AutoTrac RowSense Combine and Cotton

JOHN DEERE

OPERATOR'S MANUAL

AutoTrac RowSense Combine and Cotton

OMPFP24382 ISSUE K3 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

John Deere Ag Management Solutions
(This manual replaces OMPFP12207)
PRINTED IN U.S.A.

Introduction

Foreword

THANK YOU for purchasing a John Deere product.

READ THIS MANUAL carefully to learn how to operate and service your product correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your product may also be available in other languages. (Visit https://techpubs.deere.com/ to order.)

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

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

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

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Operator's Manual. Accurately record all the numbers to help in tracing the product should it be stolen. Your dealer also needs these numbers when you order parts. File a backup of the identification numbers in a safe location off the machine or away from the product.

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

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

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

Serial Number: _____

_____

_____

ZB48J1T,1692254533140-19-17AUG23-1/1

Trademarks

Trademarks	
AMS™	Trademark of Deere and Company
Android™	Trademark of Google Inc.
Apple®	Trademark of Apple, Inc.
AutoTrac™	Trademark of Deere and Company
Bluetooth®	Trademark of Bluetooth SIG
CommandCenter™	Trademark of Deere and Company
GreenStar™	Trademark of Deere and Company
iGrade™	Trademark of Deere and Company
iTEC™	Trademark of Deere and Company
JDLink™	Trademark of Deere and Company
John Deere Remote Display Access™	Trademark of Deere and Company
Microsoft®	Trademark of Microsoft Corporation in the United States and other countries
RowSense™	Trademark of Deere and Company
Service ADVISOR™	Trademark of Deere and Company
StarFire™	Trademark of Deere and Company
StellarSupport™	Trademark of Deere and Company
Surface Water Pro	Trademark of Deere and Company
Windows®	Trademark of Microsoft Corporation in the United States and other countries

BVVMSIT,1690521760389-19-22AUG23-1/1

Contents

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

Recognize Safety Information

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—28JUN13

DX,ALERT-19-03OCT22-1/1

Understand Signal Words

TS187—19—30SEP88

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

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

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

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

DX,SIGNAL-19-05OCT16-1/1

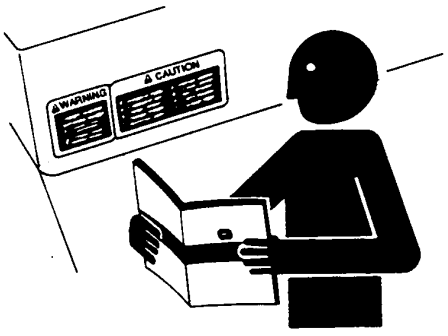
Follow Safety Instructions

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—15APR13

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

DX,READ-19-01AUG22-1/1

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 away 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.

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

TS218—UN—23AUG88

DX,SERV-19-28FEB17-1/1

Handle Electronic Components and Brackets Safely

Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.

If installing or servicing a RTK base station on a tower or other tall structure, use a certified climber.

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast 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.

TS249—UN—23AUG88

DX,WW,RECEIVER-19-24AUG10-1/1

Operate Guidance Systems Safely

Do not use guidance systems on roadways. Always turn off (disable) guidance systems before entering a roadway. Do not attempt to turn on (engage) a guidance system while transporting on a roadway.

Guidance systems are intended to aid the operator in performing field operations more efficiently. The operator is always responsible for the machine path. Guidance systems do not automatically detect or prevent collisions with obstacles or other machines.

Guidance systems include any application that automates machine steering. This includes, but may not be limited to, AutoTrac, iTEC, AutoTrac Turn Automation, AutoTrac Implement Guidance (passive), AutoTrac Universal, AutoTrac Controller, AutoTrac, and Machine Sync.

To prevent injury to the operator and bystanders:

- Never get on or off a moving machine.
- Verify that the machine, implement, and guidance system are set up correctly.
  - If using iTEC, AutoTrac Turn Automation, or AutoTrac Implement Guidance (passive), verify that accurate boundaries have been defined.
  - If using Machine Sync, verify that the follower's home point is calibrated with sufficient space between the machines.
- Remain alert and pay attention to the surrounding environment.
- Take control of the steering wheel, when necessary, to avoid field hazards, bystanders, equipment, or other obstacles.
- Stop operation if poor visibility conditions impair your ability to operate the machine or identify people or obstacles in the machine path.
- Consider field conditions, visibility, and machine configuration when selecting machine speed.

BVVMSIT,1690521594604-19-28JUL23-1/1

Use Seat Belt Properly

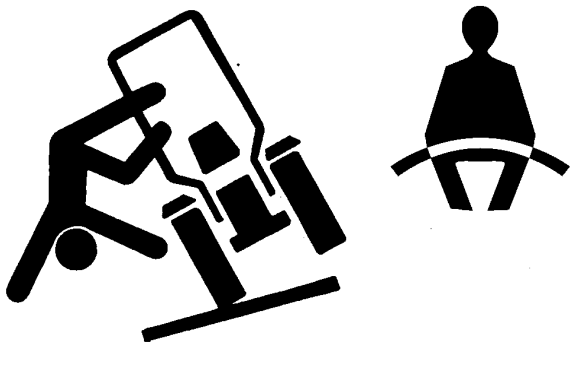
Avoid crushing injury or death during rollover.

This machine is equipped with a rollover protective structure (ROPS). USE a seat belt when you operate with a ROPS.

- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.



TS1729—UN—24MAY13

DX,ROPS1-19-22AUG13-1/1

Stay Clear of Harvesting Units

Cutterbar, auger, reel and feed rolls cannot be completely shielded due to their function. Stay clear of these moving elements during operation. Always disengage main clutch, shut off engine and remove key before servicing or unclogging machine.

ES118704—UN—21MAR95

FX,CUT-19-21DEC90-1/1

Regulatory and Compliance Information

EC Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The person named below declares that

Product: AutoTrac™ RowSense™

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:

Brigitte Birk
Deere & Company European Office
John Deere Strasse 70
Mannheim, Germany D-68163
EUConformity@JohnDeere.com

Place of declaration: Kaiserslautern, Germany

Date of declaration: 29 July 2011

Manufacturing unit: John Deere Intelligent Solutions Group

Name: Aaron Senneff

Title: Engineering Manager, John Deere Intelligent Solutions Group

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CE

ZB48J1T,1695303948124-19-21SEP23-2/2

Resume Button

Resume Button Setup

When an AutoTrac equipped machine is connected to a RowSense equipped corn head, activation buttons 2 and 3 on the multifunction control handle will be automatically activated to be used as the header lower and AutoTrac resume buttons for this system. On model year 2012 and newer machines the Auto button can be used to engage AutoTrac, and Row Sensors will engage when crop contacts the feelers. (See Setting Up Row Entry in Enabling the System section for more details.)

PC582138—UN—28JUL23

Resume Button on Machine (Older)

PC582139—UN—28JUL23

Resume Button on Machine (Newer)

BVVMSIT,1690524195381-19-05OCT23-1/1

AutoTrac RowSense

Overview

AutoTrac RowSense is comprised of the following components

- Integrated AutoTrac installed and activated on machine, with upgraded AutoTrac RowSense software programmed into Steering System Unit (SSU), AutoTrac SF1 or SF2 activation.
  - For 50 and 60 series combines, the Bridge Controller/Gateway software update must be installed.
  - Model year 2008 S–, W–, T–Series, and model year 2009 C–Series combines must have a LYNX bus installed to be compatible with AutoTrac RowSense.
- Integrated AutoTrac installed and activated on machine, with upgraded AutoTrac RowSense software programmed into Steering System Unit (SSU), AutoTrac SF1 or SF2 activation.
- Model year 2012 and newer machines require GreenStar 3 2630 display or GreenStar 3 CommandCenter or newer display.
- Model year 2011 and older machines require GreenStar 2 2600 display, or GreenStar 3 2630 display.
- AutoTrac RowSense activation.
- GS2 AutoTrac RowSense SF1 with a legacy GS2 AutoTrac SF1 activation.
- GS2 AutoTrac RowSense SF2 with a legacy GS2 AutoTrac SF2 activation or a GS2 AutoTrac activation.
- AutoTrac RowSense activation for Gen 4 display.
- StarFire Receiver with SF1, SF2, SF3 or RTK correction signal.
- One pair of Row Sensors mounted to approved Corn Head.

AutoTrac RowSense works with all existing tracking patterns. AutoTrac works in the following modes: Adaptive Curves, AB Curves, Circle Track, and Straight Track. AutoTrac RowSense is an enhancement to integrated AutoTrac on a compatible precision ag display when harvesting corn. Row Sensors mounted on an approved corn head detect cornstalks to know where the row is. The AutoTrac Guidance Application uses the row sensor signal combined with existing AutoTrac signals to keep the machine on its guidance path. When there is no signal coming from row sensors (for example, driving through a waterway), normal GPS guidance will apply. Most other characteristics of AutoTrac remain unchanged. Row sensors are simply another position input for steering the machine. All tracking modes are set up the same way as they are with GPS based AutoTrac.

ZB48J1T,1688365471549-19-28SEP23-1/1

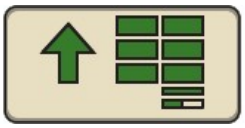
Setup AutoTrac RowSense Using GreenStar Display

Using GreenStar 3 Display

NOTE: Before using this product, the following steps must be completed in addition to setting up AutoTrac:

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1690443942471-19-17SEP23-1/13

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1690443942471-19-17SEP23-2/13

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1690443942471-19-17SEP23-3/13

4. Select Guidance Settings.

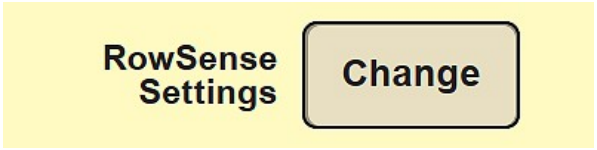
PC582161—UN—01AUG23

Guidance Settings

ZB48J1T,1690443942471-19-17SEP23-4/13

5. Select RowSense Settings Change.

PC582162—UN—01AUG23



RowSense Settings Change

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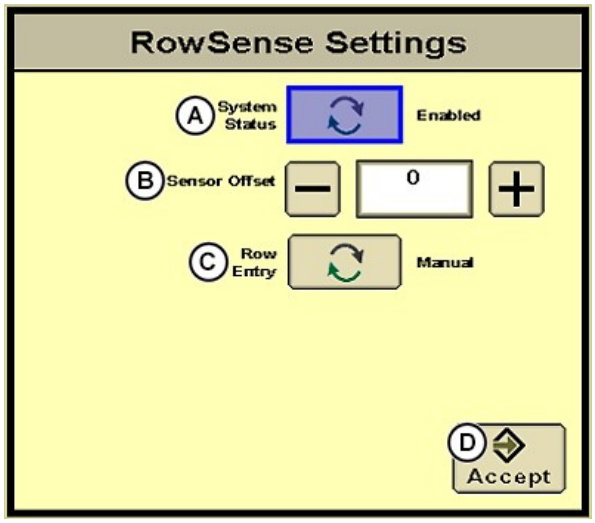
ZB48J1T,1690443942471-19-17SEP23-5/13

6. Select System Status (A) to enable Row Guidance sensors.
7. Ensure the Sensor Offset (B) value is correct (default value is 0).
8. Select Row Entry (C) for the required mode.
9. Select Accept (D) to exit RowSense Settings.

A—System Status
B—Sensor Offset
C—Row Entry
D—Accept



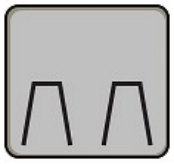
PC582140—UN—28JUL23

RowSense Settings Page

ZB48J1T,1690443942471-19-17SEP23-6/13

10. The AutoTrac RowSense icon will be visible on the Run page of AutoTrac Guidance user interface.

PC582150—UN—01AUG23



AutoTrac RowSense

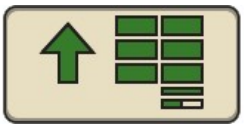
ZB48J1T,1690443942471-19-17SEP23-7/13

Using GreenStar 3 CommandCenter Display

PC582158—UN—01AUG23

NOTE: Before using this product, the following steps must be completed in addition to setting up AutoTrac:

1. Select Menu.



Menu

ZB48J1T,1690443942471-19-17SEP23-8/13

2. Select GreenStar (GS3).

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GreenStar (GS3)

ZB48J1T,1690443942471-19-17SEP23-9/13

3. Select Settings.

PC582163—UN—01AUG23

Settings

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ZB48J1T,1690443942471-19-17SEP23-10/13

4. Select RowSense Settings.

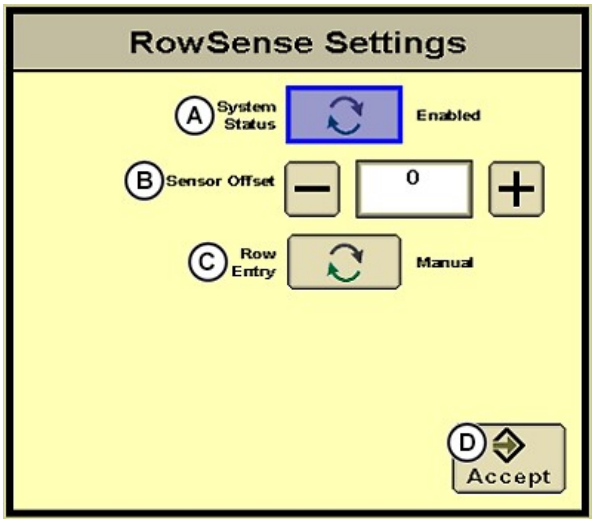
PC582164—UN—01AUG23

RowSense Settings

ZB48J1T,1690443942471-19-17SEP23-11/13

5. Select System Status (A) to enable Row Guidance sensors.
6. Ensure the Sensor Offset (B) value is correct (default value is 0).
7. Select Row Entry (C) for the required mode.
8. Select Accept (D) to exit RowSense Settings.

A—System Status
B—Sensor Offset
C—Row Entry
D—Accept



PC582140—UN—28JUL23

RowSense Settings Page

ZB48J1T,1690443942471-19-17SEP23-12/13

9. The AutoTrac RowSense icon will be visible on the Run page of AutoTrac Guidance user interface.

PC582150—UN—01AUG23

AutoTrac RowSense

ZB48J1T,1690443942471-19-17SEP23-13/13

Setup AutoTrac RowSense Using Generation 4 Display

PC28961—UN—24APR23

NOTE: Before using this product, the following steps must be completed in addition to setting up AutoTrac:

1. Select Menu.

Menu

BVVMSIT,1690446889571-19-17SEP23-1/7

2. Select Applications.

PC582132—UN—27JUL23

Applications

Continued on next page

BVVMSIT,1690446889571-19-17SEP23-2/7

3. Select AutoTrac Guidance.

PC28717—UN—25AUG22

AutoTrac Guidance

BVVMSIT,1690446889571-19-17SEP23-3/7

4. Select Information.

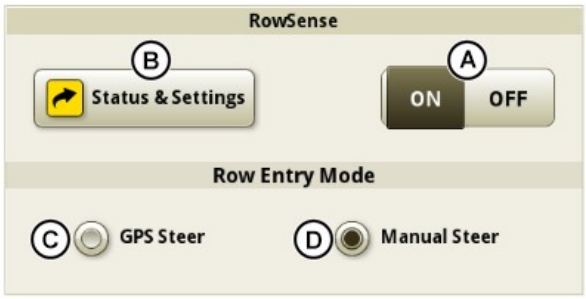
PC582133—UN—27JUL23

Information

BVVMSIT,1690446889571-19-17SEP23-4/7

5. Select ON/OFF (A) to enable Row Guidance sensors.
6. Select required Row Entry mode either GPS Steer (C) or Manual Steer (D).
7. Select Status & Settings (B) to access the sensor offset setting.

A—ON/OFF
B—Status & Settings
C—GPS Steer
D—Manual Steer



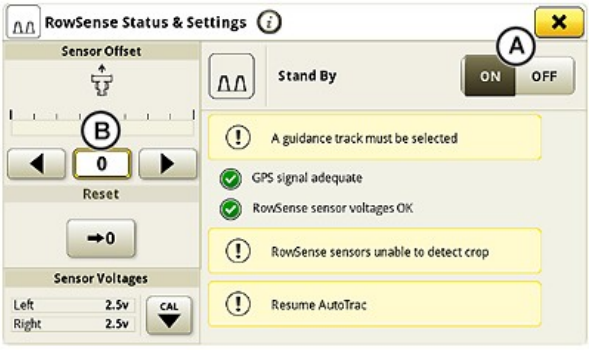
PC582136—UN—27JUL23

RowSense Information Page

BVVMSIT,1690446889571-19-17SEP23-5/7

8. Ensure the Sensor Offset (B) value is correct (default value is 0).
9. Select ON/OFF (A) to enable Row Guidance sensors.
10. Select X in top right corner to exit RowSense Status & Settings.

A—ON/OFF
B—Sensor Offset



PC582135—UN—27JUL23

RowSense Status & Settings Page

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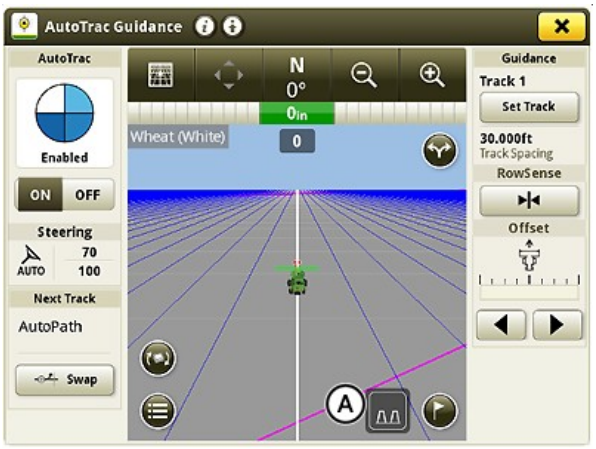
BVVMSIT,1690446889571-19-17SEP23-6/7

11. The AutoTrac RowSense icon (A) will be visible on the AutoTrac Guidance application page.

A—AutoTrac RowSense



AutoTrac Guidance Page with RowSense Enabled

BVVMSIT,1690446889571-19-17SEP23-7/7

Row Guidance Offset Setup

An offset can be added to row guidance to change alignment of stalks entering corn head.

Examples where alignment change is required:

- Planted guess row is in middle of corn head, and rows have been pushed over by head. An offset can be applied to “split the difference” so all rows lean, but not as severely as without offset.
- Crop dividers with row sensors attached are not aligned with row. Until repairs can be made to align the sensors, an offset can be applied to help make up for misalignment.

Entering offset values less than 0 can cause machine to drive slightly left, and values greater than 0 can cause machine to drive slightly right. The default value is 0, with a range of -50—50.

1. To navigate to RowSense Settings:

   For GreenStar 3 Display: Select Menu, GreenStar (GS3), Guidance, Guidance Settings, and then select RowSense Settings Change. For more information, see Setup AutoTrac RowSense Using GreenStar Display in this section.

2. **For GreenStar 3 CommandCenter Display:** Select Menu, GreenStar (GS3), Settings, and then select RowSense Settings. For more information, see Setup AutoTrac RowSense Using GreenStar Display in this section.

   For Gen 4 Display: Select Menu, Applications, AutoTrac Guidance, Information, and then select Status & Settings under RowSense. For more information, see Setup AutoTrac RowSense Using Gen 4 Display in this section.

3. Enter Sensor Offset value between -50—50. Default value is 0.

4. **For GreenStar 3 Display**: Select Accept to exit RowSense Settings.

   For GreenStar 3 CommandCenter Display: Select Accept to exit RowSense Settings.

   For Gen 4 Display: Select X to exit RowSense Status and Settings.

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Setting up Row Entry

Using GreenStar Display

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BVVMSIT,1690534615778-19-17SEP23-1/3

1. To navigate to RowSense Settings.

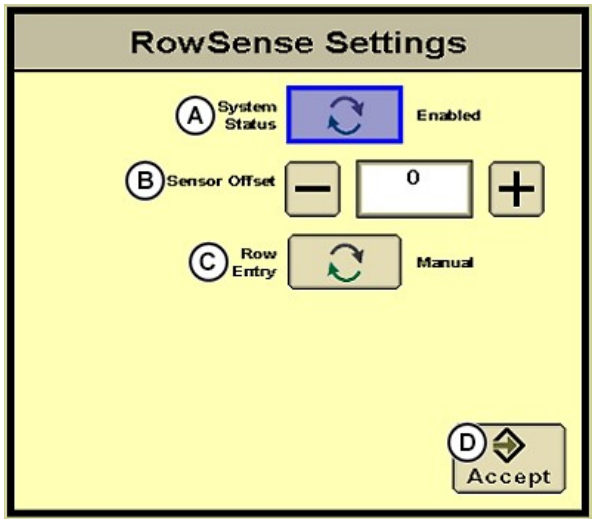
   For GreenStar 3 Display: Select Menu, GreenStar (GS3), Guidance, Guidance Settings, and then select RowSense Settings Change. For more information, see Setup AutoTrac RowSense Using GreenStar Display in this section.

   For GreenStar 3 CommandCenter Display: Select Menu, GreenStar (GS3), Settings, and then select RowSense Settings. For more information, see Setup AutoTrac RowSense Using GreenStar Display in this section.

2. Select Row Entry (C) for the required mode.
3. Select Accept (D) to exit RowSense Settings.

Using Generation 4 Display

A—System Status
B—Sensor Offset
C—Row Entry
D—Accept



RowSense Settings Page

BVVMSIT,1690534615778-19-17SEP23-2/3

1. To navigate to RowSense Settings.

   Select Menu, Applications, AutoTrac Guidance, and then select Information.

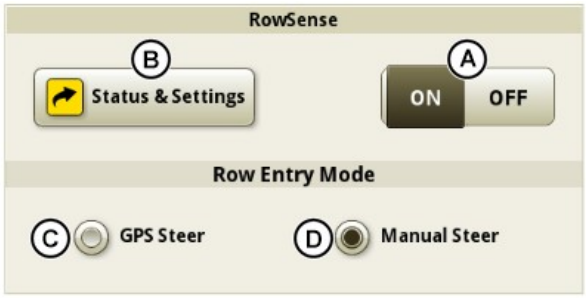
2. Select ON/OFF (A) to enable Row Guidance sensors.
3. Select required Row Entry mode either GPS Steer (C) or Manual Steer (D).
4. Select X to exit RowSense Status & Settings.

Manual:

1. Drive machine into row.
2. Press resume first time to lower head.
3. Press resume second time to engage guidance and row sensors.

GPS:

1. Drive machine into row.
2. Press resume first time to lower head and engage guidance.



RowSense Information Page

A—ON/OFF
B—Status & Settings
C—GPS Steer
D—Manual Steer

3. Press resume second time to engage row sensors.

NOTE: AutoTrac engages when resume is pressed. Row Sensors engage when crop contacts the feelers.

BVVMSIT,1690534615778-19-17SEP23-3/3

Row Sensor Calibration Procedure Using GreenStar Display

This procedure is performed when system is installed or after system is repaired. Row sensors must be installed and positioned against at-rest stops.

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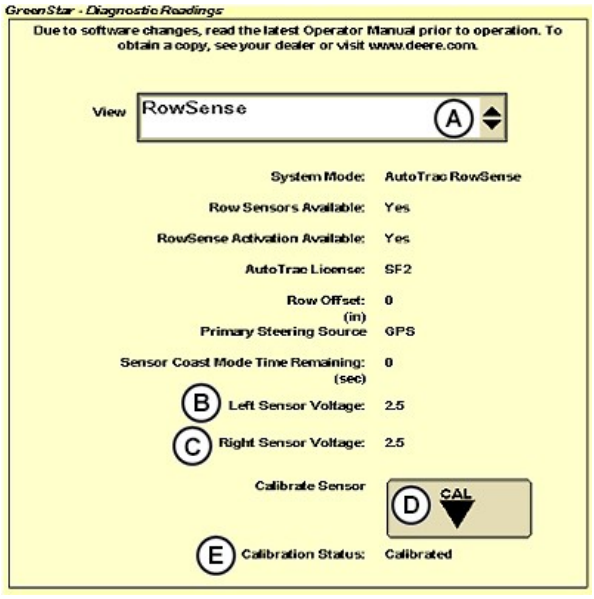
BVVMSIT,1690544832169-19-17SEP23-1/2

Ensure that row sensors are installed with springs holding them in at-rest position. Raise header to ensure that row sensors are not contacting ground. Machine must not be moving.

1. To navigate to GreenStar Diagnostics Readings page. Select Menu, GreenStar (GS3), and then select Diagnostics.
2. Select RowSense from the View (A) drop-down menu.
3. Enable RowSense sensor before start of calibration. For more information, see Setup AutoTrac RowSense Using GreenStar Display in this section.
4. Ensure that the RowSense sensors are calibrated at-rest voltages.

NOTE: Right sensor at-rest voltage should be greater than 2.5 volts. The left sensor at-rest voltage should be less than 2.5 volts.

5. Select CAL (D) to store sensor at-rest voltages into Steering System Unit (SSU) memory.
6. After successful calibration, exit GreenStar Diagnostic Readings.



PC582141—UN—28JUL23

Row Sensor Calibration

A—View
B—Left Sensor Voltage
C—Right Sensor Voltage
D—CAL
E—Calibration Status

BVVMSIT,1690544832169-19-17SEP23-2/2

Row Sensor Calibration Procedure Using Generation 4 Display

This procedure is performed when system is installed or after system is repaired. Row sensors must be installed and positioned against at-rest stops.

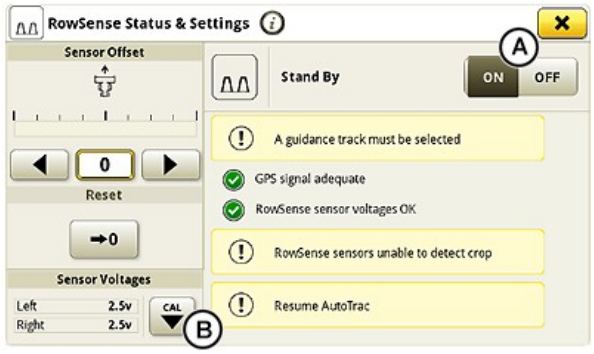
BVVMSIT,1690544848389-19-19SEP23-1/3

Ensure that row sensors are installed with springs holding them in at-rest position. Raise header to ensure that row sensors are not contacting ground. Machine must not be moving.

1. To navigate to RowSense Settings.

   Select Menu, Applications, AutoTrac Guidance, Information, and then select Status & Settings under RowSense.
2. Enable RowSense sensor before start of calibration. See Setup AutoTrac RowSense Using Generation 4 Display in this section.
3. Ensure that the RowSense sensors are calibrated at-rest voltages.

NOTE: Right sensor at-rest voltage should be greater than 2.5 volts. The left sensor at-rest voltage should be less than 2.5 volts.



PC582142—UN—28JUL23

RowSense Status & Settings Page

A—ON/OFF
B—CAL

4. Select CAL (B) to store sensor at-rest voltages into Steering System Unit (SSU) memory.

Continued on next page

BVVMSIT,1690544848389-19-19SEP23-2/3

5. Read calibration process details and select Begin Calibration.
6. Read the calibration prerequisites carefully and select Next.
7. After successful calibration, select OK and select X to exit the RowSense Status & Settings.

PC582143—UN—30JUL23

Begin Calibration

BVVMSIT,1690544848389-19-19SEP23-3/3

Setup AutoTrac RowSense

NOTE: Before using this product, the following steps must be completed in addition to setting up AutoTrac:

1. Select Menu.

PC582144—UN—31JUL23

Menu

BVVMSIT,1690794031707-19-17SEP23-1/5

2. Select Original GreenStar Monitor.

PC582145—UN—31JUL23

Original GreenStar Monitor

BVVMSIT,1690794031707-19-17SEP23-2/5

3. Select SETUP.

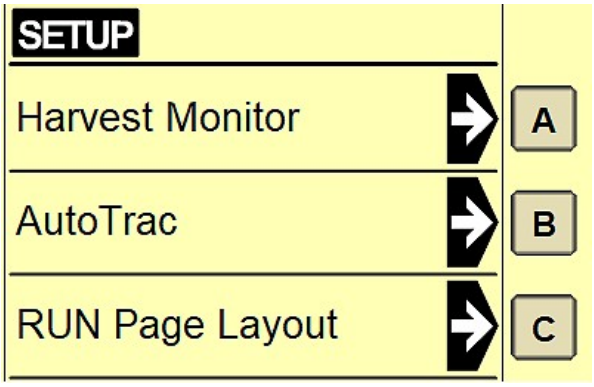
PC582146—UN—31JUL23

Setup

BVVMSIT,1690794031707-19-17SEP23-3/5

4. Select AutoTrac (B).

A—Harvest Monitor
B—AutoTrac
C—RUN Page Layout



PC582147—UN—31JUL23

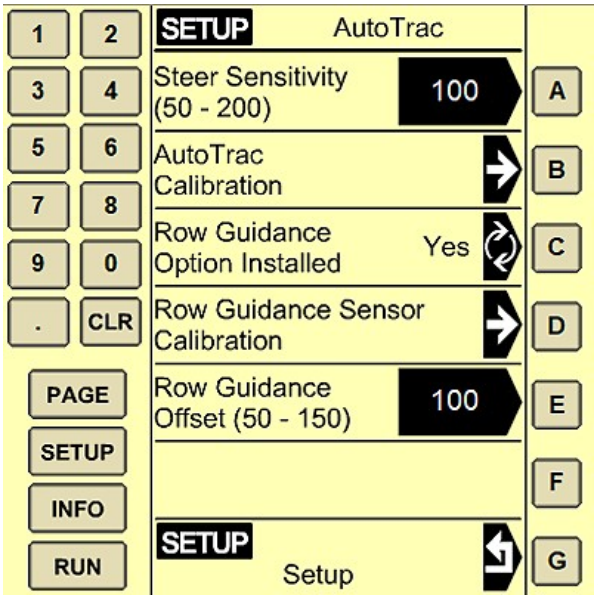
Setup Page

Continued on next page

BVVMSIT,1690794031707-19-17SEP23-4/5

5. Select YES for Row Guidance Option Installed (C) and Row Guidance Option Enabled.
6. If required, calibrate Row Guidance Sensors.
7. Ensure the Sensor Offset (E) value is correct (default value is 100).

A—Steer Sensitivity (50—200)
B—AutoTrac Calibration
C—Row Guidance Option Installed
D—Row Guidance Sensor Calibration
E—Row Guidance Offset (50—150)
F—Not Used
G—Setup



Setup AutoTrac Page

BVVMSIT,1690794031707-19-17SEP23-5/5

Row Guidance Offset Setup

An offset can be added to row guidance to change alignment of stalks entering corn head.

Examples where alignment change is required:

- Planted guess row is in middle of corn head, and rows have been pushed over by head. An offset can be applied to split the difference so all rows lean, but not as severely as without offset.
- Crop dividers with row sensors attached are not aligned with row. Until repairs can be made to physically align the sensors, an offset can be applied to help make up for misalignment.

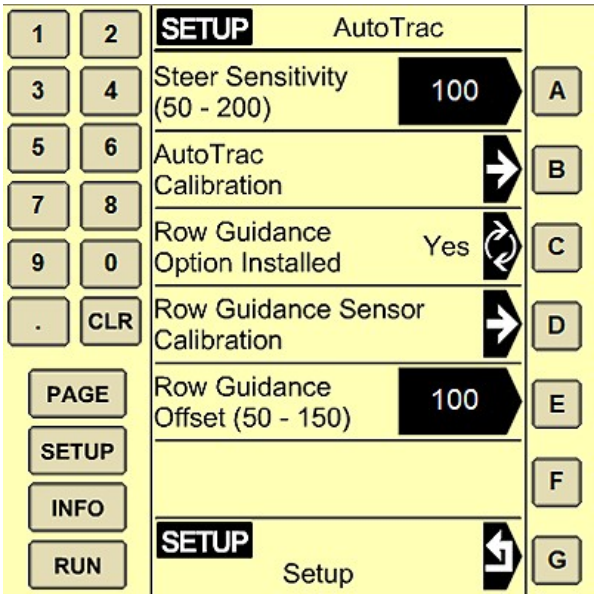
Entering offset values less than 100 can cause machine to drive slightly left, and values greater than 100 can cause machine to drive slightly right. The default value is 100, with a range of 50—150.

BVVMSIT,1690794031816-19-17SEP23-1/2

1. To navigate to AutoTrac setup.

   Select Menu, Original GreenStar Monitor, SETUP, and then select AutoTrac.
2. Select Row Guidance Offset (50—150) (E).
3. Enter row guidance offset value, is between 50—150. Default value is 100.

A—Steer Sensitivity (50—200)
B—AutoTrac Calibration
C—Row Guidance Option Installed
D—Row Guidance Sensor Calibration
E—Row Guidance Offset (50—150)
F—Not Used
G—Setup



Setup AutoTrac Page

BVVMSIT,1690794031816-19-17SEP23-2/2

Row Sensor Calibration Procedure

This procedure is performed when system is installed or after system is repaired. Row sensors must be installed and positioned against at-rest stops.

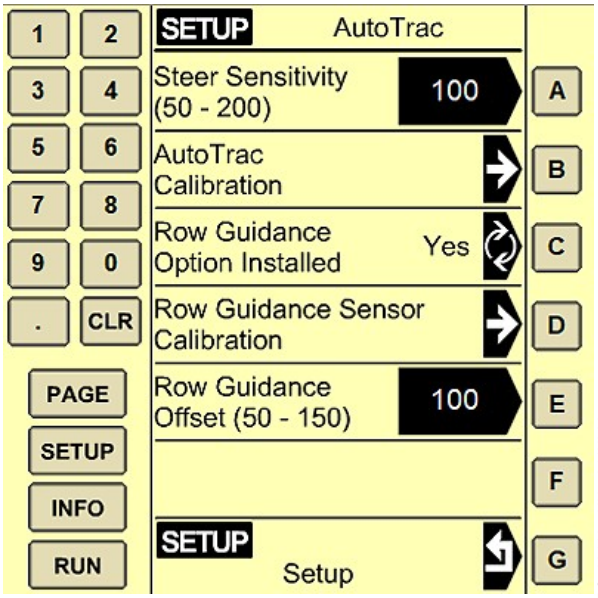
1. To navigate to AutoTrac setup.

   Select Menu, Original GreenStar Monitor, SETUP, and then select AutoTrac.

BVVMSIT,1690794031747-19-19SEP23-1/3

2. Ensure row sensors are installed with springs holding them in at-rest position. Raise header to ensure row sensors are not contacting ground. Machine must not be moving.
3. Select Row Guidance Sensor Calibration (D).

A—Steer Sensitivity (50—200)
B—AutoTrac Calibration
C—Row Guidance Option Installed
D—Row Guidance Sensor Calibration
E—Row Guidance Offset (50—150)
F—Not Used
G—Setup



Setup AutoTrac Page

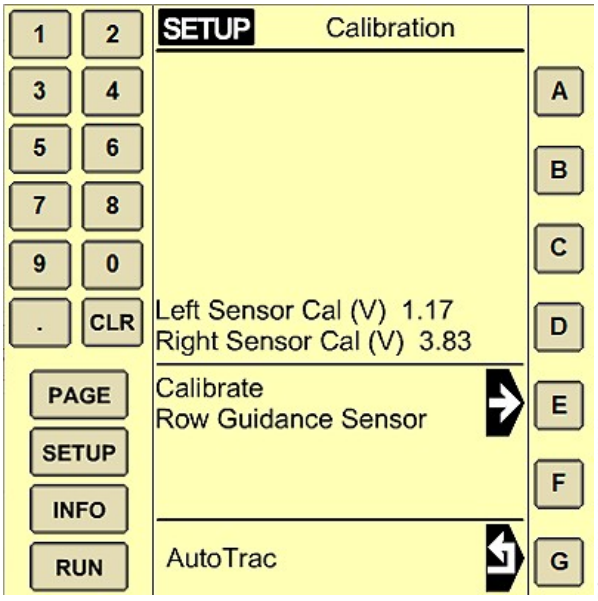
BVVMSIT,1690794031747-19-19SEP23-2/3

4. Calibrate sensor at-rest voltages.
5. Select Calibrate Row Guidance Sensor (E) to store sensor at-rest voltages into Steering System Unit (SSU) memory.

NOTE: Right sensor at-rest voltage should be greater than 2.5 volts. The left sensor at-rest voltage should be less than 2.5 volts.

6. After the successful calibration, exit row sensor calibration mode.

A—Not Used
B—Not Used
C—Left Sensor Cal (V) 1.17
D—Right Sensor Cal (V) 3.83
E—Calibrate Row Guidance Sensor
F—Not Used
G—AutoTrac



Row Sensor Calibration

BVVMSIT,1690794031747-19-19SEP23-3/3

Displays and Indicators

When using AutoTrac RowSense, the following RowSense Status icons can be shown on the display.

On the GreenStar 2 display: AutoTrac RowSense will appear on map under Guidance View indicating row sensors are available (when SENSOR STATUS is enabled).

On the GreenStar 3 2630 display: AutoTrac RowSense will appear on map under Guidance View indicating row sensors are available (when SENSOR STATUS is enabled).

On the GreenStar 3 CommandCenter display: AutoTrac RowSense will appear on the Run page.

On Generation 4 Display: AutoTrac RowSense will appear on the AutoTrac Guidance Application page.

Each icon indicates the RowSense status. The RowSense status icon changes from gray to colored depending on the RowSense status.

Gray—RowSense system installed.
Green—RowSense is active and operating with GPS and row sensors.
Yellow—RowSense is active but is only operating with row sensor inputs.
Red—RowSense is active but is only operating with GPS.

PC582150—UN—01AUG23

System Installed

PC582151—UN—01AUG23

System Active, Operating with Both Row sensor and GPS

PC582152—UN—01AUG23

Lost GPS, Operating with Row Sensor Data Only

PC582153—UN—01AUG23

Lost Row Sensor Signal, Operating with GPS Only

BVVMSIT,1690865482645-19-17SEP23-1/1

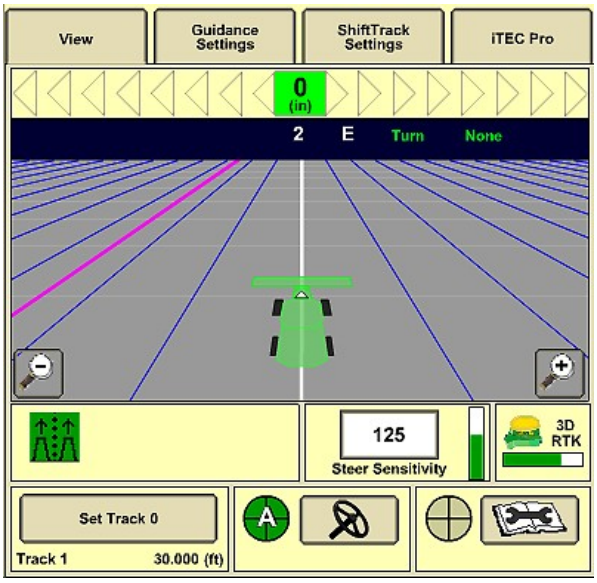
Engaging the Row Sensors

Row sensors guide machine whenever they can determine a row position. Operator will know row sensors are guiding machine by AutoTrac RowSense changing color to green and showing motion.

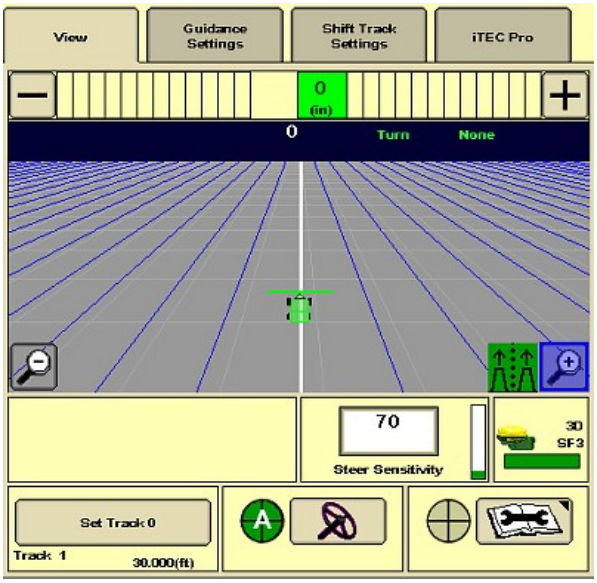
Once initial path has been set (an AB line or initial recorded Curve Track Pass), then resume can be pressed when machine is within half the track spacing and at acceptable angle to rows. Row sensors guide machine as soon as there is activity on row sensors.

Continued on next page

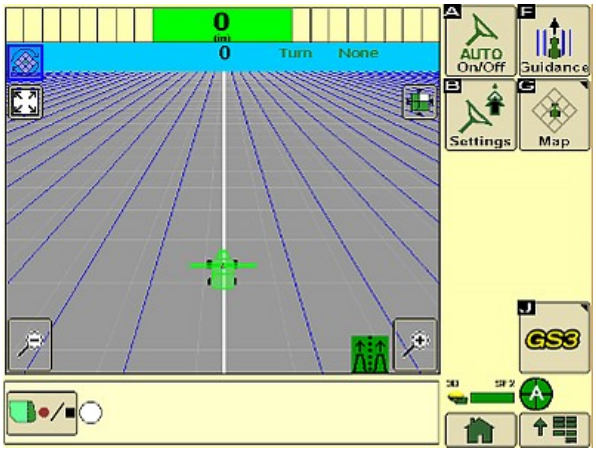
BVVMSIT,1690867627910-19-27SEP23-1/2



GreenStar 2 Display



GreenStar 3 2630 Display



GreenStar 3 CommandCenter Display

Generation 4 Display

Making a headland turn: Headland turns are accomplished same as GPS based AutoTrac. Operator lines up with path they desire to follow. Pressing resume will cause AutoTrac to drive to the guidance path. Row sensors then detect position of row and follow it. Line extension feature of Adaptive Curves, Circle Track, and AB Curves can be used to extend adjacent path projection into headlands.

BVVMSIT,1690867627910-19-27SEP23-2/2

Straight Track

Straight Track should be used when rows are straight and do not vary by more than approximately 1 m (3-1/4 ft). Straight track projects all lines off of first path.

If field is relatively straight and the heading does not change, using straight track is recommended as this will allow row entry on adjacent paths. Performance with row entry is improved when the field is planted with AutoTrac. Performance is improved during periods of row dropout in waterways.

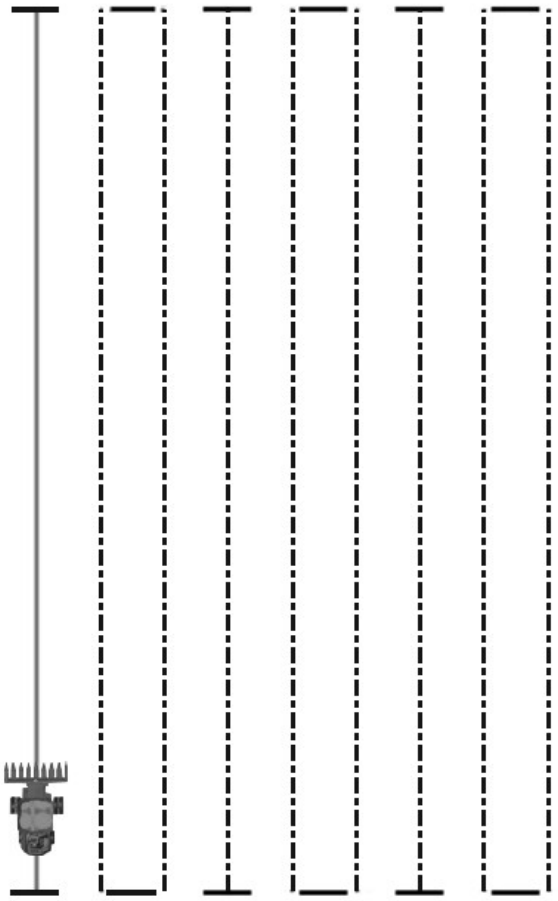
When in straight track, the GPS line will automatically re-center. This ensures the GPS path is properly aligned with rows.

NOTE: ***This feature is not available in adaptive curves.***

There are several methods of defining Track 0:

- A + B - Define Track 0 by driving it with the machine.
- Auto B - Define Track 0 by driving it with the machine.
- A + Heading - Define Track 0 by driving the machine to point A and entering a predefined heading value.
- Lat/Long - Define Track 0 by entering predefined latitude and longitude coordinate values for the A and B points.
- Lat/Long + Heading - Define Track 0 by entering predefined latitude and longitude value for the A point and entering a predefined heading value.

To set up Straight Track



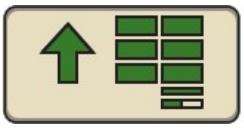
PC10390—UN—07JAN08

Straight Track

ZB48J1T,1691052171610-19-17SEP23-1/9

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1691052171610-19-17SEP23-2/9

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

Continued on next page

ZB48J1T,1691052171610-19-17SEP23-3/9

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1691052171610-19-17SEP23-4/9

4. Select Guidance Settings.

PC582161—UN—01AUG23

Guidance Settings

ZB48J1T,1691052171610-19-17SEP23-5/9

5. Select Straight Track from Tracking Mode.
6. Select View.

NOTE: Pause recording when not harvesting.

NOTE: Ensure that SF1, SF2, SF3 or RTK signal is present by viewing receiver on Run page.

7. Verify track spacing is correct. If track spacing is not correct, change track spacing under Guidance.

PC589284—UN—17AUG23

Straight Track from Tracking Mode

ZB48J1T,1691052171610-19-17SEP23-6/9

8. Select Set Track 0.

PC590562—UN—17AUG23

Set Track 0 Page

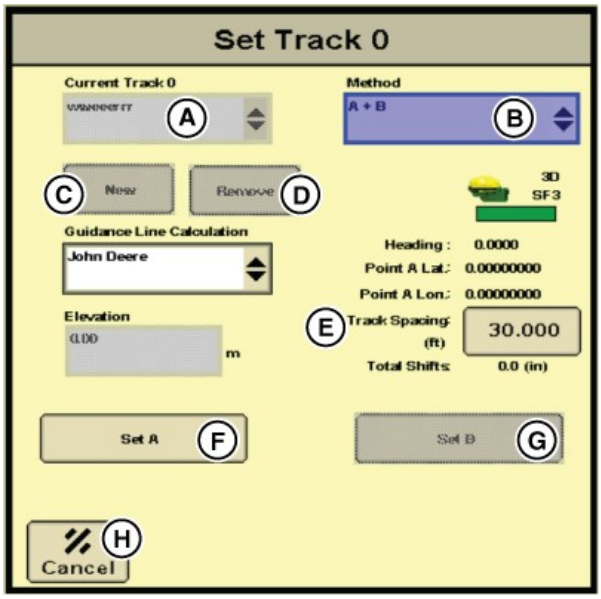
Continued on next page

ZB48J1T,1691052171610-19-17SEP23-7/9

9. Select track name from Current Track 0 (A). If no name exists, create new track name by selecting New (C).
10. Select a track method from Method (B).
11. Select Set A (F) and drive the machine to start of track.
12. Select Set B (G) and drive the machine to minimum of 10m to end the track recording.

    A guidance lines across the field will be created.
13. Select Accept to run AutoTrac RowSense.
14. To cancel setup at any time and return to the Guidance Setup, select Cancel (H).

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Set A
G—Set B
H—Cancel



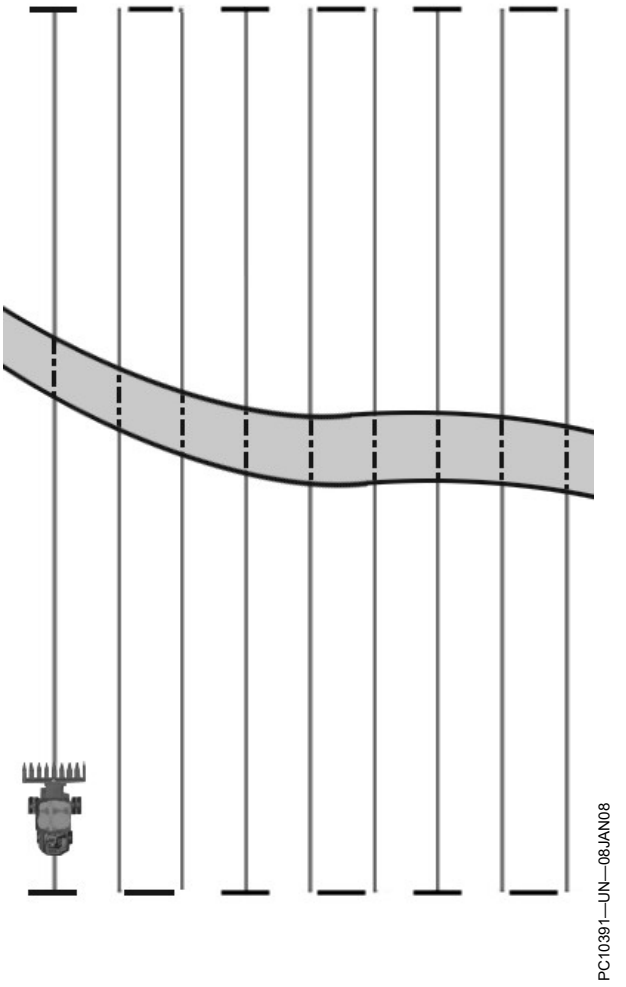
Set Track 0

Continued on next page

ZB48J1T,1691052171610-19-17SEP23-8/9

Row Dropout—There will not be a row in a waterway. Since straight track and AB curves recenter the track, there is a greater chance it will find correct row on other side of waterway.

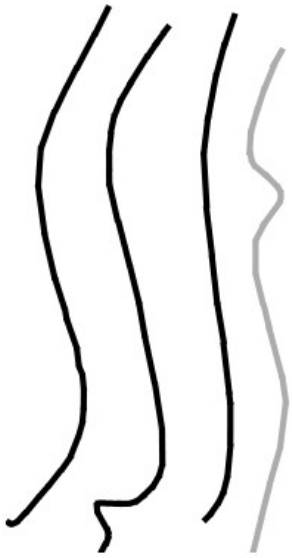
NOTE: If both GPS and Row Sensor data signals are lost, system will not engage until GPS signal is restored.



Waterway

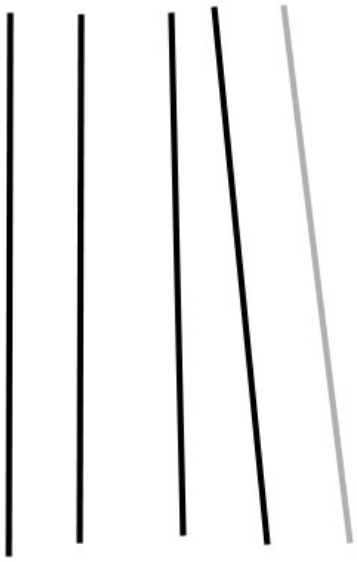
ZB48J1T,1691052171610-19-17SEP23-9/9

Adaptive Curves



PC10399—UN—04FEB08

Path changes while going through field



PC10400—UN—04FEB08

Heading changes through field

Adaptive curves can be used in all fields. But is highly recommended to use it when path changes while going through field, heading changes, or the curve is U-shaped. Adaptive curves has an added feature which allows RowFinder to be selected with a toggle button. Row sensors can be used to steer machines whenever they are engaged on a row. Curve track recording must be ON. This will establish first pass, and allow straight line extensions to occur.

Adaptive curves only get projected to adjacent pass, but have the advantage of handling different curve shapes, and potential guess row errors don't get accumulated throughout field.

If multiple machines are in field, adaptive curves does not allow skipping a pass. Adaptive curves in this scenario may only work if track spacing of other machine(s) is added to its own. For instance, if a 12 row head is following an 8 row head on 30 inch rows while harvesting together in same field, each would need a track spacing of 20 rows (50 feet).

Use of adaptive curves is recommended when path will frequently change throughout field. Adaptive curves only projects next path over.

PC11000—UN—04FEB08

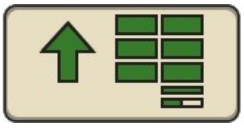
Curves are U-shaped

To set up Adaptive Curves

ZB48J1T,1692099522625-19-27SEP23-1/7

1. Select Menu.

PC582158—UN—01AUG23



Menu

Continued on next page

ZB48J1T,1692099522625-19-27SEP23-2/7

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1692099522625-19-27SEP23-3/7

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1692099522625-19-27SEP23-4/7

4. Select Adaptive Curves from Tracking Mode.
5. Select View.

NOTE: Pause recording when not harvesting.

NOTE: Ensure an SF1, SF2, SF3 or RTK signal is present by viewing receiver on Run page.

6. Ensure track spacing is correct. If track spacing is not correct, change track spacing under Guidance.

PC590561—UN—17AUG23

Adaptive Curves from Tracking Mode

ZB48J1T,1692099522625-19-27SEP23-5/7

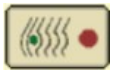
7. Select Record to begin recording path.
8. Drive path through field. After driving through first path, a projection of only next path will be created.
9. Select Resume to run AutoTrac RowSense.
10. To cancel setup at any time and return to the Guidance Setup, select Cancel.

When in AutoTrac mode, recording shuts off when steering wheel is turned. When in documentation mode, recording shuts off when header is raised.

AutoTrac Mode— If operator wants improved row entry for adjacent pass only, tie adaptive recording to AutoTrac. This is only recommended if field is relatively straight with no extreme curves and AutoTrac is rarely deactivated (due to manual steering or loss of GPS).

Documentation Mode— Tie adaptive curves to documentation mode. This allows operator to grab steering wheel during operation and continue to record path they are on. Line extensions are available on next pass, but they will not be very useful in row entry since there is a delay in picking up the head on end rows. Performance will be marginal in periods of row dropout.

PC590563—UN—17AUG23



Record

Manual Recording— Operator can tie adaptive recording to manual recording. This mode would not allow for line extensions unless operator continually push stop on end row. If operator forgets to turn off recording, it can lead to issues such as incorrect curvature projection. Example: If operator pulls out of the row to unload and doesn't press pause, the path will be recorded. When operator drives down adjacent path, machine will be pulled slightly off row since projected line is off.

Continued on next page

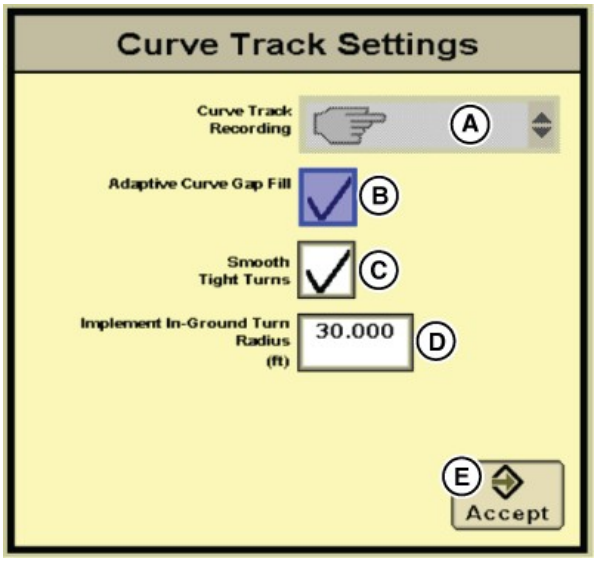
ZB48J1T,1692099522625-19-27SEP23-6/7

Select Menu, GreenStar (GS3), Guidance, Guidance Settings, Curve Track Settings, and then select Curve Track Recording (A).

Adaptive Curve modes listed can be changed by selecting desired mode.

- AutoTrac
- Documentation
- Manual

A—Curve Track Recording
B—Adaptive Curve Gap Fill
C—Smooth Tight Turns
D—Implement In-Ground Turn Radius (ft)
E—Accept



Curve Track Settings

ZB48J1T,1692099522625-19-27SEP23-7/7

AB Curves

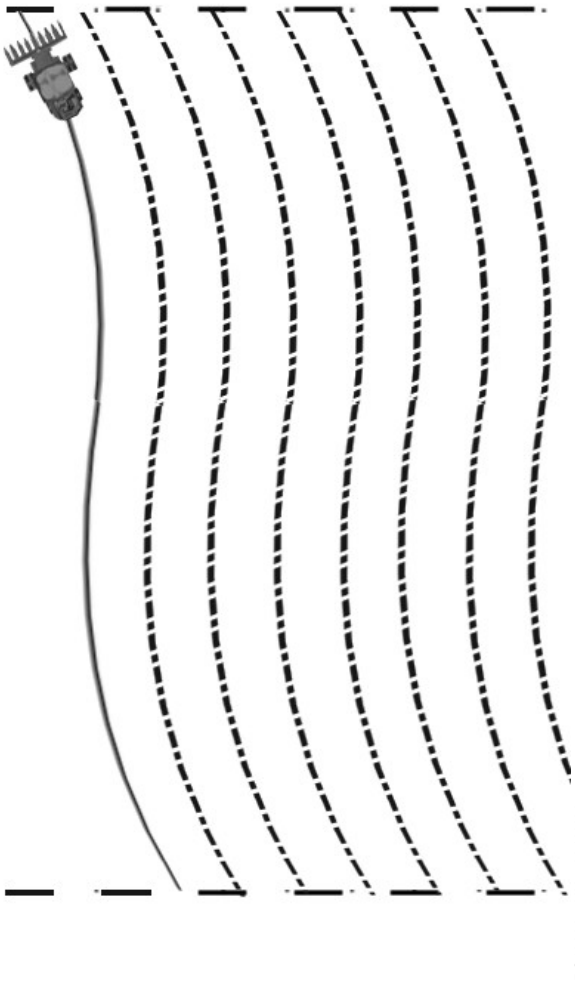
Use of AB curves is recommended when there is a continuous curve throughout field. This allows for row entry on adjacent paths. Performance will be improved if field is planted with AutoTrac. AB curves will also have improved performance through periods of row dropout.

AB curves have the advantage of projecting a curved track across a field as parallel lines, but the shape of the curve is the same on each pass.

When in AB curves, the GPS curve will be automatically re-centered. This ensures the GPS path is properly aligned with the rows.

NOTE: ***This feature is not available in AB curves.***

To set up AB Curves



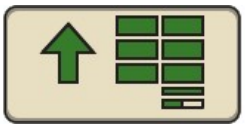
PC10393—UN—08JAN08

AB Curves projects all lines off of first pass

ZB48J1T,1692099671127-19-19SEP23-1/7

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692099671127-19-19SEP23-2/7

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

Continued on next page

ZB48J1T,1692099671127-19-19SEP23-3/7

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1692099671127-19-19SEP23-4/7

4. Select Guidance Settings.

NOTE: Please pause recording when not harvesting.

PC582161—UN—01AUG23

Guidance Settings

ZB48J1T,1692099671127-19-19SEP23-5/7

5. Select AB Curves from Tracking Mode.
6. Select View.

NOTE: Ensure an SF1, SF2, or RTK signal is present by viewing receiver on the Run page.

7. Ensure track spacing is correct. If track spacing is not correct, change track spacing under Guidance.

PC589285—UN—17AUG23

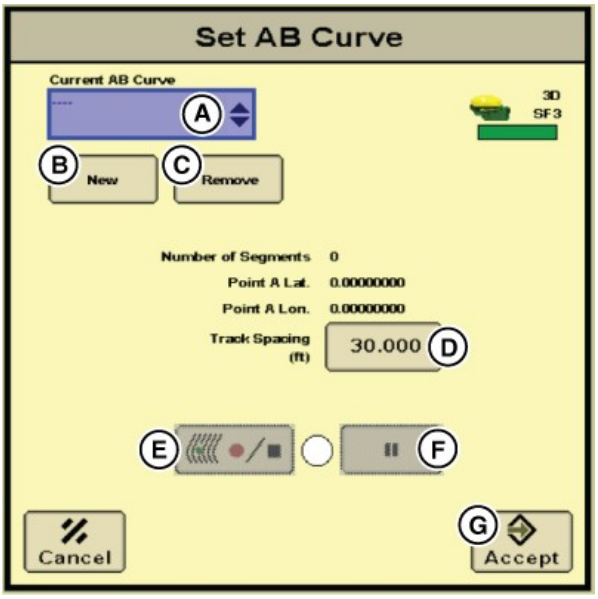
AB Curves from Tracking Mode

8. Select Set AB Curve.

ZB48J1T,1692099671127-19-19SEP23-6/7

9. Select an AB Curve name from Current AB Curve (A). If no name exists, create new one by selecting New (B).
10. Select Record/Stop (E) to start recording.
11. Select View and drive the machine.
12. Select Record/Stop (E) to stop recording
13. Curves will be projected across field.
14. Press resume to run AutoTrac RowSense.
15. To cancel setup at any time and return to the Guidance Setup, select Cancel.

A—Current AB Curve
B—New
C—Remove
D—Track Spacing (ft)
E—Record/Stop
F—Pause
G—Accept



PC590582—UN—17AUG23

Set AB Curve Page

ZB48J1T,1692099671127-19-19SEP23-7/7

Circle Track

Use of circle track is recommended when crop is planted in a center pivot field.

If the rows to be harvested are in circles, circle track should be used. This allows input from GPS curvature to be applied to the row sensors.

To set up Circle Track

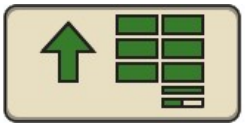
PC10853—UN—31JAN08

Circle Track

ZB48J1T,1692099693191-19-17SEP23-1/7

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692099693191-19-17SEP23-2/7

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1692099693191-19-17SEP23-3/7

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1692099693191-19-17SEP23-4/7

4. Select Guidance Settings.

PC582161—UN—01AUG23

Guidance Settings

Continued on next page

ZB48J1T,1692099693191-19-17SEP23-5/7

5. Select Circle Track from Tracking Mode.
6. Select View.

NOTE: Ensure SF1, SF2, or RTK signal is present by viewing receiver on Run page.

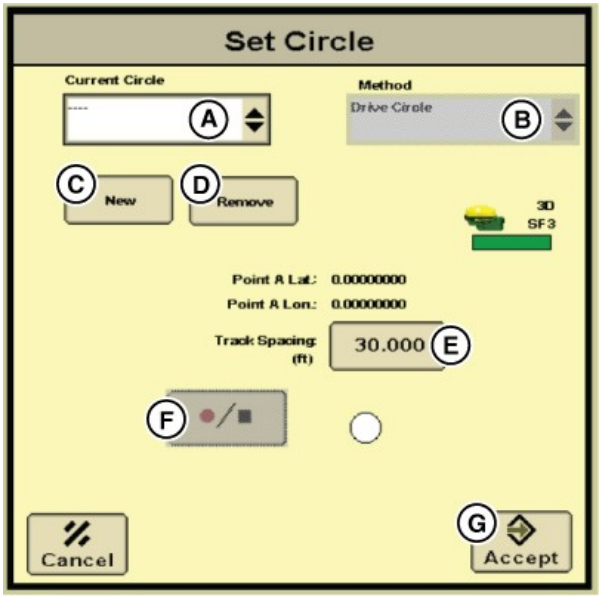
PC590560—UN—17AUG23

Circle Track from Tracking Mode

ZB48J1T,1692099693191-19-17SEP23-6/7

7. Select Set Circle.
8. Ensure track spacing is correct. If track spacing is not correct, change track spacing under Guidance.
9. Select circle name from Current Circle (A). If no name exists, create new one by selecting New (C).
10. Select Drive Circle method from Method (B).
11. Select Record/Stop (F) to start recording.
12. Select Accept (G). A circle will be projected in field.
13. Press resume to run AutoTrac RowSense.
14. To cancel setup at any time and return to the Guidance Setup, select Cancel.

A—Current Circle
B—Method
C—New
D—Remove
E—Track Spacing (ft)
F—Record/Stop
G—Accept



PC590583—UN—17AUG23

Set Circle Page

ZB48J1T,1692099693191-19-17SEP23-7/7

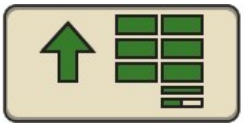
Row Finder

Row Finder (parallel tracking only) mode is intended for use in row crop applications where rows are not always equally spaced. Row Finder will aid the operator in finding whixh set of rows to enter back into the field on after setting a reference point when coming out of the previous set of rows.

ZB48J1T,1692279379982-19-21SEP23-1/6

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692279379982-19-21SEP23-2/6

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

Continued on next page

ZB48J1T,1692279379982-19-21SEP23-3/6

3. Select Guidance.

PC582160—UN—01AUG23

Guidance

ZB48J1T,1692279379982-19-21SEP23-4/6

4. Select Guidance Settings.

PC582161—UN—01AUG23

Guidance Settings

ZB48J1T,1692279379982-19-21SEP23-5/6

5. Select Row Finder from Tracking Mode.
6. Go to View. Select Set Row.

PC590595—UN—17AUG23

Row Finder from Tracking Mode

ZB48J1T,1692279379982-19-21SEP23-6/6

Swap Track

Reference Guidance section in GreenStar 3 2630 Display Operator's Manual.

ZB48J1T,1692279221665-19-22AUG23-1/1

Ditch Track

Surface Water Pro and AutoTrac are used together to create a levee track.

Reference Ditch section in SurfaceWater Pro Operator's Manual (OMPC21751).

ZB48J1T,1692279337562-19-22AUG23-1/1

Levee Track

Surface Water Pro and AutoTrac are used together to create a levee track.

Reference Levee section in SurfaceWater Pro Operator's Manual (OMPC21751).

ZB48J1T,1692279350350-19-22AUG23-1/1

Straight Track

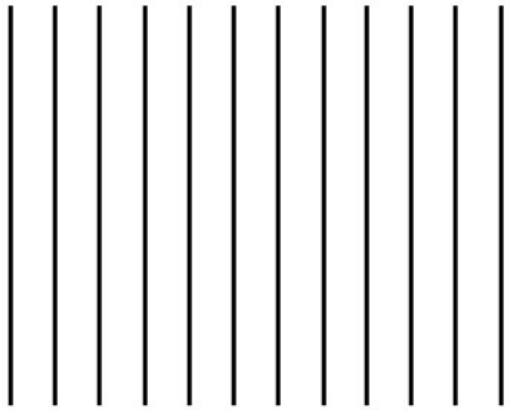
Theory of Operation

Straight Track mode assists in driving straight parallel paths. First setup a Track 0 (reference path) using the methods of defining Track 0. Once the Track 0 has been defined, all passes for the field are generated. The generated passes can be used to operate Manual Guidance or AutoTrac. Each pass is generated from the original driven pass to ensure that steering errors are not propagated through the entire field.

Passes are identical copies of the original pass.

NOTE: The terms "Guidance Track" and "AB line" are interchangeable. Track 0 is the track defined by the operator and the reference point from which all parallel passes in field are based.

The spacing between the parallel passes is the Track Spacing entered in the Setup Wizard.



PC9508—UN—24OCT06

Straight Track

Creating a New Straight Track

There are several methods of defining Track 0:

- A + B - Define Track 0 by driving it with the machine.
- A + Auto B - Define Track 0 by driving it with the machine.
- A + Heading - Define Track 0 by driving the machine to point A and entering a predefined heading value.
- Lat/Long - Define Track 0 by entering predefined latitude and longitude coordinate values for the A and B points.
- Lat/Long + Heading - Define Track 0 by entering predefined latitude and longitude value for the A point and entering a predefined heading value.

NOTE: Track 0 may be defined during an operation (e.g. planting), but some features are not available while it is being created.

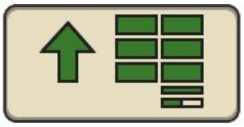
NOTE: It is recommended to make track 3 mt (10 ft) long for manual and 15 mt (45 ft) long for automatic.

ZB48J1T,1692099757967-19-17SEP23-1/9

Straight Track

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692099757967-19-17SEP23-2/9

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1692099757967-19-17SEP23-3/9

3. Select Guidance.

PC590571—UN—17AUG23

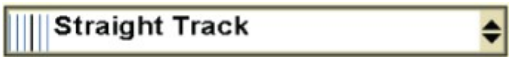
Guidance

Continued on next page

ZB48J1T,1692099757967-19-17SEP23-4/9

4. Select Straight Track from Tracking Mode.
5. Select straight track name from Track Name. If no name exists, create new one by selecting new track.

PC590564—UN—17AUG23

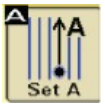


Straight Track from Tracking Mode

ZB48J1T,1692099757967-19-17SEP23-5/9

6. Select Set A.

PC590568—UN—17AUG23

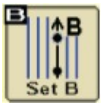


Set A

ZB48J1T,1692099757967-19-17SEP23-6/9

7. Define Set B using one of three options:
   a. To manually set the B point, drive to the desired location in the field to create the B point and select Set B . The minimum distance is 3 m (10 feet). It is recommended to Set the B point at the far end of the field to define the desired heading.

PC590569—UN—17AUG23



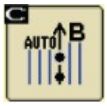
Set B

ZB48J1T,1692099757967-19-17SEP23-7/9

   b. To automatically set the B point, select Automatically Set B at any time. The B point will be automatically set when the vehicle drives 15 m (45 ft) away from the A point.

      This method calculates point B from the last five data points taken from the 15 m (45 ft) driven and runs a best fit line through the points to determine a heading.

PC590570—UN—17AUG23



Automatically Set B

ZB48J1T,1692099757967-19-17SEP23-8/9

   c. To set the B point by entering a heading direction, select the Set Heading.

      Enter the desired line heading with the numeric keypad and save the value by selecting Accept.

      0.000 indicates North, 90.000 East, 180.000 South, and 270.000 West.

8. To cancel setup at any time and return to the Guidance Setup, select cancel.

PC590572—UN—17AUG23

Heading

The Track 0 is now defined and the parallel tracks are created automatically.

ZB48J1T,1692099757967-19-17SEP23-9/9

Adaptive Curves

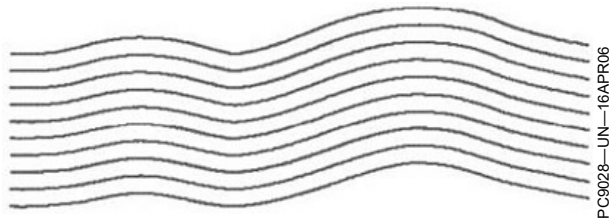
Theory of Operation

Adaptive curve allows the operator to record a manually driven curved path. Once the first curved pass has been recorded and machine is turned around, the operator can parallel track or activate AutoTrac once the propagated path appears. The machine will be guided along subsequent passes, based off of the previous recorded pass. Each pass is generated in relation to the original driven pass to ensure that steering errors are not propagated through the entire field. The passes are not identical copies of the original pass. The curvature of the pass changes to maintain pass to pass error. When necessary, the operator can change the curve path anywhere in the field by simply steering the machine off the propagated path.

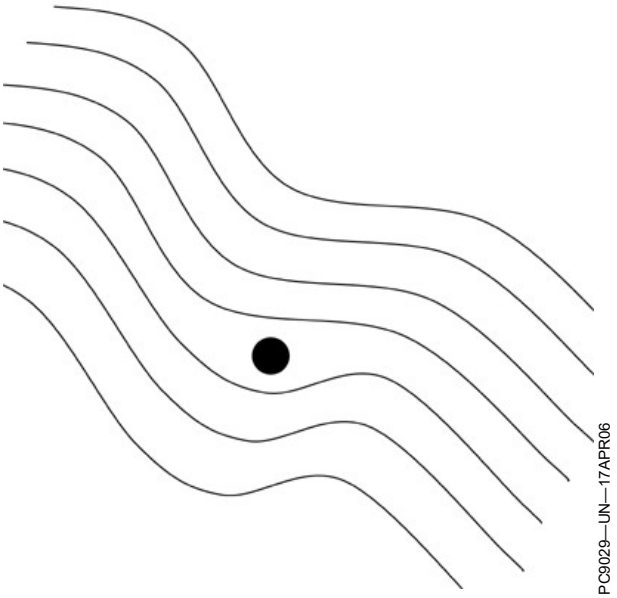
NOTE: Skip pass is not available in Adaptive Curves Mode.

The curvature of the path changes as the subsequent paths get more convex or concave.

Adaptive curve track mode allows an operator to drive and be guided along a variety of field patterns.



Adaptive Curves Mode



Adaptive Curves Mode

ZB48J1T,1692100048683-19-19SEP23-1/8

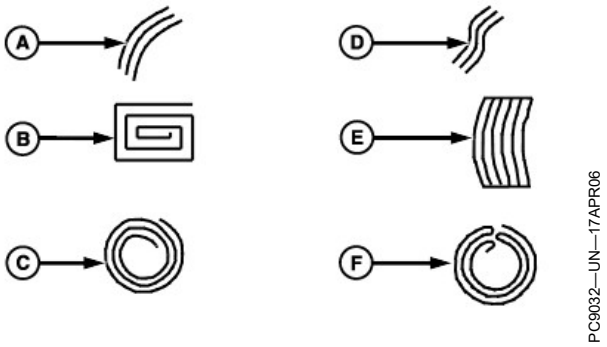
Guidance Patterns

Following are the variety of field patterns:

- Simple Curve
- S-Curve
- Boxed
- Race Track
- Spiral
- Circle

Shift Track Operation

The use of shift track is not recommended when using curve track. Shift track will not compensate for inherent GPS drift in curve track mode.



Paths

A—Simple Curve
B—Boxed
C—Spiral
D—S-Curve
E—Race Track
F—Circle

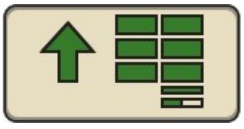
ZB48J1T,1692100048683-19-19SEP23-2/8

Creating a New Adaptive Curve Track

NOTE: Setup of a client, farm, and field is not required for adaptive curve track operation but only one global adaptive curve track can be saved.

1. Select Menu.

PC582158—UN—01AUG23



Menu

Continued on next page

ZB48J1T,1692100048683-19-19SEP23-3/8

2. Select GreenStar (GS3)

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1692100048683-19-19SEP23-4/8

3. Select Guidance.

PC590571—UN—17AUG23

Guidance

ZB48J1T,1692100048683-19-19SEP23-5/8

4. Select Adaptive Curves from Tracking Mode.
5. Select adaptive curves name from Track Name. If no name exists, create new one by selecting new track.
6. Drive to desired location in the field for the start of the track.
7. Start recording. Select Record.

NOTE: Adaptive curve recording is disabled when repeat mode is ON. When recording new paths (i.e. planting), repeat mode should be unchecked (Off). When guiding on existing paths (i.e. spraying, harvesting), the repeat mode should be checked (On).

PC590566—UN—17AUG23

Adaptive Curves from Tracking Mode

Repeat mode is OFF by default.

8. Record is replaced by the following after it is selected:
   a. Pause

Continued on next page

ZB48J1T,1692100048683-19-19SEP23-6/8

b. Stop

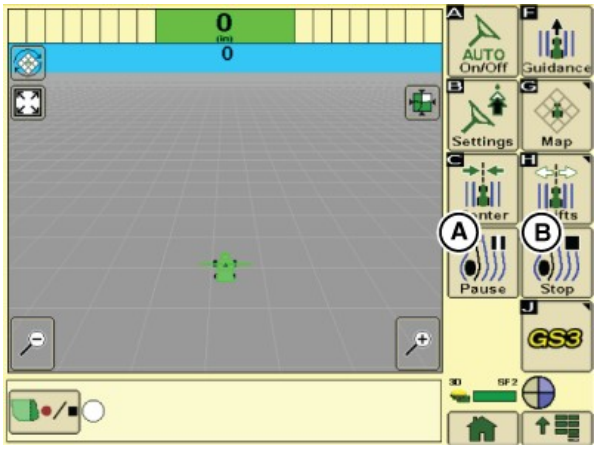
NOTE: Recording only needs to be turned off if machine is driven outside of normal field pattern (i.e. refill sprayer, planter) or if user do not want to record turns at end of field.

9. Drive the initial pass. A blue guidance track will appear on the map.

NOTE: When driving straight, the recorded path may not be shown behind the machine on the display. The path will appear when the machine is turned.

The white navigation line will NOT appear until end of pass is reached and machine is turned around. Once machine is turned around, system will determine path to guide on. System locates a line segment that is parallel and within 1/2 to 1-1/2 track spacing. The predicted path will appear from which the operator can navigate from. Drive vehicle along desired path.

10. Turn machine at the end of first pass and a white navigation line for the next pass will be generated. It may take a few seconds for the navigation line to appear.
11. Once the white navigation line for the intended pass appears, press resume switch (AutoTrac only) on the machine and the machine will automatically steer on that pass. For manual guidance, guide on the white highlighted navigation line.
12. Select Stop (B) recording when the field is finished.



Set Adaptive Curves Page

A—Pause **B—Stop**

IMPORTANT: Stop recording before entering the next field. Failure to do so may result in deleting the adaptive curve data from the last field before recording adaptive curve data in the next field.

NOTE: The stored adaptive curve track data is assigned to the selected client, farm, and field name. It will be stored in the display's internal memory until it is cleared by the user and can be transferred from one display to another.

Continued on next page

ZB48J1T,1692100048683-19-19SEP23-7/8

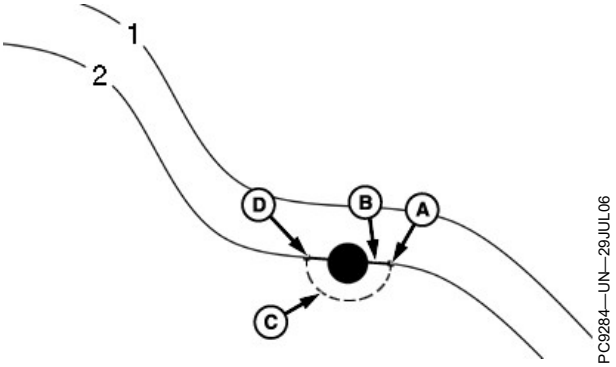
Recording a Straight Path or Navigating Around Obstacles

1. Start recording.
2. Select pause recording to temporary stop recording of a vehicle's path.
3. Select recording to resume recording the adaptive curve.

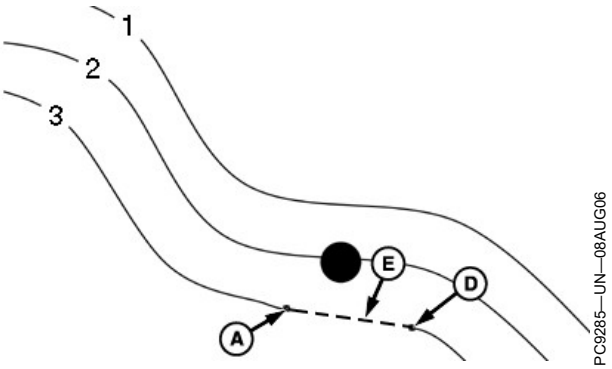
The distance between where recording was PAUSED and UNPAUSED will be connected with a straight line. This can be helpful when there is a long straight section of path or when navigating around obstacles.

NOTE: The longest bridge segment (line segment created between PAUSED and UNPAUSED) that can be created is a distance of 0.8 km (0.5 miles) (2,640ft). For a greater distance, the line segment will not connect resulting in a gap in the path.

A—Recording PAUSED
B—Bridge segment is generated to connect two points
C—Tractor path not recorded while paused
D—Recording UNPAUSED
E—Path recorded as a straight line between points A and D



Around Obstacle



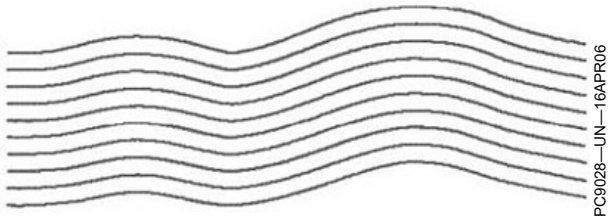
Straight Path

ZB48J1T,1692100048683-19-19SEP23-8/8

AB Curves

Theory of Operation

AB curves mode allows an operator to drive curved parallel passes that have end points on either end of the field. The guidance tracks will be parallel to the track in either direction and will be generated based on the original track to ensure that steering errors are not propagated through the entire field.



AB Curves Mode

Track 0 is the reference track from which subsequent curve passes in the field are based. Once the first AB curve (Track 0) is created, 4 tracks will be generated. The system will continue to generate additional passes when the machine drives the last pass displayed on the screen.

NOTE: Skip pass is available in AB curves mode.

Generating AB Curve Path Information - As the system generates the initial passes after recording Track 0 or when generating additional passes the text "Generating AB Curve" will be displayed on the perspective view. During this time you will not be able to track off of any paths.

AB Curve Generation Limits - The initially recorded AB curve must be at least 10 feet in length to be a valid AB curve to use for guidance. The vehicle must be within 400 meters (0.25 miles) of where Track 0 was recorded for the system to start generating curve paths. If the vehicle is at this outer limit it may take several minutes to generate a path that shows up on the screen. During this time "Generating AB Curve" will be displayed on the screen.

Multiple AB Curves in a field - A field can contain multiple AB curve paths. Each AB curve for a field must be recorded and uniquely named.

Track Numbering - Tracks will be numbered to allow for skip pass and to aid in finding passes. The direction label (N,S,E, or W) is defined by the heading determined between the first and last point in the curve.

The curvature of the path changes as the subsequent paths get more convex or concave.

Continued on next page

ZB48J1T,1692100403680-19-17SEP23-1/7

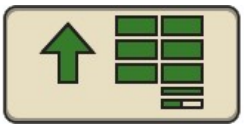
Creating a New AB Curve Track

Use the following procedure to setup the first AB curve (Track 0) from, which subsequent curve passes in the field are based.

NOTE: Multiple AB curves may be recorded per field. They will need to be named and recorded separately.

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692100403680-19-17SEP23-2/7

2. Select GreenStar (GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

ZB48J1T,1692100403680-19-17SEP23-3/7

3. Select Guidance.

PC590571—UN—17AUG23

Guidance

ZB48J1T,1692100403680-19-17SEP23-4/7

4. Select AB Curves from Tracking Mode.
5. Select AB curves name from Track Name. If no name exists, create new one by selecting new track.
6. Drive to desired location in the field for the start of the track.
7. Start recording. Select Record.
8. Record is replaced by the following after it is selected:

PC590565—UN—17AUG23

AB Curves from Tracking Mode

a. Pause

ZB48J1T,1692100403680-19-17SEP23-5/7

b. Stop

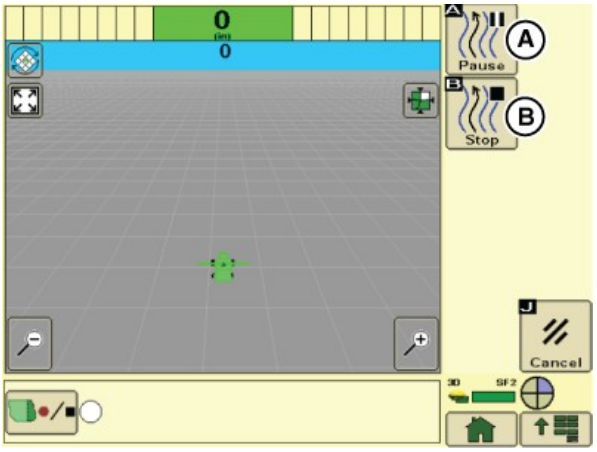
9. Drive the initial pass. A blue guidance track will appear on the map.

NOTE: When driving straight, the recorded path may not be shown behind the machine on the display. The path will appear when the machine is turned.

10. Press Stop (B) recording at the end of the pass and the track will be saved to memory.

NOTE: If GPS signal is lost while recording, recording is stopped and the AB curve that was recorded to that point will be saved. If the AB curve is not what the operator intended, it may be deleted by using the Delete Track on the Setup Guidance Track page.

A—Pause **B—Stop**



PC590590—UN—17AUG23

Set AB Curve Page

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ZB48J1T,1692100403680-19-17SEP23-6/7

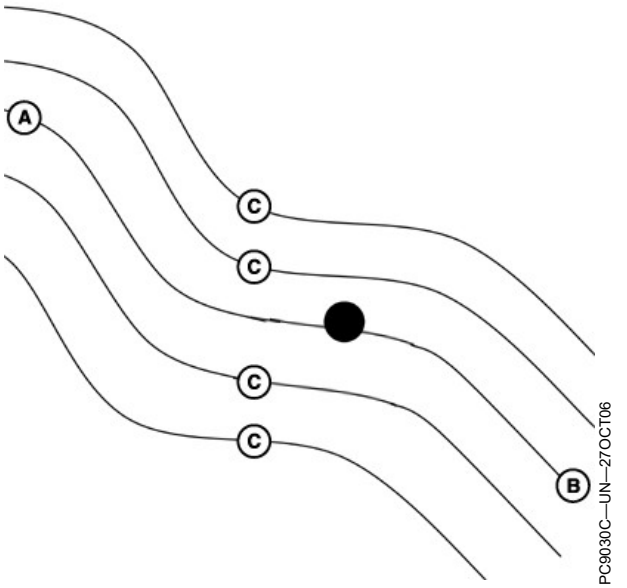
Recording a Straight Path or Navigating Around Obstacles

1. Start AB curves recording.
2. Select pause recording to temporary stop recording of a vehicle's path.
3. Select AB curves recording to resume recording the AB curve.

The distance between where recording was paused and unpaused will be connected with a straight line. This can be helpful when there is a long straight section of path or when navigating around obstacles.

NOTE: The longest bridge segment (line segment created between paused and uinpaused) that can be created is a distance of 0.8 km (0.5 miles) (2,640ft). For a greater distance, the line segment will not connect resulting in a gap in the path.

A—Pause before obstacle
B—Resume after obstacle
C—Paths Generated from Track 0



Navigating Around Obstacles

ZB48J1T,1692100403680-19-17SEP23-7/7

Circle Track

Theory of Operation

Circle track helps operators drive concentric circles in a field with center pivot irrigation. Operators can create an initial circle using a variety of different methods. Once the initial circle has been defined, all the subsequent circles in the field are created.

Circle track mode is available for manual guidance; however, to AutoTrac in circle track mode requires both an AutoTrac and Pivot Pro activation. The Pivot Pro activation is available in North America only.

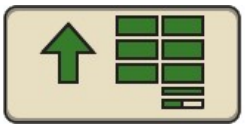
Circle center latitude and longitude coordinates are saved and associated to a field name. If a field is not selected when the circle center is defined, global circle centers will be saved. Circle centers can be recalled for future use.

ZB48J1T,1692100524545-19-17SEP23-1/7

Creating a New Circle Track

1. Select Menu.

PC582158—UN—01AUG23



Menu

ZB48J1T,1692100524545-19-17SEP23-2/7

2. Select GreenStar(GS3).

PC582159—UN—01AUG23

GreenStar (GS3)

Continued on next page

ZB48J1T,1692100524545-19-17SEP23-3/7

3. Select Guidance.

PC590571—UN—17AUG23

Guidance

ZB48J1T,1692100524545-19-17SEP23-4/7

4. Select Circle Track from Tracking Mode.
5. Select circle track name from Track Name. If no name exists, create new one by selecting new track.
6. Drive to desired location in the field for the start of the track.

Drive Circle Method

Drive Circles - Creates a circle track by driving at least 10 percent of the desired circle. It is recommended to drive the entire circle for optimum circle center calculation and a higher accuracy track.

PC590567—UN—17AUG23

Circle Track from Tracking Mode

1. Drive to the desired location in the field to drive a circular pass.

ZB48J1T,1692100524545-19-17SEP23-5/7

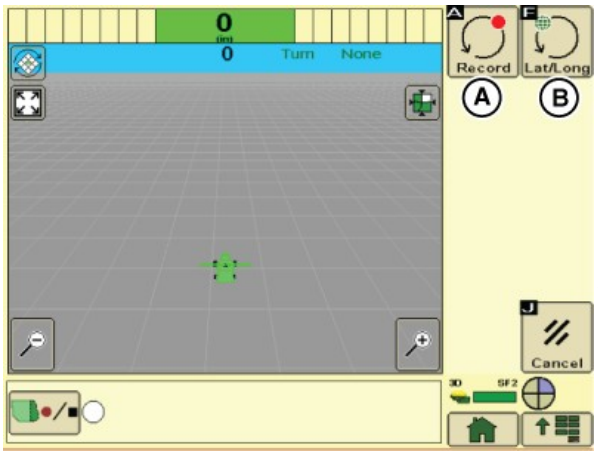
2. Select the record (A) to drive circle track.
3. Select Stop circle recording. The circle tracks are created automatically with the track spacing defined in the setup.

NOTE: Stop circle recording will appear when enough of the circle has been driven to calculate the center point.

Lat/Long Method

1. Select Lat/Long (B) track.

A—Record **B—Lat/Long**



PC590591—UN—17AUG23

Set Circle Track Page

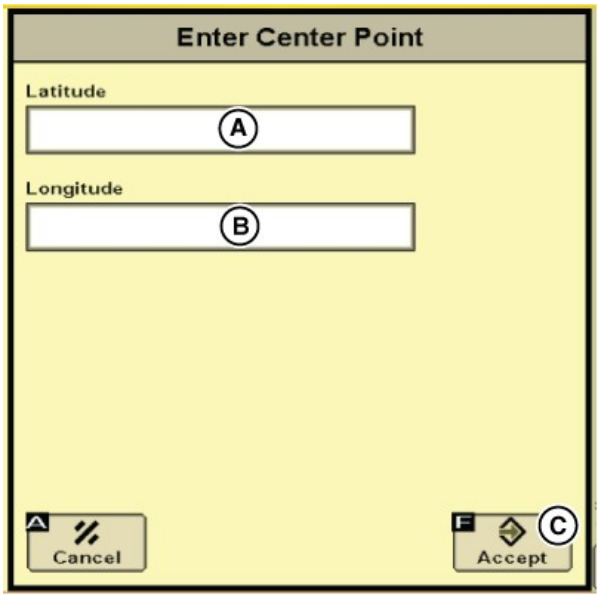
Continued on next page

ZB48J1T,1692100524545-19-17SEP23-6/7

2. Enter the desired latitude and longitude values in decimal degrees. The previous latitude and longitude values associated with the field are displayed when the entry screen is first displayed.
3. Save the values by selecting Accept (C). The circle tracks are created automatically with the track spacing defined in the Setup.

NOTE: It may be necessary to line the vehicle up on the center pivot tower track or use center shift track to get the tracks lined up with the vehicle.

A—Latitude
B—Longitude
C—Accept



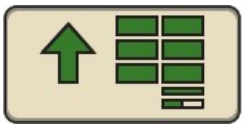
Center Point

ZB48J1T,1692100524545-19-17SEP23-7/7

Row Finder

PC582158—UN—01AUG23

1. Select Menu.



Menu

ZB48J1T,1692279954088-19-17SEP23-1/3

PC582159—UN—01AUG23

2. Select GreenStar(GS3).

GreenStar (GS3)

ZB48J1T,1692279954088-19-17SEP23-2/3

PC590571—UN—17AUG23

3. Select Guidance.
4. Select Row Finder from Tracking Mode.
5. Go to View.
6. Select Set Row.

Guidance

ZB48J1T,1692279954088-19-17SEP23-3/3

Generation 4 Display—Track

Straight Track

PC28961—UN—24APR23

1. Select Menu.

Menu

ZB48J1T,1692106465016-19-17SEP23-1/9

2. Select AutoTrac Guidance.

PC28717—UN—25AUG22

AutoTrac Guidance

ZB48J1T,1692106465016-19-17SEP23-2/9

3. Select Set Track.

PC590575—UN—17AUG23

Set Track

ZB48J1T,1692106465016-19-17SEP23-3/9

4. Select New Track, if no existing track is available.

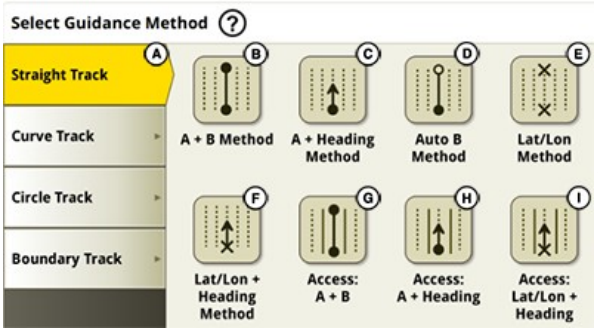
PC590576—UN—17AUG23

New Track

ZB48J1T,1692106465016-19-17SEP23-4/9

5. Select Straight Track (A). Select any method from the available options.

A—Straight Track
B—A + B Method
C—A+ Heading Method
D—Auto B Method
E—Lat/Lon Method
F—Lat/Lon + Heading Method
G—Access: A + B
H—Access: A+ Heading
I—Access: Lat/Lon + Heading



Straight Track Options

ZB48J1T,1692106465016-19-17SEP23-5/9

6. Select the Track Name.

PC590577—UN—17AUG23

Track Name

Continued on next page

ZB48J1T,1692106465016-19-17SEP23-6/9

7. Select Field.
8. Select OK. Drive to the desired location in the field.

PC590578—UN—17AUG23

Field

ZB48J1T,1692106465016-19-17SEP23-7/9

9. Select Set A.

PC590579—UN—17AUG23

Set A

ZB48J1T,1692106465016-19-17SEP23-8/9

10. Select Set B.

PC590580—UN—17AUG23

Set B

ZB48J1T,1692106465016-19-17SEP23-9/9

Curve Track

1. Select Menu.

PC28961—UN—24APR23

Menu

ZB48J1T,1692108125002-19-17SEP23-1/6

2. Select AutoTrac Guidance.

PC28717—UN—25AUG22

AutoTrac Guidance

ZB48J1T,1692108125002-19-17SEP23-2/6

3. Select Set Track.

PC590575—UN—17AUG23

Set Track

ZB48J1T,1692108125002-19-17SEP23-3/6

4. Select New Track, if no existing track is available.

PC590576—UN—17AUG23

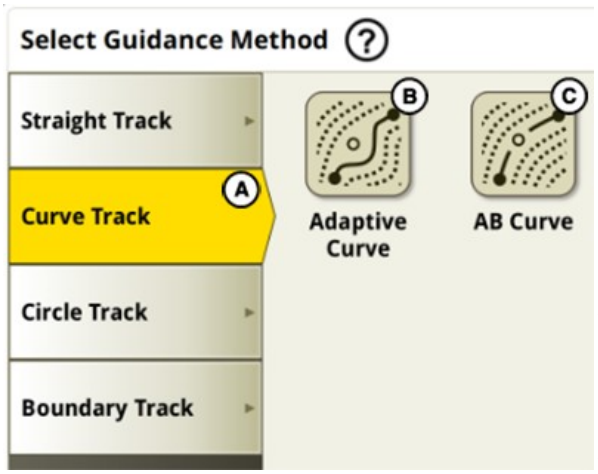
New Track

Continued on next page

ZB48J1T,1692108125002-19-17SEP23-4/6

5. Select Curve Track (A). Select any method from the available options.
6. Drive to the desired location in the field.

A—Curve Track
B—Adaptive Curve
C—AB Curve



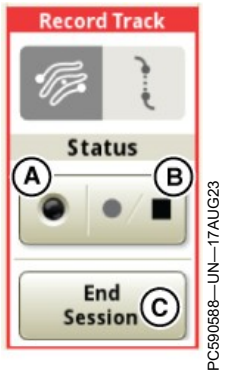
Curve Track Options

ZB48J1T,1692108125002-19-17SEP23-5/6

7. Select Record (A) to start recording.
8. Select End Session (C) to end the recording.
9. Select OK to save the session or Cancel to return to the curve recording session.

NOTE: Once ended, additional curve segments can be added to the session by editing the track.

A—Record
B—Pause/Stop
C—End Session



Record Track

ZB48J1T,1692108125002-19-17SEP23-6/6

Circle Track

1. Select Menu.

PC28961—UN—24APR23

Menu

ZB48J1T,1692108138989-19-17SEP23-1/7

2. Select AutoTrac Guidance.

PC28717—UN—25AUG22

AutoTrac Guidance

Continued on next page

ZB48J1T,1692108138989-19-17SEP23-2/7

3. Select Set Track.

PC590575—UN—17AUG23

Set Track

ZB48J1T,1692108138989-19-17SEP23-3/7

4. Select New Track, if no existing track is available.

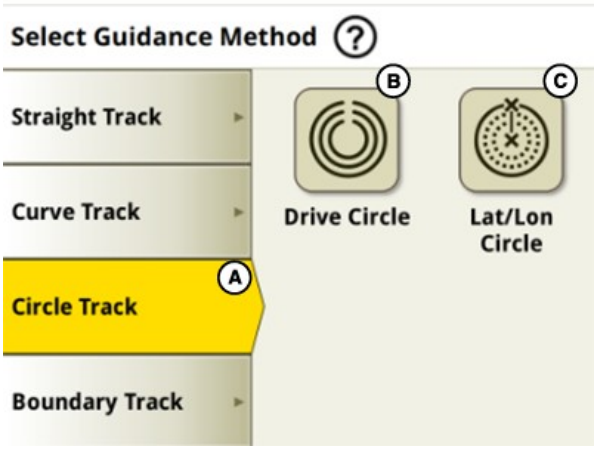
PC590576—UN—17AUG23

New Track

ZB48J1T,1692108138989-19-17SEP23-4/7

5. Select Circle Track (A). Select any method from the available options.

A—Circle Track
B—Drive Circle
C—Lat/Lon Circle



Circle Track Options

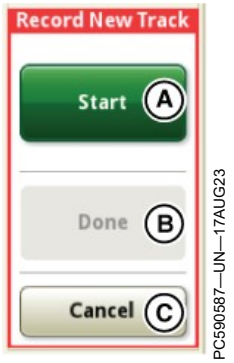
ZB48J1T,1692108138989-19-17SEP23-5/7

Drive Circle

1. Drive to the desired location in the field to drive a circular pass.
2. Select Start (A) to record new track.
3. Drive the desired circle pass.
4. Select Done (B) to stop recording.

NOTE: Done will appear when enough of the circle has been driven to calculate the center point.

A—Start
B—Done
C—Cancel



Drive Circle Track

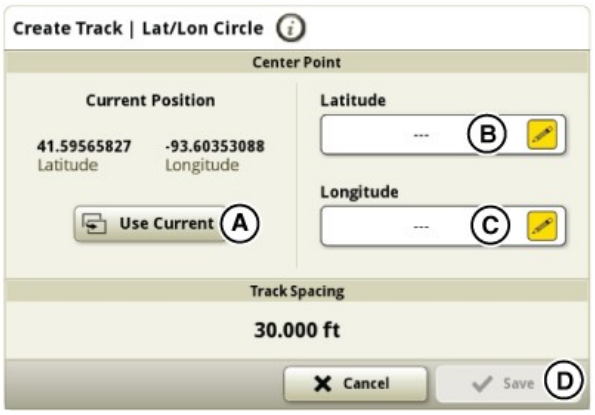
Continued on next page

ZB48J1T,1692108138989-19-17SEP23-6/7

Lat/Lon Circle

1. Drive to the desired location in the field to drive a circular pass.
2. Select Use Current (A) if the current latitude and longitude is correct.
3. Select Latitude (B) and Longitude (C).
4. Select Save (D).

A—Use Current
B—Latitude
C—Longitude
D—Save



PC590592—UN—17AUG23

Lat/Lon Circle Track

ZB48J1T,1692108138989-19-17SEP23-7/7

Boundary Track

1. Select Menu.

PC28961—UN—24APR23

Menu

ZB48J1T,1692108148895-19-17SEP23-1/5

2. Select AutoTrac Guidance.

PC28717—UN—25AUG22

AutoTrac Guidance

ZB48J1T,1692108148895-19-17SEP23-2/5

3. Select Set Track.

PC590575—UN—17AUG23

Set Track

ZB48J1T,1692108148895-19-17SEP23-3/5

4. Select New Track, if no existing track is available.

PC590576—UN—17AUG23

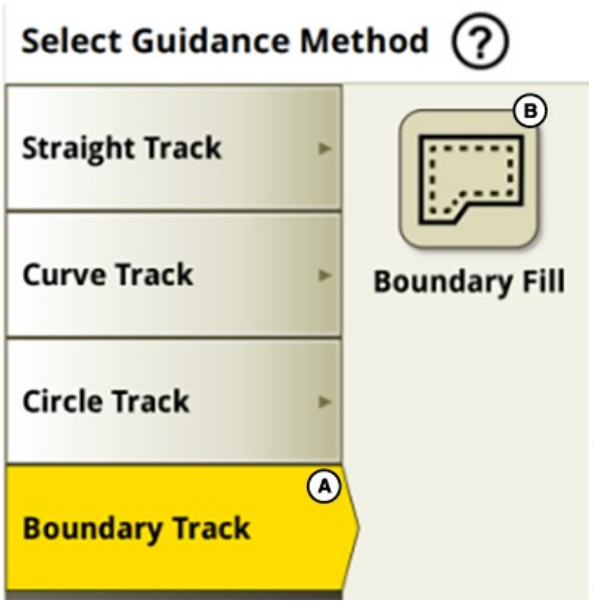
New Track

Continued on next page

ZB48J1T,1692108148895-19-17SEP23-4/5

5. Select Boundary Track (A). Select Boundary Fill (B).
6. Select field and boundary to generate boundary fill track.
7. Select next to set up boundary fill.

A—Boundary Track **B—Boundary Fill**



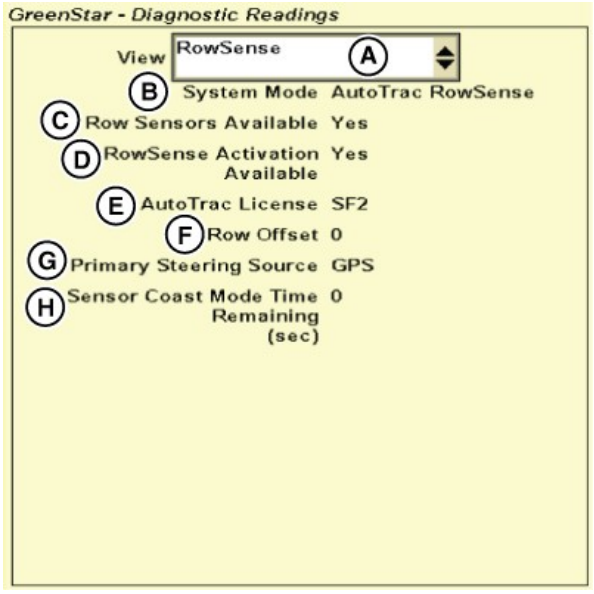
Boundary Track Options

ZB48J1T,1692108148895-19-17SEP23-5/5

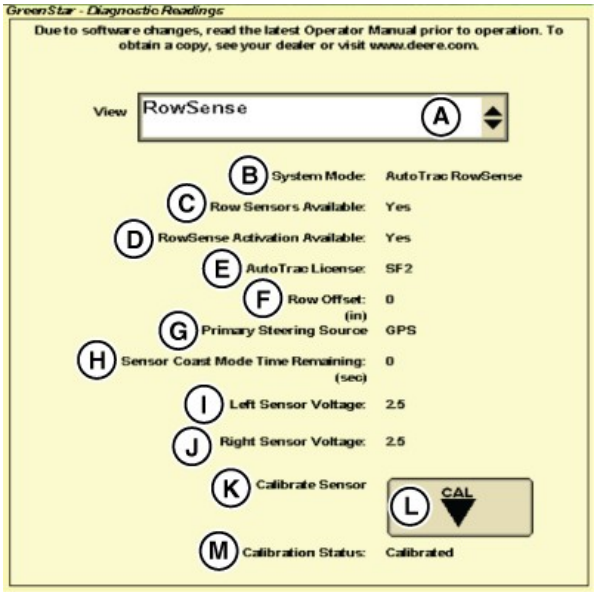
Diagnostic Screens for GreenStar 3

NOTE: Possible diagnostic answers given with brief explanation.

ZB48J1T,1692098536255-19-12SEP23-1/2



Diagnostic Readings for GreenStar 3 CommandCenter



Diagnostic Readings for GreenStar 3 Display

A—View
B—System Mode
C—Row Sensors Available
D—RowSense Activation Available
E—AutoTrac License
F—Row Offset
G—Primary Steering Source
H—Sensor Coast Mode Time Remaining
I—Left Sensor Voltage
J—Right Sensor Voltage
K—Calibrate Sensor
L—CAL
M—Calibration Status

Row sensors available:
- A — Yes
- B — No

Row guidance activation available:

- A — Yes (if AutoTrac RowSense GS3 activation is available)
- C — No (if no AutoTrac RowSense GS3 activation available)

AutoTrac license:
- A — Yes (SF1)
- B — Yes (SF2)
- C — No

Row offset:
- Current row offset value, distance measured in (in.) or (mm).

Primary steering source:
- A — None
- B — GPS
- C — Row sensors

Sensor coast mode time remaining:
- Countdown timer when GPS signal is lost, displayed in seconds.

Left Sensor Voltage

- Sensor at-rest voltage should be less than 2.5 volts.

Right Sensor Voltage

- Sensor at-rest voltage should be greater than 2.5 volts.

Calibrate Sensor

Calibration Status

- Calibrated
- Not calibrated

ZB48J1T,1692098536255-19-12SEP23-2/2

Diagnostic Screen for Gen4

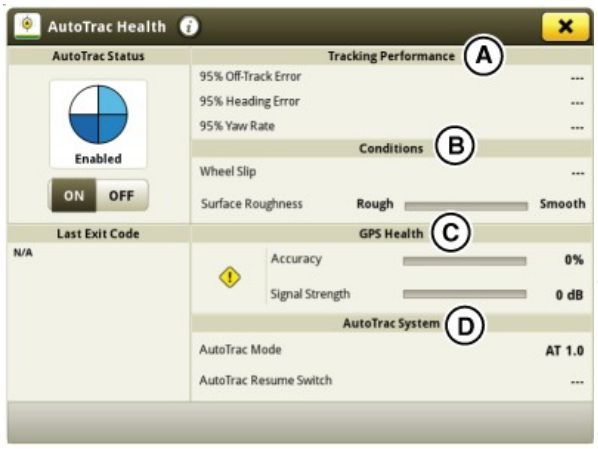
AutoTrac Status: AutoTrac Status displays the AutoTrac pie chart and AutoTrac ON / OFF toggle.

NOTE: Tracking Performance and Conditions values are continuously calculated when AutoTrac is engaged (4/4 status pie) and tracking on the line. The values do not update when AutoTrac drops to 3/4 or 2/4 status pie, and the values change to "---" in 1/4 status pie.

Tracking Performance (A)

NOTE: Each of the following values is displayed as a 95th percentile value, meaning that 95% of the time, performance will be equal to or greater than the value displayed.

95% Off-Track Error - Distance from the closest track to the machine. Error increases until the machine reaches halfway between two tracks, then error counts down as the machine approaches the next track. In good conditions, these values should be equal to or less than:



Diagnostic Screen for Gen4

A—Tracking Performance
B—Conditions
C—GPS Health
D—Autotrac System

	4.8—12.9 km/h (3 —8 mph)	12.9—19.3 km/h (8—12 mph)	19.3—24.1 km/h (12—15 mph)
Off-Track Error (all track types)	4 cm (1.6 in)	8 cm (3.2 in)	12 cm (4.7 in)

95% Heading Error - Relationship of the machine direction relative to the current track. In good conditions, these values should be equal to or less than:

	4.8—12.9 km/h (3 —8 mph)	12.9—19.3 km/h (8—12 mph)	19.3—24.1 km/h (12—15 mph)
Straight Track	0.8°	1°	1.2°
Curve / Circle Track (This value depends on the sharpness of the curve. Sharper curves have higher values.)	1.6°	3.0°	3.6°

95% Yaw Rate - Machine rate of turn, which affects tracking performance. In good conditions, these values should be equal to or less than:

	4.8—12.9 km/h (3 —8 mph)	12.9—19.3 km/h (8—12 mph)	19.3—24.1 km/h (12—15 mph)
Straight Track	1°	1.5°	1.8°
Curve / Circle Track (This value depends on the sharpness of the curve. Sharper curves have higher values.)	2°	4.5°	5.4°

Conditions (B)

NOTE: Values outside of the optimal range display a yellow LED status indicator. Values within the optimal range display a green LED status indicator.

Surface Roughness - Measurement of the surface where the machine is operating. It is calculated using pitch, roll, and speed inputs from the StarFire Receiver. The surface roughness indicator bar is yellow when outside of the optimal range and green when within the optimal range.

Wheel Slip - Percentage of wheel slip is measured by comparing the wheel speed reading from the machine to the GPS speed. A value greater than 6% indicates that wheel slip may be negatively impacting AutoTrac performance.

GPS Health (C)

Accuracy - Position accuracy of the receiver that is displayed as a percentage. To achieve advertised accuracy and repeatability, 100% accuracy is required.

Signal Strength - Quality of StarFire correction signal received by the receiver.

AutoTrac System (D)

AutoTrac Mode -

Continued on next page

Indicates the type of AutoTrac control unit installed on the machine.

Control Unit	AutoTrac Mode
AT2 (7R S.N. 110101—, 8R S.N. 160001—, 8RT S.N. 923001—, 8RX S. N. 801001—)	AT 2.0
AT1 (integrated or factory-installed AutoTrac control unit)	AT 1.0
AutoTrac Controller 300	ATC 300
AutoTrac Controller Raven	ATC Raven
AutoTrac Controller Reichhardt	ATC Reichhardt
AutoTrac Controller Deere	ATC Deere
AutoTrac Universal 300	ATC 300
AutoTrac Universal 200	ATC 200
AutoTrac Universal 100	ATC 100

AutoTrac Resume Switch - Indicates ON when the AutoTrac resume switch is pressed, and OFF when the resume switch is released.

ZB48J1T,1692676792441-19-23AUG23-2/2

Cleaning Row Sensors

CAUTION: Shut OFF engine, set parking brake and remove key.

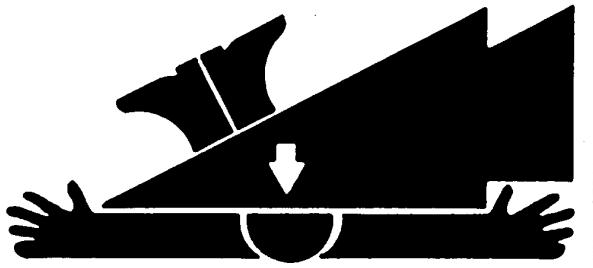
KR43067,00000B3-19-11NOV08-1/2

Raise header and lower safety stop (A) onto hydraulic cylinder rod.

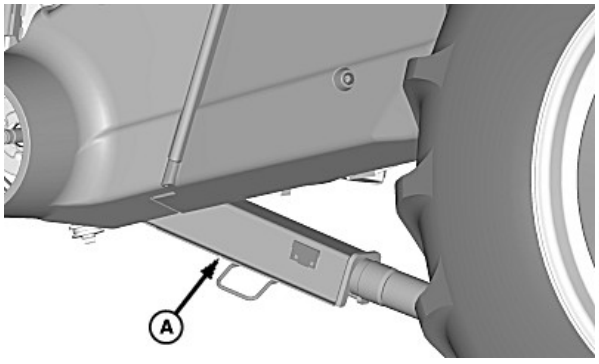
Row Sensors should be checked daily to see if cleaning is necessary. If material has accumulated on sensors it may prevent free movement and affect performance. To clean row sensors, remove debris from sensors and surrounding area. Check that sensors move freely without obstruction.

Annually check for excessive wear of sensor bushings and shafts. Replace as necessary.

A—Safety Stop



TS696—UN—21SEP89



H90891—UN—26FEB08

KR43067,00000B3-19-11NOV08-2/2

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Continued on next page

John Deere Service Literature Available

Technical Information

Technical information can be purchased from John Deere. Publications are available in print or CD-ROM format.

Orders can be made using one of the following:

- John Deere Technical Information Store: **www.JohnDeere.com/TechInfoStore**
- Call 1-800-522-7448
- Contact your John Deere dealer

Available information includes:

DX,SERVLIT-19-07DEC16-1/5

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.

TS189—UN—17JAN89

DX,SERVLIT-19-07DEC16-2/5

OPERATOR'S MANUALS providing safety, operating, maintenance, and service information.

TS191—UN—02DEC88

DX,SERVLIT-19-07DEC16-3/5

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 a separate component technical manual.

TS224—UN—17JAN89

Continued on next page

DX,SERVLIT-19-07DEC16-4/5

EDUCATIONAL CURRICULUM including five comprehensive series of books detailing basic information regardless of manufacturer:

- Agricultural Primer series covers technology in farming and ranching.
- 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.
- Fundamentals of Compact Equipment manuals provide instruction in servicing and maintaining equipment up to 40 PTO horsepower.

TS1663—UN—10OCT97

DX,SERVLIT-19-07DEC16-5/5

John Deere Service Keeps You On The Job

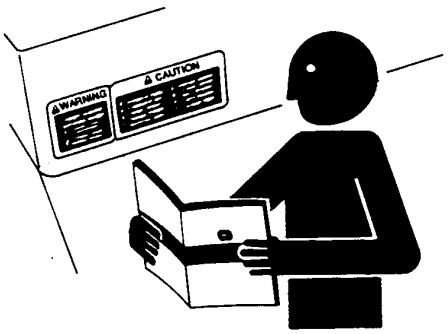
John Deere Is At Your Service

CUSTOMER SATISFACTION is important to John Deere.

Our dealers strive to provide you with prompt, efficient parts and service:

–Maintenance and service parts to support your equipment.

–Trained service technicians and the necessary diagnostic and repair tools to service your equipment.



TS201—UN—15APR13

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

Your John Deere dealer is dedicated to supporting your equipment and resolving any problem you may experience.

1. When contacting your dealer, be prepared with the following information:

–Machine model and product identification number

–Date of purchase

–Nature of problem

2. Discuss problem with dealer service manager.

3. If unable to resolve, explain problem to dealership manager and request assistance.

4. If you have a persistent problem your dealership is unable to resolve, ask your dealer to contact John Deere for assistance. Or contact the Ag Customer Assistance Center at 1-866-99DEERE (866-993-3373) or e-mail us at www.deere.com/en_US/ag/contactus/.

DX,IBC,2-19-02APR02-1/1