margin set point. Press and hold any SeedStar™ XP button for 4 seconds to access Alarms and Limits Setup Screen.
Down force margin too high.	Pneumatic downforce setting too high for planting conditions.	Reduce pneumatic downforce setting.
	Target margin set point too low for planting conditions.	Increase target margin set point.
	Row unit weight exceeds downforce margin requirement.	Install up force springs to reduce row unit down force.

PB21958,0000397-19-08JUL20

Troubleshoot Single Set-Point Pneumatic Downforce System

Symptom	Problem	Solution
Compressor does not run.	Blown Fuse.	Check and replace tractor convenience outlet fuse and compressor battery power harness fuse (if used).
	No electrical power at compressor.	Inspect compressor wiring harness and battery harness (if used) and connectors for damage. Repair or replace as required.
	Bad pressure switch.	Remove all air pressure from the air storage tank. Unplug pressure switch. Check continuity across switch wires. If no continuity, replace switch.
	Bad relay.	Replace relay.

Symptom	Problem	Solution
Row unit down force does not increase or decrease.	Increase or decrease solenoid valve stuck closed.	Actuate manual override for increase or decrease solenoid valve several times. Remove all air pressure from system. Clean or replace solenoid valves. Shop air and tire pressure gauge can be used to adjust air pressure in the air spring circuit manually until the problem can be fixed.
	Open circuit on solenoid wires (caution screen appears on GreenStar™ display and diagnostic trouble code is set).	Check and repair wiring harness.
	Open circuit within solenoid (caution screen appears on GreenStar™ display and diagnostic trouble code is set).	Check continuity of the solenoid coil. Replace solenoid.
Air spring circuit relief valve opens.	Increase solenoid valve stuck open.	Actuate manual override for increase the solenoid valve several times. Relieve all pressure from system. Clean or replace solenoid valve.
	Weak relief valve spring.	Replace relief valve.
Tank circuit relief valve opens.	Pressure switch stuck ON.	Turn tractor key switch OFF. With pressure in tank, unplug pressure switch connector. Check continuity across switch wires. If there is continuity, replace switch.
Incorrect downforce reading displayed on monitor.	Pressure sensor not calibrated.	Calibrate sensor. Refer to INTEGRATED PNEUMATIC downforce AIR PRESSURE SENSOR in SeedStar™ 2 SETUP Basic Planter Configuration section.
Pneumatic downforce solenoid circuit error.	PM2 control unit has detected an open circuit or short circuit in the pneumatic downforce increase or decrease solenoid circuit.	Check wiring harness and electrical connectors from the PM2 control unit to pneumatic downforce solenoids. Check continuity of solenoid coils.
Incorrect downforce margin reading displayed on monitor.	Gauge wheel sensor not calibrated.	Raise planter to remove load and zero all sensors.
	Gauge wheel arms binding	Grease gauge wheel arm pivots.
		Replace worn parts if binding occurs.

PB21958,0000398-19-29JAN18

Beginning of the Season Service

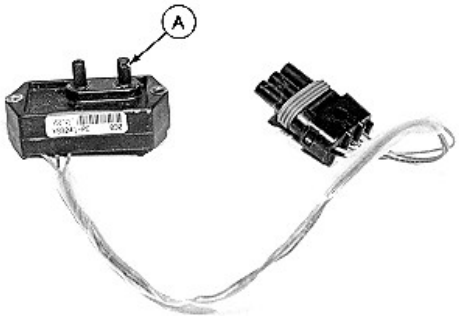
Before using the monitor after it has been stored, inspect for cleanliness and damage.

Thoroughly inspect monitor display, control unit, harnesses, radar, and sensors for loose parts and adjust as necessary.

Clean any dirt or grease that is accumulated before operating.

PB21958,0000399-19-29JAN18

Vacuum Sensor



APY01379—UN—19DEC17

A—P2 Port

NOTE: P2 port (A) is used for hose connection.

Protect when using water to wash planter.

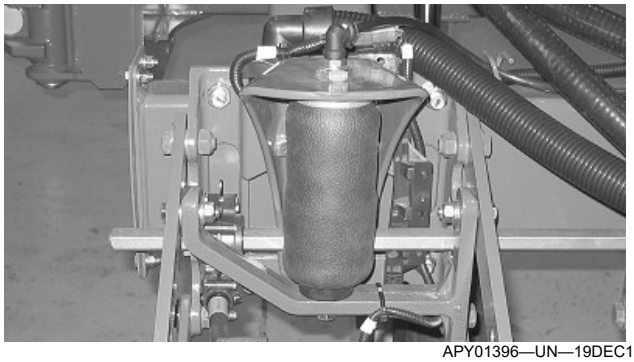
PB21958,00001F4-19-13DEC17

Pneumatic Downforce Air Spring Storage Procedures

When Storing Machine

IMPORTANT: Do not remove air from the system. Air spring must be pressurized and allowed to leak down slowly to 0 psi.

- Park machine with 11 kg (25 lb) of downforce displayed on monitor or approximately 55 kPa (0.5 bar) (8 psi) on gauge.



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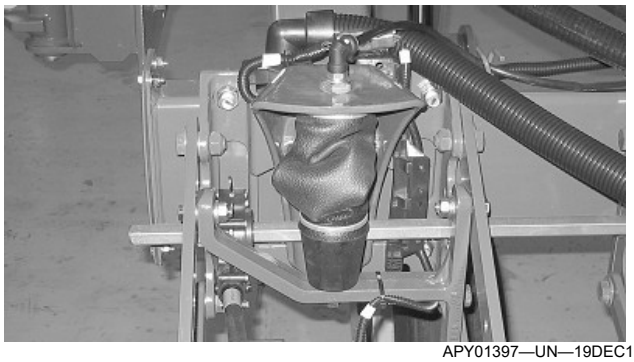
Properly Rolled Air Spring



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Improperly Rolled Air Spring

When removing from storage:

CAUTION: Avoid serious injury from exploding parts due to over-pressurization or operating the system without all components in place.

Do not inflate system above 827 kPa (8.2 bar) (120 psi).

Do not remove pressure relief valve.

Do not pressurize system until all the row unit components are in place.

IMPORTANT: Do not operate if a pinched or unrolled air spring occurs. Lower system pressure until air spring can be rolled by hand. Roll back air spring over lower piston. Incremental lowering of machine is required to start air spring rolling over lower piston.

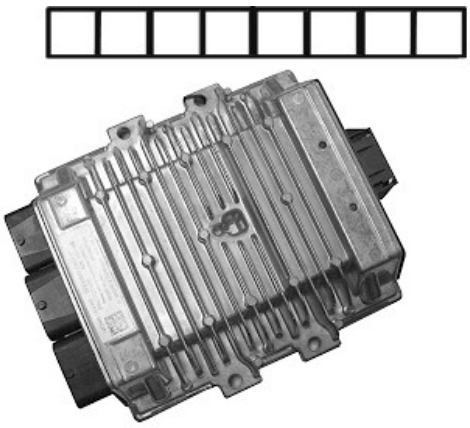
When Removing Machine from Storage

- To fill the planter's down force air springs for the first time after removing from storage:
  - In Auto mode, system begins filling the air springs to achieve the target margin when lowered to planting position.
  - In Set-Point mode, system begins filling the air springs to achieve the target downforce when lowered to planting position.
- Pressurize system to a minimum of 16 kg (35 lb) of downforce displayed on monitor or approximately 83 kPa (0.8 bar) (12 psi) on gauge.

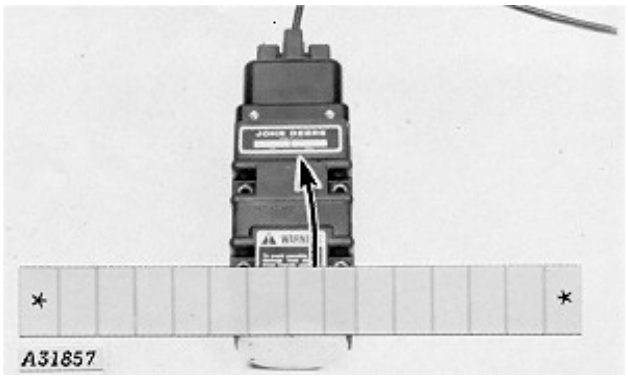
- Minimum down force during operation is 16 kg (35 lb) displayed on monitor or approximately 103 kPa (1.0 bar) (15 psi) on gauge. Failure to maintain this pressure can result in damage to air springs.

PB21958,00001F5-19-08JUL20

Record Serial Numbers



A68393—UN—28JUL10



A31857—UN—13MAR89

Radar Serial Number

A50245—UN—12SEP02

Seed Monitor Drive Controller

PX03972,000185C-19-27APR20

Index

S

T

U

V

W

Z