DCY

GS2 Display—Basic Applications

OPERATOR'S MANUAL

GS2 Display—Basic Applications

OMPFP10231 ISSUE E0 (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 Ag Management Solutions
(This manual replaces OMPC21674)

OMPFP10231

Introduction

www.StellarSupport.com

NOTE: Product functionality may not be fully represented in this document due to product changes occurring after the time of printing. Read the latest Operator's Manual and Quick Reference Guide prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com

OUO6050,0000FB1 -19-05APR10-1/1

Read This Manual

Before operating display/software, familiarize yourself with components and procedures required for safe and proper operation.

IMPORTANT: The following GreenStar components are not weather-proof and should only be used on vehicles equipped with a cab. Improper use may void warranty.

- **Original GreenStar Display and Mobile Processor**
- **GS2 Display**
- **AutoTrac Universal Steering Kit**

JS56696,0000491 -19-06OCT08-1/1

Contents

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

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Recognize Safety Information

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

Follow recommended precautions and safe operating practices.

T81389 —UN—07DEC88

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

Understand Signal Words

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

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

TS187 —19—30SEP88

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

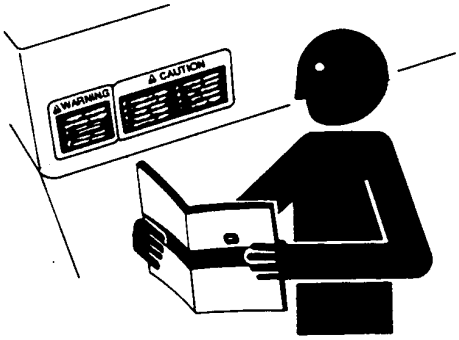
Follow Safety Instructions

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

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.



TS201 —UN—23AUG88

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

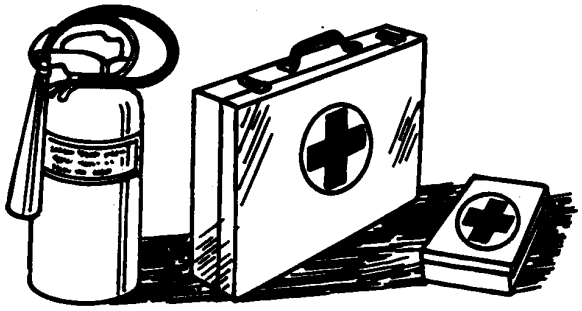
DX,READ -19-16JUN09-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 —UN—23AUG88

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

Practice Safe Maintenance

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

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

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

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

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

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

TS218 —UN—23AUG88

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

Read Operator Manuals for ISOBUS Implements

In addition to GreenStar Applications, this display can be used as a display device for any implement that meets ISO 11783 standard. This includes capability to control ISOBUS implements. When used in this manner, information and implement control functions placed on the display are provided by the implement and are the responsibility of the implement manufacturer. Some of these implement functions could provide a hazard either to the Operator or a bystander. Read the operator manual provided by the implement manufacturer and observe all safety messages in manual and on implement prior to use.

NOTE: ISOBUS refers to the ISO Standard 11783

JS56696,0000490 -19-13OCT09-1/1

Handle Global Positioning Receivers and Brackets Safely

Falling while installing or removing a global positioning receiver can cause serious injury. Use a ladder or platform to easily reach a mounting location.

Use sturdy and secure footholds and handholds. Do not install or remove the receiver in wet or icy conditions.

The receiver mast used on implements is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform. Use proper lifting techniques and wear proper protective equipment.

TS249 —UN—23AUG88

DX,WW,RECEIVER -19-08JAN08-1/1

Implement Detected Warning

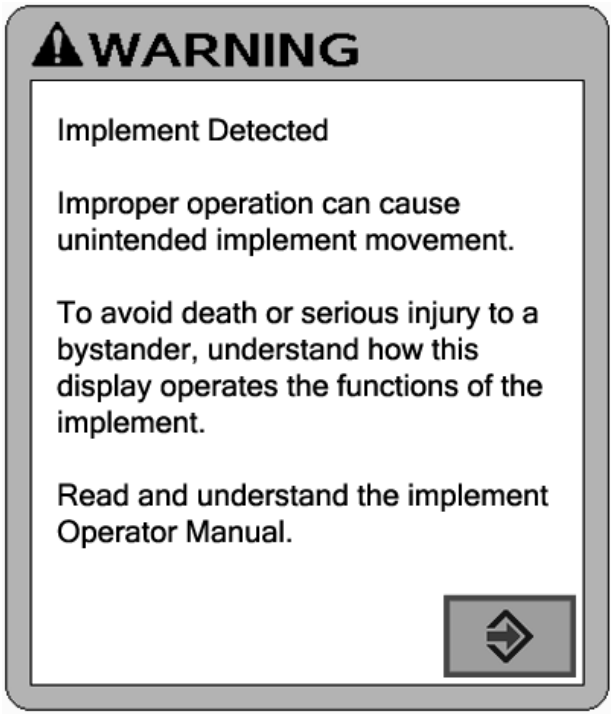
CAUTION: Implement Detected

Improper operation can cause unintended implement movement.

To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.

Read and understand the implement Operator Manual.

This message occurs when the system detects an ISOBUS implement. For more information, see READ OPERATOR MANUALS FOR ISOBUS IMPLEMENTS in the Safety section.



PC10339 —UN—23SEP07

OUO6050,0000E6B -19-06OCT08-1/1

Auxiliary Control Safety Signs

Auxiliary Control Detected

CAUTION: Auxiliary Control Detected

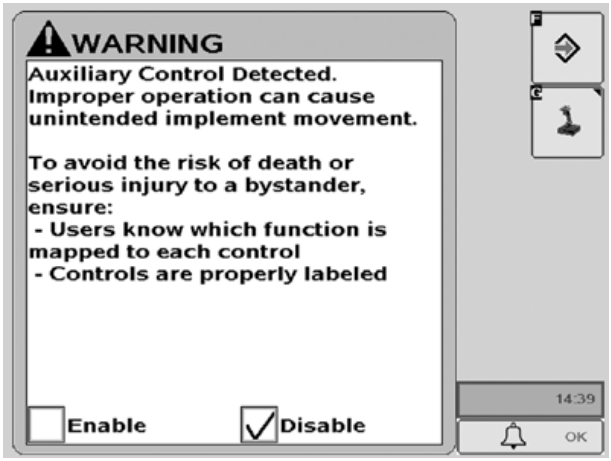
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control. Press ”Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the ”Mapping” key **G** to review or change the Auxiliary Control assignments.

If ”**Disable**” is selected (default), all Auxiliary Controls will be disabled.



ZX1042319 —UN—04DEC08

If ”**Enable**” is selected, all Auxiliary Controls will be enabled.

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OUO6050,0001224 -19-28OCT09-1/4

Auxiliary Control Detected

CAUTION: Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

Improper operation can cause unintended implement movement.

This message occurs when the system detects an Auxiliary Control and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the ”Mapping” key **G** and review the assignments before Auxiliary Control can be enabled.

PC10857RT —UN—22OCT09

OUO6050,0001224 -19-28OCT09-2/4

Auxiliary Control Configuration Changed

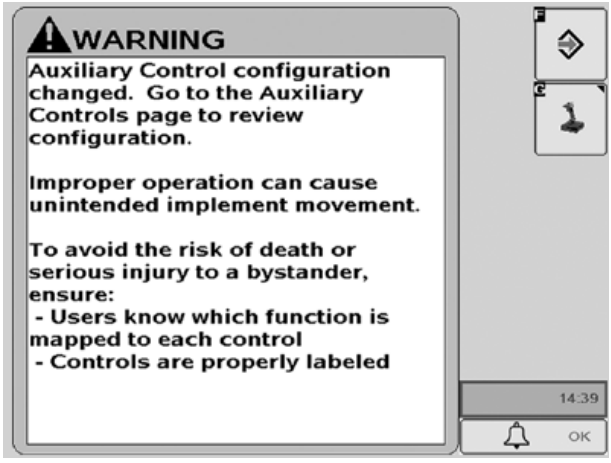
CAUTION: Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control and that configuration has been modified during run time (e.g. additional input and/or implement added). Press ”Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the ”Mapping” key **G** to review or change the Auxiliary Control assignments.



ZX1042512 —UN—04DEC08

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OUO6050,0001224 -19-28OCT09-3/4

Auxiliary Control Configuration Changed

CAUTION: Auxiliary Control configuration changed. Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

This message occurs when the Auxiliary Control configuration has been modified during run time (e.g. additional input and/or implement added) and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the ”Mapping” key **G** and review the assignments before Auxiliary Controls can be enabled.

PC10857RU —UN—22OCT09

OUO6050,0001224 -19-28OCT09-4/4

Updating Software

GS2 Live Update

Before running GS2 Live Update, make a backup copy of your data card content. To create a backup of your data, save a copy of the files from your flash card to your PC.

John Deere AMS develops software updates, system enhancements, and performance improvements for your GS2 display, as well as many other components.

The GS2 Live Update is a desktop software application that automatically alerts you of recent updates to your GS2 system, and walk you through the downloading process. To install the GS2 Live Update, insert the CD into your CD ROM drive and follow the on-screen prompts. If no prompts appear, double click My Computer, and find the drive associated with your CD ROM drive. Run the program labeled “GS2LiveUpdateSetup.exe.”

OUO6050,0000C65 -19-26AUG09-1/1

Loading Software

IMPORTANT: If changes are made while machine is in auxiliary mode, turn key off and wait for display’s power light to turn off before starting the ignition. This allows display to shut down and save data.

IMPORTANT: Do not turn off power or remove data card while display is reprogramming. Doing so can damage display and put software in an irrecoverable state.

Verify that display has the latest software available. To acquire the latest software visit StellarSupport.Deere.com or contact a John Deere dealer.

After new software has been downloaded to data card, simply insert data card in display and system will show a screen prompting operator to reprogram display. If operator does not choose to reprogram system, reprogramming alarm will appear during every power-up cycle if the data card is still inserted.

- To install this software update, press the button to continue.
- Updating software—Alert: Do not power down display or remove card.
- The update was successfully installed. Press the button to continue. Please cycle power.
- The system is restarting, please wait.

If software update was unsuccessful this message will be given: The software update was unsuccessfully. See the message center.

To manually load a different software version to a component:

- Choose component from list on Message Center—Reprogram Device Screen.
- Push REPROGRAM DEVICE button.
- Choose software version from the drop-down box and press enter.

OUO6050,0000C66 -19-27OCT09-1/1

Theory of Operation

IMPORTANT: It is important to follow proper use guidelines with the touchscreen on the 2600 GS2 display. Do not contact the touchscreen with an object harder or sharper than a fingertip (pen, pencil point, or any metal objects). Heavy pressure can also damage underlying components and void the touchscreen warranty. Light amounts of pressure, if exerted continuously, can degrade touchscreen reliability. Store the display near room temperature during the off season and in the original shipping container with no items contacting the touchscreen surface.

The display is primarily used as an operator interface for guidance and documentation applications.

The primary navigational point of the display is the touchscreen which allows the operator to input information by touching the screen. The 2600 can also use the display control which allows use of input buttons and thumb wheel.

GreenStar Basics Software

The display comes standard with a basic software feature set:

- Manual Guidance
- Documentation (field and harvest)
- On-Screen Mapping
- Prescriptions
- ISOBUS VT functionality

When connected to a GPS receiver, the system allows the operator to drive vehicle with the aid of GPS. When combined with an optional AutoTrac activation, and vehicle steering kit, system can automatically guide machine though the field.

Documentation can be used to record data tied to GPS coordinates. On some machines, rates, yield, implement width, or other information is recorded from the vehicle CAN Bus. The displays can also be connected to certain 3rd-Party control units to record rate information. This data is collected on the compact flash card and can be unloaded into desktop software to produce maps and reports of field activities.

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

On-screen mapping uses GPS, and a recording source to create real-time maps of field activities. Operators are able to see the areas or the as applied maps of the field they have covered.

Original GreenStar Monitor function can be used to operate selected John Deere implements as they would normally be used with the original GreenStar display. The 2600 is also mounted in tandem with an original GreenStar display. In this configuration, John Deere machine-specific information displays on the original GreenStar display, and GS2 Basics applications is shown on the 2600.

The 2600 display has an integrated performance monitor that can be used to record area and other data based on implement width and ground speed.

Display can also be used for machines and systems that conform to implementation level 2 of International Organization for Standardization ISO 11783. The purpose of ISO 11783 is to enable electronic units to communicate with each other providing a standardized system that is easy to read and understand. The operator can use the display as a tractor performance monitor and a monitor for an ISO 11783 compliant implement.

Software updates are published at www.StellarSupport.com. Each display also comes with a GS2 Live Update CD. Live Update can be installed on an internet connected PC and alert the user when updates to the display are available. Live Update guides the user through the downloading process. The download is stored on a data card, and inserted into the display to complete the update.

OUO6050,0000C67 -19-25NOV08-1/1

Front of Display

Display (A) is located in cab and allows the operator to view instantaneous information from seat while operating the vehicle.

LED (B) indicates power mode of display:

Cold boot progress bar is green with a yellow outline. LED is orange for a split second then solid green.

Cold boot-up occurs when the GS2 display has been powered down for over 6 hours. It takes 60—80 seconds to power up, regardless of switched or unswitched power condition

Warm boot progress bar is yellow with a green outline. LED is orange for a split second then solid green.

Warm boot-up occurs when the GS2 display has been operating in the last 6 hours and has NOT lost unswitched power during that time. It takes 20—30 seconds to power up.

Shutting Down or Standby mode LED is orange.

IMPORTANT: If LED is FLASHING ORANGE and the screen is blank, an out of range temperature condition is detected. Turn unit off to prevent damage to the display.

Recommended Temperature Ranges:

Operating Temperature

-20°to 70° C (-4°to 158° F)

Storage Temperature

-55°to 85° C (-4°to 185° F)

PC8572 —UN—03AUG05

Display

A—Display **B—LED (Power Light)**

If LED is RED, the unit is not operational. Turn unit off. The display has encountered an error or issue and is working to recover.

IMPORTANT: Always clean screen display with power off. Cleaning screen while operating could result in unintended button selections.

To clean display, power down and wipe screen with a soft cloth sprayed with a non-ammonia based cleaner such as John Deere glass or multipurpose cleaner.

OUO6050,0000C68 -19-31OCT07-1/1

Screen Protector

The use of a screen protector is recommended to prevent wear to the touchscreen surface. Screen protector kits, made specifically for GS2 displays, can be purchased through your local John Deere dealer.

Screen protector has been pre-installed on the touch panel of your display. Removing protector reduces the sunlight readability of the display. Please see instructions for replacement when necessary.

PC9779 —UN—17JAN07

OUO6050,0000E08 -19-26AUG09-1/1

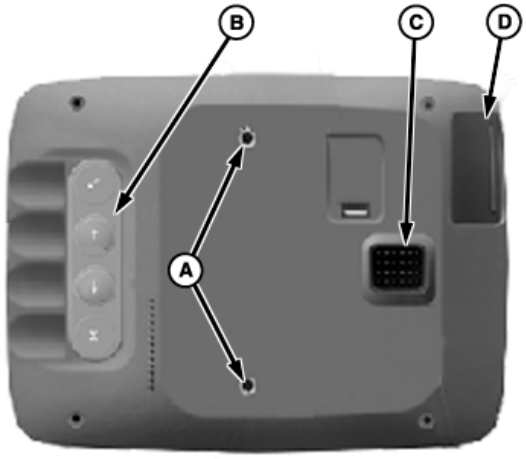
Back of Display

Backside of Display contains:

- Display Mounting Holes—attach to bracket on machine
- Secondary Navigational point—provides backup navigation with display
- Data Card Door/Slot—houses data card used for data collection and saving selected display and implement settings.
- Display Connector—connects vehicle wiring harness plugs with display for system power and communication.

NOTE: Backside of display will have label with display model and serial number on it.

A—Display mounting holes
B—Secondary navigation
C—Display connector
D—Compact Flash door



PC8863 —UN—02NOV05

Backside of Display

OUO6050,000229C -19-06OCT08-1/1

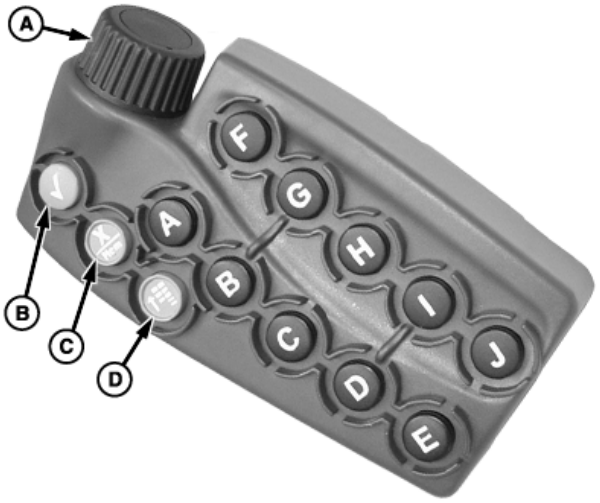
Display Control

CAUTION: Do not mount display control on the side of dual displays (2600 and GSD4). This blocks the operator's view and overloads the bracket. Mount the display control elsewhere.

The display control is the secondary navigational point on the GreenStar Display.

The display control contains 10 available short-cut softkeys A-J, Thumb Wheel (A), ENTER button (B), CANCEL button (C), and MENU button (D).

A—Thumb Wheel
B—ENTER button
C—CANCEL button
D—MENU button



PC8864 —UN—09JAN06

Display Control

OUO6050,0000C6A -19-28OCT09-1/1

Display Secondary Navigation

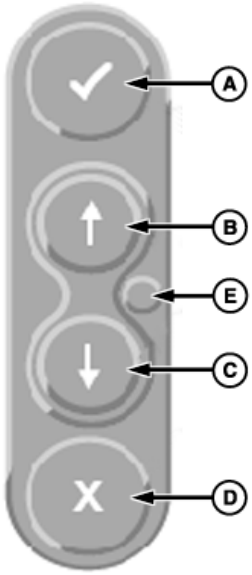
Secondary display controls consist of five buttons located on backside of display. They provide backup navigation in the event that the primary display controls are not communicating with display.

ENTER button (A) and CANCEL button (D) operate the same as they do on the primary display controls.

Up Arrow (B) and Down Arrow (C) simulate thumb wheel operation on display control.

DISPLAY RESET button (E) resets display without cycling power on vehicle. Hold for 3 seconds to reboot.

A—Enter
B—Up arrow
C—Down arrow
D—Cancel
E—Display reset



PC8580 —UN—17AUG05

Display Secondary Navigation

OUO6050,000229E -19-20NOV06-1/1

Data Card

IMPORTANT: Do not remove 12 volt power from display until the LED light is black. Prematurely removing power (green or orange light status) may cause loss of data and/or the display to lose functionality. It may take up to 20 seconds after removing key power for the LED light to completely go black. The data card should not be removed during this period also.

IMPORTANT: Data card must be in display during operation or system functionality will deteriorate.

IMPORTANT: Do not remove data card while display is reprogramming. Doing so can damage display and put software in an irrecoverable state.

Any time machine configuration changes are made, the power must be cycled on the display to allow changes to take place.

After configuring machine and implement setup, make sure key power is turned off and LED light is able to go to black before operating in the field. This will allow all setup information to be saved to the data card.

PC8865 —UN—02NOV05

Data Card in Display

A—Data card

Steps for Data Card Insertion

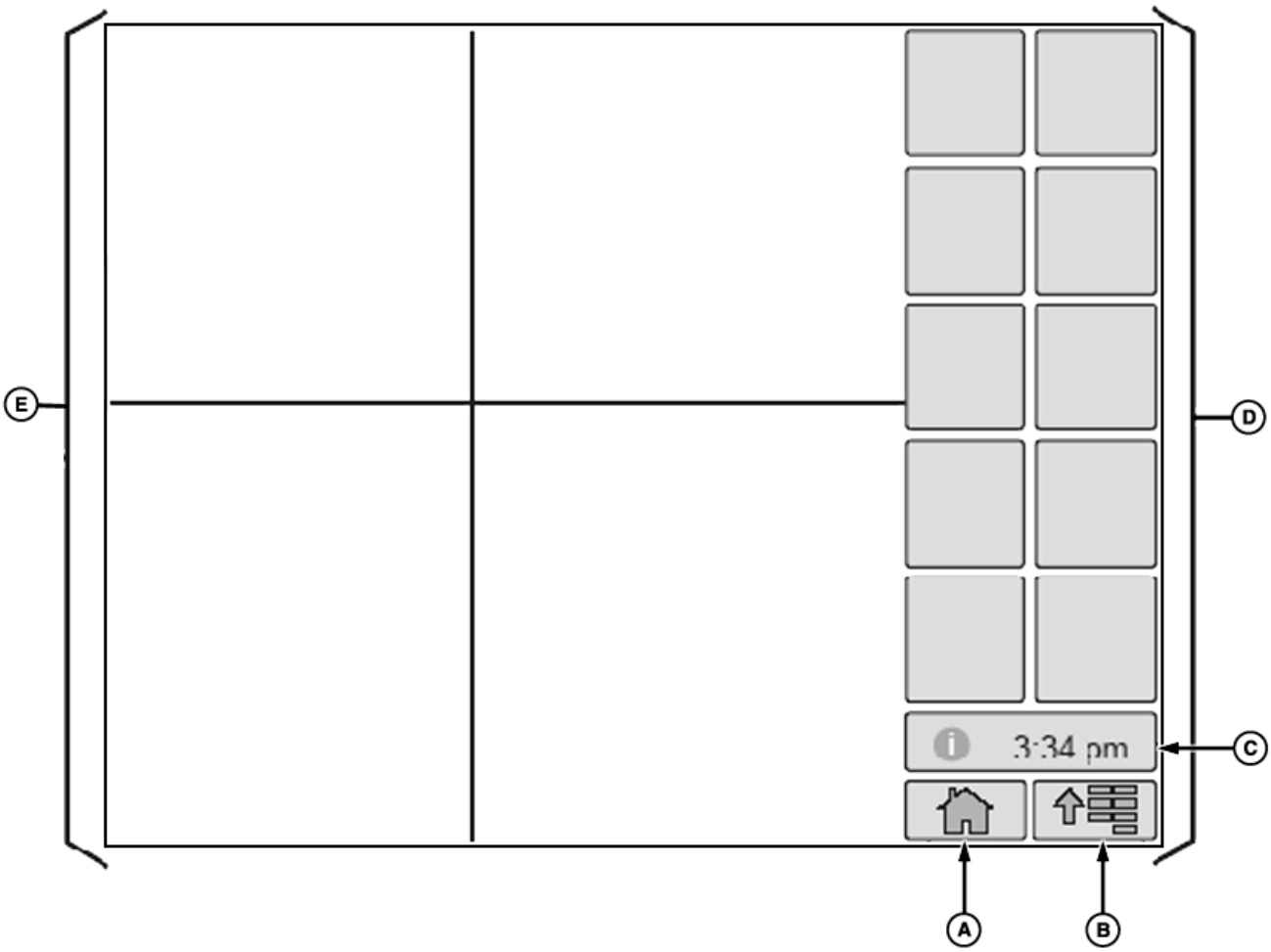
1. Open the card slot door by pressing forward on the door latch tab, and continue to press forward until the door springs open.
2. Wait for message stating that Data Card can be ejected.
3. The side of the data card that has the ridge along the bottom edge should be facing the operator as it is inserted. It cannot be inserted with the opposite side facing the operator.
4. Press the data card into the slot until it clicks into place and pushes the eject button all the way out. It has a similar feel to inserting a PCMCIA card into a Mobile Processor.
5. Close the card slot door.

Steps for Data Card Removal

1. Open the card slot door.
2. Wait for message stating that Data Card can be ejected.
3. Press the eject button located directly below the card slot inside the card slot door. This is very similar to removing a PCMCIA card from a Mobile Processor.
4. The data card will pop out enough to grab it with your fingers and remove it from the card slot.

OUO6050,000229F -19-28OCT09-1/1

Screen Layout



Screen Layout

A—Home
B—Menu
C—Message Center
D—softkeys
E—Application Info Area

NOTE: Display screen illustrated on following pages are provided for reference only. Actual screens may appear differently due to connection of optional devices and/or software versions.

Home (A), Menu (B) and Message Center (C) selections will be on every screen.

- Home selection—allows operator to view Home Page.
- Menu selection—allows operator to view a list of available applications.
- Message Center selection—allows operator to view alarm messages and diagnostic information. (See SETUP MESSAGE CENTER in Display Message Center section.)

Selecting one of the softkeys (D) will cause a new page to appear or a process to be started.

OUO6050,00022A0 -19-28OCT09-1/1

Power Up

IMPORTANT: Do not remove 12 volt power from display until the LED light is black. Prematurely removing power (green or orange light status) may cause loss of data and/or the display to lose functionality. It may take up to 20 seconds after removing key power for the LED light to completely go black. The data card should not be removed during this period also.

IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. This will ensure the setup data is saved to the data card prior to operating.

If the vehicle is running during setup and programming, turn the vehicle off with key in the OFF position and wait 30 seconds before restarting. This ensures that all data is saved to the data card.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

IMPORTANT: If changes are made while machine is in auxiliary mode, turn key off and wait for display's power light to turn off before starting the ignition. This allows display to shut down and save data.

IMPORTANT: Data card must be in display during operation or system functionality will deteriorate.

During power up of display, a start-up screen will show a status bar that indicates display is powering up. Once the display has powered up, if no implement is connected, a default performance monitor screen will be shown. If an ISO implement is connected, that implement's information will be shown in application info area along with 10 softkeys.

Input Fields

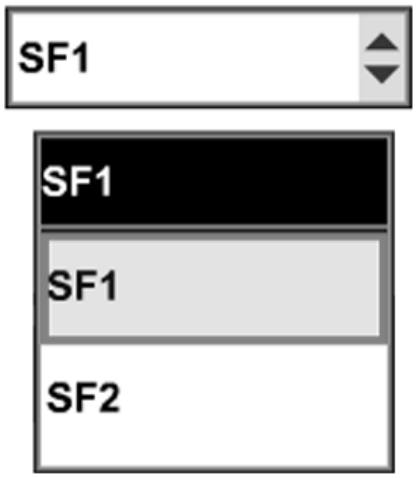
There are a variety of input fields and buttons that allow the operator to navigate through the screens on the display and input values:

- Drop-Down Box
- Input Box
- Check Box
- Button

Fields are selected by touching screen. Key pad will appear to input alpha/numeric data.

Drop-Down Box

PC8845 —UN—30OCT05



PC8846 —UN—30OCT05

A drop-down box has a border with a numeric or text value and up/down arrows on the right side that allow operator to select a pre-populated item in a list.

To open, highlight drop-down box and press ENTER button. List will appear. Rotating thumb wheel will allow operator to move highlight focus through list to desired input value. Pressing ENTER button will select new value.

To close the drop-down box without making a selection, press CANCEL button. List will close and original value will remain.

Continued on next page

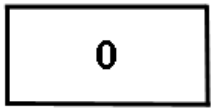
Input Box

An input box has a border with a numeric value or text. This allows the operator to select and enter new values or text.

To change a value, highlight Input box and press ENTER button. To cancel out of an input box, press CANCEL button to keep the original value.

A numeric key pad will appear, allowing selection of each digit.

PC8847 —UN—30OCT05



Display uses a pop-up keyboard to enter values.

OUO6050,00022A1 -19-28OCT09-2/5

Check Box

A check box is a square with a border. A check mark in the box indicates that the box is activated.

To activate a check box, highlight empty check box and press ENTER button. A check will appear inside box activating item. To deactivate a check box, highlight check box and press ENTER button to remove the check.

PC8686 —UN—09AUG05

OUO6050,00022A1 -19-28OCT09-3/5

Button

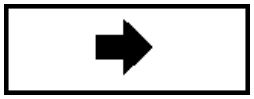
A button is an icon or text with a border. Activating a button will perform that icon's function.

To activate a function, highlight the button and press enter.

PC8649 —UN—01NOV05

ENTER

PC8650 —UN—01NOV05



GOTO

OUO6050,00022A1 -19-28OCT09-4/5

Selecting Input Field with Display Control

THUMB WHEEL (A)— move highlight or focus

ENTER (B)—allows operator to select input fields, buttons, or softkeys.

CANCEL (C)—cancels operator's selection or exits from selection process.

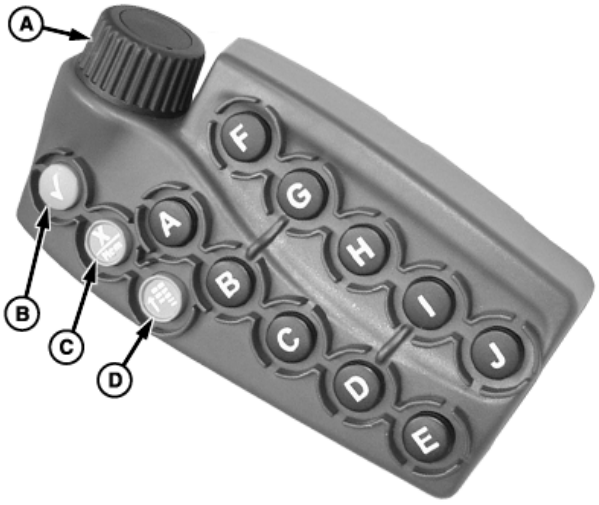
MENU (D)—displays menu list

Short-Cut Buttons A-J—allow operator to activate an associated input field, button, or softkey with the letter corresponding to the short-cut button pressed.

NOTE: Only input fields or softkeys will show a Highlight/focus around it.

NOTE: The 2600 GreenStar Display's primary navigational point is the touchscreen which allows the operator to input information by touching the screen.

To activate and select an input field, move highlight/focus with thumb wheel to desired function and press ENTER button.



PC8864 —UN—09JAN06

Display Control

A—Thumb wheel
B—ENTER button
C—CANCEL button
D—MENU button

JS56696,00004EB -19-25NOV08-1/1

Display Software Activations

The display comes preloaded and activated with GreenStar Basics Software which includes:

Documentation

- Guidance
  - Parallel Tracking
- Documentation
  - Harvest Doc
  - Map Based Prescriptions
  - Field Doc including (Field Doc Sprayer, Field Doc Planter, Field Doc Air Cart, and Field Doc Connect)

Software activations are required to operate AutoTrac and can be purchased from you local John Deere Dealer.

Items REQUIRED to Activate AutoTrac

1. Display Serial Number (Found in display)
2. Display Challenge Code (Found in display)
3. Comar order number (from dealer once order is placed)
4. Visit StellarSupport.Deere.com to obtain a 26 digit activation code.

Current Purchased Software Activation options are as follows:

- SF1 AutoTrac — +/- 33 cm (+/- 13 in.) at receiver
- SF2 AutoTrac— +/- 10 cm (+/- 4 in.) at receiver
- SF1 to SF2 AutoTrac upgrade
- Pivot Pro (AutoTrac Circle operation for center pivots, requires an AutoTrac activation first)
- Swath Control Pro

The display software activations (Pro-Modules) are 26 digit pin numbers that are separate from the StarFire 24 digit GPS activation number. The display software is only activated once for the life of the display and requires no other fees.

OUO6050,00022AA -19-24OCT08-1/1

Obtaining Activation Code & Activating Software In Display

NOTE: The display Serial Number and Challenge Code are found at MENU button > GREENSTAR2 PRO button > GS2 button > ACTIVATIONS tab

Get the 6-digit Comar order number from your dealer for the GS2 Pro package you have purchased (AutoTrac, PivotPro, SwathControl Pro).

Get the serial number and challenge code from the display.

Go to www.StellarSupport.com and select ACTIVATIONS AND SUBSCRIPTIONS.

Select GREENSTAR2 > ACTIVATE AUTOTRAC, then follow the GreenStar2 Software Activation prompts to obtain the 26-digit code.

On the display, go to: MENU > GREENSTAR2 PRO button > GREENSTAR2 PRO button > ACTIVATIONS tab

Input the activation code.

Display shows as Activated in the Pro Module area.

The Display Software Activation Process is completed. Keep in mind if you have purchased SF2 level AutoTrac, you are required to also activate the StarFire receiver to an SF2 level. The StarFire is a separate 24 digit activation for SF2 and RTK.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8675 —UN—14OCT05

GREENSTAR2 PRO button

OUO6050,00022AB -19-01SEP09-1/1

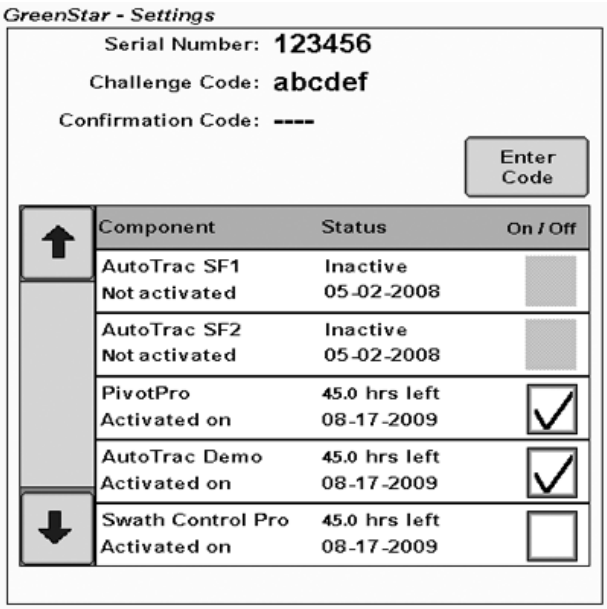
Managing Activations

The buttons and functions corresponding to each GreenStar Pro Module activation may be shown or hidden by checking the ON / OFF checkbox for each activation. The box must be checked to use the corresponding Pro Module. By turning OFF activations that are not being used, the corresponding buttons and functions will be hidden, making the display simpler to navigate.

Demo Activations are available to try out each Pro Module for 15 hours of use. The AutoTrac Demo is turned on by default. To try another Demo, such as Swath Control Pro, turn it on and the Swath Control buttons and functions will show up on the display if an implement controller capable of that Pro Module is connected.

Go to GreenStar Main >> Settings >> Activations

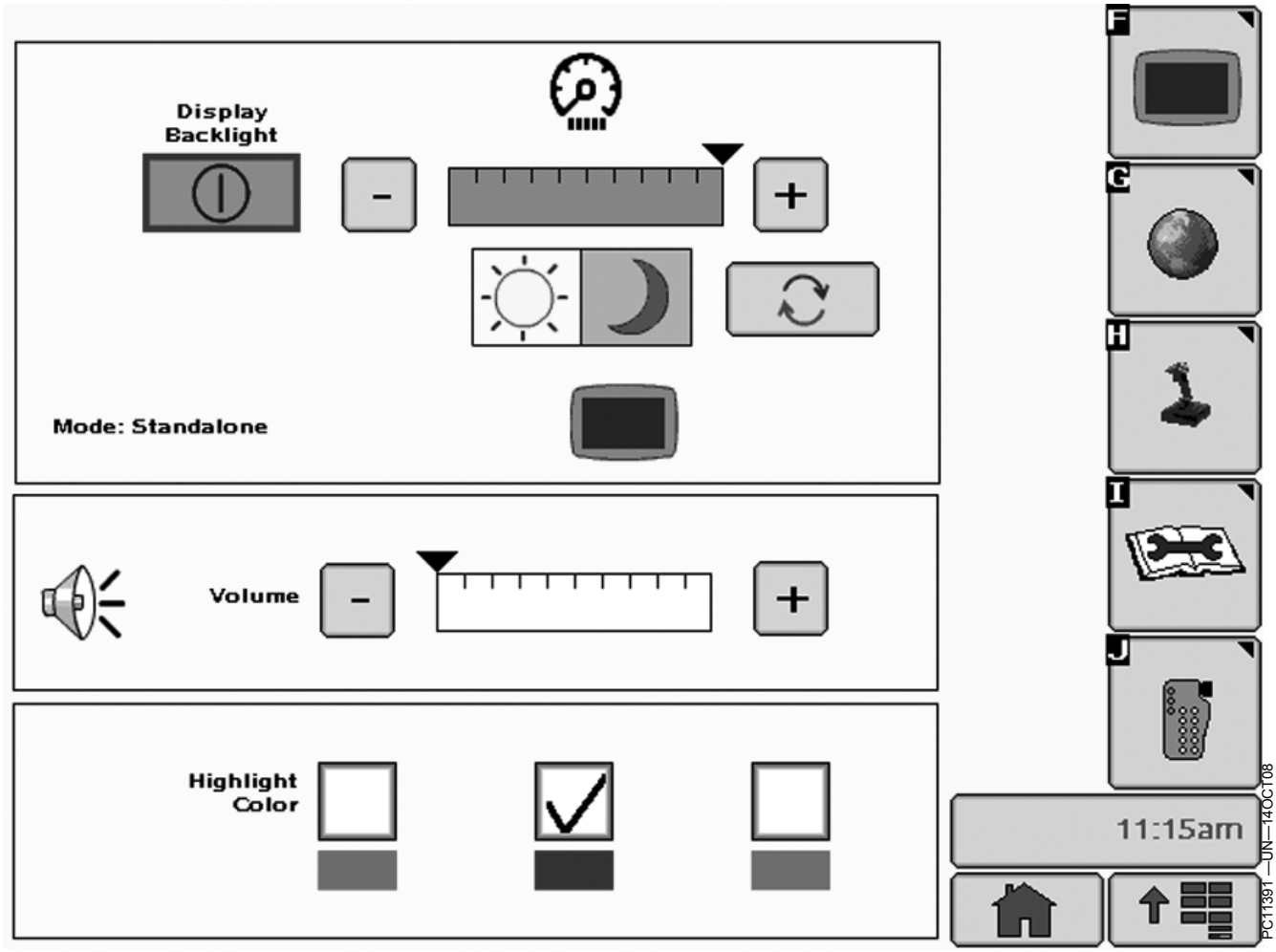
IMPORTANT: Turning a Demo Activation OFF will not stop the activation time from counting down if the corresponding function has been setup and started. It will simply hide the corresponding buttons.



PC10857QY —UN—24SEP09

OUO6050,0001279 -19-26APR10-1/1

DISPLAY softkey



Display - Main

When display is initially installed in a vehicle, it will have a default setting for all features. Operators have the ability to change these settings to fit their needs. Once these settings are changed, they will be saved and retained through each power cycle.

Continued on next page

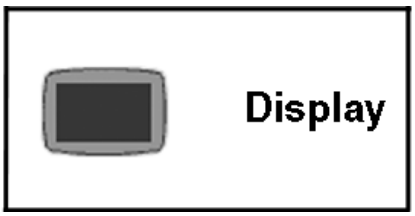
OUO6050,00022AC -19-28OCT08-1/8

Go to MENU >> DISPLAY button >> DISPLAY softkey

PC8663 —UN—05AUG05

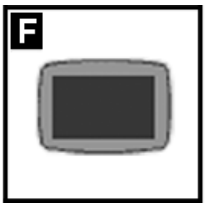
MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC11393 —UN—14OCT08



DISPLAY softkey

OUO6050,00022AC -19-28OCT08-2/8

PANEL DIM button allows operator to quickly darken screen with one button push. When the operator engages the panel dim feature the screen temporarily darkens in order to reduce glare. Screen will resume normal brightness when an alarm condition exists or when operator touches screen (2600 only) or activates any button on display control.

NOTE: To exit Panel Dim, press any button on display control or turn thumb wheel.

PC11437 —UN—24OCT08

PANEL DIM button

OUO6050,00022AC -19-28OCT08-3/8

BRIGHTNESS button can be changed by selecting PLUS or MINUS button.

PC11440 —UN—28OCT08

BRIGHTNESS button

Continued on next page

OUO6050,00022AC -19-28OCT08-4/8

NOTE: Sync with Cab feature only functions on selected vehicles.

Sync with Cab check box, when activated, allows the GreenStar display to control the brightness of other displays within the vehicle cab. Deselecting check box will allow only display to lighting to change with no effect on other cab displays and lights. If deactivated, the

PC8686 —UN—09AUG05

Sync With Cab Check box

brightness controls will only influence the GreenStar display.

OUO6050,00022AC -19-28OCT08-5/8

DAYLIGHT/NIGHTLIGHT button allows operator to quickly change screen with one button push. control.

PC8693 —UN—09AUG05

DAYLIGHT/NIGHTLIGHT button

OUO6050,00022AC -19-28OCT08-6/8

Volume can be changed by selecting either + or - button.

NOTE: Highlight color is defaulted to red at initial power-up of display.

PC11438 —UN—24OCT08

VOLUME button

OUO6050,00022AC -19-28OCT08-7/8

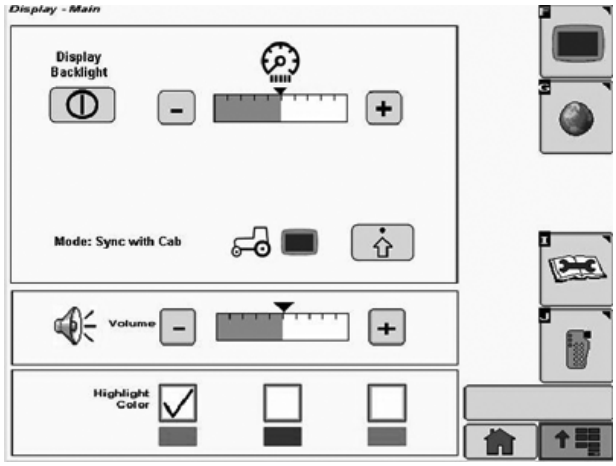
Highlight/Focus Color can be changed by selecting desired color (red, blue, green).

PC8686 —UN—09AUG05

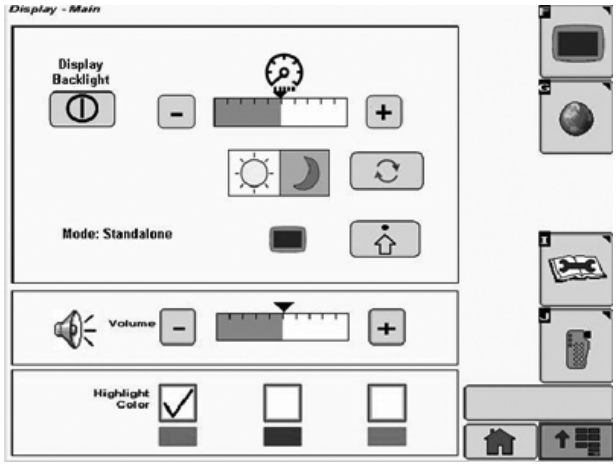
Highlight/Focus Color

OUO6050,00022AC -19-28OCT08-8/8

Display Brightness Control



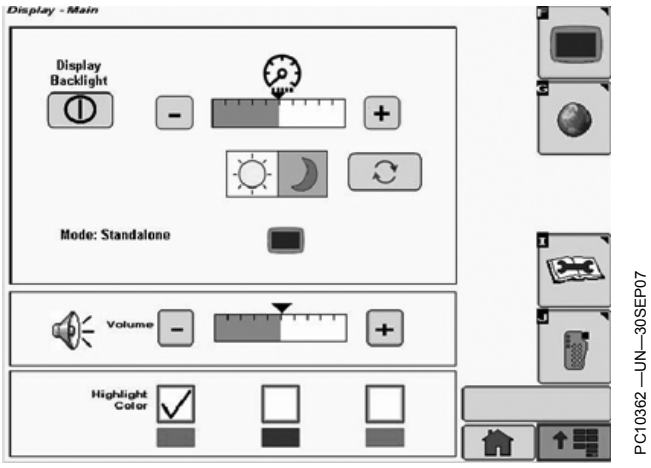
Display - Main Page - Synchronization with Cab Enabled



Display - Main Page - Synchronization with Cab Disabled

There are three modes that the display backlighting can be in. The Display - Main page will layout will change slightly based on the display's mode.

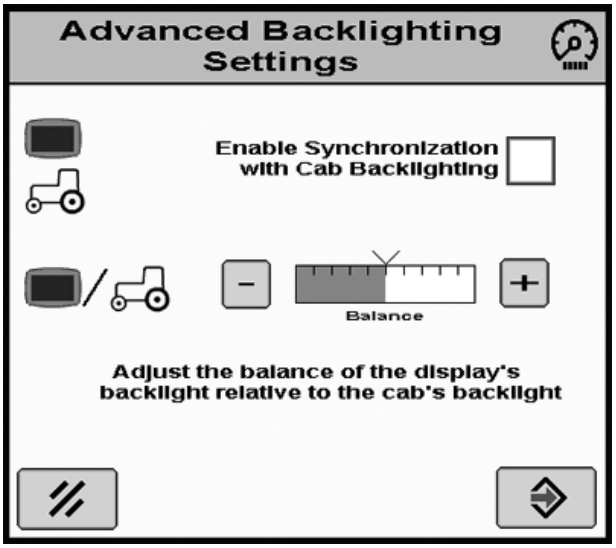
- Standalone—Display backlight is controlled independently.
- Sync with Cab—Display backlight can be controlled in sync with the master backlight switch of a compatible vehicle system. In certain John Deere cabs, the display will also be capable of controlling the cab backlighting when adjustments are made.
- Sync with Cab disabled—It behaves like Standalone Mode but status description changes to reflect the Sync with Cab capabilities are available.



Display - Main Page - Standalone Mode (No Network)

Continued on next page

The Advance Display Settings button, found on Display - Main page, will open the Advanced Backlighting Settings page. The Advanced Backlighting Settings page allows the operator to enable synchronization with cab backlighting using a check box. When backlight is synchronized with cab, the operator can adjust the balance between the cab's backlight and the display's backlight using the sliding scale.



PC10363 —UN—30SEP07

PC10364 —UN—30SEP07

Advanced Backlighting Settings Button

OUO6050,0000E59 -19-31OCT07-2/2

SETTINGS softkey

IMPORTANT: To reprogram to another language, language being selected needs to be on data card. If language file does not load properly, reload software to data card.

NOTE: If vehicle loses battery power or if display is disconnected from vehicle Time and Date Settings will have to be reset.

The Settings screen contains three tabs:

REGIONAL tab

Country, Language, Numeric Format and Units can be selected. Use drop-down boxes and select desired measurements to be displayed on screen.

TIME AND DATE tab

Date and time can be changed, as well as time format. GPS Sync can be selected to automatically set the time using the time data coming from GPS receiver. When this is selected, user should choose proper time offset, which adjusted the GPS time data to correspond to your time zone, to ensure correct local time. Time Sync will not occur until GPS signal is acquired.

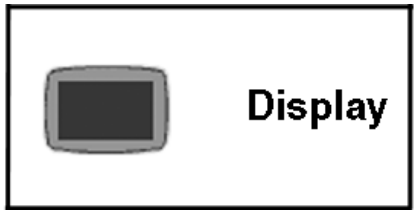
UNITS OF MEASURE tab

Users can customize units for a mix of metric and imperial units.

PC8663 —UN—05AUG05

MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC8690 —UN—09AUG05

SETTINGS softkey

OUO6050,00022AD -19-20NOV06-1/1

DIAGNOSTICS softkey

The Diagnostics screen contains three tabs:

- READINGS tab
- TESTS tab
- ABOUT tab

READINGS tab

This tab will display operating voltages, part numbers, and hours of operation.

TESTS tab

This tab will allow the user to perform 3 different screen calibrations—Color Test, Touchscreen Test, Touchscreen Calibration.

The main function under the tests tab will be Touchscreen calibration. Touchscreen calibration will be required when the screen icon does not align with the area depressed. This may be caused by normal wear and tear, age, certain weather conditions, and contaminants on the screen (chemicals, solvents, etc.).

Touchscreen Calibration:

1. Under the Touchscreen Calibration button a new screen will appear with an X in the upper right corner.
2. Press the screen at the X and continue to follow the X's around the screen. Always press the screen directly at the center of the X.

Reset Touchscreen calibration will abort any saved calibrations and allow the user to start over and perform a new calibration.

Color Test:

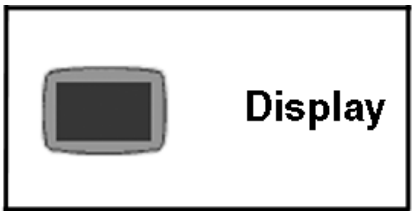
Under the Test button, select the color test. The color test will display 3 distinct colors on the display for approximately 5 seconds. If you do not see 3 distinct colors, contact your John Deere Dealer for service.

Touchscreen Test:

PC8663 —UN—05AUG05

MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC8683 —UN—05AUG05

DIAGNOSTICS softkey

Under the Test button, select the Touchscreen Test. This test will allow the user to identify a pixel problem on the screen.

1. As you touch the screen, a sighting target will show up on the area touched.
2. Continue to touch the screen around the area of suspected pixel malfunction and see if the sighting target appears.

If sighting target does not appear, contact your John Deere Dealer.

ABOUT tab

This tab is basic display background information.

OUO6050,00022AE -19-25NOV08-1/1

Connecting RS-232 GPS Receivers

NOTE: AutoTrac requires CAN GPS messages from an original StarFire receiver or StarFire iTC receiver.

Non-John Deere GPS receivers that output correct NMEA 0183 standard messages can be used for documentation and manual guidance on GreenStar application. It is critical that receiver is setup to output following messages:

- GGA
- GSA
- RMC setup at 19200 baud (This is fixed and Non-adjustable)
- Data Bits 8
- Parity none
- Stop 1
- Flow Control none
- 1 or 5 Hz output rate (Recommend operation at 5 Hz. Guidance requires 5 Hz.)

Without these messages, receiver will not function with GreenStar application.

A harness and installation instructions are available to connect DB9 port of receiver to correct pins of display connector. See a John Deere dealer for more information.

OUO6050,0000CE1 -19-31OCT07-1/1

RS232 Harness kit

The RS232 Harness kit (PF90363) can be utilized to aid installation when connecting third party controllers or a GPS receiver to the GS2 display. This kit comes with Instructions, Null Modem, Gender Changer and Harness. The harness is approximately 1829 mm (6 ft) long and consists of a DB9 connector at one end and 5 wires with female AMP pins attached at the other. These AMP pins will be inserted into the square 26 pin connector that attaches to the back of GS2 displays from harnesses PF80687 and PF80688.

If both a 3rd party controller and receiver will be connected to the GS2 simultaneously, two PF90363 kits may be required. The Original GreenStar Field Doc Connect harness is only compatible with GS2 through the harness. When using the original FDConnect harness, you must choose Com port 1 in documentation setup.

Documentation with third party controllers

The list of GS2 supported controllers are the same as with Original GreenStar Display and is available at your local John Deere dealer.

Two serial ports are available in the GS2 display: Port 1 and Port 2.

Connect DB9 connector to controller. Gender Changer and Null Modem are required when connecting to Rawson and New Leader controllers. Properly configure the controller to talk to GS2:

Raven Controller: under the data menu key verify that bAUD = 9600, triG = 1, Unit = sec, dLOG = ON.

Rawson or New Leader Controller: verify that the settings under the “Controller” button of the GS2 display match the information on the controller (i.e. Mid Point on the GS2 Display should be the same value as on the Rawson or New Leader controller). GS2 will control only one channel of Rawson controller for use with prescriptions.

NOTE: Set Rawson or New Leader controller to GPS Mode (under Mode Key) to enable serial port communication with controller.

Connecting a third party receiver

AutoTrac requires CAN GPS messages from an original StarFire receiver or StarFire iTC receiver. Non-John Deere GPS receivers that output correct NMEA 0183 standard messages can be used for documentation and manual guidance with a GreenStar application. It is critical that receiver is setup to output the following messages:

- GGA
- GSA
- RMC setup at 19200 baud (This is fixed and Non-adjustable)
- Data bits 8
- Parity none
- Stop bits 1
- Flow Control none
- 1 or 5 Hz output rate (Recommend operation at 5 Hz. Guidance requires 5 Hz.)

Without these messages, receiver will not function with GreenStar application. From the receiver manufacturer’s wiring diagram, determine which wires from the receiver are the signal transmit and signal ground. Verify that Receiver Transmit connects to Pin 3 of the DB9 connector and receiver ground connects to pin 5 of the DB9. Look at the front face of the connector to see the pinout number designation.

Pinout number are located on the back side of the connector (where the wires are inserted).

To Setup RS232 Serial Port 1 on a GS2 Display	
RS232 Wire	Display Connector Pin #
Blue	Pin 23 = Rx
Green	Pin 22 = Tx
White	Pin 25 = CTS
Red	Pin 24 = RTS
Black	Pin 2 = Ground

To Setup RS232 Serial Port 2 on a GS2 Display	
RS232 Wire	Display Connector Pin #
Blue	Pin 15 = Rx
Green	Pin 26 = Tx
White	Pin 17= CTS
Red	Pin 16 = RTS
Black	Pin 4 = Ground

1. Remove the square connector from the back of the GS2 display and from all power sources on the vehicle.
2. The square AMP 26-pin display connector has a built in pin locking mechanism.
   a. Locate the large single white locking tab.
   b. Using a flat screwdriver, depress this tab. It will depress approximately 3 mm (1/8 in.).
   c. Two tabs on the opposing side will become exposed once the single large tab is depressed.
   d. Once these two white tabs are exposed, the connector pins are unlocked.
3. Use the chart at the beginning of this instruction to determine the pin locations for the desired Serial Port you will utilize (for example: Serial Port 1 uses pin locations 2, 22, 23, 24, & 25). Pin location numbers are stamped into the black housing on the back of the connector.
4. Remove the white plugs for the correct pins you will add the RS232 wires to. The white plugs will pull out easily with small needle-nosed pliers.

Continued on next page

5. Insert harness wires into correct pin locations. You may need to utilize a needle-nosed pliers to push the connections forward through the orange seal in the connector.
6. Once you have all 5 wires pushed up flush to the front of the connector face, you need to lock the pins back in place by pushing down on the 2 white locking tabs until they are flush.

Configure GS2: needs to be configured to recognize the device connected to the Serial Port. Assigned the Serial Port

1. Go to Menu | GS2 Pro | Letter F (GS2 Pro—Main) and select the Memory tab. Select Assign Serial Port.
2. Select the Serial Port(s).
3. Select the option based on the device connected to the Serial Port(s).
4. Arrow forward to complete.

For additional information see the installation instruction that came with the RS232 adapter.

OUO6050,0000DAB -19-31OCT07-2/2

Central Insecticide System

MENU >> GREENSTAR2 PRO >> DOCUMENTATION >> Planting/Seeding Tab

PC8663 —UN—05AUG05

MENU Softkey

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

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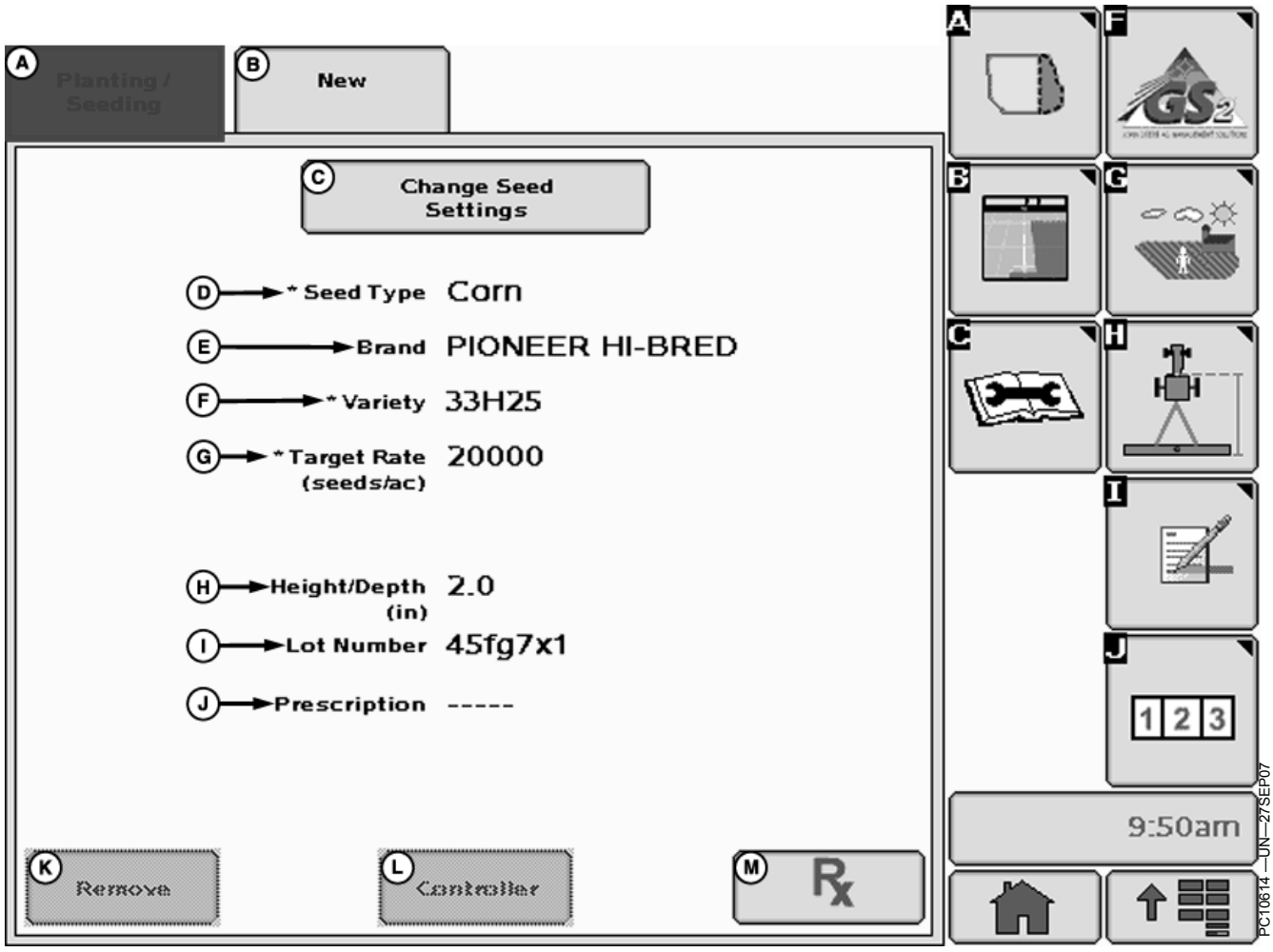
JS56696,000037A -19-27MAY09-1/6



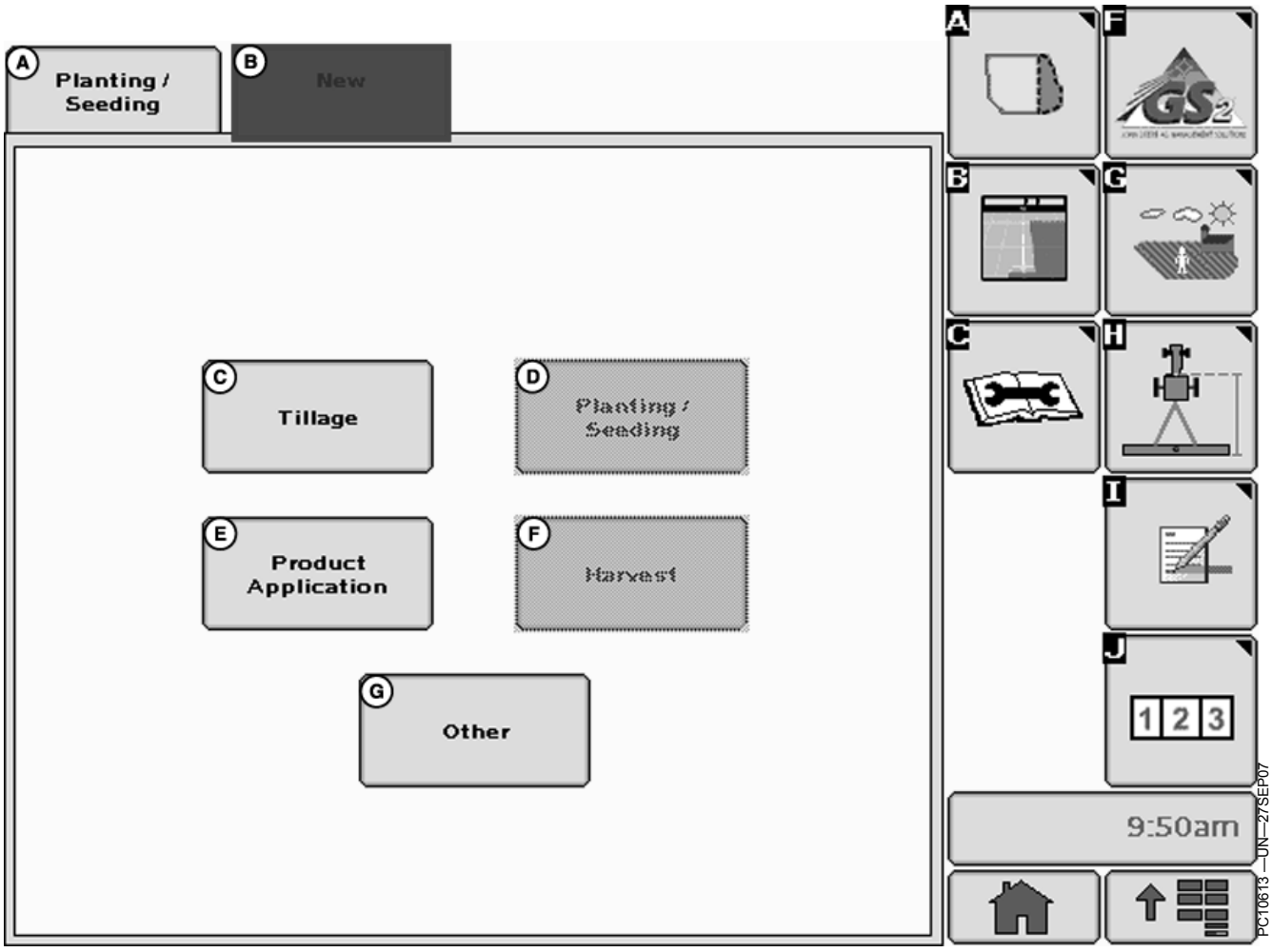
Planting/Seeding

A—Planting/Seeding Tab
B—New Tab
C—Change Seed Settings
D—Seed Type
E—Brand
F—Variety
G—Target Rate
H—Height/Depth
I— Lot Number
J— Prescription
K—Remove
L— Controller
M—Prescription

Seeding operation tab is auto generated when JD planter is on the bus. Specify all required information.

Continued on next page

JS56696,000037A -19-27MAY09-2/6



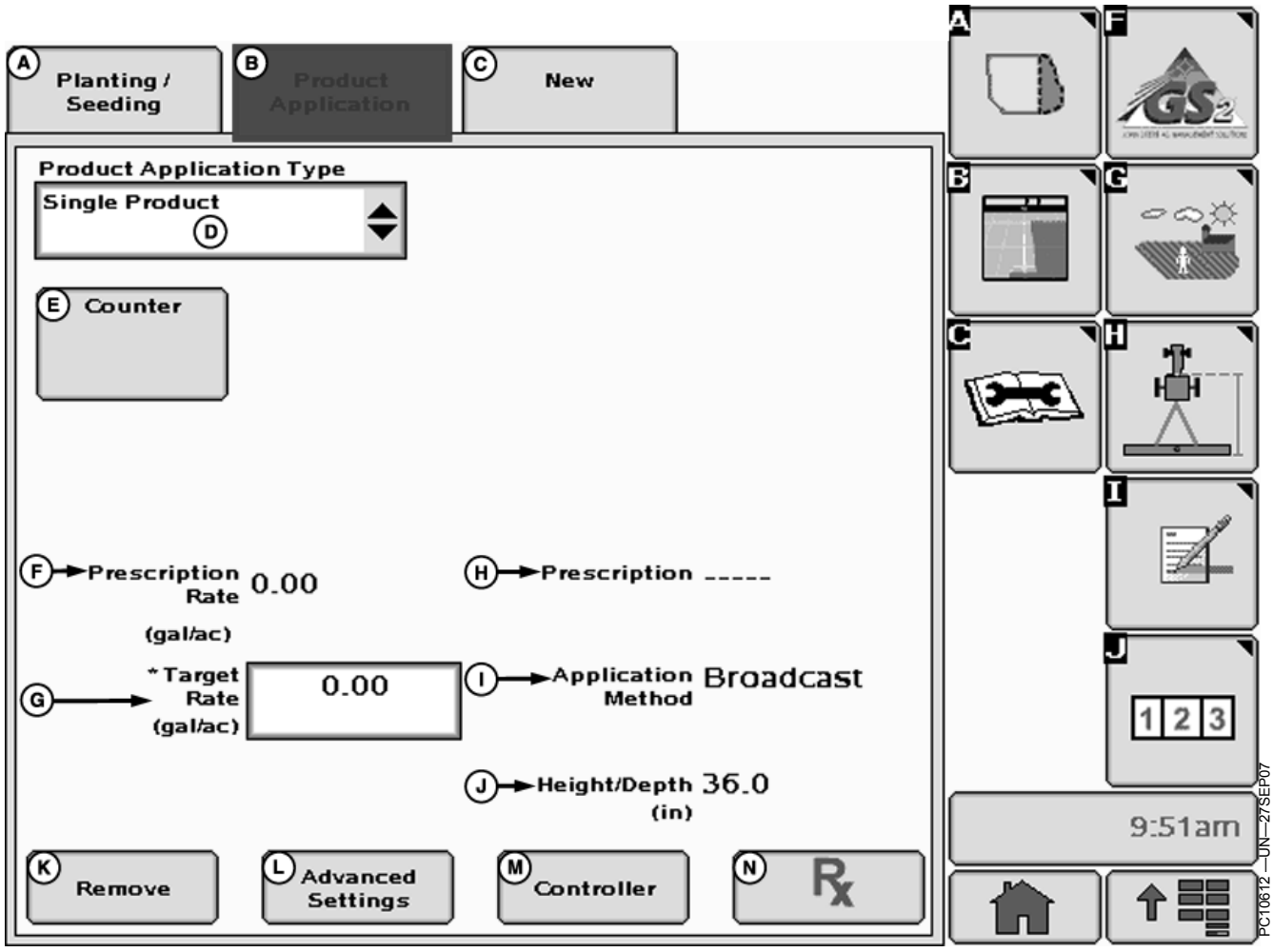
New Activity

A—Planting/Seeding Tab
B—New Tab
C—Tillage
D—Planting/Seeding
E—Product Application
F—Harvest
G—Other

Go to the New tab (B) and select a Product Application (E) operation for the CIS controller.

Continued on next page

JS56696,000037A -19-27MAY09-3/6



Product Application Summary Page

A—Planting/Seeding Tab
B—Product Application Tab
C—New Tab
D—Product Application Type
E—Counter
F—Prescription Rate
G—Target Rate
H—Prescription
I— Application Method
J— Height/Depth
K—Remove
L— Advanced Settings
M—Controller
N—Prescription

Fill out all required information on Product Application tab (B).

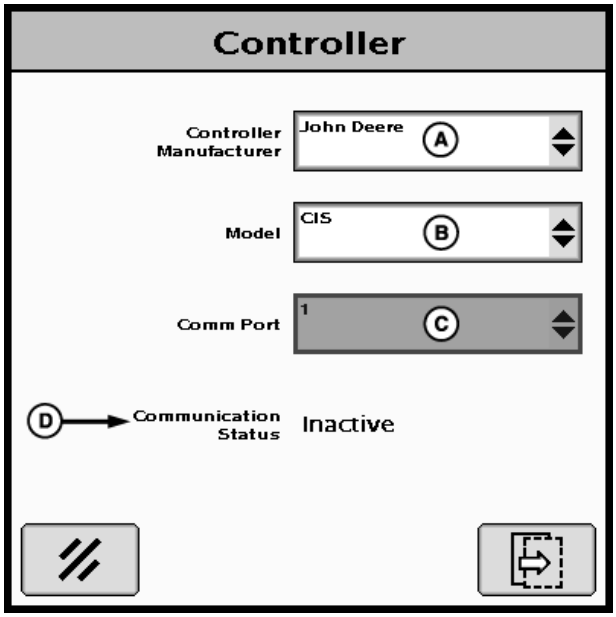
Press Controller button (M) to enter information about the controller being used.

Continued on next page

JS56696,000037A -19-27MAY09-4/6

Select the appropriate CIS manufacturer (John Deere), Model (CIS), and appropriate comm port (either 1 or 2). Press accept button. See CONNECTING RS-232 GPS RECEIVERS for additional details on comm port setup.

A—Controller Manufacturer
B—Model
C—Comm. Port
D—Communication Status



Controller Manufacturer

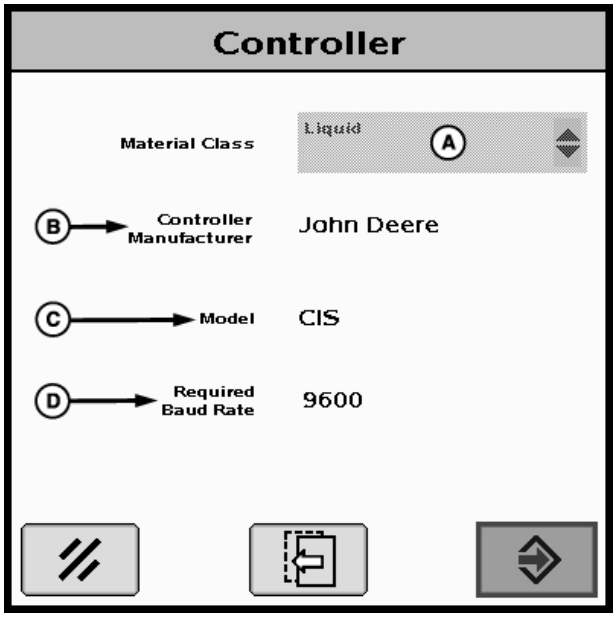
JS56696,000037A -19-27MAY09-5/6

A controller summary page is shown. Press accept button to go back to the product application summary page.

After completing setup, the GS2 will attempt to connect to the CIS controller.

NOTE: Please visit www.StellarSupport.com for list of third party compatible controllers.

A—Material Class
B—Controller Manufacturer
C—Model
D—Required Baud Rate

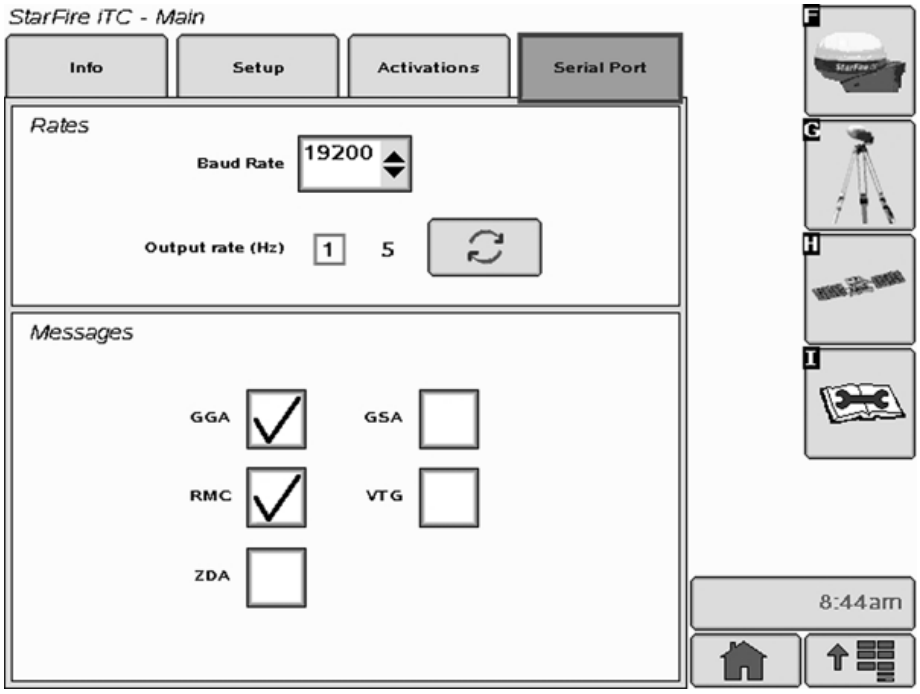


Controller Summary Page

JS56696,000037A -19-27MAY09-6/6

GPS Settings

NOTE: **GreenSeeker is for use in North America and YARA N-Sensor is for use in Europe.**



PC9709A —UN—25SEP07

PC8663 —UN—05AUG05

MENU button

PC8659 —UN—05AUG05

StarFire iTC button

PC8680 —UN—05AUG05

StarFire iTC softkey

Press: MENU button >> StarFire iTC button >> StarFire iTC softkey >> Serial Port tab

Reference the GreenSeeker manual to check for GreenSeeker GPS settings. Set the Baud and Output rates for the StarFire iTC on the Serial Port tab page to match the GreenSeeker settings. GGA and RMC must be checked in the Messages section of the Serial Port tab page.

JS56696,0000492 -19-25NOV08-1/1

GreenSeeker

IMPORTANT: FieldDoc Connect Cable must be wired to COM2 on GreenStar side.

1. Attach GreenSeeker hardware according to the GreenSeeker manual.
2. Connect the GreenSeeker PDA to the GreenStar RS-232 cab connector.
3. Calibrate the John Deere spray system according to the spray system's manual.
4. Calibrate GreenSeeker System according to the GreenSeeker manual. (Calibration may not be needed).
5. Set Master Spray Switch (in cab) to AUX to enable SprayStar to accept the prescription.
6. Select MENU button >> GREENSTAR2 PRO button >> RESOURCE/CONDITIONS softkey >> RESOURCES tab
7. Fill in Client, Farm, Field, and Task information to enable documentation.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8676 —UN—05AUG05

RESOURCE/CONDITION softkey

JS56696,0000493 -19-06OCT08-1/7

8. Select MENU button >> GREENSTAR2 PRO button >> EQUIPMENT softkey >> MACHINE tab

   Fill in the machine information.

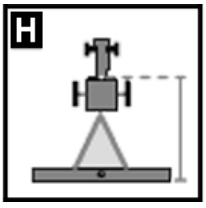
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

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JS56696,0000493 -19-06OCT08-2/7

9. Select MENU button >> GREENSTAR2 PRO button >> DOCUMENTATION softkey >> PRODUCT APPLICATION tab

   View auto-generated product application tab.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

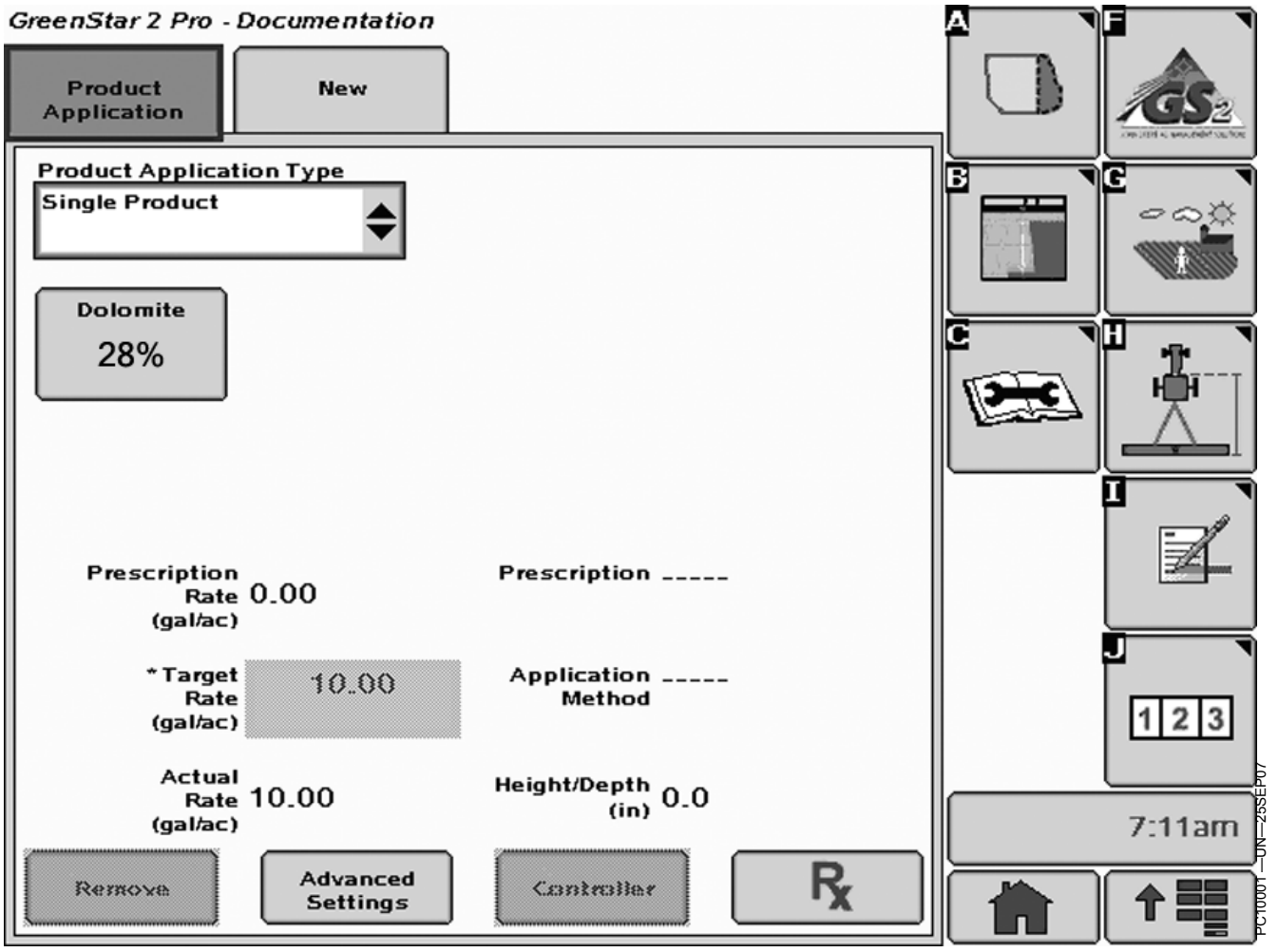
GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION softkey

Continued on next page

JS56696,0000493 -19-06OCT08-3/7



10. Select Rx button to indicate prescription.

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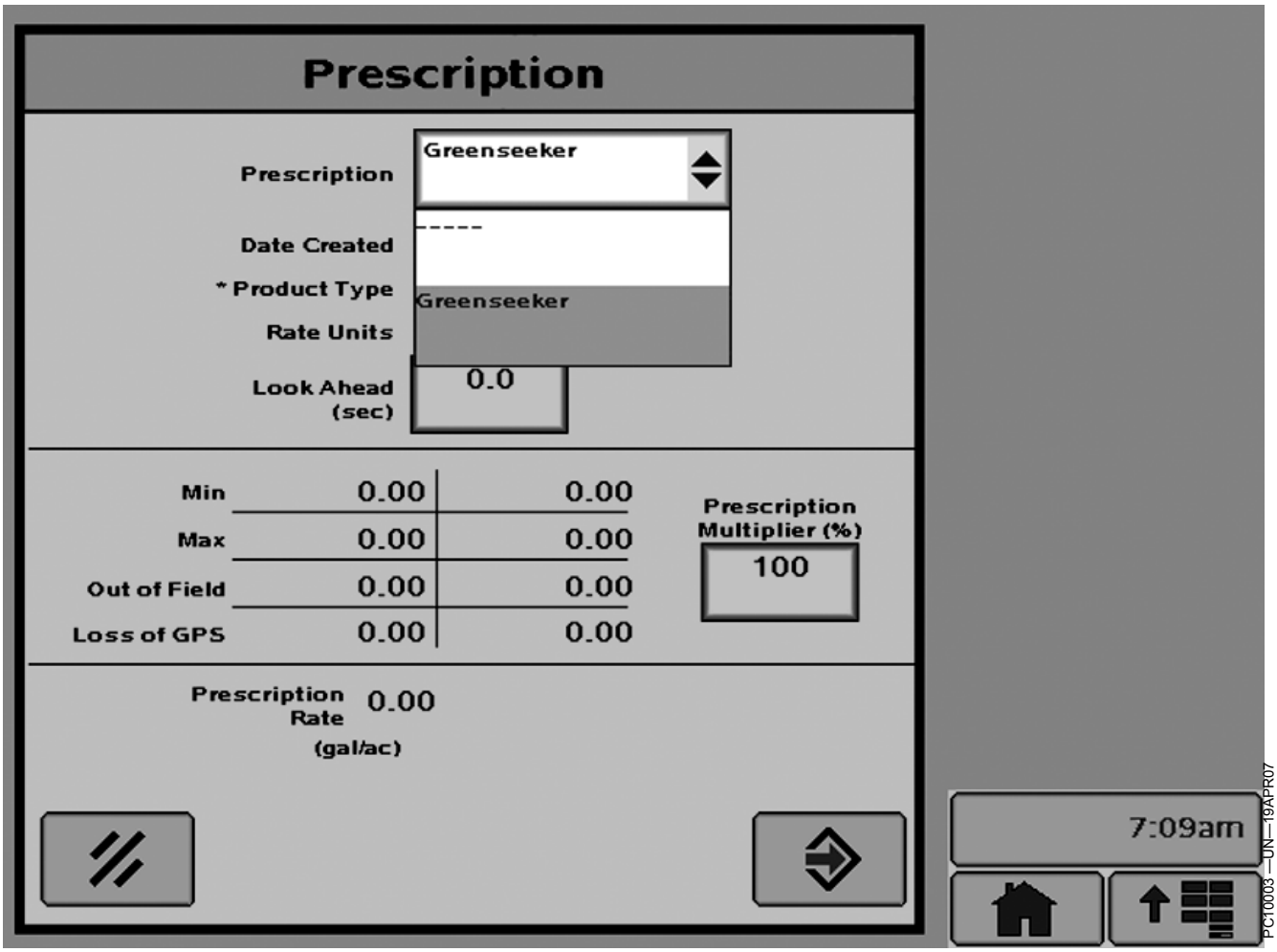
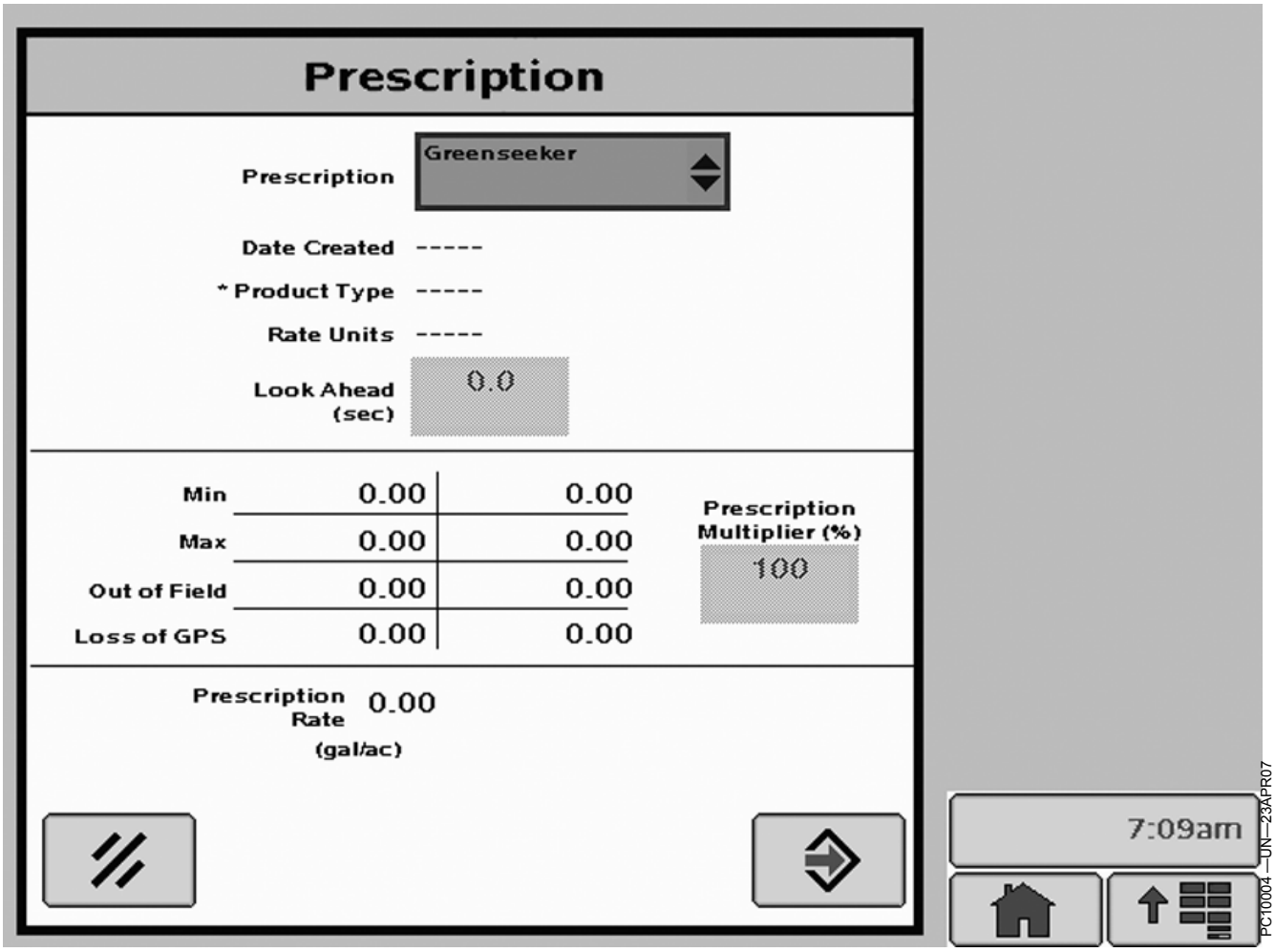
JS56696,0000493 -19-06OCT08-4/7



11. Select GreenSeeker from Prescription drop-down list.

Continued on next page

JS56696,0000493 -19-06OCT08-5/7



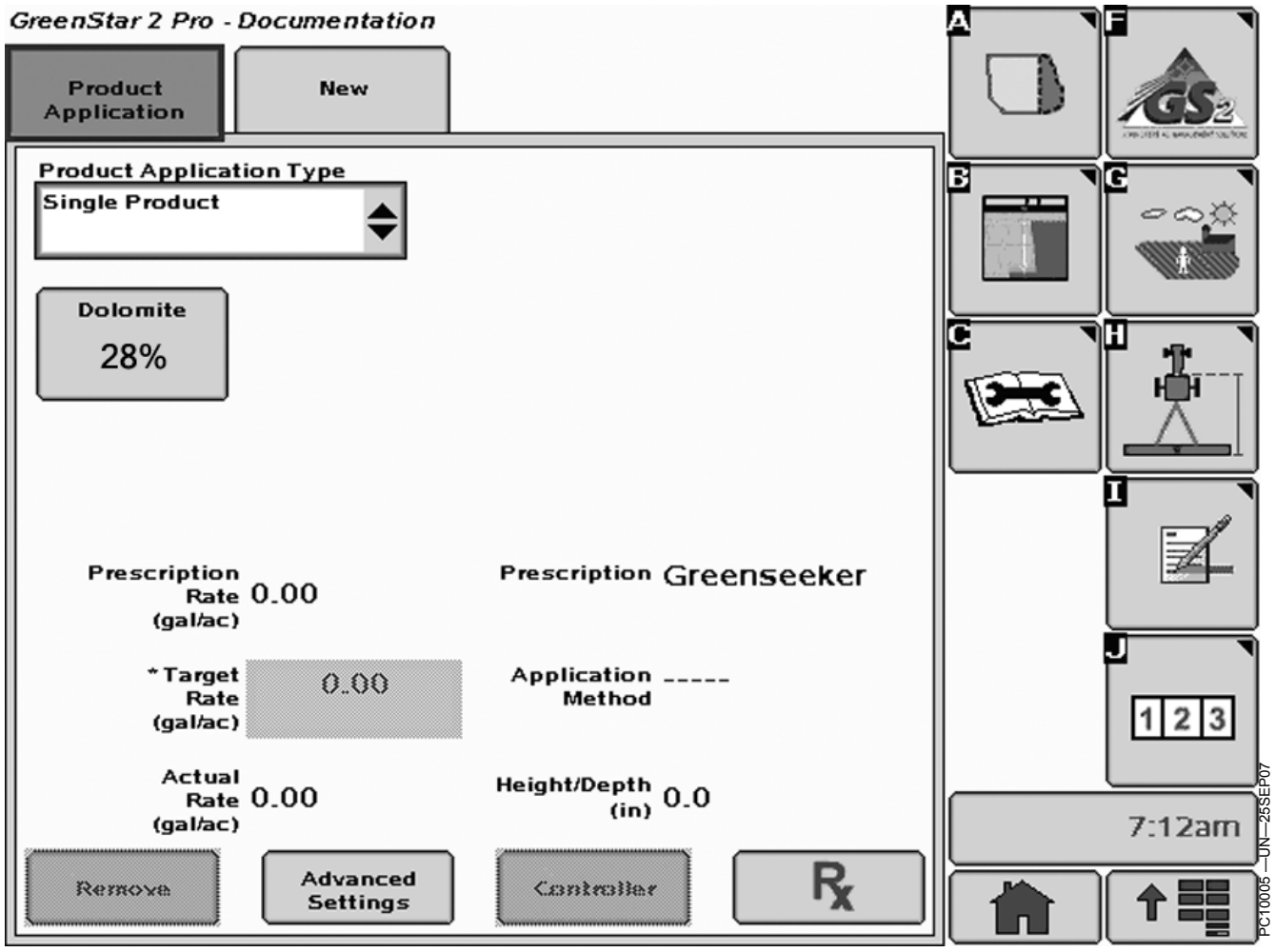
12. Select the ENTER button to accept the prescription.

PC8649 —UN—01NOV05

ENTER button

Continued on next page

JS56696,0000493 -19-06OCT08-6/7



13. Setup is done. Begin the application.

The GS2 is now ready to receive target rates from GreenSeeker.

JS56696,0000493 -19-06OCT08-7/7

COM Port Assignment

Why Assign the COM Port?

The RS232 (Serial COM Port) setup is necessary to connect different control unit or components to the GS2 display.

The GS2 Display features two serial COM ports to allow connection to the following components:

- In cab printer.
- N—Sensing
- Inoculant Dosing
- Field Doc Connect
- Serial Port on GPS Receiver

Go to www.StellarSupport.com to check for other component compatibility.

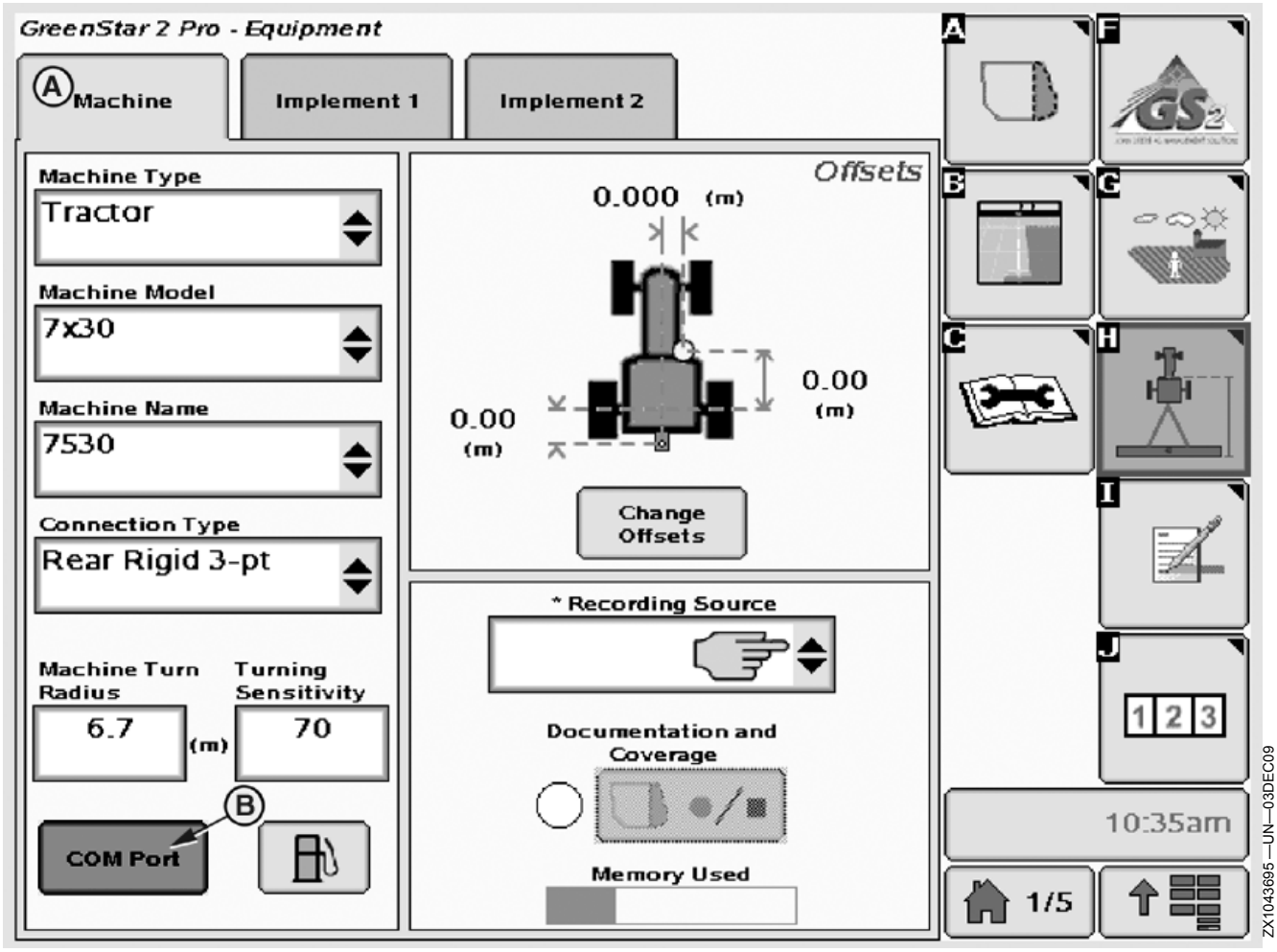
Each Com Port can be assigned to a user profile and be automatically reloaded upon machine type selection. (See Setup Com Port Section.)

IMPORTANT: Connect the component to the GS2 display before setting up a Com Port (see Setup Com Port section.)

Once this component is disconnected from the GS2 display, the relevant Com Port and Profile MUST be deactivated (see Deactivate Com Port section.)

OUO6050,0001231 -19-26MAR10-1/1

Setup COM Port



To access the COM port setup page, select MENU button > GREENSTAR2 PRO button > EQUIPMENT softkey H > MACHINE tab (A). Select the desired Machine Type, Model, Name, and Connection Type, then press COM port button (B).

Com port settings page appears (see Com Port Settings).

A—Machine Tab **B—COM Port Button**

ZX1043696 —UN—03DEC09

OUO6050,0001232 -19-26MAR10-1/1

Com Port Settings

Use this screen to select an existing or create a profile.

Two profiles can be stored per specific machine (that is, Combine, Tractor, Forage Harvester, Sprayer, and more). When a machine is selected in the Machine-Implement Setup tab (GreenStar 2 Pro - Equipment screen), the associated profile is automatically recalled and loaded.

IMPORTANT: Connect the component to the GS2 display before setting up a profile. Once setup is finished, the system attempts to connect to the relevant component. If component is ont connected, an error message (Communication Error) is then displayed.

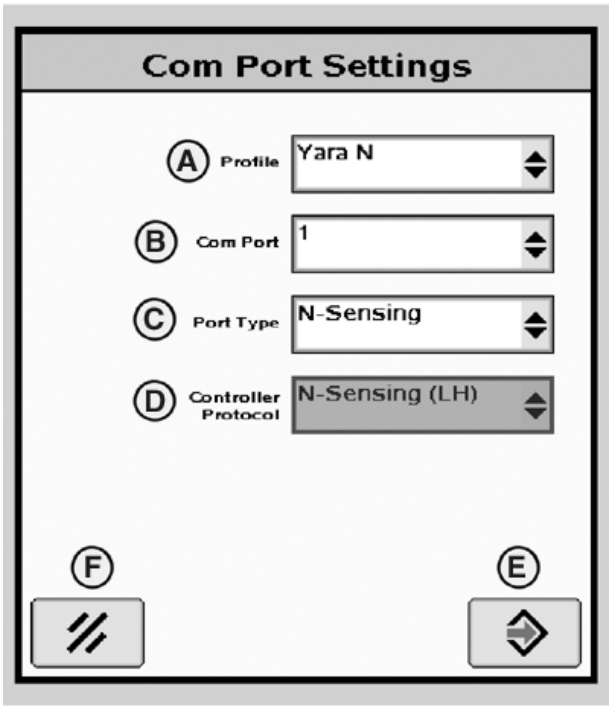
To create a profile (A) for a specific machine, proceed as follows:

1. Select NEW in the Profile (A) drop-down box then enter the desired Profile name.
2. Assign a Com Port (B) number to this Profile (1 or 2).
3. Define the Port Type (C).
   - In Cab Printer (see User Define Printer Layout section 15)
   - N-Sensing (YARA-N sensor)
   - Inoculant Dosing
   - Field Doc Connect (see Com Port Settings—3rd Party Control Units section)
   - Serial Port (that is, GPS reciever) or any other compatible components to connect.
4. Define the Controller Protocol (D), if applicable.
5. The press ENTER button to save profile or CANCEL button to cancel procedure.

All COM PORT assignments for a specific machine can be reviewed from the GreenStar 2 Pro - Diagnostic Reading page.

To review the Com Port Settings, select MENU button > GREENSTAR2 PRO button > DIAGNOSTIC softkey C.

The Diagnostic Readings page appears (see Com Port Setting Review).



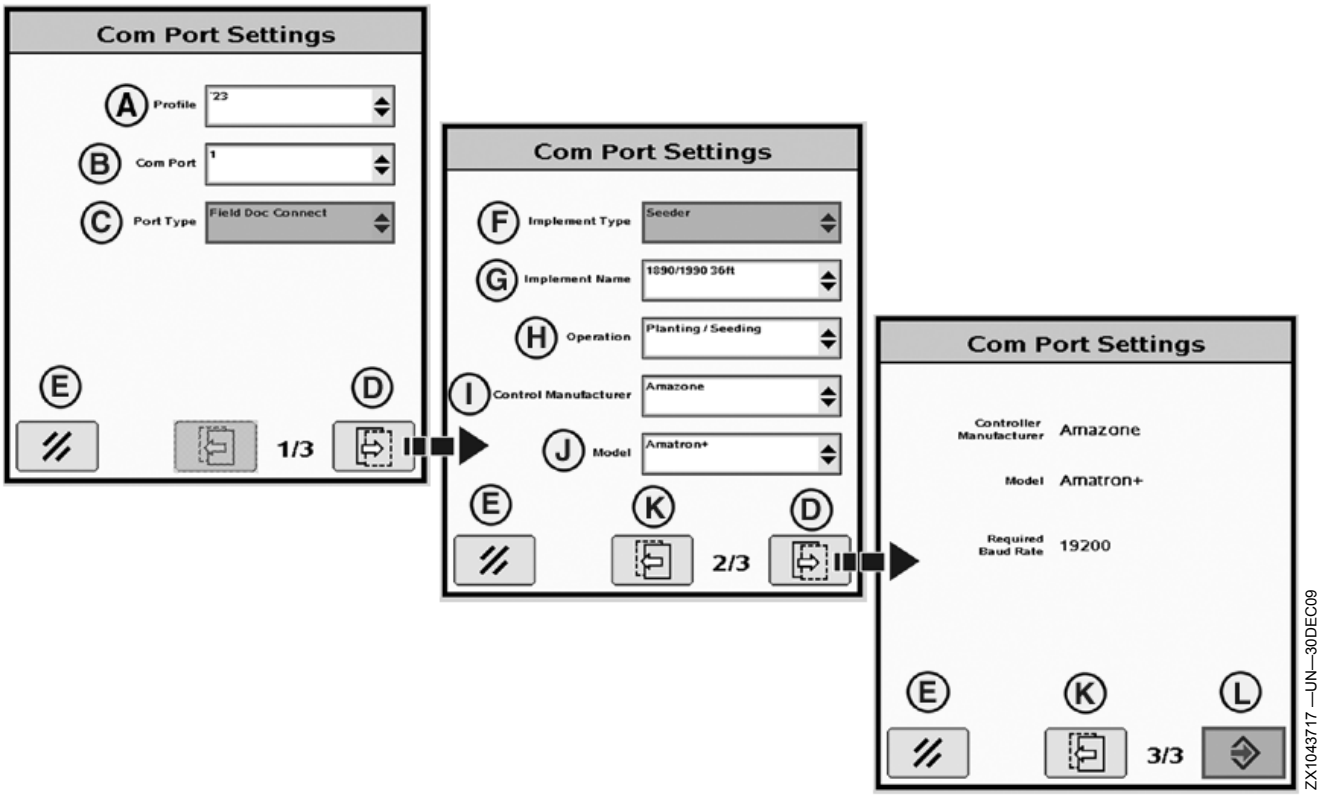
ZX1043697 —UN—03DEC09

ZX1043698 —UN—03DEC09

A—Profile
B—Com Port
C—Port Type
D—Controller Protocol
E—Enter Button
F—Abort Button

OUO6050,0001233 -19-04FEB10-1/1

COM Port Settings—3rd Party Control Units



A—Profile
B—Com Port
C—Port Type
D—Next Page Button
E—Abort Button
F—Implement Type
G—Implement Name
H—Operation
I— Control Manufacturer
J— Model
K—Previous Page Button
L—Enter Button

IMPORTANT: When connecting with a Rawson control unit, turn main switch to OFF before leaving vehicle or performing maintenance.

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect).

NOTE: Please visit www.StellarSupport.com for list of third party compatible control units.

Data from 3rd-Party control units can be recorded directly from the following control units:

NOTE: Go to www.StellarSupport.com to find the latest information about approved platforms.

- Rawson Accu-Rate and Accu-Plant
- Dickey-John Seed Manager
- Vanguard PIC Seed Monitor
- Amazone
- LH Technologies

System will record Actual Rate, Implement Width, and GPS Recording Status (implement switch not required) directly from Field Doc Connect control unit.

NOTE: Rawson control units are also capable of accepting prescriptions from the GS2 display.

In case of a 3rd-Party control unit Com Port Assignment setup, enter the necessary information requested by the 3 steps procedure as follows:

- Select NEW in the Profile (A) drop-down box then enter the desired Profile name.
- Assign a Com Port (B) number to this Profile (1 or 2)
- Select Field Doc Connect as Port Type (C).

1. Press Next Page button (D) to go to the next step or CANCEL button (E) to stop procedure.

   - Select the Implement Type (F).
   - Select the Implement Name (G)
   - Select the associated Operation (H)
   - Select the Control Manufacturer (I)
   - Select the Model (J)

   - Press the next page button (D) to go to next step
   - Press previous page button (K) to go to the previous step
   - Press cancel button (E) to stop procedure

2. Review Com Port assignment settings then press enter button (L) to save profile or cancel button (E) to stop procedure.

Continued on next page

OUO6050,0001234 -19-26MAR10-1/2

The Com Port assignment can be reviewed from the GreenStar2 Pro-Diagnostic Reading page.

To review the Com Port Settings, select MENU button > GREENSTAR2 PRO button > DIAGNOSTIC softkey C.

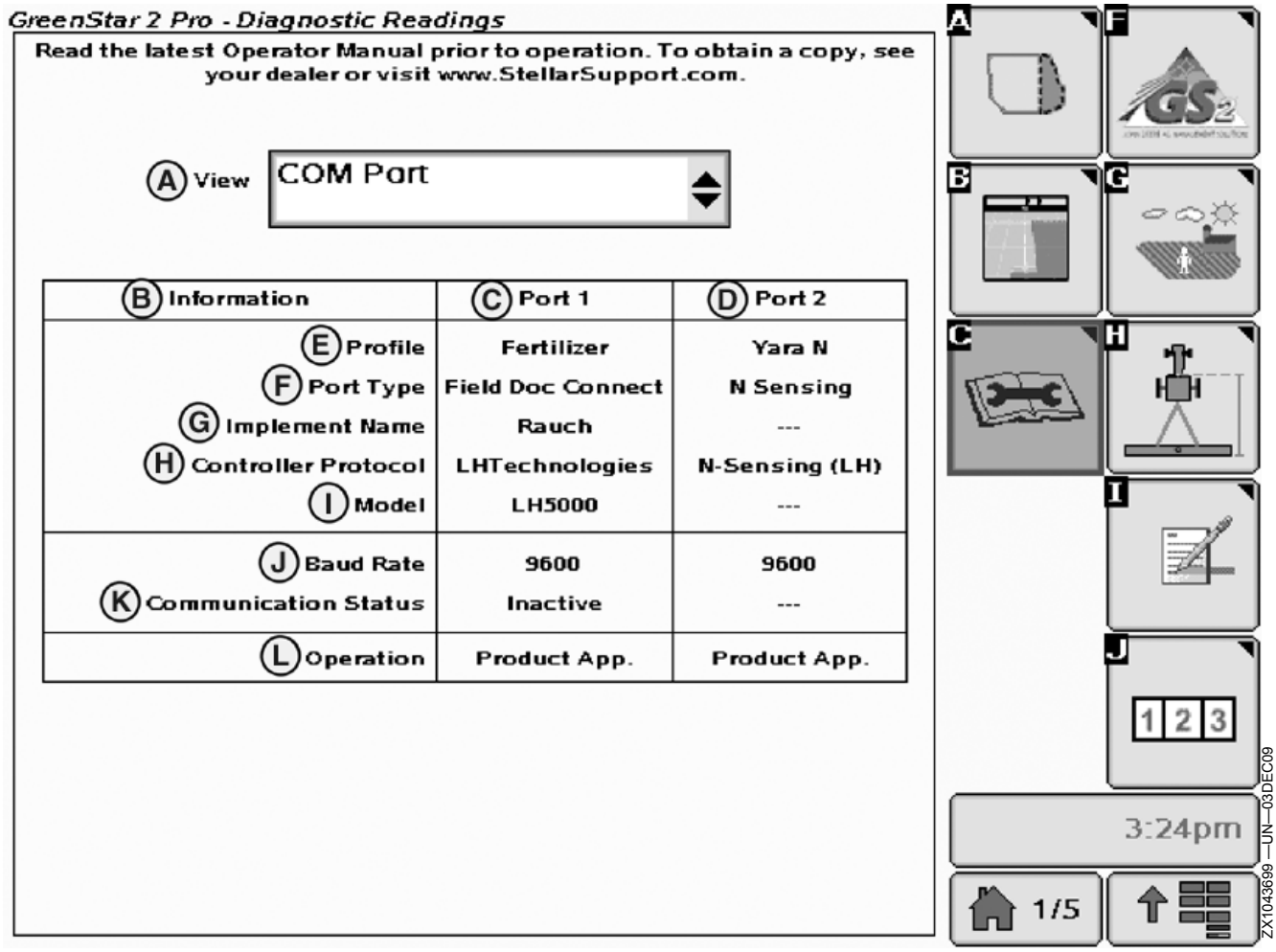
The Diagnostic Readings page appears (see Com Port Setting Review).

ZX1043698 —UN—03DEC09

Diagnostic Softkey

OUO6050,0001234 -19-26MAR10-2/2

COM Port Setting Review



A—View
B—Information
C—Port 1
D—Port 2
E—Profile
F—Port Type
G—Implement Name
H—Controller Protocol
I— Model
J— Baud Rate
K—Communication Status
L—Operation

When a machine is selected in the Machine-Implement Setup tab (GreenStar2 Pro - Equipment screen), the associated profile is automatically recalled and loaded.

To display the relevant COM Port profile for a specific machine, proceed as follows:

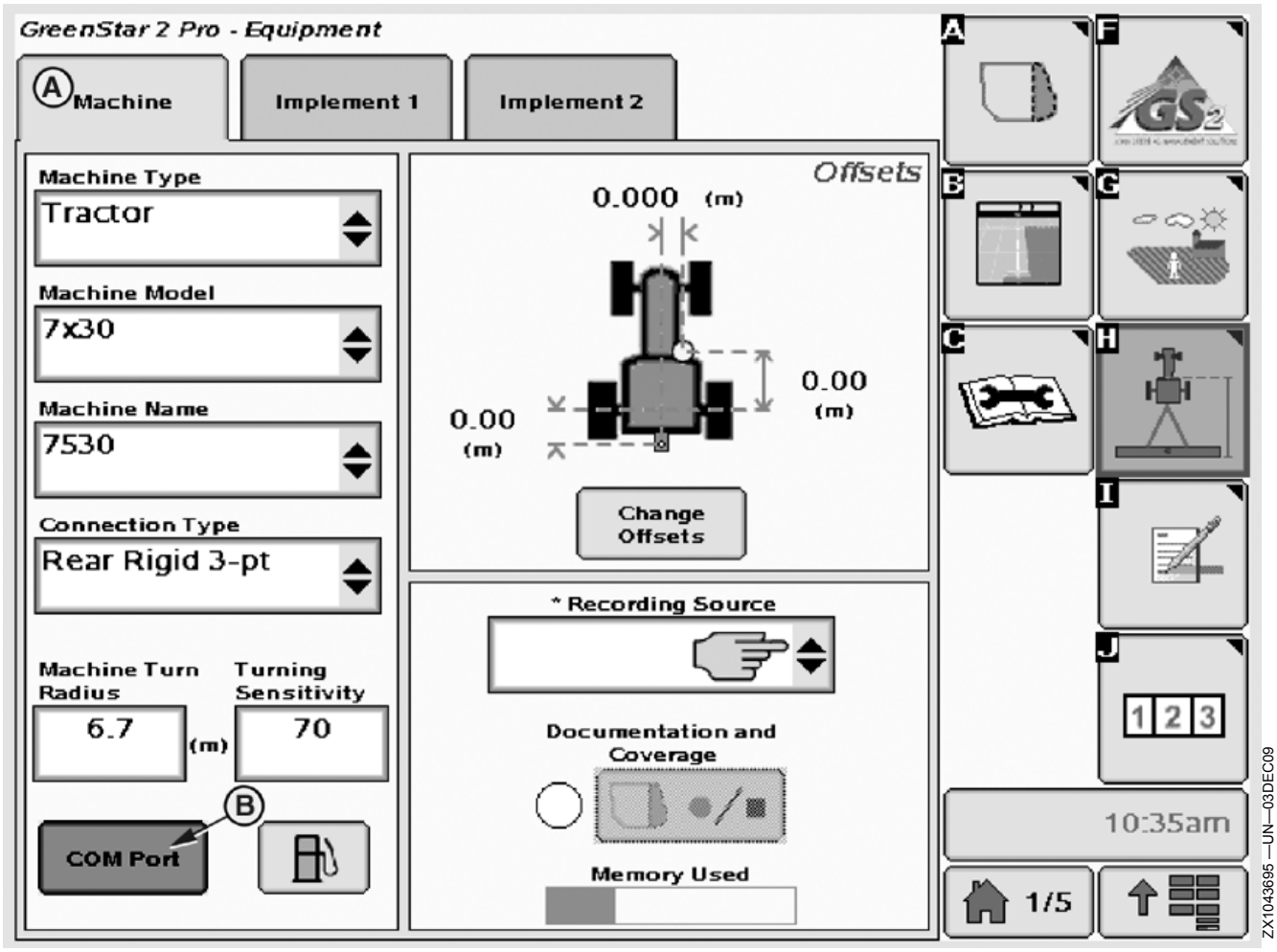
1. Select MENU button > GREENSTAR2 PRO button > EQUIPMENT sofkey (H) > MACHINE tab then select the desired Machine type.
2. To review the Com Port Settings for this specific machine, press DIAGNOSTIC softkey (C).
3. Select COM PORT in the VIEW (A) drop-down box. The information table (B) appears and displays the Port 1 (C) and Port 2 (D) profile assignments.

The information (B) column displays a summary of:

- (E) Profile name relevant to each Com Port.
- (F) Port Type
- (G) Implement Name
- (H) Controller Protocol
- (I) Model of Control Unit
- (J) Baud Rate (transmittion speed)
- (K) Communication Status (active-inactive)
- (L) Operation Type (Product Application)

OUO6050,0001235 -19-26MAR10-1/1

Deactivate COM Port



IMPORTANT: Each time a component is disconnected from the machine, it is necessary to deactivate the relevant Profile and each associated COM Port.

On Forage Harvester or Combine equipped with an integrated printer, do not manually deactivate the printer profile.

ZX1043696 —UN—03DEC09

To deactivate a profile, access the COM port setup page. Select MENU button > GREENSTAR2 PRO button> EQUIPMENT softkey (H) . Machine tab (A). Select the desired machine type , model name, and connection. Type then press COM Port button (B).

Com Port settings page appears (see Com Port Settings).

OUO6050,0001236 -19-26MAR10-1/1

Com Port Settings

Use tnis screen to deactivate a profile for a specific machine.

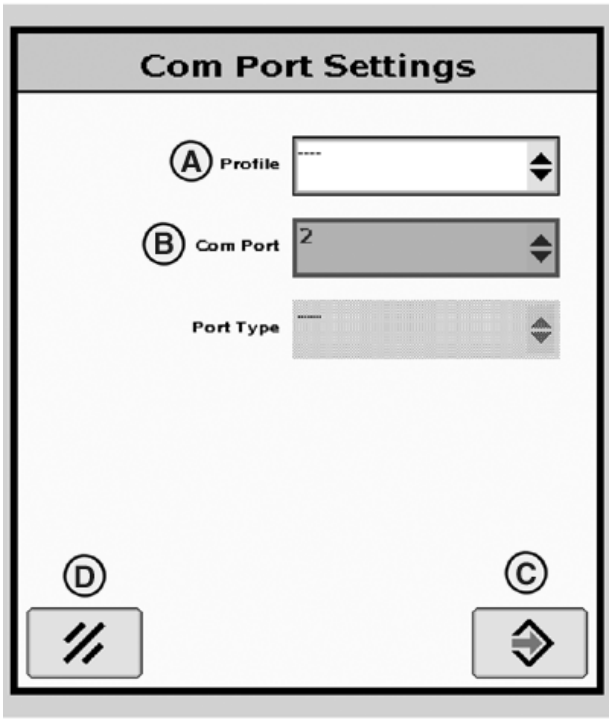
IMPORTANT: If two Com Port (B) are associated to a profile, individually deactivate each COM Port. The following procedure stands for one COM Port deactivation. Repeat procedure for each COM Port.

To deactivate a profile (A) for a specific machine, proceed as follows:

1. Select MACHINE tab then the desired Machine Type.
2. Select - - - - - in the profile (A) drop-down box.
3. Select Com Port (B) number to deactivate.
4. Then press ENTER button (C) to deactivate profile or CANCEL button (D) to cancel procedure.

The COM Port Profile is now deactivated for a specific machine. When the component is reconnected to the GS2 display, the Profile is automatically recalled and loaded.

A—Profile
B—Com Port
C—Enter button
D—Abort button



ZX1043700 —UN—03DEC09

OUO6050,0001237 -19-17FEB10-1/1

YARA N-Sensor

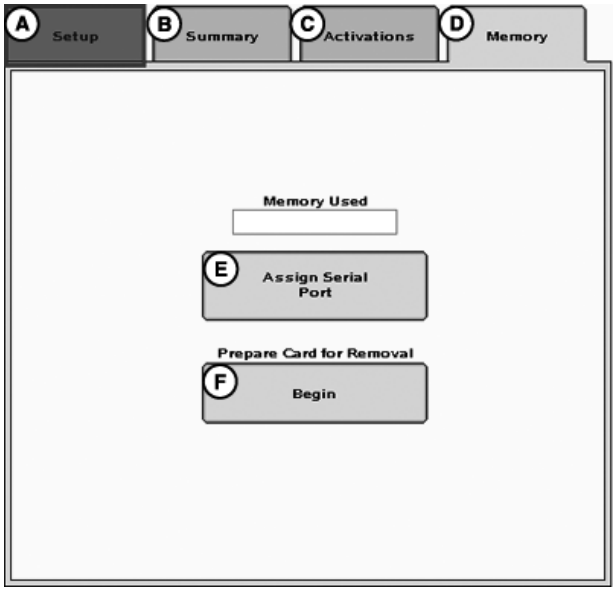
NOTE: **GreenSeeker is for use in North America and YARA N-Sensor is for use in Europe.**

IMPORTANT: FieldDoc Connect Cable must be wired to COM2 on GreenStar side. If no implement controller is connected to the GS2 Display, the YARA N-Sensor cannot be selected.

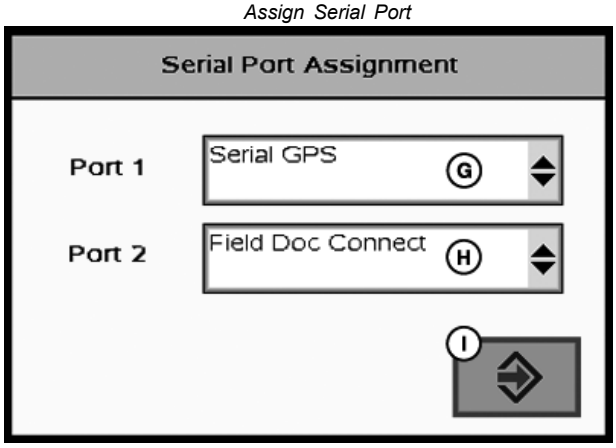
NOTE: The GreenSeeker activation enables the YARA N-Sensor module.

1. Connect the implement controller to the GS2 Display.
2. Attach YARA N-Sensor hardware according to the YARA N-Sensor manual.
3. Connect the YARA N-Sensor display to the GreenStar RS232 cab connector.
4. Set COM Port 2 to Field Doc Connect.
5. Calibrate—Setup YARA N-Sensor System according to the YARA N-Sensor manual.
6. Select MENU button >> GREENSTAR2 PRO button >> RESOURCE/CONDITIONS softkey >> RESOURCES tab

A—Setup Tab
B—Summary Tab
C—Activations Tab
D—Memory Tab
E—Assign Serial Port Button
F—Prepare Card for Removal Button
G—Serial Communication Port 1 Assignment
H—Serial Communication Port 2 Assignment
I— Enter Button



Assign Serial Port



Serial Port Assignment

Continued on next page

7. Fill in Client, Farm, Field, and Task information to enable documentation.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8676 —UN—05AUG05

RESOURCE/CONDITION softkey

JS56696,00004F1 -19-25NOV08-2/8

8. Select MENU button >> GREENSTAR2 PRO button >> EQUIPMENT softkey >> MACHINE tab

   Fill in the machine information.

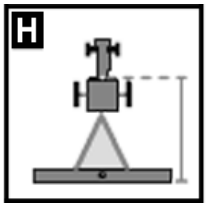
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

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JS56696,00004F1 -19-25NOV08-3/8

9. Select MENU button >> GREENSTAR2 PRO button >> DOCUMENTATION softkey >> PRODUCT APPLICATION tab

   View auto-generated product application tab.

NOTE: The product application tab needs to be generated manually in case of Field Doc Connect.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION softkey

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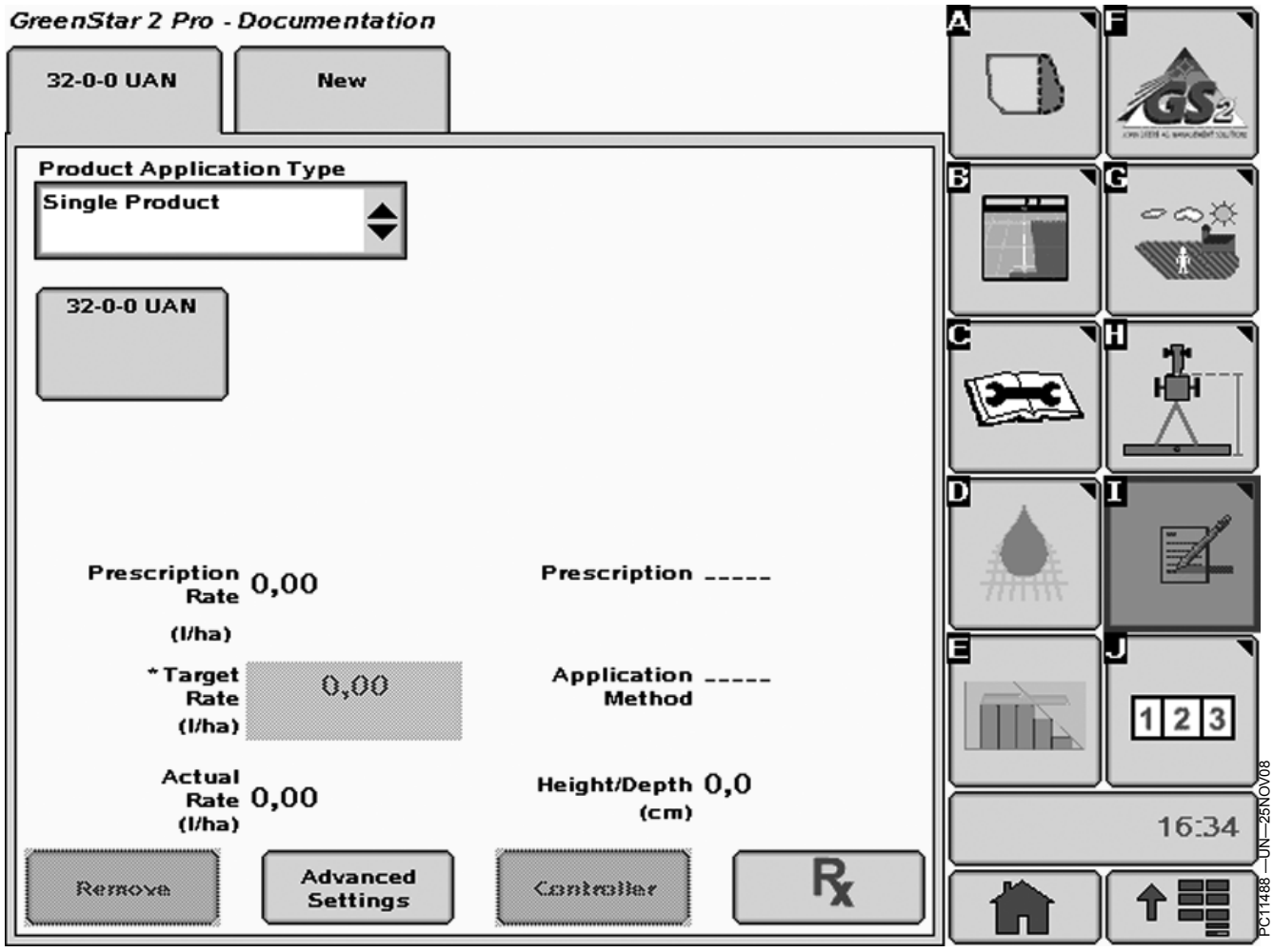

10. Select Rx button to indicate prescription.

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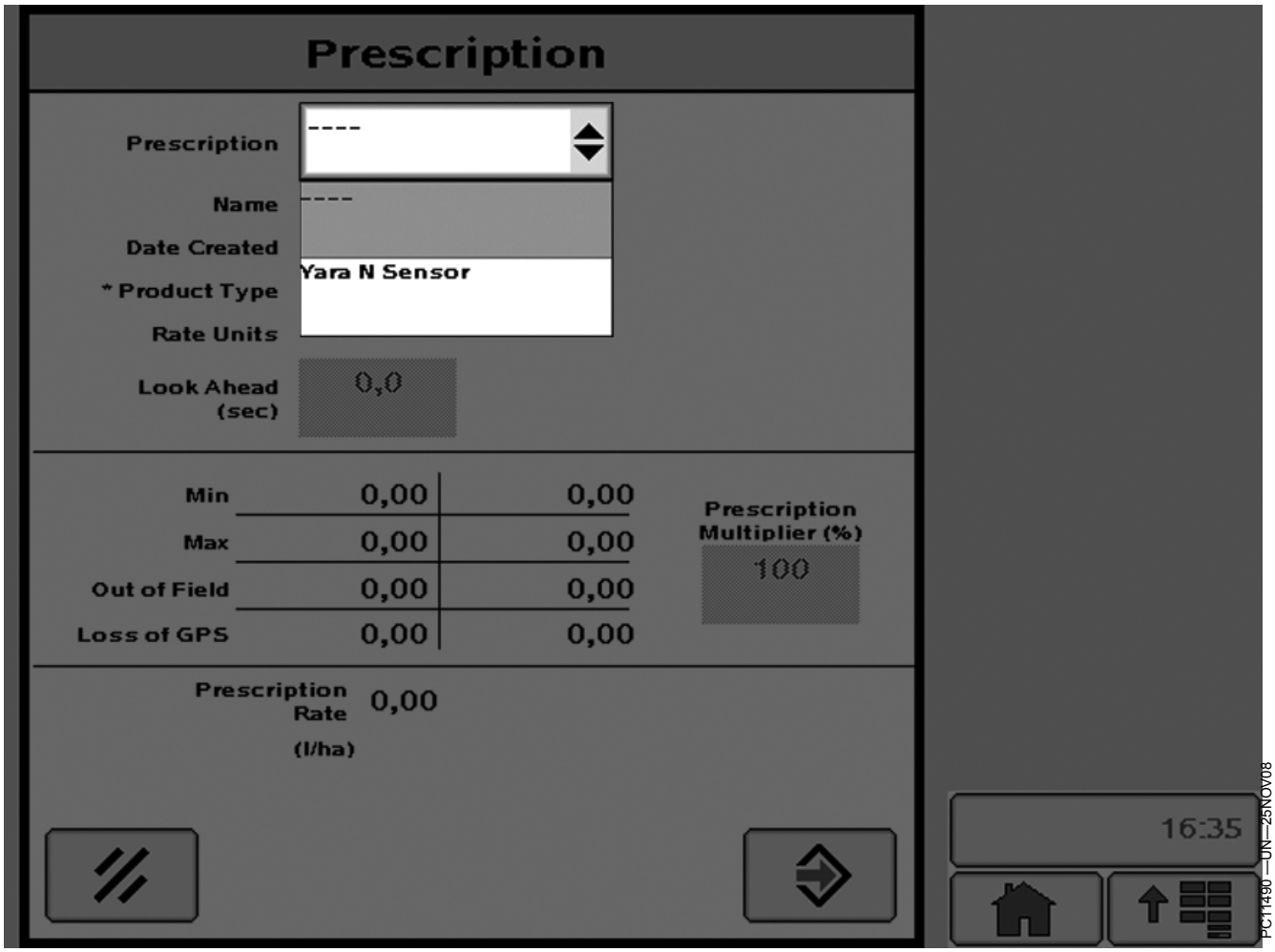
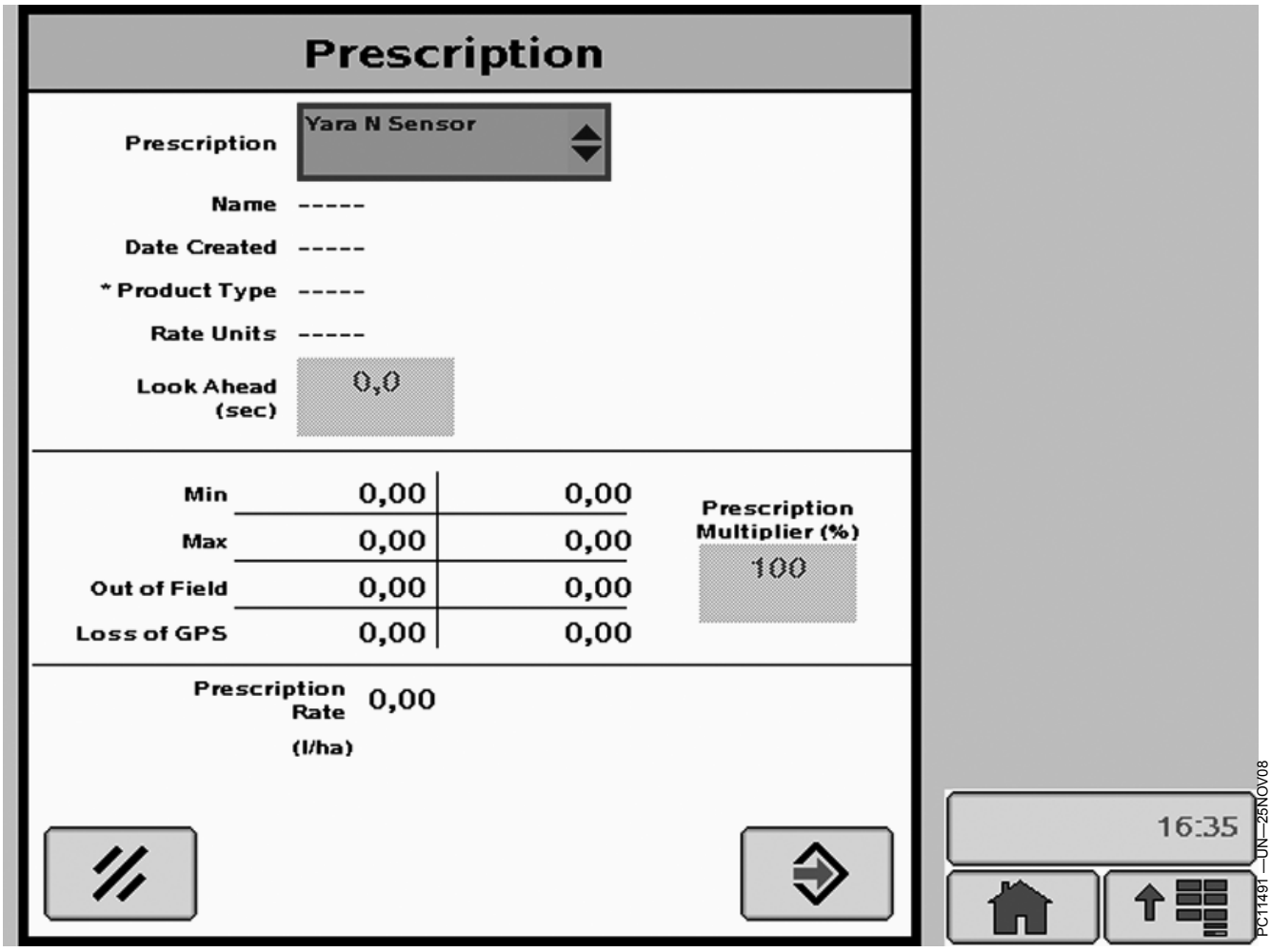
JS56696,00004F1 -19-25NOV08-5/8



11. Select YARA N-Sensor from Prescription drop-down list.

Continued on next page

JS56696,00004F1 -19-25NOV08-6/8



12. Select the ENTER button to accept the prescription.

PC8649 —UN—01NOV05

ENTER button

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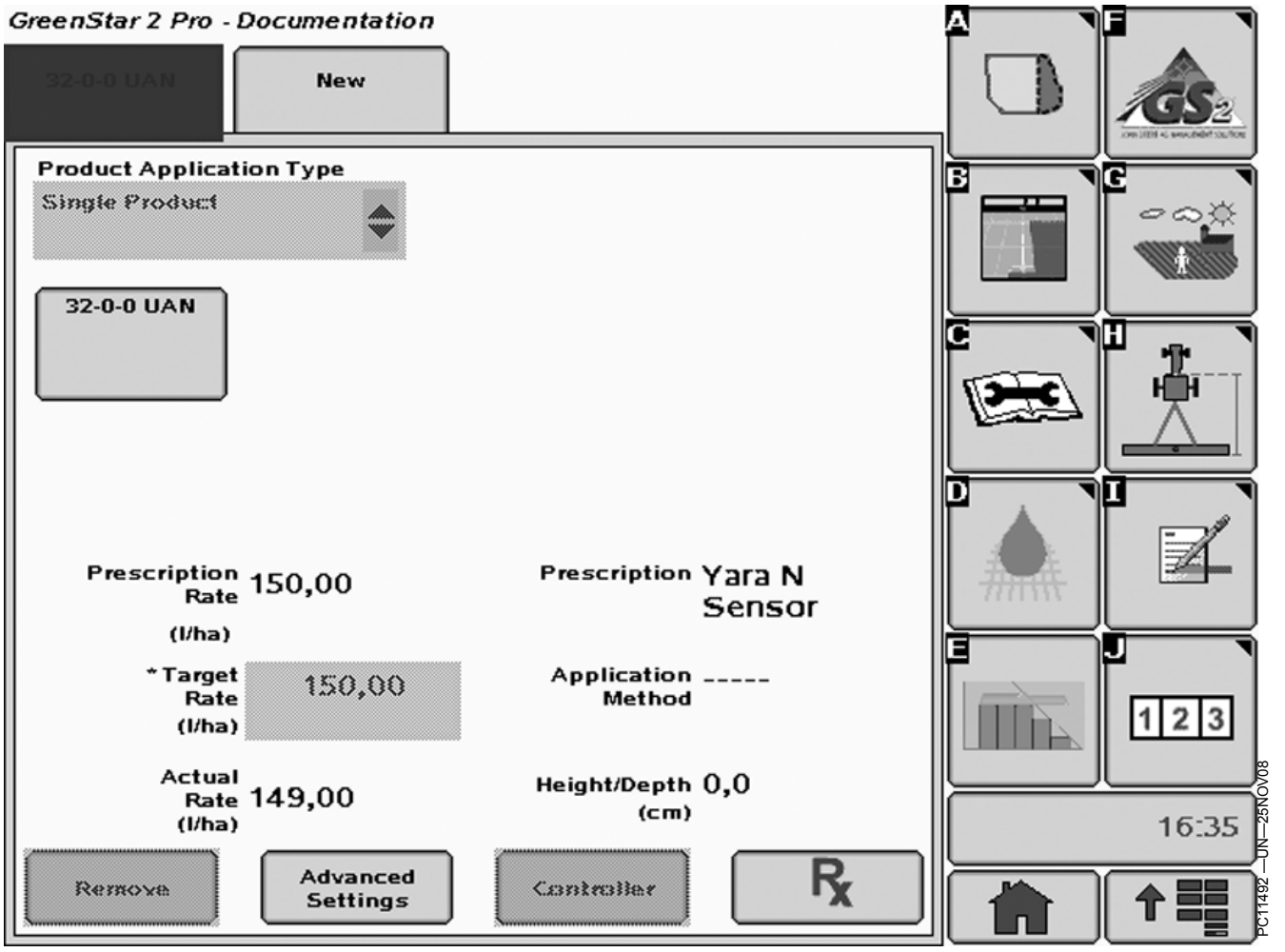
JS56696,00004F1 -19-25NOV08-7/8



13. Setup is done. Begin the application.

GreenStar 2 will read the rate provided by the YARA N-Sensor and will send it as prescription rate to the connected implement controller.

JS56696,00004F1 -19-25NOV08-8/8

ISO Implements

Implement Detected Warning

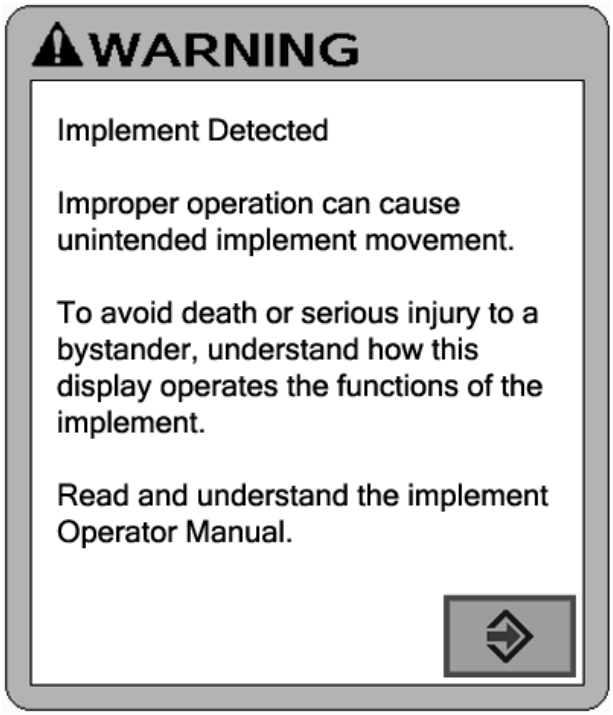
CAUTION: Implement Detected

Improper operation can cause unintended implement movement.

To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.

Read and understand the implement Operator Manual.

This message occurs when the system detects an ISOBUS implement. For more information, see READ OPERATOR MANUALS FOR ISOBUS IMPLEMENTS in the Safety section.



PC10339 —UN—23SEP07

OUO6050,0000E6B -19-06OCT08-1/1

Operating ISO Implement

IMPORTANT: Before using display to control ISOBUS implements, read operator manual provided by implement manufacturer and observe all safety messages in manual and on implement prior to use. When used with ISOBUS implements, information and control functions placed on this display are provided by implement and are the responsibility of implement manufacturer.

OUO6050,0002316 -19-06OCT08-1/1

ISO Implements

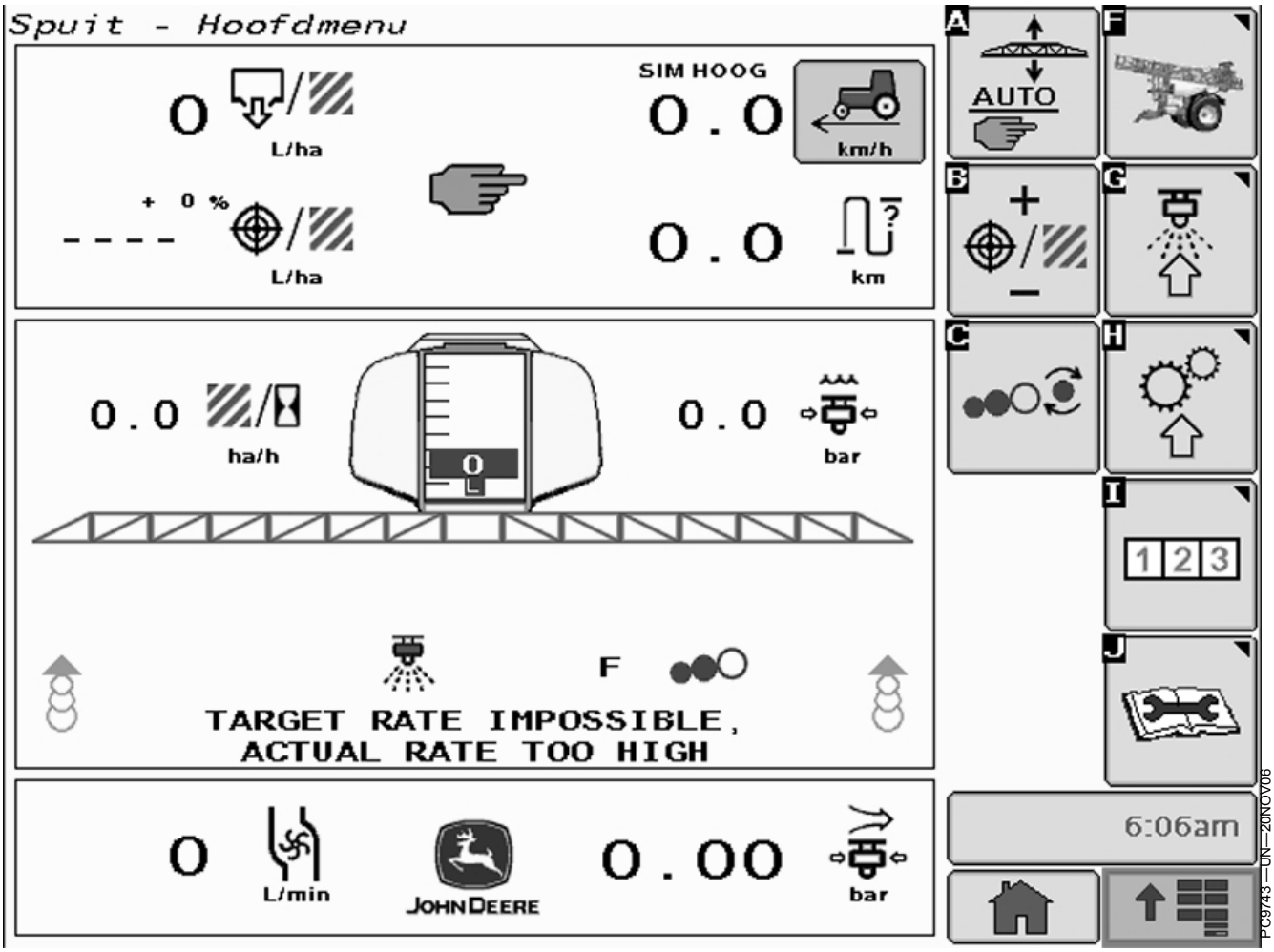
The John Deere Display GS2 display supports ISOBUS 11783 compliant implements. These implements can be displayed and operated with this Display. A standardized connector in the back of the tractor allows the connection of such implements. ISOBUS implements may support the Aux Control functionality (See Aux Control chapter for more details).

PC9744 —UN—20NOV06

Standardized Connector

Continued on next page

OUO6050,0000CE3 -19-13NOV08-1/2



Sprayer Menu

The John Deere pull-type sprayer presents its information as shown. The machine layout allows the control and setup of all machine functions like tank volume, boom sections, spray rate control, etc. See specific product OM for details.

TASK CONTROLLER

Some ISOBUS compliant implements like the John Deere pull-type sprayer support the Task Controller based documentation. Task Controller is part of the documentation functionality build into the Display Software and supports Documentation of ISOBUS implements. The communication depends on the availability of the optional Task Controller support in the implement controller.

IMPORTANT: The current Task Controller implementation is limited to sprayer, seeder, and planting devices. The documentation package can only communicate with one implement at a time.

Implement width, sections, operation type , implement type, machine type, recording source, target & actual rate parameters are set automatically with Task controller based on the ISO implement

OUO6050,0000CE3 -19-13NOV08-2/2

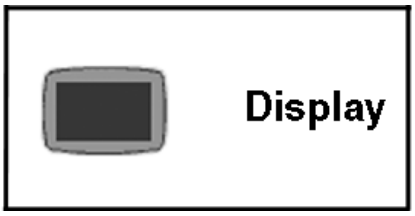
Virtual Terminal Displays

MENU Softkey >> DISPLAY Softkey >> DIAGNOSTIC Softkey >> ISOBUS tab

PC8663 —UN—05AUG05

MENU button

PC11392 —UN—14OCT08



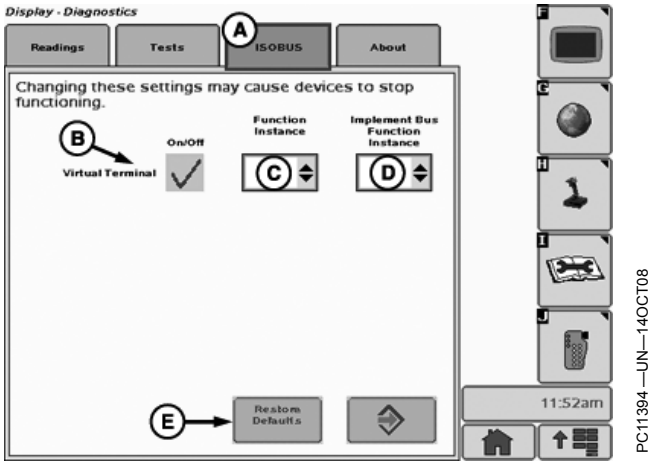
DISPLAY button

PC8674 —UN—05AUG05

JS56696,0000373 -19-27MAY09-1/2

When using an ISO implement on a vehicle with multiple Virtual Terminal (VT) Displays (including the GS2 display) connected to the network, it is necessary to specify which display is the primary Virtual Terminal. To assign the GS2 display to be the primary Virtual Terminal, set Function Instance (C) to zero or press the Restore Default button (D).

A—ISOBUS Tab
B—Virtual Terminal Check Box
C—Function Instance Drop-Down Menu
D—Implement Bus Function Instance Drop-Down Menu
E—Restore Defaults Button



JS56696,0000373 -19-27MAY09-2/2

Auxiliary Control Safety Signs

Auxiliary Control Detected

CAUTION: Auxiliary Control Detected

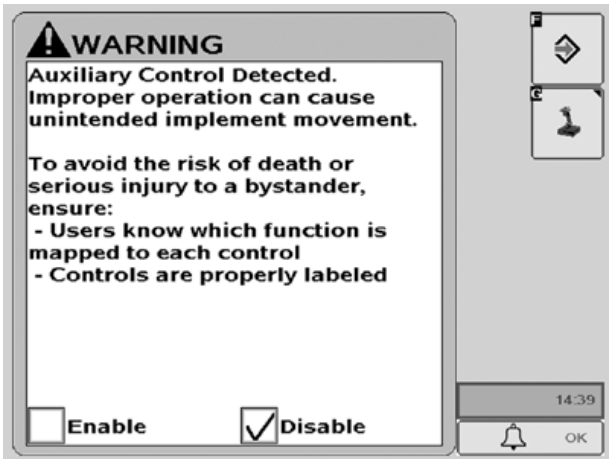
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control. Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.

If "**Disable**" is selected (default), all Auxiliary Controls will be disabled.



If "**Enable**" is selected, all Auxiliary Controls will be enabled.

OUCC002,0002A57 -19-28OCT09-1/6

Auxiliary Control Detected

CAUTION: Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

Improper operation can cause unintended implement movement.

This message occurs when the system detects an Auxiliary Control and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the "Mapping" key **G** and review the assignments before Auxiliary Control can be enabled.

Continued on next page

OUCC002,0002A57 -19-28OCT09-2/6

Auxiliary Control Configuration Changed

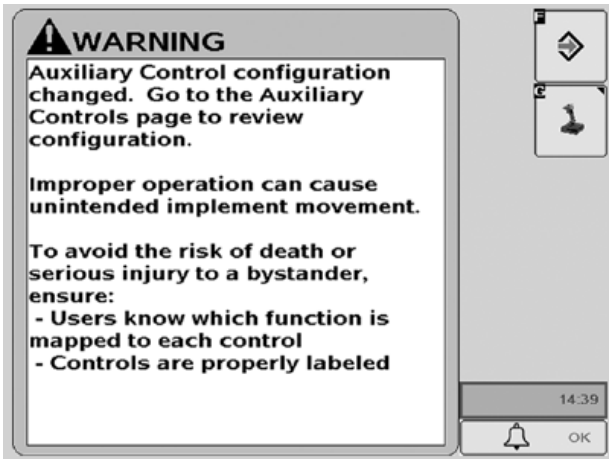
CAUTION: Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control and that configuration has been modified during run time (e.g. additional input and/or implement added). Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.



OUCC002,0002A57 -19-28OCT09-3/6

Auxiliary Control Configuration Changed

CAUTION: Auxiliary Control configuration changed. Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

This message occurs when the Auxiliary Control configuration has been modified during run time (e.g. additional input and/or implement added) and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the "Mapping" key **G** and review the assignments before Auxiliary Controls can be enabled.

Continued on next page

OUCC002,0002A57 -19-28OCT09-4/6

Auxiliary Control Enabled

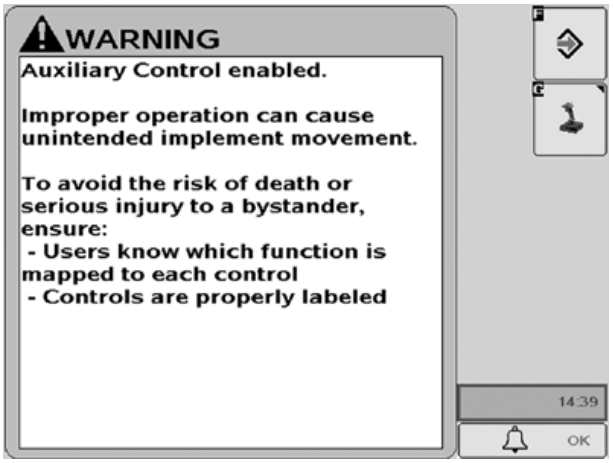
CAUTION: Auxiliary Control enabled.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the operator enables the Auxiliary Control manually. Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.



OUCC002,0002A57 -19-28OCT09-5/6

Auxiliary Control Enabled

CAUTION: Auxiliary Control enabled. Some requested assignments are not complete.

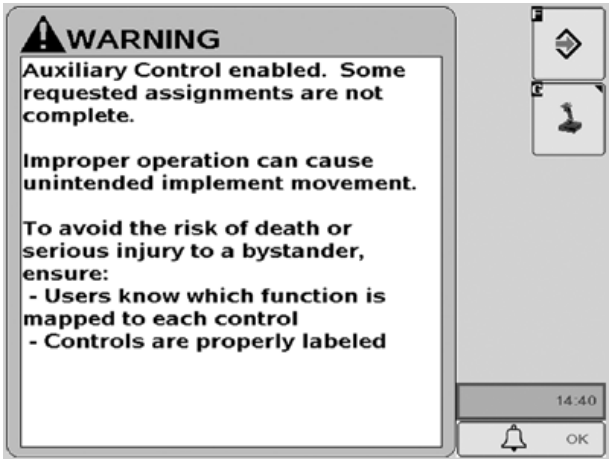
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when Auxiliary Control has been enabled manually, however, not all assignments have been completed successfully. Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.

IMPORTANT: If the "Enter" key F is selected, the implement only follows the assignments which have been completed successfully, however, there are still assignments which are not complete. It is necessary to review the Auxiliary Controls mapping screen by pressing the "Mapping" key G and complete all assignments before enabling Auxiliary Controls.



OUCC002,0002A57 -19-28OCT09-6/6

Auxiliary Control Alerts

Auxiliary Control Not Available

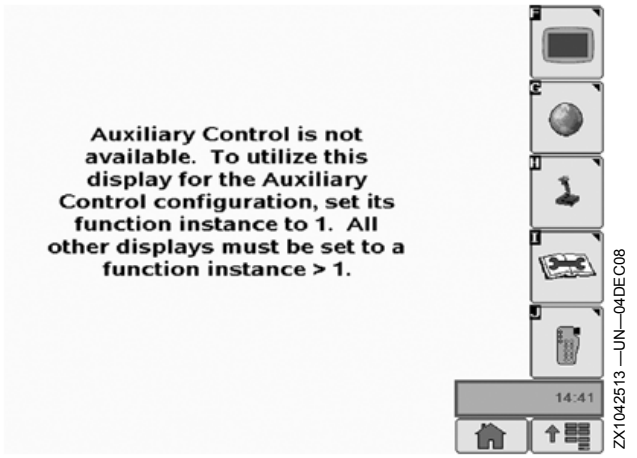
IMPORTANT: Auxiliary Control is not available. To utilize this display for the Auxiliary Control configuration, set its function instance to 1. All other displays must be set to a function instance >1.

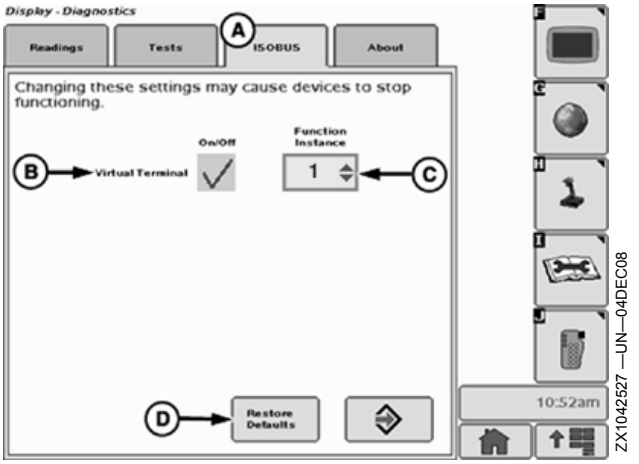
This message occurs when the system detects that the display on which the Auxiliary Control function runs is not set as the primary Virtual Terminal (Function Instance 1).

Go to MENU Softkey >> DISPLAY Softkey >> DIAGNOSTIC Softkey >> ISOBUS Tab.

To assign the GS2 Display to be the primary Virtual Terminal, set Function Instance (C) to 1.

A—ISOBUS Tab
B—Virtual Terminal Check Box
C—Function Instance Drop-Down Menu
D—Restore Defaults Key



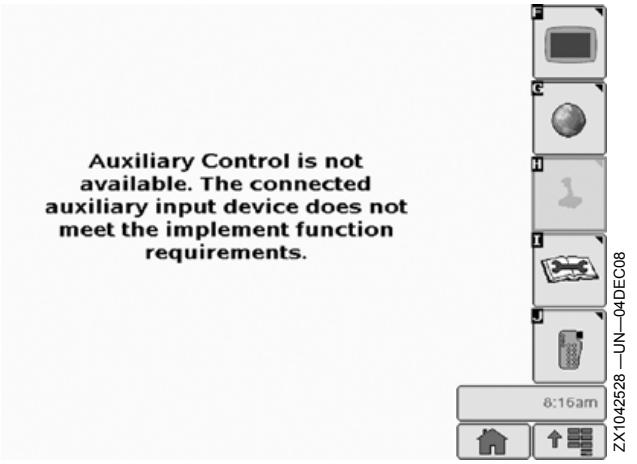


OUCC002,0002A58 -19-16DEC08-1/3

Auxiliary Control Not Available

IMPORTANT: Auxiliary Control is not available. The connected auxiliary input device does not meet the implement function requirements.

This message occurs if an input device cannot control any of the requested implement functions due to an incompatibility (e.g. the input sends analog signals and the implement sends digital signals).



Continued on next page

OUCC002,0002A58 -19-16DEC08-2/3

Communication Error

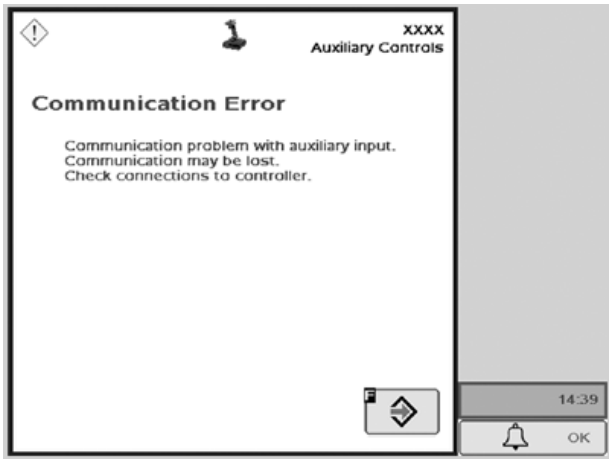
IMPORTANT: Communication Error

Communication problem with auxiliary input.

Communication may be lost.

Check connections to controller.

This message occurs when the system detects a communication problem with auxiliary input (i.e. the joystick is disconnected). Press ”Enter” key **F** to quit this error message, then check all connections.



OUCC002,0002A58 -19-16DEC08-3/3

Auxiliary Controls Page

The following screens allow mapping of ISO compliant auxiliary/implement functions to ISO compliant auxiliary controls.

Example:

The display has been set up in a tractor that is attached to a sprayer.

A switch box has been installed in the tractor containing two switches: Switch 1 and Switch 2.

The sprayer has two functions that can be controlled by the switch box: turning the pump on and off, and turning the nozzles on and off.

The operator can choose which switch will turn the pump on and off and which switch will turn the nozzles on and off.

The tractor could be attached to a different implement and the switches could be assigned to control functions of that implement.

Also, a different input device, such as a joystick, could be installed and that device could be assigned control over the sprayer's functions.

PC8663 —UN—05AUG05

MENU button

ZX1042167 —UN—14OCT08

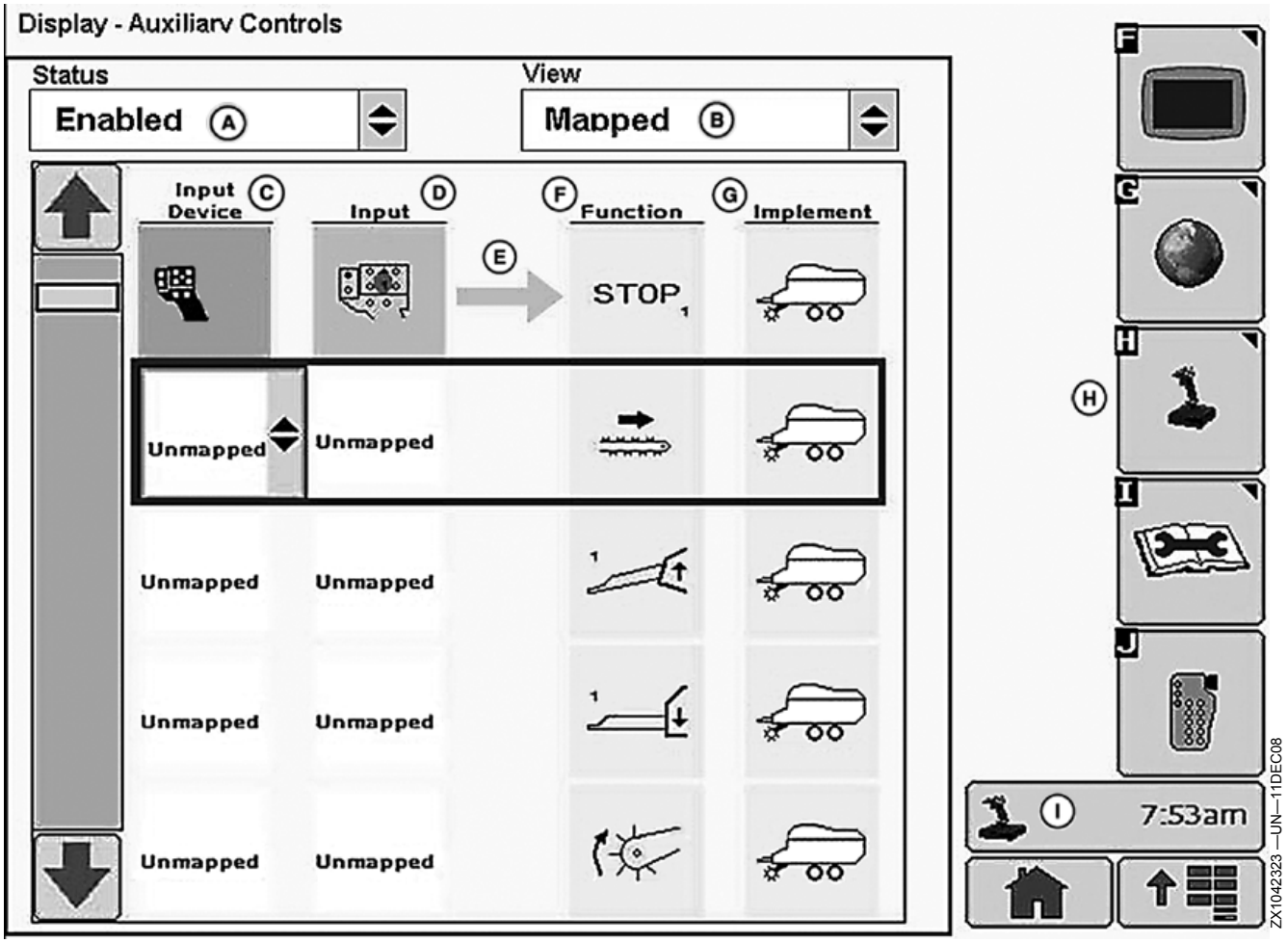
DISPLAY button

ZX1042166 —UN—14OCT08

AUXILIARY CONTROLS button

OUCC002,00029E8 -19-05DEC08-1/1

Auxiliary Controls Page—Implement Function Mapping



Auxiliary Controls

A—Status Selection
B—View Selection
C—Input Device Selection
D—Input Selection
E—Status Indicator
F—Implement Function
G—Implement Type
H—Auxiliary Controls Softkey
I— Message Center Softkey

IMPORTANT: Before using Auxiliary Controls, read the operator manual provided by the implement manufacturer and observe all safety messages in the manual and on the implement prior to use. When using Auxiliary Controls, information and control functions placed on this display are provided by the implement.

AUXILIARY CONTROLS softkey **H**

This screen allows the mapping of an ISO compliant implement functions to ISO compliant Auxiliary Input devices.

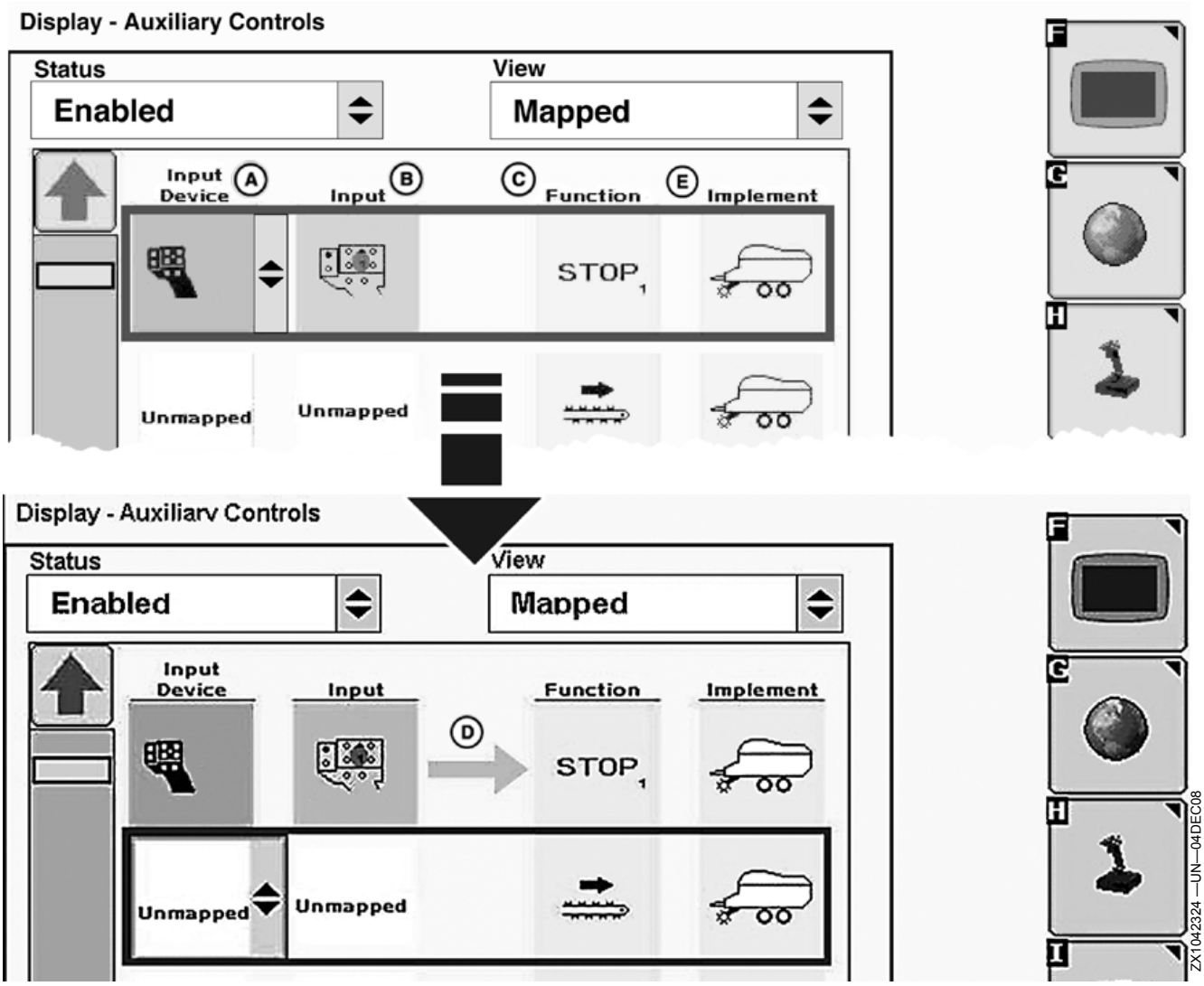
An auxiliary input device (C) consists of a number of "**Inputs**" (D). These inputs may be buttons, switches, dials, etc.

This Auxiliary Controls page allows the user to match these inputs with various implement functions. This process is called "**Mapping**" an input to a function. Once this "**Mapping**" is completed, a function (F) may be performed by activating the associated input.

The available functions (F) and inputs (D) depend on the ISO compliant implements/controls (G) that are currently connected.

Continued on next page

OUCC002,00029E9 -19-04DEC08-1/5



Auxiliary Controls

A—Input Device Selection
B—Input Selection
C—Implement Function
D—Status Indicator (green=mapped/red=un-mapped)
E—Implement Type

To assign one of an input device's input controls to one of an implement's functions perform the following steps:

1. Select an implement function (C) by using the up and down arrow buttons located on the left hand side of the screen or by pressing directly on the desired implement function (touchscreen functionality).
2. The row that contains the currently selected implement function will be indicated by a cursor colored rectangle.
3. Select the list control under the "**Input Device**" column (A) in the currently selected row.
4. Choose an "**Input Device**" (A) by selecting one of the items listed in this control.
5. Another list control will appear in the "**Input**" column (B).
6. Select an item from this list to select the specific input to map to the currently selected implement "**Function**" (C).

   Functions which are in use are grayed out, but can be selected.

IMPORTANT: The input device selection list only shows inputs which are compatible to the implement functions.

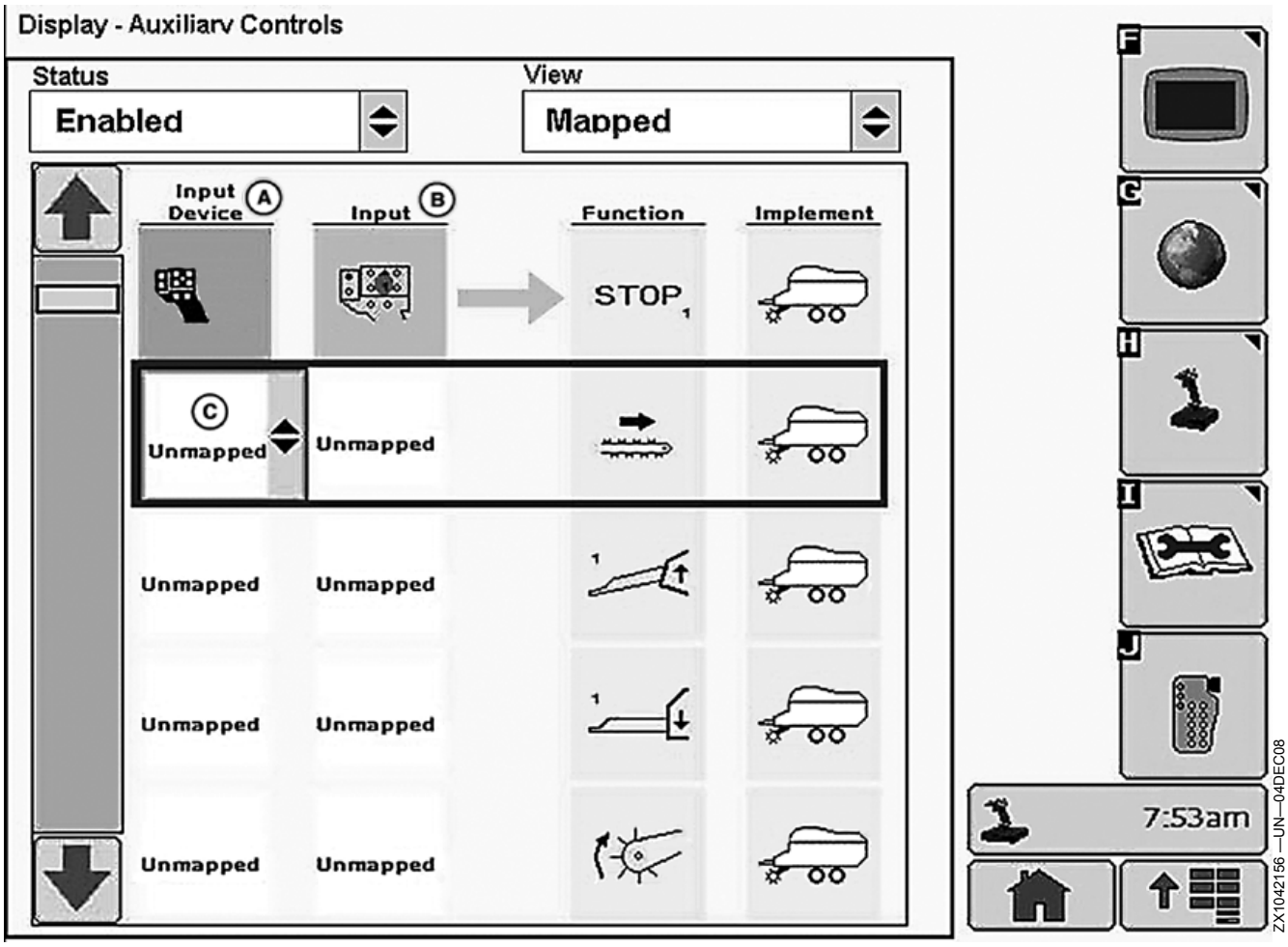
7. A status indicator (D) will appear to indicate if the input device's input (B) control was successfully mapped to the implement "**Function**" (C) or not.

Continued on next page

- A green status indicator (D) indicates that the mapping is completed successfully.
- A red status indicator (D) indicates that the mapping was not successful. In this case, check the assignments and change as necessary.

8. Repeat steps 1 to 7 to map as many controls as is needed.

OUCC002,00029E9 -19-04DEC08-3/5



Auxiliary Controls

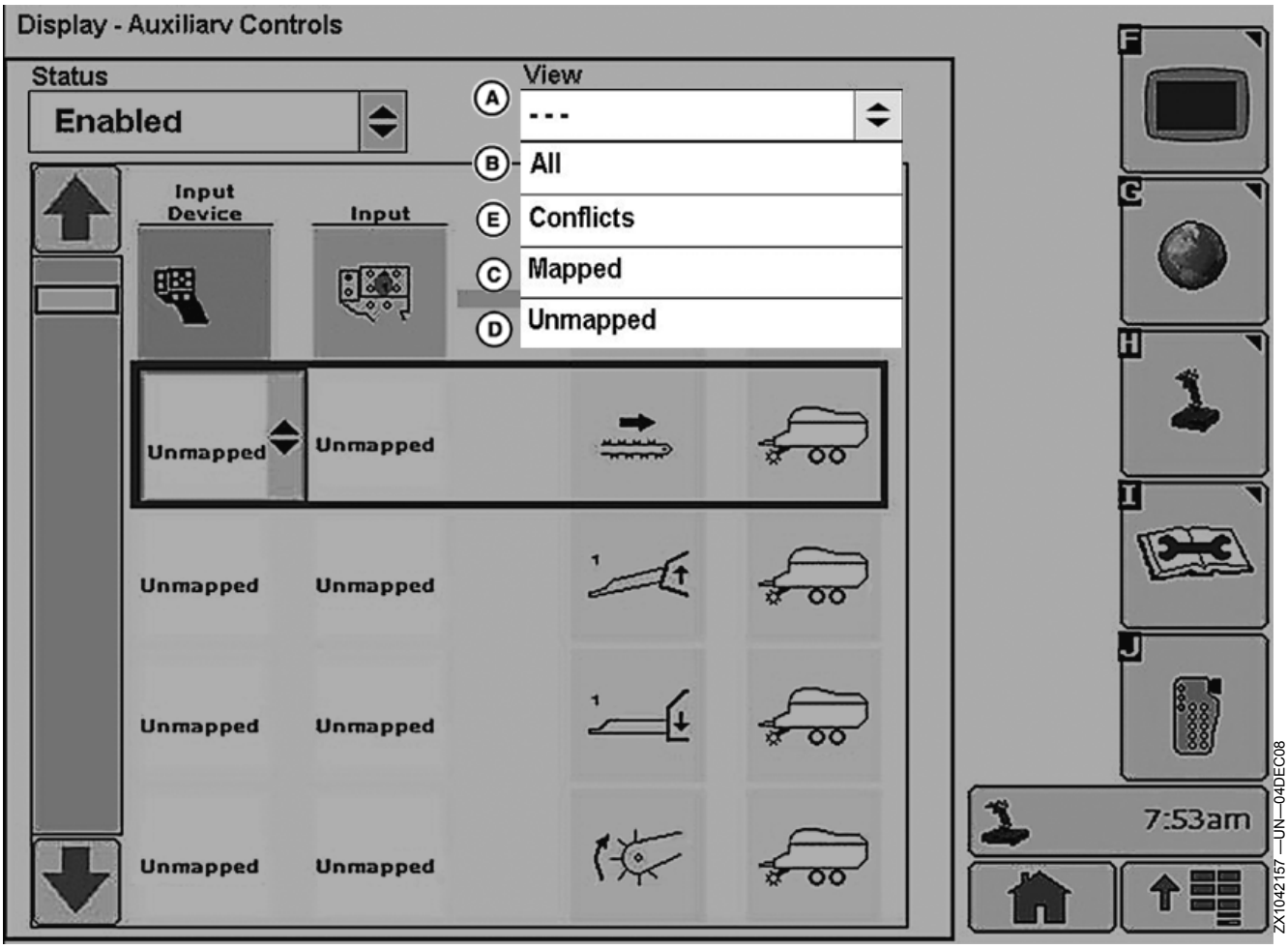
A—Input Device Selection **B—Input Selection** **C—Unmapped**

To remove an existing assignment perform the following steps:

1. Select an existing assignment by using the up and down arrow buttons located on the left hand side of the screen or by pressing directly on the desired assignment (touchscreen functionality).
2. The row that contains the currently selected assignment will be indicated by a cursor colored rectangle.
3. Select one of the list controls from the selected row. Either the "**Input Device**" (A) or "**Input**" (B) lists will suffice.
4. From the selected list, choose the "**Unmapped**" item (C).
5. The assignment arrow will be removed and the controls will be set to "**Unmapped**" (C).

Continued on next page

OUCC002,00029E9 -19-04DEC08-4/5



Auxiliary Controls

A—View Selection
B—All
C—Mapped
D—Unmapped
E—Conflicts

To filter the current list of "Mappings":

1. Select the "**View**" list control (A).
2. Choose the "**All**" item (B) to see all "**Mapped**" (C) and "**Unmapped**" (D) implement functions and "**Conflicts**" (E). This is the default selection.
3. Choose the "**Mapped**" item (C) to see only the "**Mapped**" implement functions.
4. Choose the "**Unmapped**" item (D) to see only the implement functions that have not yet been "**Mapped**" to input controls on an input device.
5. Choose the "**Conflicts**" item (E) to see only the implement function assignments in conflict to each other. See Auxiliary Controls—Conflicts and Disable Functions in this Section.

OUCC002,00029E9 -19-04DEC08-5/5

Auxiliary Controls—Assignment Error Messages

While assigning functions, some assignment error messages may appear.

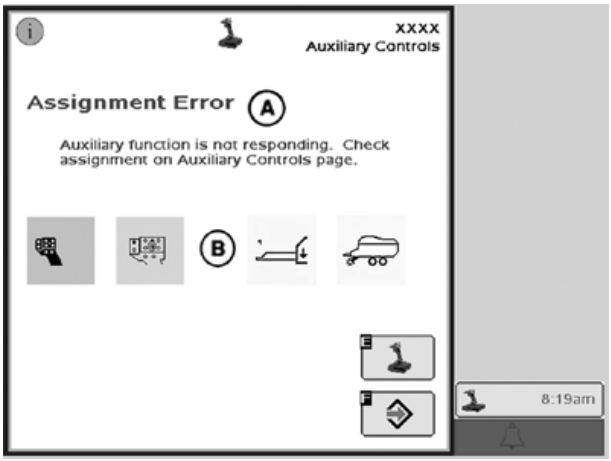
When an auxiliary function is not responding to an assignment request, the error message (A) appears:

Auxiliary function is not responding. Check assignment on Auxiliary Controls page.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary function assignment.

NOTE: The failed assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Assignment—Time out

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

OUCC002,00029ED -19-04DEC08-1/4

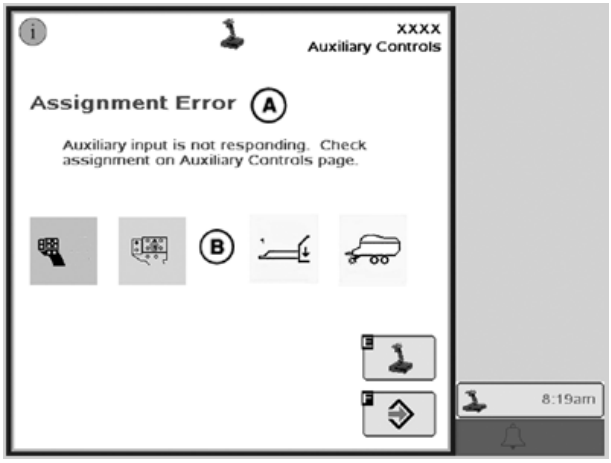
When an auxiliary input is not responding to an assignment request, the error message (A) appears:

Auxiliary input is not responding. Check assignment on Auxiliary Controls page.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary input assignment.

NOTE: The failed assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Input Status Enable—Time out

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

Continued on next page

OUCC002,00029ED -19-04DEC08-2/4

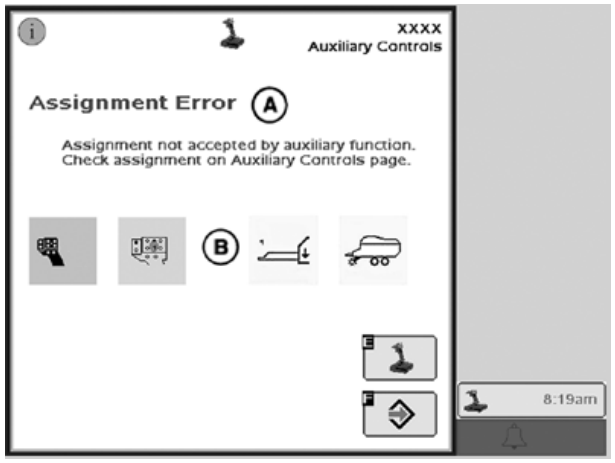
When an implement rejects an assignment, the error message (A) appears:

Assignment not accepted by auxiliary function. Check assignment on mapping screen.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary input assignment.

NOTE: The rejected assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Assignment—Negative Response

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

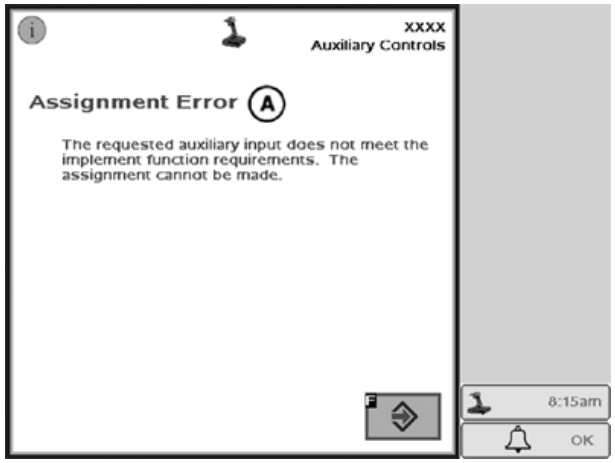
OUCC002,00029ED -19-04DEC08-3/4

When the selected auxiliary input does not match the implement functions while the learn mode is active (thus the assignment was not successful), the error message (A) appears:

The requested auxiliary input does not meet the implement function requirements. The assignment cannot be made.

Press enter key **F** to reach the Auxiliary Controls page and check the auxiliary input assignment.

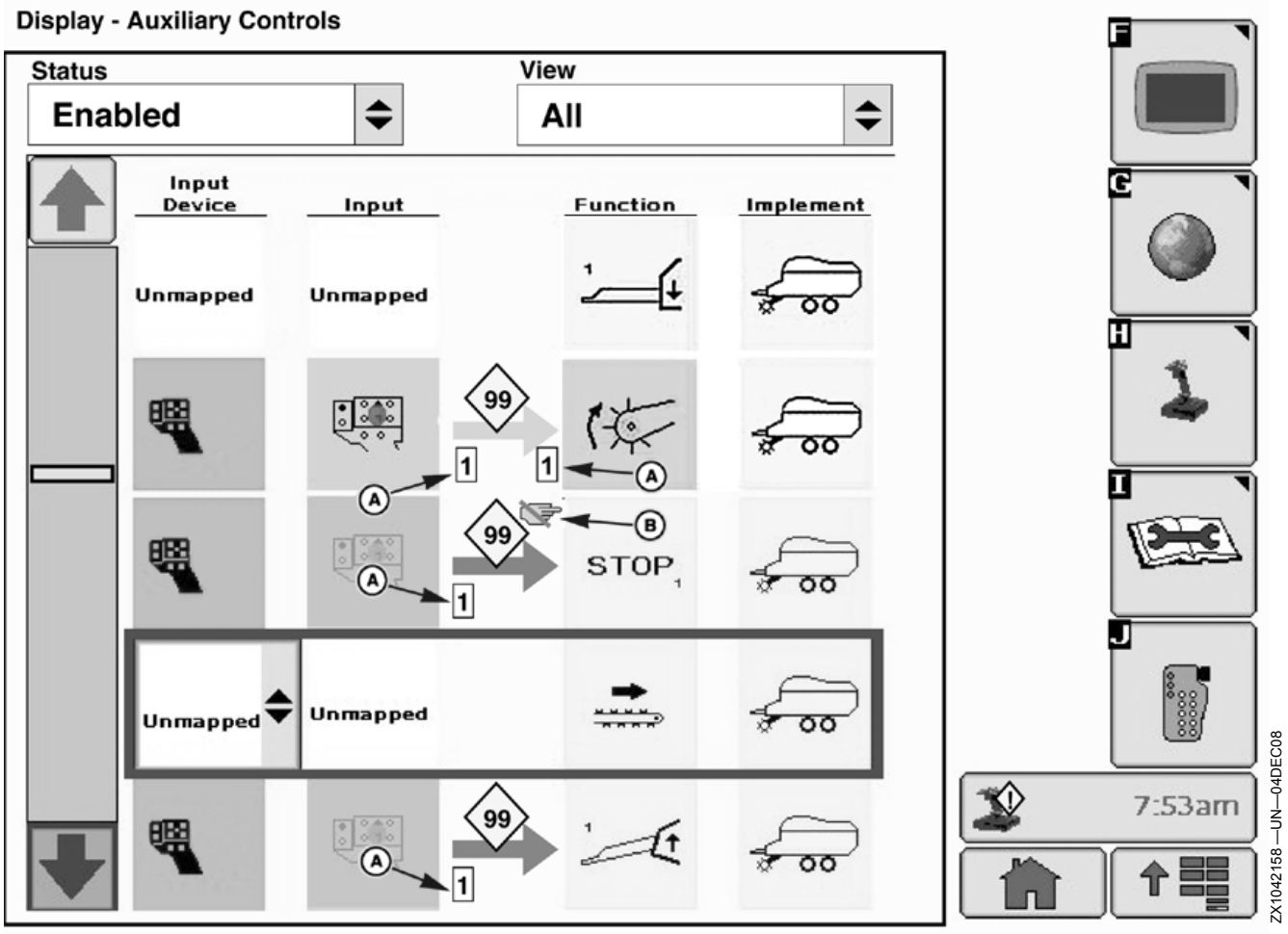
A—Assignment Error
F—Enter Key



Auxiliary Assignment—Negative Response

OUCC002,00029ED -19-04DEC08-4/4

Auxiliary Controls—Preferred Assignments



A—Single Assignment Icon **B—Assignment Lock Icon**

Auxiliary Controls allow an implement to request a preferred assignment for a specific input. The preferred assignment depends on the input device and implement configuration.

Example:

A joystick (4 inputs) and an implement (4 functions) are connected to the vehicle.

- Input 1 = function 1
- Input 2 = function 3
- Input 3 = function 2 and 4
- Input 4 = not assigned

In this example the implement **requests** function 3 to be mapped to input 2 and both functions 2 and 4 to be mapped on input 3. Input 4 remains blank.

This is called a preferred assignment and is requested by the implement as soon as implement and input device are connected. Once an assignment has been changed by the operator, the implement may store the mapping as the new preferred assignment for this particular configuration. If joystick and implement are disconnected and reconnected at a later date, the implement is able to reload the assignments again.

Based on input device and/or implement requirements the assignments may be limited:

- The single assignment icon (A) can be set by an auxiliary function and/or input.
  - If an implement function sets a single assignment icon, it can only be mapped separately to ONE button of the input device and no additional function can be assigned to this button.
  - If an input sets a single assignment icon, it can only be mapped to ONE implement function.
- The assignment lock icon (B) states that the assignment is requested automatically by the implement and can not be set manually by the operator.

Continued on next page

NOTE: Depending on the implement functions, the preferred assignment can also differ between the implement manufacturers.

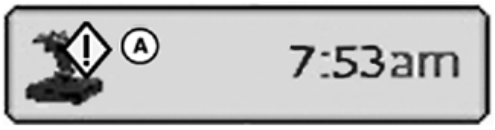
OUCC002,00029EA -19-12DEC08-2/2

Auxiliary Controls—Conflicts and Disabled Functions

Auxiliary Controls—Conflicts:

When a conflict occurs, the GS2 display shows a yellow square (A) next to the Auxiliary Control symbol in the message center button. This allows the operator to recognize conflicts at any time independently from the screen he is working on.

NOTE: The joystick icon appears only if Auxiliary Controls has been enabled.



ZX1042161 —UN—14OCT08

A—Conflict Occurrence Alert

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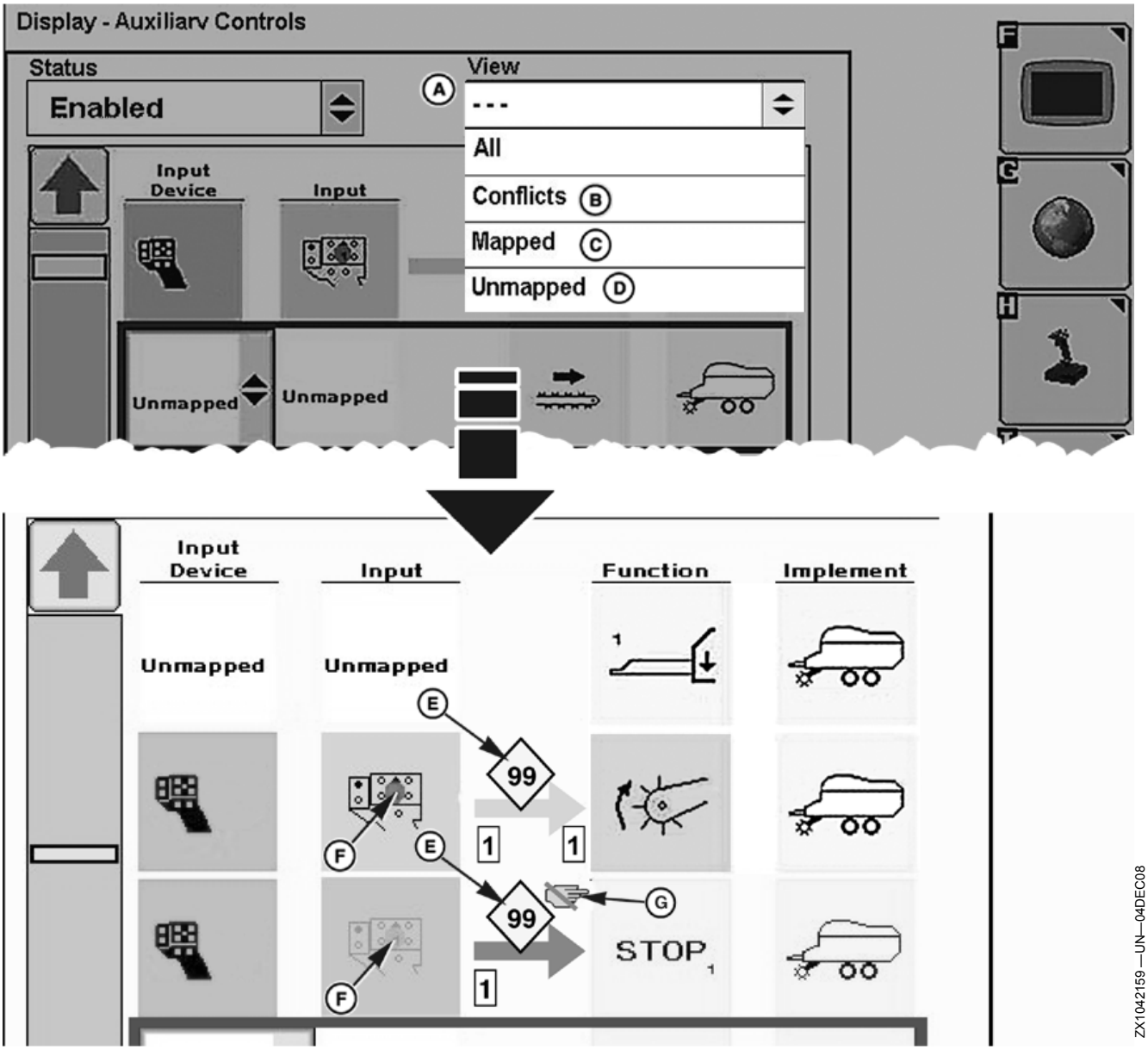
OUCC002,00029EB -19-16DEC08-1/5



A—View Selection
B—Conflicts
C—Mapped
D—Unmapped
E—Conflict Number
F—Input
G—Assignment Lock Icon

From the Auxiliary Controls page, the operator can select the mapped (C) and unmapped (D) functions and conflicts (B) from the drop-down list of view selection (A).

All conflicts are grouped together in the conflicts filter and marked with yellow square and numbers (E). All conflicts with the same number are related to each other.

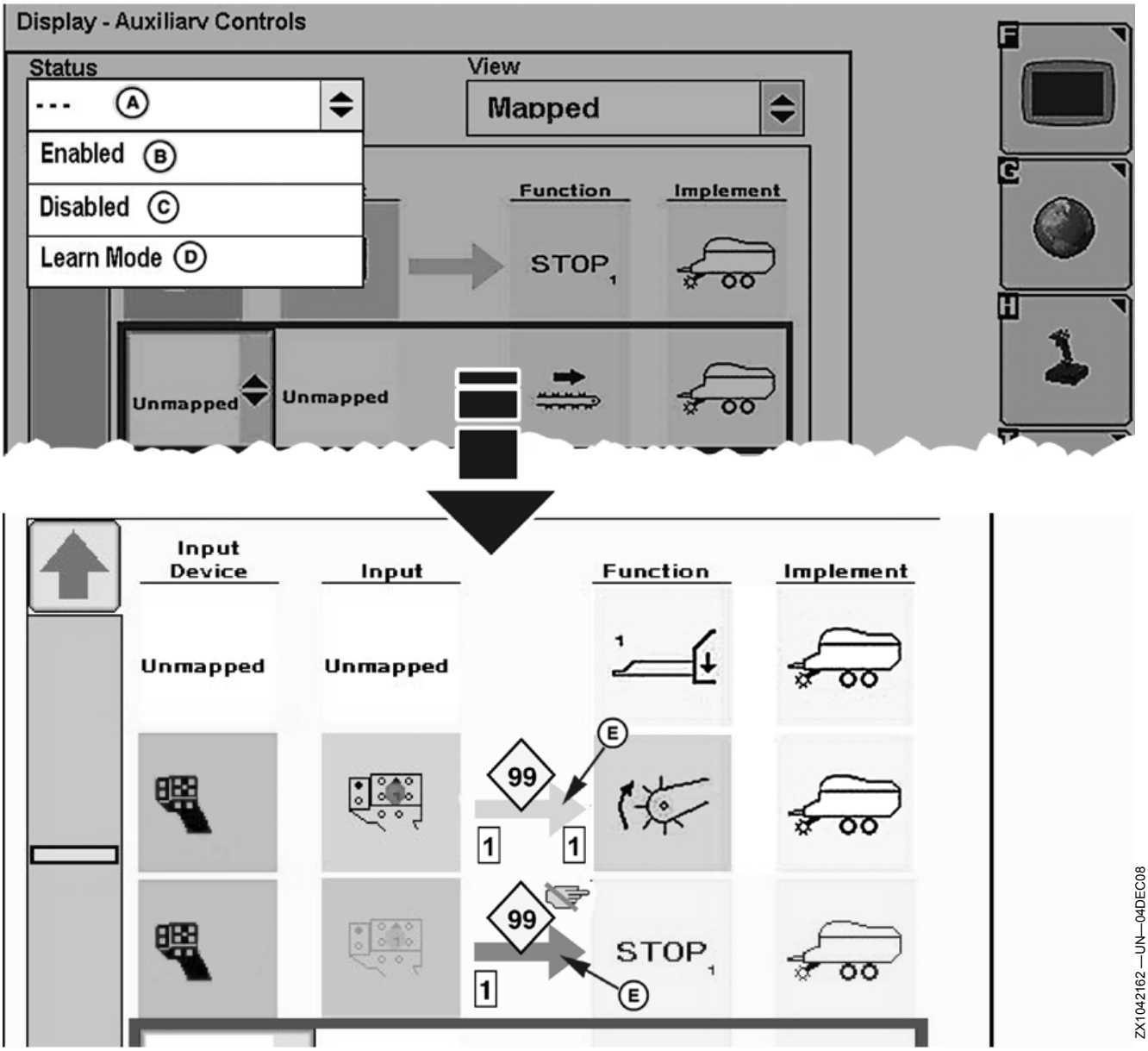
The conflict square icon (E) will appear on all related assignments even if they have been completed successfully or not.

In this example (see illustration), functions 2 and 3 have been requested to be assigned to the same input (F) although this input is set with a single assignment icon. In addition, the third function (STOP) is set with an assignment lock icon (G) and can not be set manually.

To resolve the conflict the second function **MUST** be remapped.

Continued on next page

OUCC002,00029EB -19-16DEC08-2/5



Auxiliary Controls—Enabled Functions

A—Status Selection
B—Enabled
C—Disabled
D—Learn Mode
E—Status Indicator—Constant

Auxiliary Controls—Enabled Functions:

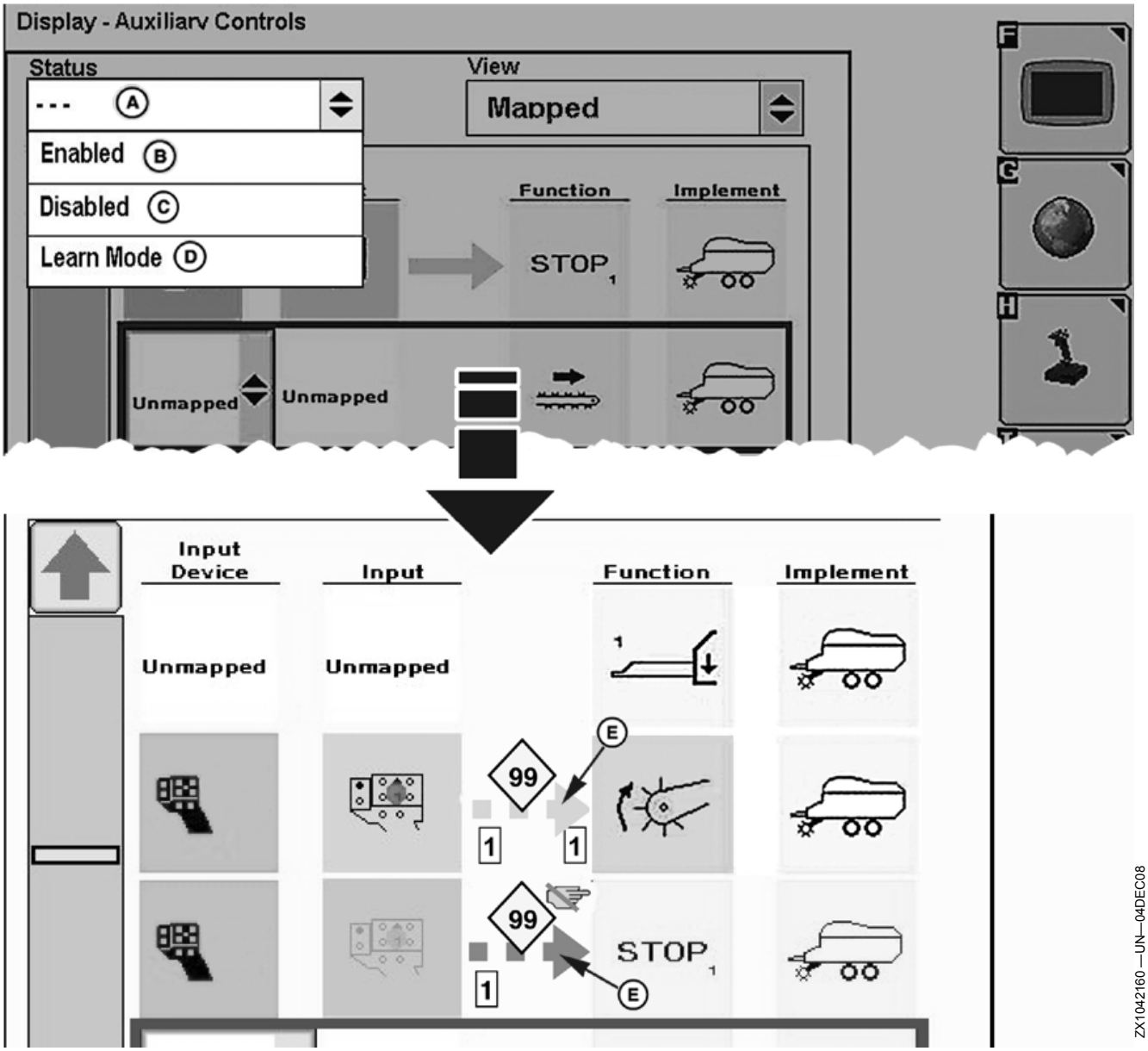
The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to enable the learn mode (D).

All active assignments are shown with a constant status indicator (E). In case of a conflict, the status indicator (E) switches from green to red color.

NOTE: If disabled is selected, Auxiliary Controls will be disabled and all mappings will show up with a dashed status indicator independent from if an assignment has been completed successfully or not. See Auxiliary Controls—Disabled Functions hereafter.

Selecting the "**Learn Mode**" allows the operator to map the functions by selecting the respective input controls for the referring assignment. See Auxiliary Controls—Learn Mode hereafter.

Continued on next page



Auxiliary Controls—Disabled Functions

A—Status Selection
B—Enabled
C—Disabled
D—Learn Mode
E—Status Indicator—Dashed

Auxiliary Controls—Disabled Functions:

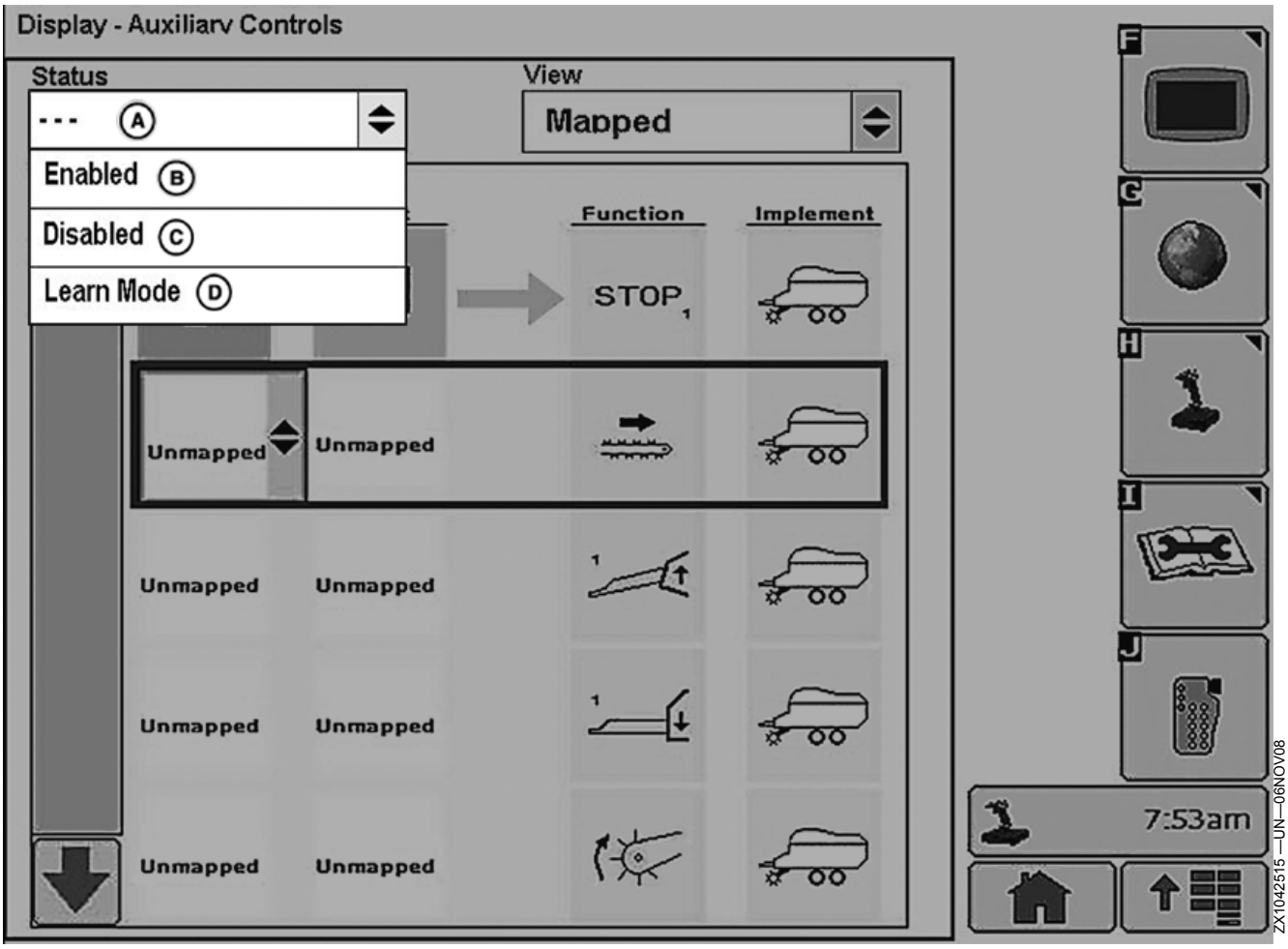
The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to enable the learn mode (D).

If Auxiliary Controls is "**Disabled**" all assignments are shown with a dashed status indicator (E). In case of a conflict, the status indicator (E) switches from green to red color.

Selecting the "**Learn Mode**" allows the operator to map the functions by selecting the respective input controls for the referring assignment. See Auxiliary Controls—Learn Mode hereafter.

Continued on next page

OUCC002,00029EB -19-16DEC08-4/5



Auxiliary Controls—Learn Mode

A—Status Selection **B—Enabled** **C—Disabled** **D—Learn Mode**

Auxiliary Controls—Learn Mode:

The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to place the system under learn mode (D).

- If the "**Learn Mode**" is selected and the operator leaves the Auxiliary Controls page without any action, the Auxiliary Controls status (enable/disable) will remain as set prior to entering the "**Learn Mode**".
- If an assignment has been completed successfully in the "**Learn Mode**", the cursor colored rectangle switches to the next possible assignment. During the assignment process, the implement **does NOT** follow any functions which have been assigned before. As long as the "**Learn Mode**" is selected, Auxiliary Controls is in a pending status (neither enabled, nor disabled).
- If Auxiliary Controls was in "**Enabled**" status before selecting the "**Learn Mode**", all additional assignments can be used as soon as they have been completed successfully. If Auxiliary Controls was in "**Disabled**" status before selecting the "**Learn Mode**", the system has to be enabled again before the new/additional assignments can be used.

Selecting the "**Learn Mode**" allows the operator to map the functions semi-automatically. Therefore it is necessary to select the implement specific function on the Auxiliary Controls page and set any input device function.

IMPORTANT: The preferred assignments which have been requested automatically by an implement with an assignment lock icon can not be changed manually in the "Learn Mode".

OUCC002,00029EB -19-16DEC08-5/5

Layout Manager

The Layout Manager provides the operator the ability to display user-defined screens in the home page layout. Once these screens are configured, the display will return to the configuration anytime the Home softkey is pressed.

NOTE: Original GreenStar Monitor Mode is only available in layout manager option A and F. Advanced Performance Monitor or ISOBUS is only available in layout manager option A.

PC9033 —UN—17APR06

Home softkey

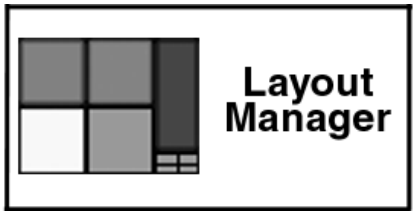
OUO6050,0002360 -19-28OCT08-1/5

Select Menu then select Softkey J which is the Layout Manager Option.

PC8663 —UN—05AUG05

MENU button

PC8656 —UN—17NOV05



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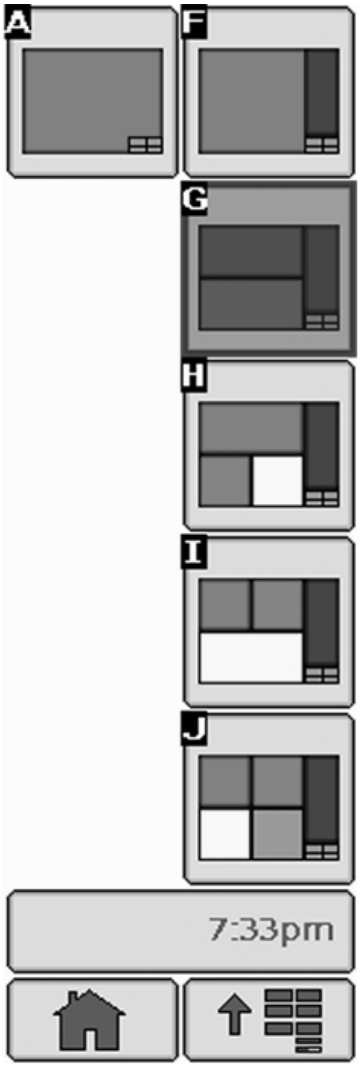
OUO6050,0002360 -19-28OCT08-2/5

Press softkey A, then press the large red area in main screen, this will bring you to the selection of programs to operate in that defined red area. You will see that Layout Manager A and F will have the largest selection of choices and layouts available. If you select GreenStar 2 Pro, you will then be taken to the confirmation screen seen below.



PC8870 —UN—17NOV05

Continued on next page

OUO6050,0002360 -19-28OCT08-3/5

If you are satisfied with the selection, press the ENTER button. If the selection is not what was intended, press the large block area again or press the CANCEL button to start over.

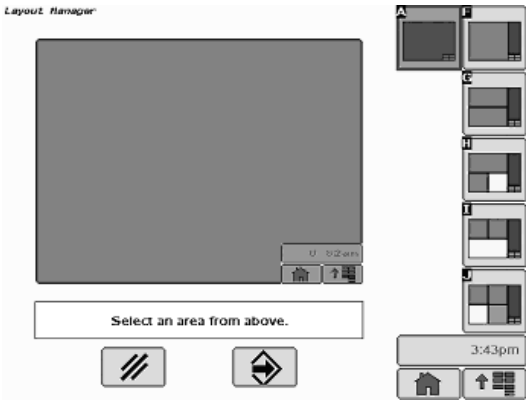
PC8649 —UN—01NOV05

ENTER button

PC8582 —UN—01NOV05

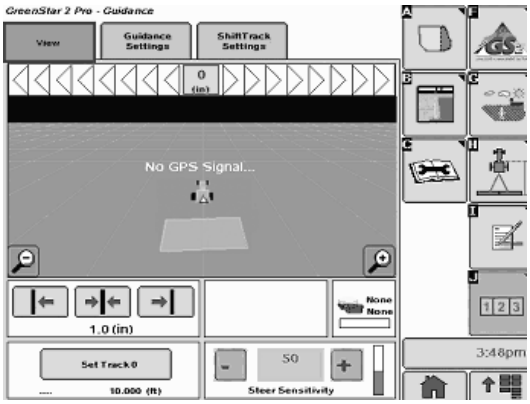
CLEAR button

Layout Manager Options with Example Layouts



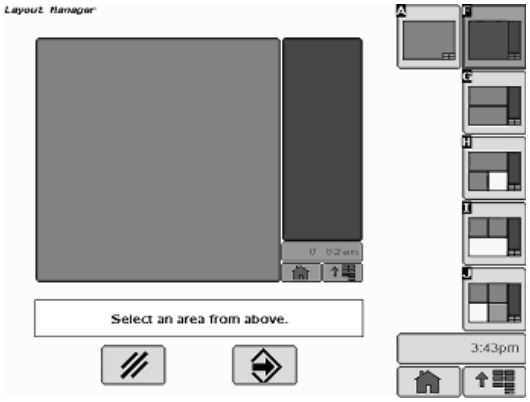
PC9034 —UN—17APR06

Layout Manager Option A



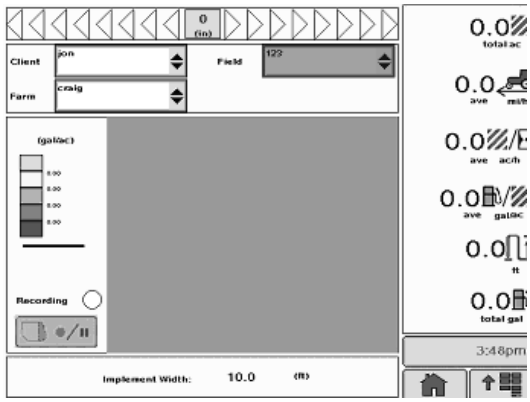
PC11395 —UN—14OCT08

Example of Layout Option A



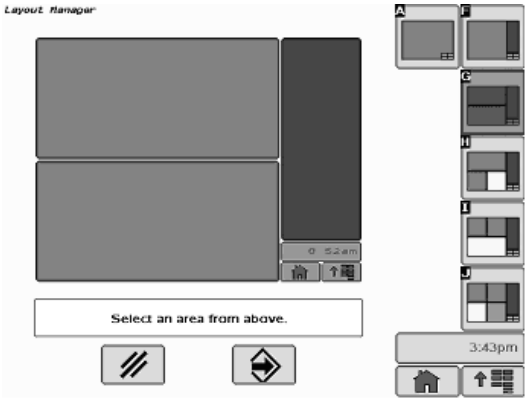
PC9036 —UN—17APR06

Layout Manager Option F



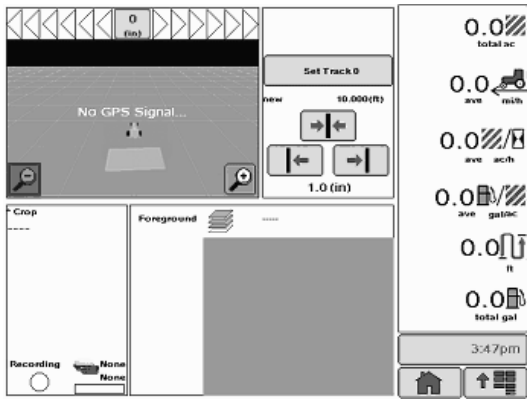
PC9037 —UN—17APR06

Example of Layout Option F



PC9038 —UN—17APR06

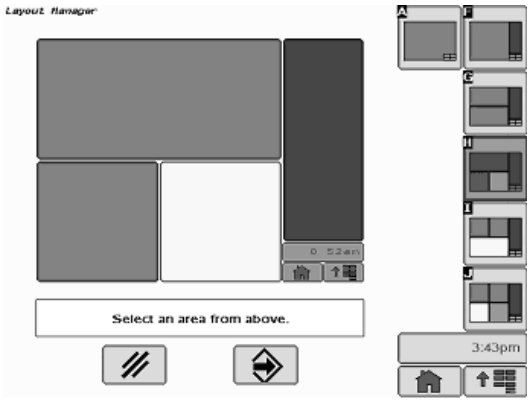
Layout Manager Option G



PC11396 —UN—14OCT08

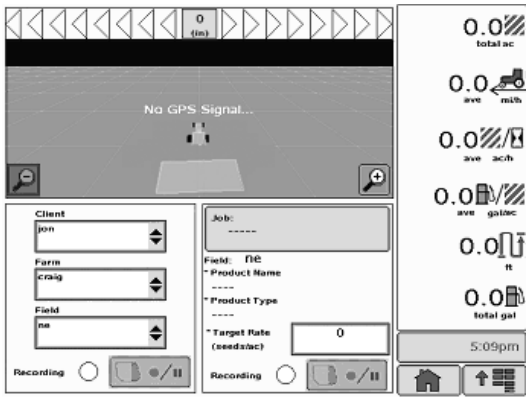
Example of Layout Option G

Continued on next page



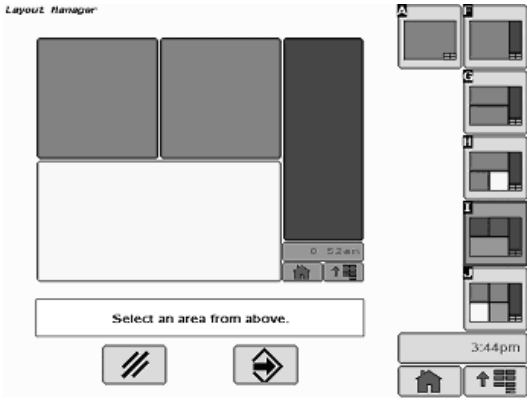
PC9040 —UN—17APR06

Layout Manager Option H



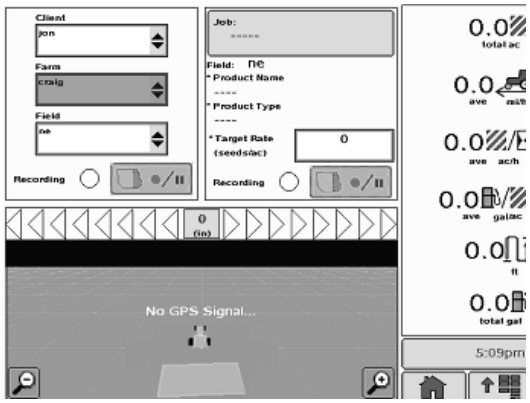
PC11397 —UN—14OCT08

Example of Layout Option H



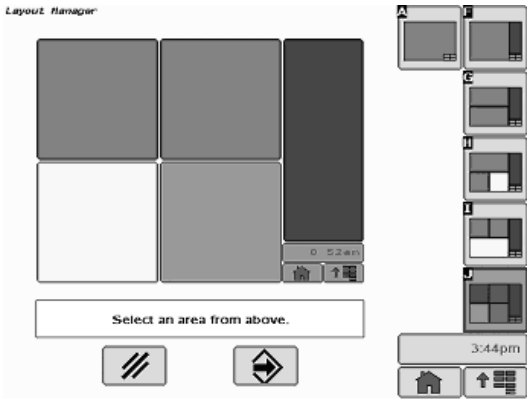
PC9042 —UN—17APR06

Layout Manager Option I



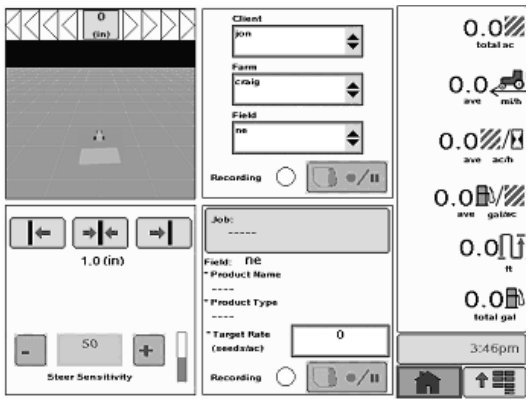
PC11398 —UN—14OCT08

Example of Layout Option I



PC9044 —UN—17APR06

Layout Manager Option J



PC11399 —UN—14OCT08

Example of Layout Option J

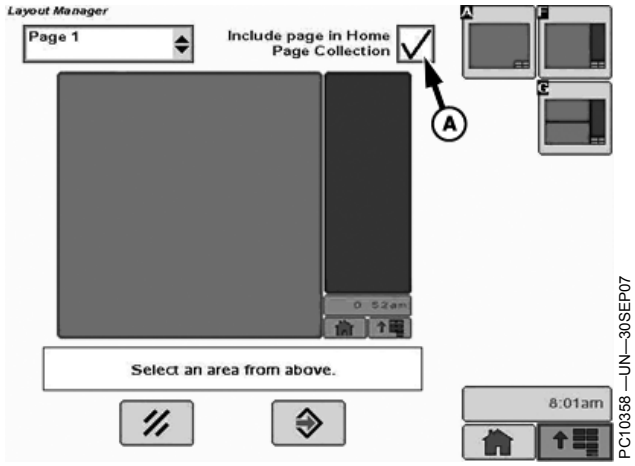
IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. This will ensure the setup data is saved to the data card prior to operating.

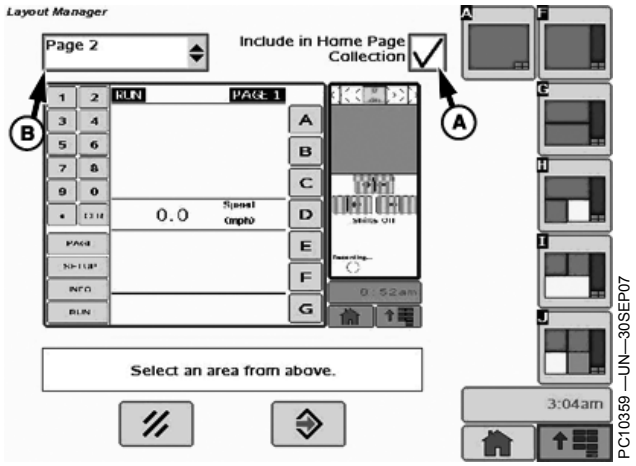
If the vehicle is running during setup and programming, turn the vehicle off with key in the OFF position and wait 30 seconds before restarting. This ensures that all data is saved to the data card.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

OUO6050,0002360 -19-28OCT08-5/5

Configure Multiple RUN pages





A—Include page in Home Page Collection checkbox **B—Page Number list box**

Multiple RUN pages allow the user to monitor the status of multiple applications in an easy way without navigating through several pages. The operator can configure five RUN pages on the HOME page.

To set up Multiple RUN pages:

1. In Layout Manager, select page number using the list box (B).
2. Configured the page with the applications to be displayed.
3. Put check in “Include page in Home Page Collection” checkbox

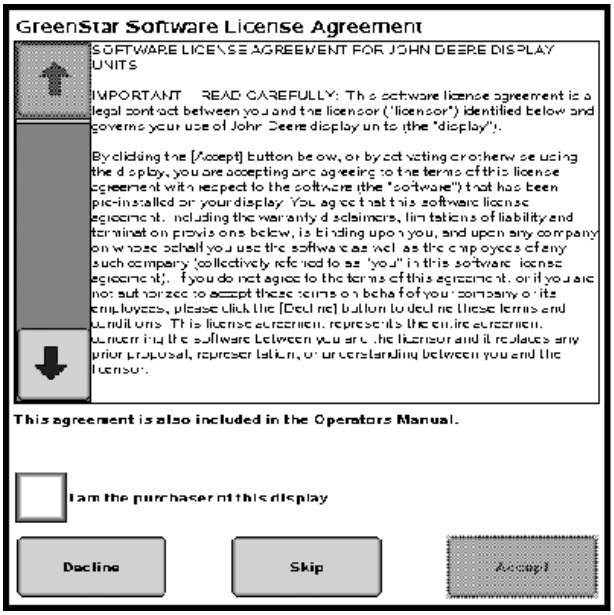
To view Multiple RUN pages click the HOME button on the menu bar of the display. Each time the HOME button is clicked the screen will advance to the next RUN page. When the last RUN page is being displayed on the screen, clicking the HOME button will bring up the first RUN page.

OUO6050,0000E57 -19-31OCT07-1/1

License Agreement

The first time you access the GreenStar tab on the display menu a license agreement will appear. If you are the purchaser of the display, read the agreement fully, check the box next to “I am the purchaser of this display”, and Accept agreement if you agree to the terms.

The License Agreement can be obtained from you local John Deere dealer or can be viewed at www.StellarSupport.com.



PC10857JD —UN—12APR09

License Agreement

OUO6050,00011FC -19-14SEP09-1/1

GREENSTAR2 PRO button

The GREENSTAR2 PRO - MAIN screen contains four tabs:

SETUP tab

Simplifies initial setup and configuration of GS2 applications.

Summary tab

Shows operational summaries.

ACTIVATIONS tab

View available software and enter code to activate.

MEMORY tab

COPY CARD button—copies data card showing memory used and estimated recording time left

BEGIN button—Prepares data card for removal

CLEAR button—Clears memory and restores factory defaults

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

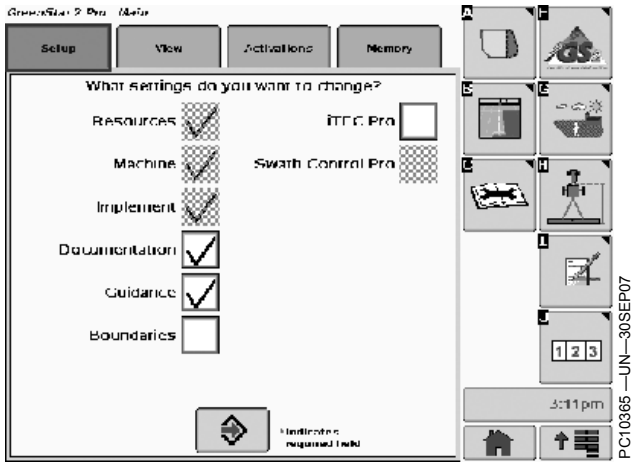
GREENSTAR2 PRO button

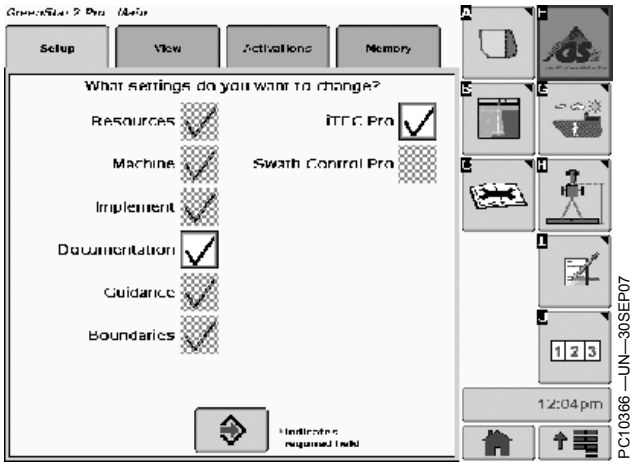
PC8675 —UN—14OCT05

GREENSTAR2 PRO button

OUO6050,0000E5C -19-01SEP09-1/1

Advanced Setup





GreenStar 2 Pro - Main

The Setup Tab is intended to simplify initial setup and configuration of the GS2 applications while also helping the operator become familiar with where the setup and configuration settings are located and which settings are required for full functionality. After using the Advanced Setup feature, the operator can start and run their desired operation and also know where to go to change settings.

The Advanced Setup feature can also be used to change individual settings as the operator progresses through their day-to-day operations.

While using Advanced Setup, select which functionality to configure.

- Resources
- Machine
- Implement
- Documentation
- Guidance
- Boundaries
- iTEC Pro
- Swath Control Pro
- Implement Guidance

Select any combination of functions to configure. If a function is dependent on other functions, the system automatically selects the required functions. The operator is not able to deselect those functions. If the operator selected the Boundaries function, the Resources function would be automatically selected to force the operator to select a Client, Farm, and Field.

The functions that the operator selects determine which pages are included in Advanced Setup. Only screens associated with functions selected are included.

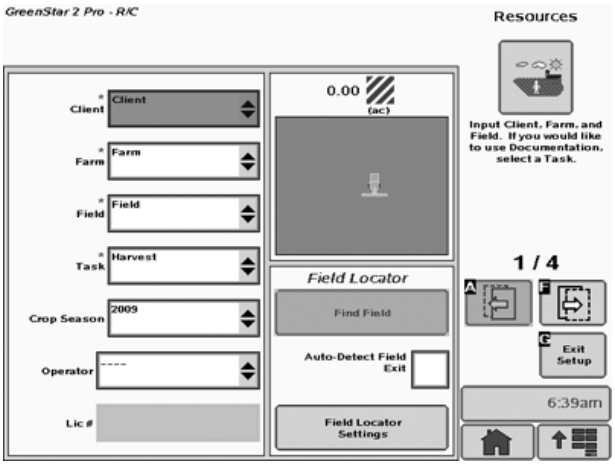
For each function, there is a list of required fields that must be complete and valid before the system works. Red asterisks indicate required fields. Based on the functions the operator has selected for setup, the GS2 applications determine which fields are required for successful setup. Those fields are visually indicated to the operator. Progressing through Advanced Setup without completing the required fields causes the system not to function correctly.

The following is an example of the Advanced Setup

Continued on next page

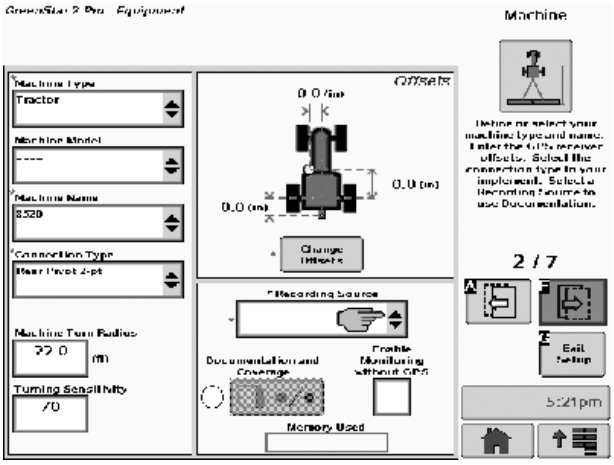
1. Define or select Client, Farm, Field. If you would like to use Documentation, select a task.

NOTE: Coverage maps can be created with Documentation off.



OUO6050,0000E5B -19-01SEP09-2/8

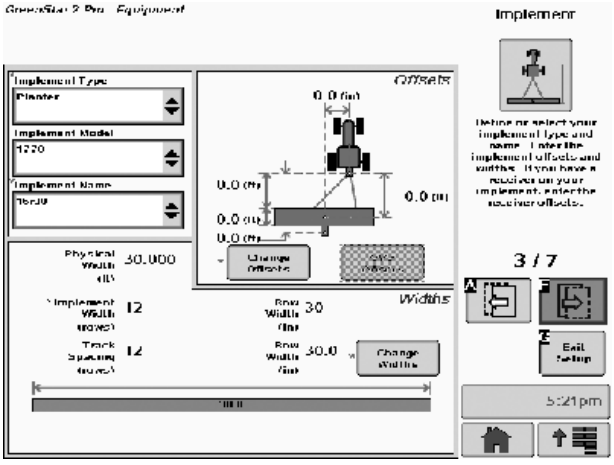
2. Define or select machine type and name. Enter the GPS receiver offsets. Select the connection type to your implement. Select a Recording Source to use Documentation.



GreenStar 2 Pro - Equipment 2/7

OUO6050,0000E5B -19-01SEP09-3/8

3. Define or select implement type and name. Enter the implement offsets and widths. If you have a receiver on your implement, enter the receiver offsets.

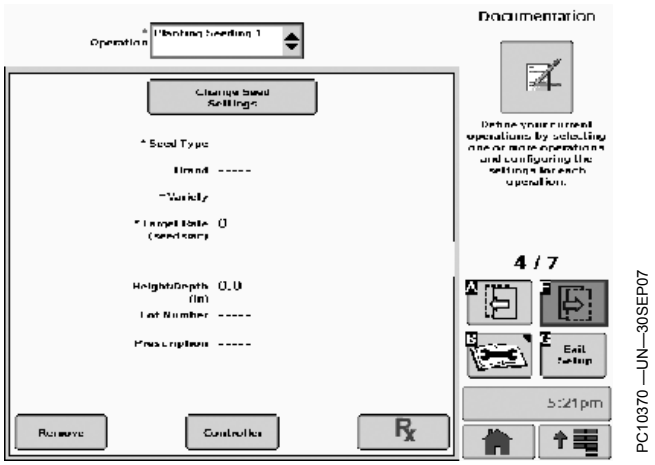


GreenStar 2 Pro - Implement 3/7

Continued on next page

OUO6050,0000E5B -19-01SEP09-4/8

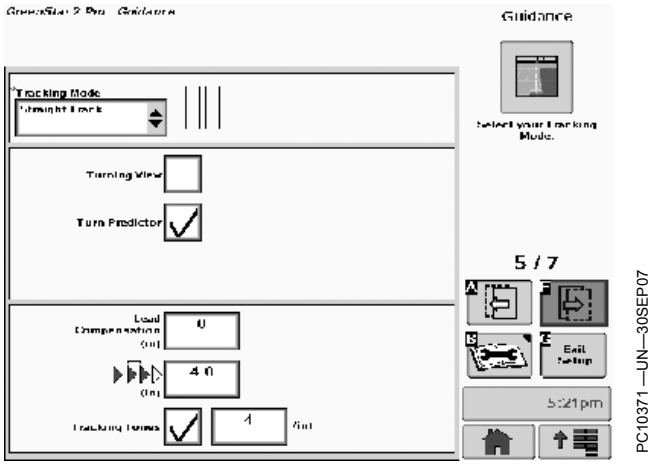
4. Define current operations by selecting one or more operations and configuring the settings for each operation.



GreenStar 2 Pro - Documentation 4/7

OUO6050,0000E5B -19-01SEP09-5/8

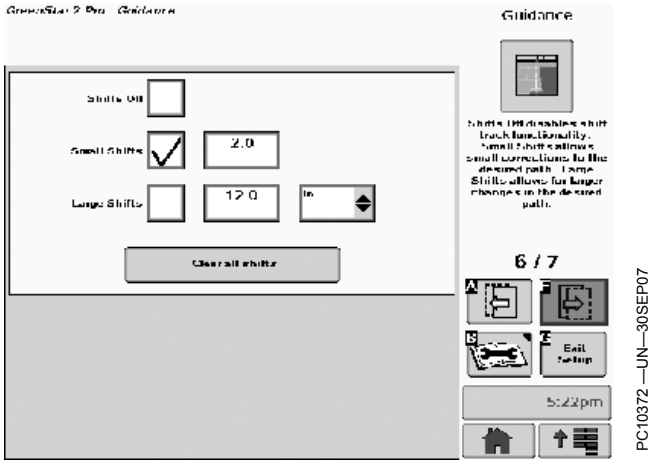
5. Select tracking mode.



GreenStar 2 Pro - Guidance 5/7

OUO6050,0000E5B -19-01SEP09-6/8

6. Select shift track settings. Shift off disables shift track functionality. Small Shifts allows small corrections to the desired path. Large Shifts allows for larger changes in the desired path.



GreenStar 2 Pro - Guidance 6/7

Continued on next page

OUO6050,0000E5B -19-01SEP09-7/8

7. Define or select current track.

GreenStar 2 Pro - Guidance 7/ 7

OUO6050,0000E5B -19-01SEP09-8/8

RESOURCES/CONDITIONS button

Settings in RESOURCES/CONDITIONS screen are used for guidance, documentation, and mapping and are recorded to the data card and can be unloaded to John Deere desktop software.

NOTE: If Alerts occur indicating memory space is full, desktop software can be utilized to remove unused items.

The GREENSTAR2 PRO - RESOURCES/CONDITIONS screen contains two tabs:

RESOURCES tab

- Client- Used to separate data from different clients, typically used by custom and commercial operators. Allows data to be unloaded for a specific client.
- Farm- Used to separate data from different farms and landowners.
- Field- Used to separate data from different fields within a farm.
- Task- Used to separate data from different field tasks like planting, spraying, and others. Set to 'Documentation Off' for operators who only use guidance and do not want to document field operation data.
- Operator- Used to separate data from different operators.
- License- Used to document applicator license for operator.
- Crop Season- Used to separate data from different crop seasons

CONDITIONS tab

- Temperature

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8676 —UN—05AUG05

RESOURCE/CONDITIONS softkey

- Wind Speed
- Wind Direction
- Sky Condition
- Humidity
- Crop Growth Stage
- Soil Moisture
- Soil Temperature

OUO6050,00022B4 -19-27OCT09-1/1

EQUIPMENT softkey

The equipment screen is used to record data by machine to document total area and hours. Equipment settings are also used for inputs on implement size, GPS receiver location, etc. Track spacing is used for machine guidance and coverage maps.

The GREENSTAR2 PRO - EQUIPMENT screen can contain up to four tabs:

MACHINE tab

IMPLEMENT 1 tab

IMPLEMENT 2 tab (optional)

IMPLEMENT 3 tab (optional)

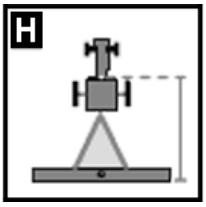
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

OUO6050,00022B5 -19-20NOV06-1/1

MACHINE and IMPLEMENT tabs

MACHINE tab allows setup of the following:

- Machine Type—Used to select machine type.
- Machine Model—Used to distinguish between different models.
- Machine Name—Used to distinguish between multiple machines of the same model.
- Connection Type—Drawbar or 3 pt. hitch.
- Machine Turn Radius
- Turning Sensitivity
- Recording Source—Used to determine when recording turns on-off.
- Machine Offset—Used to eliminate skips or overlaps due to an offset receiver.

NOTE: Not all recording sources are available for all machines. Many recording sources require ground speed.

Recording Source

NOTE: If Manual Mode is selected, the operator must push the Record or Pause Button to turn recording on or off for Documentation and Coverage Maps.

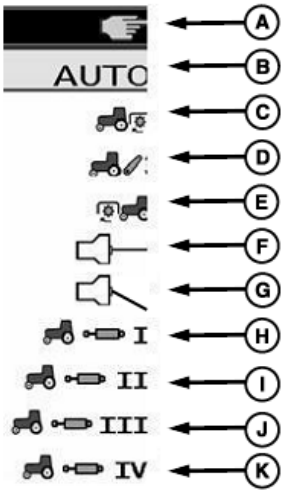
The following control units can be used with AUTO to turn recording on and off automatically :

- John Deere Harvest Monitor
- John Deere SeedStar™ for Air Carts
- John Deere SeedStar Gen 2 Monitor or Variable Rate Drive for Planters
- John Deere SprayStar™ Gen 4
- John Deere Central Insecticide System
- Raven™ 440, 450, 460, 660
- SideKick
- GreenSeeker™
- Rawson™ Accu-Rate™ and Accu-Plant™
- New Leader™ Mark III Mark IV
- Dickey-John™ Seed Manager
- Vanguard™ PIC Seed Monitor
- Task control unit compliant implements (sprayer, seeder, and planter)

NOTE: Dual Variety Function cannot be used with a three motor VRD planter

NOTE: PTO, Hitch, and SCV can be used as a recording source on certain vehicles only.

SeedStar is a trademark of Deere & Company
SprayStar is a trademark of Deere & Company
Raven is a trademark of Raven
GreenSeeker is a trademark of NTech Industries, Inc.
Rawson is a trademark of Rawson
Accu-Rate is a trademark of Rawson
Accu-Plant is a trademark of Rawson
New Leader is a trademark of New Leader
Dickey-John is a trademark of Dickey-John
Vanguard is a trademark of Vanguard



PC8770 —UN—11OCT05

Recording Source

A—Manual Recording On/Off
B—Automatic (from controller)
C—Rear PTO
D—3-point Hitch
E—Front PTO
F—Implement Switch Open
G—Implement Switch Closed
H—SCV 1
I— SCV 2
J— SCV 3
K—SCV 4

IMPLEMENT tabs allow setup of the following:

- Implement Type—Used to select machine type.
- Implement Model—Used to distinguish between different models.
- Implement Name—Used to distinguish between multiple machines of the same model.
- Implement Offsets—Used to eliminate skips or overlaps due to an offset receiver.
- Implement Widths

For more information, see MACHINE AND IMPLEMENT SETUP section.

OUO6050,00022B6 -19-01SEP09-1/1

Mapping Softkey

MENU > GreenStar2 Pro > Mapping

The following functionality is accessed with the mapping softkey:

- On-screen Maps
- Boundaries
- Flags

Several map type choices are provided in Map Settings.

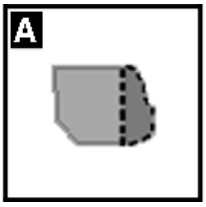
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8672 —UN—05AUG05

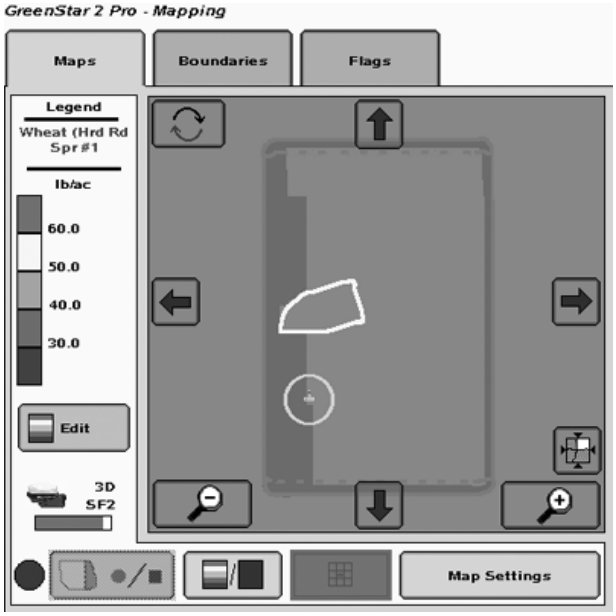


MAPPING softkey

OUO6050,0001208 -19-30SEP09-1/1

MAPS tab

View and setup on-screen maps by selecting the Maps tab.

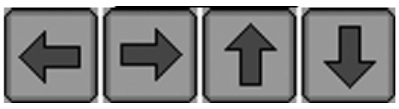


PC10857RG —UN—01OCT09

OUO6050,0001206 -19-28OCT09-1/13

Pan buttons -Move the map left, right, up, and down.

PC10857RK —UN—01OCT09



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OUO6050,0001206 -19-28OCT09-2/13

Zoom buttons -Zoom the map larger and smaller.

PC10857RM —UN—01OCT09

OUO6050,0001206 -19-28OCT09-3/13

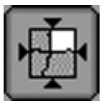
Toggle Map Size -Toggle map to a full screen view.

PC10857RO —UN—01OCT09

OUO6050,0001206 -19-28OCT09-4/13

Reset Zoom/Center Map - This button is used to re-center the machine icon on the map view page after zooming in and out or panning with the arrow buttons up, down, left, and right.

PC10857RP —UN—01OCT09



OUO6050,0001206 -19-28OCT09-5/13

Map View Toggle - The map can be toggled between three views by selecting the Map View Toggle button. When the button is pressed, the icon will change to one of the 3 icons shown in this section. However, the button will always remain in the same location.

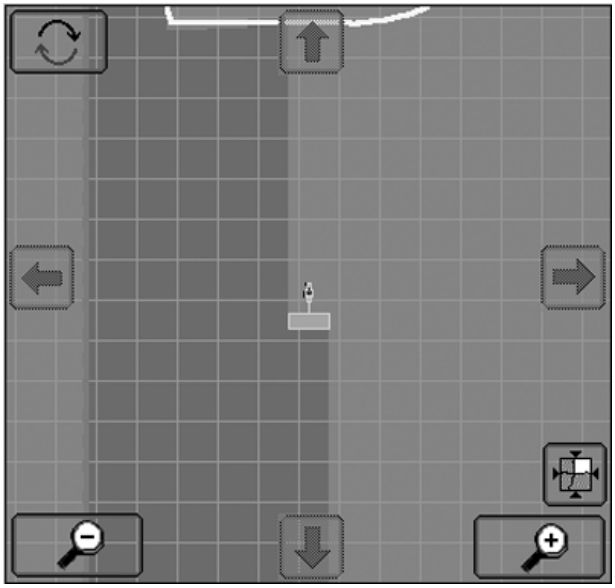
PC10857RN —UN—01OCT09

OUO6050,0001206 -19-28OCT09-6/13

Map View Options

Moving Overhead View

- The vehicle is fixed and stays centered on the map while the map moves.
- The direction of the vehicle travel is toward the top of the page.



PC10857RE —UN—01OCT09

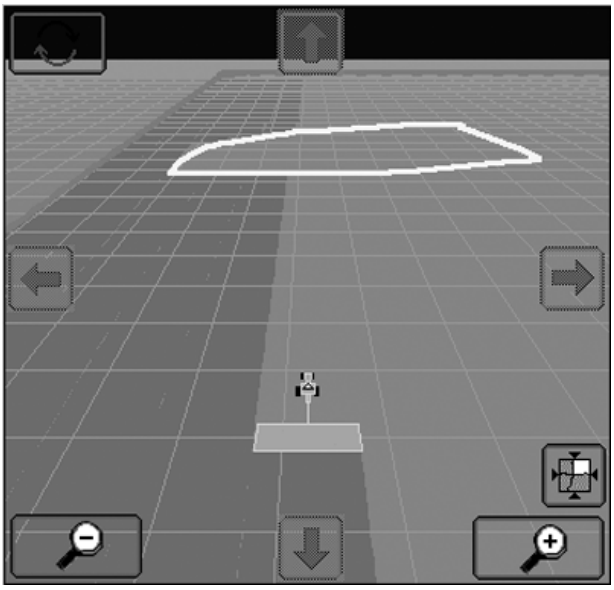
Moving Overhead View

Continued on next page

OUO6050,0001206 -19-28OCT09-7/13

Perspective View

- Functions similar to Moving Map View



PC10857RD —UN—01OCT09

Perspective View

OUO6050,0001206 -19-28OCT09-8/13

Fixed Overhead View

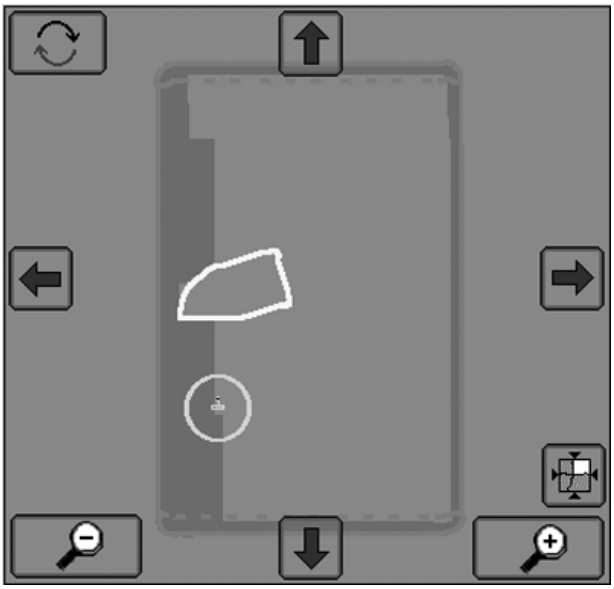
- The vehicle moves back and forth while the map is fixed.
- North is always at the top of the page.

Recording Start or Stop button – Map recording can be turned on and off manually or automatically. Go to the Equipment Softkey to select the recording source.

MENU >> GREENSTAR2 PRO button >> EQUIPMENT soft key >> MACHINE tab >> RECORDING SOURCE drop down box.

This button is used to start and stop recording when the recording source is set to Manual. When an automatic recording source is selected in Equipment setup, this button will be disabled. When the red circle is blinking, coverage recording is on.

See EQUIPMENT softkey in the GreenStar General section for more details on automatic sources that can be used to turn recording on/off.



PC10857RF —UN—01OCT09

Fixed Overhead View

OUO6050,0001206 -19-28OCT09-9/13

Editing Map Legend – The Map Legend displays the values of the map colors.

1. Select the Edit button to change the range of the legend for maps that have color scales.
2. Enter the preferred maximum (A) and minimum (B) values in the window that appears.

PC10857RJ —UN—01OCT09

The Legend will then be divided into five colors automatically.

Continued on next page

OUO6050,0001206 -19-28OCT09-10/13

Coverage Map Toggle button – The map can be toggled between the Coverage Map and the current operation map.

PC10857RL —UN—01OCT09

OUO6050,0001206 -19-28OCT09-11/13

Map Settings button (A) – This button is used to set up the map view.

Foreground maps overlay on top of background maps.

Background Layer Options (B) – choose available layer to show as the background of the map view.

- Prescription Maps
- Arial Images

Foreground Layer Options (C) - choose between Coverage Only map or As-Applied if available.

- As-applied seed rate map
- As-applied spray rate map
- As-applied spread rate map

The As-Applied coverage map is used to show where and how much product has been applied in the field.

- As harvested (yield) map
- As harvested (moisture) map
- Tillage depth map
- Coverage Only map

The Coverage Only map is used to show where the machine has been in the field. This is the same coverage map that is displayed on guidance pages.

NOTE: If Coverage Only map is selected, the legend of the map view will read "Coverage only" and the Coverage Map toggle button will be disabled.

Guidance Lines (D) – Check this box if you would like your Guidance Lines to show on your map view.

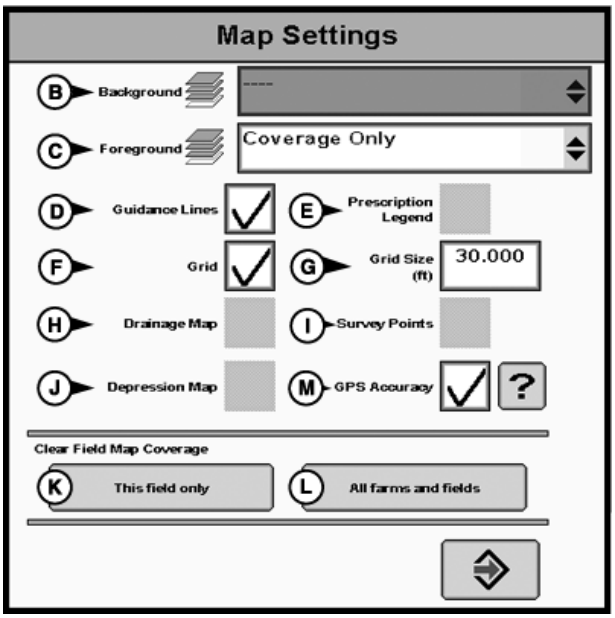
Prescription Legend (E) – Check this box if you would like your Prescription Legend to show on the map view page.

NOTE: An area of the prescription, that has been assigned a zero rate, will now appear black on your prescription map in the GS2.

Grid (F) – Check this box if you would like a grid pattern to show up in your map view.

Grid Size (G) – Enter the size you want the grid to represent on the map view.

Drainage Map (H) – Check this box if you would like to view your Drainage Map. (Surface Water Pro/Pro Plus Only)



PC10857RH —UN—28OCT09

PC10857RW —UN—28OCT09

Map Settings Button (A)

Survey Points (I) – Check this box if you would like to view your Survey Points. (Surface Water Pro/Pro Plus Only)

Depression Map (J) – Check this box if you would like to view your Depression Map. (Surface Water Pro/Pro Plus Only)

Clear Field Map Data – Clear Coverage Only map data or As-Applied map data from the map view.

- Current Field (K)
- All Farms and Fields (L)

Maps are retained through power cycles and will remain until a Clear Field Map Data button is used to clear the map(s). Returning to a partially applied field will prompt the user to clear map or continue field task.

Display GPS Accuracy on Coverage Map (M) – Check this box to make the "Coverage Only" map paint orange when the Starfire receiver has reduced GPS accuracy.

Continued on next page

OUO6050,0001206 -19-28OCT09-12/13

Displaying GPS Accuracy on Coverage Map – This feature is specifically designed for Swath Control Pro on Planters, but can be useful for any precision application. The “Coverage Only” map will paint an orange color when the GPS accuracy drops below the desired threshold. It will continue to paint blue when GPS accuracy is acceptable. Operating with reduced GPS accuracy may cause skips and overlaps when using Swath Control Pro. Turn on the feature by checking GPS ACCURACY in Map Settings.

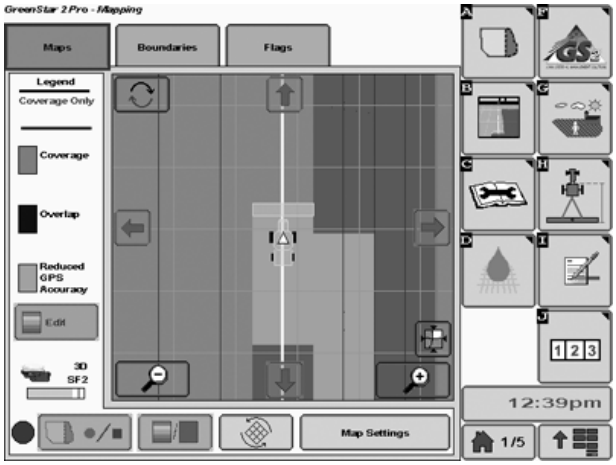
MENU >> GREENSTAR2 PRO >> MAPPING >> MAP SETTINGS >> check GPS ACCURACY box

The threshold for desired GPS accuracy aligns with the black line in the GPS Accuracy Indicator bar graph under the StarFire receiver icon. See your StarFire manual for more information on the GPS Accuracy Indicator.

The threshold that causes the Coverage Map to paint orange aligns with the GPS Accuracy Indicator bar graph under the StarFire receiver icon. Both the map and bar graph will turn orange when GAI < 9. See your StarFire manual for more information on the GPS Accuracy Indicator.

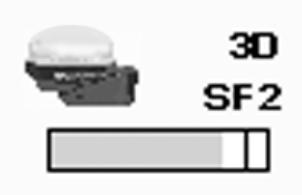
GPS Accuracy Indicator (GAI)

Overlapping coverage will paint the normal dark blue color whether or the overlapping coverage was recorded with reduced GPS accuracy.



Display GPS Accuracy on Coverage Map

PC10857RQ —UN—01OCT09



GPS ACCURACY box

OUO6050,0001206 -19-28OCT09-13/13

Boundary Type Description

Available Boundary Types

- Exterior
  - Exterior Headland
- Interior (Optional)
  - Passable Interior
  - Impassable Interior
  - Interior Headlands (Required if Impassable Interiors are used)

NOTE: Headlands are for use with iTEC Pro. Other GreenStar software may view headlands on the Guidance page, but will not utilize them.

NOTE: Sprayer Pro functionality is based up on exterior, interior and impassable interior boundaries functionalities.

JS56696,0000494 -19-25NOV08-1/1

Boundary Screen

MENU >> GREENSTAR 2 PRO >> MAPPING >> BOUNDARIES tab

NOTE: Apex is not available in all EAME countries.

The boundary screen allows operator to set up the following information:

- Client (set up in Apex or as Custom Name)
- Farm (set up in Apex or as Custom Name)
- Field (set up in Apex or as Custom Name)
- Type
- Headland Group
- Creation Method
- Headland Indicator
- Name
- Passable/Impassable Check Box (for Interiors)
- Boundary Offset
- Boundary Map
- Recording

NOTE: Client, Farm, and Field can also be created on screen by selecting NEW from the drop-down menu.

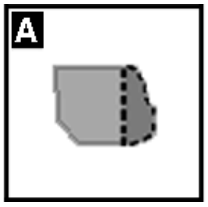
PC8663 —UN—05AUG05

MENU Softkey

PC8661 —UN—02NOV05

GREENSTAR2 PRO Softkey

PC8672 —UN—05AUG05



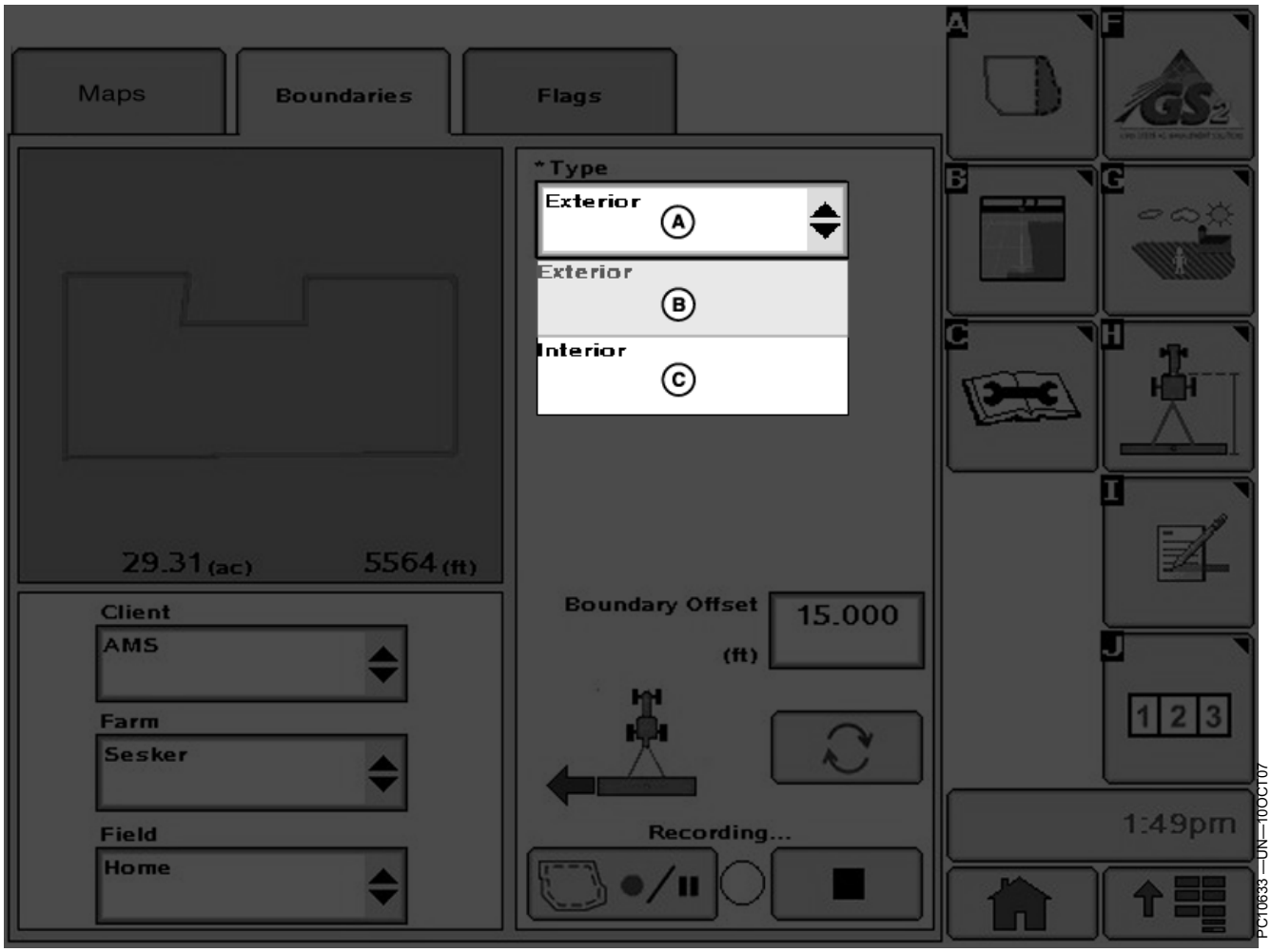
MAPPING Softkey

PC10632 —UN—15JUL08

Boundaries tab

Continued on next page

JS56696,0000495 -19-11MAY09-1/3



A—Boundary Type Drop-Down Menu **B—Exterior Boundary** **C—Interior Boundary**

Exterior Boundary (required)— The perimeter of the field.

Exterior Headland (required)— The end rows along the sides of the field where the end-turns occur.

Boundary type can be changed to HEADLAND when either an exterior or interior boundary has been selected. If one of these is selected, the screen changes to the following screens.

NOTE: The defined Headlands need to be large enough for vehicle and implement to turn around without the use of brakes.

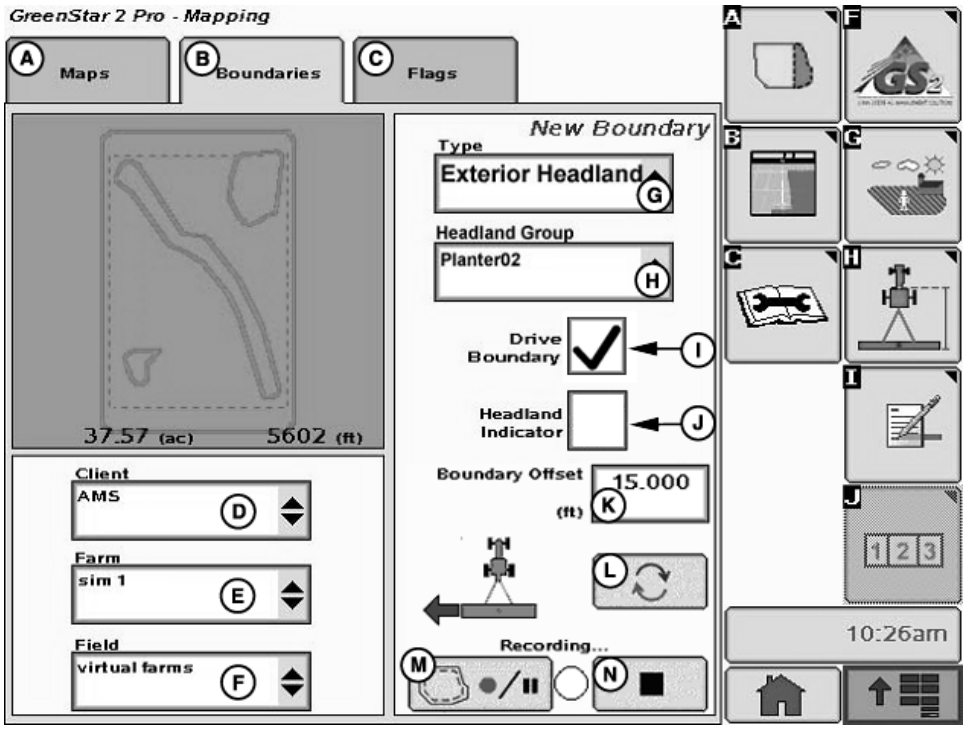
Passable Interior Boundary— The perimeter of an area inside the field which is not farmed, but can be crossed with the vehicle and implement (e.g. waterway).

Impassable Interior Boundary— The perimeter of an area inside the field which is not farmed, and cannot be crossed with the vehicle and implement.

Interior Headland— The end rows or turn rows around an Impassable Interior Boundary.

Continued on next page

JS56696,0000495 -19-11MAY09-2/3



Boundaries with Driven Exterior Headland Boundary

A—Maps Tab
B—Boundaries Tab
C—Flags Tab
D—Client Drop-Down Menu
E—Farm Drop-Down Menu
F—Field Drop-Down Menu
G—Type Drop-Down Menu
H—Headland Group Drop-Down Menu
I— Drive Boundary Check-Box
J— Headland Indicator Check-Box
K—Boundary Offset Input-Box
L— Receiver Offset Toggle
M—Record/Pause
N—Stop Recording

Headland Group— A combination of one or more related headland boundaries. Different operations may use different headland groups. For instance, there may be a Planter group where the headlands are 36.6 m (120 ft), and a Field Cultivator group where the headlands are 27.4 m (90 ft). Different field operations can require different headlands.

JS56696,0000495 -19-11MAY09-3/3

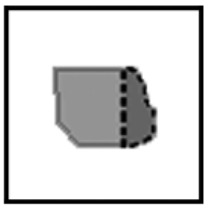
Boundaries Tab

The BOUNDARIES tab allows you to record exterior field boundaries as well as interior and headland boundaries. Boundaries calculate acreage and are saved on the data card to be unloaded in John Deere's APEX desktop software. For best accuracy, exterior boundaries should be driven.

In the HEADLAND INDICATOR check box, mark whether you want the indicator on or off. This will count down the distance to the next headland on the Guidance map.

Headland Boundary—Headlands will show on the Guidance View tab as dashed pink lines to show where the headlands exist in maps and perspective views. Only Exterior Boundaries and Impassable Interior Boundaries can have a Headland Boundary.

PC11418 —UN—21OCT08



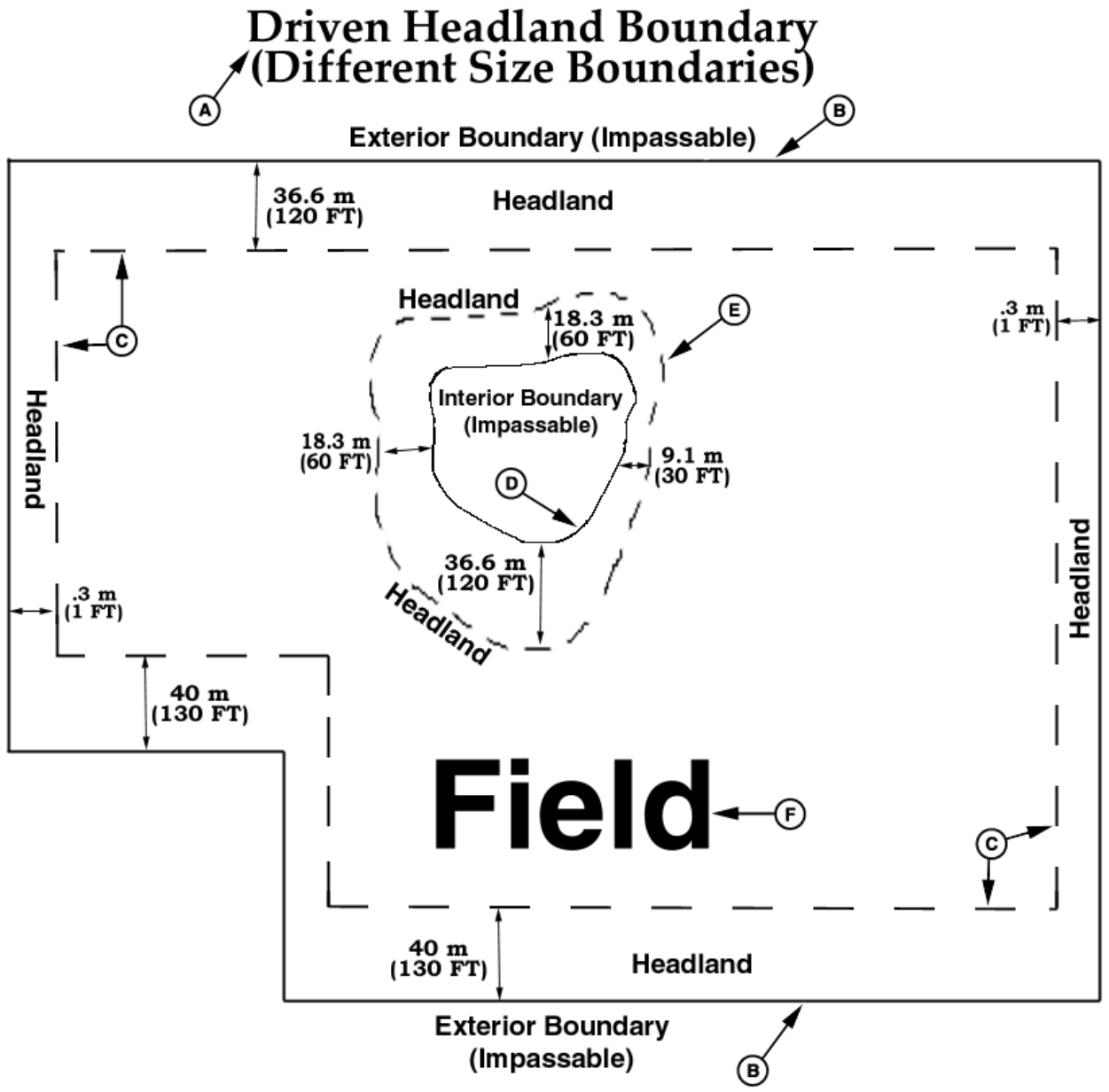
Mapping Softkey

NOTE: Apex is not available in all EAME countries.

Headland Boundaries can either be driven or entered as an offset from the Exterior or Interior Boundary.

JS56696,0000496 -19-06OCT08-1/1

Driven Headland Offset Boundary



Driven Headland Boundary (Different Size Boundaries)

A—Driven Boundary (Different Size Boundaries)
B—Exterior Boundary (Impassable)
C—Exterior Headland
D—Interior Boundary (Impassable)
E—Interior Headland
F—Field

Creating a Driven Boundary

1. Select MAPPING softkey >> BOUNDARIES tab.
2. Select the Client, Farm, and Field from the drop-down menus.
3. Choose TYPE of boundary you want to drive from the drop-down menu.
4. Select DRIVEN from the creation method drop-down menu for Exterior Headlands or place a check in the DRIVE BOUNDARY check-box for Interior Headlands.
5. Enter the distance from the GPS receiver to the edge of the field. This can be done during the first pass around the field and then the distance would be half the implement width.

Continued on next page

OUO6050,0000E76 -19-30SEP09-1/3

6. Choose whether the boundary will be left or right of the tractor's receiver, or left or right of the implement's calculated position.

NOTE: Select the toggle button to record left or right of either the tractor receiver or the implement. If set from the implement, the location will be left or right of the rear of the implement.

IMPORTANT: When toggling the button to change the recording position, recording must be PAUSED or OFF.

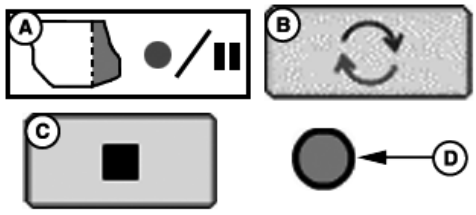
OUO6050,0000E76 -19-30SEP09-2/3

7. Press the Record/Pause button at least 1 or more seconds after the vehicle begins moving forward around the section of the field for the boundary being recorded. Record light should blink red and pink when recording is on. If you need to pause recording to drive around an obstacle, press the Record/Pause button. Record light will show solid red. When Record/Pause button is pressed again, recording will resume. The boundary will show a straight line from where recording was paused to where it was resumed.

NOTE: Many times the boundary should be recorded around an obstacle so iTEC Pro can alert the operator of these obstacles.

8. If recording was started along a straight section of the boundary, the Stop button can be pressed after turning the last corner near the straight section. If recording was started in a corner, press the Stop button just prior to the point where recording was started. Make sure the point where recording was stopped does not intersect the point where it was started. Pressing the stop button will complete the boundary by showing a straight line between the point where it was stopped and the starting point.

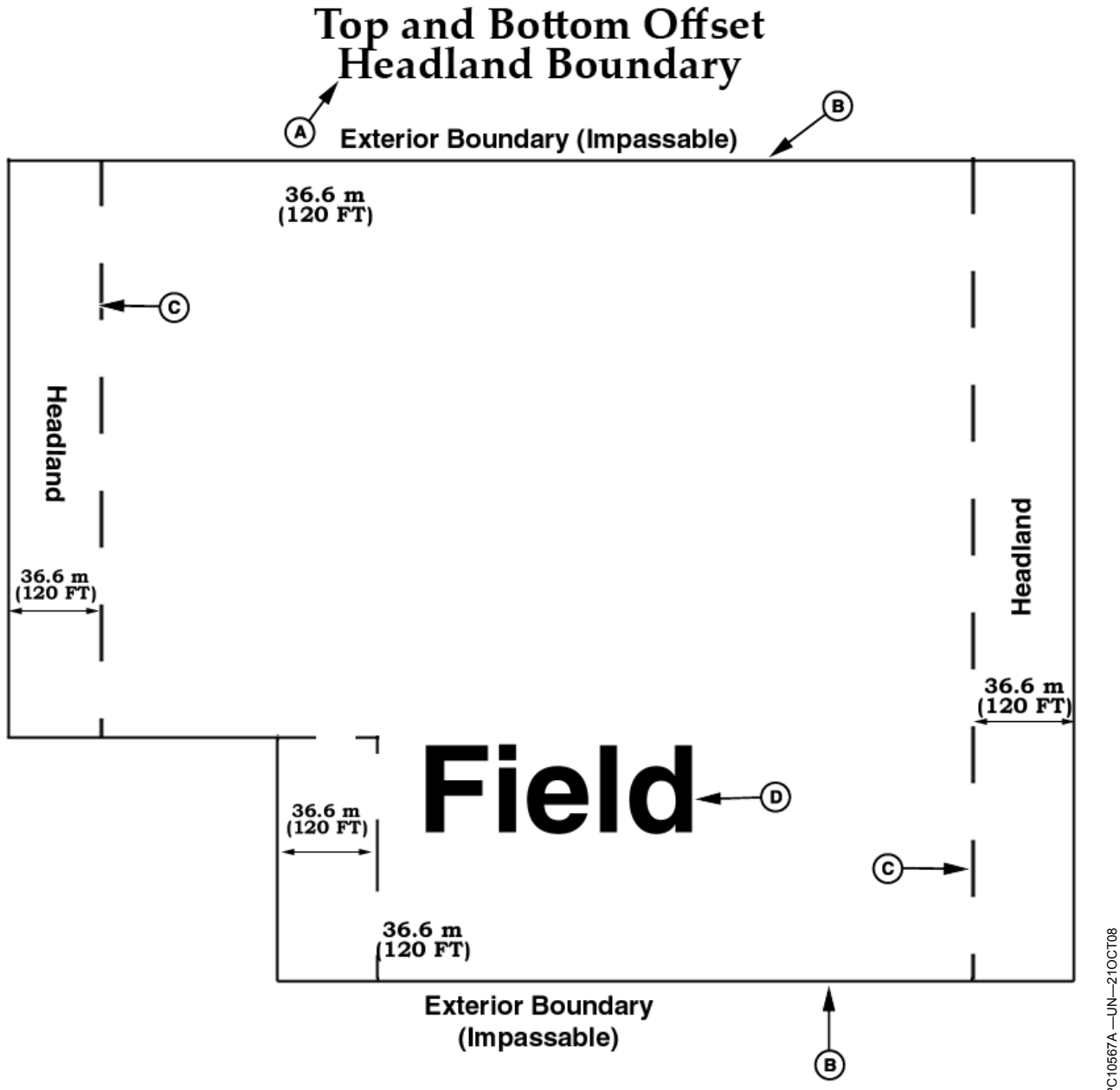
PC10501A —UN—21OCT08



A—Record/Pause Button
B—Toggle Button
C—Stop Recording Button
D—Recording Indicator Light

OUO6050,0000E76 -19-30SEP09-3/3

Top And Bottom Offsets Boundary



A—Top and Bottom Offset Headland Boundary

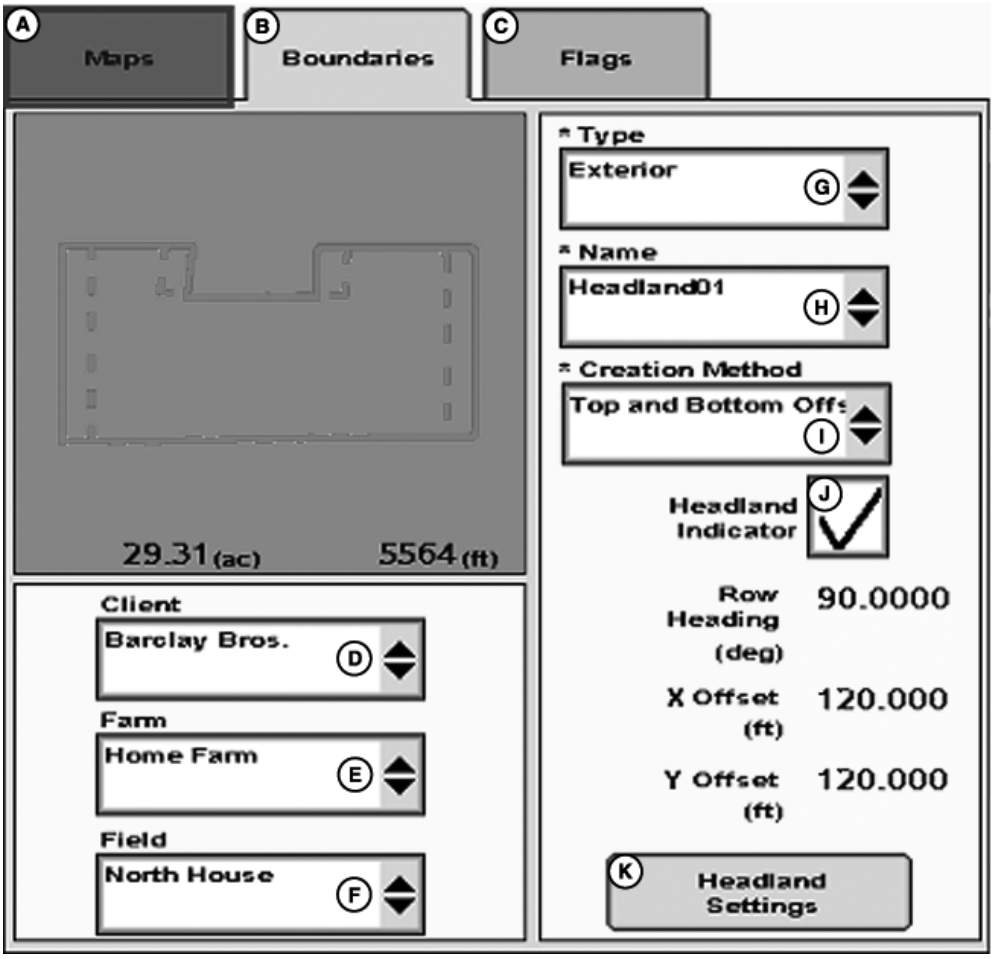
B—Exterior Boundary (Impassable)

C—Exterior Headland

D—Field

Continued on next page

JS56696,0000499 -19-28OCT08-1/3



PC11327A —UN—21OCT08

A—Maps Tab
B—Boundaries Tab
C—Flags Tab
D—Client Drop-Down Menu
E—Farm Name Drop-Down Menu
F—Field Name Drop-Down Menu
G—Boundary Type Drop-Down Menu
H—Headland Group Name Drop-Down Menu
I—Creation Method Drop-Down Menu.
J—Headland Indicator Check Box
K—Headland Settings Button

Creating Top and Bottom Headlands

1. Create or select an exterior boundary.
2. Choose Exterior Headland from the TYPE drop-down box

NOTE: This option is not available to interior headlands.

3. Enter the name of the headland boundary in the HEADLAND GROUP drop-down box. Several headland boundaries may be saved per field for different implement widths that may be used. Example: Planting headland group would be 24.4 m (80 ft) for a 16R30 if two passes are being made.

Continued on next page

JS56696,0000499 -19-28OCT08-2/3

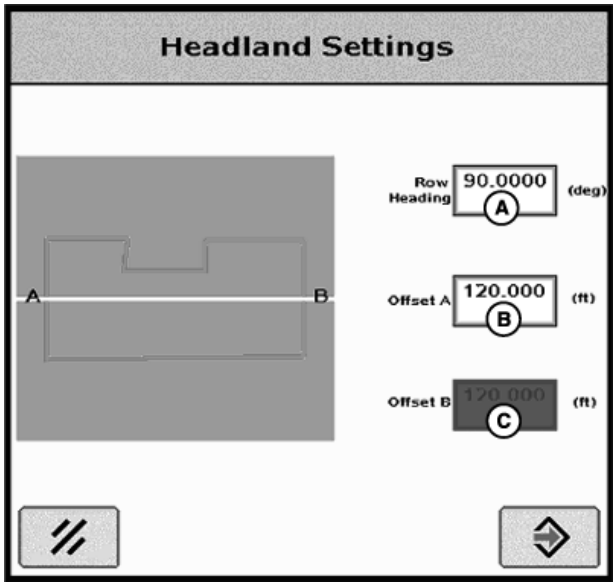
4. Select HEADLAND SETTINGS to make adjustments to the Row Heading, Offset X, and Offset Y. These are the default settings for the approximate heading of the rows in the field, and the width of headlands on the 'X' and 'Y' ends of the field.

   The heading that is entered does not need to be the exact heading. In the example, if the heading for the AutoTrac A-B line is 85 degrees, entering 90 degrees creates headlands on the east and west ends of the field. During tillage work, if the work is being done at 30 degrees from east and west, entering 120 degrees will give headlands on all sides of the field. In this case, Constant Offset headlands could also be used.

   Efforts have been made to make the most logical headlands based on the way the field normally is farmed. If desired headlands are not coming out as expected, change the Row Heading to several angles close to the direction of travel. If still not satisfactory, a Driven Headland boundary will need to be recorded.

NOTE: Top and bottom headlands are calculated as offsets and may not be appropriate for all fields. Headlands will be created when the Row Heading is more than 15 degrees from any side of the field.

   The defaults for Offsets X and Y are twice the implement width, as entered from the Machine/Implement page. The width of each headland can be changed. Example: if the west end has 32 76.2 cm (30 in.) headland rows, and the East end has 48 76.2 cm (30 in.) headland rows, enter 24.4 m (80 ft) for X and 36.6 m (120 ft) for Y.

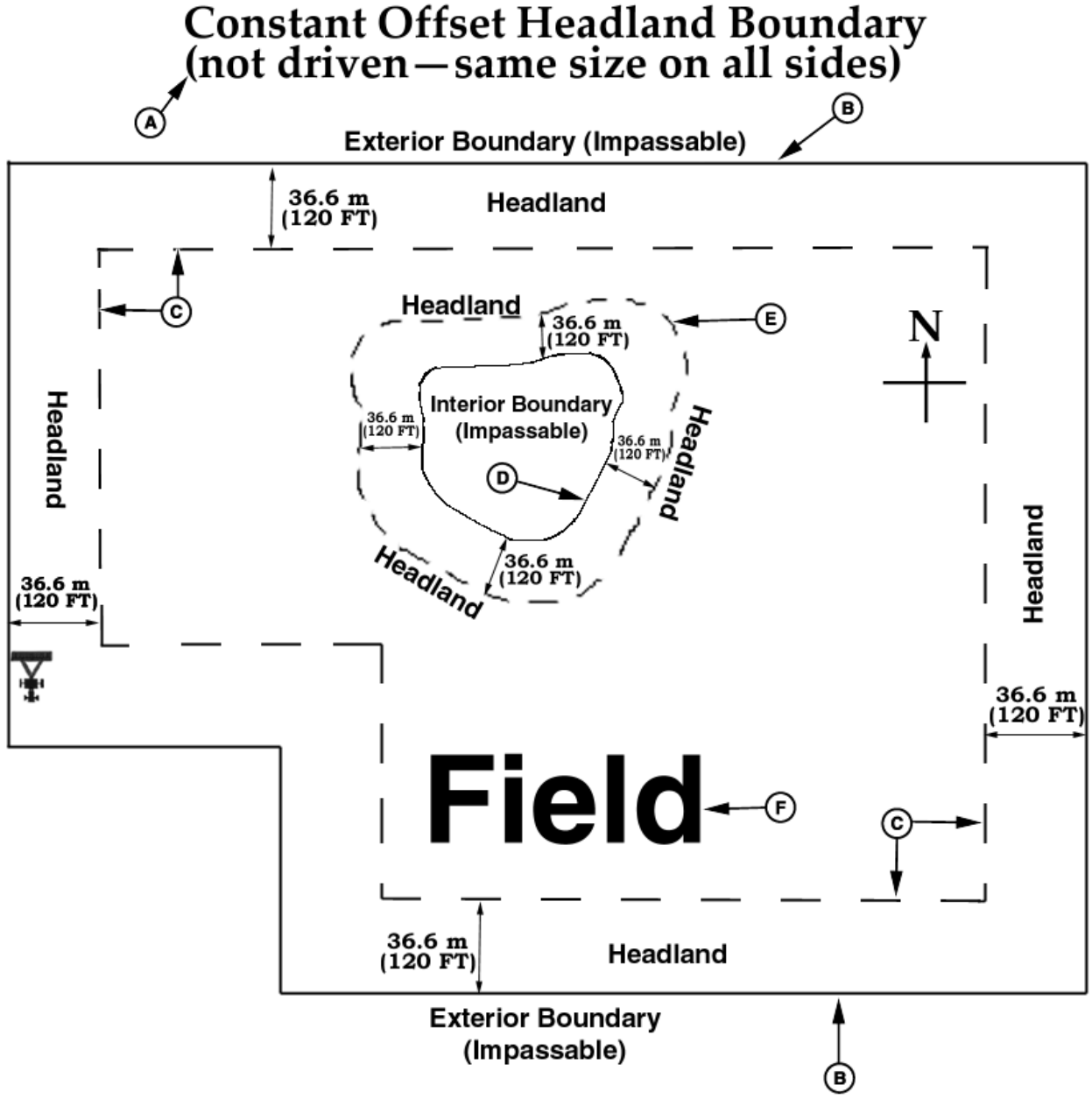


PC10504 —UN—11SEP07

JS56696,0000499 -19-28OCT08-3/3

Constant Offset Boundary

NOTE: A boundary cannot intersect itself. Press Record/Pause button to pause recording just prior to stopping. Always start moving forward first before pressing the Record/Pause button to begin recording again.



Constant Offset (not driven—same size on all sides)

A—Constant Offset Headland Boundary (not driven—same size on all sides)
B—Exterior Boundary (Impassable)
C—Exterior Headland
D—Interior Boundary (Impassable)
E—Interior Headland
F—Field

Headland Constant Offset Boundary

1. An Exterior Boundary must exist for the field.
2. Choose Exterior Headland from the TYPE drop-down menu

Continued on next page

3. Enter the name of the headland boundary in the HEADLAND GROUP drop-down menu. You can save several headland boundaries for a field for different implement widths.
4. In the Boundary Offset input box, indicate the distance from the headland to the exterior boundary (e.g. If the planter is a 16R30 and two passes are planted in the headland, enter 24.4 m (80 ft).
5. Repeat steps 2—4 for Impassable Interior Headlands. Also, an Interior Boundary must exist and Interior Headland must be chosen.

JS56696,000049A -19-06OCT08-2/2

FLAGS tab

FLAGS tab allows setup of flags for guidance and documentation.

There are three types of flags: line, point and area.

- Line flags marks tile lines. When a LINE FLAG button is pressed, FLAG ON button will flash, indicating flag is active and map will indicate flag lines. Pressing FLAG button again will de-activate flag.
- Point flags mark a specific point in a field like a rock, tree stump, or where machine ran out of seed or spray. Point flags can also be used to indicate locations for soil sampling and field scouting. When a POINT FLAG button is selected, a flag will be marked for that location. Multiple point flags can be selected for a particular field.
- Area flags are used to mark an area of interest such as a patch of weeds, a low spot in a field, or a tile line. Width of an area flag is equal to implement width in Equipment settings. When an AREA FLAG button is pressed, FLAG ON button will flash, indicating flag is active and map will indicate flag area. Pressing FLAG button again will de-activate flag.

Up to six flags can be configured. Select button to setup from drop-down box, then indicate a name and flag mode.

Flags can only be removed using desktop software.

OUO6050,00022BD -19-20NOV06-1/1

Documentation

No GPS Documentation

If GPS is lost or there is no receiver a grower can still document and accumulate information or Totals. The software used an alternative speed source, wheel speed.

OUO6050,0000E54 -19-01SEP09-1/1

Turning Documentation On and Off

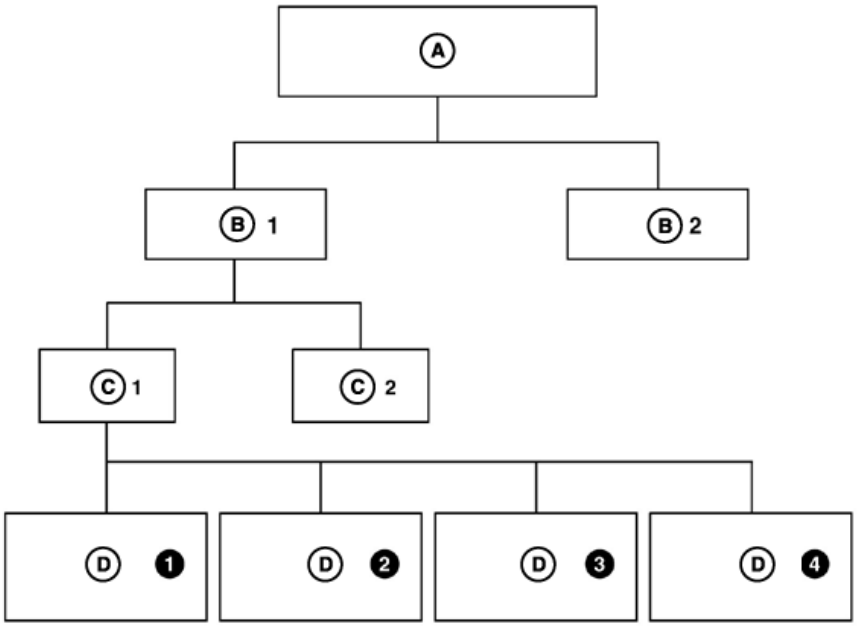
NOTE: Totals listed under TOTALS button are only calculated when documentation is turned on.

(See DOCUMENTATION softkey in this section to turn on documentation.)

To turn documentation off, for guidance only, go to RESOURCES/CONDITIONS softkey >> RESOURCES tab >>TASK. Change TASK to DOCUMENTATION OFF. All guidance screens and features are functional but no documentation data is recorded.

OUO6050,00022BE -19-06OCT08-1/1

How Documentation Organizes Data



PC8867 —UN—02NOV05

A—FARM NAME **B—Field 1 and Field 2** **C—Task 1 and Task 2** **D—Operation 1-4**

Data Organization

GreenStar Basics and Pro documentation system organizes operation data as shown in chart. Each farm can have multiple fields, with each field there are multiple tasks and each task can have multiple operations. A task is any trip over field to perform a specific function. Each defined task can contain up to four operation choices. Available operation types are defined later in this section.

Product type, product name, rate, depth, height, seed type, or crop variety define each operation.

For example:

Task—Pre-emerge Spraying

Operation—Product Application

OUO6050,00022BF -19-20NOV06-1/1

DOCUMENTATION softkey

IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. Setup data is saved to the data card before operating which protects it from being lost.

If the vehicle is running during setup and programming, turn off the vehicle with key in the OFF position and wait 30 seconds before restarting. All data is saved to the data card preventing it from being lost.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

The documentation screen allows the setup of operations and specific details that are associated with those operations.

Client, Farm, Field, and Task Setup

NOTE: See GreenStar 2 Basics and Pro General Setup, RESOURCES/CONDITIONS softkey for more information on setting up Client, Farm, and Field.

NOTE: For some Task Controller supportive implements the operation type, equipment type and implement width are set automatically (when supported by the implement).

1. Select RESOURCE/CONDITIONS softkey.
2. Select or Enter Client, Farm, Field, and Task.
3. Select EQUIPMENT softkey.
4. Setup recording source and implement width.
5. Select DOCUMENTATION softkey.
6. Choose the type of operation and the details of each operation.

   The name of the operation appears on the documentation tabs.

PC8663 —UN—05AUG05

MENU button

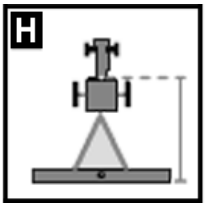
PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8676 —UN—05AUG05

RESOURCES/CONDITIONS softkey

PC8677 —UN—05AUG05



EQUIPMENT softkey

PC8678 —UN—05AUG05

DOCUMENTATION softkey

OUO6050,00022C0 -19-29MAR10-1/1

Task Notes

Press: MAIN MENU >> GREENSTAR2 PRO >> RESOURCES/CONDITIONS softkey

Task notes can be used to provide detailed information to field operators, logging notes while in field, or gathering and reporting other information like soil sampling and field scouting. Task notes are organized by task and notes for a particular task are common across all clients, farms and fields.

PC8676 —UN—05AUG05

RESOURCES/CONDITIONS softkey

OUO6050,000126B -19-30MAR10-1/1

Operations

Select: MENU > GREENSTAR2 PRO > DOCUMENTATION > NEW tab

Four operations per task are allowed for all tasks other than Harvest. The Harvest task only allows the Harvest operation. Listed are available operations and details that can be set up within those operations.

Tillage

- Type
- Depth

Planting and Seeding

- Seed Type
- Seed Brand
- Varieties
- Target Rates*
- Rate Units
- Application Method
- Depth
- Tillage Practice
- Lot Number
- Product Details (For Europe Only)

*rate comes from control unit on selected control units

Product Application

- Product(s)/Product Rate
- Carrier/Carrier Rate*
- Tank Mix Name (Optional)
- Application Method
- Height
- Product Details (For Europe Only)

*rate comes from control unit on selected control units

Harvest

- Crop Type
- Seed Brand
- Variety
- Load Name
- Load Number
- Load Destination
- Residue management

NOTE: If using Harvest Doc or Harvest Monitor in a 70 Series combine, all Harvest Monitor functions are accessed through the armrest CommandCenter. Please consult the 70 Series Operator Manual for more detailed information on using the CommandCenter

Water Management

- Type

NOTE: See your SurfaceWater Pro Operator's Manual for more information.

Other

PC8663 —UN—05AUG05

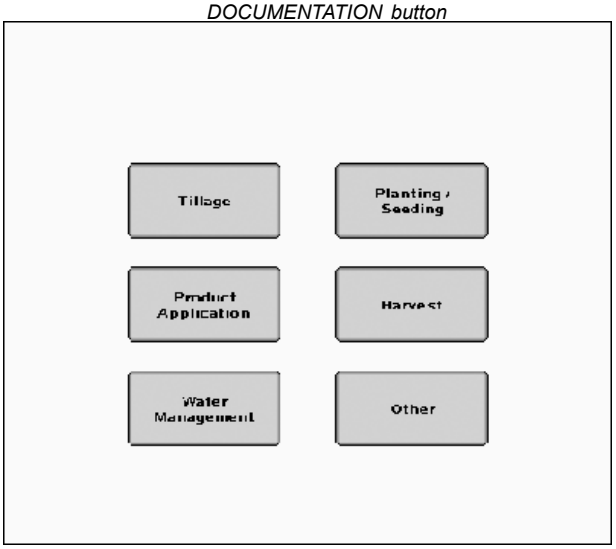
MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION button



PC10857TW —UN—30MAR10

- Type
- Name

Automatically Generated Operations

Some operations are automatically created when the display is connected to certain machines and a client, farm, field, and task are defined.

Example: When a SeedStar Gen II planter is connected to the display (and a client, farm, field, and task are defined) a seeding operation is automatically created. The details of the operation will still need to be defined.

Limited Availability of Operations

Continued on next page

OUO6050,0000C8E -19-12MAY10-1/2

Some operations WILL NOT be available when display is attached to certain machines and implements.

Example: When Harvest Monitor from a John Deere 50, 60, or 70 Series Combine (NA) or 9000i series (Europe) is connected to the display only the harvest operation will be available.

OUO6050,0000C8E -19-12MAY10-2/2

Tillage Operation

Select: TILLAGE

Select Type

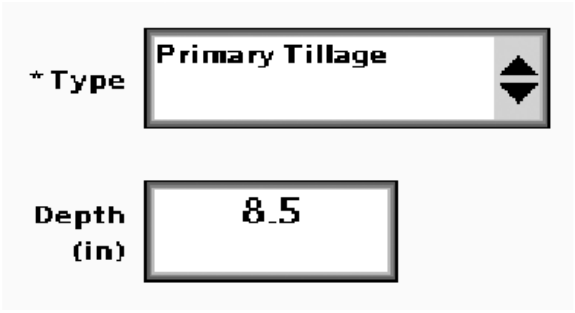
- Primary Tillage
- Rotary Hoe
- Row Crop Cultivation
- Secondary Tillage
- New

Select Depth

1. Enter number on keypad.
2. Select ACCEPT.

PC10857TX —UN—30MAR10

TILLAGE button



PC10857TY —UN—30MAR10

OUO6050,000126C -19-11MAY10-1/1

Controllers

When connected to controllers below, recording on/off will be controlled automatically:

- John Deere 1990 CCS
- John Deere Harvest Monitor
- John Deere SeedStar for Air Carts
- John Deere SeedStar Monitors or Variable Rate Drive for Planters
- John Deere SprayStar Gen 4
- Raven 440, 450, 460, 660
- SideKick
- GreenSeeker
- Rawson Accu-Rate and Accu-Plant
- New Leader Mark III Mark IV
- Dickey-john Seed Manager
- Vanguard PIC Seed Monitor
- John Deere 800i Series sprayer
- ISOBUS Task Controller compliant implements (sprayer, seeder and planter)

Once setup properly, the only operational changes needed for documentation are turning recording on/off, changing details within the operation, and changing Client/Farm/Field as needed.

If product details change while operating, go to DOCUMENTATION softkey and select tab for affected operation.

To remove a controller, you must select the remove button from the 3rd-Party controller setup page.

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

OUO6050,00022C5 -19-30MAR10-1/1

Using Documentation with a Planter

NOTE: If you are connected to a John Deere SeedStar Planter, a Planting/Seeding tab is automatically created.

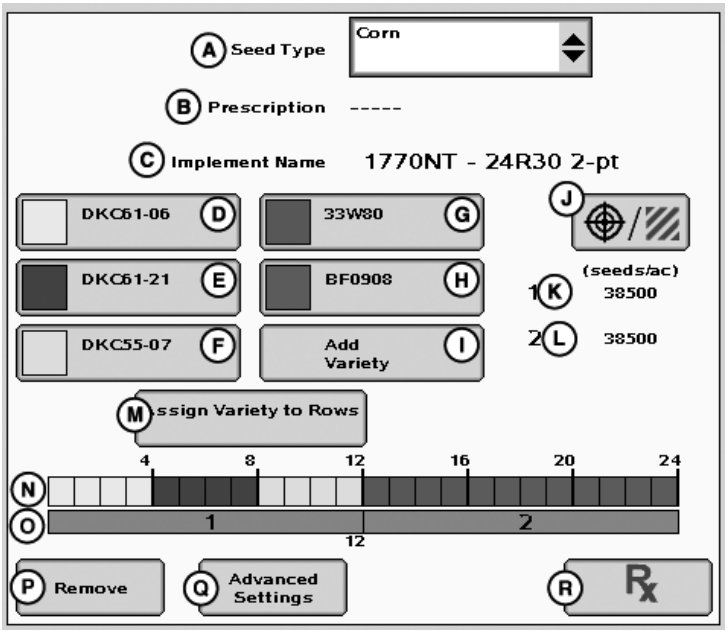
Planter

PC10857TZ —UN—30MAR10

If you are not connected to a John Deere SeedStar2 planter make sure you have selected the correct planter and number of rows on the equipment button.

Continued on next page

OUO6050,000126E -19-20MAY10-1/17



PC10857UA —UN—11MAY10

A—Choose Seed Type
B—Displays Prescription if Prescription is being used
C—Implement Name
D—Variety 1
E—Variety 2
F—Variety 3
G—Variety 4
H—Variety 5
I— Variety 6
J—Input Population on NON-SeedStar2
K—Displays Populations — Drive Section 1
L—Displays Populations — Drive Section 2
M—Assign Varieties to Rows
N—Individual Planter Rows
O—Drive Selections
P—Remove Tab
Q—Advanced Settings
R—Prescriptions

NOTE: Before setting Documentation, make sure the planter is fully set up and connected to the tractor. See your planter operator's manual for procedure.

Seed Type Selection

Select seed type from drop down box (A).

When choosing the seed type from the drop down, if the list is too long, the user may uncheck and hide seed types using APEX to simplify future seed selection.

Implement Selection

The implement name is not pre-populated. If using a John Deere SeedStar planter, only number of rows will be automatically populated.

Set up the implement using the Equipment Softkey "H" before setting up operation. MENU > GREENSTAR > EQUIPMENT "H". If this step is not taken, you will be required to enter setup information twice.

Continued on next page

OUO6050,000126E -19-20MAY10-2/17

Variety Selection

The operator has the ability to document up to six varieties at one time.

Select Add Variety

Select from the drop down list of enter seed Brand (A) (Optional).

Select from the drop down list of enter seed Variety (B).

Select or allow automatic selection of the color that will represent the variety on the display and map (C).

NOTE: It is possible to manually select the same color for two or more varieties. Documentation will still occur for each individual variety, however the map will paint the colors that were chosen will make visual variety separation difficult.

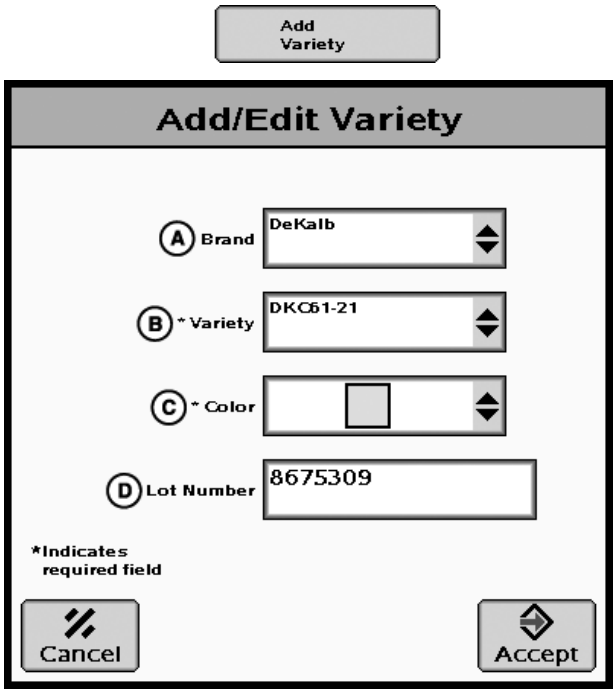
Select and then enter the Lot Number using the key pad (D). (Optional)

Select ACCEPT.

NOTE: If six varieties have already been entered, entering a seventh variety will replace the first variety entered. This process will repeat for each new variety past six.

A—Brand
B—Variety
C—Color
D—Lot Number

PC10857UB —UN—30MAR10



PC10857UC —UN—11MAY10

OUO6050,000126E -19-20MAY10-3/17

Removing Varieties

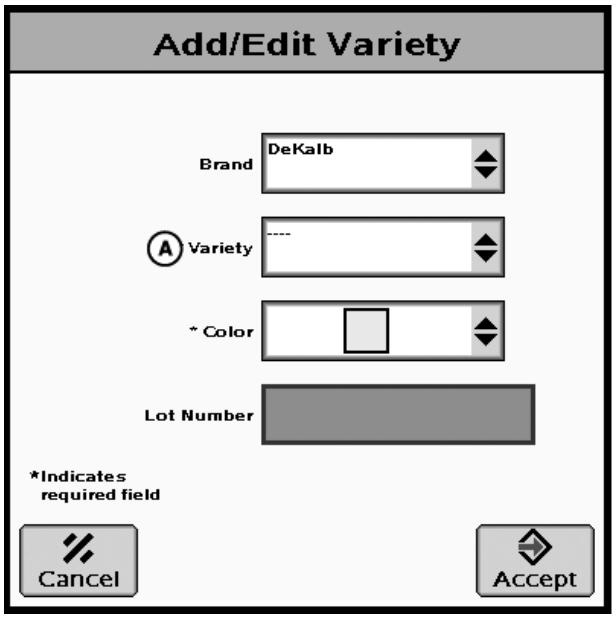
Once a variety has been entered it cannot be deleted or edited using the GreenStar Display. However, it is possible to remove a variety from view on the display.

Choose the variety you wish to remove from view.

From the variety drop down (A) , select the entry with the dashes.

Select Accept.

A—Variety drop down menu



PC10857UD —UN—30MAR10

Continued on next page

OUO6050,000126E -19-20MAY10-4/17

Assign Varieties to Rows

The operator may assign a variety to any number of row units, in any configuration up to six varieties may be chosen to document for any one planter

Select Assign Variety to Rows

Choose the variety that is to be assigned.

NOTE: Assigning varieties to rows will begin with Row Unit 1 on the left and continue in order to end of the planter on the right. As with any implement, right and left are determined as sitting in the seat, direction of travel when the implement is working.

Choose the End Row.

NOTE: The end row is the row in which the variety chosen is to stop. The row entered is included.

Assign Multiple Varieties

If multiple varieties are to be assigned select the page forward soft key.

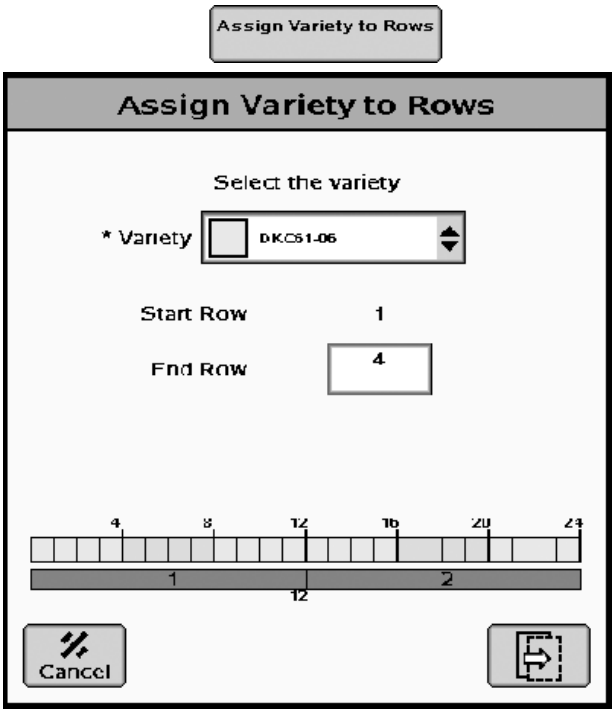
Choose the next variety to be assigned.

Choose the end row. Notice that the start row is the row after the last end row. Example: Variety 1 was assigned to rows 1 through 4, page forward is pressed, the next start row will be 5.

Repeat this process until all rows of the planter that are dropping seed are assigned the correct variety.

If a row will not be planting, you must select and assign, Row Not Planting from the drop down list.

PC10857UE —UN—30MAR10



PC10857UF —UN—30MAR10

If a change needs to be made to a previous row assignment, pressing the page back key allows editing to occur to an earlier row variety.

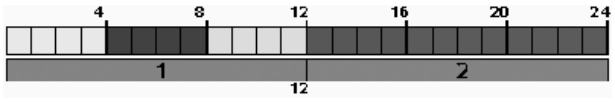
OUO6050,000126E -19-20MAY10-5/17

Several examples of variety assignments are as follows:

1/2 Planter 3 Varieties

1/2 Planter Single Variety

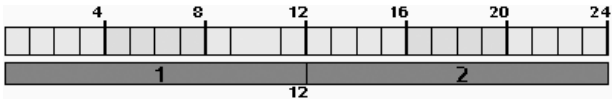
PC10857UG —UN—30MAR10



OUO6050,000126E -19-20MAY10-6/17

3 Varieties with the middle variety spanning the disconnect

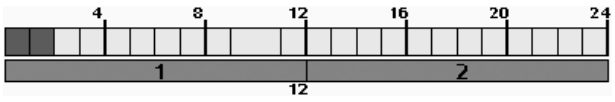
PC10857UH —UN—30MAR10



OUO6050,000126E -19-20MAY10-7/17

5% Refuge with 4 contiguous rows

PC10857UI —UN—30MAR10

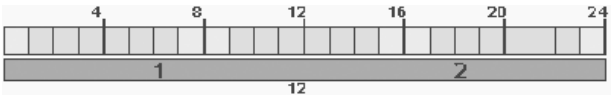


Continued on next page

OUO6050,000126E -19-20MAY10-8/17

Seed Corn planted in a 6 female, 2 male configuration

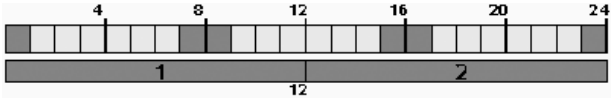
PC10857UJ —UN—30MAR10



OUO6050,000126E -19-20MAY10-9/17

Seed corn planted with male rows set to NOT PLANTING

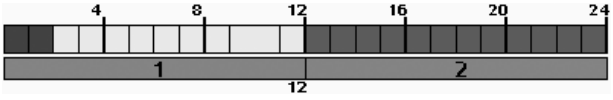
PC10857UK —UN—30MAR10



OUO6050,000126E -19-20MAY10-10/17

5% refuge with 4 contiguous rows and 1/2 planter one variety and 1/2 planter second variety

PC10857UL —UN—30MAR10



OUO6050,000126E -19-20MAY10-11/17

Population (Seeds/Acre)

If using a John Deere SeedStar planter, this number is set using that monitor. This is also true for any compatible controller installed.

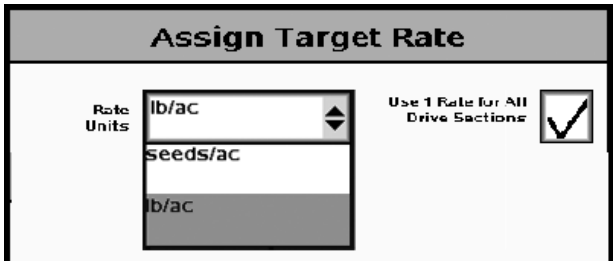
If using a non John Deere SeedStar planter, the target rate button is active on the GS2 display.

PC10857UO —UN—31MAR10

Select Target Rate Button

OUO6050,000126E -19-20MAY10-12/17

Select Rate Units



PC10857UP —UN—11MAY10

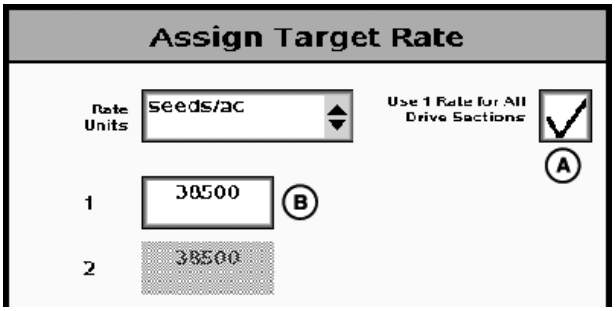
Continued on next page

OUO6050,000126E -19-20MAY10-13/17

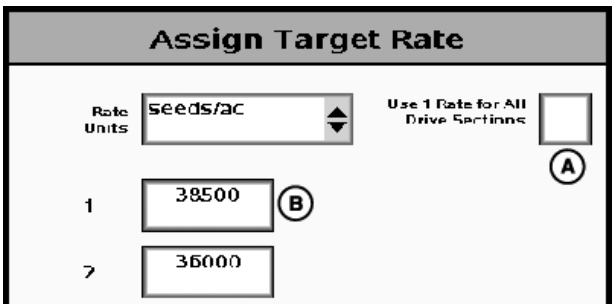
Select the target rate box (B) and enter the desired number on the key pad. If using a multiple drive planter check the box (A) to assign the target rate for each drive section on the planter. If multiple targeted rates are desired, un check box (A) and assign each drive section a targeted rate as performed on the first.

A—User 1 Rate for All Drive Selections checkbox

B—Target Rate



PC10857UR —UN—31MAR10



PC10857US —UN—31MAR10

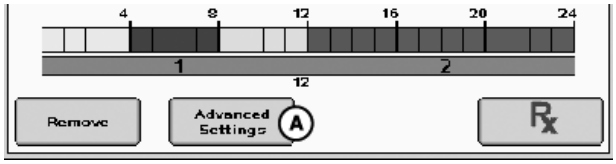
OUO6050,000126E -19-20MAY10-14/17

Advanced Settings (Optional)

The advanced settings softkey allows the user to provide more information about the operation that is going to be recorded. This information will be available in APEX for later analysis.

Select Advanced Settings (A).

PC10857UT —UN—31MAR10



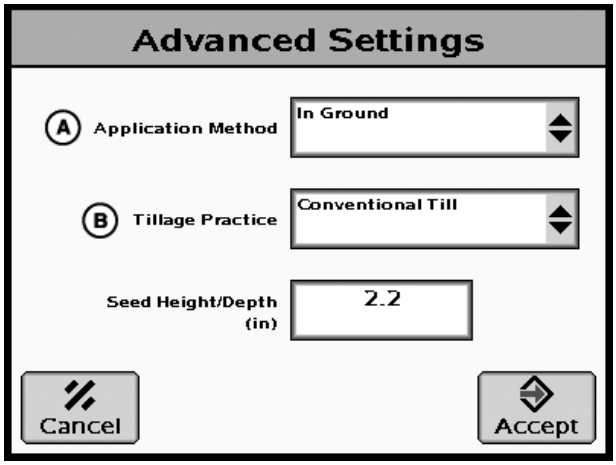
A—Advanced Settings button

Continued on next page

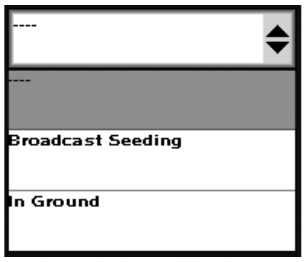
OUO6050,000126E -19-20MAY10-15/17

Select Application Method (A).

Select Tillage Practice (B).

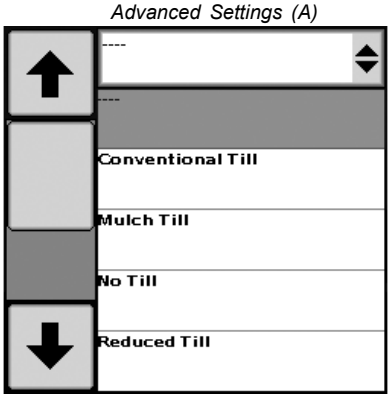


PC10857UU —UN—31MAR10



PC10857UV —UN—31MAR10

Advanced Settings (A)



PC10857UW —UN—31MAR10

Tillage Practices (B)

OUO6050,000126E -19-20MAY10-16/17

Enter seed height/depth.

PC10857UX —UN—31MAR10

OUO6050,000126E -19-20MAY10-17/17

Using Documentation with Seeder/Air Carts

NOTE: Before setting up Documentations ensure SeedStar Air Cart is setup, See SeedStar Air Cart Operator's Manual for procedures.

When using a John Deere Air Cart, each tank will be represented by an operation.

Two Tank Cart: The far left tab will always represent the front tank. The second tab will represent the rear tank on a two tank cart.

Three Tank Cart: The far left tab represents the front tank. The second tab represents the middle tank. A third tab will appear for the rear tank.

Fill out each operation for each tank even if applying the same product from two or more tanks.

All aircart tanks will be represented by an operation tab, even if they are turned off. The target rate will be displayed as 0 for tanks that are turned off.

NOTE: Before setting up Documentation, make sure the Air Cart is fully set up and connected to the tractor. See your aircart operator's manual for procedure.

Seed Type Selection

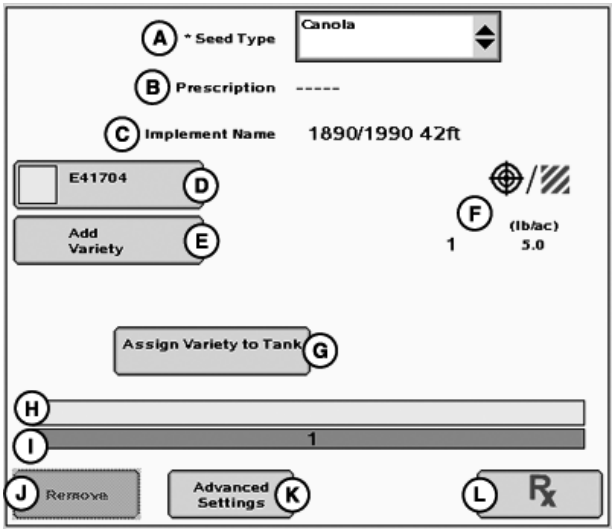
Select seed type from drop down box (A).

When choosing the seed type (A) from drop-down menu, if the list is too long, the user may check and hide seed types using Apex to simplify future seed selection.

Implement Selection

The implement name is not pre-populated. If using a John Deere Aircart, only number of tanks and sections will be pre-populated.

Set up the implement using the EQUIPMENT button before setting up operation.



PC10857UY —UN—31MAR10

A—Select Seed Type
B—Displays Name of Prescription (if chosen)
C—Implement Name
D—Variety Entered
E—Tab Used to Add Variety
F—Target Rate (If using SeedStar2, this is set on that monitor) (If using non-Deere, you can enter target rate here
G—Assign Variety to Tank
H—Bar Color indicates Variety Chosen
I— Section Variety is Assigned To
J—Remove Button is Grayed out when connected to an Air Cart Controller
K—Advanced Settings
L—Allows Operator to Apply Prescription

Select: MENU > GREENSTAR > EQUIPMENT

If this step is not taken, you will be required to enter setup information twice.

OUO6050,00022C8 -19-20MAY10-1/1

Required and Optional Items For Documentation

Variety Selection

The operator has the ability to enter six varieties but will only be able to document one variety at one time per tank.

Select: ADD VARIETY button.

Select from the drop-down menu or enter SEED BRAND (A) (Optional).

Select from the drop-down menu or enter SEED VARIETY (B).

Select or allow automatic selection of the color that will represent the variety on the display and map. (C)

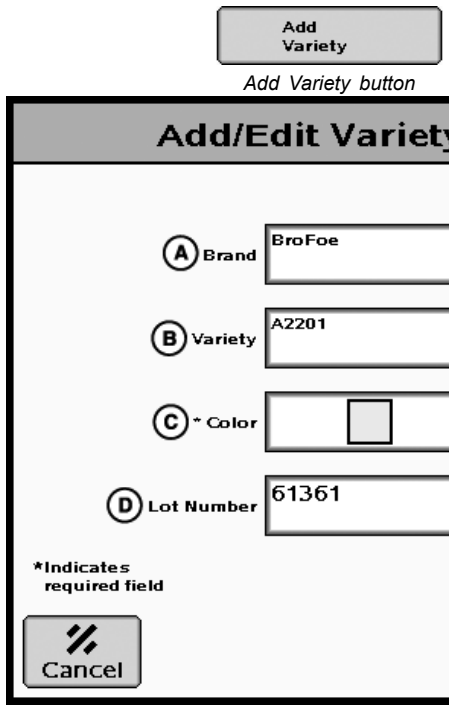
NOTE: It is possible to manually select the same color for two of more varieties. Documentation will still occur for each individual variety however the map will paint the color chosen.

Select and then enter the Lot Number using the keypad (D) (Optional).

Select the accept button.

A—Brand
B—Variety
C—Color
D—Lot Number

PC10857UZ —UN—31MAR10



Add Variety button

PC10857VA —UN—12MAY10

OUO6050,00022C9 -19-20MAY10-1/7

Remove Varieties

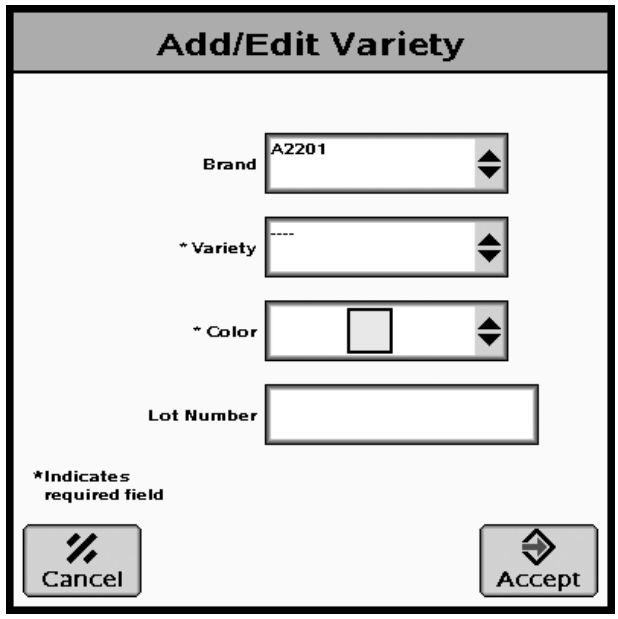
Once the variety has been entered it cannot be deleted or edited using the GreenStar display. However, it is possible to remove a variety from view on the display.

Choose the variety you wish to remove from view.

From the variety drop-down menu, select the entry with the dashes.

Select Accept

Although the variety is removed from view, it may still be chosen at a later date for documentation.



PC10857VB —UN—31MAR10

Continued on next page

OUO6050,00022C9 -19-20MAY10-2/7

Assign Variety to Tank

For tanks configured for seeding the operator may assign a variety to each tank of the aircart.

Select Assign Variety to Tank

Choose the variety that is to be assigned.

Select Accept.

PC10857VC —UN—31MAR10

PC10857VD —UN—31MAR10

OUO6050,00022C9 -19-20MAY10-3/7

Population (Seeds/Acre)

If using a John Deere Aircart, this number is set using that monitor. This is also required when any compatible controller is connected.

If using a non-John Deere Aircart that does not have a controller reporting to that display, the target rate button is active on the GS2 display.

PC10857VE —UN—31MAR10

Target Rate button

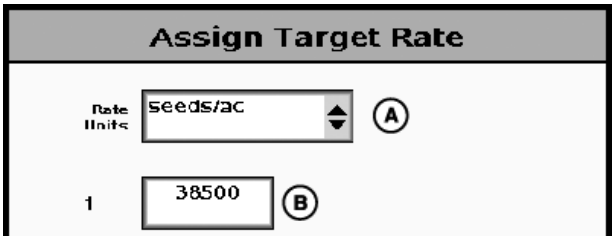
Select Target Rate button.

OUO6050,00022C9 -19-20MAY10-4/7

Select Rate Units (A).

Select the target rate (B) and enter the desired number on the key pad.

A—Rate Units **B—Target Rate Box**



PC10857VF —UN—31MAR10

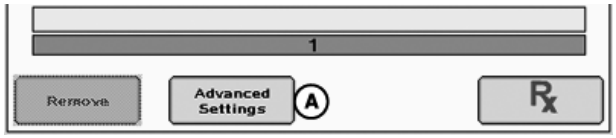
OUO6050,00022C9 -19-20MAY10-5/7

Advanced Settings

The advanced settings softkey allows the user to provide more information about the operation that is going to be recorded. This information will be available in APEX for later analysis.

Select Advanced Settings. (A)

PC10857VG —UN—31MAR10



A—Advanced Settings button

Continued on next page

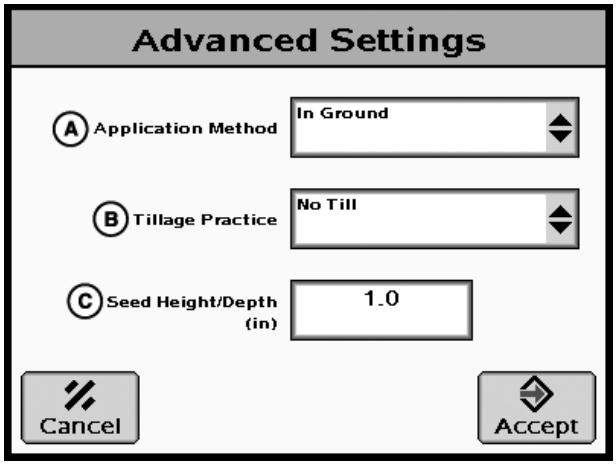
OUO6050,00022C9 -19-20MAY10-6/7

Select Application Method (A).

Select Tillage Practice (B).

Enter Seed Height/Depth (C).

A—Application Method
B—Tillage Practice
C—Seed Height/Depth



PC10857VH —UN—31MAR10

OUO6050,00022C9 -19-20MAY10-7/7

Product Details—Europe Only

The Product Details function allows documentation and communication of related information between desktop software and GS2 for products like chemicals, fertilizer and crop.

Product Details are only available for the Operations "Planting / Seeding" and "Product Application". Product Application is supported by sprayer and spreader.

NOTE: The GreenStar Seeder/ Sprayer/ Spreader Pro (Universal) activation enables the Product Details function. Product Details isn't available in all countries.

LX1048293 —UN—24AUG09

OUO6050,00011FE -19-05OCT09-1/1

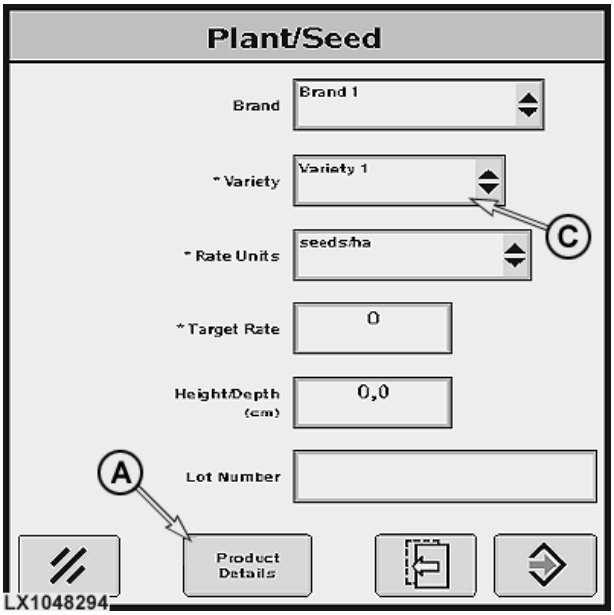
Access Product Details for Planting / Seeding—Europe Only

1. If (A) or (B) is grayed out, define (C) first.
2. Press button (A) or (B).
3. Product details screen will appear.

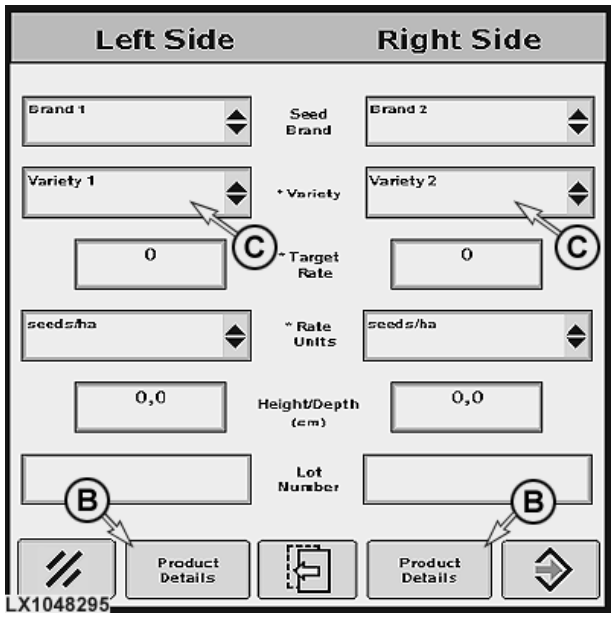
NOTE: Button (A) is available only with single variety, Buttons (B) are only accessible if dual variety was selected.

Information Types available for Planting / Seeding:

- Germination Rate
- Genetically Modified
- Priming Information
- Thousand Corn Weight



LX1048294 —UN—24AUG09



LX1048295 —UN—24AUG09

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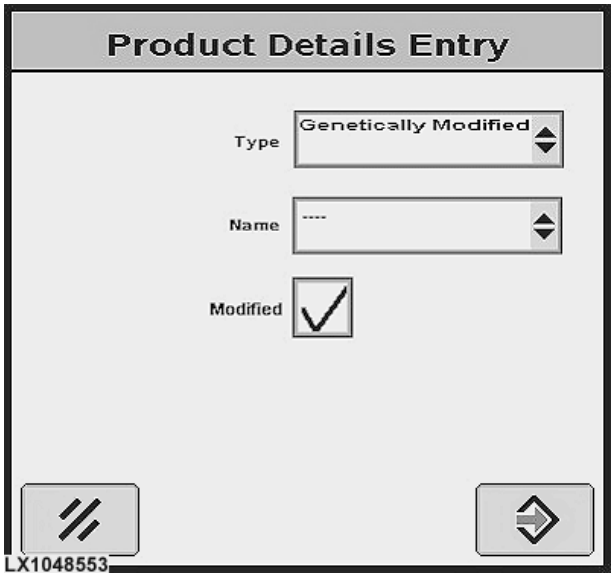
OUO6050,0001200 -19-14SEP09-1/2

If Type is setup to “Genetically Modified” the popup provides a check box to mark whether the product is modified or not.



LX1048553 —UN—24AUG09

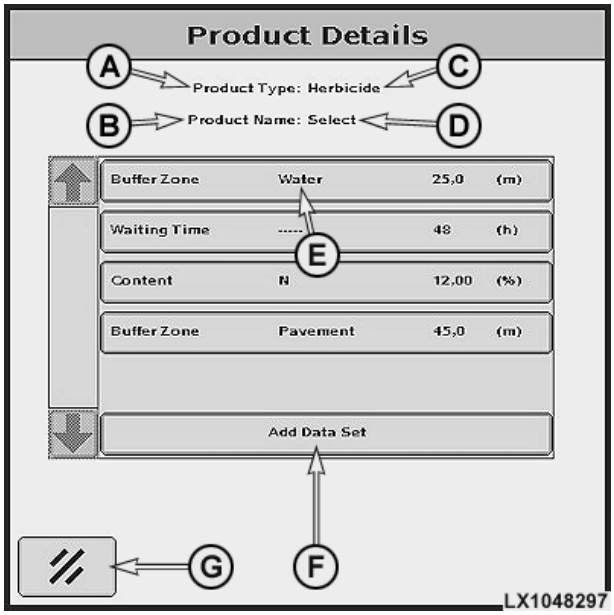
OUO6050,0001200 -19-14SEP09-2/2

Product Details Screen—Europe Only

NOTE: Max. 25 entries could be added.

To add a detail, press (F). This will open the Product Details Entry screen.

A—Type
B—Name or Variety
C—Value designator 1
D—Value designator 2
E—Button to change or delete a data set
F—Button for new data set
G—Cancel, Back to prior page



LX1048297 —UN—24AUG09

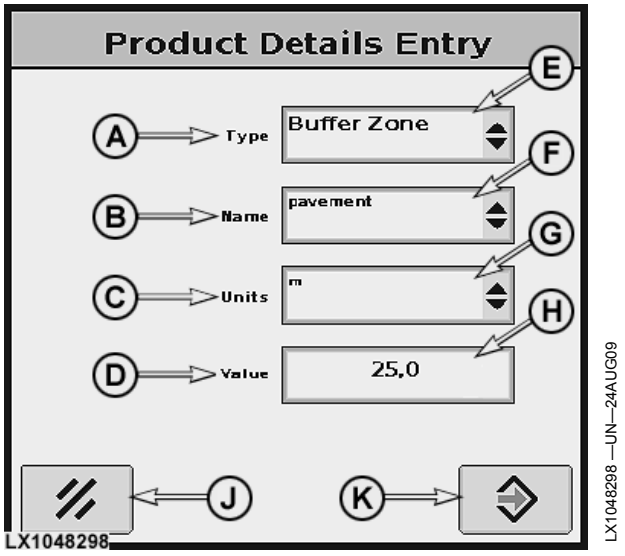
OUO6050,0001201 -19-14SEP09-1/1

Product Details Entry Screen—Europe Only

After the operator defined field (E), an input in field (F), (G) and (H) is possible. When operator has finished the input, he either confirms with (K) or cancel with (J).

Delete Data Set

1. Select field (E).
2. Choose "- - - -".
3. Press button (K).



LX1048298 —UN—24AUG09

A—Type
B—Name
C—Units
D—Value
E—Dropdown list (can be changed)
F—Dropdown list (can be changed)
G—Units dropdown list (can't be changed)
H—Value field
J—Cancel, back to Product Details Screen
K—Accept changes, back to Product Details Screen

OUO6050,0001202 -19-05OCT09-1/1

GS2 Shapefile Converter

The GS2 Shapefile Converter converts shapefile prescriptions to a form that can be used in the GreenStar 2 System. Not all desktop software solutions are compatible with the GS2. The GS2 Shapefile Converter allows prescription shapefiles to be converted from many different types of farm management software solutions.

With shapefiles being the most common form of prescription format, it is important to provide this capability with the GreenStar2 Display. The conversion process converts shapefile prescriptions into a GS2 acceptable (.fdShape) file format.

Shapefile Converter Process

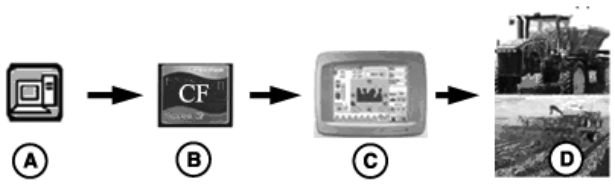
Supported Shapefile format

Supported Shapefile format: ESRI format, WGS-84 non-projected

NOTE: Most farm management software has the capability to create a shapefile in WGS-84 non-projected format. To confirm the prescription shapefile from the 3rd Party software program is compatible, test a file using the GS2 Shapefile Converter before field application.

NOTE: The GS2 can support up to 251 shapefiles per card.

PC10857QM —UN—06OCT09



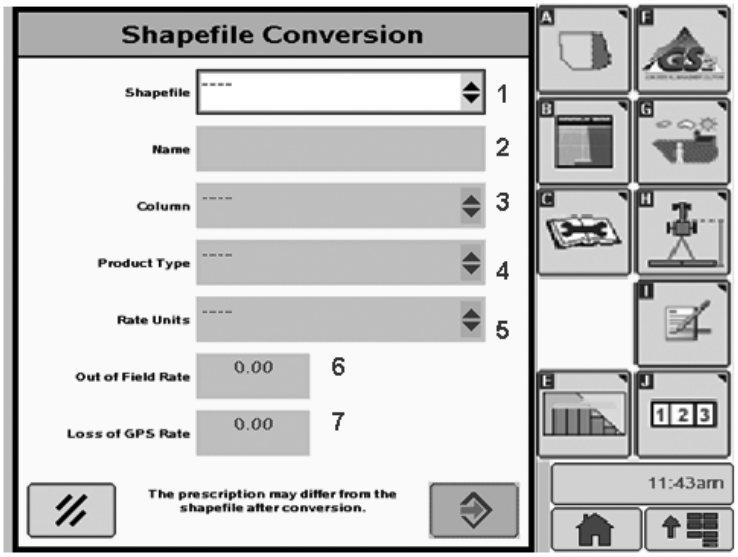
A—Desktop Software other than Apex
B—Compact Flash Memory Card
C—GS2 Display
D—GreenStar Prescription Application

NOTE: The GS2 Shapefile Converter can ONLY be used for prescription shapefiles.

NOTE: An "Rx" folder must be created on the compact flash card. All prescription shapefiles must be saved to this folder. This is the location the GS2 will be referencing to find the prescription shapefiles.

OUO6050,00011E5 -19-06OCT09-1/1

Shapefile Conversion Home Page



PC10857QH —UN—26AUG09

Shapefile Conversion Home Page

NOTE: Shapefiles must be in the Rx folder on the CF Card.

1. Select the **Shapefile** you would like to convert from the drop-down menu.
2. Enter a **Name** (name automatically populates and can be edited).
3. Select the **Column** (select the column that contains the product rate).

IMPORTANT: Selecting the wrong column results in under or over application of product.

NOTE: The unit system setting (English or Metric) on the GS2 display must match the shapefile unit system.

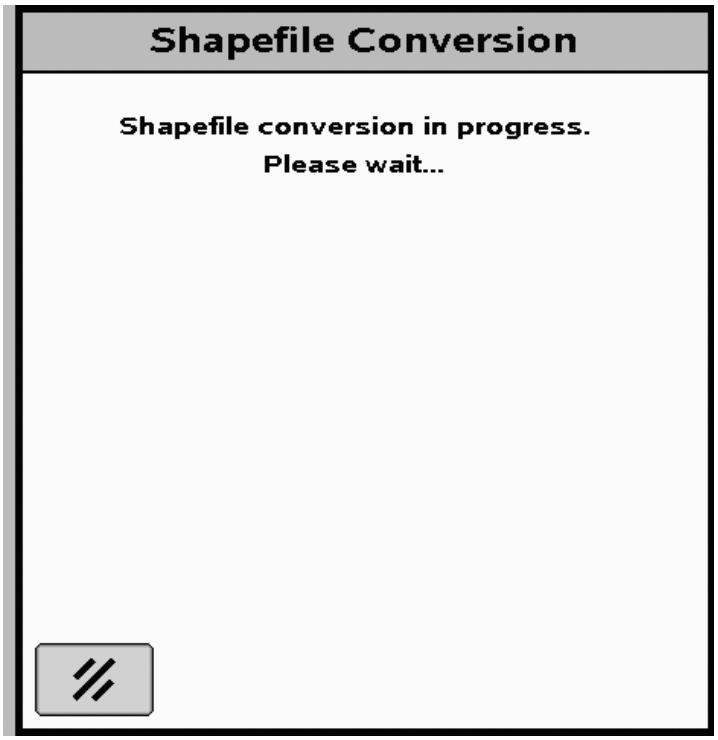
4. Select the **Product Type** (chemical, fertilizer, or seed).
5. Select the **Rate Units** (pounds, tons, ounces, or seeds per acre).

IMPORTANT: Selecting the wrong units result in under or over application of product.

6. **Out of Field Rate** (default rate control unit uses if outside the field boundary).
7. **Loss of GPS Rate** (default rate control unit uses if GPS signal is lost).
8. Once steps 1-7 are completed, select ENTER button.
9. To cancel all changes select the cancel button.

OUO6050,00011E9 -19-01SEP09-1/1

Shapefile Conversion in Progress



PC10857QI —UN—26AUG09

Once the correct shapefile is selected and the values have been entered correctly in the Shapefile Conversion Page, the shapefile conversion process begins.

NOTE: NOTE: The shapefile conversion process could take up to 30 seconds.

You can cancel the shapefile conversion process by selecting the cancel button . Selecting the CANCEL button takes you back to the Shapefile Conversion Page.

OUO6050,00011EA -19-01SEP09-1/1

Shape file Failed

PC10857QL —UN—26AUG09

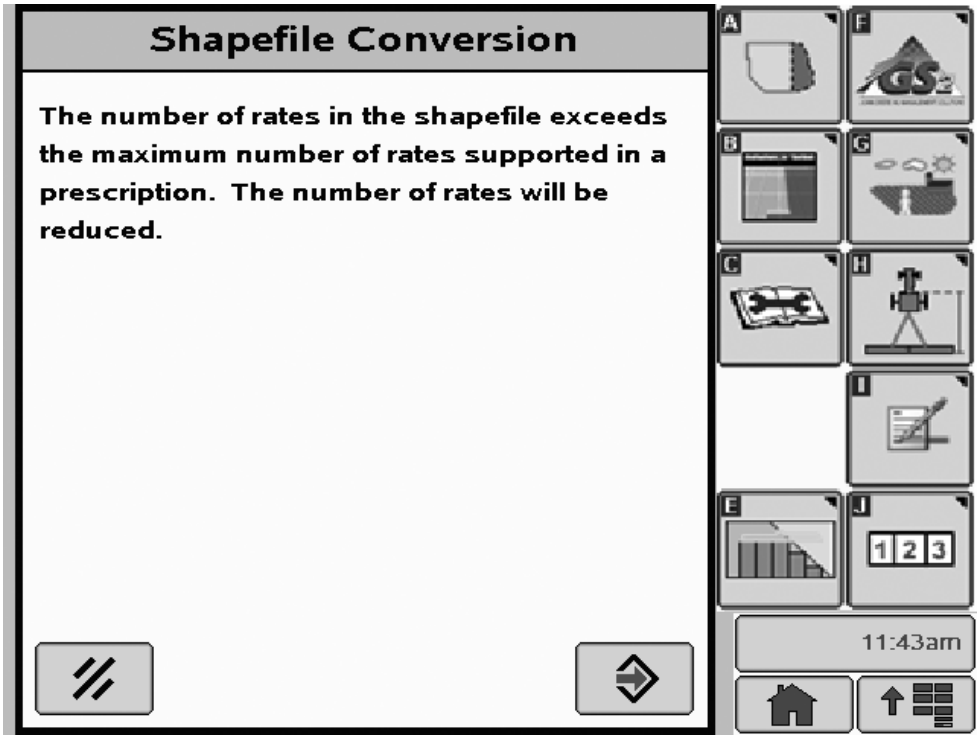
If a shapefile cannot be converted, this screen appears. There are 7 different errors:

- File is missing or corrupt.
  - Make sure the matching .shp, .shx, and .dbf files are on the card.
  - Include matching .shx and .dbf files or the system can not convert the shapefile.
  - Make sure that files are in the Rx folder on the CF Card.
- Shapefile error.
  - Shapefile format is not compatible.
- Database file error, incorrect version.
  - dBase file version number incorrect.
- Database file error, file format incorrect.
  - dBase file format is incorrect.
- Index file error
  - shp file header does not match .dbf file header.
- Projection file error.
  - Validate the shapefile is formatted in WGS84 projection.
- Unknown error
  - The file could not be validated.
- If you get any of these messages, select ENTER button to go back to the Shapefile Conversion Page.

NOTE: If card is removed during the shapefile conversion process or engine is shut off, shapefile must be reconverted.

OUO6050,00011EB -19-01SEP09-1/1

Shapefile Conversion Maximum Number of Rates



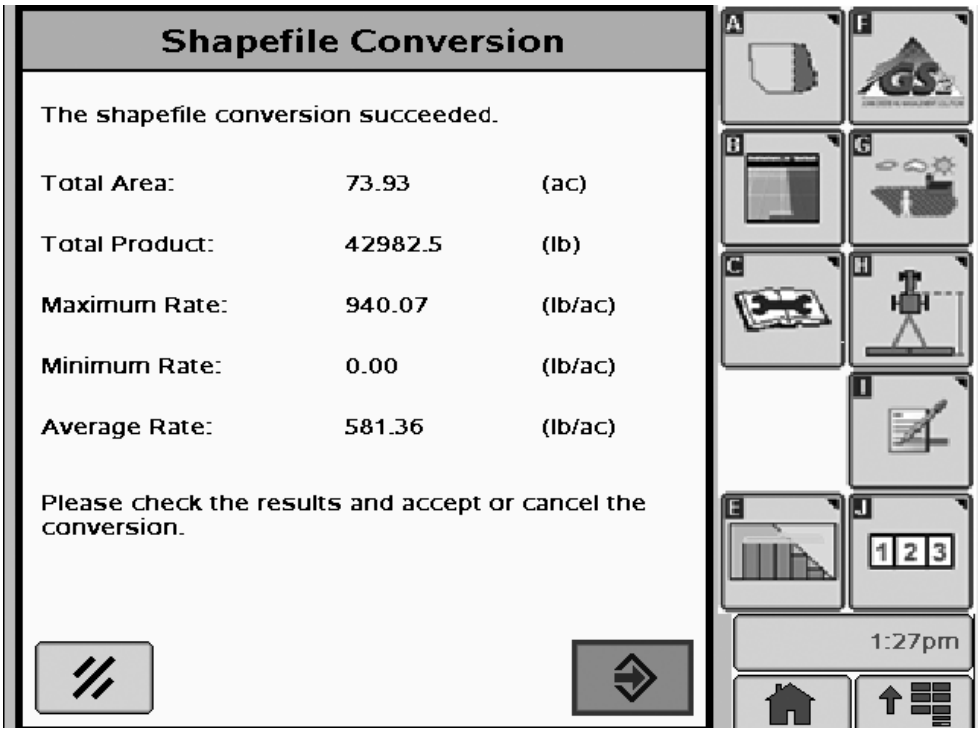
PC10857QIK —UN—26AUG09

If more than 254 rates are present in the shapefile this message appears.

If this message is displayed, the GS2 automatically reduces the number of rates by minimizing the differences between the shapefile and the generated prescription.

OUO6050,00011EC -19-01SEP09-1/1

Shapefile Conversion Summary Page



PC10857QJ —UN—26AUG09

Once shapefile conversion is complete, this screen appears. Verify that the information is correct before accepting. Operator must accept to save the converted shapefile.

IMPORTANT: If the ENTER button is grayed out, the product type or rate units were entered incorrectly and do not match the rate units in the original prescriptions. Select the Cancel Button to return to the Shapefile Conversion Homepage to enter the correct product type or rate units.

NOTE: An area of the prescription, that has been assigned a zero rate, will now appear black on your prescription map in the GS2.

OUO6050,00011ED -19-06OCT09-1/1

Using Documentation with a Dry Box/SpreadStar

MENU button >> GREENSTAR2 PRO button >> DOCUMENTATION softkey

This screen allows operator to setup and change product application when GS2 system is connected to a dry box.

Client, Farm, Field, and Task information must be setup to run documentation for the dry box.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION softkey

Continued on next page

OUO6050,00022CB -19-31MAR10-1/3

Product Application tabs are automatically generated when GS2 system is hooked up to dry box controllers.

The first Product Application tab (A) is used to set up Bin - 1.

The second Product Application tab (B) is used to set up Bin - 2.

If the machine is equipped with only one bin the second tab will not show up.

Button (C) allows the operator to document additional product.

Button(D) selects between a single product and tank mix.

Button (E) allows the operator to input information on the product that is being applied.

Location (F) displays rate that is currently written in the prescriptions.

Button (G) displays the rate that is currently being commanded by the controller.

Location (H) displays the rate that is physically being applied to the field.

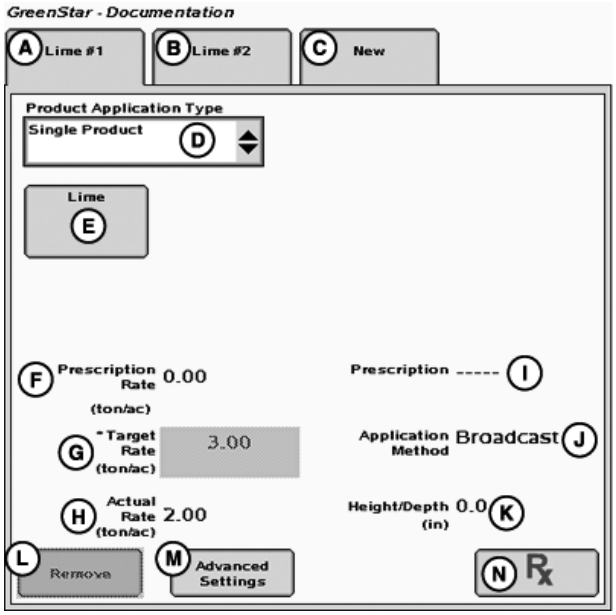
Location (I) displays the name of prescription if one is selected.

Location (J) displays the application method selected using the advanced settings, button (M).

Location (K) displays the Height/Depth and is selected using the Advanced Settings button (M).

Button (L) is disabled while connected to dry box controller.

Button (M) is used to added details.



PC10857VI —UN—31MAR10

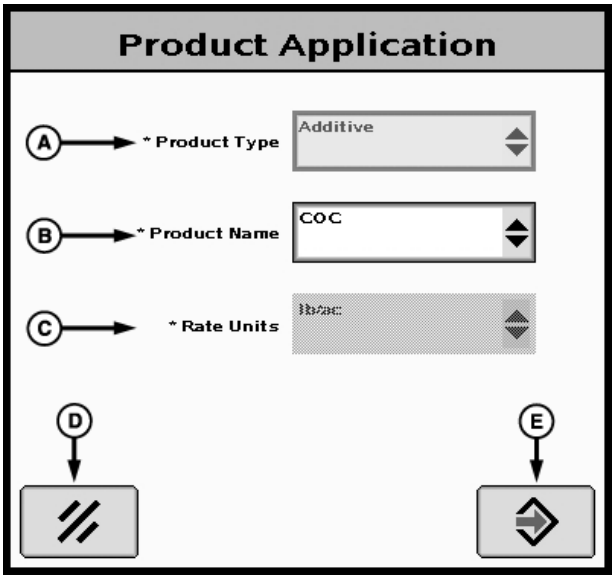
A—Product #1
B—Product #2
C—New Product (#3)
D—Product Application Type
E—Product Type
F—Prescription Rate
G—Target Rate
H—Actual Rate
I— Prescription
J— Application Method
K—Height/Depth
L—Remove Button
M—Advance Settings
N—Prescription Button

Button (N) is used to select prescription or convert shapefile to a prescription.

Continued on next page

Pressing the Product Setup button, shown on previous page, will bring up the Product Application screen. This screen allows the operator to change Product Type or Product Name. Rate Units are set on lb./ac. and can not be changed when using a dry box.. Pressing the Enter button (E) will save changes and return operator to the GreenStar2 Pro - Documentation screen. Pressing the Cancel button (D) will return the operator to the GreenStar2 Pro - Documentation screen without making any changes.

A—Product Type
B—Product Name
C—Rate Units
D—Cancel button
E—Enter button



PC9716 —UN—13NOV06

Product Application screen

OUO6050,00022CB -19-31MAR10-3/3

Product Details—Europe Only

The Product Details function allows documentation and communication of related information between desktop software and GS2 for products like chemicals, fertilizer and crop.

Product Details are only available for the Operations "Planting / Seeding" and "Product Application". Product Application is supported by sprayer and spreader.

NOTE: The GreenStar Seeder/ Sprayer/ Spreader Pro (Universal) activation enables the Product Details function. Product Details isn't available in all countries.

LX1048293 —UN—24AUG09

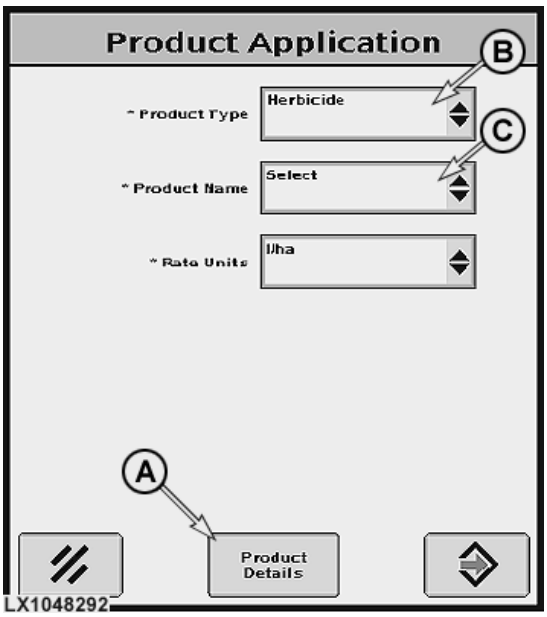
OUO6050,0001203 -19-05OCT09-1/1

Access Product Details for Product Application—Europe Only

1. If (A) is grayed out, define (B) and (C) first.
2. Press button (A).
3. Product details screen will appear.

Information Types available for Product Application:

- Active Ingredient
- Indication
- Buffer Zone
- Content
- Waiting Time



LX1048292 —UN—24AUG09

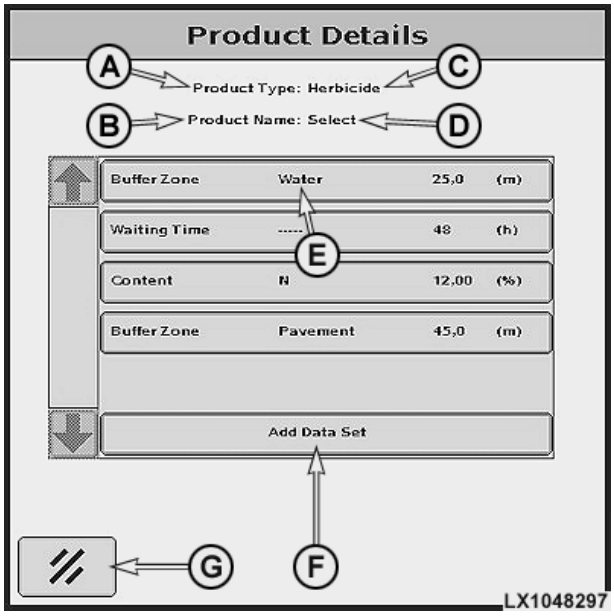
OUO6050,00011FF -19-05OCT09-1/1

Product Details Screen—Europe Only

NOTE: Max. 25 entries could be added.

To add a detail, press (F). This will open the Product Details Entry screen.

A—Type
B—Name or Variety
C—Value designator 1
D—Value designator 2
E—Button to change or delete a data set
F—Button for new data set
G—Cancel, Back to prior page



LX1048297 —UN—24AUG09

OUO6050,0001201 -19-14SEP09-1/1

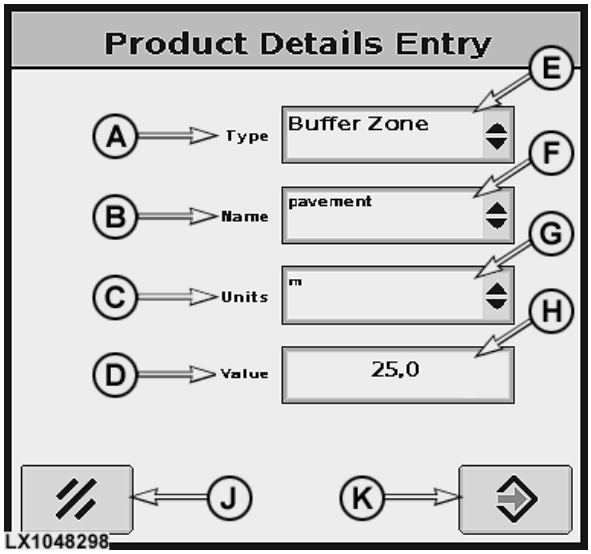
Product Details Entry Screen—Europe Only

After the operator defined field (E), an input in field (F), (G) and (H) is possible. When operator has finished the input, he either confirms with (K) or cancel with (J).

Delete Data Set

1. Select field (E).
2. Choose "- - - -".
3. Press button (K).

A—Type
B—Name
C—Units
D—Value
E—Dropdown list (can't be changed)
F—Dropdown list (can be changed)
G—Units dropdown list (can't be changed)
H—Value field
J—Cancel, back to Product Details Screen
K—Accept changes, back to Product Details Screen



LX1048298 —UN—24AUG09

OUO6050,0001202 -19-05OCT09-1/1

Tank Mixes

Press: Menu button >> GreenStar2 Pro button >> DOCUMENTATION softkey

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

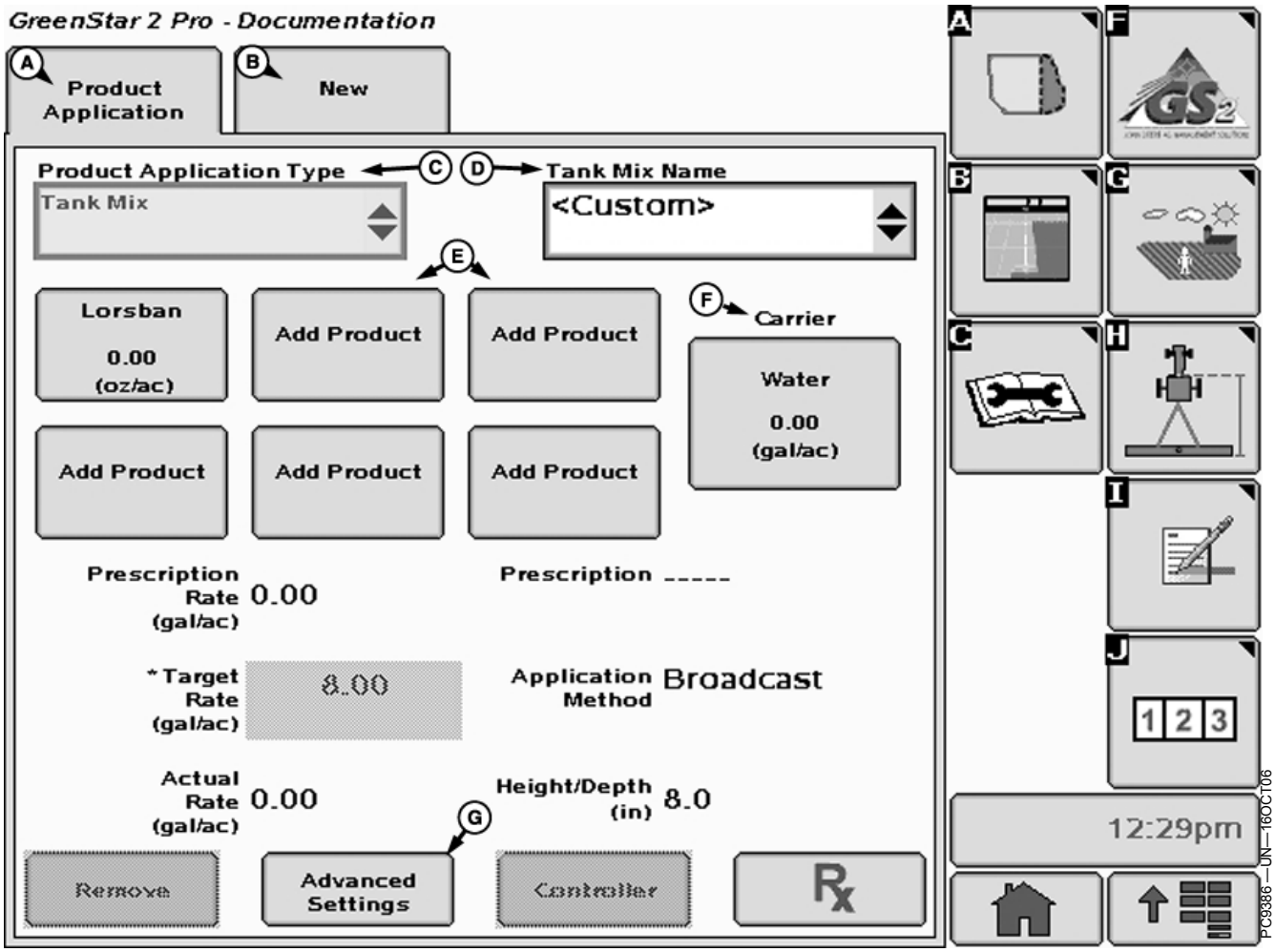
GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION softkey

Continued on next page

OUO6050,00022CD -19-06APR09-1/4



GreenStar2 Pro - Documentation

A—Product Name tab
B—New
C—Product Application Type
D—Tank Mix Name
E—Add Product
F—Carrier
G—Advanced Settings

The operator can define and document tank mixes during product application operations. They can be created and stored using desktop software or while in the cab.

If a tank mix is created with desktop software and imported to documentation via the compact flash card, it can be selected in the Tank Mix Name (D) drop-down box under "Custom." Tank mixes created with desktop software can be modified with the GS2 display but not permanently.

NOTE: Preferred Partner software may not support this function. For further details, refer to your Desktop Software User's Guide.

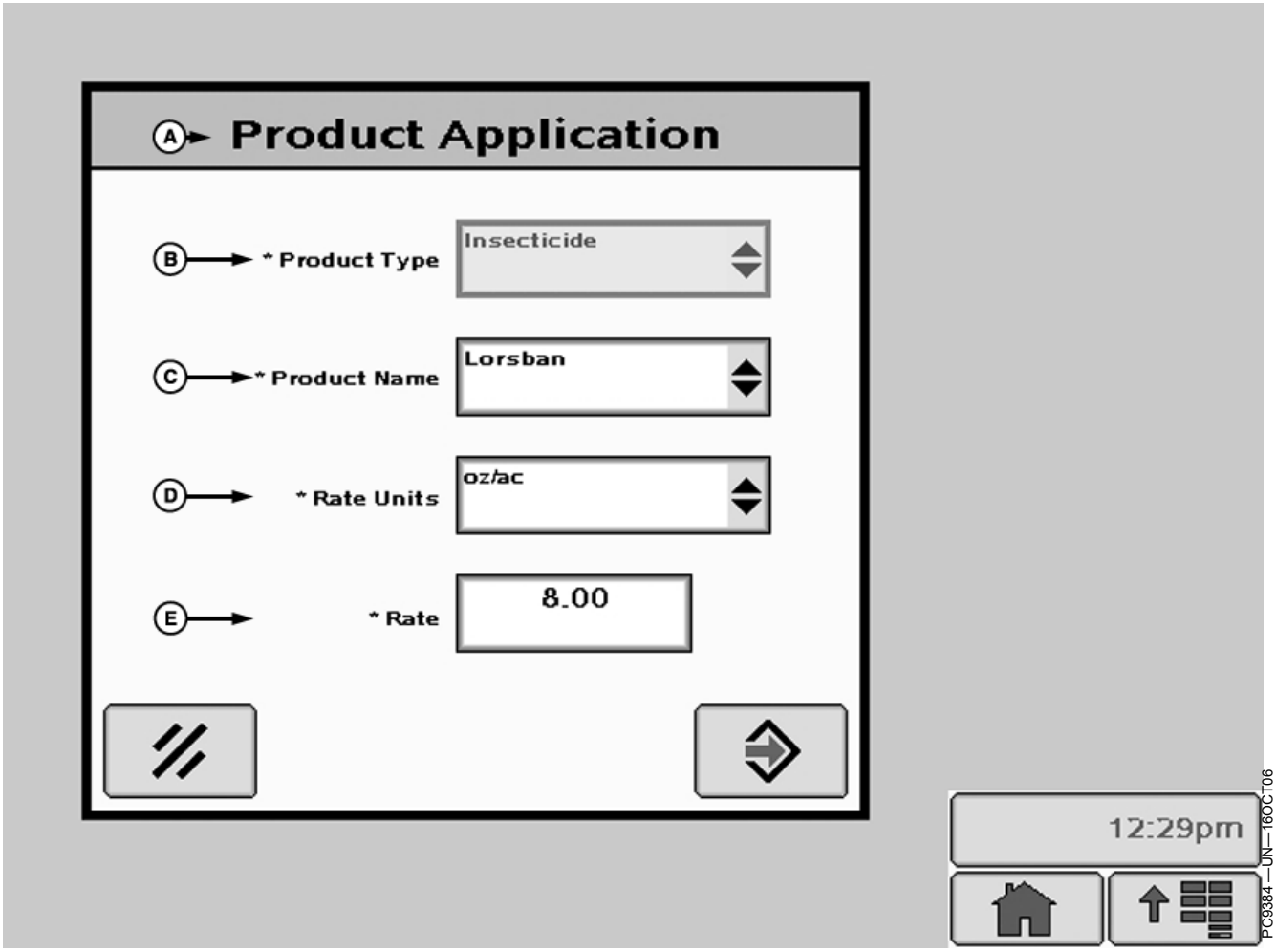
A tank mix can be created on the GS2 display by:

- Selecting a desired Product Application Type (C).
- Defining the ingredients by pressing Add Product buttons (E). Up to 6 defined ingredients per tank mix are supported.
- Specify the carrier by pressing the Carrier button (F).

Advanced Settings Button (G) allows operator to input the Application Method and the Height/Depth.

- If the tank mix being used was created in the GS2 display, PRODUCT APPLICATION will appear on the product tab (A).

Continued on next page



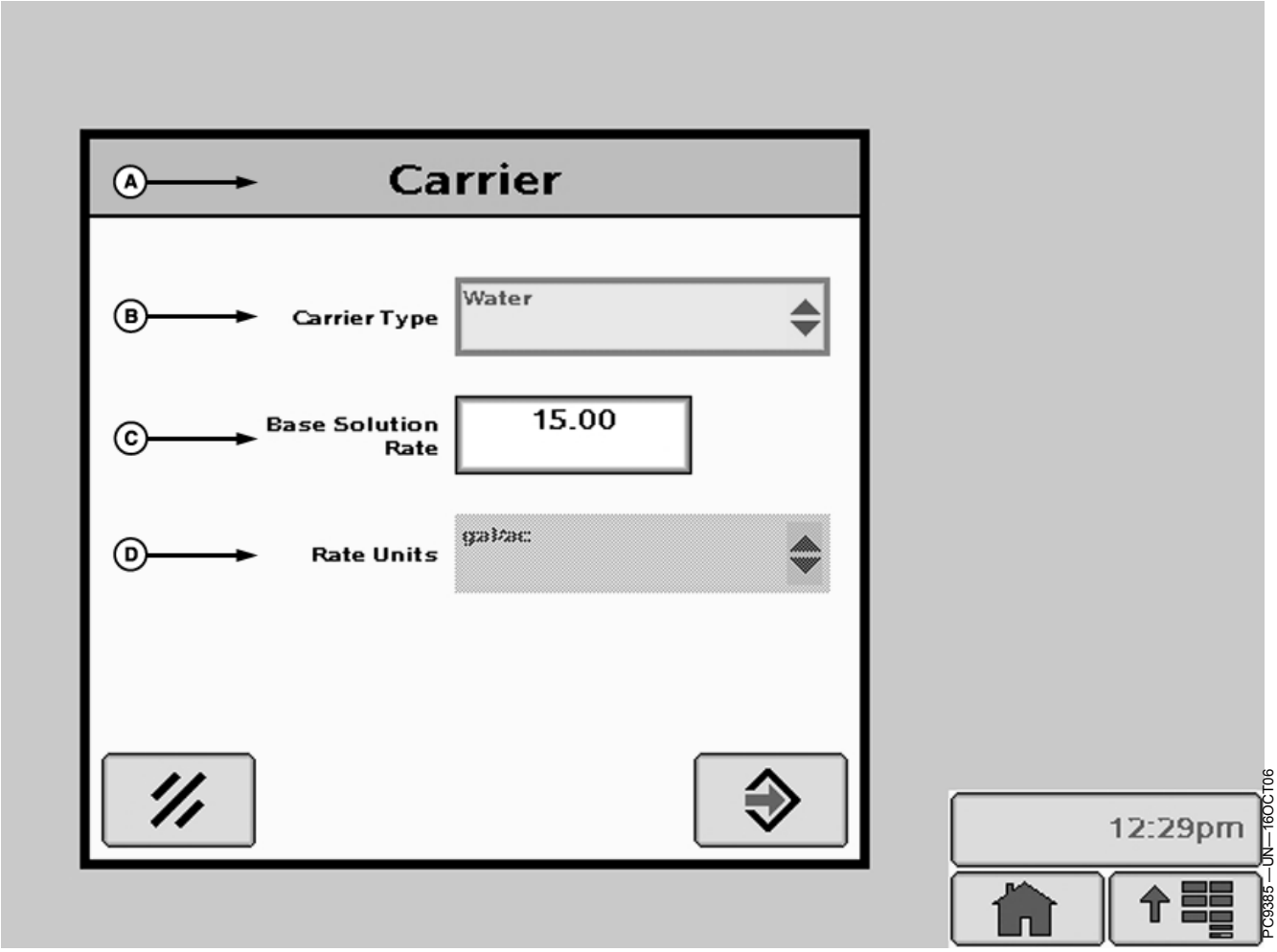
Product Application

A—Product Application
B—Product Type
C—Product Name
D—Rate Units
E—Rate

Define the ingredients by pressing Add Product button on GreenStar2 Pro - Documentation screen.

Continued on next page

OUO6050,00022CD -19-06APR09-3/4



Carrier

A—Carrier **B—Carrier Type** **C—Base Solution Rate** **D—Rate Units**

Specify the carrier by pressing the Carrier button on the GreenStar2 Pro - Documentation screen.

OUO6050,00022CD -19-06APR09-4/4

Map Based Prescriptions

Prescriptions

Application Plans from desktop software can be applied using selected implement control units.

Map-based prescriptions are compatible with the following equipment:

- SeedStar Generation II (gray Boxes on planter frame) (1900 carts PIN 690101 and higher, and all 1910 carts) with Variable Rate Drives. Application Plans can be in seeds per hectare (hectare).
- SeedStar 2 planters with Variable Rate Drives
- Air Cart must have Variable Rate Drives. Compatible with Gen2 1900 and 1910 model air carts and SeedStar 2 air carts with variable rate drives. Application Plans must be kilograms/hectare (kg/h) for fertilizer or seed. (Application plans cannot be in liquid form.) Multiple prescriptions can be applied simultaneously by creating an operation for each tank.
- Task control unit compliant implements (sprayer, seeder, and planter)
- Sprayers and SprayStar Gen IV
- 3rd-Party Controllers: Ensure that accurate data is recorded by setting control unit rate units equal to Application Plans. 3rd-Party Controllers compatible with the following list of variable rate control units:
  - Raven 440, 450, 460, 660
  - SideKick
  - GreenSeeker
  - Rawson Accu-Rate and Accu-Plant
  - New Leader Mark III and Mark IV
  - LH Technologies
- GS2 Rate Controller

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

NOTE: Depending on capability of control unit; seed, dry product and liquid can be applied.

Setup Prescriptions

Client, Farm, Field, and Task Setup

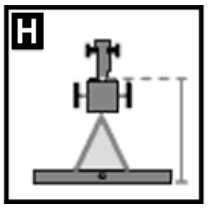
NOTE: See GreenStar 2 Basics and Pro General Setup, RESOURCES and CONDITIONS button for more information on setting up Client, Farm and Field.

1. Select RESOURCE and CONDITIONS button.
2. Select or Enter Client, Farm, Field, and Task.
3. Select EQUIPMENT button.
4. Setup recording source and implement width.
5. Select DOCUMENTATION button.

PC8676 —UN—05AUG05

RESOURCE/CONDITIONS button

PC8677 —UN—05AUG05

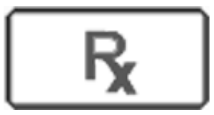


EQUIPMENT button

PC8678 —UN—05AUG05

DOCUMENTATION button

PC8704 —UN—17AUG05



PRESCRIPTIONS button

6. Choose an operation type. Example seeding or product application.
7. Select PRESCRIPTIONS button.
8. Select the PRESCRIPTION from the PRESCRIPTION drop-down box.

Prescription Multiplier

IMPORTANT: If using John Deere sprayer, rate knob must be set to AUX.

If using John Deere AirCart or Planter, set desktop software as Active Rate.

If using a 3rd-Party control unit, see the operator manual of the control unit.

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

If applying multiple prescriptions, operator must choose a prescription for each operation. Example—air cart with a prescription for each tank.

Continued on next page

OUO6050,000126F -19-31MAR10-1/3

If applying the same product from two of more tanks, operator needs a prescription for each tank.

Prescription Override or Multiplier

Select a rate to override the prescription.

Increase or decrease the prescription rate by 15%. All rates in the prescription are adjusted by 15%.

Select ENTER button.

Prescription Overview Background Layer

Map Setting Tab

The operator can select the prescription map as the background layer in the map settings page when a prescription is being applied. Aerial images can also be used as a background layer. As applied data will show over the prescription layer as it is recorded.

To select the prescription as a background layer:

Select: GREENSTAR2 PRO > MAPPING > MAP SETTINGS

Then choose from the from the BACKGROUND drop-down menu.

For more information on Maps refer to the Maps section of this operator's manual.

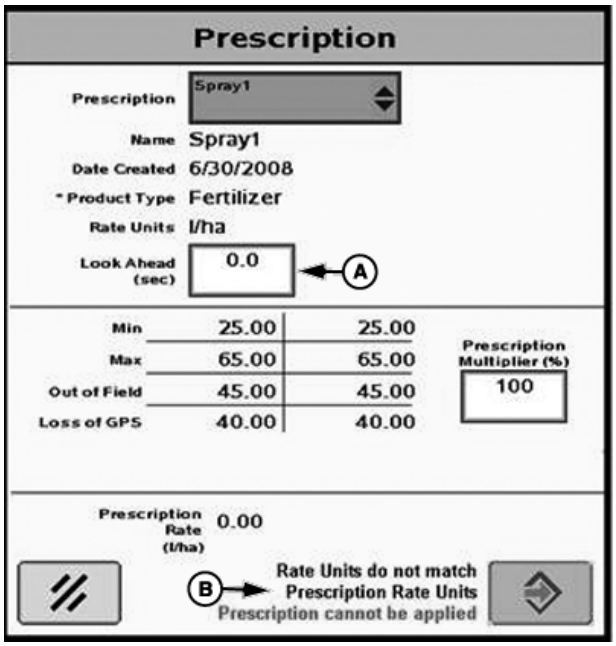
OUO6050,000126F -19-31MAR10-2/3

In the Look Ahead input box (A), enter the number of seconds to look ahead for prescription rate changes. This is an adjustment to compensate for the delay between the control unit making the rate change and the solution pump responding. This should be between 0 and 4 seconds. Default is 0.0 seconds.

NOTE: Text (B) will be displayed and the accept button will become inactive when prescription base units do not match, i.e. liquid units vs. weight units or gallons vs. pounds. Correcting the base unit measurement mismatch will allow the prescription to be applied.

To convert prescription shapefiles, select "Shapefile" from the drop-down menu and select the enter button. This will take you to the Shapefile Conversion Homepage.

A—Look Ahead (Seconds) **B—Text with Accept button**



PC10857QW —UN—14SEP09

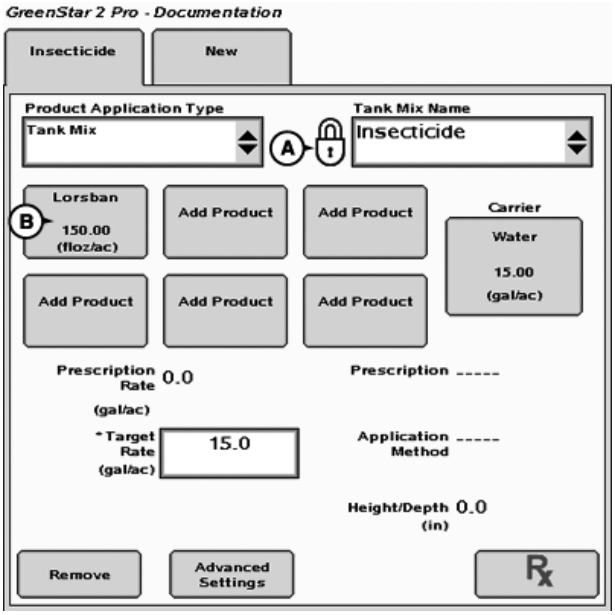
OUO6050,000126F -19-31MAR10-3/3

Viewing Locked Tank Mixes

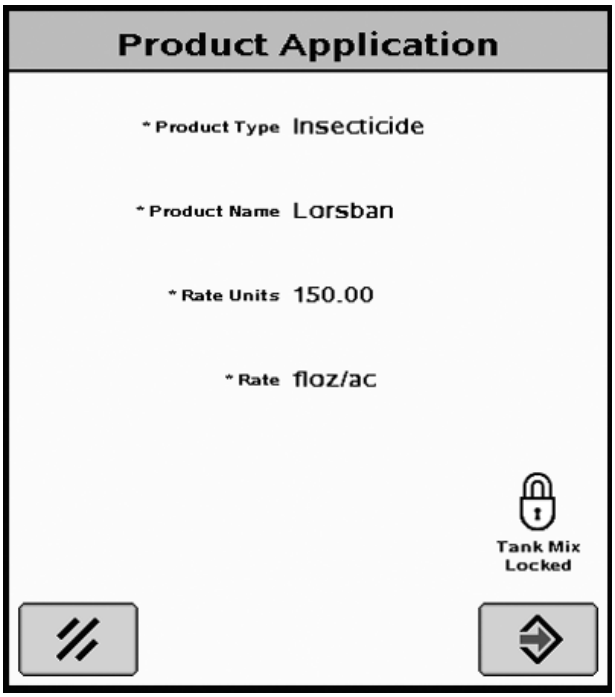
If you created a locked tank mix (A) in Apex. It is possible to view the contents of the locked tank mix. Press soft key (B) to view.

A—Lock (Tank Mix)

B—Locked Tank Mix softkey



PC10857QU —UN—31MAR10



PC10857QV —UN—14SEP09

OUO6050,00011FD -19-14SEP09-1/1

Connecting 3rd-Party Controllers

IMPORTANT: When connecting with a Rawson controller, turn main switch to OFF before leaving vehicle or performing maintenance.

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

NOTE: Please visit www.StellarSupport.com for list of third party compatible controllers.

Data from 3rd-Party controllers can be recorded directly from the following controllers:

NOTE: Go to www.StellarSupport.com to find the latest information about approved platforms.

- Raven 440, 450, 460, 660
- SideKick
- GreenSeeker and YARA N-Sensor
- Rawson Accu-Rate and Accu-Plant
- New Leader Mark III Mark IV
- Dickey-John Seed Manager
- Vanguard PIC Seed Monitor
- ISOBUS Sprayer with Task Controller enabled
- ISOBUS Seeder with Task Controller enabled and planter
- ISOBUS Spreader with Task Controller enabled

System will record Actual Rate, Implement Width, and GPS Recording Status (implement switch not required) directly from Field Doc Connect controller.

Task Controller will record all data implements can supply.

Rawson, Raven, and New Leader Controllers are also capable of accepting prescriptions from the GS2 display. (See the Setup Prescriptions section for more information.)

To setup a Field Doc Connect Controller:

NOTE: You must purchase the harness PF90363 and follow the included instructions for connecting the controller to the display.

1. Choose a Client, Farm, Field and Task in the RESOURCES softkey.

PC8676 —UN—05AUG05

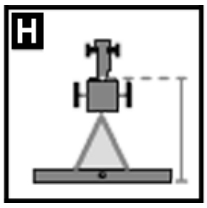
RESOURCES softkey

Continued on next page

JS56696,00004EE -19-31MAR10-1/4

2. Press the EQUIPMENT button.
3. Choose either a Planting/Seeding or Product Application operation.
4. Press the COM PORT button.
5. Select manufacturer, model, and Comm Port. Communication Status will show active when data is being sent on selected Communication Port, and inactive when controller is disconnected or not communicating.

PC8677 —UN—05AUG05



EQUIPMENT button

JS56696,00004EE -19-31MAR10-2/4

6. Press NEXT button.
7. If using a Rawson or New Leader Controller, operator must also enter Mid-point and Step Size.

PC8872 —UN—17NOV05

NEXT

JS56696,00004EE -19-31MAR10-3/4

8. Press ENTER button to finish.

PC8649 —UN—01NOV05

ENTER button

JS56696,00004EE -19-31MAR10-4/4

Simultaneous Documentation/Prescriptions with John Deere and 3rd-Party Controllers

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

The GS2 display can simultaneously run documentation/prescriptions for John Deere and 3rd-Party controllers. An example of this is the display recording seed and fertilizer rates from an air cart while also recording anhydrous ammonia rates from a 3rd-Party controller.

Set up the Air Cart or Planter according to instructions in the GS2 operator's manual.

In documentation screen, choose the NEW tab to set up the 3rd-Party controller.

Refer to Field Doc Connect list for approved controllers on www.StellarSupport.com.

PC8663 —UN—05AUG05

MENU button

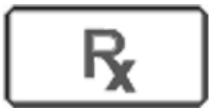
PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION button

PC8704 —UN—17AUG05

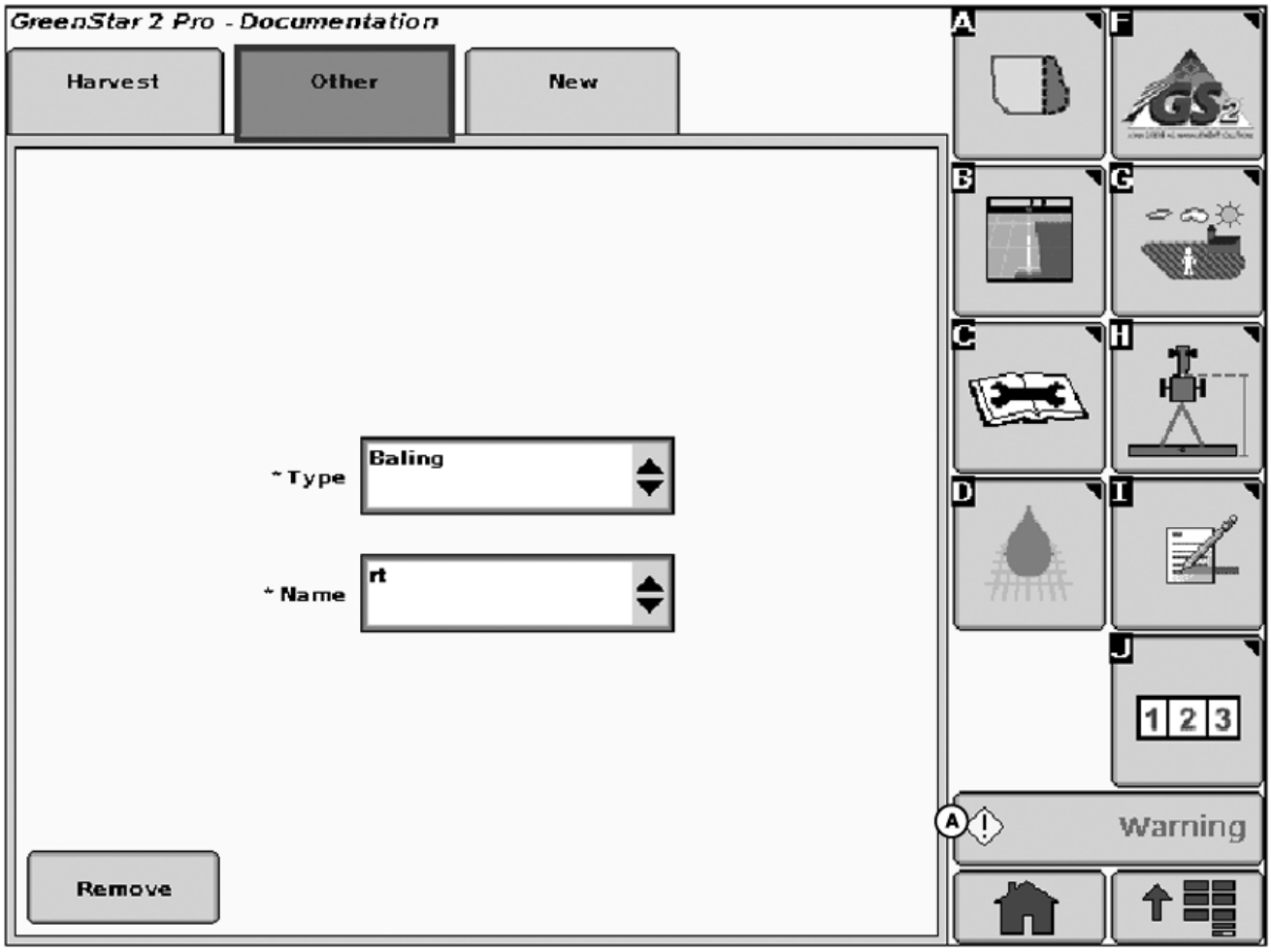


PRESCRIPTIONS button

OUO6050,00022D1 -19-01SEP09-1/1

Turning Documentation On/Off

NOTE: Totals listed under TOTALS button are only calculated when documentation is turned on.



When using Harvest Doc on self propelled harvesting equipment (Combine or Self-Propelled Forage Harvester), the operator should only choose one documentation (Harvest), otherwise there will be no recording of data. In case there is an OTHER tab on the GS2 Pro Documentation page, this needs to be removed by selecting the OTHER tab and selecting REMOVE button.

See DOCUMENTATION button in this section to turn documentation on.

To turn documentation off, for guidance only, go to RESOURCES/CONDITIONS button > RESOURCES tab >TASK. Change TASK to DOCUMENTATION OFF. This allows all guidance screens and features to be functional while recording no documentation data.

OUO6050,0000CA4 -19-01SEP09-1/1

Harvest Setup

MENU button > GREENSTAR2 PRO button > DOCUMENTATION button > HARVEST tab

This screen allows operator to setup and change following items:

Grain	Cotton
Crop Type*	Crop Type*
Seed Brand	Seed Brand
Variety*	Variety*
Load Type	Load Type
Load Number	Load Number
	Load Alarm On/Off
Load Cart	Load Cart
Load Destination	Module ID
Residue management	Gin Turnout %

* required

NOTE: Client, Farms, Fields, Task, have to be setup under RESOURCE/CONDITIONS button before the Resource/Condition icon is shown and harvest operation can be accessed.

Tank and Basket Loads will only increase if the current load has been selected for more than 60 seconds. This will prevent a new load from being created when, for example, a truck is being topped off.

Save to a PC card before starting Harvest, otherwise it can be setup in cab as a new names.

PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION button

NOTE: Combines loose unswitched power shortly after the key is turned off (90 seconds). Any time the GS2 display looses unswitched power it will go through a longer startup sequence. In addition, yield or moisture maps will need to be reselected after power up.

OUO6050,00022DA -19-30SEP09-1/1

Changing Harvest Settings

NOTE: Operations can be set up using desktop software and saved to a PC card.

MENU button > GREENSTAR2 PRO button > DOCUMENTATION button > HARVEST tab

Select CHANGE HARVEST SETTINGS button

PC8663 —UN—05AUG05

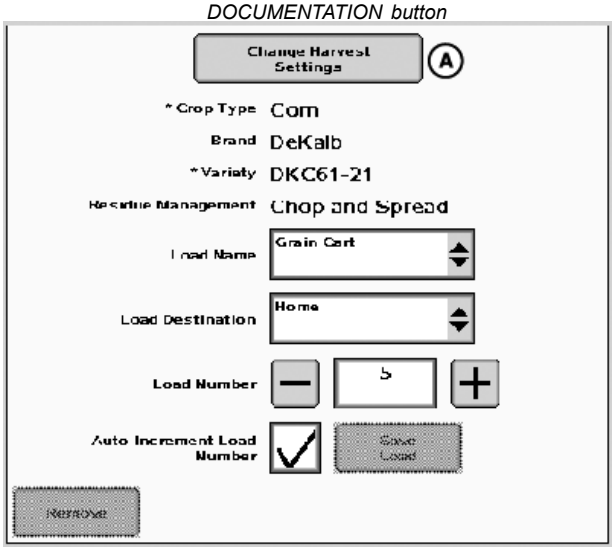
MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8678 —UN—05AUG05

DOCUMENTATION button



PC10857VJ —UN—01APR10

Change Harvest Settings

Continued on next page

This screen allows operator to define:

- Crop Type
- Brand
- Variety
- Variety Locator
- Residue management or Gin Turnout %

Load Name Select: ENTER or NEXT button

NOTE: Contractor and Contract # can only be set up with desktop software and saved to a PC card.

This screen allows an operator to view and change:

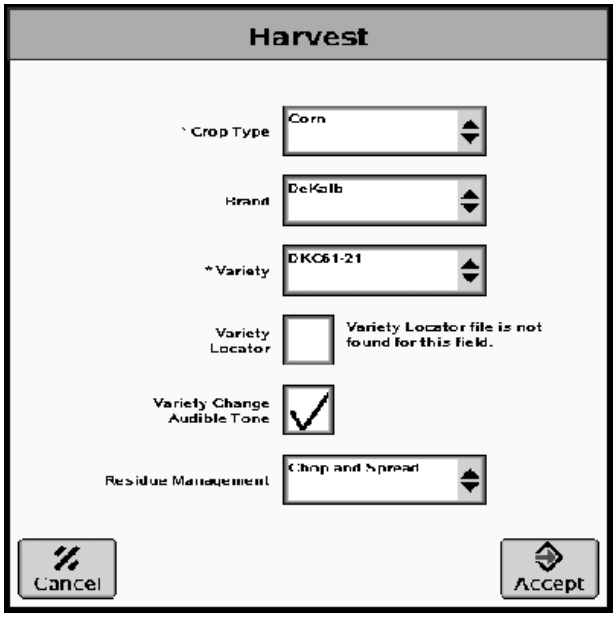
- Load Name (Can be anything operator wants it to be. Examples are Tank, Truck, Field, Basket, or Module)
- Load Number (Increment or Decrement to next load)
- Load Destination
- Residue Management or Gin Turnout %

Select letter button next to LOAD NAME to input desired name.

Select LOAD DESTINATION button.

Select desired destination of load.

NOTE: Load name and destination can be saved from Apex.



PC10857VK —UN—01APR10

Apex is not available in all EAME countries.

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JS56696,000049C -19-01APR10-2/3

Defining Residue Management

Select RESIDUE MANAGEMENT button on SETUP—OPERATION screen and SETUP—RESIDUE MANAGEMENT screen appears.

Select desired residue management:

- Chop
- Spread
- Chop and Spread
- Windrow
- Undefined (non-specified)
- NEW

Defining Gin Turnout % enter the % Lint that is estimated for each field. The default is 33%.

NOTE: Ensure that the first Operations tab is set to Harvest.

Three other operations are available for selection, but not needed.

Defining Header Width and Header Offset

Select: Main Menu > GreenStar2 > EQUIPMENT > MACHINE tab> Machine list box

NOTE: Select COMBINE, COTTON PICKER, or COTTON STRIPPER if not detected automatically.

Define model in list box to right of machine. (not required)

Select: HEADER tab> HEADER list box

Enter header model if desire. (not required)

Header Width is set up in Harvest Monitor. See Section on Original GreenStar Monitor or the 70 Series combine Operator Manual for procedures.

Verify that the proper width has been sent from Harvest Monitor and show in this tab.

This screen allows operator to define:

PC10857VL —UN—01APR10

- Header Name
- Header Width comes from Harvest Monitor (see Original GreenStar Monitor or the 70 Series combine Operator Manual)
- Header Offset
- Track Spacing (See Guidance section)

NOTE: Header Offset is used for operators using an offset head (for example, draper).

Refer to HARVEST section for more information.

Defining Header Width for Self-Propelled Forage Harvesters

Header width is set up in OBD RCP 180 and others. See the user manual that came with the self-propelled forage harvester to verify the correct setup in the OBD. Do this for all other implements and headers which cannot be changed in the display itself (field is grayed out).

JS56696,000049C -19-01APR10-3/3

Cut Width Adjustment

Cut width can be adjusted in two places:

- GREENSTAR2 PRO - EQUIPMENT screen >> HEADER tab
- One of two home pages options

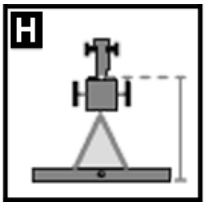
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

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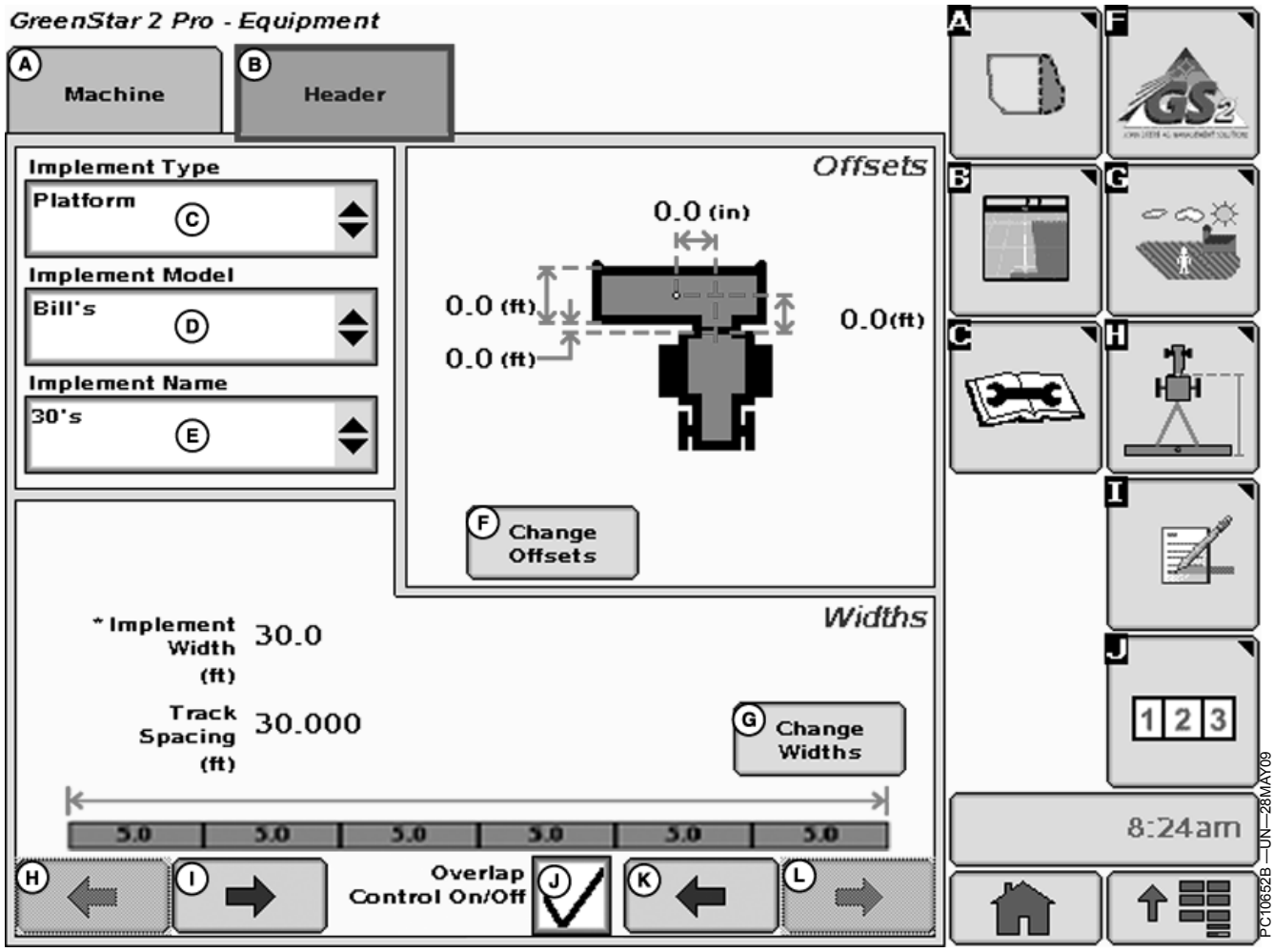
OUO6050,0000CA9 -19-31OCT07-1/4



A—Machine
B—Header
C—Implement Type Drop-Down Menu
D—Implement Model Drop-Down Menu
E—Implement Name Drop-Down Menu
F—Change Offsets Button
G—Change Widths Button
H—Increase Cut Width—Left Hand Side
I— Decrease Cut Width—Left Hand Side
J— Overlap Control Check Box
K—Decrease Cut Width—Right Hand Side
L—Increase Cut Width—Right Hand Side

Header type and size are setup according to the operator's manual.

The width of the header is shown on the HEADER tab screen as Implement width.

Press arrows (H) (I) (K) and (L) to increase or decrease the amount of cut width on the left or right side.

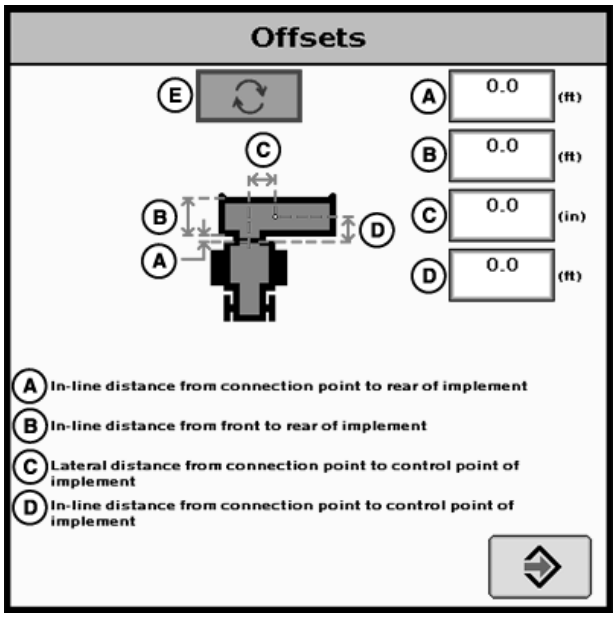
The Overlap Control Check Box (J) allows the operator enable or disengage the overlap control feature.

Press Change Offsets button (F) to access the change offsets page.

Continued on next page

OUO6050,0000CA9 -19-31OCT07-2/4

A—In-line distance from connection point to rear of implement.
B—In-line distance from front to rear of implement.
C—Lateral distance from connection point to control point of implement.
D—In-line distance from connection point to control point of implement.
E—Lateral Offset Toggle Button



PC10653 —UN—16OCT07

Change Offsets

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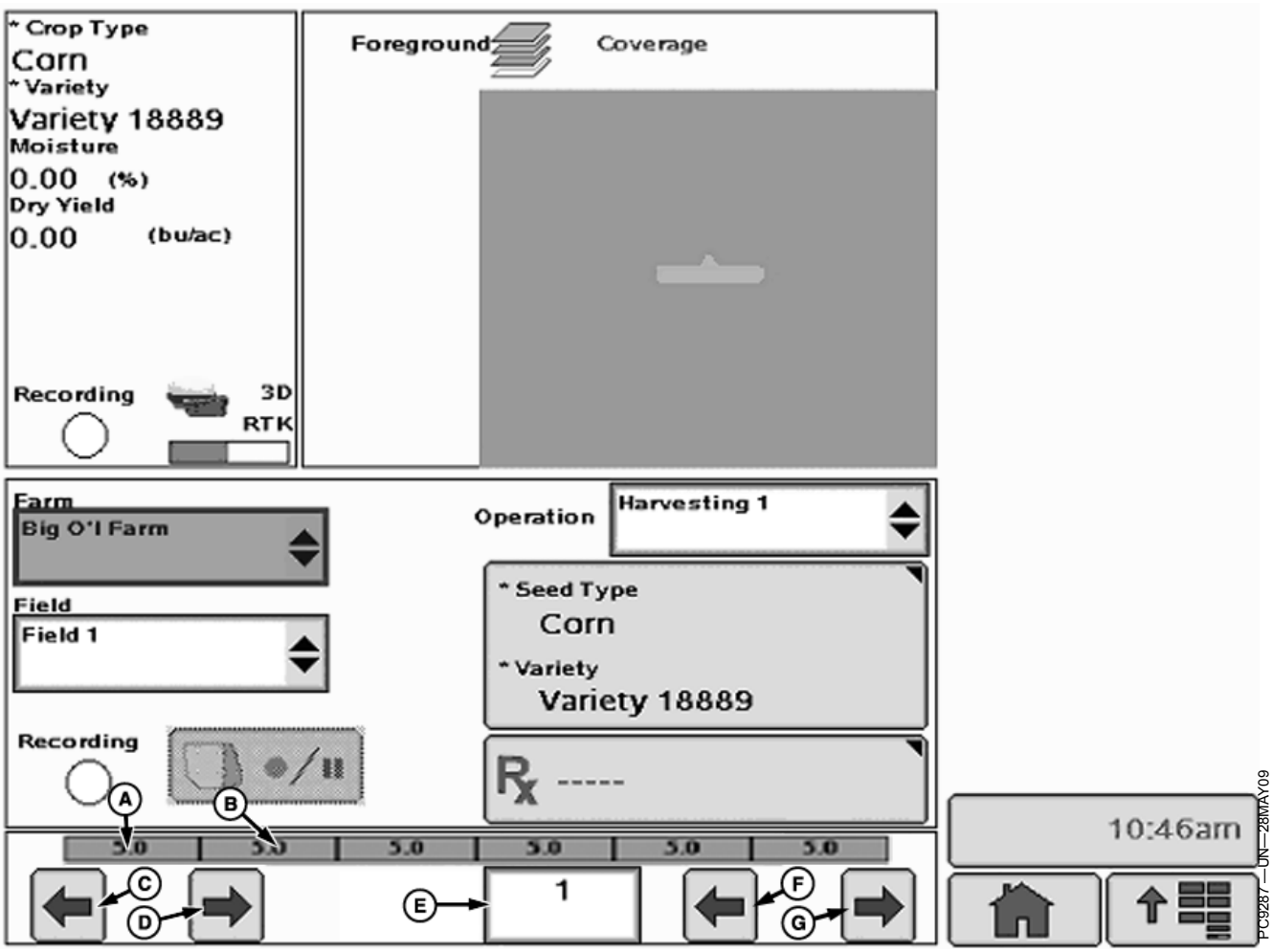
OUO6050,0000CA9 -19-31OCT07-3/4



One of two home pages options

A—Entire Width of the Header
B—Part of the Header Crop is coming into
C—Increase Cut Width—Left Hand Side
D—Decrease Cut Width—Left Hand Side
E—Increment Input Box
F—Decrease Cut Width—Right Hand Side
G—Increase Cut Width—Right Hand Side

Cut Width Adjustment is available in either a full or half screen on the home page.

To combine less than a full cut, press the arrows (D) or (F) to reduce the gray bar (B) to the correct width and correct placement along the width of the header (A). Arrows (C) and (G) increase the crop width. This adjustment allows for the correct number of acres to be calculated based on the actual width of crop coming into the header. It also creates accurate on-screen and desktop software maps. When the header is raised, it will automatically go back to a full cut.

NOTE: Changing cut width is no longer available on the Run Page of Harvest Monitor using the Original GreenStar monitor.

OUO6050,0000CA9 -19-31OCT07-4/4

Setting up Harvest Doc Pages

1. **Select:** MENU >> GS2 PRO >> RESOURCES & CONDITIONS
2. Setup Client, Farm, Field
3. **Select:** MENU >> GS2 PRO >> DOCUMENTATION >> HARVEST

PC8663 —UN—05AUG05

Menu button

PC8661 —UN—02NOV05

GreenStar2 Pro button

PC8676 —UN—05AUG05

Resources & Conditions button

PC8678 —UN—05AUG05

Documentation button

JS56696,000049F -19-25MAY10-1/4

NOTE: Harvest Monitor is in the CommandCenter on 70 Series Combines.

1. **On-screen Mapping Functions** are handled through the Mapping Icon.

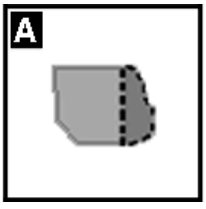
   Select: MENU >> GS2 PRO >> MAPPING >> MAP SETTINGS >> FOREGROUND MAP drop down list

PC8663 —UN—05AUG05

PC8661 —UN—02NOV05

GreenStar2 Pro button

PC8672 —UN—05AUG05



Mapping button

Continued on next page

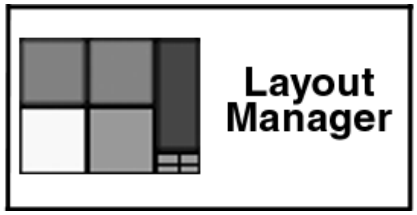
JS56696,000049F -19-25MAY10-2/4

2. Select the desired foreground map from drop down list.

Home Page Layout Functions are handled through the layout manager. (See the LAYOUT MANAGER section.)

PC8663 —UN—05AUG05

PC8656 —UN—17NOV05



JS56696,000049F -19-25MAY10-3/4

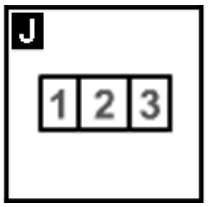
Totals are handled through the Totals icon

PC8663 —UN—05AUG05

PC8661 —UN—02NOV05

GreenStar2 Pro button

PC8679 —UN—05AUG05



Totals

JS56696,000049F -19-25MAY10-4/4

Original GreenStar Monitor

Select: MENU >> ORIGINAL GREENSTAR MONITOR

Harvest Monitor is only available through the ORIGINAL GREENSTAR MONITOR application on the GS2 display. Once in the Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

NOTE: For all 9x70 combines, Harvest Monitor is located within the Command Center. See Combine Operator's Manual for more information.

PC8663 —UN—05AUG05

PC8657 —UN—05AUG05

ORIGINAL GREENSTAR MONITOR button

JS56696,00004A0 -19-07OCT08-1/1

Starting

NOTE: Errors may appear when first powering up the system. Cancel these errors before proceeding.

Screen: SETUP—HARV MON—PAGE 1

Select: SETUP >> HARVEST MONITOR

Operator will need to setup information in HARVEST MONITOR on SETUP—HARV MON—PAGE 1 screen:

1. Header Width
2. Header Type
3. Yield Calibration
4. Moisture Calibration
5. Record Stop Height

NOTE: Farm, Field, and Crop need to be setup in HarvestDoc on GS2 >> DOC (I) button.

JS56696,00004A1 -19-07OCT08-1/1

Defining Header

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE

IMPORTANT: Make certain header type is correct when changing from one header to another. The wrong header selection will result in an inaccurate information.

NOTE: To change from feet to meters see SETUP GreenStar DISPLAY.

Depending on which type of header is selected, there are additional items to be setup.

HEADER TYPE button will toggle between corn head, row crop, platform and belt pickup.

Select desired header type.

Corn Head/Row Crop Head

IMPORTANT: Make certain row spacing is correct when header types are changed. The wrong row spacing will result in inaccurate area calculation.

Header Width

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> HEADER WIDTH

Enter header (in rows) width using numeric keypad.

Row Spacing

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> ROW SPACING

Enter row spacing mm (inches) using numeric keypad.

Row Change

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> ROW CHANGE

Set increments (in rows) for cut width to change on RUN - PAGE 1 screen. Use numeric keypad to enter number.

Platform/Belt Pickup

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> HEADER WIDTH

NOTE: If row crop (e.g. soybeans) are being harvested with a platform, and row spacing does not allow use of full header width, adjust header width to crop width being cut. For example: 7.6 meter (25 ft) platform may be 7 meters (24 ft) depending on row spacing.

Platform = Actual field cutting width in meters (feet)

Belt Pickup = Actual width of grain cut to produce windrow in meters (feet).

Set increments (in m (ft)) for cut width to change on RUN—PAGE 1 screen. Use numeric keypad to enter number.

Change increments (in meters or feet) for cut width to change on RUN—PAGE 1 screen. Use numeric keypad to input correct header width in meters or feet.

JS56696,00004A2 -19-07OCT08-1/1

Calibration

General Calibration Information

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

Mass flow sensor must be calibrated in order to achieve accurate grain weight measurements. Standard Calibration procedure must be performed in every crop that is harvested. In addition, optional Low Flow Compensation procedure may be performed to obtain an improved level of accuracy in situations where there are large variations in grain flow rate.

The following paragraphs describe different screens that are used in calibration procedure.

Calibration In Progress or System Not Calibrated Cell

This section displays if mass flow sensor has been calibrated to desired crop.

If system has not be calibrated a message displaying "System NOT Calibrated" will be displayed.

If standard calibration has been performed a bar graph indicating flow rate sensor has been accurately calibrated.

If a standard and low flow calibration has been completed, bar graph will expand to show an increased area of accuracy.

Calibration Mode Cell

This screen indicates whether Standard Calibration procedures or optional Low Flow procedure is to be performed.

Select CALIBRATION MODE button to switch between STANDARD CALIBRATION and optional LOW FLOW CALIBRATION.

Yield Calibration Cell

This screen allows calibration procedure to be started or stopped.

Harvested Weight Cell

This screen indicates approximate weight of grain that has been harvested during calibration process.

Scale Weight Cell

This screen allows scale weight to be entered after a calibration run is complete (during calibration run, indicates approximate weight of grain that has been harvested).

Calibration Factor Cell

Value shown here allows mass flow sensor to read accurately. This value will be updated automatically by Calibration procedure. This value can also be adjusted manually.

IMPORTANT: Before calibrating be sure that combine grain tank and unloading auger tube are empty. Be sure that wagon or truck hauling grain away from combine is empty.

NOTE: Message with the following information may appear on screen: "Low Cal Flow Comp NOT required." If this message appears, flow rate during calibration was very low. Therefore, it is neither necessary nor possible to perform optional Low Flow Compensation procedure. Standard Calibration procedure is sufficient.

Yield monitor system can be accurate only if operator follows correct calibration procedures.

The following procedures should be performed at maximum ground speed which operator expects to run in this crop and condition, and in an area that is reasonably level and of uniform yield.

1. Select CALIBRATION MODE button to select desired calibration.
2. Select START/STOP button. Display will change to YIELD CALIBRATION IS RUNNING.
3. Begin harvesting. Weight displayed in HARVESTED WEIGHT cell should increase while harvesting.
4. Harvest known amount of grain (i.e. grain tank full, truck load, wagon load, etc.).
5. When known load is completed, stop machine and allow all harvested grain to enter grain tank.
6. Select STOP button to stop calibration. Display will change to YIELD CALIBRATION IS STOPPED.

IMPORTANT: Be sure to empty grain tank completely and be certain all grain is on one vehicle (wagon or truck).

7. Have known amount of grain weighed. While waiting for scale ticket to return, you may continue by selecting RUN button.
8. When scale ticket returns to combine, go to Yield Calibration Page.
9. Select SCALE WEIGHT button to change weight value.
10. Using numeric keypad, input NET WEIGHT OF GRAIN from scale ticket.

IMPORTANT: Standard calibration procedure will not change data already saved. After changes are made, all harvest information collected from that point on will reflect changes.

Continued on next page

NOTE: If scale ticket weight is more than 50% higher or lower than displayed weight, system will NOT allow entry of scale weight.

11. Select SCALE WEIGHT button to enter new value. CALIBRATION FACTOR will change automatically when grain weight is entered.

JS56696,00004A3 -19-07OCT08-2/2

Low Flow Compensation Procedure—Optional

NOTE: DO NOT perform a manual adjustment of calibration factor if you intend on using Low Flow Compensation procedure.

The following procedure should be performed only after Standard Calibration procedure has been performed for this crop and condition. While procedure is optional, it will produce accurate results only if it is followed carefully.

The procedure should be performed at approximately one-half to two-thirds of ground speed at which Standard Calibration procedure for this crop and condition was run and in an area that is reasonably level and uniform in yield.

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

IMPORTANT: Be sure combine grain tank and unloading auger are empty. Be sure wagon or truck hauling grain away from combine is empty.

1. Select CALIBRATION MODE button and select LOW FLOW.
2. Select START/STOP button and display will change to YIELD CALIBRATION IS RUNNING.

NOTE: There is a delay after changing ground speed before moving indicator responds. Therefore, after making a ground speed adjustment, wait 10 to 20 seconds and observe effect of moving indicator before making another adjustment.

3. Begin harvesting and adjust ground speed until moving indicator stabilizes in target range.
4. HARVESTED WEIGHT cell should increase while harvesting.
5. Harvest known amount of grain (grain tank full, truck load, wagon load, etc.).
6. When known load is completed, stop machine and allow all harvested grain to enter grain tank.

NOTE: Message with the following information may appear: Comp Flow Too High. Repeat Comp Run. If this message appears, it will not be possible to enter scale weight. Repeat optional Low Flow Compensation procedure, paying special attention to keep moving indicator in target range (A).

7. Select START/STOP button again to stop calibration. Display will change to YIELD CALIBRATION IS STOPPED.

IMPORTANT: Be sure to empty grain tank completely and make sure all grain is on one vehicle (wagon or truck).

8. Have known amount of grain in truck or wagon weighed. While waiting for scale ticket to return, you may continue by selecting RUN button.
9. When scale ticket returns to combine, go to YIELD CALIBRATION screen
10. Select SCALE WEIGHT button to change weight value.
11. Using numeric keypad, input net weight of grain from scale ticket.

IMPORTANT: Calibration procedures will not change data already saved. After changes are made, all harvest information collected from that point on will reflect changes.

NOTE: If scale ticket weight is more than 50% higher or lower than displayed weight, system will NOT allow entry of scale weight.

12. Select SCALE WEIGHT button to enter new value. FLOW COMP NUMBER will change automatically when grain weight is entered.

JS56696,00004A4 -19-07OCT08-1/1

Manually Adjusting Calibration Factor

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

NOTE: Do not perform a manual adjustment of Calibration Factor if you intend on using Low Flow Compensation procedure.

If scale weight is more than 50% higher or lower than displayed weight, system will not allow entry of scale weight.

A new calibration factor can also be entered manually. To calculate calibration factor, divide weight shown on display by new weight on scale ticket. Multiply result by displayed calibration factor (see example below). This is the new calibration factor.

To manually enter a calibration factor:

1. Select CALIBRATION FACTOR button to change calibration factor.
2. Using numeric keypad, input calibration factor.
3. Select CALIBRATION FACTOR button to enter a new value.

Displayed Calibration Factor = 950

Weight of grain shown on display = 27,643 lb

Net weight of grain from scale ticket = 27,022

Displayed Calibration Factor (950) **X** Weight of grain shown on display (27,643 lb) **/** Net weight of grain from scale ticket (27,022 lb) **=** New Calibration Factor (971)

New Calibration Factor = 971

JS56696,00004A5 -19-07OCT08-1/1

SETUP—MOISTURE CORRECTION

IMPORTANT: Changing moisture correction in the "Moisture Correction" cell will not change the data already saved. After changes are made, all harvest information collected from that point will reflect the changes.

SETUP - MOISTURE screens are used to setup moisture correction, moisture alarm (on/off) and moisture curves.

Screen: SETUP—MOISTURE

Select: SETUP >> HARVEST MONITOR >> MOISTURE

Moisture correction screen is used to set moisture correction to match reading from a customer or elevator certified moisture sensor as shown on RUN - PAGE 1 screen.

JS56696,00004A6 -19-07OCT08-1/1

Moisture Correction

NOTE: Harvesting, recording is "ON", determine how many points the moisture correction needs to be added or removed from the instantaneous moisture.

Not harvesting, recording "OFF", will display average moisture of crop. Average moisture does not need to be corrected. If average moisture is corrected, the instantaneous moisture could be over corrected.

1. **Screen:** SETUP—MOISTURE CORRECTION

   Select: SETUP >> HARVEST MONITOR >> MOISTURE >> MOISTURE CORRECTION

NOTE: "Crop" cell displays the selected crop.

2. MOISTURE CORRECTION button and FIXED MOISTURE VALUE button allow the operator to correct the moisture reading on RUN—PAGE 1 screen by toggling to FIXED MOISTURE VALUE, moisture sensor will be disabled and forces moisture value to what was entered.
3. If using MOISTURE CORRECTION: Select MOISTURE CORRECTION button and using numeric keypad input a number value to be added to reading displayed on RUN—PAGE 1 screen.
4. Select MOISTURE CORRECTION button again to save this value.
5. If using fixed moisture value; Select FIXED MOISTURE VALUE button and using numeric keypad, input a number value (%) to be displayed on RUN - PAGE 1 screen.

Advanced Moisture Correction

NOTE: This procedure is used to determine moisture correction when elevator readings do not agree with combine moisture readings.

Do not use this procedure if crop moisture levels are above 16%. For crops above 16% enter moisture correction manually.

1. Collect 1 L (1 qt) grain sample from the grain tank and place in a sealed container and have tested by elevator.

IMPORTANT: To finish this procedure the combine engine must be turned OFF.

2. Select ADVANCE MOISTURE CORRECTION button on SETUP—MOISTURE CORRECTION screen.
3. Select ELEVATOR GRAIN MOISTURE button on SETUP—ADVANCED CORRECTION screen.
4. Using numeric keypad, enter value from elevator.
5. Select ELEVATOR GRAIN MOISTURE button to save value.
6. To start sampling select START button.

NOTE: Screen will prompt operator to POUR SAMPLE IN MOISTURE SENSOR.

Make sure moisture sample chamber is fully filled and is free of air pockets. Air pockets will cause inaccurate moisture readings.

7. Pour sample into moisture sensor.
8. Screen will display CALIBRATION IN PROGRESS.
9. MEASURED MOISTURE IS cell will display the moisture of the sample in the moisture sensor.
10. Select ACCEPT button to save this value or select DECLINE button to decline this value.

JS56696,00004A7 -19-07OCT08-1/1

Moisture Alarm

This screen is used to determine the set points (minimum and maximum) for activation of the moisture alarm.

Select MOISTURE ALARM button on SETUP—MOISTURE screen and SETUP—MOISTURE ALARM screen will appear.

Select MINIMUM MOISTURE button and using numeric keypad enter a new minimum setting.

Select MAXIMUM MOISTURE button and using numeric keypad enter a new maximum setting.

Select MOISTURE ALARM button to toggle ON/OFF.

JS56696,00004A8 -19-07OCT08-1/1

Moisture Curve

Three moisture curve choices are:

- Enter New Curve — This would be used when a new curve has been developed for a new crop.
- Update Curve — This would be used when a better curve has been developed for a current crop.
- Restore Curve Defaults — This would be used when to reinstate the original curve.

Refer to MOISTURE CURVE CALIBRATION CODES later in this section for the latest available codes.

This screen is used to enter new moisture curves that may be provided by the factory.

Use the following to enter a new curve as directed.

1. Select MOISTURE CURVE button on SETUP—H Mon—MOISTURE, MOISTURE CURVE

NOTE: If needed select page button until desired crop appears.

2. Select desired crop to be updated.

NOTE: To view current moisture curve, go to INFO Harvest Monitor section.

3. Select CROP button to toggle between ENTER NEW CURVE, UPDATE CURVE or RESTORE CURVE DEFAULTS.
4. If ENTER NEW CURVE is selected select letter button next to a blank cell and using numeric keypad enter the new moisture curve number.
5. Select SAVE THIS CURVE button.

NOTE: To update an existing curve, toggle to UPDATE CURVE on SETUP - MOISTURE CURVE screen.

6. Select letter button next to blank cell and using numeric keypad enter update.
7. Select SAVE THIS CURVE button .
8. To restore default curves, select CROP button to toggle to RESTORE CURVE DEFAULTS.
9. Select SAVE THIS CURVE button to restore default curves for the selected crop.

JS56696,00004A9 -19-07OCT08-1/1

Selecting Recording

Selected recording will be boxed and in capital letters.

JS56696,00004AA -19-07OCT08-1/1

Setting Yield/Area Units

This screen is a continuation of SETUP - HARV MON - PAGE 1 screen.

This screen allows operator to choose Yield Units and Area Units that will be displayed on RUN pages. It also allows operator to configure RUN pages and turn on and off printer functions.

Yield Units

NOTE: See Standard Weights Chart section for standard weights of corps.

To select units of measure for yield readings, select YIELD UNITS button and SETUP - YIELD UNITS - PAGE 2 screen will appear.

Select desired unit.

Area Units

To select units of area select AREA UNITS button: on SETUP - HARV MON - PAGE 2 screen. AREA UNITS button will toggle between ACRES and HECTARES. Selection will appear boxed in capital letters.

JS56696,00004AB -19-07OCT08-1/1

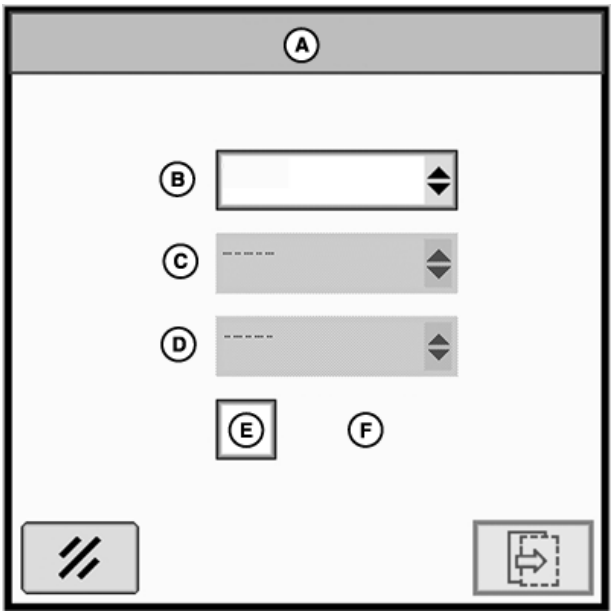
Variety Locator

Check the Variety Locator box (E) in Harvest Settings to have the GS2 automatically change to the variety that was recorded while planting. This will record the variety that is coming into the center of the header (verify correct lateral and inline offsets on the Header page). The correct variety is saved to the Data Card for each 3 meters (10 feet) square grid for each field selected in desktop software.

The variety locator files must be saved to the compact flash card prior to combining.

A Variety Locator Message (F) may appear telling the operator if the file for the current field is found, or if a file is available but not used.

A—HARVEST
B—Crop Type
C—Brand
D—Variety
E—Variety Locator
F—Variety Locator Message

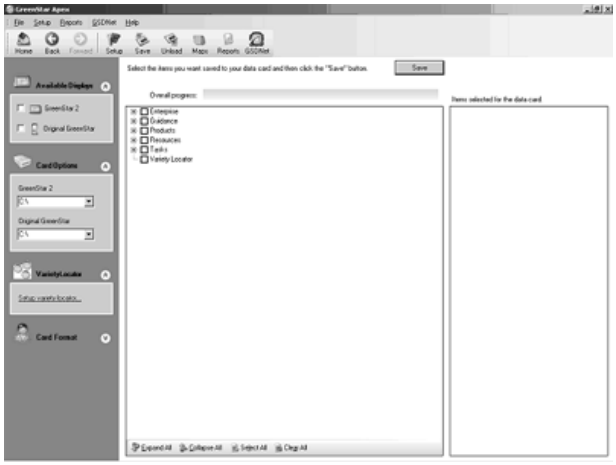


PC10792 —UN—07NOV07

Harvest screen

OUO6050,0000CBD -19-31OCT07-1/2

IMPORTANT: For Variety Locator to work on GS2 displays, varieties must be recorded when planting, loaded to desktop software, and saved to a Data Card. All fields that will use the Variety Locator on a GS2 display at harvest must have the variety seeding information saved to a card using desktop software. See the desktop software operator's manual for more information on how to properly save files to a Data Card.



PC9299 —UN—29JUL06

desktop software

OUO6050,0000CBD -19-31OCT07-2/2

Original GreenStar Monitor

Press: MENU button >> ORIGINAL GREENSTAR MONITOR button

Harvest Monitor is only available through the ORIGINAL GREENSTAR MONITOR application on the GS2 display. Once in the Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

NOTE: For all 9x70 combines, Harvest Monitor is located within the Command Center. See Combine Operator's Manual for more information.

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS2 display, Harvest Monitor will automatically function on the Original GreenStar Display and the Original GreenStar Monitor application will not be available and will not appear on menu.

PC8663 —UN—05AUG05

PC8657 —UN—05AUG05

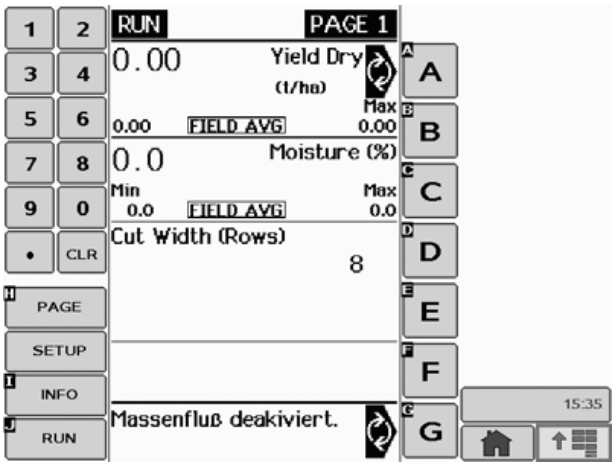
ORIGINAL GREENSTAR MONITOR button

JS56696,00004EF -19-17NOV08-1/1

How to Set Up Harvest Monitor (for Combines) on a GS2 Display

When you install your GS2 on a combine you have to set up Client, Farm, Field and Task (CFFT) in Harvest Doc. The corresponding moisture curve and the header type in HMON will be selected automatically. HMON stand-alone is not available on the GS2—you will have to run documentation.

Please use the following guidelines to set up your HMON/GS2 for harvesting. Harvest Monitor on GS2 will be displayed in emulation mode.

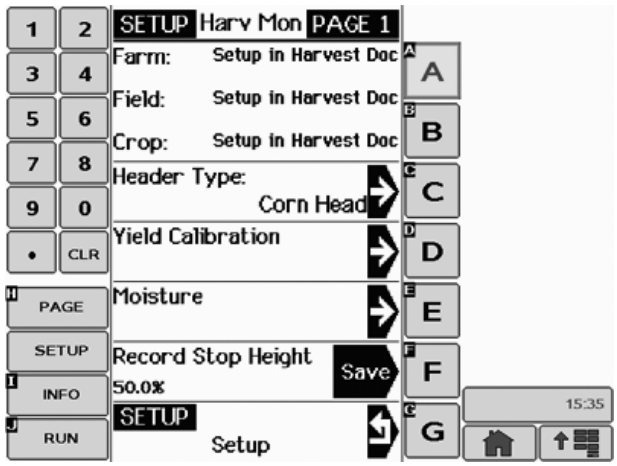


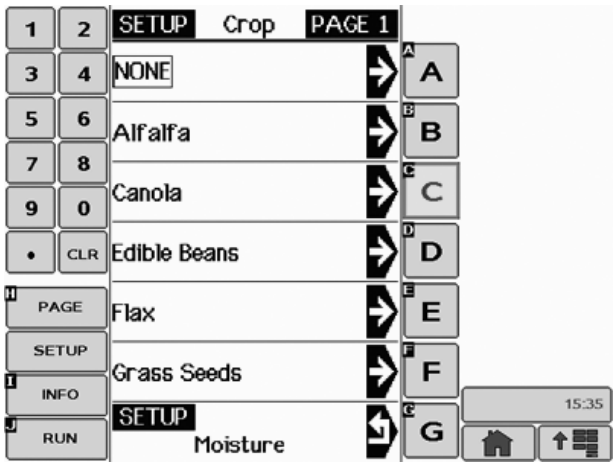
PC10341 —UN—29SEP07

Harvest Monitor in emulation mode

Continued on next page

JS56696,00004F0 -19-01SEP09-1/13

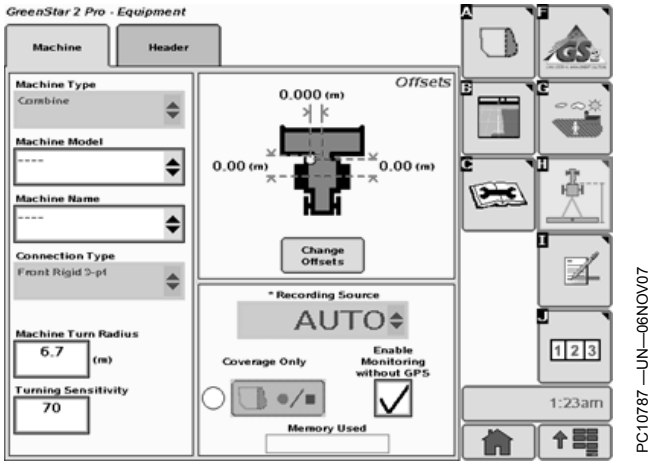




You will have to set up Farm, Field and Crop in Harvest Doc. If these are not selected in HDOC, HMON won't select a moisture curve and will show "Corn Head" as default header type (on every start-up).

JS56696,00004F0 -19-01SEP09-2/13

When a moisture sensor is connected to the CAN bus the GS2 will automatically detect "Combine" as machine type. See GS2 Pro—Equipment page, button H.



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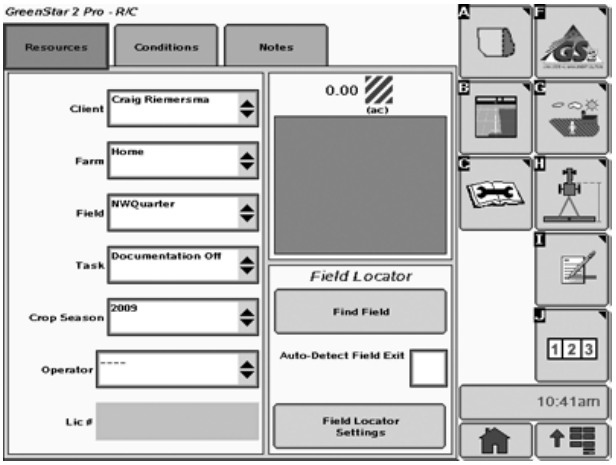
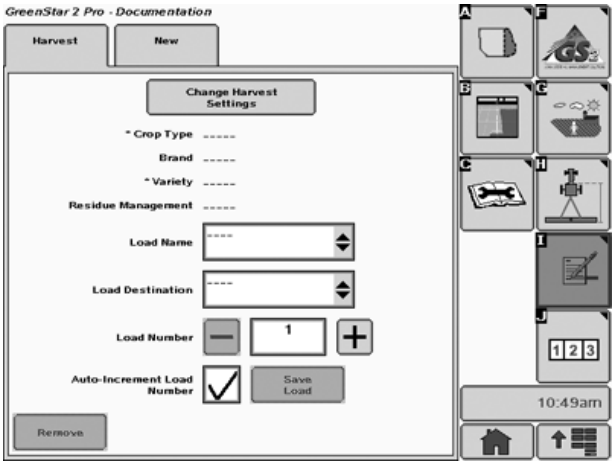
JS56696,00004F0 -19-01SEP09-3/13

First, set up Client, Farm, Field and Task (CFFT). See Resources/Conditions page, button G.



JS56696,00004F0 -19-01SEP09-4/13

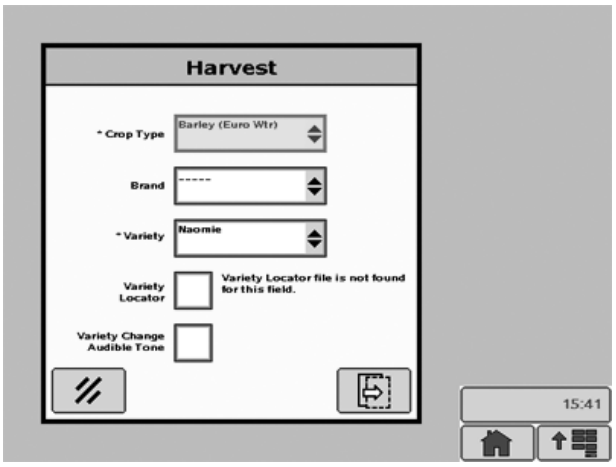
Afterwards a “Harvest” task will be displayed on the Documentation screen (I).



JS56696,00004F0 -19-01SEP09-5/13

IMPORTANT: Crop type and variety are mandatory settings for documentation and moisture curve selection.

By pushing the button “Change Harvest Settings” you can reach the menu to enter crop type and variety (among other things).



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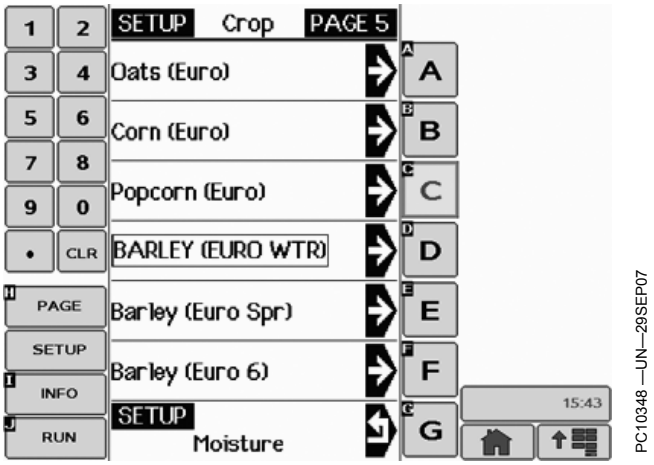
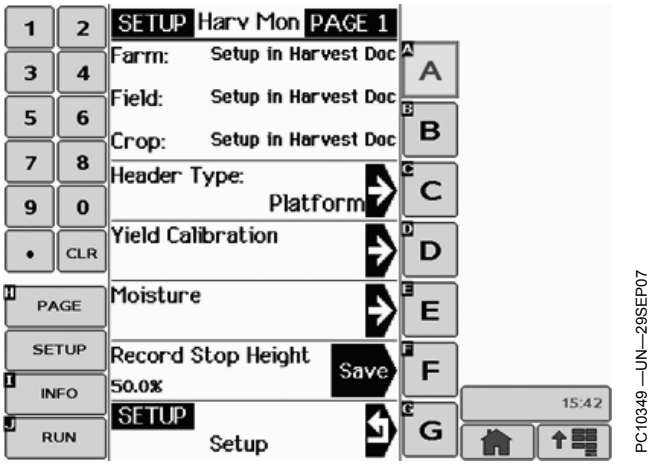
JS56696,00004F0 -19-01SEP09-6/13

With crop type and variety selected in HDOC, Moisture Curve and Header Type settings are made in HMON automatically. See Setup – HMON—Moisture—Moisture Curve.

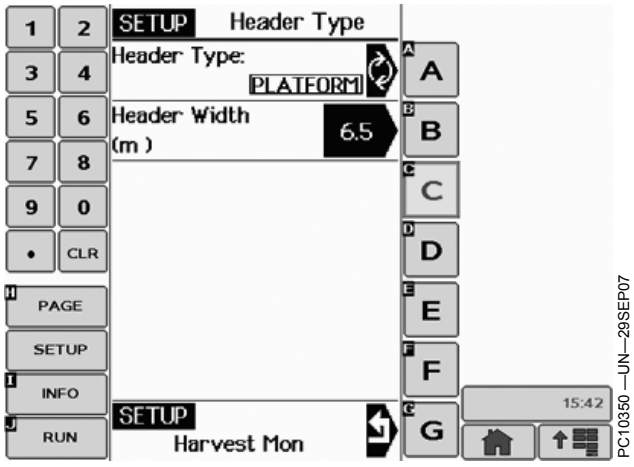


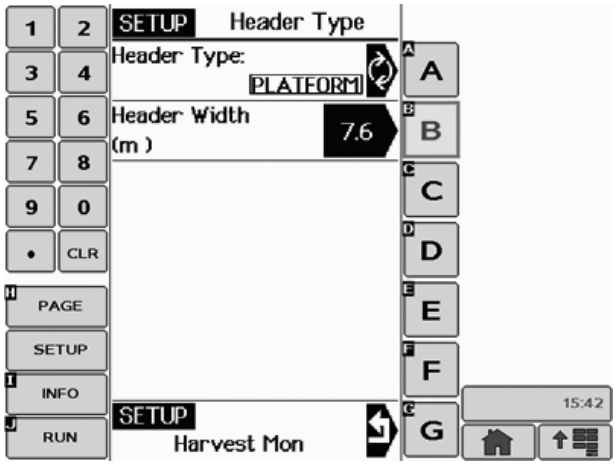
JS56696,00004F0 -19-01SEP09-7/13

For Corresponding header type, see Setup—HMON—Header Type (e.g. “platform”, when barley is selected).



JS56696,00004F0 -19-01SEP09-8/13





Afterwards, you can set up the header width (if needed).

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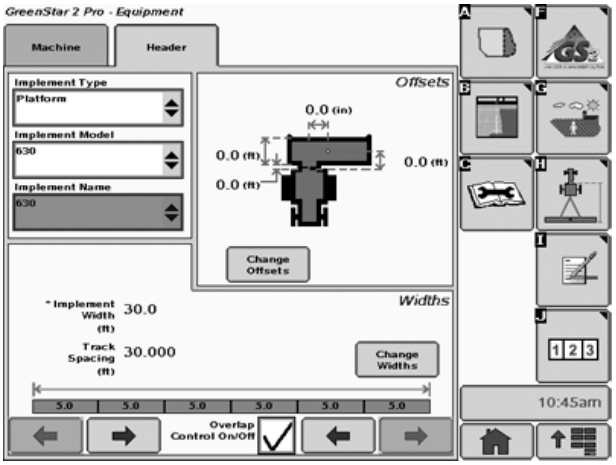
JS56696,00004F0 -19-01SEP09-9/13

This working width will also be used by the GS2 for “implement width”.

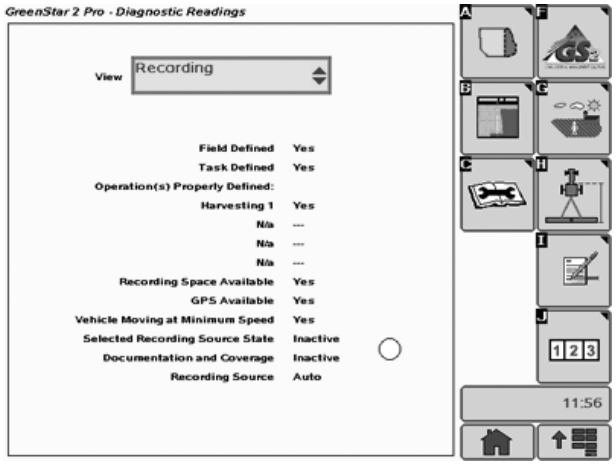


JS56696,00004F0 -19-01SEP09-10/13

IMPORTANT: The working width will be stored on the moisture board. Header type and moisture curve will be selected automatically when a corresponding crop type and variety are selected in HDOC.

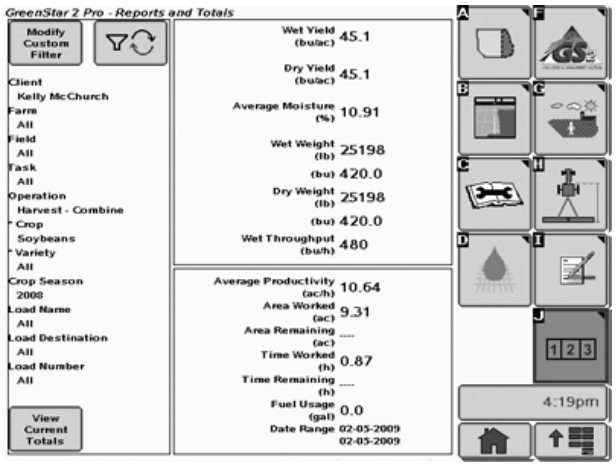
The crop type will be saved when the GS2 is shut down correctly. You will have to re-select it, when you delete the data from your data card or put in a new one.

You have the ability to check the correct settings for HDOC by choosing “Recording” in the drop-down menu of the Diagnostics Readings page (button C)



JS56696,00004F0 -19-01SEP09-11/13

The Totals page (J) will only be available when your harvest operation is properly defined.



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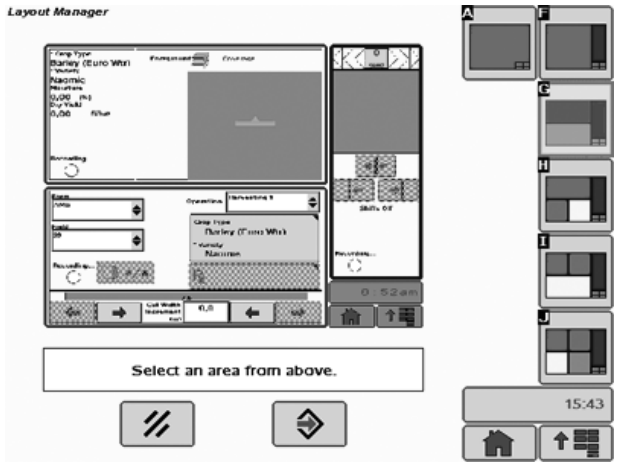
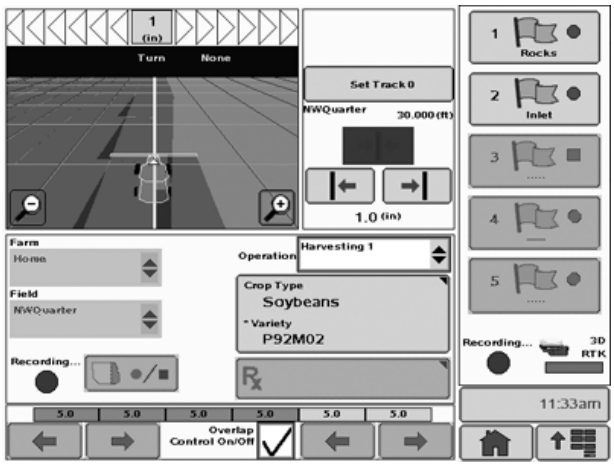
JS56696,00004F0 -19-01SEP09-12/13





You have the ability to set up your Run page the way you prefer (Main menu—Layout Manager [J]). We would suggest using the following layout on combines.

JS56696,00004F0 -19-01SEP09-13/13

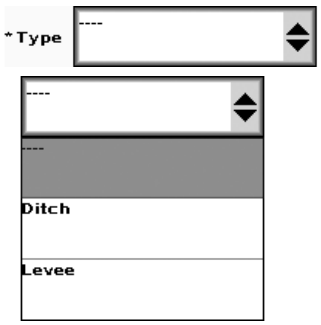
Surface Water Management

Select: WATER MANAGEMENT > TYPE

Choose DITCH or LEVEE

PC10857VM —UN—01APR10

PC10857VO —UN—01APR10



OUO6050,0001270 -19-01APR10-1/1

Other Operation

The OTHER operation tab is used for activities that do not have a task controller associated. Using a self-propelled windrower and recording a coverage map would be one example.

Select or Enter a type.

Select or Enter a name.

Although the other operation tab will not allow yield recording, the following information will be available:

PC10857VN —UN—01APR10

- Area
- Area Remaining
- Time
- Productivitiy

OUO6050,0001271 -19-01APR10-1/1

TOTALS button

Totals

The Totals page show the data based on which items in the dropdown menus are selected. For example, when a Harvest task is selected for a farm and field, planting data will not show, and when Crop Totals are shown, information for each particular crop is not broken down by which farm or field the crop was in.

This can be filtered further by filtering by field, crop, and load.

All values shown are for the items that are used for filtering.

ITEM SPECIFICATION

- Area—Area harvested with recording ON
- Date Range—Beginning and ending date of harvest activity
- Average Productivity—The average amount of area harvested per hour when recording is ON
- Moisture—Percent of moisture of the crop as determined by Harvest Monitor
- Yield (dry)—Crop yield as determined by Harvest Monitor if dried down to the standard payable moisture. The standard payable moisture is entered for each crop with desktop software.
- Yield (wet)—Yield of the crop as it comes out of the field
- Productivity—Average wet mass of the crop per hour
- Length of time—Number of hours that recording has been ON
- Fuel Used—Estimated total fuel used
- Mass (dry)—Dry mass as determined by Harvest Monitor if dried down to the standard payable moisture
- Mass (wet)—Wet mass as determined by Harvest Monitor
- Additional items that will show depending on how it is filtered include:

- Client—Anyone, including yourself, that data will be collected for, such as a landlord

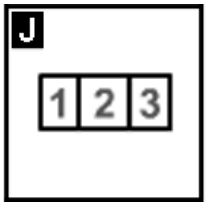
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8679 —UN—05AUG05



TOTALS button

- Farm—A group of fields that are located near each other
- Field—An area of land which is physically defined by roads, creeks, or other things
- Load—Sub-unit of what is harvested in each field. It could be a grain tank, a truck load, or the entire field
- Area Remaining—The Area Remaining is derived by taking the initial acres and subtracting what has already been harvested. Needs a boundary (or acres entered into desktop software) to be functional.
- Time to Finish—Time to finish is derived by taking the area remaining and dividing by the average productivity. Time for turning, stopping to unload, etc. will not be taken into account. Needs a boundary (or acres entered into desktop software) to be functional.

OUO6050,0000CAA -19-01SEP09-1/1

Harvest Totals

Totals

Totals for Harvest Totals screen allows operators to view a variety of operational information.

Harvest - Combine	Harvest - Cotton
Brand	Brand
Variety	Variety
Area	Area
Yield (dry)	Yield avg Seed
Yield (wet)	Max Lint Yield
Dry Mass	Totals Seed
Wet Mass	Min Lint Yield
Moisture	Yield avg Lint
Length of Time	Length of Time
Estimated Time to Finish*	Estimated Time to Finish*
Area Remaining	Area Remaining*
Productivity	Productivity
Productivity	Productivity
Total Fuel Used	Total Fuel Used
Date	Total Bales
	Total Lint
	Date

*Estimated time and area remaining require that an exterior boundary has been selected.

Harvest - Combine	Harvest - Cotton	Harvest - SPFH
Operator	Operator	Operator
Destination	Destination	Destination
Load #	Load #	Load #
Load Name	Load Name	Load Name
Residue Management	Gin Turnout %	

In addition, the totals will be filtered on the Load level. If Harvest is not selected in the Operation list box, the Load list box should be disabled.

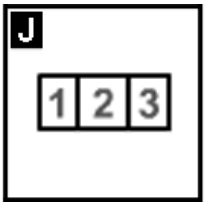
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8679 —UN—05AUG05



TOTALS softkey

To filter totals, select criteria desired, and press enter.

To clear totals press and hold 0 button.

Interaction with Harvest Monitor

NOTE: Today, with the current GreenStar display and mobile processor, when Harvest Doc is on the bus with Harvest Monitor, the Totals come from HarvestDoc not Harvest Monitor. The same shall be with Documentation on the 2x00 GreenStar display family. The user shall not be able to see Harvest Monitor totals through the Original GreenStar Monitor, an auxiliary GSD4, or 70 Series Command Center unless Documentation is off.

JS56696,000049D -19-01APR10-1/1

General Overview

Combine—Specific Items are done through Harvest Monitor (calibrating yield, moisture, selecting the size and type of header, etc.)

1. Select Menu.
2. Select Original GreenStar Monitor.
3. Slect Setup/Harvest Monitor.

PC8663 —UN—05AUG05

Menu

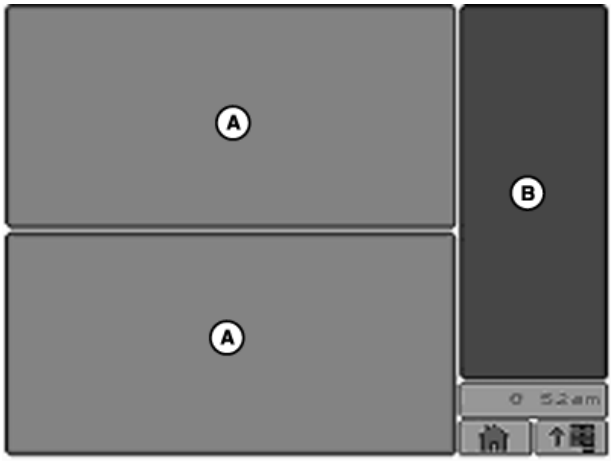
PC8657 —UN—05AUG05

ORIGINAL GREENSTAR MONITOR button

OUO6050,000127E -19-24MAY10-1/1

Set Up Totals on Home Page

1. Select Menus > Layout Manager.
2. Totals can be displayed at various locations on the screen, but are configurable only on a half screen (A) or on the softkey region (B). To learn more about setting up different areas of the screen, see the Layout Manager section in this operator's manual.
3. Select the GreenStar 2 Pro button and find Totals section.
4. Select Totals section and then select the Enter button to complete setup.
5. In the example shown here, the flags screen go into the blue region and the yield map into the red region.



PC10857ID —UN—25MAR09

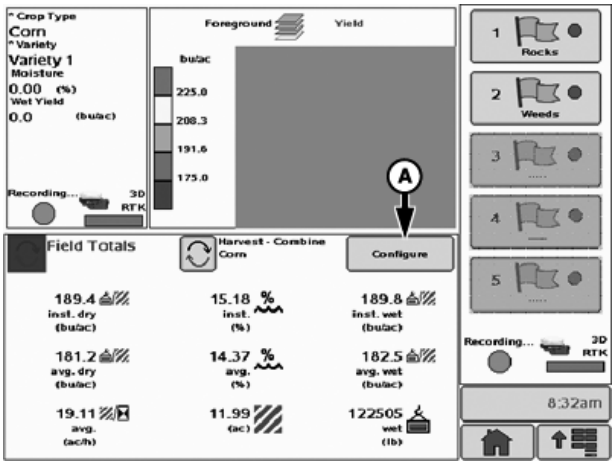
A—Half Screen **B—Softkey Region**

OUO6050,0001075 -19-06APR09-1/1

Configuring Totals

1. Select the Configure button.

A—Configure Button



PC10857IE —UN—25MAR09

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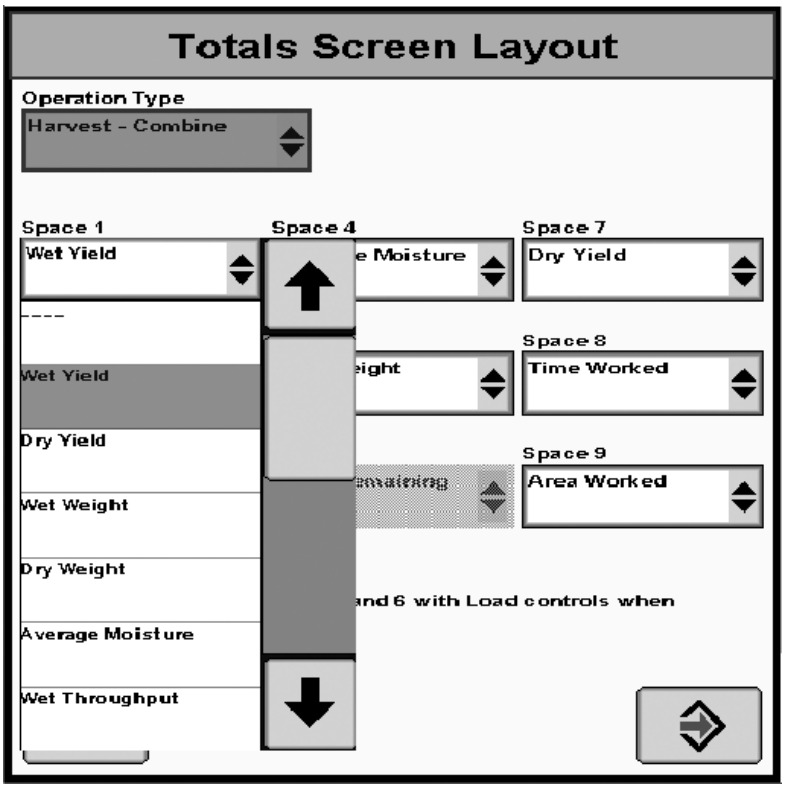
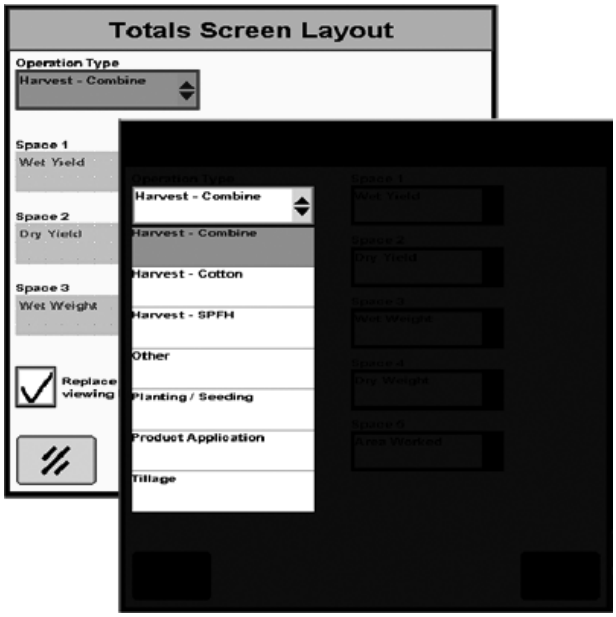
OUO6050,0001076 -19-06APR09-1/4



PC10857IG —UN—25MAR09

2. The configuration is different for each type of operation. This example sets up the Harvest-Combine Operation Type

   Each field on the screen can be changed to show the information that you want to see for that operation.



PC10857IF —UN—25MAR09

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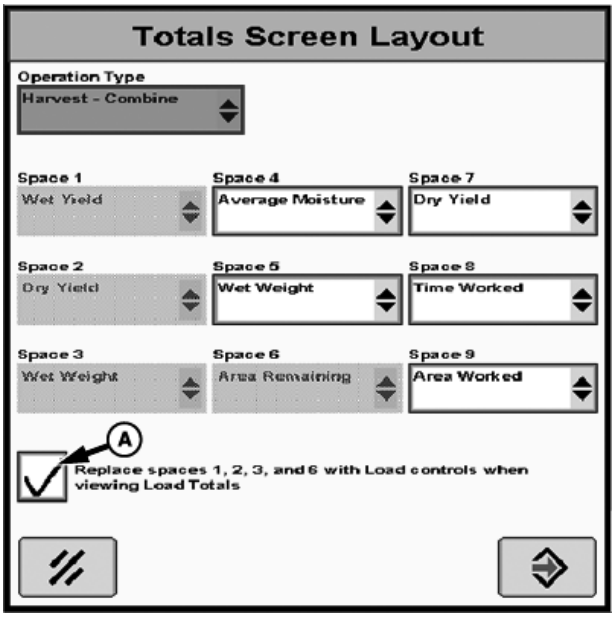
3. For Harvest operations, checking the box at lower left replace some of the spaces with the controls for recording load data.

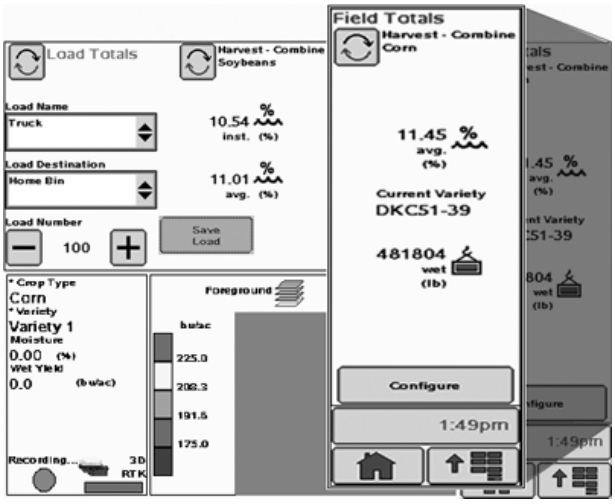
A—Load Controls Check Box



PC10857IH —UN—25MAR09

OUO6050,0001076 -19-06APR09-3/4

4. The Totals screen for the softkey region can be configured in the same way. On both screens, some of the regions can be left blank, to make the remaining numbers stand out more clearly. In this way, the home page can be built to meet the needs of the individual operator, with either a few key numbers or with a detailed screen that shows everything happening in the operation.



PC10857NZ —UN—18MAY09

OUO6050,0001076 -19-06APR09-4/4

Viewing Current Harvest Data

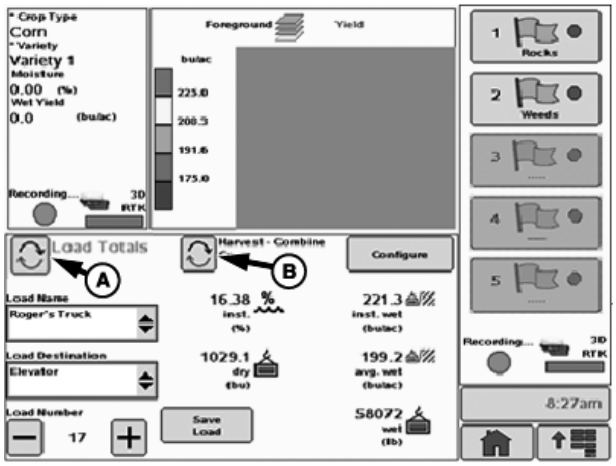
Once the Home Page has been created and configured, it can be used to show the operation current data. This data can be toggled between the current Field data and the current Load data by pressing the button (A).

When looking at the field data, it is possible to view either the totals for all varieties or toggle to view the last variety harvested. This is done by pressing button (B).

It is only possible to view data for a variety that has already been harvested. If there is variety in the field that has not been harvested, it does not appear in the rotation.

A—Field/Load Toggle Button

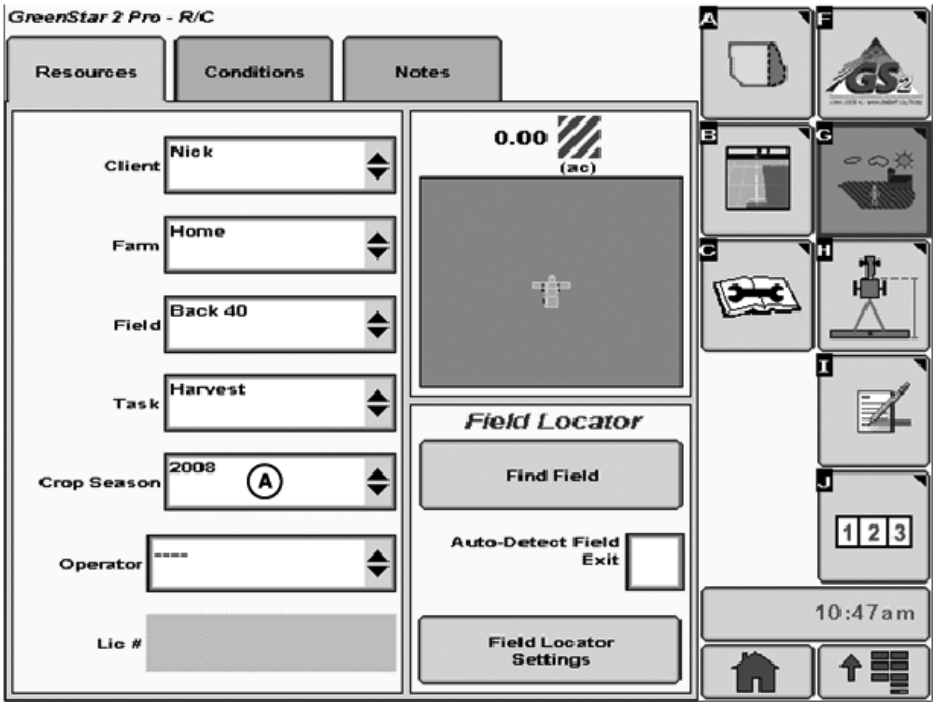
B—One/All Varieties Toggle Button



PC10857IJ —UN—25MAR09

OUO6050,0001078 -19-25MAR09-1/1

Crop Season



PC10857IK —UN—25MAR09

A—Crop Season

GreenStar 2 Pro field documentation tracks the crop season for each operation (A). This allows you to report on everything that you did for a crop, even if some of the operations occurred in the previous year. Common examples of this are fall tillage operations and winter grain crops.

The **Crop Season** is selected on the Client/Farm/Field page from the drop-down. This value is automatically set to the current calendar year unless the operator changes it.

OUO6050,0001079 -19-06APR09-1/1

Overlap Control

NOTE: When using Overlap Control, header width is divided into sections automatically with a maximum of eight sections and a minimum section width of 1.5 m.

Overlap Control automatically adjusts the width of the header as the harvester moves over areas that have already been harvested. This feature improves the accuracy of the area and yield data.

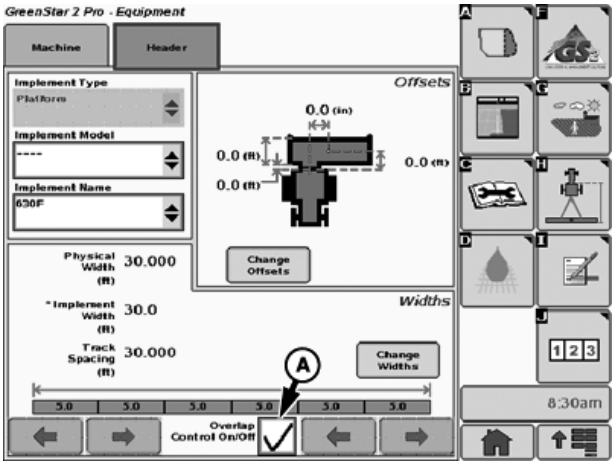
Platform	
Platform Width	Number of Sections
Less than 6.1 m (20 ft)	3
6.1 — 7.3 m (20 — 24 ft)	4
7.6 — 8.8 m (25 — 29 ft)	5
9.1 — 10.4 m (30 — 34 ft)	6
10.7 -11.9 m (35 — 39 ft)	7
12 m (40 ft) and greater	8

Row Crop Head	
Row Spacing	Rows per Section
38 cm (15 in.)	4
51 cm (20 in.)	3
76 cm (30 in.)	2

Overlap Control is turned on by checking the box on the Header setup screen. When it is turned on, the manual controls for changing the header width are disabled.

Overlap Control ensures that harvested area does not extend over or out of field boundaries or extend into an interior boundary.

- Exterior boundary—only one exterior boundary can be defined for a field.
- Interior boundaries—multiple interior boundaries can be defined and named for a field.



A—Overlap Control Check Box

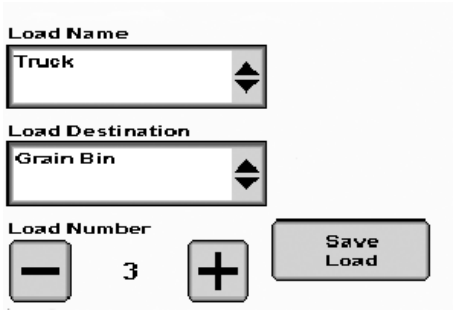
Boundaries, though optional, can be helpful when using Overlap Control. For example, an exterior boundary can help ensure there is no area outside of the field is included in the yield calculation if a section of the head or platform extends over the boundary. Similarly, an interior boundary allows you to drive across a waterway and help ensure that each section is off while crossing.

- If a boundary is unloaded into desktop software, it can either be set up on the display in the field, or in the desktop software and saved to the card. If interior boundaries are used, those fields must also have an exterior boundary.
- If data is not unloaded into desktop software, and interior boundary can be created on the display without having an exterior boundary.

OUO6050,000107A -19-01SEP09-1/1

Recording Load Data

Loads are a powerful feature of the GreenStar 2 Pro field documentation system. They allow the user to capture data for specific parts of a field. This can be used to track the crop that is sent to various destinations, such as bins or an elevator. They can also be used to trace scale tickets back to the field.



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OUO6050,000107B -19-27MAY09-1/4

Loads are identified by their name and number and by the crop type and crop season. The destination can have more than one load with the same load name.

PC10857IN —UN—25MAR09

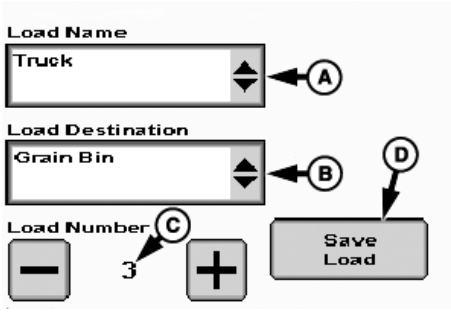
Example	
Crop Type	Corn
Crop Season	2008
Load Name	Truck 4
Load Number	17

OUO6050,000107B -19-27MAY09-2/4

The operator can set the Load Name, Number, and Destination at any time before the load is saved. The Load Name (A) and Load Destination (B) are selected from the drop-down lists. New names and destinations can be created at any time. They can also be saved from Apex. The Load Number (C) is selected using the + and – buttons to increase or decrease the number. The number can also be selected and changed from 1-9999.

Load totals continue to accumulate until the operator presses the Save Load button (D). When the load is saved, the accumulated total is stored to the data card and the Load Number automatically increases by one. The load data can be viewed on the display or by using Apex or another compatible desktop program.

NOTE: Apex is not available in all EAME countries.



PC10857IO —UN—25MAR09

A—Load Name
B—Load Destination
C—Load Number
D—Save Load

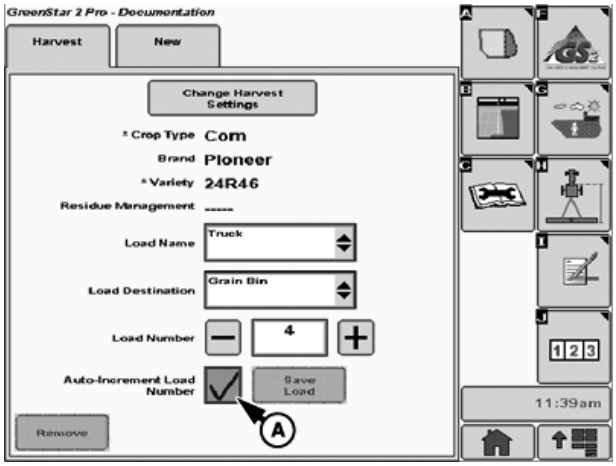
OUO6050,000107B -19-27MAY09-3/4

NOTE: Auto-increment is available only on combines.

The operator can select the Auto-Increment Load Number check box (A) on the Harvest operation setup screen. If this box is selected, the system automatically increases the Load Number by one every time the grain tank auger stops.

When Auto-Incrementing is selected, the Save Load button is disabled.

Auto-Increment Load Number Check Box



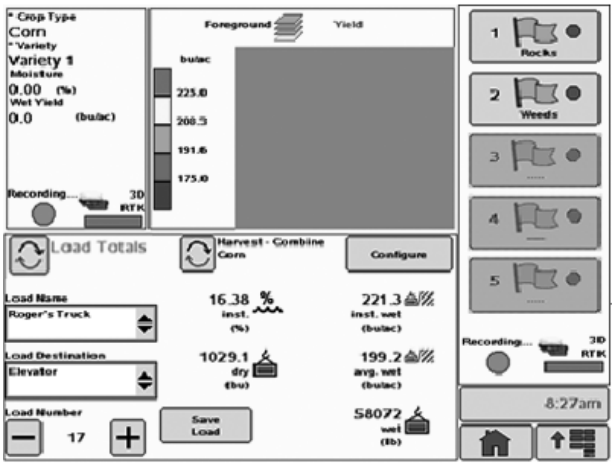
PC10857IP —UN—25MAR09

OUO6050,000107B -19-27MAY09-4/4

Adding to an Existing Load

The Load Number can be changed back to a number that has already been recorded using the + and – buttons. This is useful if Auto-Incrementing is turned on and it is necessary to stop or swing the auger in before the bin is emptied.

The Load Data screen on the home page always shows the totals since the last time the load was saved. If the load number is changed to an existing load, the totals that have already been saved are not reflected on the screen. To see these values, use the J button to view the reports.



PC10857IQ —UN—25MAR09

OUO6050,000107C -19-11MAY09-1/1

Additional Load Tips

A load does not have to be a combine bin load. If your operation is more concerned with truck loads, you can track the crop in each truck by using one number until the truck is emptied.

The Load Name and Load Destination fields do not have to have the name and destination in them. If tracking where the crop is going is important to you and you do not care about how it gets there, use the Load Name field for the destination. For example, an operation that is delivering to several elevators can create a Load Name for each elevator.

A single load can have totals from more than one field. This allows you to finish a field and start another while tracking the load in a truck or cart.

OUO6050,000107D -19-06APR09-1/1

Viewing Current Totals Reports

The GreenStar 2 Pro field documentation system allows you to view the totals for the operations that you are performing. This is a powerful tool that can display totals by field, crop, variety, and load.

Totals reports can be viewed by selecting the J button from the GreenStar 2 Pro screens.

PC10857IR —UN—25MAR09

Continued on next page

OUO6050,000107E -19-25MAR09-1/3

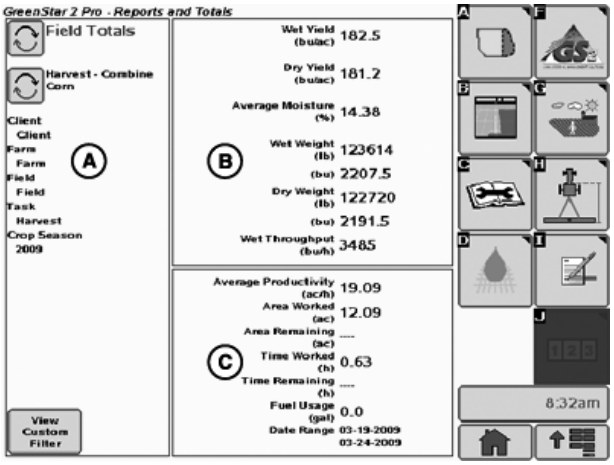
The Totals screen shows the current totals. The operation type; client, farm, and field, and crop season are displayed in the box on the left (A). This box also contains the navigation buttons that allow you to change the contents of the screen.

The upper box on the right (B) shows the operational data. This depends on the type of operation selected, but normally reflects either the application or harvest data.

The box on the lower right (C) displays productivity data. This information is displayed for all operation types.

The time and area remaining are dependent upon the field boundary. This information is not available if the field does not have a boundary.

The fuel data is approximate and tends to reflect a greater quantity than used.



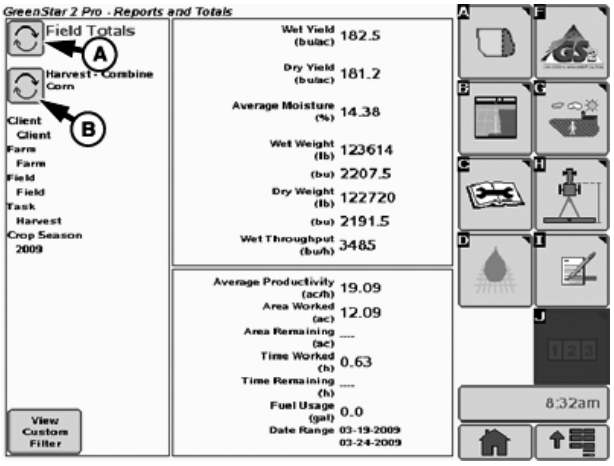
PC10857IS —UN—25MAR09

A—Box on Left
B—Upper Box on Right
C—Lower Box on Right

OUO6050,000107E -19-25MAR09-2/3

Pressing the button next to **Current Field Totals** (A) changes the screen to display load totals. The load totals screen is the same as the field totals, but only displays the totals accumulated since the last time the **Save Load** button was pressed.

A—Field/Load Totals
B—Harvest-Combine Corn



PC10857IT —UN—25MAR09

OUO6050,000107E -19-25MAR09-3/3

Viewing Filtered Totals Reports

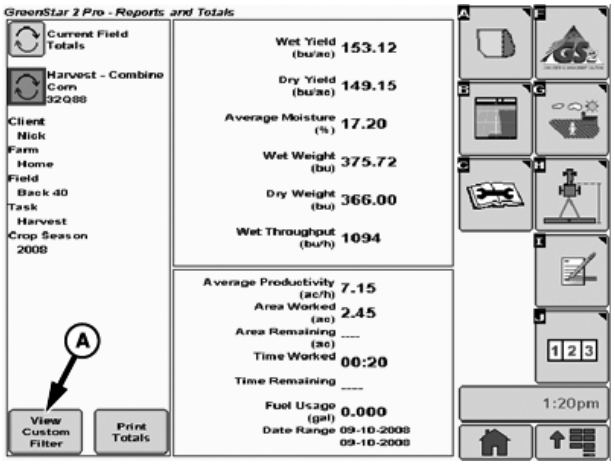
The GreenStar 2 Pro field documentation system also allows you to view totals for other operations or to view the accumulated data for several fields or even several years. This allows you to have some of the power of the Apex desktop system in the cab.

NOTE: Apex is not available in all EAME countries.

> *The filtered totals reports can only operate on data that is present on the data card. If the card has been cleared or if operations have been performed using a different card, that data is not be available for reporting.*

The filtered totals are seen by selecting the View Custom Filter button (A) at the bottom of the totals screen.

This will bring up the Custom Filter dialog box.



A—View Custom Filter button

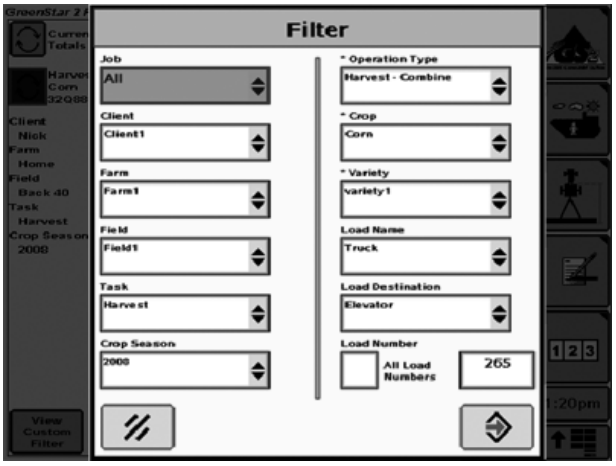
OUO6050,000107F -19-11MAY09-1/3

The Custom Filter allows you to choose the criteria for the data that you want to see. You must select are Operation Type first, as this causes some of the data filters to change. For harvest operations, the Crop and Variety are required, but you can select All for the Variety.

All of the other fields can either be left as All, or specific values can be chosen.

Press the Enter key to create the report.

If you have a lot of data on the card, generating the report takes longer, particularly if you are performing an operation at the same time. While the report is being created, you can view other screens normally. The display lets you know when the report is complete.



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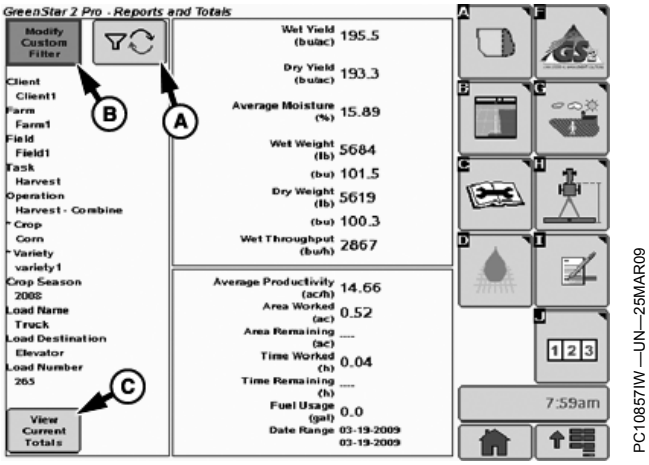
OUO6050,000107F -19-11MAY09-2/3

When you return to the report screen, you see the results of your custom filter. This screen is like the current totals screen, with the exception that the left-hand box now shows the custom fitter that was used.

The results on the custom filter report include the current totals for the operation that you are performing, if it matches the filter that you specified. The current totals are included as of the time that the report was created. If you would like to refresh the screen to show more recent data, you can press the **Refresh filter** button at the top of the screen (A).

You can change the custom filter by pressing the **Modify Custom Filter** button, which brings up the custom filter dialog box again.

You can also return to the current totals by pressing the **View Current Totals** button at the lower left of the screen.



A—Refresh Filter Button
B—Modify Custom Filter Button
C—View Current Totals Button

OUO6050,000107F -19-11MAY09-3/3

Field Locator

MENU >> DOCUMENTATION

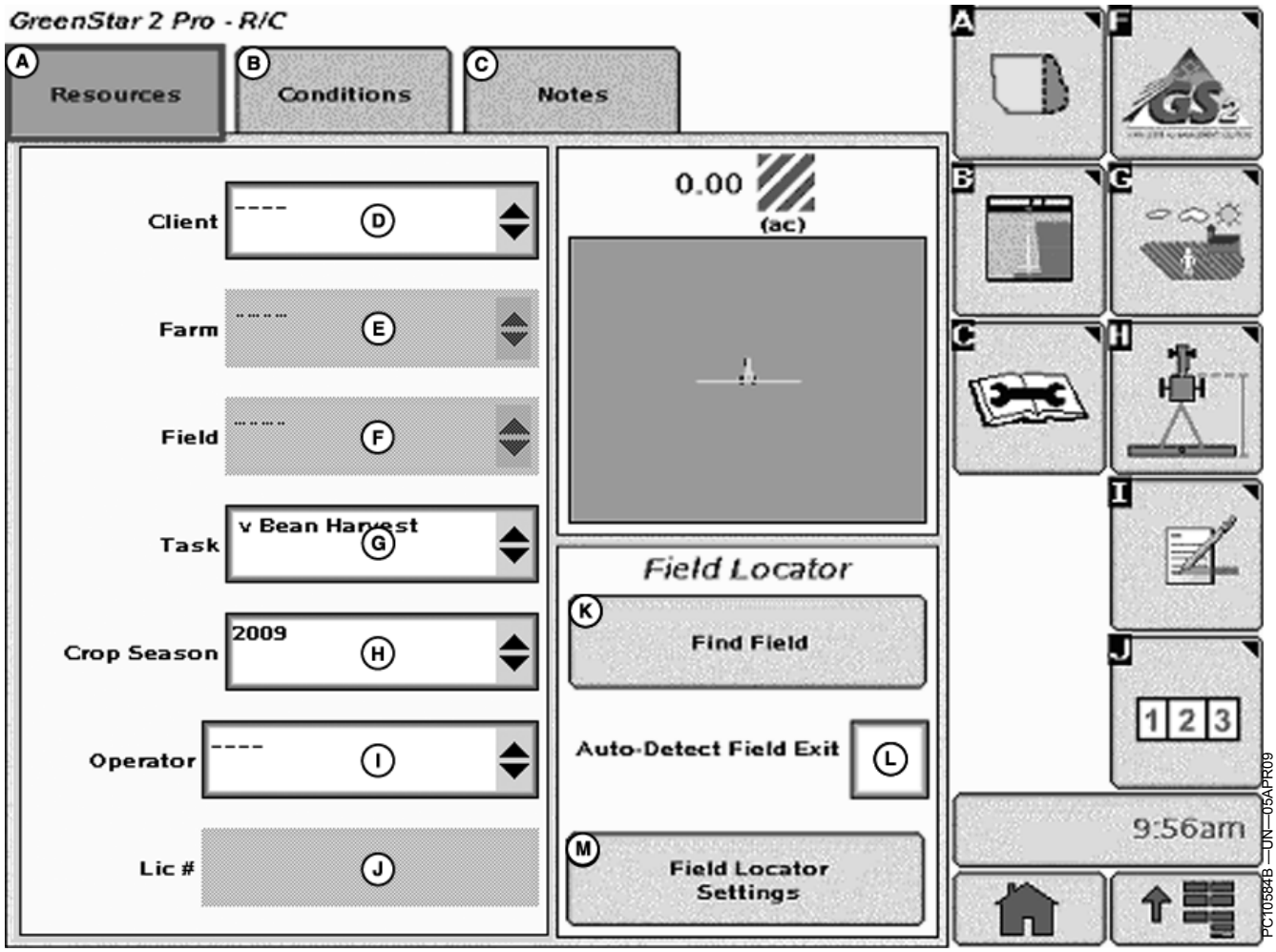
PC8663 —UN—05AUG05

MENU Softkey

PC8676 —UN—05AUG05

DOCUMENTATION Softkey

JS56696,0000374 -19-31OCT07-1/2



Field Locator

A—Resources Tab
B—Conditions Tab
C—Notes Tab
D—Client
E—Farm
F—Field
G—Task
H—Crop Season
I— Operator
J— License Number
K—Field Locator
L—Auto-Detect Field Exit
M—Field Locator Settings

JS56696,0000374 -19-31OCT07-2/2

Setup Field Locator

PC10585 —UN—26SEP07

1. Select Field Locator Settings Button on the Resources Page.

A—Field Locator Settings Button

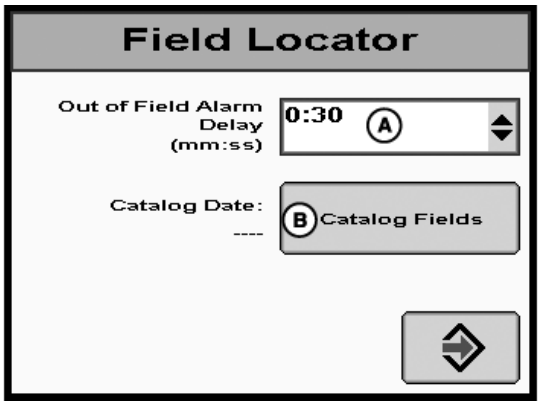
Field Locator Settings Button

JS56696,0000375 -19-27OCT09-1/3

2. Define Out of Field Alarm Delay.

   Out of Field Alarm Delay is amount of time the operator needs to have to make the end-turn and enter the field after exiting the field boundary plus 30.5 m (100 ft).

A—Out of Field Alarm Delay **B—Catalog Fields**



PC10857RV —UN—26OCT09

Field Locator

JS56696,0000375 -19-27OCT09-2/3

3. Select Catalog Fields Button (B).

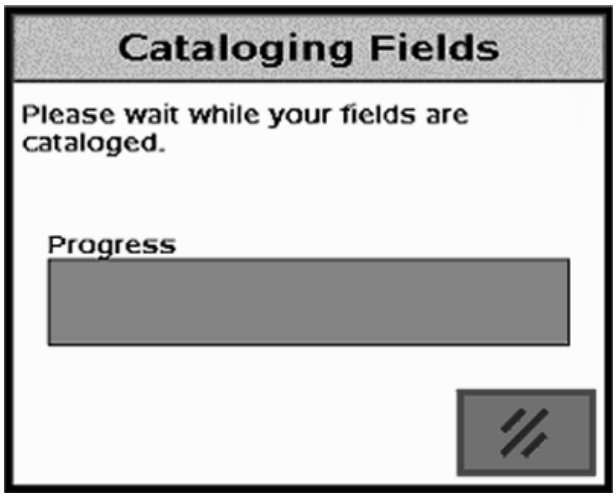
NOTE: Cataloging Fields is only necessary if new boundary info has been added since displayed date.

   If a boundary is not driven or Apex is not used to set up a new field, the Select Catalog Fields button will need to pressed again.

NOTE: Apex is not available in all EAME countries.

   A progress bar shows up while fields are being cataloged. The duration of the cataloging procedure depends on the size and number of boundaries.

4. Accept settings.



PC10589 —UN—26SEP07

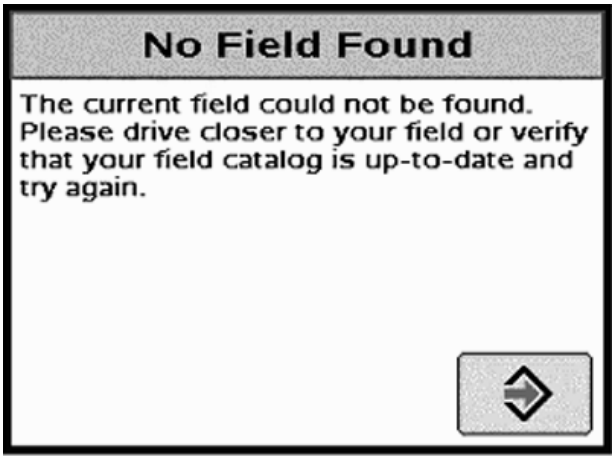
Catalog Fields

JS56696,0000375 -19-27OCT09-3/3

Selecting Fields

1. Drive within 30.5 m (100 ft) of intended field.

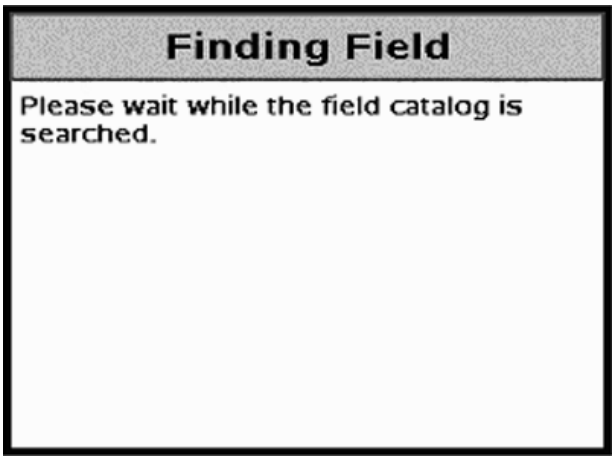
   If not within 30.5 m (100 ft) of intended field, select Find Field. An alarm will appear. **No Field Found—**The current field could not be found. Please drive closer to your field or verify that your field catalog is up-to-date and try again.



No Field Found

JS56696,0000376 -19-30SEP09-1/4

2. Select Find Field Button. A Message will be displayed while the field is being found. **Finding Field—**Please wait while the field catalog is searched.

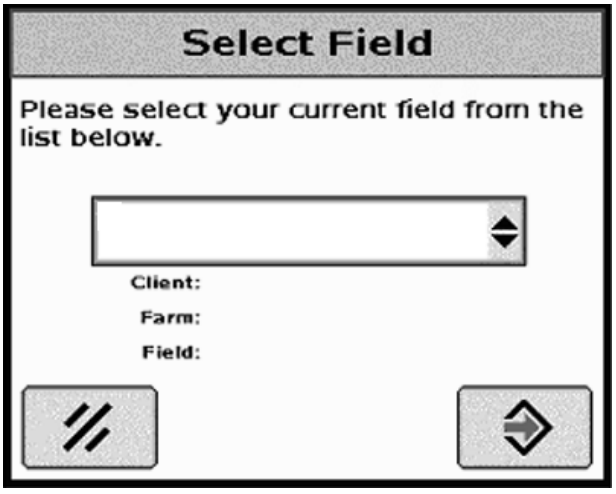


Finding Field

JS56696,0000376 -19-30SEP09-2/4

3. When the fields are found, select the current field from the drop-down list.

   After the current field is selected, client, farm, and field categories will be automatically updated.



Select Field

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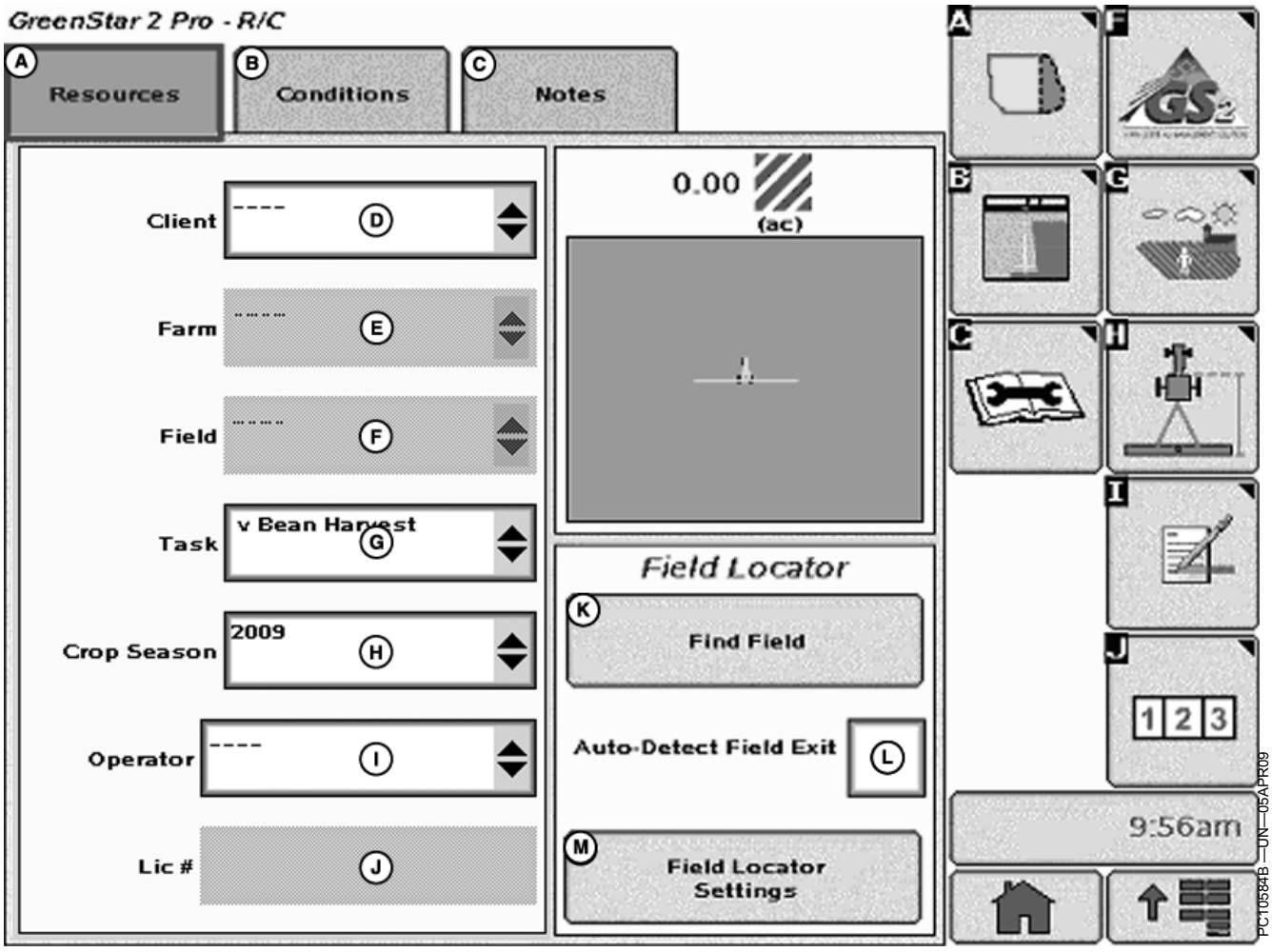
JS56696,0000376 -19-30SEP09-3/4



Field Locator

A—Resources Tab
B—Conditions Tab
C—Notes Tab
D—Client
E—Farm
F—Field
G—Task
H—Crop Season
I— Operator
J— License Number
K—Field Locator
L—Auto-Detect Field Exit
M—Field Locator Settings

4. Check Auto-Detect Field Exit check box (L) to enable out of field detection.

   If current field in client, farm, and field has not been catalogued or has no boundary, an auto detect field exit alarm will be displayed and auto detect field exit check box will be unchecked.**Auto-Detect Field Exit—** The field you have selected has either not been cataloged or has no boundary. Auto-Detect Field will be disabled.

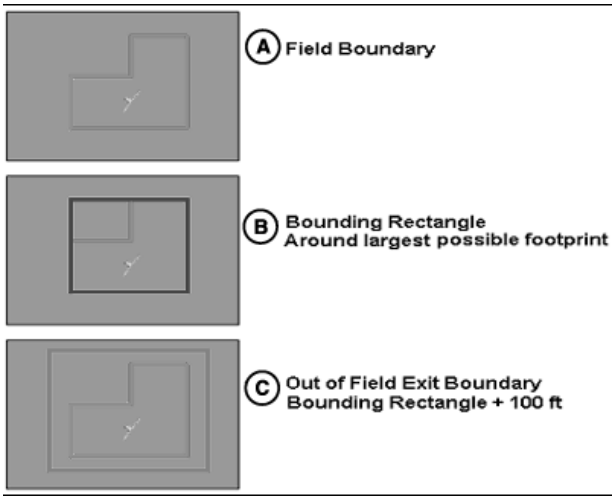
Auto-Detect Field Exit

JS56696,0000376 -19-30SEP09-4/4

Operation

Once position is determined to be outside of Out of Field Exit Boundary (C), a timer is started. Once the timer ends, a field exit alert is displayed.

A—Field Boundary
B—Bounding Rectangle Around Largest Possible Footprint
C—Out of Field Exit Boundary — Boundary Rectangle + 30.5 m (100 ft)



Field Boundary

JS56696,0000377 -19-28OCT09-1/2

Field Exit Detected— Field Locator has detected that you are no longer in your selected field. Please select your current field.

After clearing the pop-up screen, the timer continues to count down until no time is remaining. The time is a setup option which can be changed by the operator.

Field Locator is a useful tool when the operator leaves the field and forgets to change documentation so the GS2 is not incorrectly logging data.

Field Exit Detected

JS56696,0000377 -19-28OCT09-2/2

Machine Setup

MENU >> GREENSTAR2 PRO >> EQUIPMENT allows access to MACHINE and IMPLEMENT setup screens.

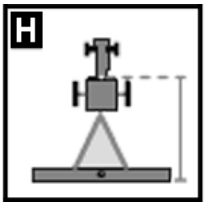
PC8663 —UN—05AUG05

MENU Softkey

PC8661 —UN—02NOV05

GREENSTAR2 PRO Softkey

PC8677 —UN—05AUG05



EQUIPMENT Softkey

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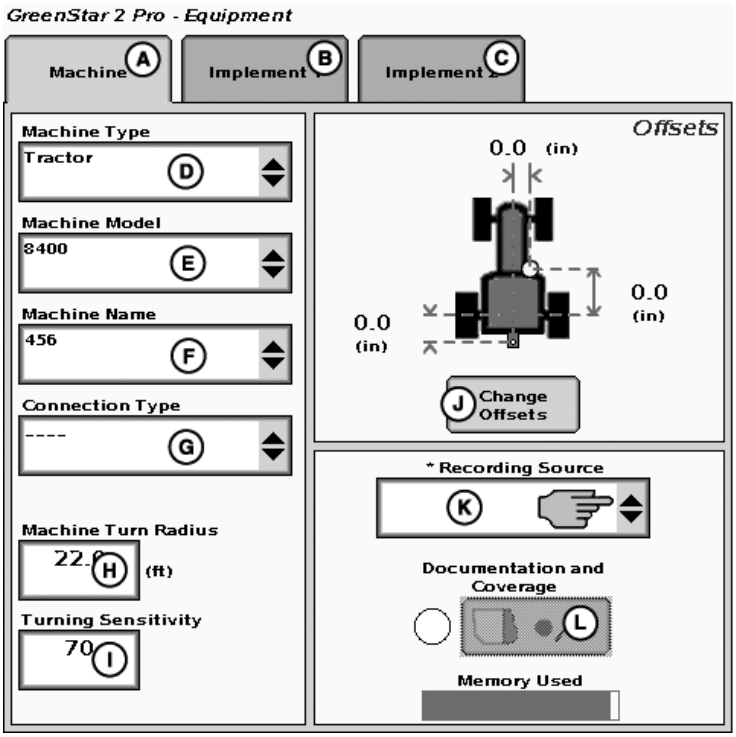
Machine Tab



PC10857IY —UN—30MAR09

A—Machine Tab
B—Implement 1 Tab
C—Implement 2 Tab
D—Machine Type Drop-Down Menu
E—Machine Model Drop-Down Menu
F—Machine Name Drop-Down Menu
G—Connection Type Drop-Down Menu
H—Machine Turn Radius Input-Box
I— Turning Sensitivity Input-Box
J— Change Offsets Button
K—Recording Source Drop-Down Menu
L— Record/Pause Button

NOTE: All items and changes will be saved under the current machine name.

The Machine and Implement tabs are required to be populated with equipment information such as:

- Type
- Model
- Name
- Offsets

Machine Type—Vehicle type being used (e.g. Tractor, Combine, Sprayer).

Machine Model—Model number of the vehicle being used. For John Deere vehicles, model numbers will be available from the drop down list.

Machine Name—The name is used to further clarify which machine is being used. For instance, if there are two 8430's in your operation, the machine names may be "John" and "Deere", or "8430-1" and "8430-2", or simply "1" and "2". However, settings pertaining to the tractor such as turning radius, turn sensitivity, dimensions, etc. are stored to the name.

Continued on next page

JS56696,0000378 -19-31OCT07-2/4

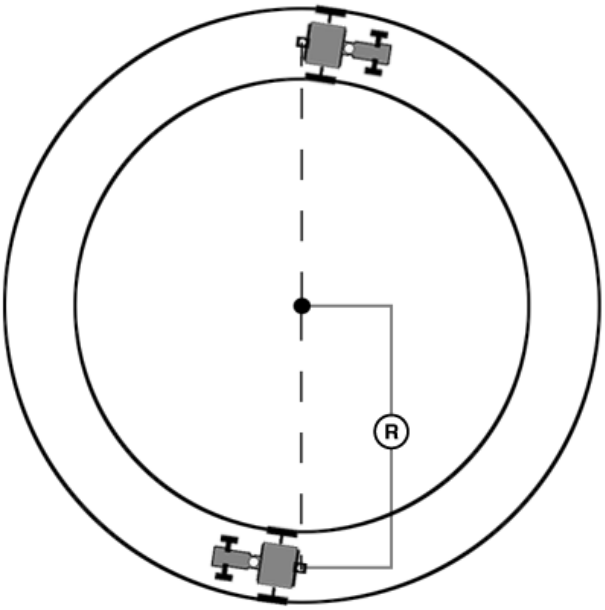
Machine Turn Radius—How sharp the machine can turn without an implement attached and without applying brake pressure. The turn radius is half the diameter as measured at the center of the rear axle of a row crop tractor, and the pivot point on tracks and 4WD tractors. Example: 8030 wheel tractors have a minimum turn radius of 6.1—6.7 m (20—22 ft). Choose a number to start with and change as needed for accuracy.

Turning Sensitivity—AutoTrac gain setting when the vehicle is in an automated turn. This is adjustable by the operator to improve performance (default 70).

Verify proper dimensions correspond to the Machine selected.

NOTE: Not all recording sources are available for all machines.

R—Machine Turn Radius



Machine Turn Radius

JS56696,0000378 -19-31OCT07-3/4

Machine Offsets

Press CHANGE OFFSETS button on Machine Setup screen.

Offsets are used to eliminate skips or overlaps due to an offset receiver.

To enter machine offsets:

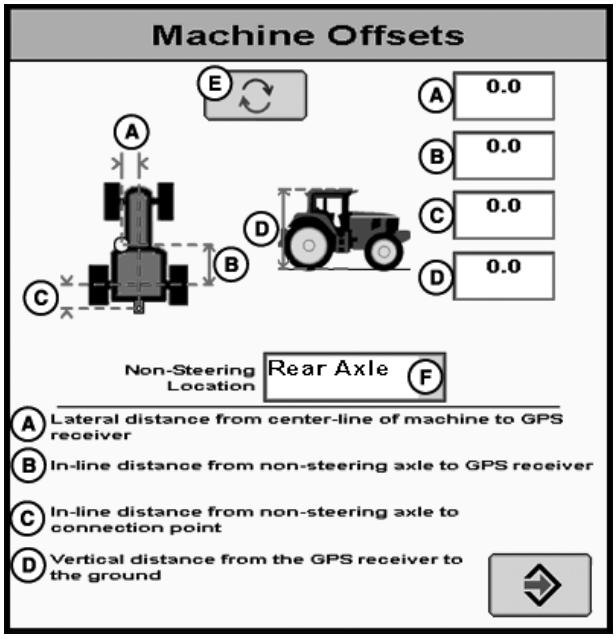
- Select input box.
- Enter amount of offset in cm/in. using numeric keypad and select enter button.
- Select the receiver toggle button to move the offset to the right or left of cab center.

If no receiver offset is required, then RECEIVER OFFSET input box should read 0.

Machine offsets:

- A) Lateral Distance from center-line of machine to GPS receiver.
- B) In-line distance from non-steering axle to GPS Receiver.
- C) In-line distance from non-steering axle to connection point. The connection point is where the tractor connects to the implement (drawbar, hitch) except on 2 pt pivoting implements (large planter). In this case, measure the distance back to the pivot point immediately behind the hitch.
- (D) Vertical distance from GPS receiver to the ground.

NOTE: Offset (D) is for use with Surface Water Pro.



Machine Offsets

A—Lateral distance from center-line of machine to GPS receiver
B—In-line distance from non-steering axle to GPS receiver
C—In-line distance from non-steering axle to connection point
D—Vertical distance from GPS receiver to the ground
E—Offset Toggle Button
F—Non-Steering Axle Location Drop-Down Menu

JS56696,0000378 -19-31OCT07-4/4

Implement Setup

Implement 1 Tab

MENU > GREENSTAR2 PRO > EQUIPMENT > IMPLEMENT tab

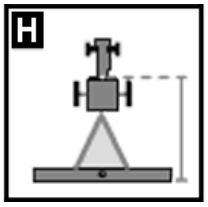
PC8663 —UN—05AUG05

MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT button

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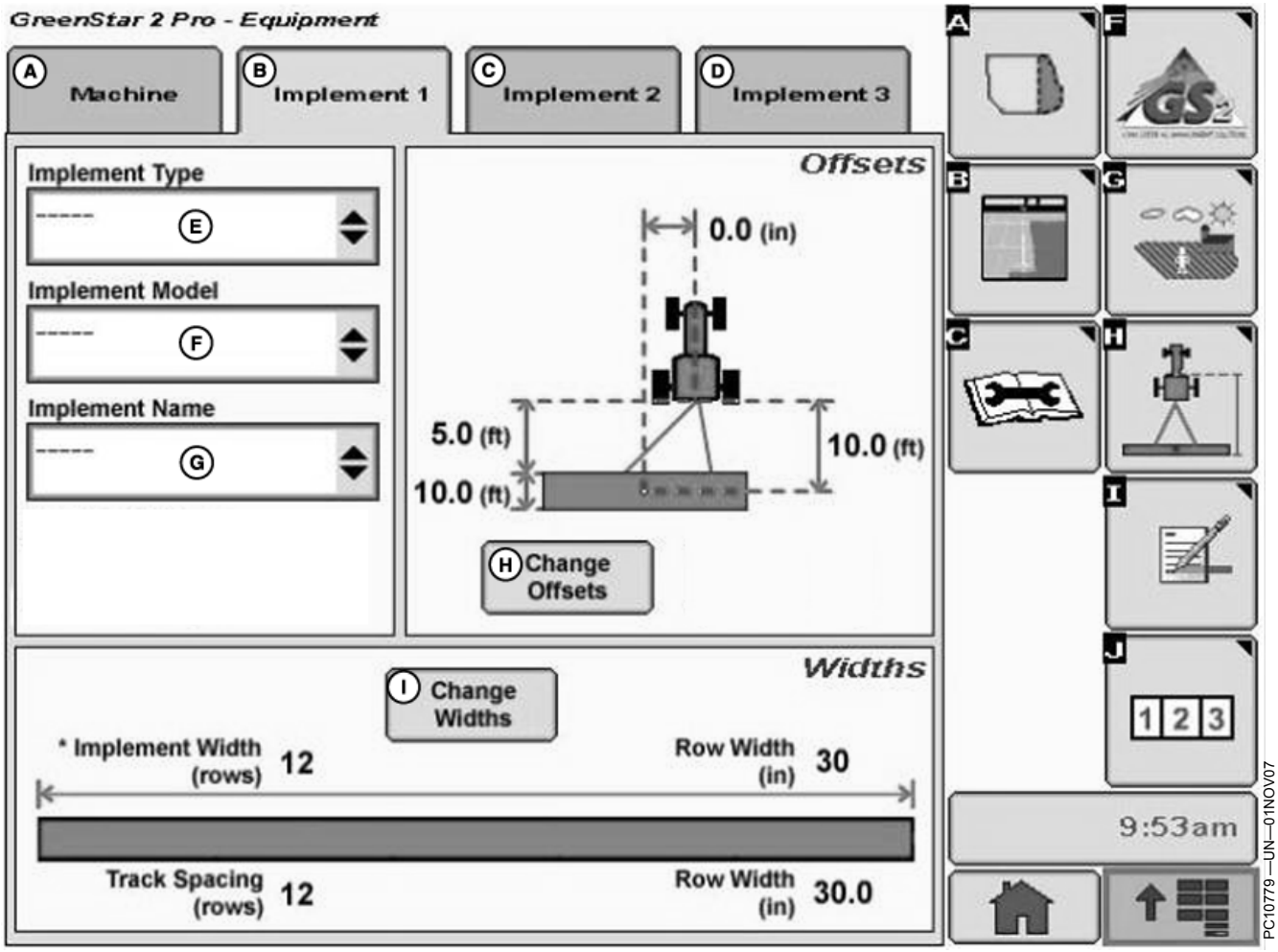
JS56696,0000379 -19-30SEP09-1/6



Implement Tab

A—Machine Tab
B—Implement 1 Tab
C—Implement 2 Tab
D—Implement 3 Tab
E—Implement Type Drop-Down Menu
F—Implement Model Drop-Down Menu
G—Implement Name Drop-Down Menu
H—Change Offsets Button
I— Change Widths Buttons

Select the Change Offsets button (H).

NOTE: All items and changes will be saved under the current implement name.

Continued on next page

JS56696,0000379 -19-30SEP09-2/6

Verify/Enter implement: Type, Model, and Name in drop-down menus.

Implement name allows user to save implement dimensions.

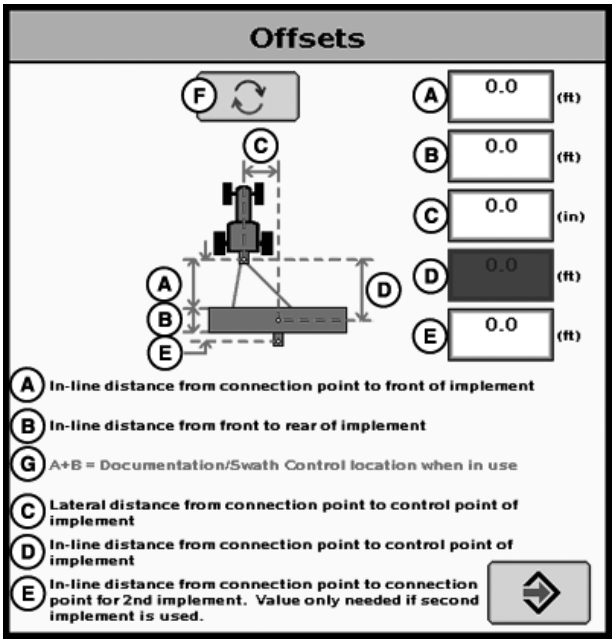
Implement Offsets—Used to define the actual implement position relative to the tractor. This is important for ensuring the implement is lined up to the field at the end of turns and in determining where the implement is for the Minimize Skips and Minimize Overlaps feature (see Change Settings on Machine tab).

- A) In-line distance from connection point to front of implement. On pull-type implements, think of this as the tongue. For more precision, it is actually the dimension from the pinbolt to the front side of where the work gets done (front ranks of field cultivator, seed drop point on a planter). For planters with a 2 pt. mount, measure from where the planter pivots just behind the 2 pt.
- B) Working Length of the implement. On ground engagement tools, this is the distance from the front rank of sweeps or points to the rear rank. On a standard planter or pull type sprayer, this dimension would be 0 - the seed is dropped at the same point on every row, and the sprayer has nozzles at the same point along the boom. Dimension (A) would then need to extend to the location of the seed drop point or sprayer boom. On a spreader, (A+B) is the drop point of the product. Refer to manufacturer's implement OM for this value.
- C) Lateral distance from connection point to control point of implement. This is the lateral distance from the center of the tractor to the center of the implement, which will be 0.0 for most common implements. This dimension is used to alert the operator to potential collisions. This is critical for proper end-turn performance and may need to be adjusted.

  NOTE: Examples of equipment that will not be centered include mower conditioners and most split row planters with an even number of 38 cm (15 in.) rows, (e.g. 24R15 or 32R15) unless you have an adjustable hitch crossbar.

- D) In-line distance from connection point to control point of implement. In many cases, this distance will be from the connection point to the carrying wheels. For proper turns, measure this distance with implement at the height it typically will be at while turning.

  NOTE: These dimensions may need to be adjusted for fine-tuning performance in the field.



PC11405 —UN—15OCT08

Implement Offsets

A—In-line distance from connection point to front of implement.
B—In-line distance from front to rear of implement.
C—Lateral distance from connection point to control point of implement.
D—In-line distance from connection point to control point of implement.
E—In-line distance from connection point to connection point for second implement. *Value only needed if second implement is used.*
F—Offset Toggle Button
G—A+B = Documentation / Swath Control location when in use.

NOTE: For 3 pt mounted implements, dimension (D) does not need to be entered.

Typical Planter Setup—JD 1770 16R30 NT planter with a 2 point connection
- A = 3.8 m (12.6 ft)
- B = 0 m (0 ft) - even though it is physically 2 m (6.8 ft)
- C = 0 m (0 feet)

Typical Disk Setup—JD 637 F 10.8 m (35.5 ft) disk setup
- A = 3 m (9.9 ft)
- B = 5 m (16.4 ft)
- C = 0 m (0 ft)

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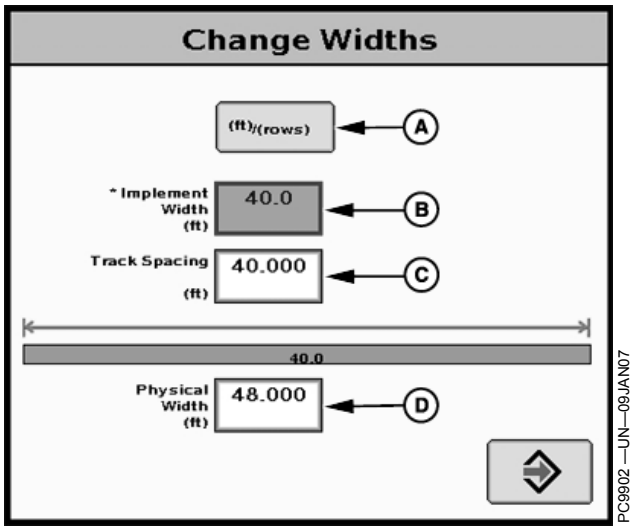
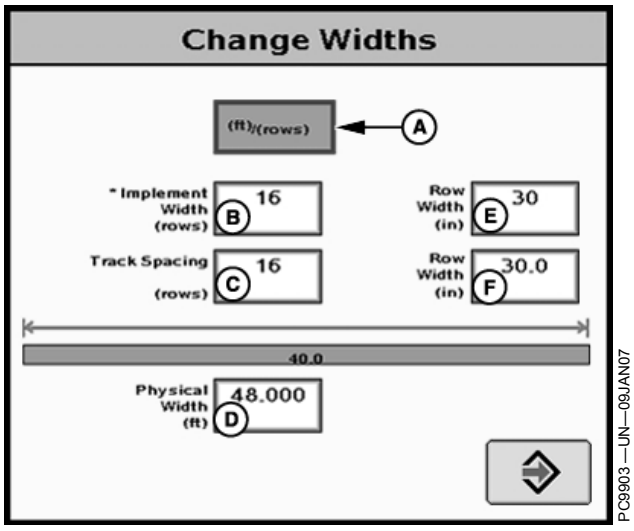


Track Spacing



Track Spacing

A—m (ft)/(rows) button
B—Implement Width
C—Track Spacing
D—Physical Width
E—Row Width

Implement Widths—Used to enter implement width and track spacing for guidance. This value is also used to calculate total area when documenting the operation. Verify implement type, model, name, implement width and track spacing when changing implements. Implement width and track spacing are independent of each other.

NOTE: IMPLEMENT tab will show HEADER for Combines, ROW UNITS for Cotton Pickers, and BOOM for Sprayer.

NOTE: Implement width may come from controller on select controllers such as SeedStar.

NOTE: In some cases, a higher degree of precision can be achieved for track spacing when track spacing is entered in by rows instead of feet. More decimal places are used in the track spacing calculation when entered in by rows versus the three decimal places allowed when entered by feet.

Defining Implement Width and Track Spacing. Implement width and track spacing can be defined two ways: enter the working width of the implement, or enter the number of rows and the row spacing. To toggle between these two, select the m (ft)/(rows) button.

- **Implement Width** m (ft)—enter total implement working width
- **Implement Width** rows—enter number of rows and the row spacing in inches

Track Spacing—Used in guidance for how far each pass is from the last pass. It is entered the same way as Implement Width. For “perfect” guess rows, this distance will be the same as Implement Width. To ensure some overlap for tillage or spraying, or to account for some GPS drift, you may choose to make the Track Spacing somewhat less than the Implement Width.

Physical Width—The actual width of the entire implement when being used in the field when the implement is raised. It is sometimes larger than Implement Width.

Using a planter as an example, the marker arms and blades are wider than the working width. This width needs to be entered if markers are not used, or are used and completely folded on the ends. If markers are only partially folded during turns, enter this larger dimension.

IMPORTANT: Width measurements are used to help alert an operator of potential intersections between the implement and an impassable boundary. The operator still needs to be aware of potential collisions if there are times the implement is wider than the dimension entered (e.g. marker arm lowered). If markers are used in the field, add the width of both markers to give ultimate alarms of possible intersections.

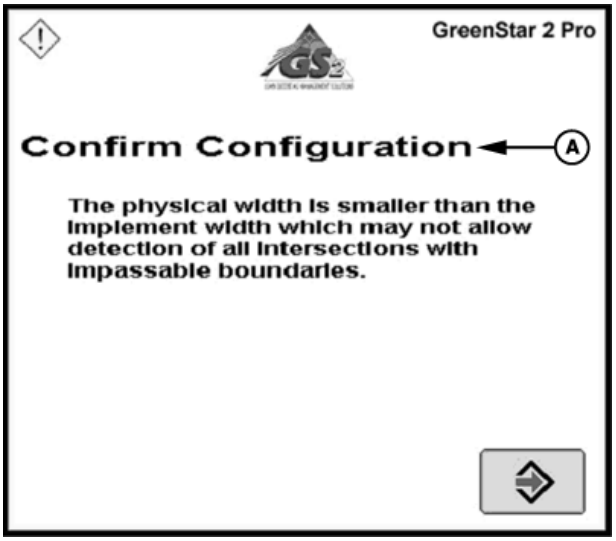
NOTE: As a buffer to avoid obstacles, additional Physical Width may be added to the implement to compensate for several things, one of these being GPS drift.

Signal	Approximate Physical Width added to Implement
RTK	0.6 m (2 ft)
SF2	0.9 m (3 ft)
SF1	3.4 m (11 ft)

Continued on next page

NOTE: If the physical width is less than the implement (working) width, a message will appear as a reminder that this is not usually correct (A 16R30 planter is physically wider than its 12.2 m (40 ft) working width). An example where the working width is wider than the physical width is a dry fertilizer spreader—it spreads much farther than the physical width of the buggy.

A—Confirm Configuration—The physical width is smaller than the implement width which may not allow detection of all intersections with impassable boundaries.



Confirm Configuration

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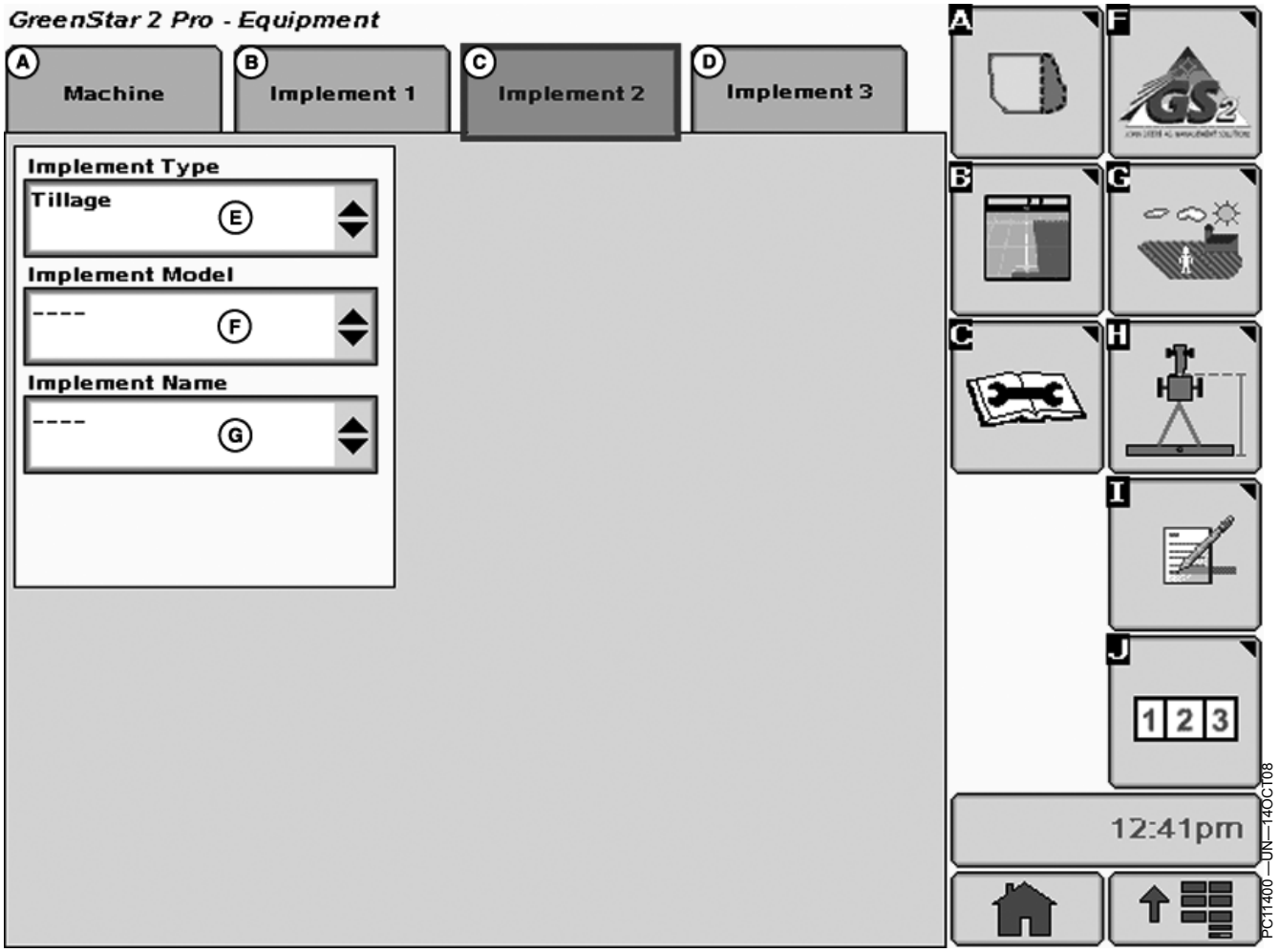
Implement 2 and Implement 3 tab



IMPLEMENT 2 tab

A—MACHINE tab
B—IMPLEMENT 1 tab
C—IMPLEMENT 2 tab
D—IMPLEMENT 3 tab
E—IMPLEMENT TYPE drop-down box
F—IMPLEMENT MODEL drop-down box
G—IMPLEMENT NAME drop-down box

The IMPLEMENT 2 and IMPLEMENT 3 tabs are primarily used for logging hours against the equipment.

For IMPLEMENT 2 tab to appear, an implement type must be selected in IMPLEMENT 1 tab

IMPLEMENT 2 tab allows setup of following:

- Implement Type—Used to select implement type
- Implement Model—Used to distinguish between different models
- Implement Name—Used to distinguish multiple machines of the same model

NOTE: Implement widths or offsets can not be defined for Implement 2 or 3.

For IMPLEMENT 3 tab to appear, implement type must be selected in IMPLEMENT 2 tab.

IMPLEMENT 3 tab allows setup of the following:

- Implement Type—Used to select implement type
- Implement Model—Used to distinguish between different models or multiple machines or the same model
- Implement Name—The name is used to further clarify which implement is being used.

NOTE: Implement widths or offsets can not be defined for Implement 3.

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Swath Control Pro

Theory of Operation

Swath Control is an optional GS2 Pro Module that can be purchased and activated on a GS2 display.

Swath Control Pro is an operator assistance tool that can turn machine and implement sections on and off automatically.

Swath Control Pro utilizes the following components for operation:

- Global Positioning System (GPS) receiver
- GS2 Display activated with Swath Control Pro Module
- Capable control units

Swath Control Pro utilizes the previous as-applied coverage and boundaries (exterior, interior, and exterior headland) to determine section status.

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Compatibility

IMPORTANT: Swath Control Pro only functions on vehicles and implements with compatible software.

- JD 4000 Series self-propelled sprayer with SprayStar version 5.11 or higher.
- All versions of SpreadStar™
- JD Horst 700i, 800i and 5430i Sprayer (Europe Only)
- GS2 version 1.4XXXX or Higher
- GS2 Version 2.5.XXXX or higher for non-Deere Implements. (Europe only)
- All versions of GS2 Rate Controller are compatible
- All versions of SeedStar 2: Planters, Air Carts, and 1990CCS. (SeedStar 2 planters must be equipped with Individual Row Unit Clutches)
- Additional ISOBUS compatible implements are listed on www.StellarSupport.com. (Europe only)

NOTE: (Europe only) The GreenStar Sprayer Pro activation enables the Swath Control module for Deere implements. For none Deere implements, either a Sprayer-, Seeder- or Spreader Pro Universal license is needed. Those Universal licenses include Sprayer Pro activation, too.

To view available software and enter code to activate Swath Control Pro see OBTAINING ACTIVATION CODE & ACTIVATING SOFTWARE IN DISPLAY. It is found in Display Setup section.

NOTE: A 15 hour demo activation is available on every new display. The 15 hours count down when Swath Control Pro is activated, and the master switch is on. When the demo period is over, Swath Control Pro is unavailable until the activation code is purchased through a John Deere Dealer, and entered into the display.

SpreadStar is a trademark of Deere & Company

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System Overview

The system can be configured to operate in three modes:

- Minimize Skip
- Minimize Overlap
- Percent Overlap

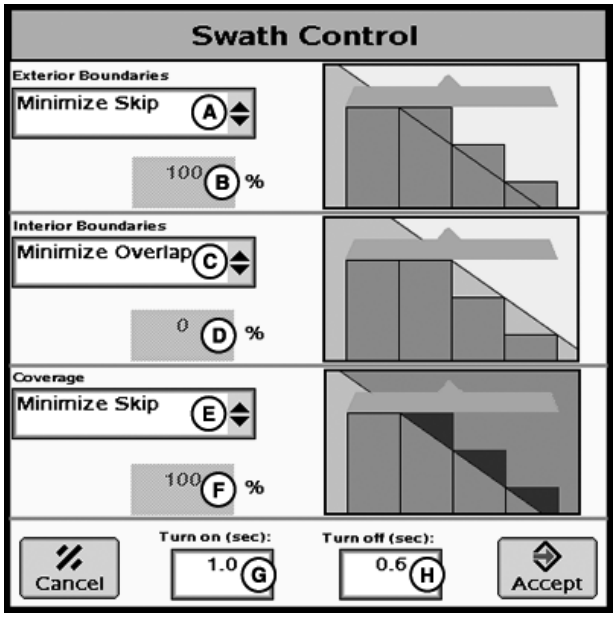
Minimize Skip ensures product coverage up to field boundaries, interior boundaries, and as applied area reducing skips. Minimize Skip can result in over application and is 100% overlap.

Minimize Overlap ensures that product coverage does not extend over or out of field boundaries. It also ensures that product coverage does not extend into an interior boundary. This setting could cause skips along field boundaries or interior boundaries depending on the angle a boundary is crossed. Minimize Overlap can result in under application and is 0% overlap.

Percent Overlap allows settings from 0—125% Overlap.

NOTE: To achieve increasing amounts of overlap utilize the Percent Overlap between 100-125%. This will allow the operator to achieve desired results and prevent skips by creating intentional overlap. It is not recommended to utilize the Turn on and Turn off times to achieve intentional overlap; this can cause additional system complications.

A—Exterior Boundaries Drop-Down Menu
B—Exterior Boundaries Percent Input Box
C—Interior Boundaries Drop-Down Menu
D—Interior Boundaries Percent Input Box
E—Coverage Drop-Down Menu
F—Coverage Percent Input Box
G—Turn on (sec.) Input Box
H—Turn off (sec.) Input Box



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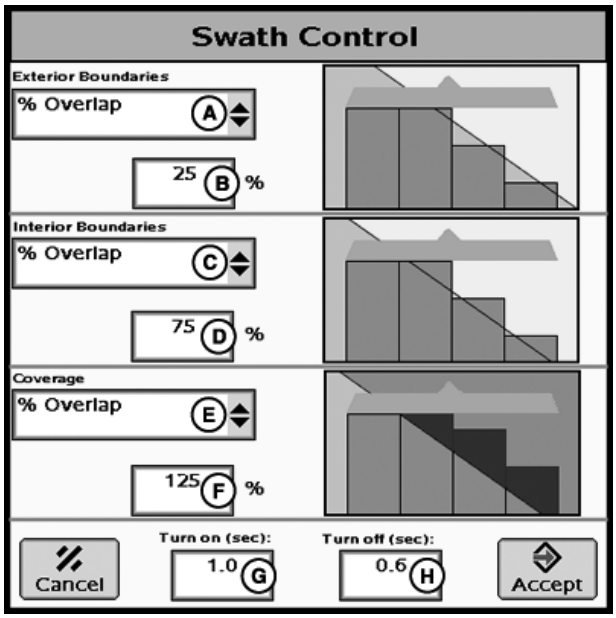

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Boundaries

Boundaries, though optional, can be helpful when using Swath Control. Using Minimize Overlap, an exterior boundary can help ensure there is no application outside of the field if a section extends over the boundary.

Similarly, a setting of Minimize Overlap on an interior boundary allows driving across a waterway and helps ensure that each section is off while crossing. See GREENSTAR GENERAL BOUNDARY section for more details.

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Turn on and Turn off Settings

(A) Turn on time (sec.): defaults to 1, but can be changed between 0.3—15, in increments of 0.1 seconds.

(B) Turn off time (sec.): defaults to 0.6, but can be changed between 0.3—15, in increments of 0.1 seconds.

The operator can adjust the Turn on and Turn off settings to fit a specific machine. The Turn on and Turn off settings are to compensate for average physical machine reaction time (Electrical & Mechanical) for applying product. Keep in mind that the reaction time does NOT increase as ground speed increases. The physical reaction time remains constant for that machine configuration. The machine travels more, or less, distance while the reaction is taking place at different ground speeds.

NOTE: It is not recommended to utilize the Turn on and Turn off times to achieve intentional overlap; this can cause additional system complications. To achieve increasing amounts of overlap utilize the Percent Overlap between 100—125% . This will allow the operator to achieve desired results and prevent skips by creating intentional overlap.

The best method to determine the correct Turn on and Turn off times is to turn on or off a section manually. Measure the time from when the switch is actuated to when product starts or stops. For a sprayer measure the time from when the switch is actuated to when product starts and stops reaching the crop. Enter Turn on and off times to the nearest 0.1 of a second.

If the Turn on time is set to 0.3 seconds, the command signal is sent when the system estimates the section to be 0.3 seconds from the boundary or non covered area. The coverage map begins painting 0.3 seconds after the command signal is sent. If the actual machine reaction time is 0.8 seconds, the machine will travel 0.5 seconds past the boundary or into the non covered area before applying. In this situation the coverage map began painting before the actual application started, therefore the two did not match.

As the Turn on time increases, the command signal is sent earlier as the boundary or non-covered area

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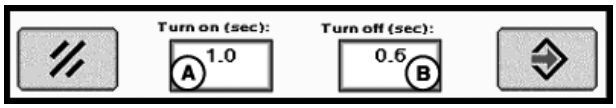

is approached. If the Turn on time is 1.0 second, the command is sent 1.0 second before the implement is expected to reach the boundary or previously covered area. The coverage map will start painting 1.0 second after the command signal is sent and Swath Control Pro expects the machine to begin applying at this time as well because the operator entered a Turn on time of 1.0 second.

The more constant the ground speed is kept when entering or exiting boundary or previous coverage area, the more accurate Swath Control Pro is. If the machine speed is drastically changing while entering or exiting a boundary or previous coverage area, Swath Control Pro cannot anticipate that change because it estimates your Turn on and off position based on current position, direction, and speed.

NOTE: When using multiple Swath Control Pro capable control units, the Turn on or off time is based on the primary operation. All other operations are less accurate.

See the "Understanding Swath Control Turn on and Turn off Settings" later in this section for examples of Turn on and off times when multiple applications exist.

Once a machines Turn on and Turn off time is determined, it remains the same unless a dramatic system change is made to the machine. For example, a change in system plumbing affects the average physical machine reaction time.

If the coverage map on the GS2 display does not start painting at the same time product starts applying, adjust Turn on and off times in increments of 0.1 of a second until your coverage map starts and stops painting the same time your product starts and stops applying.

Symptom	Problem	Solution
Coverage Map paints after product application begins	Turn on time is to large	Decrease Turn on time
Coverage Map paints before product application begins	Turn on time is to small	Increase Turn on time
Coverage Map stops painting after product application stops	Turn off time is to large	Decrease Turn off time
Coverage Map stops painting before product application stops	Turn off time is to small	Increase Turn off time

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Coverage Map

The As-Applied coverage map is used to show where the vehicle has applied product. The Coverage Only is used to show where the vehicle has been in the field (same coverage map that is displayed on guidance pages). See the GreenStar General - Mapping button - Maps Tab section of this Operators Manual for details on Coverage Only and As-Applied coverage maps.

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Accuracy

The overall Swath Control Pro system accuracy is dependent upon many variables.

Swath Control Pro System Accuracy = GPS Signal Accuracy + Machine and Implement Setup + GS2 System Setup + Field Conditions + Product Rate.

It is important to:

- Ensure Vehicle and Implement are set up properly (according to manufacturer's operators manual).
- Ensure the implement is set up to run properly (wear parts are in good working condition and correctly spaced).
- Understand how field conditions and applied product rate affect machine dynamics.
- Ensure GPS Receiver went through a warmup period upon start-up to ensure Swath Control Pro performance.
  - As the GPS Accuracy increases (SF1, SF2, and RTK subscriptions), Swath Control Pro reaction accuracy also increase.
  - GPS shading (such as trees or buildings) affects Swath Control Pro accuracy.
- Ensure Swath Control Pro settings, Machine, and Implement dimensions are set up properly in the GS2.

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Limitations of Swath Control Pro

There are some limitations of Swath Control Pro to be aware of.

GPS Accuracy can cause map and boundary shifts

Poor GPS accuracy can affect boundaries and coverage maps. It is critical to have good GPS accuracy when using Swath Control Pro. If the reference point for a Swath Control Pro boundary or coverage map is created with poor GPS, boundary and coverage map issues (gaps, overlaps, shifts) occur as GPS accuracy increases over time.

The boundary and coverage map location are based off of an initial reference point and all other mapped points within the coverage map are positioned relative to this reference point.

On start-up, the system looks to see if there is an existing coverage map for the current field. If there is existing coverage for the current field, Swath Control Pro uses the original reference point from that existing coverage map. If there is no existing coverage for the current field, then the system looks to see if there is a boundary for the current field. If there is a boundary for the current field, Swath Control Pro utilizes the center of the field boundary as the reference point. If there is no boundary for the current field, the reference point is created with the first recorded point for the current field.

The same issue could be seen during field operation when shading, low satellite availability, or loss of signal are experienced. To minimize a map or boundary shift, good GPS accuracy is needed, especially when establishing the reference point. Having Optimize Shading checked helps prevent errors due to the drastic change in signal level.

Coverage Map and actual product application shows small gaps the full width of the boom

If the coverage map and actual product application shows small gaps the full width of the boom when exiting the headlands or other previous coverage with Swath Control Pro, do the following checks.

1. Verify that you are running the most current version of GS2 Display software. This will ensure that the most recent software features and enhancements can be utilized.
2. Verify driving habits.
   - Operators slowing down when entering then rapidly accelerating when exiting the headlands increases the severity of small gaps in the coverage map. Swath Control Pro looks at the machine's speed and the Turn on and off times to determine when to start and stop applying and painting the coverage map. If the machine changes speed during this time period, the map and product application may not start or stop at the correct time. It is very important that speed remains constant when entering and exiting headlands.

     Turning around in the headland at 8 mph, with a Turn on time of 2 seconds, the machine travels approximately 23.5 ft. at 8 mph in 2 seconds. If the operator accelerates during this time, the machine covers this distance in less than 2 seconds. This causes delayed product application and mapping resulting in a gap.

   - The type of end turns driven can affect Swath Control as well. The software can predict the future position of the boom relatively well during 180 degree turns, but not during light bulb turns. If light bulb turns are made, skips in the coverage map may be more severe when exiting the headlands.

Coverage Map shows small triangle or sliver shaped gaps but the actual product application is correct

If there is a gap in the coverage map, but the actual product application is correct, then the Swath Control Turn on and off times are probably not set correctly. Reference the Turn on and Turn off Settings section for information on how to adjust the Turn on or Turn off time.

Prescriptions

When utilizing prescriptions, Swath Control Pro commands sections off in zero rate prescription areas.

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Swath Control Pro button

Settings in the Swath Control Pro button are used to fine tune Swath Control Pro for optimal performance.

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MENU button

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GREENSTAR2 PRO button

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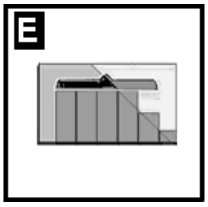

SWATH CONTROL PRO button

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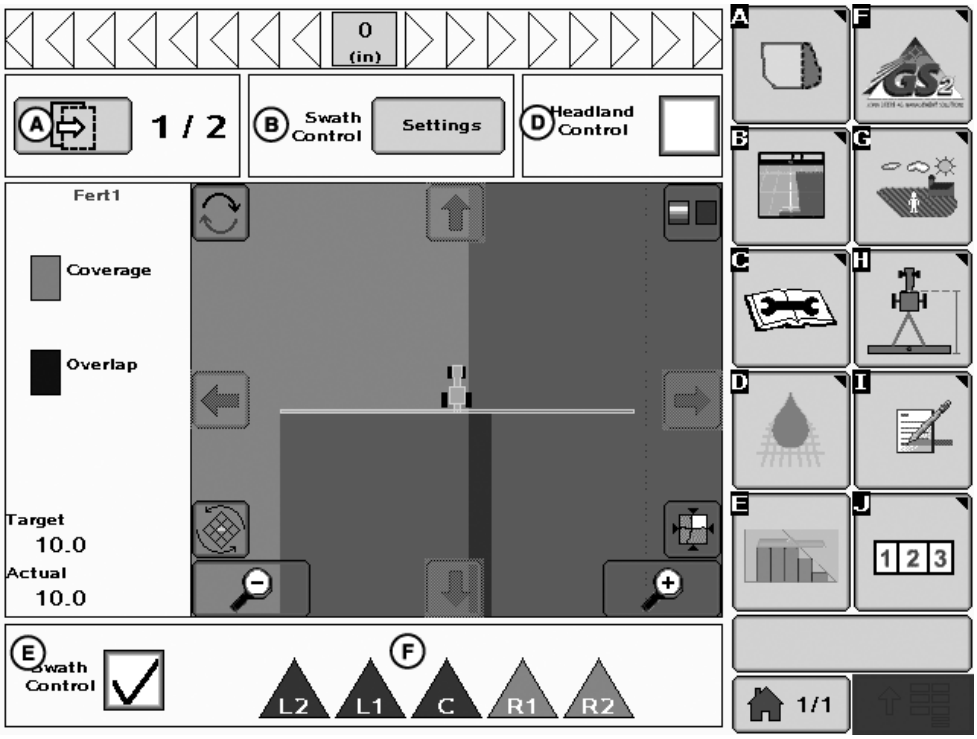
Map View



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See MAPPING button > Maps Tab in the GreenStar General section for details on buttons contained inside the Map view.

Operation Toggle Button (A) – This button toggles between multiple operations if multiple documentation operations have been set up.

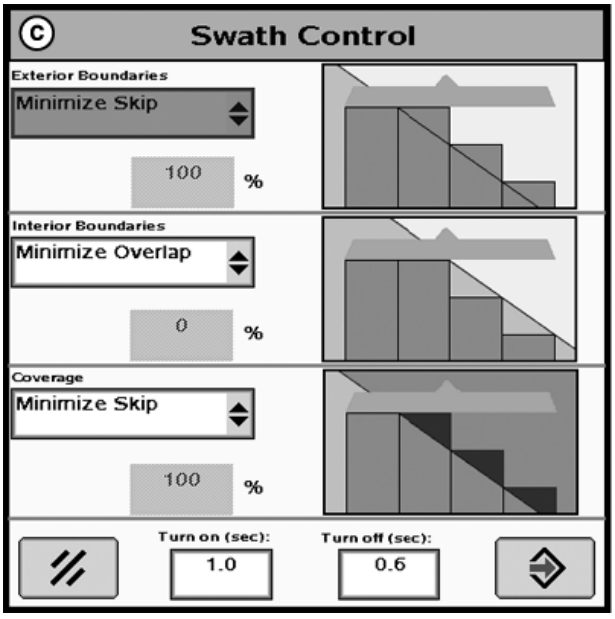
The operation toggle navigates through each operation, displaying as-applied or coverage as the foreground. If a prescription is being used for that operation, the prescription is shown in the background.

NOTE: By using GREENSTAR2 PRO – MAPPING – MAPS TAB – MAP SETTINGS button, any foreground or background can be viewed. However, once the operation toggle button has been selected, the maps are changed to the predefined foreground and background.

Swath Control Pro Settings Button (B) – This button brings up the Swath Control Pro Settings screen (C).

Swath Control Pro Settings Screen (C) – Fine tune the settings to optimize Swath Control Pro performance.

Headland Control Checkbox (D) – Check this box to turn on Headland Control. Uncheck the box to turn it off. Headland Control allows Swath Control Pro to turn on and off at the Headland Boundary to apply product only to the main portion of the field while not applying to the headland area. Product can be applied to the headland with Headland Control turned off.



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A—Operation Toggle Button
B—Swath Control Pro Settings Button
C—Swath Control Screen
D—Headland Control Check Box
E—Swath Control Check Box
F—Section Status Bar

Swath Control Checkbox (E) – Check this box to enable Swath Control Pro. Uncheck the box to disable it.

Continued on next page

NOTE: Headland Control is only available if Swath Control is activated. Deactivating Swath Control also disables Headland Control even if the corresponding checkbox is still checked. If the operator changes the field in the display, headland control checkbox is deactivated. If the operator wants to use headland control in the new field, the headland control checkbox needs to be activated again.

Section Status Bar (F) – Detected sections are displayed here from the implement setup. The sections that are on show as green or blue. The sections that are off show as gray or white.

NOTE: Status icons vary according to applications.

OUO6050,00011F4 -19-25MAY10-2/2

Setup

IMPORTANT: Some operators connect two separate fields into one using a "land bridge" between them. Product may still be applied over this strip of land if Swath Control Pro is left on. To prevent unexpected coverage, always turn Swath Control Pro or the master switch OFF while transporting between fields.

NOTE: Documentation is recommended, but not required when operating Swath Control Pro. If a client, farm, field are selected only the coverage or as applied map for that field are displayed. When using Headland Control a Client, Farm, Field, Field boundary, and Exterior Headland must be defined.

The following items are optional when operating Swath Control Pro:

- Client, Farm, and Field (if not selected, all coverage maps are saved to undefined Client, Farm, and Field and data is not able to be saved to desktop software.)
- Documenting field operational data
- Field Boundaries
- As-applied Map
- Prescription
- Set-up data from desktop software

A. The GS2 Display (2100 or 2600) requires a Swath Control Pro Activation. Every GS2 Display has a 15 hour demo activation from the factory.

See Display Setup > Display Software Activations section in this Operators Manual for details.

B. Menu > GREENSTAR2 PRO > EQUIPMENT button (H) > Machine Tab Setup

See Machine and Implement setup section in this Operators Manual for details.

1. Verify that Machine Type is displaying the proper machine. When a compatible control unit is connected to the system, the Machine Type is detected automatically.
2. Enter a Machine Model. (Optional)
3. Enter a Machine Name.
4. Enter a Connection Type.

NOTE: Machine Turn Radius and Turning Sensitivity are for use with iTEC Pro only.

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MENU button

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GREENSTAR2 PRO button

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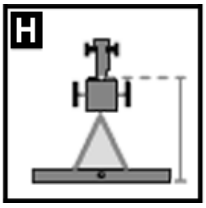

EQUIPMENT button

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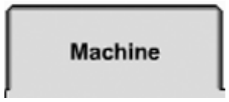

Machine tab

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C. GREENSTAR2 PRO > EQUIPMENT button > Implement Tabs Setup

See Machine and Implement setup section in this Operators Manual for details.

Swath Control must be activated and attached to a compatible implement to get Swath Control check box and settings button to appear on the Implement Tab. If multiple Swath Control Pro capable control units are utilized, they are prioritized automatically and the highest priority is displayed.

1. Enter Offsets.
   Offsets are critical for Swath Control Pro to function properly. GSD Net supplies certain machine offsets but we encourage customers to measure the machine to ensure that you get optimal performance from Swath Control Pro.
2. Verify sections and spacing are displayed properly. Sections and spacing are set up in the implement control unit. Refer to the implement operator manual for more information on the control unit.
3. Enable Swath Control Pro by checking the Swath Control check box. The Swath Control check box is accessible from the Implement tab or the Swath Control Pro button.
4. Set up Swath Control Pro by selecting the Settings button. The Settings button is accessible from the implement tab or the Swath Control Pro button.

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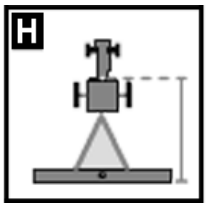
MENU button

PC8661 —UN—02NOV05

GREENSTAR2 PRO button

PC8677 —UN—05AUG05



EQUIPMENT button

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Implement tab

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Enabling

Enabling the System for a Product Application Operation

ALL of the following are required for Swath Control to function:
- Section Switches are on.
- Master Implement Switch is on.
- Swath Control Enabled: checkbox is checked.
- Speed is greater than 0.8 km/h (0.5 mph).

NOTE: If IBS (Index Boom Section) or a boom section switch has turned off a section, swath control does not turn it on. If Swath Control has turned off a section, IBS does not turn it back on.

Enabling The System for a Seeding Operation

ALL of the following are required for Swath Control to function:
- The implement must be lowered into the ground.
- Section switches are on.
- Master Implement switch must be on.
- Swath Control checkbox is checked.
- Vehicle speed must be greater than 0 km/h (0 mph) for all planting and seeding operations.

Enabling the System for Non-Deere ISO Implements (Europe Only)
- Swath Control check box is checked
- Implement is set up correctly according to the implement manufactures Operator Manual.

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Understanding Swath Control Turn On and Turn Off Settings

NOTE: The Turn on and Turn off times in the examples in this section are not true for every machine. It is important that you determine the Turn on and Turn off times for your particular machine and implement.

Swath Control Pro operates based on the drop point and turn on and off time of the primary function.

Seeding Tools

Planters average 6—12 km/h (4—7 mph) while planting and have minimal machine electrical clutch reaction delay times (under 0.8 seconds usually). The largest delay time is usually from the time the seed leaves the meter disk, travels in the seed tube, and reaches the soil. At a 10 km/h (6 mph) planting speed, you travel 2.8 m (8.8 ft.) in one second. That's 280 mm (10.5 in.) of travel distance every one-tenth of a second. (Example - Entire seed delay time from the switch being selected in the cab, the clutch stops, the seed meter stops, and all the seed has reached the soil; time elapsed 0.8 seconds) You can see that changing 0.3—0.8 seconds on the look ahead time can dramatically change the location of your seed placement when turning on or turning off. On average, most row-crop planters generally set a turn off time to 0.3 seconds and a turn on time between 0.5—1.0 seconds. On average, most air carts set a turn off time at 0.6 seconds and a turn on time at 1.0 second.

Minimize Skip on ranked tools (seeding tools with multiple ranks). Set swath settings for minimize skips. Swath Control maps to the rear rank on the tool so the Turn on time must be increased to account for rank spacing. See figure at the end of this section.

The goal is to compensate for Rank Delay spacing by entering ranked turn on for the "Turn on" setting. Turn on + Rank Delay = Ranked Turn On. Maintain a constant turn around speed to keep the Turn On time accurate. Examine and adjust the settings before planting.

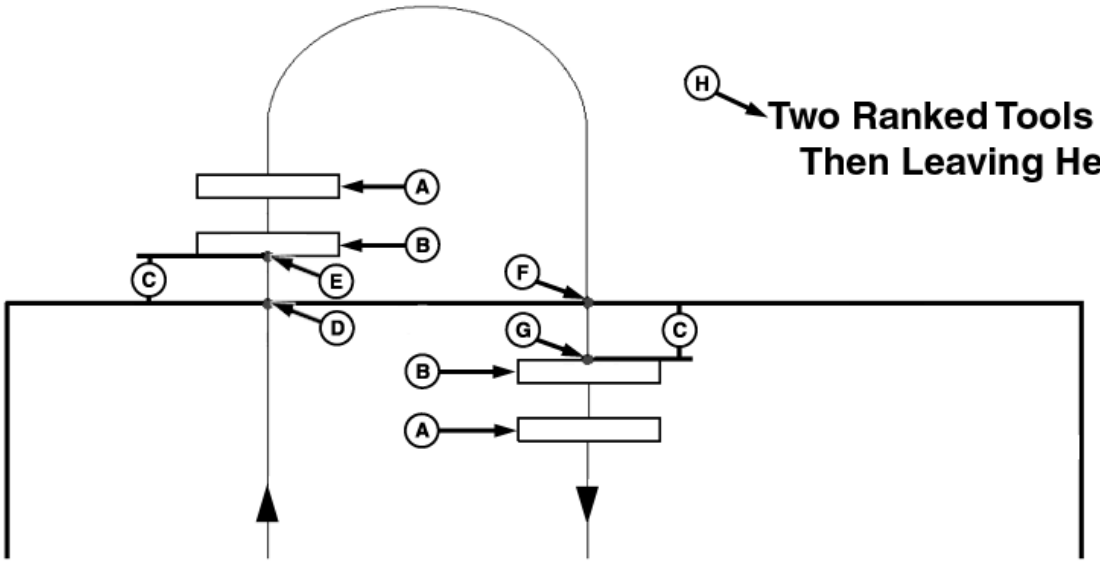
NOTE: Ranked Delay is a time, not a distance, and is affected by speed.

Sprayers

At 24 km/h (16 mph) in a self-propelled sprayer, if the average physical reaction time of the system (turn off command at the multifunction control handle, the boom valve reacts and turns off, liquid flows out of the boom freely until the check valve pressure is met) is 2.5 seconds. The liquid continues to fall to the crop canopy past the 2.5 seconds so the physical overall operational reaction time could be approximately 3.0 seconds in total.

To determine the Turn on time for a sprayer, press the master on switch and measure the amount of time until you start to see product hit the crop. To determine your Turn off time, shut the master off switch and measure the amount of time until you see product stop flowing.

As a rule of thumb, it takes a liquid handling system longer to react when turning on than when turning off due to liquid pressure differentials, so many times the turn on time is slightly greater than the turn off time. Keep in mind that your ground speed only affects the distance traveled while the machine reaction delay is taking place and that the distance traveled varies between turn on and turn off times and from operator to operator.



PC11045 —UN—31MAR08

NO SWATH CONTROL

A—Rank 1
B—Rank 2
C—System Delay
D—Switch Off
E—Actual Off
F—Switch On
G—Actual On
H—Two Ranked Tool Leaving Then Entering Headland

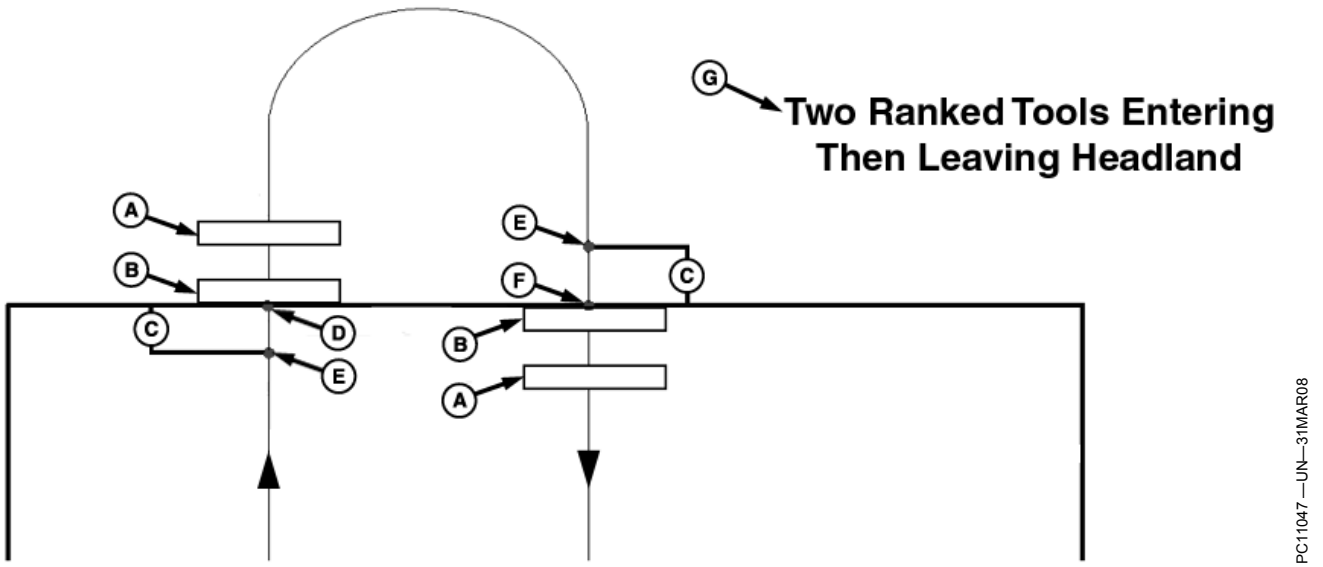
Continued on next page

OUO6050,0000E44 -19-07APR10-1/4

System Delay = Overlap (A) and Overlap (B)

System Delay = Overlap (A) and Overlap (B)

OUO6050,0000E44 -19-07APR10-2/4



NORMAL SWATH CONTROL

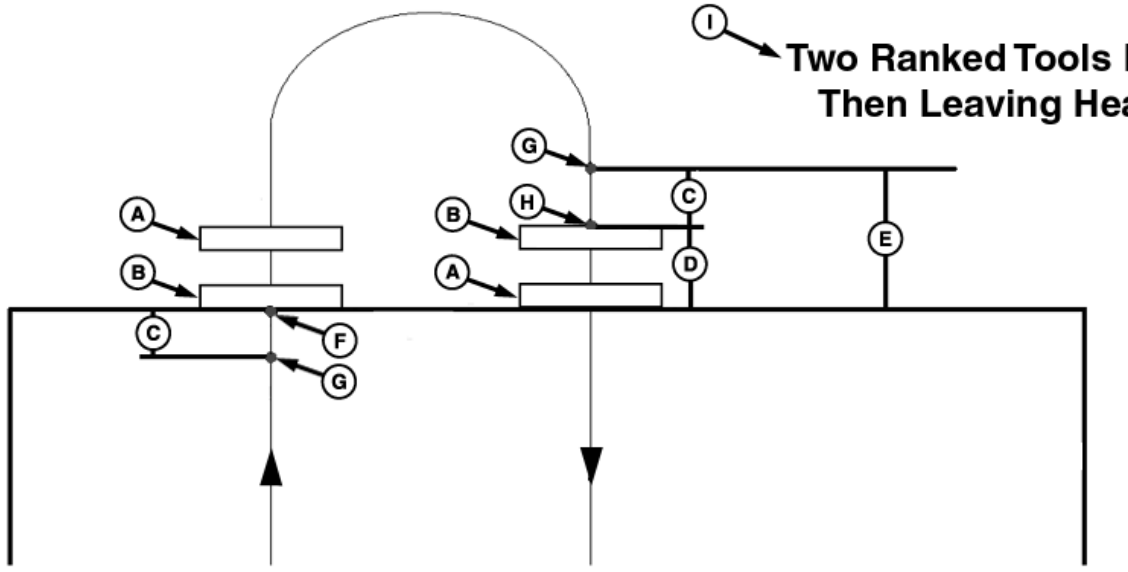
A—Rank 1
B—Rank 2
C—System Delay
D—Actual Off
E—Swath Command
F—Actual On
G—Two Ranked Tool Leaving Then Entering Headland

System Delay = No Overlap (A) and No Overlap (B)

System Delay = Overlap (A) and No Overlap (B)

Continued on next page

OUO6050,0000E44 -19-07APR10-3/4



PC11046 —UN—31MAR08

RANKED TURN ON

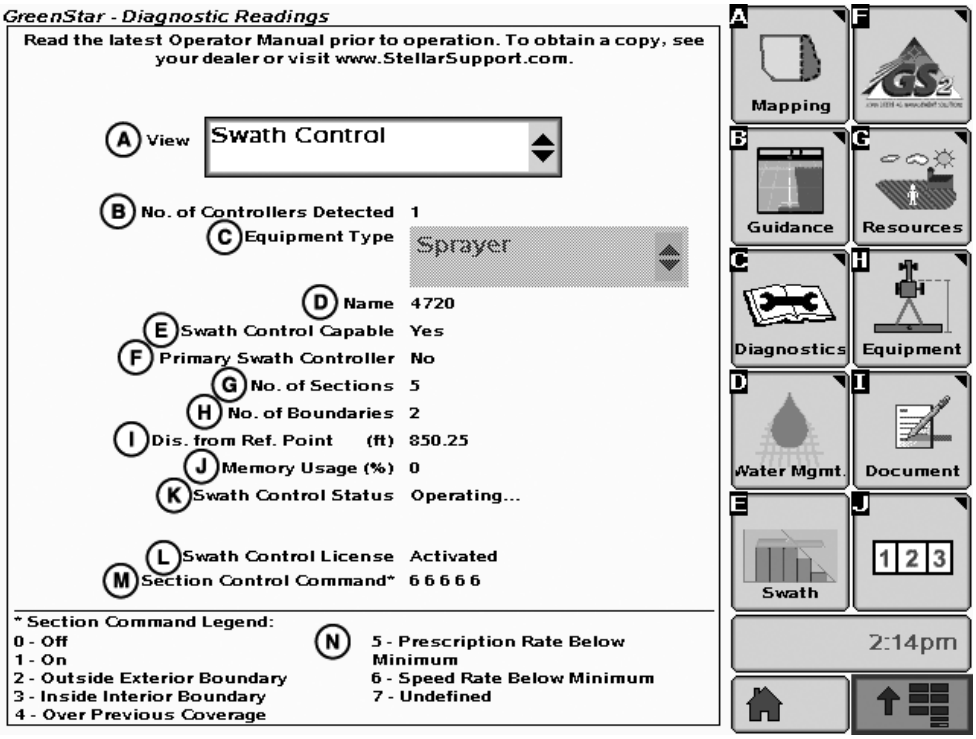
A—Rank 1
B—Rank 2
C—System Delay
D—Rank Delay
E—Ranked Turn On
F—Actual Off
G—Swath Command
H—Actual On
I— Two Ranked Tool Leaving Then Entering Headland

System Delay = No Overlap (A) and No Overlap (B)

System Delay + Ranked Delay = No Overlap (A) and No Overlap (B)

OUO6050,0000E44 -19-07APR10-4/4

Diagnostic Readings



PC10857VS —UN—07APR10

Select GREENSTAR2 PRO > DIAGNOSTIC > SWATH CONTROL

- (A) View – Dropdown box
- (B) No. of Controllers Detected – Indicates the number of Controllers on the CAN Bus.
- (C) Equipment Type — Indicates the equipment type that Diagnostics information is currently being viewed for.
- (D) Name – Indicates the Machine/Implement Name.
- (E) Swath Control Capable – Indicates if the selected Equipment Type (C) is a Swath Capable Machine or Implement.
  - Yes – Machine/Implement is Swath Capable
  - No – Machine/Implement is not Swath Capable
- (F) Primary Swath Controller – Indicates if the selected Equipment Type (C) is the Primary Swath Control Operation.
  - Yes – Machine/Implement is the Primary Swath Control Operation
  - No – Machine/Implement is not the Primary Swath Control Operation
- (G) No. of Section – Indicates the number of selection on the selected Equipment Type (C).
- (H) No. of Boundaries – Indicates the number of Boundaries in the current field.
- (I) Distance from Reference Point – Indicates the distance from the start point.
- (J) Memory Usage (%) – Indicates the percentage of memory used.
- (K) Swath Control Status – Indicates the current Swath Control Status.
  - Waiting – No Swath Control compatible implement connected to the system
  - Initializing – System is initializing
  - Loading bitmap center – System is loading center point from Bitmap
  - Loading bnd center – System is loading center point from Boundary map
  - Defining field center – System is defining center point. No defined field boundary or previous coverage.
  - Loading boundaries – System is loading field boundaries
  - Operating – System is being operated
  - Suspended (No GPS) – System does not have GPS signal
- (L) Swath Control License – Indicates if there is an Active Swath Control License on the Display.
  - Activated – The Swath Control License is activated.
  - Not Activated – The Swath Control License is not activated.
- (M) Section Control Command – Indicates the current command for each section.
- (N) Section Command Legend – Defines the numbers in the Section Control Command section (M).
  - 0 – Off
  - 1 – On
  - 2 – Outside Exterior Boundary
  - 3 – Inside Interior Boundary
  - 4 – Over Previous Coverage
  - 5 – Prescription Rate Below Minimum
  - 6 – Speed Rate Below Minimum
  - 7 – Undefined

OUO6050,000127F -19-25MAY10-1/1

GS2 Swath Control Pro Settings Quick Sheet—Metric

Constant Ground Speed (km/h)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (meters)	Distance traveled per GPS update (meters)
3	1	0.83	0.17
3	2	1.67	0.17
3	3	2.50	0.17
3	4	3.33	0.17
3	5	4.17	0.17
3	10	8.33	0.17
6	1	1.67	0.33
6	2	3.33	0.33
6	3	5.00	0.33
6	4	6.67	0.33
6	5	8.33	0.33
6	10	16.67	0.33
9	1	2.50	0.50
9	2	5.00	0.50
9	3	7.50	0.50
9	4	10.00	0.50
9	5	12.50	0.50
9	10	25.00	0.50
12	1	3.33	0.67
12	2	6.67	0.67
12	3	10.00	0.67
12	4	13.33	0.67
12	5	16.67	0.67
12	10	33.33	0.67
15	1	4.17	0.83
15	2	8.33	0.83
15	3	12.50	0.83
15	4	16.67	0.83
15	5	20.83	0.83
15	10	41.67	0.83
18	1	5.00	1.00
18	2	10.00	1.00
18	3	15.00	1.00
18	4	20.00	1.00
18	5	25.00	1.00
18	10	50.00	1.00
21	1	5.83	1.17
21	2	11.67	1.17
21	3	17.50	1.17
21	4	23.33	1.17
21	5	29.17	1.17
21	10	58.33	1.17
24	1	6.67	1.33
24	2	13.33	1.33
24	3	20.00	1.33
24	4	26.67	1.33
24	5	33.33	1.33
24	10	66.67	1.33
27	1	7.50	1.50

Continued on next page

Constant Ground Speed (km/h)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (meters)	Distance traveled per GPS update (meters)
27	2	15.00	1.50
27	3	22.50	1.50
27	4	30.00	1.50
27	5	37.50	1.50
27	10	75.00	1.50
30	1	8.33	1.67
30	2	16.67	1.67
30	3	25.00	1.67
30	4	33.33	1.67
30	5	41.67	1.67
30	10	83.33	1.67

OUO6050,0000E45 -19-08SEP09-2/2

GS 2 Swath Control Pro Settings Quick Sheet—SAE

Constant Ground Speed (mph)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (feet)	Distance traveled per GPS update (inches)
2	1	2.93	7.04
2	2	5.87	7.04
2	3	8.80	7.04
2	4	11.73	7.04
2	5	14.67	7.04
2	10	29.33	7.04
4	1	5.87	14.08
4	2	11.73	14.08
4	3	17.60	14.08
4	4	23.47	14.08
4	5	29.33	14.08
4	10	58.67	14.08
6	1	8.80	21.12
6	2	17.60	21.12
6	3	26.40	21.12
6	4	35.20	21.12
6	5	44.00	21.12
6	10	88.00	21.12
8	1	11.73	28.16
8	2	23.47	28.16
8	3	35.20	28.16
8	4	46.93	28.16
8	5	58.67	28.16
8	10	117.33	28.16
10	1	14.67	35.20
10	2	29.33	35.20
10	3	44.00	35.20
10	4	58.67	35.20
10	5	73.33	35.20
10	10	146.67	35.20
12	1	17.60	42.24
12	2	35.20	42.24
12	3	52.80	42.24
12	4	70.40	42.24
12	5	88.00	42.24
12	10	176.00	42.24
14	1	20.53	49.28
14	2	41.07	49.28
14	3	61.60	49.28
14	4	82.13	49.28
14	5	102.67	49.28
14	10	205.33	49.28
16	1	23.47	56.32
16	2	46.93	56.32
16	3	70.40	56.32
16	4	93.87	56.32
16	5	117.33	56.32
16	10	234.67	56.32
18	1	26.40	63.36

Continued on next page

OUO6050,0000E46 -19-08SEP09-1/2

Constant Ground Speed (mph)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (feet)	Distance traveled per GPS update (inches)
18	2	52.80	63.36
18	3	79.20	63.36
18	4	105.60	63.36
18	5	132.00	63.36
18	10	264.00	63.36
20	1	29.33	70.40
20	2	58.67	70.40
20	3	88.00	70.40
20	4	117.33	70.40
20	5	146.67	70.40
20	10	293.33	70.40

OUO6050,0000E46 -19-08SEP09-2/2

Original GreenStar Monitor

Compatible Systems

Press: MENU button >> ORIGINAL GREENSTAR MONITOR button

The following section explains operation of Original GreenStar Monitor software. Original GreenStar Monitor can be used to display information from controllers that are designed for use with original GreenStar display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

Compatible Systems

Original GreenStar Monitor application is compatible with following John Deere 2.5 v controllers:

- SeedStar Gen 1 Seed Monitor and Variable Rate Drive
- SeedStar Gen 2 Seed Monitor and Variable Rate Drive
- SeedStar Air Cart
- SprayStar
- Accu-Depth
- Original StarFire Receiver
- TCM
- European Drill

PC8663 —UN—05AUG05

PC8657 —UN—05AUG05

ORIGINAL GREENSTAR MONITOR button

- European Sprayer
- European Spreader
- European Wrapping Baler
- Rauch Axera Fertilizer Spreader
- Harvest Monitor (Except 70 Series Combines)
- Self Propelled Forage Harvester

OUO6050,0000CA2 -19-18MAY09-1/1

Operating Original GreenStar Monitor

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS2 display, the Original GreenStar Monitor application will not be available and will not appear on menu.

Once in Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display. See vehicle or implement Operator's Manual for more information.

OUO6050,0000CA3 -19-31OCT07-1/1

Original GreenStar Monitor

Press: MENU button >> ORIGINAL GREENSTAR MONITOR button

Harvest Monitor is only available through the ORIGINAL GREENSTAR MONITOR application on the GS2 display. Once in the Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS2 display, Harvest Monitor will automatically function on the Original GreenStar Display and the Original GreenStar Monitor application will not be available and will not appear on menu.

PC8663 —UN—05AUG05

PC8657 —UN—05AUG05

ORIGINAL GREENSTAR MONITOR button

OUO6050,0000CCA -19-31OCT07-1/1

Flow Chart

Setup					
Harvest Monitor					
Page 2		Page 1			
Yield Units	Area Units	Set Number of Rows and Spacing	Yield Calibration	Run Page	Recording ON/OFF
Bales	Acres	Total Width	Quick Cal		Material
Pounds	Hectares	Spacing	Standard Cal		Header
Kilograms		Active Rows	Manual Cal		Combination
Hundred wt.		Machine Model	Row Correction Cal		Manual
Metric Tonnes					
Tons					

OUO6050,0000CCB -19-27OCT08-1/1

Setting Yield Units

Screen: SETUP

Press: SETUP >> HARVEST MONITOR >> YIELD UNITS:

NOTE: See standard weight chart section for standard weights of crops.

- Bales
- Pounds
- Kilograms
- Hundred Wt
- Metric Tonnes
- Tons

OUO6050,00022FF -19-20NOV06-1/1

Setting Area Units

Screen: SETUP - HARVEST MON

Press: SETUP >> HARVEST MONITOR

Press AREA UNIT button to toggle between ACRES and HECTARES. Selection will appear boxed in and capitalized.

OUO6050,0002300 -19-20NOV06-1/1

Setting Rows and Spacing

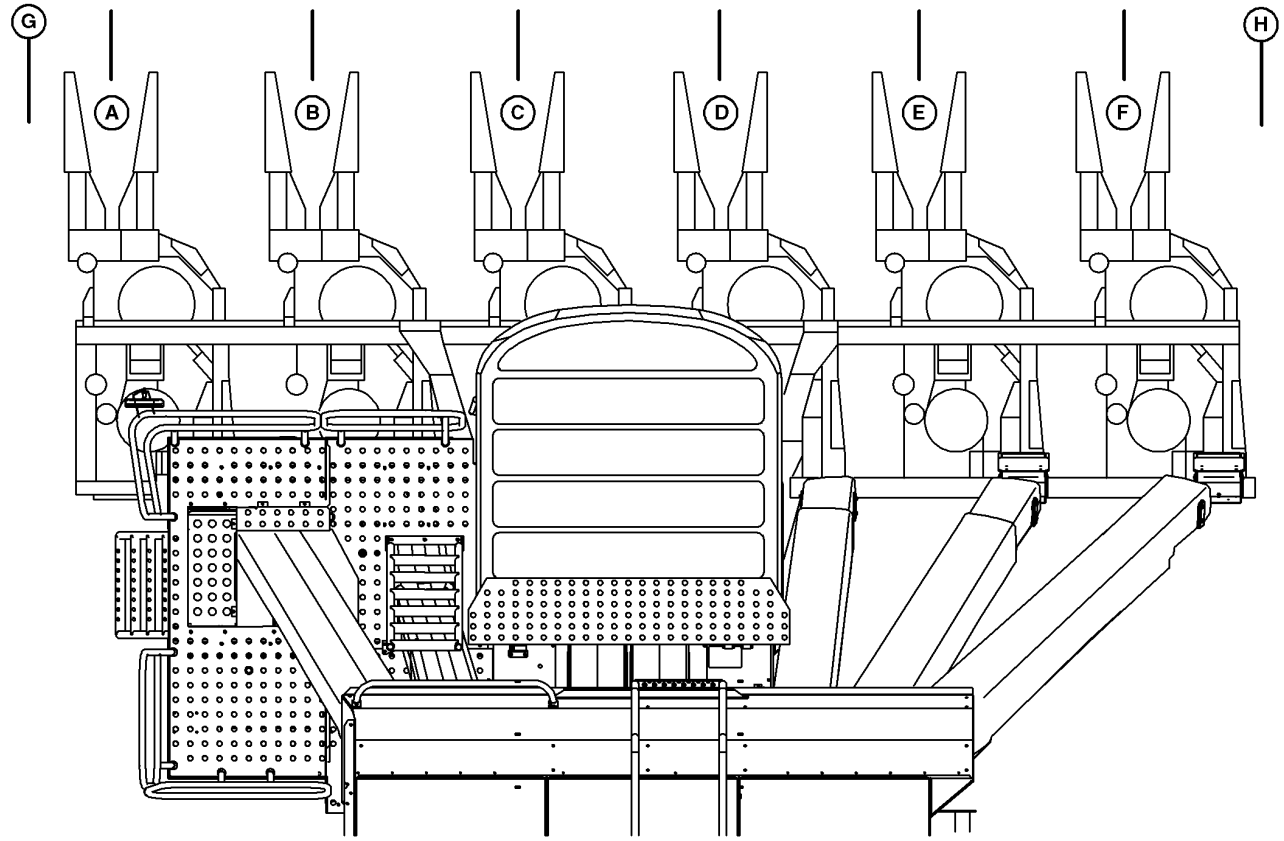
Screen: SETUP - ROWS & SPACING

Select: SETUP > HARVEST MONITOR > SET ROW & SPACINGS

IMPORTANT: Make certain rows and spacings are correct. Wrong row spacing will result in inaccurate area calculation.

1. Select NUMBER OF ROWS button.
2. Enter number of rows and select NUMBER OF ROWS button again to enter value.

NOTE: An alarm will be displayed in section G to state limits for row spacings.



PC8135 —UN—12MAR04

A—Row #1
B—Row #2
C—Row #3
D—Row #4
E—Row #5
F—Row #6
G—Row Left of First Row
H—Row Right of Last Row

3. Enter row spacing for all rows starting with LEFT OF FIRST ROW. Select SELECTED ROW SPACING button to toggle from one row spacing to next. Select ROW SPACING button to enter distance between rows.

   Example: You have a 9996 cotton picker, which is setup to pick 6 rows of 30 (in) cotton. To setup up the right spacing in the Display for area to be calculated properly you will need to enter the following:

   - Enter 6 for the number of rows.
   - Next enter 30 (in) for each selected row spacing.
   - To enter row spacing you will need to toggle between selected rows
     - Left of first Row should = a row spacing of 15 (in)
     - Between first and second row should = a row spacing of 30 (in)
     - Between second and third row should = a row spacing of 30 (in)
     - Between third and fourth row should = a row spacing of 30 (in)
     - Between fourth and fifth row should = a row spacing of 30 (in)
     - Between fifth and sixth row should = a row spacing of 30 (in)
     - Right of last row should = a row spacing of 15 (in)
   - Total width should now show 15 (ft).

   NOTE: Picker setup for skip row cotton will vary from above example.

4. Verify TOTAL WIDTH: is shown correctly after entering all row spacings.

Continued on next page

5. To make a row inactive select ROW SELECT button until number of desired row appears boxed in. Select ROWS ACTIVE button to toggle selected row between ON/OFF. When a row is inactive its number will appear on display with a slash through it.
6. Select MACHINE MODEL button to toggle to proper machine model. There may be only one machine model available depending on software version.

OUO6050,0002301 -19-13OCT09-2/2

Calibration

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

Screen: SETUP—YIELD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

Mass flow sensors must be calibrated in order to achieve accurate cotton weights. Calibration should be performed when necessary as condition and maturity of crop change or at least once a season.

Quick Calibration: Easiest calibration procedure when there is no scale available for weighing harvest samples.

Standard Calibration: Used when actual weights can be obtained from a scale for harvest samples.

Manual Calibration: Only used if previous procedures do not work because calibration is off by more than 50%. Before performing manual calibration, check to make sure all components in yield monitoring system are installed and performing correctly, and that sensors are unobstructed.

Post Calibration: Done with desktop software. There is no post calibration procedure to be performed in field or on display. This is recommended method for best results. Desktop software allows post calibration using weight of crop from whole field or weight of crop from each module, depending on level of detail wanted.

Are you a customer that is using Harvest Monitor Cotton for the sole purpose of seeing your yield as you go across the field?

If you believe it is important for the Harvest Monitor Cotton system to be as accurate as possible at all times in the field (on display in cab), the following recommendation can help you achieve this expectation: Mass flow sensors need to be calibrated to achieve more accurate seed cotton weights shown on the display in the field. This is done by performing a QUICK CAL or STANDARD CAL after a Row Compensation Calibration is performed in uniform crop. STANDARD Cal, which uses actual scale weights, is the best form of calibration to use in order to attain more accurate cotton weights. Once calibrated, additional calibration may be used for any substantial changes in types of cotton, variety change, moisture, crop management, quality of defoliation, weeds, irrigated vs. non-irrigated, crop conditions, etc. Any of these condition changes in cotton could cause shift in accuracy of the system. Throughout the season it is recommended to check accuracy by weighing the cotton. Recalibration is suggested if you find that the system is not accurate.

OUO6050,0002302 -19-20NOV06-1/1

Row Compensation

Screen: SETUP—STANDARD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION >> ROW COMPENSATION

NOTE: Only perform once. This only needs to be performed after system has been installed or if sensor attachment has changed in any way.

1. Press START button to begin procedure.

NOTE: Sample must be of a uniform yield for all rows being harvested.

2. Harvest a yield sample—30.5 m (100 ft) or 1/4 basket.
3. Press STOP button.
4. Accept or decline run made.
5. A date will be displayed if successful.

OUO6050,0002303 -19-20NOV06-1/1

Quick Calibration

Screen: SETUP—YIELD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

IMPORTANT: Before calibrating be sure that harvester basket is empty. Be sure boll buggy or cotton module is empty.

Procedure should be performed at maximum ground speed which operator expects to run in this crop and condition, and in an area that is reasonably level and of uniform yield.

If standard calibration is running estimated yield will be adding up because they are tied together.

If standard calibration has been performed operator does not need to run quick calibration process.

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration.

Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

1. Press START button.

NOTE: Pay close attention to area next to button C. When the black arrow states start, that means you have to press the button to start calibration. Area left of the arrow states if calibration is running or stopped.

2. Harvest a yield sample.
3. Press STOP button.
4. Enter yield estimate for sample just harvested.

OUO6050,0002304 -19-20NOV06-1/1

Standard Calibration

Screen: SETUP—STANDARD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

1. Press START button.

NOTE: If Quick Calibration Procedure is started (on prior page) weight will count up on SETUP - STANDARD CAL screen.

2. Harvest a yield sample.
3. Press STOP button to end procedure.
4. Enter scale weight for sample just harvested.

Harvested Weight—Approximate weight of cotton that has been harvested during calibration process.

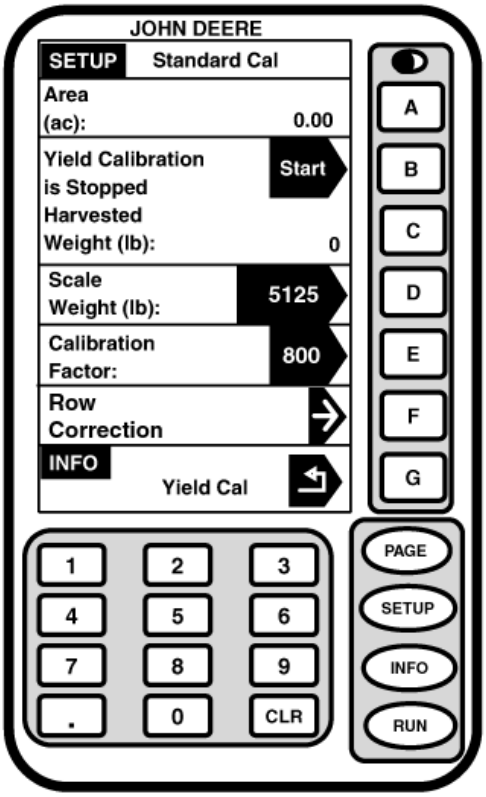
Scale Weight—Allows scale weight to be entered after a calibration run is complete. During calibration run, indicates approximate weight of cotton that has been harvested.

Calibration Factor—Allows mass flow sensor to read accurately. Value will be updated automatically by calibration procedure. This value can also be adjusted manually.

7760 Cotton Picker Round Module Calibration Instructions:

(Make sure the accumulator and bale chamber are empty before harvesting)

1. Push START button.



PC11077 —UN—06MAR08

A—Area
B—Yield Calibration Is Stopped
C—Harvested Weight
D—Scale Weight
E—Calibration Factor
F—Row Correction
G—Yield Calibration

2. Harvest a yield sample of one to four round modules (Stop harvesting before completing the last full module).
3. Press STOP button to end procedure (Empty accumulator and perform a manual wrap).
4. Enter scale weight for sample just harvested (Use weight of round module or truck load for calibration weight).

OUO6050,0002305 -19-20NOV06-1/1

Manual Adjustment of Calibration Factor

Screen: SETUP—STANDARD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION

NOTE: If scale weight is more than 50% higher or lower than displayed weight, system will not allow entry of scale weight. It is recommended that you review harvesting procedures and verify vehicle hauling cotton away from picker is also following correct procedures. At that time, repeat calibration procedures.

Do not change calibration factor in the middle of a field.

Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

A new calibration factor can also be entered manually. To calculate calibration factor, divide weight shown on display by new weight on scale ticket. Multiply result by displayed calibration factor (see example below). This is the new calibration factor.

To manually enter a calibration factor:

1. Press CALIBRATION FACTOR button to change calibration factor.
2. Using numeric keypad, input calibration factor.
3. Press CALIBRATION FACTOR button to enter new value.

Displayed Calibration Factor (800) **X** New weight of cotton from scale ticket (4830) **/** Weight of cotton shown on display (5125) **=** New Calibration Factor (754)

Example:

Displayed Calibration Factor = 800

800 is factory default value for calibration factor.

Weight of cotton shown on display = 5125

New weight of cotton from scale ticket = 4830

New Calibration Factor = 754

OUO6050,0002306 -19-20NOV06-1/1

Recording

Screen: SETUP—RECORDING ON/OFF

Press: SETUP >> HARVEST MONITOR >> RECORDING ON/OFF BY:

This screen allows operator to setup recording on/off using the following methods:

Material—Flow of Cotton

Header—Raise/Lower Picking Units

Combination—Raise/Lower Picking Units and Material Flow Detected

Manual—On/Off by operator from RUN page,

OUO6050,0002307 -19-20NOV06-1/1

Performance Monitor

PC8658 —UN—05AUG05

BPM Performance Monitor Icon

The GS2 Display comes standard with many new performance monitor functions and user defined viewing layouts. Two different modes of performance monitor exist for the GS2 Display. The first is called the Basic Performance Monitor or BPM and is included in base equipment with every GS2 Display. The second is called the Advanced Performance Monitor or APM and is only available when connected to specific John Deere Vehicles.

John Deere CAN-Based vehicles with APM will be referenced throughout this section

Tractors	9030's	
	8030's	
	7030's	7020's
	6030's	6020's
Combines	9070,s	9050's
	9060's	

John Deere CCD-Based vehicles with BPM will be referenced throughout this section

Tractors	9020's	9000's	
	8020's	8010's	8000's
	7010's	7000's	6000's
Sprayers	4020's	4710's	4700's
	4030's		

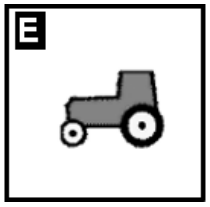
This section will cover features that are common to both the BASIC PERFORMANCE MONITOR (BPM) as well as ADVANCED PERFORMANCE MONITOR (APM)

- The BPM will be denoted in the display menu with the BPM Performance Monitor Icon.

OUO6050,0000CD5 -19-07OCT08-1/4

- The APM will be denoted in the display menu with the APM Performance Monitor Icon.

PC9046 —UN—17APR06



APM Performance Monitor Icon

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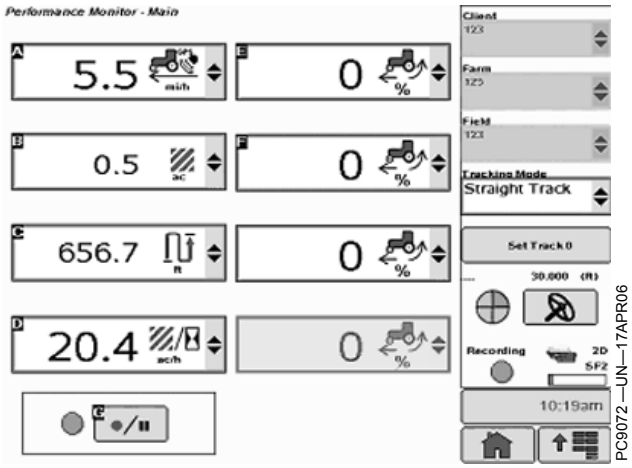
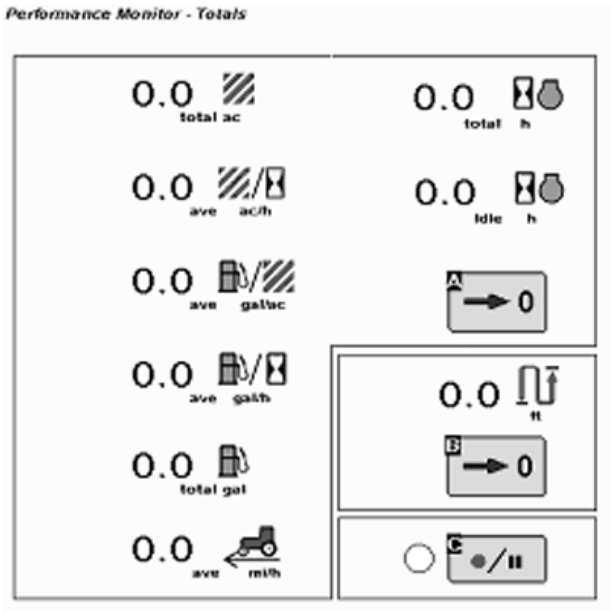
OUO6050,0000CD5 -19-07OCT08-2/4



PC9072 —UN—17APR06



PC9073 —UN—17APR06

The Basic Performance Monitor will operate on a GS2 Display anytime a StarFire Receiver is connected and a 12 volt source is supplied. (such as .GreenStar system on an ATV) In these conditions, functionality will be limited to: GPS Speed, Area Counter, Distance Covered, and Instantaneous Productivity.

Tractors	9020's	9000's	
	8020's	8010's	8000's
	7010's	7000's	6000's
Sprayers	4020's	4710's	4700's
	4030's		(Gen IV Controller Only)

When the GS2 Display is connected to John Deere CCD-Based vehicles the following real-time functions become available:

- Radar, Wheel, and GPS Speed
- Instantaneous Productivity
- Distance Counter
- % Wheel Slip (Radar Connected)
- Area Counter

Optional items based on vehicle platform and configuration are

- PTO Status (Front & Rear)
- Fuel per Area
- Fuel per Hour
- Radar Connection and Calibration

All functions available in BPM are also available in APM. If you are in a CAN-Based vehicle, the BPM will not display and the GS2 will default to APM only.

The BPM can be configured to operate in any of the user defined layout manager options available on the GS2 display.

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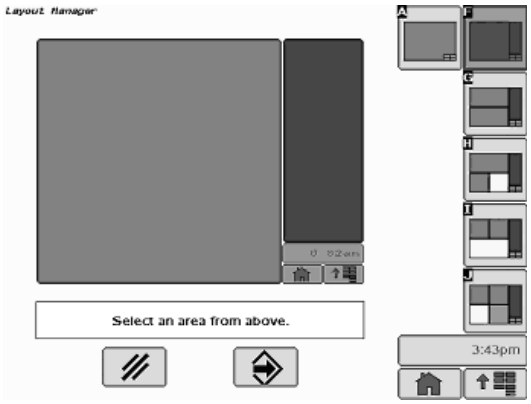
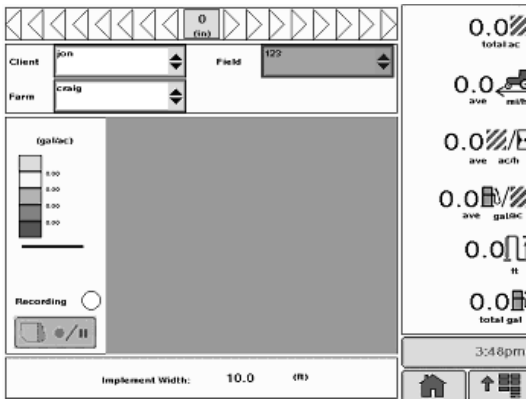
OUO6050,0000CD5 -19-07OCT08-3/4



PC9036 —UN—17APR06

Layout Manager



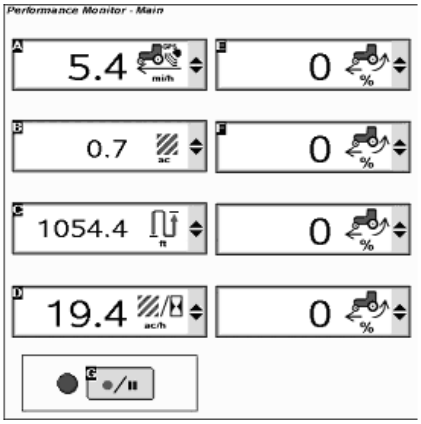
PC9037 —UN—17APR06

RUN (Home Screen)

Many customers utilize the layout example above for in-field operation of the BPM.

OUO6050,0000CD5 -19-07OCT08-4/4

BPM (BASIC PERFORMANCE MONITOR) Functionality



PC9074 —UN—17APR06

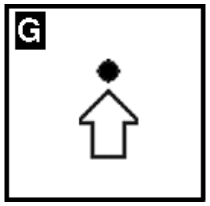
Main Screen

PC8791 —UN—18OCT05

Performance Monitor softkey

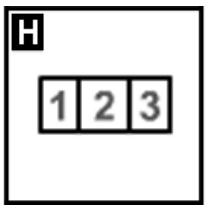
- Selecting Performance Monitor softkey will switch the BPM to the BPM main screen
- Selecting Settings softkey will switch the BPM to the settings screen
- Selecting Totals softkey will switch the BPM to the totals screen

PC8792 —UN—18OCT05



Settings softkey

PC8793 —UN—18OCT05



Totals softkey

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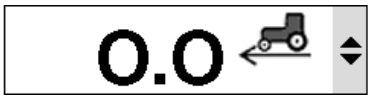
OUO6050,0000CD6 -19-31OCT07-1/12

NOTE: GPS radar speed will be shown under the regular radar speed icon in APM. No GPS option will display as the radar feed is designated by the radar wire feed connection behind the command center described later in this section.

Vehicle Speed

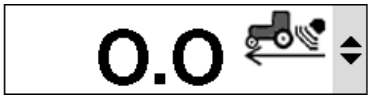
The operator will be able to view the vehicle speed and can select radar speed (if available), GPS speed (if available), or transmission wheel speed. The display readout will switch when below 0.3 kph to 0.29 and back to 1.1 when above 1.0 kph. The figures below show the vehicle speed icons.

PC9047 —UN—17APR06



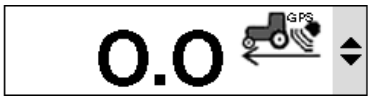
Wheel

PC9048 —UN—17APR06



Radar

PC9049 —UN—17APR06



GPS

OUO6050,0000CD6 -19-31OCT07-2/12

Front and Rear PTO RPM

The user is able to view both the front and rear PTO RPM (if available). The data will be displayed and rounded to the nearest 10th's digit. This option is only available if the vehicle has the front and/or rear PTO option. The figures below show the PTO icons.

PC9050 —UN—17APR06

Front PTO

PC9051 —UN—17APR06

Rear PTO

OUO6050,0000CD6 -19-31OCT07-3/12

Wheel Slip

The operator is able to view the current wheel slip of the vehicle. Note that this feature will only be available if a radar sensor is installed. It will be displayed as a percentage calculated as the difference between the wheel speed and radar speed, divided by the wheel speed. The figure below shows the wheel slip icon.

PC9052 —UN—17APR06

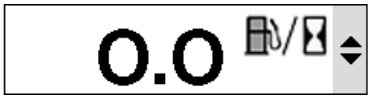
Wheel Slip

OUO6050,0000CD6 -19-31OCT07-4/12

Fuel Per Hour

If available from the vehicle network, the operator is able to view the instantaneous fuel flow in gal/h (or liters/h). The output value is a computation that factors desired fuel quantity (not measured), current engine speed, cylinder size of the engine, and fuel density. This will then give the operator an idea of what range to expect for consumption.

PC9053 —UN—17APR06



Fuel Per Hour

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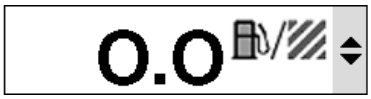
OUO6050,0000CD6 -19-31OCT07-5/12

Fuel Per Area

The current fuel per area measurement (gal/area or liters/area) will be shown on the screen. The value is based on current fuel usage, implement/header width, and speed. The area counter is enabled when the arrow is in the down position. The figure below shows the fuel per area icon.

PC9054 —UN—17APR06



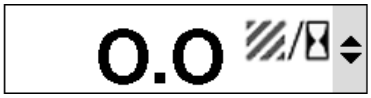
Fuel Per Area

OUO6050,0000CD6 -19-31OCT07-6/12

Instantaneous Productivity

Instantaneous Productivity is calculated from the vehicle speed and implement/boom/header width and is expressed in terms of area/hour. If recording is off, the area/hour value will be zero. The figure below shows the instantaneous productivity icon.

PC9055 —UN—17APR06



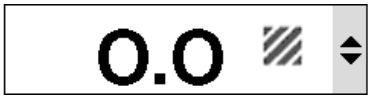
Instantaneous Productivity

OUO6050,0000CD6 -19-31OCT07-7/12

Area Counter

The operator is able to select an area counter. The counter can be reset by the operator in the totals page. The PM will use the current implement width setting, the speed (priority is GPS speed, radar speed, wheel speed), and the recording status to count hectares/acres. If recording is off, area will not accumulate. If the value exceeds 9999.9, then the counter will reset to zero. The figure below shows the area counter icon.

PC9056 —UN—17APR06



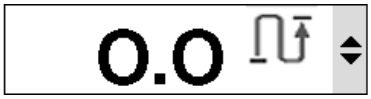
Area Counter

OUO6050,0000CD6 -19-31OCT07-8/12

Distance Counter

The user will be able to view and reset the distance counter. This counter will accumulate any time the vehicle is moving (regardless of recording status) and will use the same speed as the area counter to calculate the distance. The figure below shows the distance icon.

PC9057 —UN—17APR06



Distance Counter

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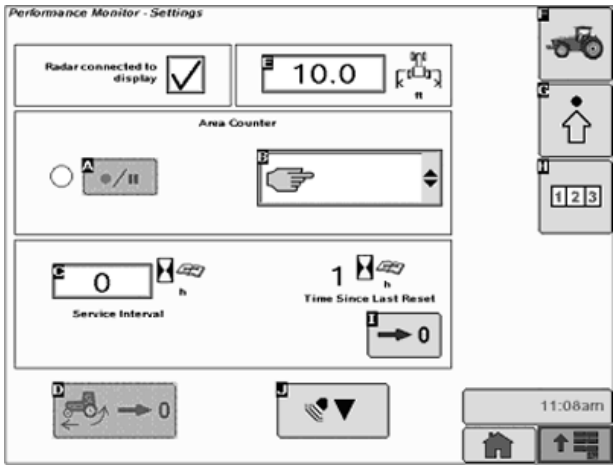
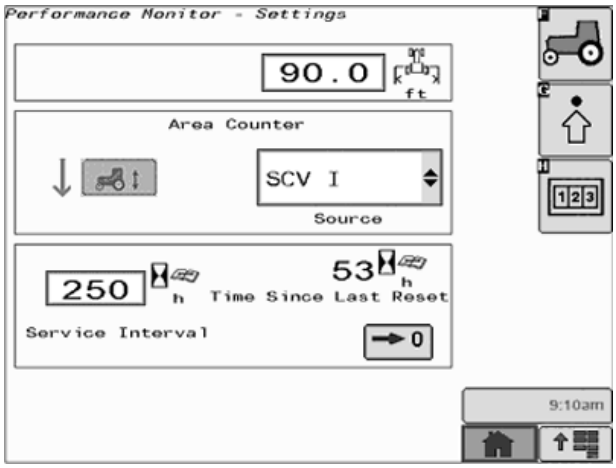
OUO6050,0000CD6 -19-31OCT07-9/12



BPM Setting Screen



APM Setting Screen

SETTINGS SCREEN

The setup screen of the PM application, shown, contains a number of major sections that include settings that the operator can adjust and/or calibrate. Each of these settings or calibration instructions are described in this section. Totals and Settings Screens will remain similar in both the APM and BPM applications. Resetting totals in APM mode will require the operator to depress and HOLD the reset button for 3 seconds.

OUO6050,0000CD6 -19-31OCT07-10/[][][][]12

NOTE: If the vehicle that you are operating does not have radar make sure that the radar check box is not checked or inconsistent readings and alarms will be displayed.

Radar Connection

The operator is able to select/unselect a check box if the radar is directly connected to the display or not. This connection check box will NOT display when operating APM as it will automatically default to the radar feed via the connection behind the command center.

PC9095 —UN—17APR06

Radar Connection

OUO6050,0000CD6 -19-31OCT07-11/12

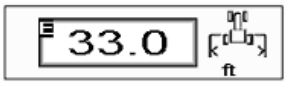
Implement/Header Width

The operator is able to enter and view the width of the implement/header. This value will remain in sync with the Field Doc application implement width. This parameter will be used by the PM for area and productivity calculations. The figure below shows the implement width icon.

Recording Sources for BPM / APM (Below)

The display will allow the operator to choose from an input list which source or function will indicate that recording is on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

PC9096 —UN—17APR06



Implement/Header Width

OUO6050,0000CD6 -19-31OCT07-12/12

Recording Sources for BPM

The display will allow the operator to choose from an input list which source or function will indicate that recording is on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

Manual

PC9058 —UN—17APR06

Manual

When this item is selected, the operator can manually trigger and stop the recording button, located to the left of the recording source list. This choice is always available.

OUO6050,000230A -19-07OCT08-1/8

Rear Hitch

This choice is only available if the vehicle is equipped with a rear hitch. CCD based vehicles with BPM Rear Hitch Recording is non-adjustable; In-work (recording on) below 70%, and out-of-work (recording off) above the 70% down threshold.

PC9059 —UN—17APR06

Rear Hitch

OUO6050,000230A -19-07OCT08-2/8

Front PTO

This item is only available in the list if the vehicle is equipped with a Front PTO.

PC9060 —UN—17APR06

Front PTO

OUO6050,000230A -19-07OCT08-3/8

Rear PTO

This item is only available in the list if the vehicle is equipped with a Rear PTO.

PC9061 —UN—17APR06

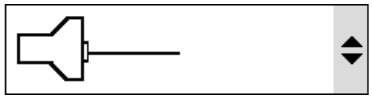
Rear PTO

OUO6050,000230A -19-07OCT08-4/8

Implement Switch Closed

This item is always available and functions based on the position of the implement switch.

PC9062 —UN—17APR06



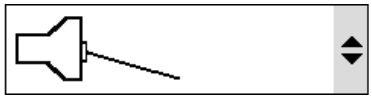
Implement Switch Closed

OUO6050,000230A -19-07OCT08-5/8

Implement Switch Open

This item is always available and functions based on the position of the implement switch.

PC9063 —UN—17APR06



Implement Switch Open

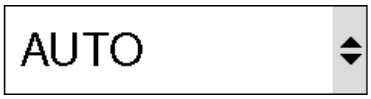
Continued on next page

OUO6050,000230A -19-07OCT08-6/8

AUTO

If a John Deere implement is connected to the system that is broadcasting its work status, this item will be selected in this list and then the rest of the list will be disabled.

PC9064 —UN—17APR06



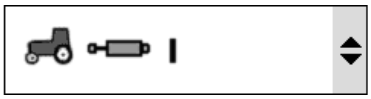
AUTO

OUO6050,000230A -19-07OCT08-7/8

SCV I-VI

The user can assign any SCV to turn the recording source on. These selections will only show up if the vehicle has the corresponding SCV's. (Selective Control Valves for the Hydraulics)

PC9065 —UN—17APR06



SCV I-VI

OUO6050,000230A -19-07OCT08-8/8

Recording Sources for APM

Recording Sources for BPM / APM (Below) The display will allow the operator to choose from an input list which source or function will indicate that recording is on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

Manual

PC9058 —UN—17APR06

Manual

When this item is selected, the operator can manually trigger and stop the recording button, located to the left of the recording source list. This choice is always available.

OUO6050,000230B -19-07OCT08-1/6

Rear Hitch

This choice is only available if the vehicle is equipped with a rear hitch. APM Hitch Recording is an adjustable height setting in the command center.

PC9067 —UN—17APR06

Rear Hitch

OUO6050,000230B -19-07OCT08-2/6

Rear PTO

This item is only available in the list if the vehicle is equipped with a Rear PTO.

PC9068 —UN—17APR06

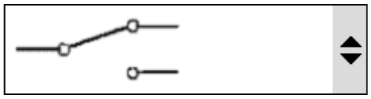
Rear PTO

OUO6050,000230B -19-07OCT08-3/6

Implement Switch

This item is always available and functions based on the position of the implement switch.

PC9069 —UN—17APR06



Implement Switch

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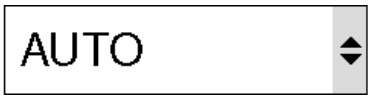
OUO6050,000230B -19-07OCT08-4/6

AUTO

If a John Deere implement is connected to the system that is broadcasting its work status, this item will be selected in this list and then the rest of the list will be disabled.

PC9064 —UN—17APR06



AUTO

OUO6050,000230B -19-07OCT08-5/6

SCV I-VI

The user can assign any SCV to turn the recording source on. These selections will only show up if the vehicle has the corresponding SCV's. (Selective Control Valves for the Hydraulics)

PC9071 —UN—17APR06

SCV I-VI

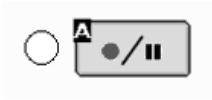
OUO6050,000230B -19-07OCT08-6/6

Performance Monitor

Recording Status

BPM recording status will be denoted with a blinking red light next to the RECORD button on the setup page and also at the bottom of the main page and totals page. The light reflects the status of the recording source chosen by the operator (blinking means recording on, white means recording off). In APM, the Green arrow pointing down denotes In-Work status.

PC9097 —UN—17APR06



Recording Status – BPM

PC9098 —UN—17APR06

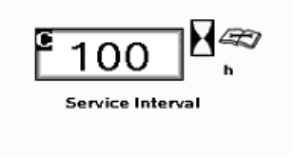
Recording Status - APM

OUO6050,000230C -19-30SEP09-1/3

Service Intervals

The operator is able to view and change the Service Intervals Field. When the operator changes the Service Interval, the Hours Since Last Service value will remain unchanged. If the operator sets the interval to zero, the Service Interval function will be disabled. The valid range is 0 - 990 hours. When 'Service Interval' – 'Hours Since Service' is less than 20 hours to next service, the operator will see an alarm saying "The vehicle is due for service in XX hours." After the alarm is cleared by the operator, it will not display again until the next power cycle. The first figure below shows the service interval input field, while the second figure shows the alarm box when the vehicle needs to be serviced.

PC9099 —UN—17APR06



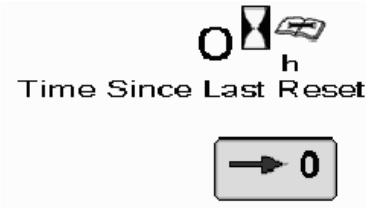
Service Interval

OUO6050,000230C -19-30SEP09-2/3

Hours Since Last Service

The operator is able to manually reset the hours since service value, at which time an alarm will display confirming that the total should be reset. The first figure below shows the reset button for hours since service and the second shows the confirmation alarm. On CAN-Based vehicles, the operator will need to select and HOLD the reset button for 3 seconds. See list of CAN-Based vehicles in APM section.

PC9100 —UN—17APR06



Time Since Last Reset

OUO6050,000230C -19-30SEP09-3/3

PERFORMANCE MONITOR CALIBRATIONS

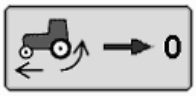
Percent Slip Zeroing

The operator is able to calibrate the wheel slip to zero on certain vehicles if radar is installed.

NOTE: Wheel slip zeroing and radar calibration are not possible on CAN based vehicles in the BPM. The only time the user will be able to perform wheel slip zeroing is if they are on a CCD vehicle.

When the operator initiates this function, the radar will be commanded to a new wheel speed calibration such that the % slip is now zero. If the system determines a calibration is not possible under the current operating conditions, then an alarm will be issued stating the calibration was not successful. The first figure below shows the zero slip button that when selected brings up the wheel slip calibration page. The remaining figures

PC9118 —UN—17APR06



Zero Slip Button

show the calibration pages for a successful or failed slip calibration.

NOTE: Vehicle must be traveling between 7 and 9 km/h (4.5 to 5.5 mph) before the zero slip button will be enabled

Reset % slip value by driving the vehicle on a hard level surface at a constant speed of 8 km/h (5 mph). Select and hold % slip switch for a minimum of 3 seconds to zero out slip. It is recommended to have an implement connected to the vehicle but not engaged in the ground (no load).

OUO6050,0000CDA -19-01SEP09-1/2

Radar Calibration

The operator is able to calibrate the radar through a series of steps, illustrated in the following figures.

- The operator initiates the calibration procedure by selecting the calibrate radar button.
- Measure out a 123 m (400 ft) course, and select “Start Calibration” at the beginning of the course.
- Drive the course and then hit stop at the end of the course.

NOTE: The radar cannot be calibrated unless on a CCD-Based vehicle. The only exception to this is if you directly hook the radar to the display via the Greenstar harness direct radar connection, then radar calibration is possible on a CAN-Based vehicle. See notes below for configuring radar on a CAN based tractor (See CAN-Based vehicle list in APM section).

PC9119 —UN—17APR06

Radar Calibration button

If the calibration was not successful, the operator will be taken back to the first calibration screen.

OUO6050,0000CDA -19-01SEP09-2/2

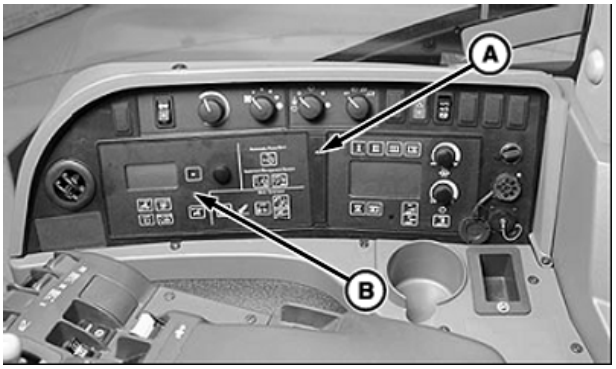
Configuring Tractor For DIRECT GPS or Ground Based Radar Feed (CAN-Based Vehicles ONLY)

NOTE: If you have any questions, your John Deere dealer can assist in field installing GPS or a radar device. CAN-Based tractors equipped with radar must be re-configured when switching to GPS receiver as the true ground speed input signal or vice versa for calibrating the ground based radar.

Certain CAN-Based vehicles will need CCU and TECU vehicle address configuration changes to enable radar operation. Please see your John Deere Dealer for service support.

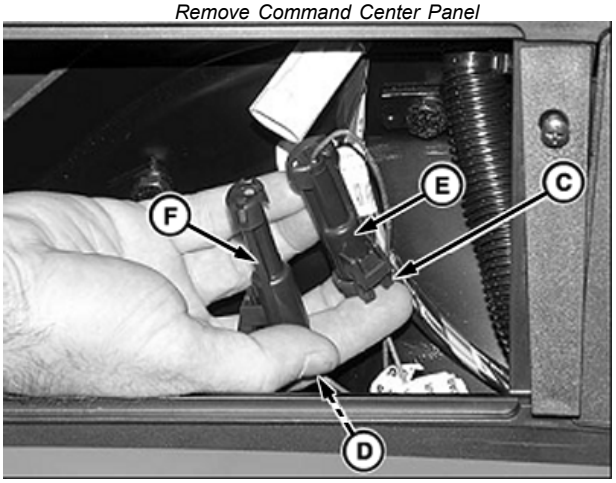
1. Remove screw (A) and Command Center (B).
2. Inside right-hand console locate console one wire lead marked ”GPS” and one marked ”Radar”.
3. Remove radar plug (C) from wiring connector (E).
4. Remove GPS plug (D) from dust cap (F).
5. Install GPS plug into connector and radar plug into dust cap.
6. Install Command Center with previously removed screw.

A—Screw
B—Command Center
C—Radar Plug
D—GPS Plug
E—Connector
F—Dust Cap



PC9120 —UN—17APR06

Remove Command Center Panel



PC9121 —UN—17APR06

Connect GPS side of Harness

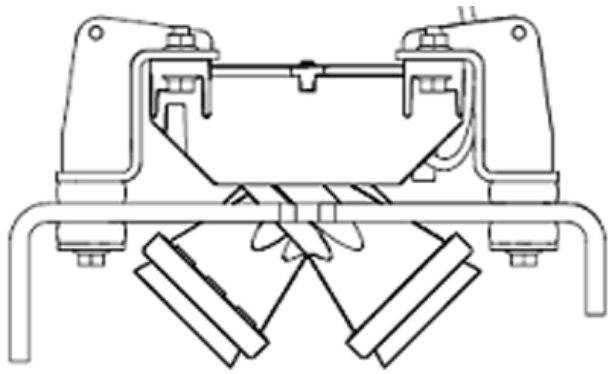
OUO6050,0000CDB -19-08NOV07-1/1

Dual Beam Radar Sensor Only (Automatic Calibration)

On tractors equipped with factory or dealer installed dual beam radars, it is not necessary to calibrate vehicle speed. Reset % wheel slip value if:

- Wheel speed and radar speed are not equal when slip is not present
- Wheel slip is displayed where slip should not be present
- Change tire size

Reset % slip value by driving tractor on a hard level surface at a constant speed of 8 kph (5 mph). Press and hold % Slip Switch (A) for a minimum of 3 seconds to zero out slip. It is recommended to have an implement connected to the tractor but not engaged in the ground (no load).



PC9122 —UN—17APR06

OUO6050,0000CDC -19-31OCT07-1/1

RADAR CONNECTION SIGNAL VALIDATION (BPM MODE ONLY)

1. Ensure the radar connected check box is checked in the BPM setup screen. This check box will only display in BPM mode. In APM mode, radar feed is designated by the wire connection behind the command center denoted in the Configuring Tractor section.

   The GS2 display will display the GPS radar feed value when connected. This value should be 57.42 during normal operation. To view this value once connected

PC9123 —UN—17APR06

Radar Connected Checkbox

OUO6050,0000CDD -19-31OCT07-1/7

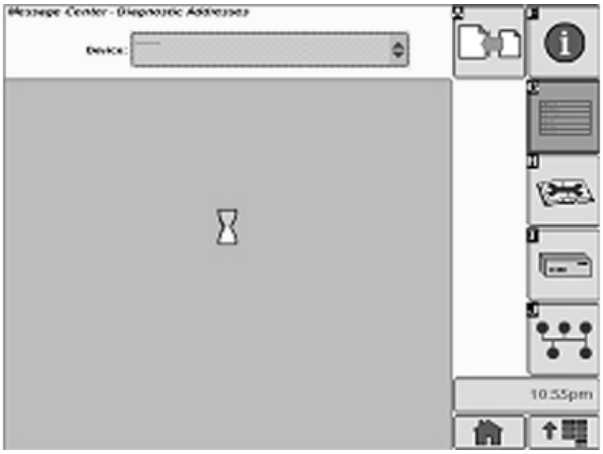
2. Select the Clock Icon

PC9124 —UN—17APR06

Clock Icon

OUO6050,0000CDD -19-31OCT07-2/7

3. Select Soft Key G



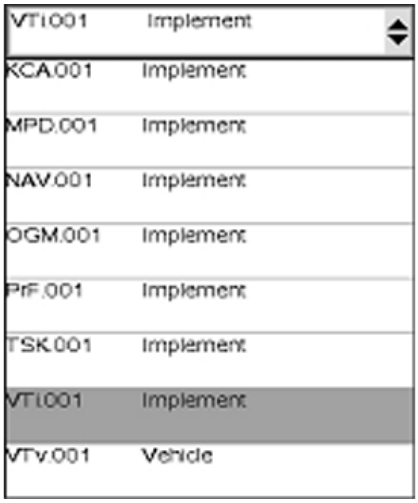
PC9125 —UN—17APR06

Softkey G

Continued on next page

OUO6050,0000CDD -19-31OCT07-3/7

4. Select VTi.001Implement in the drop down menu

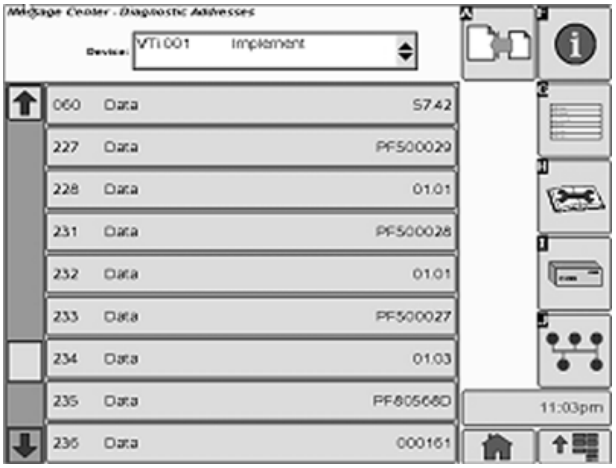


PC9126 —UN—17APR06

VTi.001Implement

OUO6050,0000CDD -19-31OCT07-4/7

5. Scroll down until you see Address 60



PC9127 —UN—17APR06

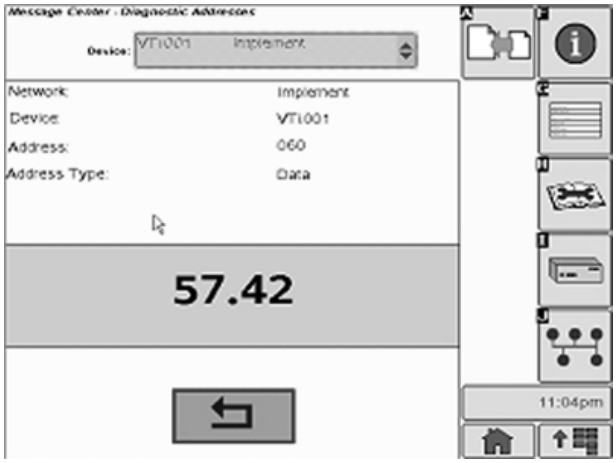
Address 60

Continued on next page

OUO6050,0000CDD -19-31OCT07-5/7

6. Address 60 should display 57.42 if radar is feeding from the iTC GPS receiver

If this value is 57.42, you are directly feeding GPS radar signal. Ground based radars will display approximately the same values when connected. If zero is displayed, no radar signal is being seen, GPS nor Ground Based.



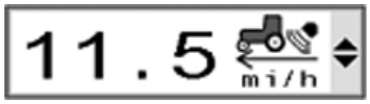
Display 57.42

OUO6050,0000CDD -19-31OCT07-6/7

If operating a CAN-Based vehicle and actual speed (not 0.000) is displayed in on the radar input screen, the vehicle IS seeing a direct radar signal, either GPS or Ground Based Radar, depending on the position of the radar signal wire connection located behind the command center.

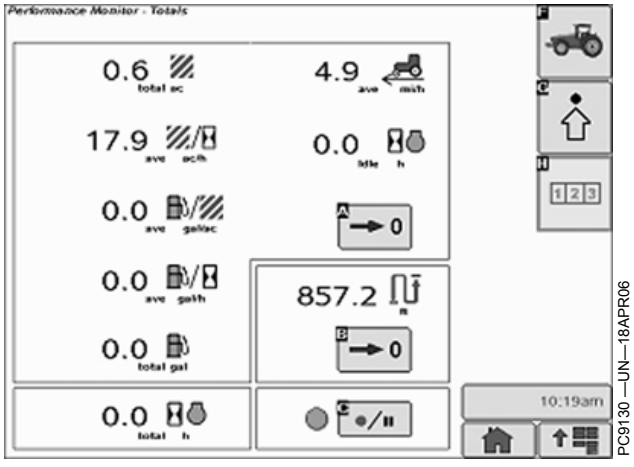
Certain CAN-Based vehicles will need CCU and TECU vehicle address configuration changes to enable radar operation. Please see your John Deere Dealer for service support.

PC9129 —UN—17APR06

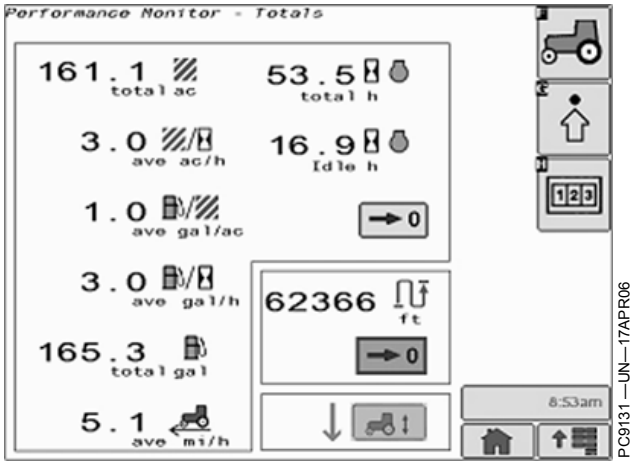


OUO6050,0000CDD -19-31OCT07-7/7

PERFORMANCE MONITOR TOTALS SCREEN



BPM Totals Screen



APM Totals Screen

The totals screen of the PM application contains three sections: the first contains the averages for many of the instantaneous functions from the main page, the second contains the total distance and a reset button, and the third contains the record button. All of the items will be stored in memory so the values will be retained between vehicle power cycles. Totals and Settings Screens will remain identical in both the APM and BPM applications.

Continued on next page

OUO6050,0002311 -19-01SEP09-1/12

Total Area

This is the area covered by the implement since the last time this counter was reset. The area is calculated from the implement / header width, speed source (priority is GPS speed, radar speed, wheel speed), and the Recording Source set in Performance Monitor. If Recording is off, area will not accumulate. If the value exceeds 9999.9, the counter will reset to zero.

NOTE: The Implement Width does not change with Overlap Control like in GreenStar Totals, so the area value may be different from the value in GreenStar Totals.

PC9086 —UN—17APR06

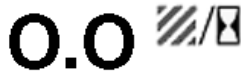
Total Area

OUO6050,0002311 -19-01SEP09-2/12

Average Productivity

Average productivity is calculated from the total area and total time accumulated while the vehicle is moving and recording since last reset.

PC9087 —UN—17APR06



Average Productivity

OUO6050,0002311 -19-01SEP09-3/12

Average Fuel Per Area

Average fuel per area is calculated from the total fuel used and total area accumulated since last reset.

PC9088 —UN—17APR06

Average Fuel Per Area

OUO6050,0002311 -19-01SEP09-4/12

Average Fuel Economy

PM will use the absolute fuel consumption and an internal timer that is incremented as soon as the engine is running since last reset to compute the average fuel per hour.

PC9089 —UN—17APR06

OUO6050,0002311 -19-01SEP09-5/12

Total Fuel Used

If available from the vehicle, the operator will be able to view total fuel used in liters (or gallons) since last reset. The value can be manually reset by the operator.

PC9090 —UN—17APR06

Total Fuel Used

OUO6050,0002311 -19-01SEP09-6/12

Average Operating Speed

The PM will maintain a value that represents the average operating speed of the machine when the machine is moving. These units will be expressed in terms of distance/time. The PM will calculate the value by dividing the total distance traveled by the vehicle (since the last reset) by the total engine hours accumulated when the vehicle is moving (since the last reset). Hours accumulated when the vehicle is sitting still will not contribute to these calculations.

PC9091 —UN—17APR06

Average Operating Speed

Continued on next page

OUO6050,0002311 -19-01SEP09-7/12

Total Engine Hours

Engine hours are a value that represents the number of tenths of an hour that the vehicle's engine has run since last reset. Engine hours are only incremented when the engine RPM's are above 0.

PC9092 —UN—17APR06

Total Engine Hours

OUO6050,0002311 -19-01SEP09-8/12

Total Idle Time

The operator will be able to view a value that represents how much time the vehicle has spent in the idle state. This value will increment any time the vehicle is running and is at idle. The vehicle is considered to be at idle if all of the following conditions are met:

- Engine RPM is above 0
- Vehicle is not moving based on radar, GPS, or wheel speed sensor
- Front and Rear PTO are disabled

PC9093 —UN—17APR06

Total Idle Time

- All SCV's are in neutral or float

If all of the conditions listed above are met, the application will count/record how much time is spent at idle.

OUO6050,0002311 -19-01SEP09-9/12

Total Distance

The total distance counter will accumulate any time the tractor is moving (regardless of recording status or speed input). The distance counter that appears on the main screen is the same counter that appears on the totals screen.\

PC9094 —UN—17APR06

Total Distance

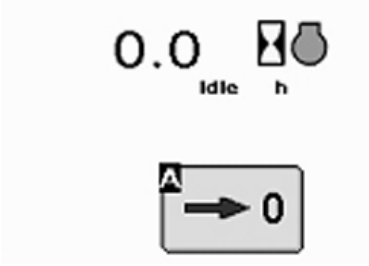
OUO6050,0002311 -19-01SEP09-10/12

Resetting Totals

Many of the counters/totals can be reset by the operator. This capability will be accomplished via two different reset buttons. Alarms will display to confirm the actions before the totals are reset.

NOTE: When operating with APM, you must HOLD DOWN the reset button for 3 seconds to clear out the totals.

Reset Area Totals (this will reset all values on the totals page except distance)

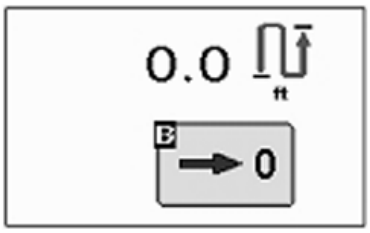


PC9132 —UN—18APR06

Reset Area Totals

OUO6050,0002311 -19-01SEP09-11/12

Reset Distance (only resets the distance counter)



PC9133 —UN—17APR06

Reset Distance

OUO6050,0002311 -19-01SEP09-12/12

ADVANCED PERFORMANCE MONITOR (APM)

This section covers only those additional functions that become available when operating APM

The APM is only available on CAN electronic based John Deere vehicles with a TECU controller which include the following:

Tractors	8030's	
	7030's	7020's
	6020's	
Combines	9060's	9050's

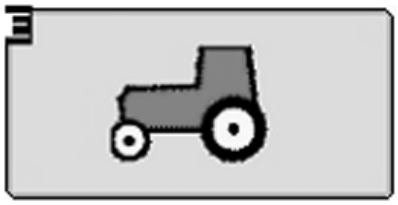
If the GS2 display is connected to one of the vehicles above, the BPM automatically becomes disabled and will not be a selectable option in the menu.

The APM application contains all functions of the BPM plus an additional 7 functions.

When the GS2 Display is connected to John Deere CAN electronic based vehicles the following real-time functions become available:

- Wheel and Radar or GPS Speed
- % Wheel Slip
- Instantaneous Productivity

PC9134 —UN—17APR06



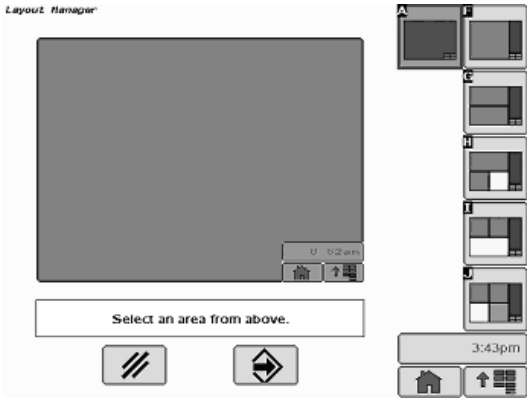
APM Icon

- Area Counter
- Distance Counter
- Engine Speed (RPM's)
- Rear Hitch Position
- System Voltage
- Engine Coolant Temp
- Engine Oil Pressure
- Hydraulic Oil Temp
- Transmission Oil Temp

Optional items based on vehicle platform and configuration are:

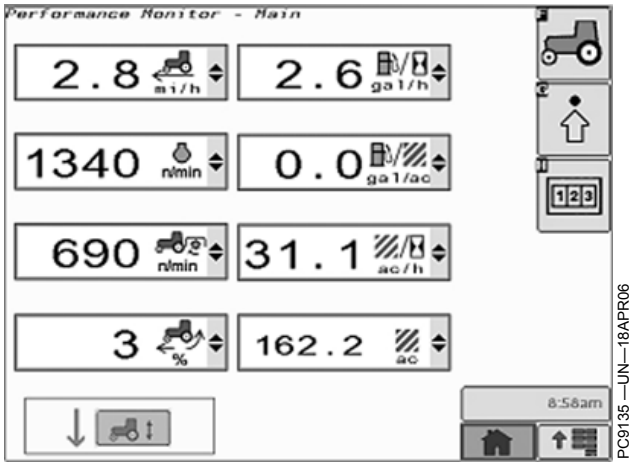
- PTO Status (Front & Rear)
- Fuel per Hour
- Fuel per Area
- Radar Connection and Calibration

OUO6050,0002312 -19-07OCT08-1/3



PC9034 —UN—17APR06

Layout Option A



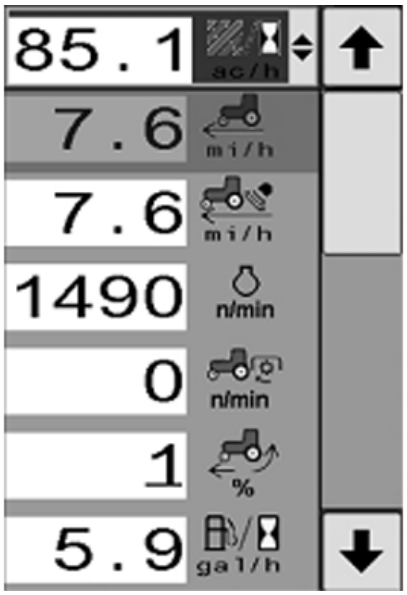
PC9135 —UN—18APR06

Run Screen for APM in Layout A

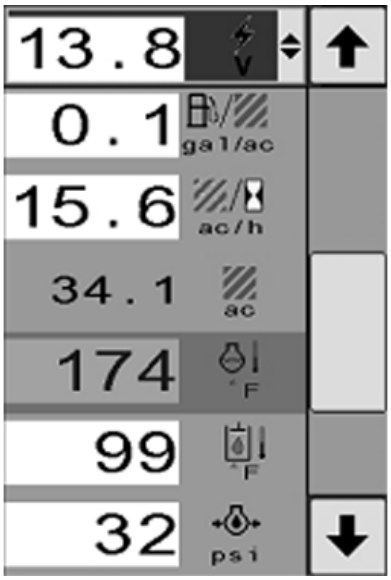
The APM is only available in layout manager option A as seen in the example image below. APM will not function in any other screen layouts currently.

Continued on next page

OUO6050,0002312 -19-07OCT08-2/3



PC9136 —UN—18APR06



PC9137 —UN—18APR06

Drop down menus for APM selectable functions

NOTE: 8030's and 7030's will NOT display TIME TILL EMPTY in the GS2 display even though it is available in the tractor command center.

Totals and Settings Screens will remain identical in both the APM and BPM applications.

In Work / Out of Work Status Indicator

The arrow will change based on the recording source.

- UP Arrow—displayed when NOT working
- DOWN Arrow—displayed when working

Status Recording for SCV Flow on CAN-Based Vehicles

For SCV recording on CAN-Based vehicles, the SCV will only change recording status if the SCV paddle goes through a detent 'click', not by canceling flow.

If detent flow is set to some time less than 'C' continuous:

- Retract detent completed changes the status to "in-work"
- (If set to 5 seconds, state changes after 5 seconds of flow, not at start of flow)
- Extend detent initiated changes the status to "not in-work"

If detent flow is set to continuous:

- Retract detent initiated changes the status to "in-work"

PC9138 —UN—18APR06

PC9139 —UN—18APR06

Out of Work

PC9140 —UN—18APR06

In Work

- Extend detent initiated changes the status to "not in-work"

Each SCV remembers its status through power cycles.

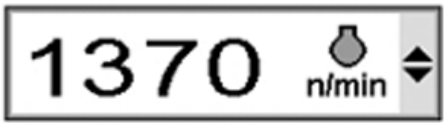
OUO6050,0002312 -19-07OCT08-3/3

Additional Functions Available in APM Mode

PC9141 —UN—18APR06

Engine Speed

Speed of the engine in RPM



Engine Speed

OUO6050,0002313 -19-07OCT08-1/6

PC9142 —UN—18APR06

Engine Coolant Temperature

Temperature of the engine coolant in ºC or ºF

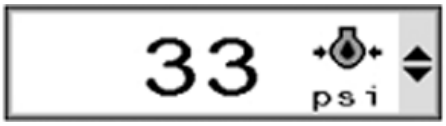
Engine Coolant Temperature

OUO6050,0002313 -19-07OCT08-2/6

PC9143 —UN—18APR06

Engine Oil Pressure

Pressure of engine oil in kPA or PSI



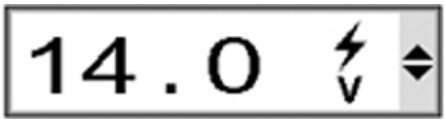
Engine Oil Pressure

OUO6050,0002313 -19-07OCT08-3/6

PC9144 —UN—18APR06

System Voltage

APM Battery system voltage



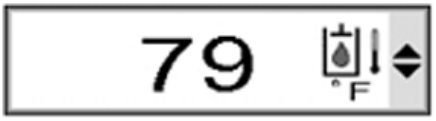
System Voltage

OUO6050,0002313 -19-07OCT08-4/6

PC9145 —UN—18APR06

Transmission Oil Temperature

The temperature of the transmission oil displayed in degrees ºC or degrees ºF



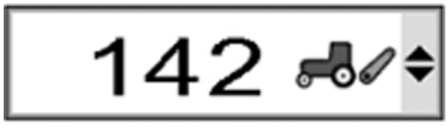
Transmission Oil Temperature

OUO6050,0002313 -19-07OCT08-5/6

PC9146 —UN—18APR06

Rear Hitch Position

APM Displays the current rear-hitch position and position limits



Rear Hitch Position

OUO6050,0002313 -19-07OCT08-6/6

Message Center

Message Center screen can be reached by selecting the Clock button (GS2 2600 display only) or MENU button then MESSAGE CENTER button (With Info Icon).

PC8664 —UN—05AUG05

MESSAGE CENTER button (showing time)

PC8663 —UN—05AUG05

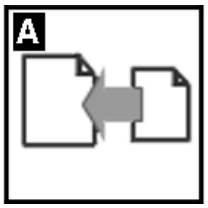
MENU button

PC8655 —UN—05AUG05

MESSAGE CENTER button (With Info Icon)

Continued on next page

OUO6050,0002327 -19-12OCT09-1/7

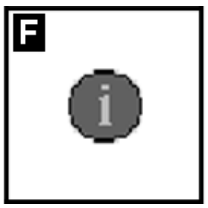


PC8665 —UN—05AUG05

COMPONENTS AND SOFTWARE VERSIONS button

PC8666 —UN—05AUG05

SOFTWARE INFORMATION button



PC8667 —UN—05AUG05

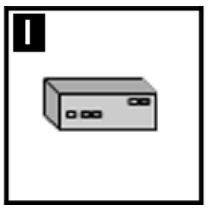
MESSAGES button

PC8668 —UN—05AUG05

DIAGNOSTIC ADDRESSES button

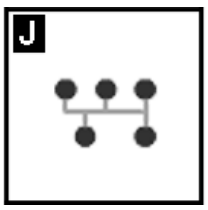
PC8669 —UN—05AUG05

TROUBLE CODES button



PC8670 —UN—05AUG05

Electronic CONTROL UNIT INFORMATION button



PC8671 —UN—05AUG05

BUS INFORMATION button

Message center will display all active alarms, alert messages and icons.

OUO6050,0002327 -19-12OCT09-2/7

Message Center Icons

These icons are used throughout Message Center.

PC8582 —UN—01NOV05

CANCEL

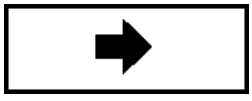
PC8648 —UN—01NOV05

CLEAR

PC8649 —UN—01NOV05

ENTER

PC8650 —UN—01NOV05



GOTO

PC8651 —UN—01NOV05

NEXT CAL

PC8652 —UN—01NOV05

RETURN

Continued on next page

OUO6050,0002327 -19-12OCT09-3/7

COMPONENTS AND SOFTWARE VERSIONS button will allow users to view all components on the network and the software versions loaded to them. You may also use the reprogram device button to reprogram a specific controller if necessary.

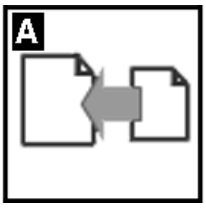
PC8663 —UN—05AUG05

MENU button

PC8655 —UN—05AUG05

MESSAGE CENTER button (With Info Icon)

PC8665 —UN—05AUG05



COMPONENTS AND SOFTWARE VERSIONS button

OUO6050,0002327 -19-12OCT09-4/7

Diagnostic Addresses

NOTE: Diagnostic addresses are available to access specific diagnostic information. This information can assist the John Deere Dealer in diagnosing problems. Different device controllers can be selected from drop-down box, as shown.

Select DIAGNOSTIC ADDRESSES button. The number of devices available will depend upon machine configuration. The list of addresses can be scrolled up or down with rotary thumb wheel. Selecting an address will show data for that address.

PC8663 —UN—05AUG05

MENU button

PC8655 —UN—05AUG05

MESSAGE CENTER button (With Info Icon)

PC8668 —UN—05AUG05

DIAGNOSTIC ADDRESSES button

Continued on next page

OUO6050,0002327 -19-12OCT09-5/7

Trouble Codes

Select TROUBLE CODES button, a list of controllers will appear and controllers with diagnostic codes are indicated.

Individual controllers can be accessed by navigating with rotary thumb wheel and selected by selecting ENTER button, to view codes for that controller.

Codes can also be displayed for all controllers by selecting SHOW ALL button with rotary thumb wheel and selecting ENTER button. Codes can be relayed to a John Deere dealer to assist in diagnosing machine problems.

PC8663 —UN—05AUG05

MENU button

PC8655 —UN—05AUG05

MESSAGE CENTER button (With Info Icon)

PC8669 —UN—05AUG05

TROUBLE CODES button

Continued on next page

OUO6050,0002327 -19-12OCT09-6/7

Device Info and Bus Status

When DEVICE INFO button is selected, controllers communicating on CANBUS communication system will be indicated. Message counts indicate quantity of communications from controller. When BUS STATUS button is selected, status of various communication networks will be indicated.

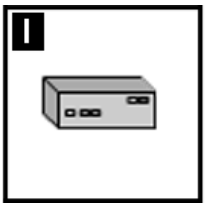
PC8663 —UN—05AUG05

MENU button

PC8655 —UN—05AUG05

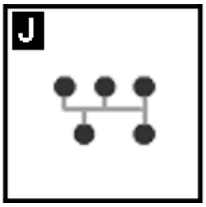
MESSAGE CENTER button (With Info Icon)

PC8670 —UN—05AUG05



Electronic CONTROL UNIT INFORMATION button

PC8671 —UN—05AUG05



BUS INFORMATION button

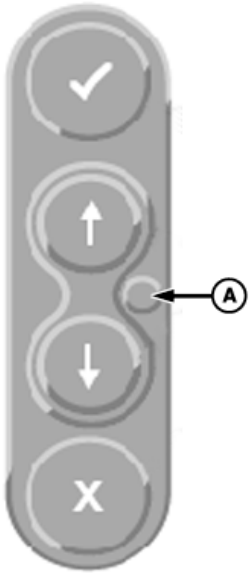
OUO6050,0002327 -19-12OCT09-7/7

Resetting Display

IMPORTANT: All setup data entered since power up could be lost when using reset button.

Should display fail to respond to operator inputs, system can be reset by selecting and holding the reset button for 3 seconds (until the light on the front of the display starts blinking). This will reboot system and restart all applications on display. If resetting the display is frequently required, contact a John Deere dealer. It is recommended to turn power off before attaching or removing implements and other electrical components on CAN Bus communication system.

A—DISPLAY RESET button



PC8705 —UN—17AUG05

OUO6050,0002328 -19-13OCT09-1/1

Pre-Season Checklist for Seeding

In the Office

- ☐ Review all current Operator's Manuals, Quick Reference Guides, Installation Instructions, and Product Updates
- ☐ Read and perform all implement calibration procedures for your machine(s)
- ☐ Review Prescriptions for Map Based Prescriptions in Apex

In Apex

NOTE: Apex is not available in all EAME countries.

- ☐ Ensure all farm and field names are entered and accurate
- ☐ Enter all seed varieties
- ☐ Enter all flags for tracking
- ☐ Ensure all data from Field Doc has transferred properly from JDOffice 1.5
- ☐ Save all data to your Compact Flash Card

In the Machine

- ☐ Make sure the display address is set to "primary"
- ☐ Adjust backlighting and contrast on the GS2 display
- ☐ Set record stop/delay height

In the Field

- ☐ Check StarFire receiver for GPS Signal
- ☐ Review Pre-Season Checklists for your specific machine and implement

NOTE: When checking for GPS signal, move machine to open view of sky and turn key to second position. If receiver has been stored for longer than six months, it may take the receiver one to two hours to lock on to a GPS and/or differential signal.

JS56696,00004E6 -19-01SEP09-1/1

Pre-Season Checklist for Guidance

In the Office

- ☐ Review all current Operator's Manuals, Quick Reference Guides, Installation Instructions, and Product Updates
- ☐ Read and perform all implement calibration procedures for your machine(s)

In Apex

NOTE: Apex is not available in all EAME countries.

- ☐ Ensure all farm and field names are entered and accurate
- ☐ Import A/B lines from Original GreenStar System or GS2
- ☐ Tie Global A/B lines to client, farm and field

In the Machine

- ☐ Adjust backlighting and contrast on the GS2 display
- ☐ Turn tracking to desired mode) Straight, Curve Track, RowFinder
- ☐ Unsure machine has latest SSU Software
- ☐ Set offsets
- ☐ Set steer sensitivity

In the Field

- ☐ Check StarFire receiver for GPS Signal

NOTE: When checking for GPS signal, move machine to open view of sky and turn key to second position. If receiver has been stored for longer than six months, it may take the receiver one to two hours to lock on to a GPS and/or differential signal.

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Pre-Season Swath Control Pro for Planters Checklist

1—2 Weeks Prior to Planting

NOTE: Apex is not available in all EAME countries.

- ☐ Become familiar with the product.
  The following resources are available on www.StellarSuport.com
  - ☐ Familiarize yourself with the GS2 by utilizing the online GS2 smiulator
  - ☐ Read the Swath Control Pro section of the GS2 Basics Operators Manual
  - ☐ Read the GS2 Rate Controller Operators Manual
  - ☐ Read the Swath Control Pro Settings Quick Sheet
- ☐ Make sure all software is updated to most recent versions:
  - ☐ GS2 version 2.01222 or higher
  - ☐ GS2 Rate Controller version 2.01k or higher
  - ☐ Apex 2.0 Production version or higher
- ☐ Record exterior and interior boundaries (if needed)
- ☐ Apex Setup
  - ☐ Input setup data into Apex (new varieties, crops, farm names, etc.)
  - ☐ Save setup data to your GS2 Compact Flash card
  - ☐ Insert Compact Flash card into GS2 and verify setup data was saved successfully

Day of Planting

- ☐ GS2 Rate Controller setup
  - ☐ Machine setup
  - ☐ Section setup
- ☐ Swath Control Pro setup
  - ☐ Clear any preexisting coverage maps for field (if needed)
  - ☐ Define minimize skips, minimize overlap or percent overlap for exterior, interior, and coverage areas
  - ☐ Setturn on/off times
- ☐ GS2 Documentation setup
  - ☐ Resources/Conditions—clent, farm, field, and task
  - ☐ Equipment—machine and offsets
  - ☐ Operation—seed type, brand, variety, rate, etc.
  - ☐ Prescriptions—choose prescription (if needed)
  - ☐ Verify sections
  - ☐ Verify offsets
- ☐ Enable Swath Control Pro (place check mark in box)
- ☐ Enable all sections through the GS2 or turn on section switches using the switchbox
- ☐ Turn on Master Switch (foot switch or switchbox)
- ☐ Make a partial or complete pass
- ☐ Verify seed placement by digging

Additional Resources—available on www.StellarSupport.com

- Swath Control QRG
- GS2 Rate Controller QRG
- Swath Control Pro Settings Quick Sheet
- GS2 button (H) Setup Guide
- Tips for Operating iTEC Pro and Swath Control Pro

JS56696,00004EA -19-01SEP09-1/1

Frequently Asked Questions

- **Q:** When I try to record in GreenStar 2, I get the message, Implement Recording Not Allowed. What do I need to do to fix this?

  A: Verify you have the correct Client, Farm, Field and Task set up under GS2 button (G). Then, make sure you have an operation setup in button (I). If you have Tillage, Product Application, or Other operation defined, verify you only have one operation set up. If running a Planting or Seeding operation, it is possible to set up a Product Application operation as well. If the error message remains, select button (C) and select Recording from the drop-down menu. This is a Recording Diagnostics page and will give you an idea of why the system will not allow recording.

- **Q:** I'm attempting to dial-in my AutoTrac Universal system and don't understand what each sensitivity is for.

  A: Refer to the AutoTrac Universal Quick Reference Guide that came with your AutoTrac Universal System, or print it off from the www.StellarSupport.com website. It defines these and other terms:

  Steer speed is how fast the ATU wheel turns.

  Acquire sensitivity is how aggressively the unit drives to the line.

  Line Sensitivity Tracking is used to keep the lateral error low. If your machine gets offline up to a foot, the Tracking Sensitivity may be set too low.

  Line Sensitivity Heading adjusts how much the unit corrects for heading error. If you see a lot of left and right steering, the Heading Sensitivity may be set too high.

  Each sensitivity has an optimum value that works best for the specific vehicle platform you are using. Refer to www.StellarSupport.com for recommended starting points for your vehicle platform.

- **Q:** I would like to use the coverage map feature in GreenStar 2. How do I properly set this up?

  A: Select GS2 button (A) and select Map Settings. Then select the drop-down menu for Foreground and select Coverage. This selection will paint the map a light blue color. If you are seeding or applying chemical, you can select either Seed Rate 1 or Product Rate 1 as Foreground. Either of these selections will color the map based on a legend that corresponds with the amount of seed or product applied.

- **Q:** My GreenStar 2 does not recognize setup data saved from Apex. What do I need to do to get this working properly?

  NOTE: Apex is not available in all EAME countries.

  A: First, verify Apex and GS2 software versions are compatible. For example, if you are running 1.1 GS2 software, make sure you have at least 1.1 Apex software. Next, when saving data to the card using Apex, make sure to have the proper items check marked (e.g. Enterprise, Products, Resources, etc.). Before saving to card, verify that you check mark Original GreenStar and/or GreenStar 2 (based on the system(s) you own) as well as choose the correct card drive letter. Click Save.

- **Q:** My AutoTrac Universal unit will not engage when I get a StarFire signal in the mornings. Do I have to drive around for a while before the resume switch engages AutoTrac Universal?

  A: ATU relies solely on the StarFire Receiver to obtain information about the direction you are traveling. Therefore, if the signal has been acquired, but no vehicle movement has taken place, the Direction under Info, AutoTrac will say unknown. Watch this Direction while driving forward in a gentle curve. As soon as it changes from Unknown to Forward the ATU unit will operate properly when you engage AutoTrac.

- **Q:** What is the proper way to cycle power on my GreenStar 2 display?

  A: Turn the key off, the screen will go dark and the green LED light in the bottom right corner will go out. After the LED light is off, it is safe to power the system back on. If the GS2 has been powered off for less than 24 hours, it will power right up to the last screen used. If it has been more than 24 hours, you will see the John Deere logo as well as a progress indicator at startup.

- **Q:** I want to use a prescription in my new GreenStar 2 system and I want to be able to see the as-applied map over the top of my anhydrous prescription layer. How do I set this up?

  A: Save the prescription to your compact flash card in Apex. Select GS2 button (A), and select Map Settings at the bottom of the page. Select the prescription as the background layer. Choose Product Rate 1 that comes from your approved controller as the foreground layer. Then configure your homepage with the desired information.

- **Q:** What causes the StarFire receiver signal strength bar on my GS2 homepage to turn orange and display an alert symbol?

  A: If the number of satellites in a solution drops to six or below, you are receiving a marginal signal which results in an orange bar and an alert sign. If there are less than five satellites in a solution, the bar will be red, indicating no GPS signal. For the bar to be green, there must be at least seven satellites in a solution.

Continued on next page

- **Q:** Why do I get message saying, Recording is Not Allowed when I try to turn GS2 Recording on even though my signal strength is good?

  A: This is a common error if multiple recording operations have been selected. Go to the GS2 menu and select GreenStar 2 Pro. Select button (I) to enter the GS2 Documentation screen, and make sure there are no duplicate operation tabs displayed at the top of the screen. If there are duplicates, select the operation that does not belong and select the “Remove” button.

- **Q:** I get the error message Implement Recording not allowed on my GreenStar 2 Display. What should I do about it?

  A: Check Diagnostics page (C) from the GreenStar 2 Pro Menu and change the view box from Deere GPS to Recording. This should tell you what recording was stopped, and you can make the necessary adjustments.

- **Q:** When I spray or plant using both the Original and GS2 Displays, I get error message "ID 234" or "Display address claim conflict." What does this mean and what should I do?

  A: Both displays are trying to run as the primary display. If the GS2 is the actual primary display, power down and unplug it, then power up again with only the Original GreenStar Display plugged in. Go to SETUP > ORIGINAL GREENSTAR MONITOR > DISPLAY ADDRESS and set it as the primary. Now plug in the GS2 Display with the power still running on the Original display. If you have two Original GreenStar displays, hook them up to the primary connections and turn on the power. Go to SETUP > ORIGINAL GREENSTAR MONITOR and select line D, so it shows as primary. Turn off the power, unhook the primary processor and display, and hookup the secondary display to the auxiliary connections. Power up and go to SETUP > ORIGINAL GREENSTAR MONITOR and select line D to set to Aux 1. Now power down and hook up the processor, primary display, and secondary display to the correct connections. Finally, power up once more. You may have to run Standard Run Page Layout from the Setup menu after you are set up.

- **Q:** I lost the StarFire iTC button from the GS2 Main Menu. How can I get it back?

  A: Go to MENU > MESSAGE CENTER > button (A), highlight GPS Receiver, select Reprogram Device and select current software (2.60Y). Contact your dealer if problem persists.

- **Q:** Why did my AutoTrac options disappear from my GS2 Display?

  A: First, check the GPS status to see if you are receiving signal, and ensure the Terrain Compensation Module is on and calibrated. You can also check the button (F) from the GreenStar 2 Pro Menu to see if the AutoTrac line shows as active. If not, call 1-888-GRN-STAR to activate it.

- **Q:** I used Swath Control Pro on my GS2 System on a field that I want to reapply, but the system shows the field as already covered and won’t allow me to spray it again.

  A: You need to create a new task so that same field will appear as a completely separate layer. The GS2 coverage map will then be blank, and you’ll be allowed to spray the field again.

- **Q:** What is Shading?

  A: Shading occurs when obstacles such as trees, buildings or other solid objects block all or part of a satellite(s) signal. GPS satellites emit two frequencies, L1 and L2. The L2 frequency is weaker than L1, and thin objects, like tree leaves, will block L2 easily where the L1 signal will go right through. To run AutoTrac, the StarFire requires a 5 satellites solution with full communication with the both the L1 and L2 frequencies from each satellite.

- **Q:** What is Optimize Shading?

  A: The Optimize Shading feature, available with StarFire iTC software versions 3.01K and newer, allows you to continue using AutoTrac when SF1/SF2 reception is degraded due to shading. Optimize Shading allows a minimum of 4 satellites in solution with only L1 communication to maintain running AutoTrac. Optimize Shading is only available with SF1 and SF2 on iTC receivers, and will not function with RTK or Gen 2 receivers. When using RTK, the Optimize Shading checkbox is still displayed, but it has no affect on the receiver. Optimize Shading can be used with both Original and GS2 displays.

- **Q:** Does Optimize Shading Affect AutoTrac Accuracy?

  A: Although Optimize Shading allows the user to continue using AutoTrac, it is operating on a degraded signal level and the operator can expect the system to be less accurate. Line jumps and shifts may be more prevalent. Optimize Shading does not affect GPS accuracy when all of the L1 and L2 frequencies are available to the receiver. It merely allows AutoTrac to stay engaged when GPS signal is degraded. If the receiver has full signal, Optimize Shading does not affect accuracy.

- **Q:** Should I Leave Optimize Shading on All the Time?

Continued on next page

A: Under most circumstances, Optimize Shading should be turned off. It should only be used in situations where the operator would like to continue running AutoTrac if a reduction in signal quality is expected and optimum AutoTrac accuracy is crucial. Optimize Shading should be turned off if during a critical operation whereby it would be preferable for AutoTrac to disengage during signal degradation than to continue running AutoTrac with reduced accuracy.

- **Q:** Does Optimize Shading Affect Documentation, Coverage Mapping or Swath Control?

  A: Having Optimize Shading checked will have no effect on Documentation, Coverage or Swath Control if degraded signal due to shading is encountered. Documentation, Coverage and Swath Control require a minimum of only 3D/ RTG to operate.

- **Q:** Can I run over my previously recorded adaptive curve lines?

  A: Yes, with a feature within adaptive curves called Repeat Mode which allows you to repeat over previously recorded adaptive curve lines. This is located by going to GS2 Pro, Guidance (B), Guidance Settings Tab, and selecting the Change button (next to the label Curve Track Settings). In here, there will a check box to turn on Repeat Mode.

- **Q:** How many iTEC Pro sequences can I have?

  A: The number of differently named sequences is limited only by the size of the data card.

- **Q:** How do I remove unused iTEC Pro sequences?

  A: Sequences are stored on the data card and cannot be deleted. Individual sequences cannot be removed, but sequences can have the functions edited or removed.

  NOTE: If contents of card are deleted your iTEC sequences will also be deleted.

- **Q:** What if I make a mistake naming an iTEC sequence, or don't have my sequences properly named?

  A: Currently we cannot edit the names of sequences after they have been accepted. If you make a mistake in renaming the sequence, (e.g 1770 Exterior Raise vs. 1770 Extrior Raise), there are a few options:

  a. Continue to setup the sequence, ignoring the error.
  b. Create a new sequence with the correct name.
  c. Start over with a blank card. In this instance, it will be necessary to get all desired setup data from at least Apex version 2.0 back on the card.

- **Q:** With multiple iTEC Pro sequences, how should I keep these organized?

  A: It is important to properly name the sequences. "Raise" and "lower" will likely be different for the interior passable and headland boundaries, as well as for different implements and tasks.

- **Q:** Why does my AutoTrac Universal (ATU) disengage for no apparent reason?

  A: When the ATU disengages, a Stop Code is generated and indicates why AutoTrac disengaged. On an Original GreenStar Display, you will find the Stop Code by going to INFO > AUTOTRAC. On a GS2, the stop code will be displayed in the top left corner of the GS2 Pro Guidance Screen or in GS2 Pro AutoTrac Universal Diagnostics. Explanation of the stop code can be found in ATU Quick Reference Guide.

JS56696,00004E8 -19-13OCT09-3/3

Reprogramming Error Codes

Error Number	Meaning	What to Do
8	Directory creation error	Reprogramming could not create a directory on the internal file system. User should try again, but the session may fail again.
12	Missing update file	Check that all update files have been correctly saved to the compact flash card (all files listed in ManifestFile.sdm should be on the card in their proper path).
14	File read error	Reprogramming was not able to read one of the update files. Check for file corruption when the files were saved to the card.
16	File write error	Reprogramming was not able to write one of the update files to internal flash. File system cleanup problem, reboot the display and try again.
37	Invalid file handle	Reprogramming received a file handle that was not valid, check validity of card to make sure it matches the original image.
44	Checksum failed	Reprogramming calculated a checksum that did not match the expected checksum. Check that all files match the original image.
45	Controller file invalid	Reprogramming parsed a file for a PF controller that was invalid. Check that all files match the original image.
47	Incompatible hardware	Customer is using an incorrect hardware revision version as the reprogramming image for the display. Make sure you have the correct image for the display hardware.
48	Update file invalid	The reprogramming ManifestFile.sdm file has been corrupted. Make sure the file matches the original image.
51	User aborted	User removed the compact flash card during a reprogramming session. Repeat the reprogramming process with the compact flash card inserted the entire session.
55	Controller flash erase failed	A PF controller could not erase its flash memory.
56	Message missing colon	A PF controller received a record that was missing a colon. Customer could try reprogramming the controller again in case of a bus error.
57	Record too long	A PF controller received a record that was too long. Customer could try reprogramming the controller again in case of a bus error.
58	Invalid record length	A PF controller received a record that was not the expected length. Customer could try reprogramming the controller again in case of a bus error.
59	Sequence error	A PF controller received a record that was out of the expected sequence. Customer could try reprogramming the controller again in case of a bus error.
60	Controller received odd address	A PF controller received a record that had an invalid address. Customer could try reprogramming the controller again in case of a bus error.
61	Controller timed out	A PF controller stopped responding to the display during a reprogramming session. Check connection to the controller, may require a power cycle. If communication is resumed, repeat the reprogramming session.
62	NOR flash reprogramming problem	There was an error with trying to reprogram the NOR flash boot application image.
63	Unknown controller response	A PF controller returned a response that the display did not know how to interpret.
81	Reprogramming session failed	Generic notification that some part of the reprogramming session failed. Another error will be reported in addition to this one to indicate the specific failure mode.

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Alarm Screens

SPN.FMI	Applicable Failure Mode	Recommended Solutions
158.3	VTI Switched Supply Voltage Too High	The voltage level of the switched power is greater than the nominal. Turn off the ignition key, then turn it back on. If this diagnostic code shows up again, check power supply wiring. Please contact your John Deere dealer.
158.4	VTI Switched Supply Voltage Too Low	The switched power voltage is below the nominal. Turn off the ignition key and turn it back on. If this diagnostic code shows up again, check the battery. Please contact your John Deere dealer.
168.3	Unswitched Supply Voltage Too High	The voltage level of from the battery power supply is greater than the nominal. Cycle power on the display. If this diagnostic code shows up again, check wiring. Please contact your John Deere dealer.
168.4	Unswitched Supply Voltage Too Low	The voltage level from the battery is lower than the nominal. Cycle power on the display. If this diagnostic code shows up again, check battery power and recharge it as needed. Please contact your John Deere dealer.
1386	Display Unit Temperature Too High	The LCD backlight was not turned off when the temperature was above the highest limit. Please contact your John Deere dealer.
1386.1	Display Unit Temperature Too Low	The LCD backlight was not turned off when the unit temperature was below the lowest limit. Contact you John Deere Dealer.
3597.2	Regulate Voltage 5.0 v Abnormal	The 5.0 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
3598.2	Regulated Voltage 1.5 v Abnormal	The 1.5 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
3599.2	Regulated Voltage 3.3 v Abnormal	The 3.3 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
523310.12	Non-Volatile Memory Read/Write Failure	Failed to read/write from/to the NOR flash. See your John Deere dealer.
523771.3	CCD+ Line Voltage Too High	The voltage on the CCD_HIGH line of the CCD network is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523771.3	CCD+ Line Voltage Too Low	The voltage level on the CCD_HIGH line of the CCD network is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523772.4	CCD- Line Voltage Too High	The voltage on the CCD_Low line of the CCD network is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523772.4	CCD- Line Voltage Too Low	The voltage level on the CCD_Low line of the CCD network is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523773.3	Vehicle CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Vehicle Bus (Tractor Bus) is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523773.4	Vehicle CAN+ Line Voltage Too Low	The voltage level on the CAN_HIGH line of the Vehicle CAN Bus (Tractor CAN Bus) is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523774.3	Vehicle CAN- Line Voltage Too High	The voltage on the CAN_LOW line of the Vehicle Bus (Tractor Bus) is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the wiring.
523774.4	Vehicle CAN- Line Voltage Too Low	The voltage level on the CAN_LOW line of the Vehicle CAN Bus (Tractor CAN Bus) is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
524050.12	Real Time Clock Malfunction	Real Time Clock malfunctioned. It may be caused by the damage on the RTC chip or no power applied to the chip.
524215.3	Implement CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Implement Bus is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
524215.4	Implement CAN+ Line Voltage Too Low	The voltage on the CAN_HIGH line of the Implement Bus is below 0.5 v Cycle power on the display. If this diagnostic code shows up again, check the battery power and recharge the battery as needed.
524217.3	Implement CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Implement Bus is above nominal. Cycle power on the display. If this diagnostic code shows up again, check wiring.
524217.4	Implement CAN+ Line Voltage Too Low	The voltage on the CAN_LOW line of the Implement Bus is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery power and recharge the battery as needed.

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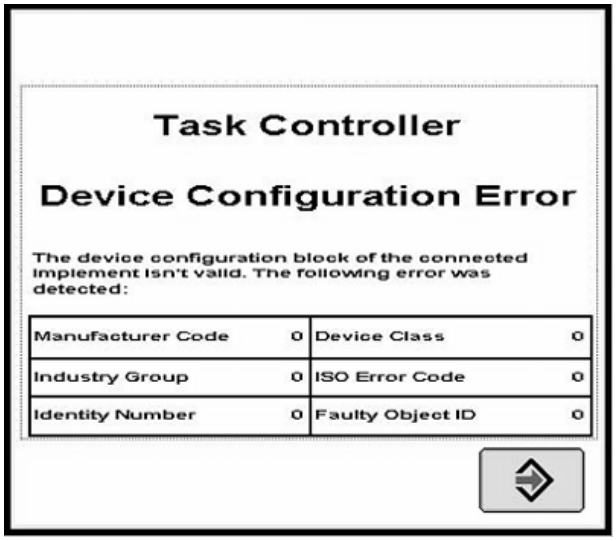
Task Controller Alarms

Alarm, Task Controller, Device Configuration Error, The device configuration block of the connected implement isn't valid. The following error was detected: Manufacturer Code:, Industry Group:, Identity Number:, Device Class:, ISO Error Code:, Faulty Object ID:

This alarm screen will be displayed whenever an error in the received Device Configuration Description of the ISO implement was detected. Please contact your John Deere Dealer or the manufacturer of the implement.



PC9745 —UN—24SEP09

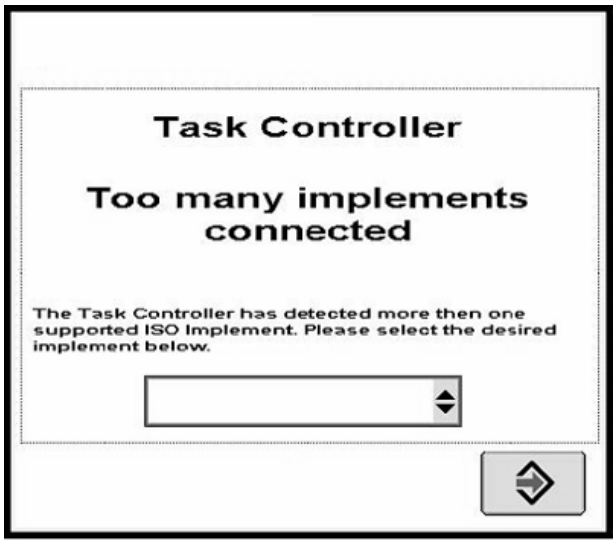
Device Configuration Error

OUO6050,0000CF8 -19-13OCT09-1/6

Alarm, Task Controller, Too Many Implements Connected, The Task Controller has detected more than one supported ISO implements. Please select the desired implement below.

This alarm screen will be displayed whenever the ISO Task Controller unit detects more then one compatible ISO implement on the ISOBUS. The pull down list will contain all found ISO implements which can be used for documentation purposes. Each ISO Implement is listed in the following format: 10 chars of manufacturer name + 10 chars of the implement type + ISO network address in the hex format.

Example: John Deere Sprayer with ISO Network Address 0x81: John Deere-Sprayer-81x



PC9746 —UN—24SEP09

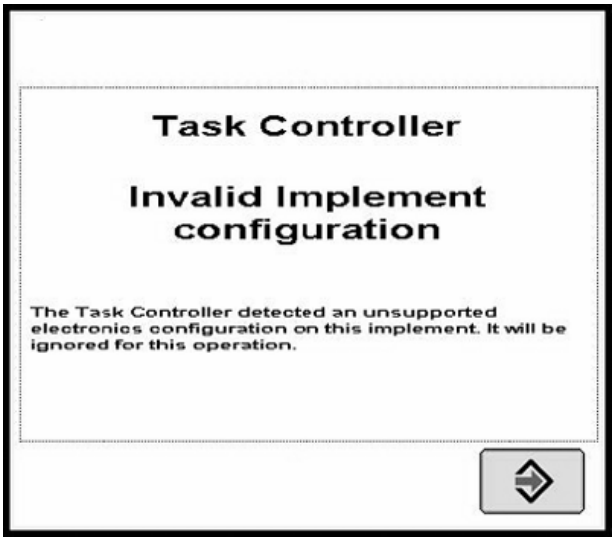
Too Many Implements Connected

Continued on next page

OUO6050,0000CF8 -19-13OCT09-2/6

Alarm, Task Controller, Invalid Implement Configuration, The task controller detected an unsupported electronics configuration on this implement. It will be ignored for this operation.

This alarm screen will be displayed whenever an ISO implement is detected, which has member controllers. The John Deere Task controller does only support ISO implements with a master controller and no member controllers.



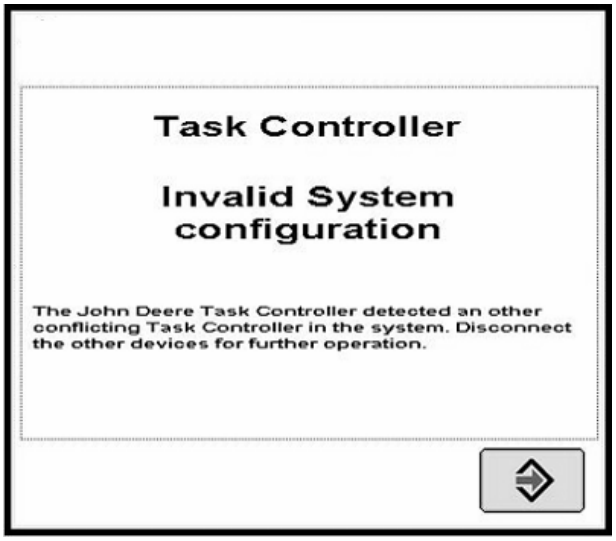
PC9747 —UN—24SEP09

Invalid Implement Configuration

OUO6050,0000CF8 -19-13OCT09-3/6

Alarm, Task Controller, Invalid System Configuration, The John Deere task controller detected an other conflicting task controller in the system. Disconnect the other device for further operation.

This alarm screen will be displayed whenever another ISO Task Controller is found on the ISOBUS. Disconnecting of the other Task Controllers is required because an ISO implement can only work with one Task Controller, which is in most cases the first one. When this alarm screen is displayed the John Deere Task Controller is not the first one, and cannot use the ISO implements for documentation purposes.



PC9748 —UN—24SEP09

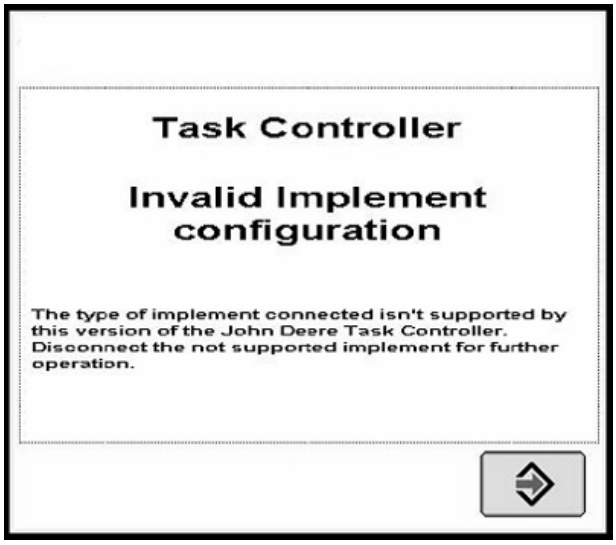
Invalid System Configuration

Continued on next page

OUO6050,0000CF8 -19-13OCT09-4/6

Alarm, Task Controller, Invalid Implement Configuration, The type of implement connected isn't supported by this version of the John Deere task controller. Disconnect the not supported implement for further operation.

This alarm screen will be displayed whenever an ISO implement is detected which is not from type sprayer or seeder/planter. All other ISO implement types are ignored by the John Deere Task Controller and cannot be used for documentation purposes.



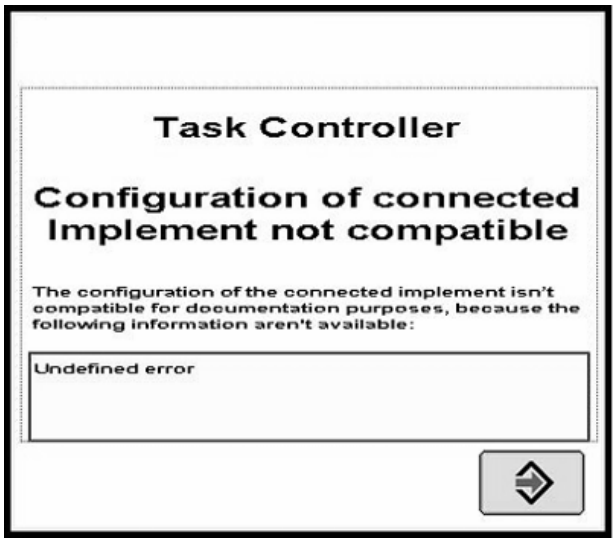
PC9749 —UN—24SEP09

Invalid Implement Configuration

OUO6050,0000CF8 -19-13OCT09-5/6

Task Controller, Configuration of the connected implement not compatible, The configuration of the connected implement isn't compatible for the documentation purposes, because the following information isn't available:

This alarm screen will be displayed whenever an implement is detected which is not compatible with Field Doc, because some information is missing from the ISO implement which is required for automatically setup of Field Doc for documentation purposes. The missed information is displayed in the message box of the alarm screen. Please contact your John Deere Dealer or the manufacturer of the implement.



PC9750 —UN—24SEP09

Configuration of Connected Implement Not Compatible

OUO6050,0000CF8 -19-13OCT09-6/6

Diagnostic Addresses

MESSAGE CENTER button > DIAGNOSTIC ADDRESSES button > DEVICE drop down box > “VT;.001 Implement”

PC8655 —UN—05AUG05

MESSAGE CENTER button

PC8668 —UN—05AUG05

DIAGNOSTIC ADDRESSES button

Address Number	Address Name
008	Unswitched Power Supply Voltage
009	Switched Power Supply Voltage
010	Unit Internal Temperature
011	Vehicle CAN - Bus Status
012	Vehicle CAN - CAN HIGH Voltage
013	Vehicle CAN - CAN LOW Voltage
015	Implement CAN - Bus Status
016	Implement CAN - CAN HIGH Voltage
017	Implement CAN - CAN LOW Voltage
018	Flash Wear Count
019	Hours of Operation
020	1.5 v Regulated Power Supply Voltage
021	3.3 v Regulated Power Supply Voltage
022	5.0 v Regulated Power Supply Voltage
023	Radar Input Status
024	Implement Switch Status
025	External Analog Input Voltage
026	Compact Flash Drive Status
028	CCD Bus - Bus Status
029	CCD Bus - Positive Voltage
030	CCD Bus - Negative Voltage
031	Bezel Key Status
032	Real Time Clock (RTC)
033	Maximum Sleep Time
038	Synchronize Brightness
039	Daytime Luminance
040	Daytime Luminance Balance Ratio
041	Nighttime Luminance
042	Nighttime Luminance Balance Ratio
043	Internal Speaker Volume
044	Display ISO Function Instance
045	Settings - Country Code
046	Settings - Language Code

Continued on next page

Address Number	Address Name
047	Settings - Numeric Format
048	Settings - Date Format
049	Settings - Time Format
050	Settings - Units of Distance
051	Settings - Units of Area
052	Settings - Units of Volume
053	Settings - Units of Mass
054	Settings - Units of Temperature
055	Settings - Units of Pressure
056	Settings - Units of Force
057	Settings - GPS Time Sync
058	Settings - Current Date
059	Settings - Current Time
060	Radar Calibration Constant
227	Boot Block Program Part Number (Software)
228	Boot Block Program Version Number (Software)
231	Board Service Package Part Number (Software)
232	Board Service Package Version Number (Software)
233	Virtual Terminal Part Number (Software)
234	Virtual Terminal Version Number (Software)
235	Device Part Number (Hardware)
236	Device Serial Number (Hardware)
247	Current Vehicle Model Number
248	Current Vehicle Serial Number
249	Original Vehicle Model Number
250	Original Vehicle Serial Number

OUO6050,000232B -19-01SEP09-2/2

Trouble Code Pop-Up Boxes—Platform Core Software

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
CAN bus inbound communications overload.	CAN bus communications overload. Reset the display or turn the power off and then back on.
When an implement's object pool is rejected by the VT	There is a technical problem preventing proper operation of the display with the following implement. Please contact implement manufacturer with this information:
A valid card is inserted that contains bad setup data.	The setup data on the compact flash card is invalid. Please resave the setup data to the card from your computer.
A valid card is inserted that contains bad setup data that cannot be read by this version of the display software.	The setup data on the compact flash card can not be read by the display. Please update your display software.
A card is inserted that can not be used by the display	The compact flash card is not compatible with the display. Please use a different card.
If the user is in the middle of setting up a new operation and they switch to the homepage, the apps on the homepage would be disabled in that case. Similarly, if the user was changing the status of a job, the apps on the homepage would be disabled. In both of these cases there is no error	There is an alarm or pop-up within the GreenStar 2 application that requires your attention.
Data Card 90% Full	Unload and cleanup data card or insert new data card soon.
Data Card Full	Unload and cleanup data card or insert new data card.
VI Implement is removed	Communication lost with ISO implement. If implement was not disconnected, check connections and cycle power.
Internal Memory Full--From VI Object Pools	Internal memory dedicated to ISO implements is full. Remove implements to free memory space.
Internal Memory Full-From Documentation and Curved Track data	Internal memory is full.
New software found for display	New software found for display. (This alarm will re-appear at every power cycle or if card is re-inserted.)
The following VI(s) are no longer communicating with the display. Check the indicated device(s) and CAN bus wiring.	Some device(s) are no longer communicating with the display. Check the CAN Bus wiring.
CAN bus inbound communications overload.	CAN Bus communications overload. Reset the display or turn the power off and then back on.
A failure has been detected in the display's internal memory. (Reprogramming)	An error occurred during reprogramming. Perform reprogramming process again. If problem reoccurs contact your John Deere dealer.
Legacy device reprogramming error. Device not reporting version info	An error occurred during reprogramming. Perform reprogramming process again. If problem reoccurs contact your John Deere dealer.
Legacy device not found while programming product	Device not found while programming product. Check wiring and connectors.
Attempt to copy the setup data to a "new" card that already has setup data on it	Prior setup data found on card. Select CONTINUE button to overwrite this data. Select CANCEL button to abort the copy to card operation. (If the user decides to continue, there will be a second popup)"Are you sure you want to overwrite?"
Wrong activation code	Invalid activation code. Please reenter activation code.
Customer attempts to record boundary when one already exists	Are you sure you want to redefine the boundary?
All New/Edit Screens: User attempts to create a duplicate name in any of the New/Edit screens	This entry is already being used. Please select a new entry or cancel to modify the entry.
This alarm will be shown after we have received a touch event for 60 seconds.	The touchscreen is malfunctioning. Try to reboot the device, utilize an external display control, or the bezel keys on the backside of this display for screen response. If problem persists, please contact your John Deere Dealer.
This alarm will be shown after we have received a touch event for 60 seconds.	A button is malfunctioning. Try to reboot the display. If the problem persists, please contact your John Deere Dealer.
GPS Alarms For GreenStar Basic/Deluxe	
200 GPS communications failure	No communication with GPS receiver. Check connections at GPS receiver.
No GPS. Tracking Disabled	No GPS position available. Verify GPS receiver has clear view of sky.
No Diff. Tracking Disabled.	No GPS differential correction available. Verify GPS receiver has clear view of sky.
2D GPS in use.	2D GPS in use. Verify GPS receiver has clear view of sky.

Continued on next page

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
Tracking Inaccurate The GPS receiver must be set to report at the 5Hz. Rate. Confirm settings on receiver.	The GPS receiver must be set to report at the 5Hz message output rate. Confirm settings on GPS receiver and change output to 5Hz. (For 3rd-Party Controllers) *NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.*
Language Loading Errors:	
CRC bad, missing a colon, bad prep header, etc.	Language load detected corrupt file. Reload software to data card.
Hardware compat. version mismatch.	Invalid hardware for language file. Reload software to data card.
Software version mismatch.	Language file incompatible with application. Reload software to data card.
Timeout waiting for CAN62 Response To Request	Device failed to start programming language. Reload software to data card.
Target sent FAIL in CAN62 Response To Request	Device failed to continue programming language. Reload software to data card.
Timeout waiting for CAN62 Response To Checksum	Device failed to report a language checksum. Reload software to data card.
Target sent FAIL in CAN62 Response To Checksum	Device reported an invalid language checksum. Reload software to data card.
Timeout waiting for CAN62 Response To Remove	Device didn’t respond to the request to remove language. Reload software to data card.
Target sent FAIL in CAN62 Response To Remove	Device failed to remove a language. Reload software to data card.
Flash Write Failure.	Device failed while writing language to memory. Reload software to data card.
Timeout waiting for CAN62 Response To New Data	Device stopped programming language prematurely. Reload software to data card.
Product ID mismatch	Language is incompatible with loaded product. Reload software to data card.

OUO6050,000232C -19-01SEP09-2/2

Trouble Code Pop-Up Boxes—Documentation Software

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
Task selected, recording is on, the operation mandatory details are not defined.	No operation details defined. Go to GreenStar setup and enter operation info.
Invalid prescription	Prescription file is invalid. -Verify rate units on prescription are correct.
Totals: Client Undefined	Alarm issued stating that the user must select a Client to view totals.
Totals: Client and Farm defined, Field undefined.	Alarm issued stating that the user must select a Field to view Field, Task, or Load Totals.
Totals: CFF, Task, and Operation defined, Crop/Product Type undefined.	No Alarm. Operation defaulted to “” and Task Totals are listed.
Totals: CFF and Crop/Product Type defined, Task and/or Operation undefined.	Alarm issued stating that the user must select a Task and Operation to view Field or Load Totals.
Totals: Client, Crop and Task defined, Farm and Field undefined.	No Alarm. Task and Operation defaulted to “” and Crop Totals are listed.
Reset totals to zero	Are you sure you want to zero the totals listed below?
In order to record a product application, you must choose a product type and product name on one of the ADD PRODUCT boxes. Choices will be CHANGE, which takes the user to the product summary screen, or REMOVE OPERATION which will flash up the "Are you sure you want to delete this operation" message.	In order to record a product application, you must choose a product type and product name on one of the Add Product boxes.
When no products are specified in an application	No products are specified, please select a product.
An alarm shall be issued if there is a prescription selected in Field Doc but not selected in the planter/sprayer setup.	Prescription available but not selected. Go to implement setup to select the prescription as the rate.
An alarm will be issued if Field Doc has a prescription selected, but the planter/sprayer is outside the field boundary for the prescription. "Default Rx Rate Used.	Machine outside the field boundary for the prescription. Default Prescription rate being used.
At power-up, An alarm will be issued if a prescription is being used and the prescription multiplier for an operation is not set to 100%.	Prescription Multiplier not 100%.
Implement width set to zero.	Implement width is set to zero. Implement width is required to record data.
Anywhere: User selects the DOCUMENTATION button before filling out CFFT	You must choose a Client, Farm, Field, Task from the Resources button
Communication lost with a connected controller.	Communication lost with controller. If controller was not disconnected, check connections and cycle power. If controller was disconnected please review operations selected.
Field Doc didn’t get some periodic messages	Communication lost with controller. If controller was not disconnected, check connections and cycle power. If controller was disconnected please review operations selected.
	Prescription available but not selected. Check setup on the implement to ensure prescription is selected as the rate.
Air Cart Setup: Air cart is on the bus, 1st tank has been defined with an operation, Second tank is created with the same operation type as the first tank.	You are creating another seeding (application) operation. Would you like this to be the same as the Front (Middle)(Rear) Tank seeding (application) operation?
Air Cart Setup: User selects enter for the previous message	Please enter the tank ratios for each tank. (if applicable)
Air Cart Setup: User enters tank ratios that do not add to 100	Tank ratios must add to 100
SeedStar selects Rx but Documentation doesn’t have Rx selected.	No prescription file for selected field. -Verify field and operation are correct. -Verify prescription is on card. -Resave prescription to card if necessary.
Tank Mix Screen: User attempts to add a second ingredient in a tank mix without a carrier or base solution rate	You must enter a carrier and base solution rate before building a tank mix
Incorrect model is possibly selected	The RS232 controller model selected is incorrect. Please verify and reenter manufacturer and model number.
Recording is not currently allowed	Recording is not currently allowed. Verify settings on RS232 controller.
Alarm for manual controller when target rate changes	Target rate has changed. Alarm for manual controller.
Alarm when Raven is communicating everything but an actual rate	Raven controller not communicating actual rate. Verify Raven controller settings and connections to the display.
Special handling will be needed for each controller to monitor the health of the connection	Communication problem with controller. Check connections to controller.

OUO6050,000232D -19-30SEP09-1/1

GreenStar Diagnostics

Required Items for Documentation

The following items are required for documentation to function:

- Client, Farm and Field
- Task
- Operation
- Operation Details
- Product Type/Name
- Target Rate/Rate Units
- Recording Source
- Implement Width/Offsets
- Controller Setup (when using 3rd-Party controllers)

NOTE: 3rd- controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

Required Items for Guidance

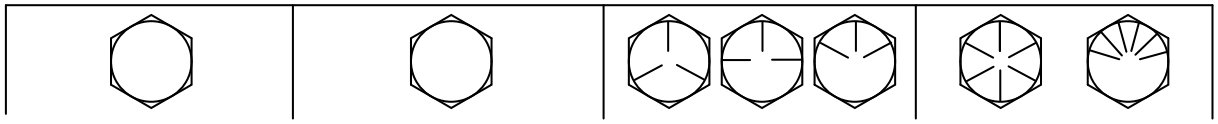
The following items are required for guidance to function:

- Tracking mode set to Straight Track, Curve Track, Circle Track (only available with optional PivotPro module) or Row Finder
- Track spacing (See equipment section of GreenStar Basics/Pro General Setup)
- Track 0 (Except for Curve Track and Row Finder)
- GPS signal (StarFire signal required)

OUO6050,000232E -19-01SEP09-1/1

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



Bolt or	SAE Grade 1				SAE Grade 2[a]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
Screw	Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]	
Size	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb.-ft.	N·m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb.-ft.	N·m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a]Grade 2 applies for hex cap screws (not hex bolts) up to 6. in (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

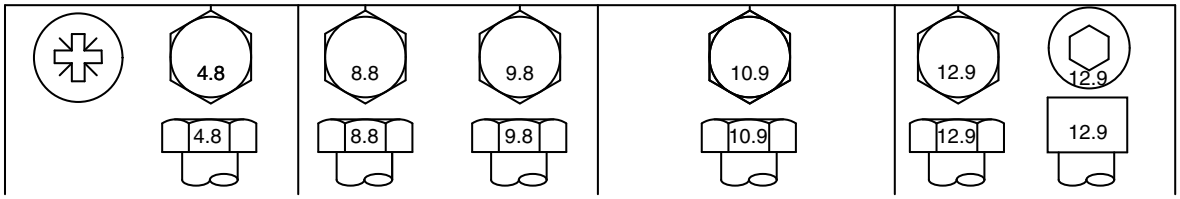
[b]"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.

[c]"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.

DX,TORQ1 -19-08DEC09-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
Screw	Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]	
Size	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N·m	lb.-ft.														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a] *"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C zinc flake coating.*

[b] *"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.*

DX,TORQ2 -19-08DEC09-1/1

Device Name, Source Address, and File Directory

File Directory—GS2 claims multiple CAN addresses, some of which are inherited from legacy system to be more compatible with legacy controllers.

Device Name	Source Address
GS2 Basic Perf Monitor (PrF)	0x18
GS2 Virtual Terminal on Implement Bus (VTi)	0x26
GS2 Virtual Terminal on Vehicle Bus (VTv)	0x26
GS2 Guidance (NAV)	0x2a
GS2 Mobile Processor App (MPD)	0x2b
GS2 GSD4 Emulator (OGM)	0x80
GS2 Documentation (TSK)	0xd2
GS2 KeyCard App (KCA)	0xfc
Mobile Processor	0xD2
GreenStar Display 4 (GSD4)	0x80
StarFire Receiver	0x1C, 0x?1C, 0x9C
TCM	0x92
Harvest Monitor for Combines (Gen II Moisture Sensor)	0xD3
Combine Yield Monitor (Gen I Moisture Sensor)	0xD3
Harvest Monitor for Cotton	0xD3
Cotton Mass Flow Sensor	0xB1—0xB8
SPFH Monitor	0xB0
AirCart Controller	0xC4
Planter Controller - SMVR	0xC0
Planter Controller - VRF	0xCE
Sprayer Controller - Liquid	0xE1
Sprayer Controller - Dry	0xCE
SSU	0x13

OUO6050,0000DB2 -19-01SEP09-1/1

GreenStar Sytem Component Pinout

Circuit ID	Function	Wire Color
070	Ground	Black
182	Constant Power (+12vdc)	Red
209	Any	White
211	Any	Brown
904	Implement Can Hi	Yellow
905	Implement Can Lo	Dk Green
914	Vehicle Can Hi	Yellow
915	Vehicle Can Lo	Dk Green
922	Switched Power (+12vdc)	Red
924	CCD +	Yellow
925	CCD -	Dk Green
998	Audio Mute	Gray
999	Support Wire (dustcaps)	White
992	Constant Power (+12vdc)	Red

OUO6050,0000E50 -19-01SEP09-1/1

GSD 2100/2600 (RCD) Pinout

Pin	Circuit ID	Function	Wire Color	Cornerpost Display Connector Pin
1	922	Switched Power (+12vdc)	Red	U
2	070	RS232 Gnd	Black	
3	209	Implement Switch	White	M
4		Analog Signal Ground		
5		Analog Signal Input		
6	925	CCD+	Drk. Green	J
7	924	CCD-	Yellow	K
8	182	Constant Power (+12vdc)	Red	R
9	998	Audio Mute (Output)	Gray	H
10		Unused		
11	211	Radar Input	Brown	L
12	915	Vehicle CAN LO	Drk. Green	S
13	914	Vehicle CAN HI	Yellow	T
14	070	Ground	Black	V
15		RS232 Port1 Rx		
16		RS232 Port1 RTS		
17		RS232 Port1 CTS		
18	904	Implement CAN HI		P
19	905	Implement CAN LO		N
20		Analog Output		
21		Analog Output Ground		
22	907	RS232 Port0 Tx		
23	909	RS232 Port0 Rx		
24	906	RS232 Port0 RTS		
25	908	RS232 Port0 CTS		
26		RS232 Port1 Tx		

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EC Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The person named below declares that

Product: GreenStar 2 Display 2100

Product: GreenStar 2 Display 2600

fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Electromagnetic Compatibility Directive	2004/108/EC	Self certified, per Annex II of the Directive

Name and address of the person in the European Community authorized to compile the technical construction file:

Henning Oppermann
Deere & Company European Office
John Deere Strasse 70
Mannheim, Germany D-68163
EUConformity@johndeere.com

Place of declaration: Urbandale, Iowa U.S.A

Date of declaration: 26 September 2007

Manufacturing unit: John Deere Intelligent Solutions Group

Name: John H. Leinart

Title: Engineering Manager, Ag Management Solutions

CE

DXCE01 —UN—28APR09

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Glossary of Terms

Glossary of Terms	
Term	**Meaning**
AB Curves	Uses a manually driven curved path with two end points (beginning and end) to generate parallel passes.
Accuracy Bar Step Size	Used to set the value of offtrack distance each arrow on the Path Accuracy Indicator represents.
Activated	(4/4 Status of pie with “A”)—Resume switch has been selected and AutoTrac is steering the vehicle.
Adaptive Curves	Uses a manually driven initial pass, then guides off of previous pass.
Ag	The abbreviation for agriculture.
	The agricultural equipment division of John Deere.
AGC	Automatic Gain Control.
AMS	Ag Management Solutions.
Apex	Desktop software for field mapping. The successor to JD Office.
ASRC	Adjustable Seed Rate Controller. Legacy variable rate seeding controller for planters. One of the SeedStar generation 1 controllers. Also known as Variable Rate/Variable Drive, VRD, or VR. Companion to the Seed Monitor.
AT	AutoTrac.
ATU	Universal AutoTrac. A guidance system for vehicles that do not support AutoTrac directly.
AutoTrac	Assisted steering system based on satellite guidance that automatically steers the tractor through the field.
AutoTrac Deactivation Message	Shows operator why AutoTrac deactivated.
C&CE	The consumer and commercial equipment division of John Deere.
C&F	The construction and forestry division of John Deere.
CAN	Controller Area Network.
CCC	Customer Contact Center.
CCD	Chrysler Collision Detection. Later named SBI when it became a commercially available system.
CE	Conformité Européne (European mark signifying compliance of directives).
Circle Track	(Only available with optional PivotPro module.) Uses a center pivot center point location to define concentric circles (tracks).
Configured	(2/4 Status of pie)—Valid AutoTrac Activation, Tracking Mode has been determined and a valid Track 0 has been established. Correct StarFire signal level for AutoTrac Activation is selected. Vehicle conditions met.
DataCard	A card upon which setup and documented field data is stored. The datacard is PCMCIA on the GSD/MP and compact flash on the RCD.
DGPS	Differential GPS. A system of increasing the accuracy of GPS using a separately broadcast correction signal.
Display	General term which refers to both Original GreenStar Display and GreenStar 2 Display.
DOP	Dilution of Precision. A term used to quantify the accuracy of a GPS fix.
DRC	Dry Rate Controller.
DTAC	Dealer Technical Assistance Center.
DTC	Diagnostic Trouble Code.
ECU	Electronic Control Unit—A CPU-based device that monitors and/or controls a vehicle function. ECUs are typically networked together using the CAN.
EGNOS	European Geostationary Navigation Overlay Service. The European DGPS signal.
Enabled	(3/4 Status of pie)—Steer Icon has been selected and “Steer On” is displayed.
FD	Field Doc.
FD-MBA	Field Doc Map-Based Application.
Field Doc	A suite of applications on the MP and RCD that record the inputs on a field. The Field Doc applications are capable of recording map-based variable rate inputs.
FlexBox	One of a family of next generation controller systems used throughout the Ag division.
GAI	GPS Accuracy Indicator.
GPS	Global Positioning System.
GSD	GreenStar Display.
GSD2100	One of the RCD GreenStar displays. A 8.4" VGA color screen in a metallic silver housing.
GSD2600	One of the RCD GreenStar displays. A 10.4" VGA color touchscreen in a metallic silver housing.
Guidance Off	For use when only documentation is needed.
GVC	Global Vehicle Communications.
Harvest Doc	A suite of applications on the MP and RCD that record the crop yield on a field. The Harvest Doc applications are capable of recording map-based crop yields.

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Glossary of Terms	
Term	**Meaning**
HDOP	Horizontal Dilution Of Precision.
Installed	(1/4 of Status pie)—AutoTrac SSU and all other hardware necessary for use are installed.
ISO	International Standards Organization.
KeyCard	PCMCIA card that holds and activates all AMS software on the Mobile Processor.
L-Band	Frequency band containing the StarFire correction signals transmitted from the Inmarsat satellites.
L1	One of the frequencies used by the GPS satellites.
L2	One of the frequencies used by the GPS satellites.
L5	A new frequency available in Block III GPS satellites for additional accuracy.
LCD	Liquid Crystal Display - a low power, flat panel display.
Lead Compensation	Shows how far down current track guidance looks to for such things as turns. Used with Parallel Tracking only.
LED	Light Emitting Diode.
MP	Mobile Processor.
NA	North America.
NMEA	National Marine Electronics Association.
NMEA-0183	The standard for GPS data transmission between the receiver and any downstream processor.
PDOP	Position Dilution of Precision.
Performance Monitor	Means of displaying status information gathered from the cab of John Deere equipment. This includes fuel consumption and equipment performance.
PF	Precision Farming.
PLD	Programmable Logic Device.
RCD	Reconfigurable Display (successor to the GreenStar Display).
RS232	A serial communication interface specification with bandwidth up to 115k bits per second at up to 50 feet.
RTK	Real Time Kinematic. A local, ground based differential correction technique involving a fixed receiver calculating position offset vectors.
Row Finder	Used in standing row crop applications to mark end of a pass and guide operator to next pass.
SF	StarFire.
SF1	StarFire differential GPS with standard accuracy, ~14 inches pass-to-pass at 2σ.
SF2	StarFire differential GPS with enhanced accuracy, ~4 inches pass-to-pass at 2σ.
Set Track 0	Allows the operator to set initial track which all subsequent tracks are created from.
SM	Seed Monitor. Legacy seeding monitor controller. One of the SeedStar Generation 1 controllers. Companion to the ASRC.
SNR	Signal-to-Noise Ratio.
SPFH	Self Propelled Forage Harvester—A machine to harvest crops such as hay or corn for use as animal forage.
SSU	Steering System Unit. The controller on the vehicle that transforms errors in position or heading to commands for the steering actors.
StarFire	The AMS GPS receiver system. This consists of a multichannel receiver that operates on the L1 and L2 bands, an antenna, a sealed housing, and a terrain compensation unit (on later versions). All versions of the StarFire receiver can receive the GPS L1 & L2 signals, the WAAS differential correction signal, and the SF1 and SF2 correction signals. All versions produce a 5Hz CAN bus output and a NMEA 0182 standard output on the RS-232 interface.
	The Navcom differential satellite correction signal. Navcom tracks the GPS satellites using a global network of base stations. The data from these stations is processed and correction terms are generated to compensate for satellite position and clock errors. There are two classes of StarFire correction service: SF1 provides a two-sigma pass-to-pass accuracy of fourteen inches, and SF2 provides four-inch accuracy.
Shift Track	Used to adjust position of machine left, center or right of set track. Shift track can be used to compensate for GPS drift. Drift is inherent to any satellitebased, differentially corrected GPS system.
Straight Track	Uses straight line parallel passes.
TCM	Terrain Compensation Module (formerly known as the IMU)—Corrects GPS data for Roll angle and yaw angle errors.
TECU	Tractor ECU. This is defined in ISO 11783 Part 9.
Tracking Tones	Can be set to alert operator at a specified offtrack distance.
Turn Predictor	Alerts operator by predicting the end of pass. This feature can be turned on or off by selecting or deselecting Turn Predictor check box.
Turning View	Can assist operators to guide vehicle from one pass to the next by showing an overhead view of the field.
USB	Universal Serial Bus.

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Glossary of Terms	
Term	**Meaning**
VDOP	Vertical Dilution Of Precision.
VR	Variable Rate Controller. Another term for the ASRC. One of the SeedStar Generation 1 controllers.
VRF	Variable Rate Fertilizer Controller. Planter controller used to control the variable application of liquid fertilizer.
VT	Virtual Terminal.
WAAS	Wide Area Augmentation Service.
Wedge Box	One of a family of general and special purpose controllers used throughout the Ag division.
WW	Worldwide.

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Glossary

Technical Information

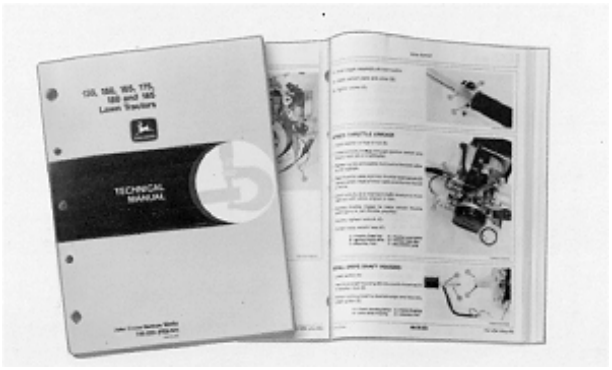
Technical information can be purchased from John Deere. Some of this information is available in electronic media, such as CD-ROM disks, and in printed form. Search online from http://www.JohnDeere.com. Please have available the model number, serial number, and name of the product.

Available information includes:

- PARTS CATALOGS list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.
- OPERATOR'S MANUALS providing safety, operating, maintenance, and service information. These manuals and safety signs on your machine may also be available in other languages.
- OPERATOR'S VIDEO TAPES showing highlights of safety, operating, maintenance, and service information. These tapes may be available in multiple languages and formats.
- TECHNICAL MANUALS outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in separate component technical manuals
- FUNDAMENTAL MANUALS detailing basic information regardless of manufacturer:
  - Agricultural Primer series covers technology in farming and ranching, featuring subjects like computers, the Internet, and precision farming.
  - Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
  - Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
  - Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.

TS189 —UN—17JAN89

TS191 —UN—02DEC88



TS224 —UN—17JAN89

TS1663 —UN—10OCT97

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Glossary

John Deere Parts

We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory—to stay a jump ahead of your needs.

TS100 —UN—23AUG88

DX,IBC,A -19-04JUN90-1/1

The Right Tools

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly . . . to save you time and money.

TS101 —UN—23AUG88

DX,IBC,B -19-04JUN90-1/1

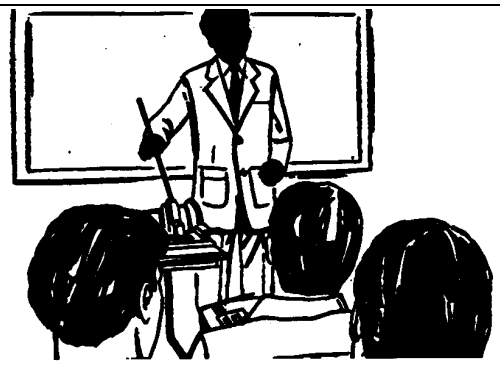
Well-Trained Technicians

School is never out for John Deere service technicians.

Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result?

Experience you can count on!



TS102 —UN—23AUG88

DX,IBC,C -19-04JUN90-1/1

Prompt Service

Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.

TS103 —UN—23AUG88

DX,IBC,D -19-04JUN90-1/1