

John Deere Active Implement Guidance



OPERATOR'S MANUAL

John Deere Active Implement Guidance
(S.N. PCXL01C200000—) (S.N.
PCXL02C200000—) (S.N.
PCXL01D3500000—)

OMPFP27088 ISSUE L5 (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:

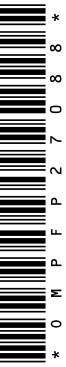
WARNING

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

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. See www.techpubs.deere.com (Ag&Turf/JDPS), www.johndeeretechno.com (C&F), or your John Deere dealer 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.

DX,IFC,PRE -19-24SEP25-1/1

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.
 - **John Deere replacement parts, repair services, and information for maintenance or repair are available.**
- For more information, please visit deere.com or deere.ca.**



TS201 —UN—15APR13

DX,IFC,JDS -19-30SEP25-1/1

Trademarks

Trademarks	
AutoTrac™	Trademark of Deere & Company
CommandARM™	Trademark of Deere & Company
CommandCenter™	Trademark of Deere & Company
GreenStar™	Trademark of Deere & Company
iGrade™	Trademark of Deere & Company
ILS™	Trademark of Deere & Company
RowSense™	Trademark of Deere & Company
RTK Extend™	Trademark of Deere & Company
Service ADVISOR™	Trademark of Deere & Company
StarFire™	Trademark of Deere & Company
TLS™	Trademark of Deere & Company
TouchSet™	Trademark of Deere & Company

zb48j1t,1693379220046 -19-30AUG23-1/1

John Deere Technical Information Bookstore

Product functionality may not be fully represented in this document due to product changes occurring after

time of printing. Read the latest Operator's Manual prior to operation. To obtain a copy, see dealer or visit techpubs.deere.com.

CZ76372,000071F -19-04AUG25-1/1

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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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Moline, Illinois
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A John Deere ILLUSTRATION™ Manual

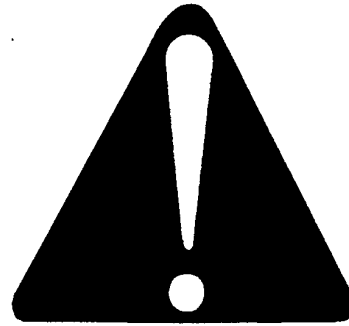
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Safety

Recognize Safety Information

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

Follow recommended precautions and safe operating practices.



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

Understand Signal Words

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.



TS187 —19—30SEP88

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.

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



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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 and secure the machine. If equipped, remove the key, disconnect the battery ground strap, and 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.



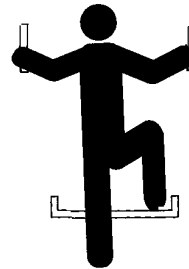
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DX,SERV -19-25NOV25-1/1

Use Steps and Handholds Correctly

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.



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DX,WW,MOUNT -19-12OCT11-1/1

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.



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

Use Electronic Display Properly

Electronic displays are secondary devices intended to aid the operator in performing field operations, increase comfort and provide entertainment. Displays offer a wide range of functionality, are used in many different machine system applications and can be used with other secondary devices such as handheld electronic devices.

A secondary device is any device that is not required to operate your machine for its primary use. The operator is always responsible for safe operation and control of the machine.

To prevent injury while operating the machine:

- Position the display according to the installation instructions. Ensure that the device is secured and does not obstruct the driver's view or interfere with the machine operating controls.
- Do not become distracted by the display. Stay alert. Pay attention to the machine and surrounding environment.

- Do not change settings or access any functions that require prolonged use of the display controls while machine is moving. Stop the machine in a safe location and place in park position before attempting such operations.
- Never set the volume so high that you cannot hear outside traffic and emergency vehicles.

To promote safe operation, certain functions of displays may be disabled unless the machine movement is restricted and/or has been placed in the park position. Overriding this safety feature may violate applicable law and can result in damage, serious injury, or death.

Only use available display functionality when conditions permit you to do so safely and in accordance with instructions provided. Always observe safe driving rules, state, or local laws and traffic regulations when using any secondary device.

DX,ELEC,DISPLAY -19-13JAN15-1/1

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 RowSense, 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.

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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,



TS1729 —UN—24MAY13

discoloration, or abrasion. Replace only with replacement parts that meet specifications for your machine.

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

Operate Implement Automation Systems Safely

Do not use implement automation systems on roadways. Always turn off (disable) implement automation systems before entering a roadway. Do not attempt to turn on (activate) an implement automation system while transporting on a roadway.

Implement automation systems are intended to aid the operator in performing field operations more efficiently. The operator is always responsible for the machine path.

Implement automation systems include any application that automates implement movement. This includes, but may not be limited to, iGrade and Active Implement Guidance.

To prevent injury to the operator and bystanders:

- Verify the machine, implement, and automation systems are set up correctly.
- Remain alert and pay attention to the surrounding environment.
- Take control of the machine, 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.



PC13793—UN—25MAY11

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Avoid High-Pressure Fluids

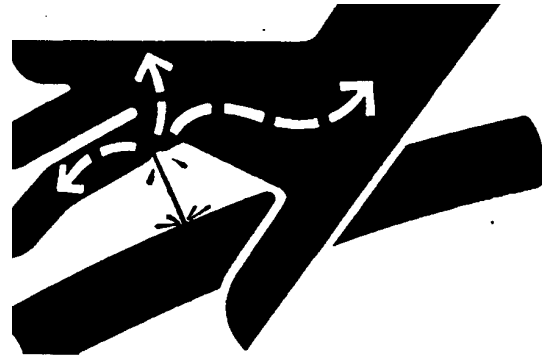
Inspect hydraulic hoses periodically—at least once per year—for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

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

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

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

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



In case of accidental skin injection, seek immediate surgical treatment.

X9811—UN—23AUG88

DX,FLUID -19-05NOV25-1/1

Regulatory and Compliance Information

Identify Date Code

Use the date code (A) on the product label to identify the date of manufacture. "YY" identifies the last two numbers of the year of manufacture (B); "WW" identifies the week number of calendar year of manufacture (C).

NOTE: The week number of manufacture ranges between 01—53.

Date Code		
YY	Last Two Numbers of Year of Manufacture	Example: 16 = 2016 17 = 2017 18 = 2018
WW	Week Number of Calendar Year of Manufacture	Example: 01, 02, 03—53

A—Date Code (date of manufacture)

B—Last Two Numbers of Year of Manufacture

C—Week Number of Calendar Year of Manufacture



Product Label Example

PC17574 —UN—16AUG13

DATE CODE **YY** **WW**

(B) (C)

Date Code Example

RW00482,00007B7 -19-08FEB22-1/1

PC28647 —UN—07FEB22

Eurasian Economic Union – EAC UCC

Eurasian Economic Union

Information for products that have a mark of conformity with the requirements of the EAEU technical regulations

Manufacturer: Deere & Company, One John Deere Place, Moline, IL, 61265-8098, USA

Product: Universal CAN Application Controller

Model: John Deere Application Controller

Made in the USA

Name and address of the authorized representative in the territory of the Eurasian Economic Union:
Limited Liability Company "SERVISSTAN"

Kyrgyz Republic, Bishkek K Akiev str. 102

For technical support, please contact your dealer.



EAC in English

Continued on next page

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PC694510 — UN — 19NOV25

Өнім

Еуразиялық Экономикалық Одақ

ЕАЭО техникалық регламенттерінің талаптарымен сәйкестік белгісі бар өнімдер туралы ақпарат

Өндіруші: Deere & Company, One John Deere Place, Молин, Иллинойс, 61265-8098, АҚШ

Өнім: Әмбебап CAN қолданбасының контроллері

Үлгі: John Deere қолданбасының контроллері

Америка Құрама Штаттарында жасалған

Еуразиялық Экономикалық Одақ аумағындағы уәкілетті өкілдің аты мен мекенжайы: "СЕРВИССТАН"
жауапкершілігі шектеулі серіктестік

Қырғыз Республикасы, Бішкек қ., К Акиев көш. 102

Техникалық қолдау жөнінде дилеріңізге хабарласыңыз.



EAC in Kazakh

Continued on next page

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PC694511 —UN—19NOV25

Изделие

Евразийский экономический союз

Информация для изделий, имеющих знак соответствия требованиям технических регламентов ЕАЭС

Производитель: Deere & Company, One John Deere Place, Moline, IL, 61265-8098, США

Изделие: Универсальный контроллер оборудования с шиной CAN

Модель: Контроллер оборудования John Deere

Произведено в США

Название и адрес уполномоченного представителя на территории Евразийского экономического союза: ООО «СЕРВИССТАН»

Кыргызская Республика, город Бишкек, ул. Калык Акиева 102

Для получения технической поддержки обратитесь к дилеру, обслуживающему вашу организацию.



EAC in Russian

hy01057,1763963967754 -19-24NOV25-3/3

PC894512—UN—24NOV25

EU Declaration of Conformity

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

The undersigned hereby declares that:

Product: Universal Can Controller 2, Application Controller Application Controller 1100, Application Controller 1120

Model(s): XL01, XL02

fulfill(s) all relevant provisions and essential requirements of the following directives:

DIRECTIVE	NUMBER	CERTIFICATION METHOD
Electromagnetic Compatibility Directive	2014/30/EU	Annex II of the Directive

The product is in conformity with the following standards and/or other normative documents:

EN 55032: 2012/AC: 2013

EN 55024: 2010

EN ISO 14982: 2009

Name and address of the person in the European Community authorized to compile the technical construction file:

John Deere Walldorf GmbH & Co. KG
Customer Support
Impexstraße 3
D-69190 Walldorf
EUConformity@JohnDeere.com

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Place of Declaration: Urbandale, IA, U.S.A

Name: Scott Torgerson

Date of Declaration: 12 April 2021

Title: Delivery Manager Electronic Hardware

Manufacturing Unit: Deere & Company, Moline, IL 61265

DXCE01 —UN—28APR09



CT47125,000115D -19-22OCT21-1/1

UK Declaration of Conformity

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

The undersigned hereby declares that:

Product: Universal Can Controller, Application Controller 1100, Application Controller 1120

Model(s): XL01, XL02

fulfill(s) all relevant provisions and essential requirements of the following directives:

DIRECTIVE	NUMBER	CERTIFICATION METHOD
The Electromagnetic Compatibility Regulations	S.I. 2016/1091	Schedule 2, Module A

The product is in conformity with the following standards and/or other normative documents:

EN 55032:2012/AC:2013

EN ISO 14982:2009

EN 55024:2010

Name and address of the person in the European Community authorized to compile the technical construction file:

John Deere Ltd
 Harby Road
 Langar
 Nottinghamshire
 NG13 9HT
 EUConformity@JohnDeere.com

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Place of Declaration: Urbandale, IA, U.S.A.

Date of Declaration: 12 April 2021

Manufacturing Unit: Deere & Company, Moline, IL 61265

Name: Scott Torgerson

Title: Delivery Manager Electronic Hardware

Ag & Turf Products Importer: John Deere Ltd- Harby Road,
 Langar, Nottinghamshire, NG13 9HT, United Kingdom

APY46000 —UN—25AUG21

Forestry Products Importer: John Deere Forestry Ltd-
 Carlisle Airport Industrial Estate, Carlisle, Cumbria, CA6
 4NW, United Kingdom

Construction Importer: Wirtgen Limited, Wirtgen Group
 House, Overfield Park, Godfrey Drive, Newark, Notts.
 NG24 2UA, United Kingdom



CT47125,0001174 -19-11NOV21-1/1

System Overview

Theory of Operation

Active Implement Guidance enables an implement to be independently steered onto the same guidance track as the machine.

Tractor Integrated Active Implement Guidance is a hardware solution sold in some areas that uses Active Implement Guidance.

(For more information, reference Setting Up—Tractor Integrated Active Implement Guidance.)

Plow Steer controls adjustable working-width plows to create even furrows.

Implement position is calculated by using data from:

- Machine global positioning system (GPS)
- Implement GPS
- AutoTrac
- Display
- Potentiometer or hall effect sensor
- If applicable, AutoTrac Vision camera

(For more information, reference Requirements.)

UCC2 Application Controller commands the implement hydraulic steering mechanism to actuate until the implement reaches the desired position.

Hydraulic Control Options

- **Selective Control Valve (SCV) Control** is used when the machine is equipped with electronically controlled SCVs. UCC2 Application Controller sends a signal voltage to the machine hydraulic control unit to command the SCV hydraulic flow to the implement steering mechanism until the desired implement position is achieved. Calibration of the SCV thresholds through the display is required when system is set up and any time the hydraulic system is altered. Due to normal variations in the SCVs, each machine has its own unique SCV signal voltage threshold values. Hydraulic systems that do not regulate return hydraulic flow require a counterbalance valve to maintain a system return pressure for consistent performance.
- **External Valve Control** is used when electronically controlled SCVs are not utilized. UCC2 Application Controller sends a signal voltage to an external valve that controls the amount of hydraulic flow to the implement steering mechanism until the desired implement position is achieved. Hydraulic supply and return oil are routed through the external valve, which does not require a counterbalance valve.

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Requirements

Compatibility and system functionality vary by location and equipment configuration. For more information about availability of components, system functionality, and compatibility, contact your John Deere dealer or other service provider. Additional information can be referenced in the Compatibility Guide on the Value Selling Navigator.

Hardware:

- UCC2 Application Controller
- AutoTrac
- GreenStar 3 or Generation 4 Display
- Implement-mounted wheel angle sensor
- Implement hydraulic cylinder or steering mechanism

NOTE: Plow Steer only requires a StarFire Receiver installed on the machine. If using an implement AutoTrac Vision camera with Active Implement Guidance, an implement StarFire Receiver is optional.

- StarFire Receiver with RTK installed on machine
- StarFire Receiver installed on implement
- Various harnesses associated with power supply, control unit integration, sensor communication, and steering control

Software:

NOTE: Generation 4 Displays with a version 1 processor can only be updated using Service ADVISOR. Contact your John Deere dealer or other service provider for more information.

NOTE: Ensure that the equipment has an uninterrupted power supply while updating software. Software update times vary based on the equipment, network or CAN bus speed, and file size of the program. For example, updating the UCC2 Application Controller takes an average of 30 minutes. Ensure that the equipment has an uninterrupted power supply while updating software.

- Latest software installed on:

- Display
- StarFire Receiver
- UCC2 Application Controller
- If applicable, AutoTrac Vision camera (Go to StellarSupport.com and navigate to Software Updates.)
- AutoTrac activation on display (not required to steer system manually)
- Tractor Implement Automation activation (only required to use Active Implement Guidance speed control or to enable the ISO control valve interface on some models of tractors) (For more information, reference the tractor Operator's Manual.)

NOTE: Active Implement Guidance activation is displayed on the Application Controller Activations page.

- Active Implement Guidance activation on the UCC2 Application Controller
- AutoTrac and Application Controller setup complete (incomplete AutoTrac setup prevents operation of guidance)

Performance Specifications/ Requirements:

Allow these specifications for the vision camera to best determine the location of crop rows and color differences between the crop and the ground.

NOTE: (Tractor Integrated) Active Implement Guidance is approved for use in early crop stages (corn only) from a crop height of 15 cm (5.9 in) until 90 percent canopy.

- The system can perform up to a 2-degree ground slope.
- Crop rows must be well-defined with consistent spacing.
- Large skips present in rows or excessive weed material may result in camera calibration failures or degraded system performance.
- Be aware that dust or rain on the camera lens as well as direct sunlight or low daylight can impact the system.
- Heavy wind may affect camera performance as well due to strong crop movement.

zb48j1t,1693381896998 -19-18AUG25-1/1

Navigate to Application Controller Pages

NOTE: Turn key OFF and allow the display to completely power down before connecting or disconnecting ISOBUS implements or sensors.

After navigating to the Application Controller pages, the GreenStar 3 and Generation 4 Displays have the same layouts.

To navigate to the Application Controller pages using a GreenStar 3 Display:

1. Select the Menu button.

PC582158 —UN—01AUG23



Menu Button

Continued on next page

zb48j1t,1693381939510 -19-30AUG23-1/7

System Overview

2. Select the Application Controller button.

PC589279 —UN—09AUG23

To navigate to the Application Controller pages using a Generation 4 Display:



Application Controller Button

zb48j1t,1693381939510 -19-30AUG23-2/7

1. Select the Menu button.

PC28688 —UN—25AUG22



Menu Button

zb48j1t,1693381939510 -19-30AUG23-3/7

2. Select the Applications tab.

PC589276 —UN—09AUG23



Applications Tab

zb48j1t,1693381939510 -19-30AUG23-4/7

3. Select the ISOBUS VT application.

PC28796 —UN—29AUG22



ISOBUS VT Application

zb48j1t,1693381939510 -19-30AUG23-5/7

4. Select the ISOBUS VT Menu button.

PC28799 —UN—29AUG22



ISOBUS VT Menu Button

zb48j1t,1693381939510 -19-30AUG23-6/7

5. Select the Application Controller button.

PC589279 —UN—09AUG23



Application Controller Button

zb48j1t,1693381939510 -19-30AUG23-7/7

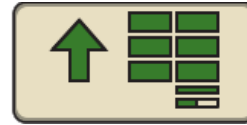
Navigate to StarFire Pages

PC582158 —UN—01AUG23

After navigating to the StarFire pages, the GreenStar 3 and Generation 4 Displays have the same layouts

To navigate to the StarFire pages using a GreenStar 3 Display:

1. Select the Menu button.



Menu Button

zb48j1t,1693381951278 -19-30AUG23-1/6

2. Select a StarFire button.

- Machine StarFire button
- Implement StarFire button

To navigate to the StarFire pages using a Generation 4 Display:

PC589282 —UN—09AUG23



Machine StarFire Button

PC589283 —UN—09AUG23



Implement StarFire Button

zb48j1t,1693381951278 -19-30AUG23-2/6

1. Select the Menu button.

PC28688 —UN—25AUG22

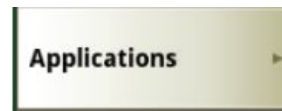


Menu Button

zb48j1t,1693381951278 -19-30AUG23-3/6

2. Select the Applications tab.

PC589276 —UN—09AUG23



Applications Tab

zb48j1t,1693381951278 -19-30AUG23-4/6

3. Select the StarFire application.

PC28798 —UN—29AUG22



StarFire Application

Continued on next page

zb48j1t,1693381951278 -19-30AUG23-5/6

4. Select a receiver from the StarFire device list.

- Machine StarFire (A)
- Implement StarFire (B)

A—Machine StarFire

B—Implement StarFire

PC589245 —UN—09AUG23



StarFire Device List

zb48j1t,1693381951278 -19-30AUG23-6/6

Enter Activation Code

PC26352 —UN—05OCT18

The UCC2 Application Controller requires a 26-digit activation code to operate applications. Contact your John Deere dealer and provide the UCC2 Application Controller serial number.

With the 22-1 software update, multiple applications can be activated on the UCC2 Application Controller. Repeat this procedure for each application using the 26-digit activation code.

Available applications:

- Harvest Identification, Cotton
- Mobile Weather
- Yield Documentation, Specialty Crop
- Active Implement Guidance
- iGrade

1. Navigate to the Application Controller page.
2. Select the Controller Setup softkey.



Controller Setup Softkey

zb48j1t,1693385253184 -19-30AUG23-1/4

3. Select the Activations tab.

PC25903 —UN—05JUL18



Activations Tab

zb48j1t,1693385253184 -19-30AUG23-2/4

4. Select the Add Activation button.

PC25904 —UN—05JUL18



Add Activation Button

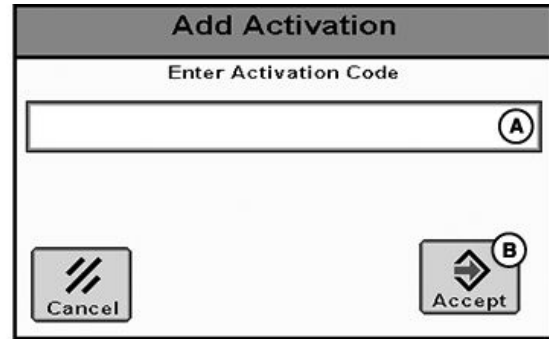
Continued on next page

zb48j1t,1693385253184 -19-30AUG23-3/4

5. Enter the activation code into the input box (A).
6. Select the Accept button (B).
7. To activate the next application, repeat steps 4—6.
8. Shut OFF the machine, wait for the display to power down, and then restart the machine.

A—Input Box

B—Accept Button



Add Activation Window

zb48j1t,1693385253184 -19-30AUG23-4/4

PC25905—UN—05JUL18

Machine Compatibility

The guidance portion of Active Implement Guidance and Plow Steer is compatible on machines with integrated AutoTrac, AutoTrac Universal, or AutoTrac Controller installed.

An external valve kit adds hydraulic control to machines that do not come with factory installed hydraulic controls.

(For more information, reference External Valve.)

zb48j1t,1693385301503 -19-30AUG23-1/1

Replace Erasable Programmable Read Only Memory (EPROM)

EPROM is contained in tractor hydraulic controller. On some early models of 8000 and 9000 series tractors, it is necessary to replace EPROM. This may require replacing just the EPROM or the whole tractor hydraulic controller.

For more information on EPROM requirements and compatibility, contact your John Deere dealer or other service provider.

RW00482,00003A8 -19-05AUG25-1/1

Component Overview

StarFire Receiver

PC589281 —UN—09AUG23

If the implement does not have an AutoTrac Vision camera, Active Implement Guidance requires StarFire 3000 or StarFire 6000 Receivers on the machine and implement. If using a camera, the implement StarFire Receiver is optional.

Plow Steer only requires a StarFire Receiver on the machine.

If possible, use the same model receivers for best performance. If using different models, use the StarFire 6000 Receiver on the implement.

- Both receivers must have an RTK signal level, unless shared signal is used.
- Install implement receiver less than 4.0 m (13.1 ft) above the ground level.
- Implement receiver must be connected to the machine implement CAN bus through the ISO connector.

StarFire Receiver—Shared Signal

NOTE: To use shared signal, machine and implement receivers must be the same model. StarFire iTC Receivers are not capable of shared signal.

Shared signal uses the machine correction signal to share signal with the implement receiver. Receiver with highest correction signal must be mounted on the machine for shared signal to work.



StarFire 6000 Receiver

Shared signal automatically links and operates when the following requirements are met:

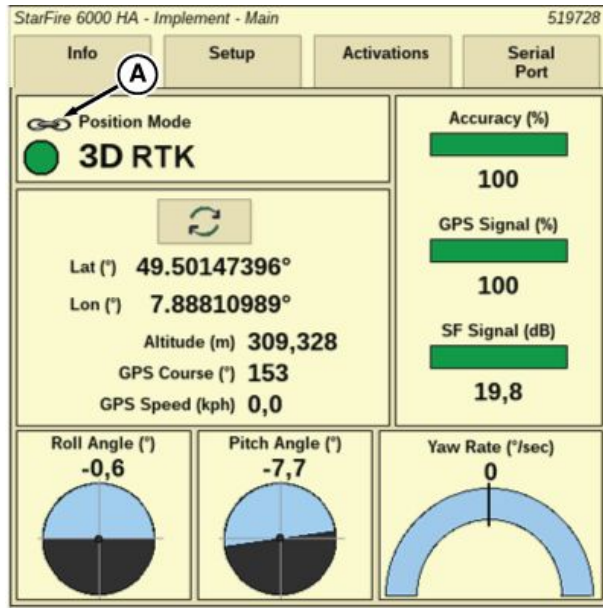
- Machine is moving.

NOTE: John Deere 4240 Universal Display and 4100 CommandCenter do not support shared signal.

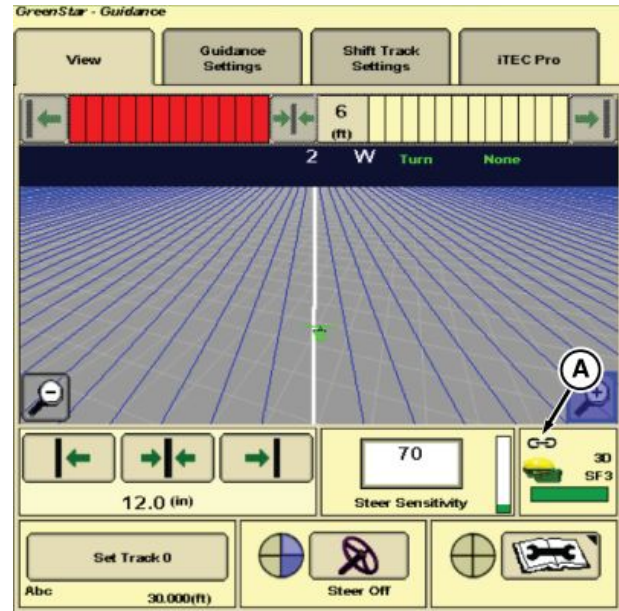
- GreenStar 3 Display, John Deere 4640 Universal Display, or 4600 CommandCenter is used.
- StarFire 3000 or StarFire 6000 Receivers are installed on machine and implement.
- SF2, SF3, or RTK is activated on the machine receiver.
- SF1, SF2, SF3, or RTK is activated on the implement receiver.
- Implement Steer or Implement Shift function is selected.
- Fore/aft value for the implement receiver is set to zero.
- Latest software updates are installed on the display, receivers, and Application Controller.
- iGrade is not enabled in a profile.

Continued on next page

zb48j1t,1693385410178 -19-30AUG23-1/2



Linked Receivers



Linked Guidance Page

Linked symbol (A) is displayed in multiple locations if receivers share signal.

A—Linked Symbol



Linked Receivers



Linked Receivers

zb48j1t,1693385410178 -19-30AUG23-2/2

Display

The display is the user interface used by the operator to:

- Configure and calibrate system components.
- Monitor system performance.
- Make system adjustments.
- Program software.
- View diagnostic tests.



GreenStar 3 2630 Display



John Deere 4640 Universal Display

zb48j1t,1693385437447 -19-30AUG23-1/1

PC589266 —UN—09AUG23

PC589267 —UN—09AUG23

Wheel Angle Sensor

For implement steering systems, a wheel angle sensor is used for implement feedback. A potentiometer (A) or a Hall effect sensor (B) is used as a wheel angle sensor.

As steering control cylinder extends or retracts, signal from potentiometer changes to reflect position of implement steering mechanism. This signal is feedback for guidance system and steering sensitivities, and is used to control steering mechanism.

NOTE: Some implement steering devices have a wheel angle sensor incorporated into equipment.

Wheel angle sensor must be a 0—5 V analog sensor.

Mount and calibrate wheel angle sensor so its range of motion is aligned and symmetrical. Failure to mount sensor properly results in poor performance. Verify hydraulic and mechanical steering linkage is properly adjusted per manufacturer's specifications.

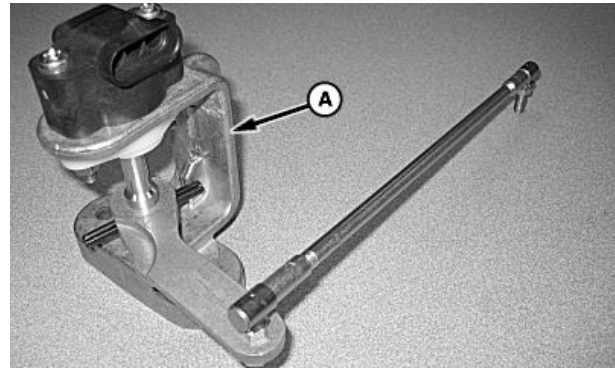
(Reference steering system Operator's Manual for specific steering system.)

Install Requirements

For best performance, install wheel angle sensor for greatest amount of voltage range. Center should be linear and equal distance between left and right.

A—Potentiometer

B—Hall Effect Sensor



Wheel Angle Sensor



Incorporated Wheel Angle Sensor



Hall Effect Sensor

PC12344 —UN—19OCT09

PC12188 —UN—14OCT09

PC13565 —UN—03MAY11

zb48j1t,1693385463215 -19-30AUG23-1/1

Application Controller

UCC2 Application Controller obtains guidance line information from display and machine receiver. Guidance line information is compared to implement receiver location to calculate implement lateral error. UCC2 Application Controller sends necessary commands to either external valve or machine hydraulic controller to manipulate implement steering mechanism to track the guidance line. If implement utilizes Implement Steering control mode, wheel angle sensor data is also utilized to track the guidance line.



UCC2 Application Controller with Harness

RW00482,0000337 -19-12JAN15-1/1

PC20218 —UN—07NOV14

Counterbalance Valve

Counterbalance valve returns hydraulic fluid once pressure is present on hydraulic supply side of valve. Counterbalance valve works in conjunction with hydraulic system flow setting. When system hydraulic flow is changed, counterbalance valve requires adjustment.

A counterbalance valve is required when machine hydraulic system does not regulate return flow. A counterbalance valve is not required when utilizing an external valve.

For optimal and consistence performance, install and properly adjust counterbalance valve.

The following machine models utilize CAN-based selective control valves (SCVs) requiring a counterbalance valve and must be adjusted for optimal performance:

- 8030 series wheel tractors (S.N. 40001–).
- 8030 series track tractors (S.N. 905001–).
- 9030 series wheel tractors (S.N. 013000–).
- 9030 series track tractors (S.N. 911000–).
- All 7R, 8R, 8RT, 9R, and 9RT series tractors.



Counterbalance Valve

RW00482,0000338 -19-11SEP14-1/1

PC19769 —UN—02JUL14

External Valve

External valve gives UCC2 Application Controller the ability to control machine hydraulics. John Deere external valve design and functionality vary for open- and closed-center hydraulic systems. Use external valve:

- If the UCC2 Application Controller cannot control the machine hydraulics. Typically, this condition occurs in the older machine models or non John Deere models equipped with a John Deere guidance system and an ISO connector.
- To conserve machine selective control valve (SCV) connections. External valve can connect to an open SCV on machine or can use power beyond as a hydraulic power source from machine.

External Valve Components

Hydraulic control block (A) directs hydraulic flow to hydraulic cylinders for implement position.

Electronic valve body (B) receives commands from the UCC2 Application Controller and communicates them to the hydraulic control block.

CAUTION: To avoid serious injury, keep area around equipment clear.

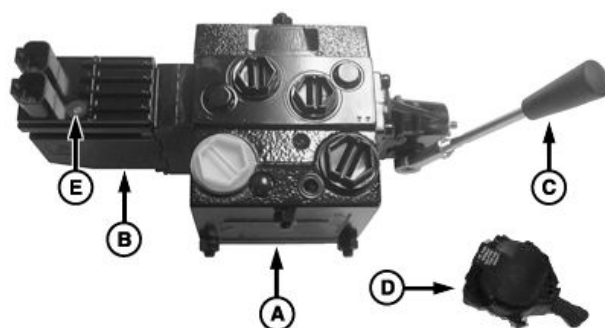
Moving external valve control lever (C) may cause implement to move.

External valve control lever manually controls hydraulic control block.

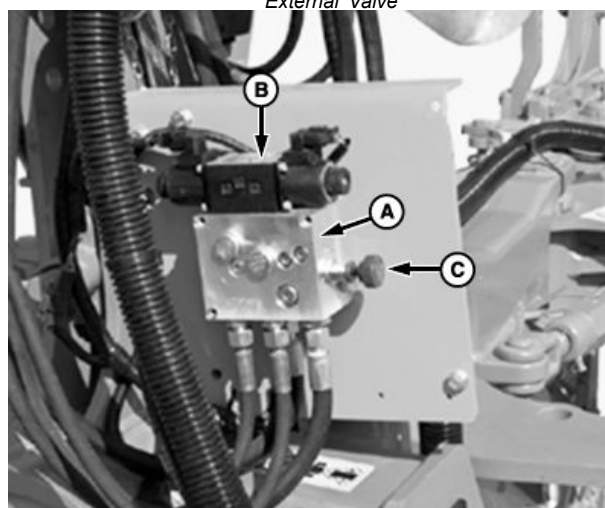
Remote mount electronic SCV control lever (D) manually controls hydraulic control block from the operator's station.

LED indicator (E) provides system status of the electric valve body.

- Green—Valve is receiving command from the control unit.
- Orange—Valve is powered up. No command is being received from the control unit.
- Red—Indicates a problem.



External Valve



External Valve

- | | |
|---------------------------|---------------------------|
| A—Hydraulic Control Block | D—Remote Mount Electronic |
| B—Electronic Valve Body | SCV Control Lever |
| C—External Valve Control | E—LED Indicator |
| Lever | |

(Reference Troubleshooting section.)

zb48j1t,1693385491776 -19-30AUG23-1/1

Implement Height Switch

John Deere parts can be configured to multiple implement designs.

If a height switch is required for your application, contact your John Deere dealer or other service provider.

The John Deere Technical Manual has additional information.

RW00482.0000876 -19-05AUG25-1/1

AutoTrac Vision Camera

An implement-mounted AutoTrac Vision camera provides feedback to the UCC2 Application Controller.



AutoTrac Vision Camera

zb48j1t,1693385507896 -19-30AUG23-1/1

PC589268 —UN—09AUG23

Assembly

Low Side Driver

IMPORTANT: To avoid damaging the UCC2 Application Controller, use a relay coil (A) that is rated at 1 A or less, and does not exceed 12 V.

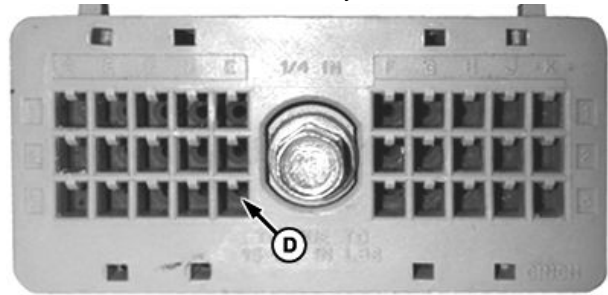
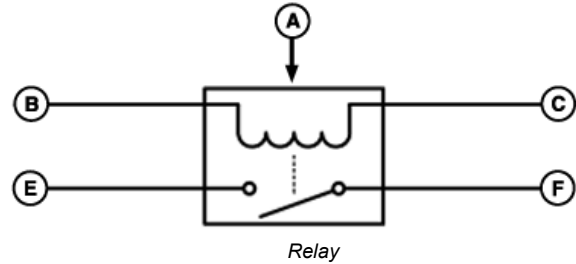
NOTE: The required relay to use UCC2 Application Controller low side driver is not provided.

Applications that utilize low side driver functionality:

- Implements equipped with electronic brakes that lock and release steering wheels during turnaround events.
- Implements with hydraulic steering systems that utilize electronic valves to allow steering cylinders to float during turnaround events.

Connect relay to a 5—12 V DC low current power supply (B) and ground (C) to pin E3 (D) of UCC2 Application Controller connector.

Pin E3 low side driver activates (closes/grounds) and holds while AutoTrac is active. Low side driver deactivates (opens) when AutoTrac is inactive.



A—Relay (1 A or less)
B—Low Current Power Supply
C—Ground
D—E3
E—High Current Power Supply
F—Electronic Device

zb48j1t,1693513049186 -19-31AUG23-1/1

PC26989 —UN—09APR19

PC26990 —UN—09APR19

Setting Up—Machine and Implement

Connect Implement

1. Shut off machine, set parking brake, and remove key.

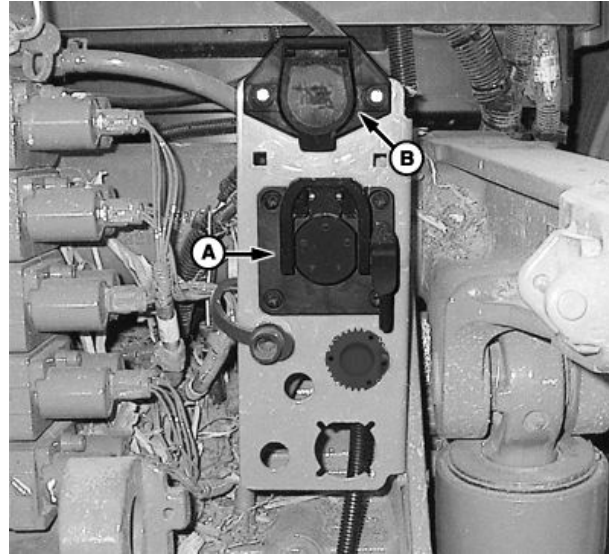
NOTE: Do not connect implement when machine is on. Connecting while powered generates faults causing Active Implement Guidance not to operate.

2. Connect implement receiver harness to ISO 9-pin connector (A).
3. Connect implement constant power harness to machine constant power connector.
4. If implement is configured with road lights, connect lighting harness to lighting connector (B).
5. Connect all other implement connections related to attaching equipment to tractor.

NOTE: Hydraulic hose routing is essential for proper operation. External valve has a P stamped for pressure hose connection, T for return or tank hose connection, and LS for load sense hose connection.

6. If external valve is used, connect pressure hose and return or tank hose from external valve to machine. If using power beyond to supply external valve, connect load sense hose.

(Reference machine Operator's Manual for additional information on attaching implement and implement hydraulics to machine.)



Rear of Tractor Shown

A—ISO 9-Pin Connector

B—Lighting Connector

PC21197 —UN—27MAY15

zb48j1t,1693513330291 -19-31AUG23-1/1

Configure Implement StarFire Receiver

1. Navigate to the StarFire pages.
2. Select the Setup tab (A).
3. Enter 0 for the implement receiver fore/aft (B).
4. Enter the implement receiver height (C). Height is measured from the ground to the middle of the dome. Lower the implement as close as possible to working position when measuring the height.

A—Setup Tab

B—Fore/Aft Input Box

C—Height Input Box

StarFire Setup Screen

PC29124 —UN—26MAY23

zb48j1t,1693513430746 -19-31AUG23-1/1

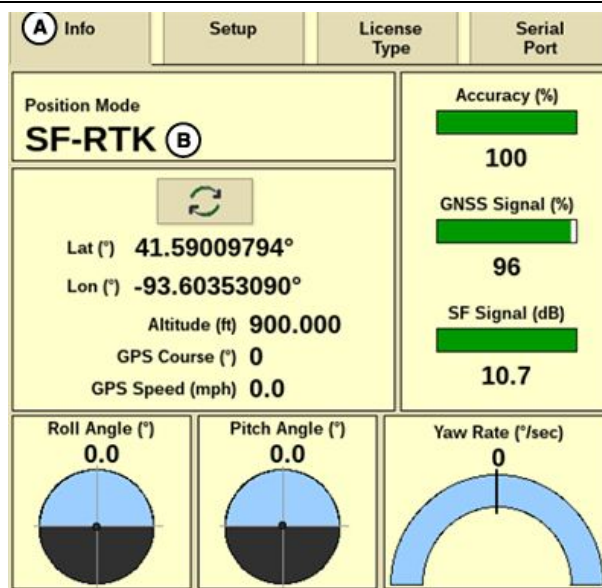
Optimize Terrain Compensation Module (TCM)

Optimize TCM calibration by allowing the inertial measurement unit (IMU) to measure roll angle and yaw rate before performing the TCM calibration.

1. Navigate to the StarFire pages.
2. Select the Info tab (A).
3. Verify that the Position Mode (B) has established SF1 signal or better.

A—Info Tab

B—Position Mode



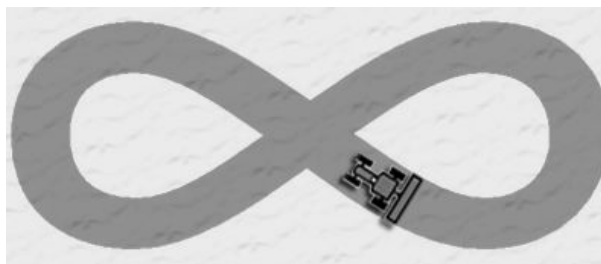
StarFire Main—Info Tab

zb48j1t,1693513644852 -19-31AUG23-1/2

PC29125 —UN—28MAY23

4. Drive machine in the TCM optimization drive pattern two times to allow the IMU to initialize.
5. Complete the TCM calibration.

(Reference Calibrate Terrain Compensation Module [TCM] for more information.)



TCM Optimization Drive Pattern

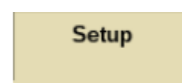
zb48j1t,1693513644852 -19-31AUG23-2/2

PC21419 —UN—30JUL15

Calibrate Terrain Compensation Module (TCM)

NOTE: StarFire 6000 Integrated Receivers are calibrated at the factory. If there is a need to perform a field calibration, reference the StarFire 6000 Receiver Operator's Manual.

1. Navigate to the StarFire pages.
2. Select the Setup tab.



Setup Tab

Continued on next page

zb48j1t,1693513658356 -19-31AUG23-1/6

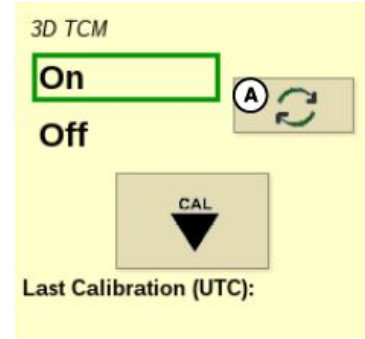
PC29126 —UN—26MAY23

Select the TCM toggle button (A) to turn the TCM ON and OFF. When the TCM is turned OFF, StarFire signal is not corrected for machine dynamics or side slopes. TCM defaults to ON after cycling power.

NOTE: TCM must be turned ON for AutoTrac to engage.

Calibrate the TCM so the receiver can determine 0° roll angle and pitch angle.

Before calibrating, ensure that machine and implement are in proper working condition and ready for field work. Machine must be ballasted and tires properly inflated. Lower implement as close as possible to the working position when calibrating.



TCM Toggle Button

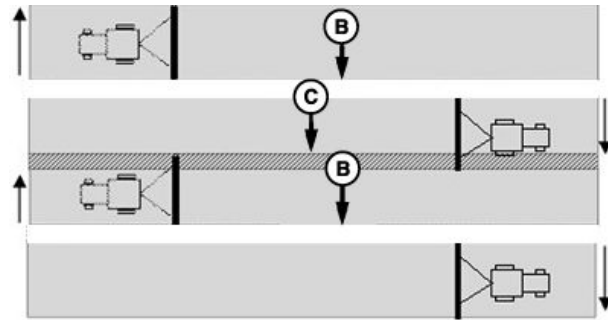
A—TCM Toggle Button

zb48j1t,1693513658356 -19-31AUG23-2/6

PC29127—UN—26MAY23

Calibrate the TCM every time the receiver is removed from the machine and reattached or if the TCM angle in relation to the machine has changed. Changes in the TCM angle in relation to the machine can create an offset and look like a consistent skip (B) or overlap (C) in pass-to-pass operation. Possible causes of this offset could be that the StarFire mounting bracket is slightly offset, the machine cab is slightly offset, or there is uneven tire pressures from one side to the other.

To eliminate offset, position the machine and calibrate the TCM. Drive down a pass, turn around, and drive down the same pass in the opposite direction. If the machine does not follow the same pass, measure the offset distance and enter in implement offset.



Overlap and Skip

B—Skip

C—Overlap

Position Machine and Calibrate Terrain Compensation Module (TCM)

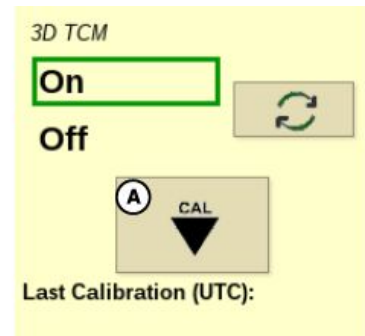
1. Park the machine on a hard, level surface and come to a complete stop (cab is not rocking).
2. Mark the location of tires or tracks on the ground to note the location of axle.

zb48j1t,1693513658356 -19-31AUG23-3/6

PC19993—UN—03SEP14

3. Select the Calibration button (A).

A—Calibration Button



Calibration Button

Continued on next page

zb48j1t,1693513658356 -19-31AUG23-4/6

PC29128—UN—26MAY23

4. Select the Accept button. Calibrating status bar appears, then disappears when finished.

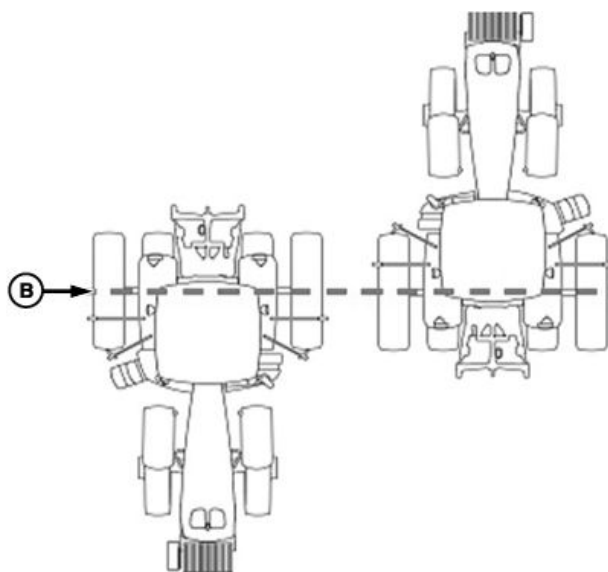
PC29129 —UN—26MAY23



Accept Button

C—Machine Pivot Point

zb48j1t,1693513658356 -19-31AUG23-5/6

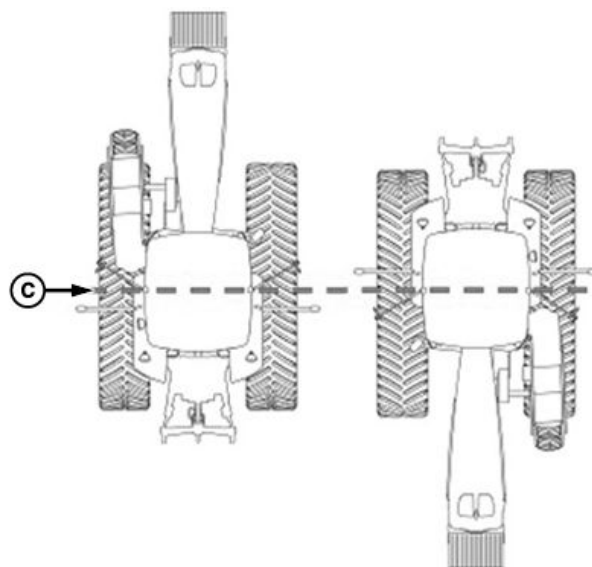


Floating Front Axle Machines

PC19995 —UN—03SEP14

B—Rear Axle

5. Turn the machine 180° to face the opposite direction. Ensure that tires are in proper location for fixed or floating front axle and machine has come to a complete stop (cab is not rocking).
 - For floating front axle machines (mechanical front-wheel drive [MFWD], Independent Link Suspension [ILS], or Triple-Link Suspension [TLS]), place wheels so rear axle (B) is in the same location when performing 2-point calibration.
 - For fixed-axle wheels or tracks machines (track tractors, 47X0 and 49X0 Series Sprayers, or 9000 and 9020 Series Wheel Tractors), place wheels or tracks so machine pivot point (C) is in the same location when facing either direction.
6. Select the Accept button. Calibration status bar is displayed, then removed when calibration is finished.
7. Select the Accept button to return to the Setup tab. If calibration was unsuccessful, recalibrate the TCM.



Fixed-Axle Wheels or Tracks Machines

PC19996 —UN—03SEP14

zb48j1t,1693513658356 -19-31AUG23-6/6

Adjust Selective Control Valve (SCV)

CAUTION: Excessive SCV flow rate settings can cause sudden machine movement when the cylinder is operated. To avoid injury before engaging SCV button to check current flow rate, verify that bystanders are clear of the machine. Full extension or retraction of cylinder should take approximately 2 seconds.

To display auto mode indicator (A), automatic SCV control requires:

- UCC2 Application Controller installed.
- An SCV configured.

Automatic SCV control activates when SCV is placed in the forward-detent position. Auto mode requires a speed of 0.1 km/h (0.06 mph) or greater to engage implement hydraulics automatically.

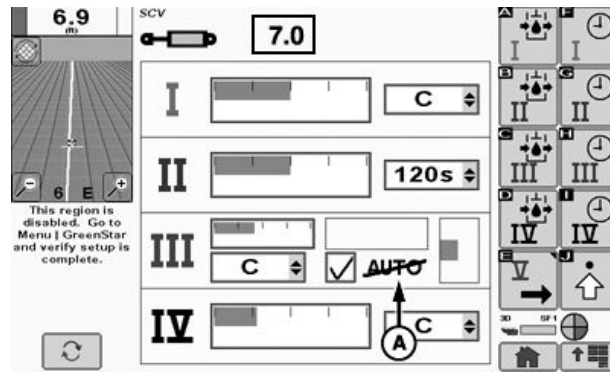
- CommandCenter—AUTO with a strike through it indicates that auto mode is not active. !AUTO! indicates a fault and that auto mode is inoperable. AUTO indicates normal auto mode operation.
- TouchSet—EC indicates that auto mode is not active. AC indicates normal auto mode operation.

An SCV detent flow setting applies to both extend and retract. The UCC2 Application Controller automatically controls detent time when a control type is selected and auto mode is engaged.

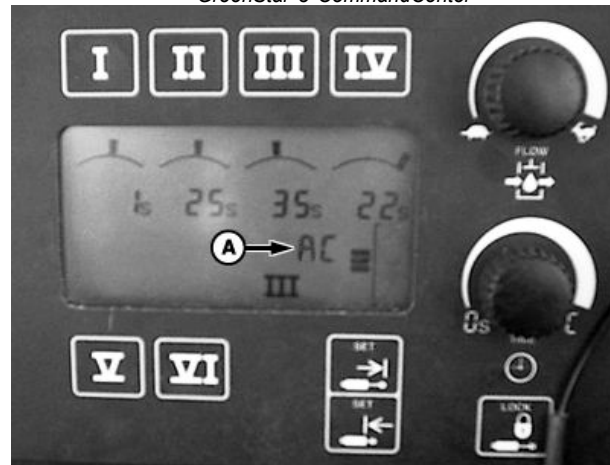
Adjust detent flow for each operation.

(For more information on SCV controls, refer to machine Operator's Manual.)

SCV can be operated to observe flow rate while in adjustment mode.



GreenStar 3 CommandCenter



TouchSet Display

A—Auto Mode Indicator

SCV Flow Output (Approximate)		
SCV Flow Settings	Flow	
	L/min	gal/min
0.1 ^a	—	—
1.0	3.6	1.0
2.0	7.2	1.9
3.0	10.2	2.7
4.0	14.4	3.8
5.0	19.2	5.0
6.0	24.0	6.4
7.0	31.2	8.2
8.0	39.6	10.5
9.0	65.4	17.2
10.0	114	30.0

SCV Flow Output

^a 0.1 = Minimum Flow Setting

Continued on next page

zb48/j1t,1693513668856 -19-31AUG23-1/5

PC22224 —UN—26FEB16

PC22225 —UN—26FEB16

GreenStar 3 CommandCenter

PC589248 —UN—09AUG23

1. Select the CommandARM Menu button.
2. Select the SCV button.
3. Select the Advanced Settings softkey.



CommandARM Menu Button > SCV Button > Advanced Settings Softkey

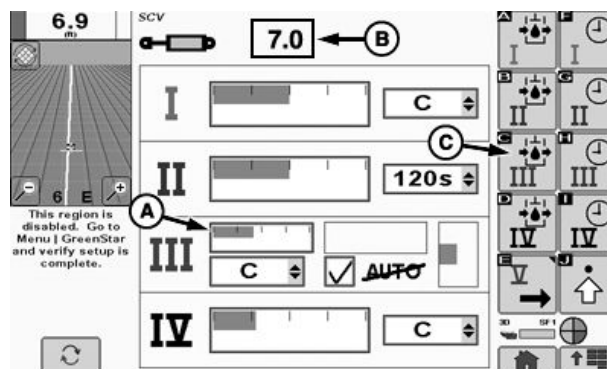
zb48j1t,1693513668856 -19-31AUG23-2/5

NOTE: Bar graph (A) depicts detent flow (B).

4. To navigate to detent flow bar graph, select the Extend Set softkey (C) for the SCV being used. Select the Confirm button to highlight. Rotate thumb wheel to adjust flow, then select the Confirm button.

A—Detent Flow Bar Graph
B—Detent Flow Value Box

C—Extend Set Softkey

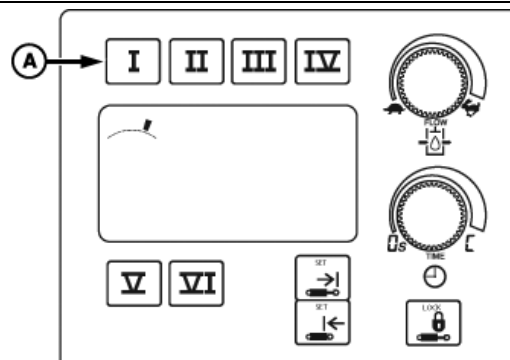


SCV Home Page

zb48j1t,1693513668856 -19-31AUG23-3/5

TouchSet Display

A—SCV Selection Buttons



Adjust Selective Control Valve Flow Rate

zb48j1t,1693513668856 -19-31AUG23-4/5

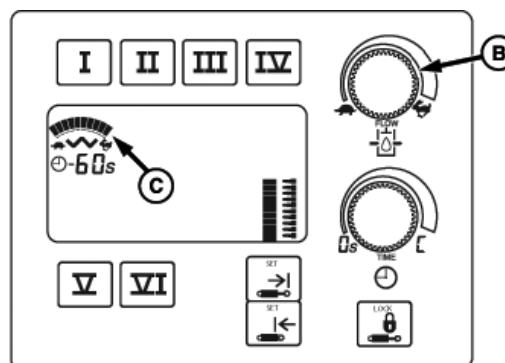
1. Select the button (A) for SCV being used. Screen under SCV selection buttons displays previous flow rate.

NOTE: As operator turns flow adjustment dial (B), the number of line segments increases or decreases as flow changes.

2. Turn flow adjustment dial clockwise to increase flow or counterclockwise to decrease flow. Flow setting is displayed on bar graph (C) when adjustments are made.

B—Flow Adjustment Dial

C—Bar Graph



Display Panel

zb48j1t,1693513668856 -19-31AUG23-5/5

Adjust Dual Counterbalance Valve

NOTE: Flow rates between 11—30 L/min (3—8 gal/min) are recommended.

If hydraulic flow rate is adjusted, complete selective control valve (SCV) threshold calibration test.

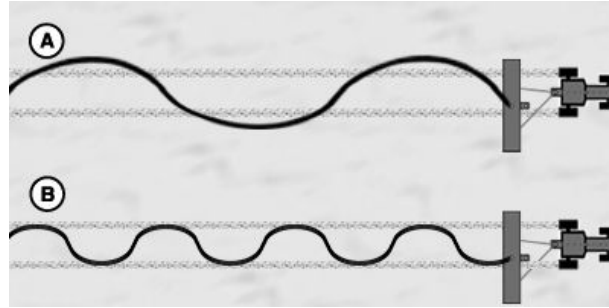
A counterbalance valve controls a moving load and prevents load runaway. Controlling the load allows a smooth transition of implement movement. Dual counterbalance valve settings depend on hydraulic cylinder types and configuration.

Turn the valve cartridge clockwise to increase pressure.

Turn the valve cartridge counterclockwise to decrease pressure.

Operate system and monitor ground condition. If implement S-ing occurs, adjust counterbalance valve pressure.

- If implement is slowly S-ing (A), pressure is too high. Turn the valve cartridge counterclockwise to decrease pressure.



Implement S-ing

A—Slow S-ing

B—Aggressive S-ing

- If implement is aggressively S-ing (B), pressure is too low. Turn the valve cartridge clockwise to increasing pressure.

PC23480—UN—09DEC16

AE77568,0000297 -19-05JAN17-1/1

Setting Up—UCC2 Application Controller

Setup Wizard Overview

PC29130 —UN—26MAY23



Previous Page and Next Page Buttons

The setup wizard in this manual is a general overview for John Deere Active Implement Guidance and Plow Steer. The UCC2 Application Controller can control multiple features at the same time. For example, Active Implement Guidance and iGrade can be used on various implements. iGrade with Active Implement Guidance can be used on bed-forming implements to maintain the gradient of the furrow. This method assists the furrow in draining while leaving the topsoil on the bed intact.

(For more information, reference iGrade and Distance Trip Operator's Manual.)

Multiple application features are available by selecting and setting up more than one feature.

The setup wizard guides the operator through a series of steps based on the options selected. Select the Previous

Page and Next Page buttons to navigate through the setup wizard.

zb48j1t,1693513782299 -19-31AUG23-1/4

In addition to this Operator's Manual, the operator can select the Help softkey for more information about a step.

PC29131 —UN—26MAY23



Help Softkey

To start the setup wizard:

1. Navigate to the Application Controller pages.

zb48j1t,1693513782299 -19-31AUG23-2/4

2. Select the Controller Setup softkey.

PC29132 —UN—26MAY23



Controller Setup Softkey

zb48j1t,1693513782299 -19-31AUG23-3/4

3. Select the Profile tab (A).
4. Select a profile from the Current Profile drop-down menu (B).

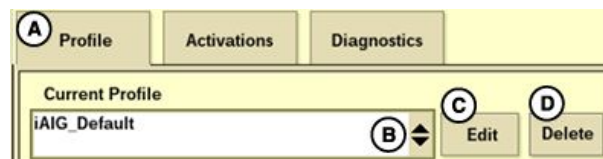
- Select Add New Profile from list in current profile menu (B).
- Select an existing profile to edit.

NOTE: After a profile is set up, more items populate in the Profile tab. Each item allows individual settings to be changed without stepping through the setup wizard.

5. Select the Edit button (C).

NOTE: The Delete button (D) only shows if an existing profile is selected.

PC29133 —UN—26MAY23



Profile Tab

- A—Profile Tab
B—Current Profile Drop-Down Menu
C—Edit Button
D—Delete Button

6. Select the features needed for the task.

zb48j1t,1693513782299 -19-31AUG23-4/4

GPS Offsets

Generation 4 Displays have an optional “Automatically import dimensions from the Equipment Manger if available.” checkbox (A). When selected and dimensions are successfully imported, the offset input boxes are populated and grayed out.

NOTE: Ensure that the offset values entered in the Application Controller, StarFire Receiver, and Equipment Setup applications match.

For Active Implement Guidance, select the Controller Setup softkey then the Profile tab then the GPS Offsets Edit button.

- Reference Machine GPS Receiver Offsets and Implement GPS Receiver Offsets.

For Plow Steer, select the Plow Steer Setup softkey then the Setup tab then the Equipment Offsets Edit button.

- If only a machine global positioning system (GPS) receiver is equipped, reference Equipment Offsets and Machine GPS Receiver Offsets.
- If both the machine and implement GPS receivers are equipped and the implement receiver is selected for width control, reference Machine GPS Receiver Offsets and Implement GPS Receiver Offsets.
(To select the implement GPS receiver, reference Width Control—Plow Steer.)

Equipment Offsets

The screenshot shows the 'GPS Offsets' screen. It has two main sections: 'Machine GPS Receiver' and 'Implement 1 GPS'. Each section contains three input fields: 'Height' (0.0 (in)), 'Lateral Offset' (0.0 (in)), and 'Inline Offset' (0.0 (in)). To the right of each section is an 'Edit' button. At the bottom right is a 'Return' button.

GPS Offsets

A—Automatically Import Dimensions from the Equipment Manger if Available Checkbox

zb48j1t,1693513794137 -19-31AUG23-1/4

1. Enter the GPS connection offset into the input box (A).
2. Enter the work point into the input box (B).
3. Select the Edit button (C).

Machine GPS Receiver Offsets

A—GPS Connection Offset Input Box **C—Edit Button**
B—Work Point Input Box

The screenshot shows the 'Equipment Offsets' screen. It has three input boxes: '1 - GPS Connection Offset' (2.71 m), '2 - Work Point' (1.00 m), and 'Additional Machine Offsets' (GPS Lateral Offset: 0 m - Left). To the right of these boxes is an 'Edit' button. On the right side of the screen is a diagram of a tractor with a plow, showing the connection offset and work point. At the bottom, there is a note: 'Dimensions were imported from Equipment Manager. To edit, use Equipment Manager. To disable, uncheck option in GPS offsets.'

Equipment Offsets

Continued on next page

zb48j1t,1693513794137 -19-31AUG23-2/4

1. Enter the lateral offset into the input box (A).
2. Enter the height into the input box (B).

Implement GPS Receiver Offsets

A—Lateral Offset Input Box

B—Height Input Box

Machine GPS Receiver Offsets

Serial Number: 12345

Machine Dimensions

GPS Offsets

Lateral Offset:

1

0.0

A

Center
(in)

Height:

2

0.0

B

(in)



NOTE: Offsets configured here, on receiver VT, and John Deere Display should match.



Return

Machine GPS Receiver Offsets

zb48j1t,1693513794137 -19-31AUG23-3/4

PC29135—UN—26MAY23

1. Enter the lateral offset into the input box (A).
- NOTE: The in-line offset is the horizontal distance between where the product is dispensed and the receiver. A positive value is closer to the tractor and a negative value is further away from the tractor.*
2. Enter the in-line offset into the input box (B).
 3. Enter the height into the input box (C).

A—Lateral Offset Input Box

C—Height Input Box

B—In-Line Offset Input Box

Implement GPS Receiver Offsets

Implement 1 GPS

Serial Number: 12346

GPS Offsets

Lateral Offset:

1

0.0

A

Center
(in)

In-line Offset:

2

0.0

B

(in)

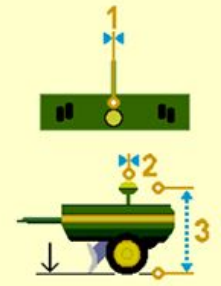
Height:

3

0.0

C

(in)





Return

Implement GPS Receiver Offsets

zb48j1t,1693513794137 -19-31AUG23-4/4

PC29136—UN—26MAY23

Serial Ports

Select Controller Setup softkey > Profile tab > Serial Ports Edit button > Serial Port 1 or 2 Edit button.

1. Select the baud rate from the drop-down menu (A).
2. Select the device that uses the serial port from the drop-down menu (B).
3. To enable National Marine Electronics Association (NMEA) messaging, select the checkbox (C).
 - a. Select the NMEA message type from the drop-down menu (D).
 - GGA
 - GGA, GSA
 - GGA, GSA, VTG
 - GGA, GSA, RMC
 - NMEA All
 - b. Select the NMEA rate from the drop-down menu (E).

A—Baud Rate Drop-Down Menu

B—Used By Drop-Down Menu

C—Enable NMEA Checkbox

D—NMEA Message Type Drop-Down Menu

E—NMEA Rate Drop-Down Menu

Serial Port 1

PC29137—UN—26MAY23

zb48j1t,1693513956052 -19-31AUG23-1/1

Set Up Run Page

After an Application Controller profile has been set up, a run page can be configured to display Application Controller information and functions.

To set up a run page, use the Layout Manager application and select an Application Controller module.

(Reference the display Operator's Manual to set up run pages.)

RW00482,00007A2 -19-24JUN19-1/1

Setting Up—Active Implement Guidance

Steer Control—Active Implement Guidance

Select Active Implement Guidance softkey, Setup tab, and then the Steer Control Edit button.

Drop-down menus (A—C) automatically populate based on CAN and hardware signal detection. Ensure that the Application Controller is connected to the CAN bus and that all input and output signals are connected before configuration. The steering feedback sensor automatically populates when a voltage between 0.1—4.9 V is detected on analog pin 1 or 2.

1. Ensure that the valve selection is correct.
2. Ensure that the steering feedback sensor is correct.
3. Ensure that the interface is correct.
 - External Selective Control Valve (SCV) and External SCV Switch
 - Compatible with non John Deere, 60 Series and older, 5XXX, 6X00, 6X10, 6X30, 7X00, 7X10, 7X20, and small-frame 7X30 Tractors.
 - John Deere Legacy
 - Compatible with 8X00, 8X10, 8X20, 9X00, 9X10, and 9X20 Tractors.
 - Uses SCV 1 or 3 only.
 - Requires the UCC2 Application Controller harness connected to the option connector at the rear of the tractor cab.
 - John Deere Proprietary SCV
 - Compatible with 7X30, 8X30, U8, 9X30, 6R Final Tier 4 (FT4), 7R, 8R, 8RT, 8RX, 9R, 9RT, and 9RX Tractors.
 - Any SCV can be used.
 - Do not connect the UCC2 Application Controller harness to the option connector at the rear of the tractor cab.
 - If an SCV is mapped to a joystick it cannot be controlled via JD Prop control.
 - ISO SCV
 - Compatible with 6R, 6M (when equipped with optional electronic SCVs), 7R, 8R, 8RT, 8RX, 9R, 9RT, and 9RX Tractors.
 - Any SCV can be used.
 - Do not connect the UCC2 Application Controller harness to the option connector at the rear of the tractor cab.

Steer Control

- | | |
|---|-----------------------------------|
| A—Valve Selection Drop-Down Menu | D—Side Shifting Steering Checkbox |
| B—Steering Feedback Sensor Drop-Down Menu | E—Automatic Calibration Button |
| C—Interface Drop-Down Menu | F—Manual Calibration Button |

- JD Smart Implement Valve
 - If using JD Smart Implement Valve Interface, the valve selection and steering feedback sensor will automatically be greyed out. When JD Smart Implement Valve Interface is selected, the valve selection and steering feedback sensor are automatically populated.
4. To enable a side shifting mechanism, select the Side Shifting Steering checkbox (D).
 5. Select the Automatic Calibration button (E) or Manual Calibration button (F) and complete the steering calibration.

(For more information on the automatic and manual calibrations, reference Steering Calibrations.)

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PC29138—JUN—26MAY23

Steering Calibrations—Active Implement Guidance

⚠ CAUTION: To avoid serious injury, keep area around equipment clear. Procedure requires machine to move forward. Implement moves during calibration. Read and follow **Operate Implement Automation Systems Safely in Safety** section before performing calibration.

NOTE: Threshold values are unique for every selective control valve (SCV) due to normal manufacturing tolerances. Fine-tune threshold value to lowest value that generates a sensor voltage change for optimal performance. The feedback sensor should have at least 1 V difference between maximum left and right positions.

Steering calibrations are used to calibrate the UCC2 Application Controller to determine minimum amount of signal that is required from the hydraulic control unit before the steering mechanism moves. Without a steering calibration, the steering mechanism steers faster in one direction, understeers, oversteers, or does not perform as expected due to hydraulic limitations. These problems make it difficult for the control unit to maintain an off-track error of zero.

NOTE: It is important that the wheel angle sensor moves simultaneously with the hydraulic cylinder that is causing movement in the steering mechanism.

Calibrate if:

- A new profile is created.
- Both extend and retract values are set at 5 or 250 (factory default values).
- Values are copied from another machine.
- Hydraulic hose routing changes between SCVs.
- Hydraulic component repairs are made on the machine or implement.
- Counterbalance valve is adjusted.
- Hydraulic flow rate is adjusted.

NOTE: Ensure that hydraulic oil is at operating temperature before performing the calibration.

Order of Operations for Fine Tuning Active Implement Guidance

1. Perform Automatic Steering Calibration. If Automatic Steering Calibration fails, proceed to Manual Steering Calibration.
2. Ensure that the voltages are in the correct place and thresholds are correct.
3. Check position command for the wheel angle sensor (WAS).

NOTE: If any of the above elements are incorrect, nothing will function properly.

4. Proceed to Tracking and Accumulated sensitivities depending on machine behavior. For example, if the machine reaches the line and overshoots, adjust the Tracking Sensitivity appropriately (decrease the value). If Accumulated Sensitivity is too high, it affects your Tracking Sensitivity.

Automatic Steering Calibration

Select Active Implement Guidance softkey > Calibrations tab > Auto Calibration button.

Automatic calibration is a guided calibration that leads the operator through the calibration process to determine the valve threshold, hydraulic hose polarity, and wheel angle sensitivity. Automatic calibration works with most implement steering mechanisms. The progress bar (A) displays the progress of the steering calibration.

1. Place the selected SCV in auto mode.
2. Drive the machine forward, faster than 0.7 km/h (0.45 mph), and engage AutoTrac.

(Reference the machine Operator's Manual for speed requirements of the SCV.)
3. Select the Start button (B).

Continued on next page

zb48j1t, 1693514109289 -19-07AUG25-1/9

Auto Steering Calibration

Status: Active
Waiting To Start

A — Progress Bar

B — Start Button

WAS Sensitivity: 1000
Extend Threshold: 0
Retract Threshold: 0
Normal Flow

Feedback Sensor

4.50 Max Left (V) | 2.50 Center (V) | 0.50 Max Right (V)

Valve Flow Cmd (%): 0 | Feedback (V): 0.00

Cancel

PC29145 —UN—26MAY23

Auto Steering Calibration

A—Progress Bar

B—Start Button

zb48j1t,1693514109289 -19-07AUG25-2/9

- Manually move the steering actuator to the center position, then select the Set Center button.

PC29143 —UN—26MAY23

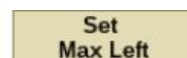


Set Center Button

zb48j1t,1693514109289 -19-07AUG25-3/9

- Manually move the steering actuator to the furthest left position, then select the Set Max Left button.

PC29142 —UN—26MAY23

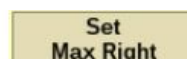


Set Max Left Button

zb48j1t,1693514109289 -19-07AUG25-4/9

- Manually move the steering actuator to the furthest right position, then select the Set Max Right button.
- Continue to drive forward and allow the steering calibration to complete. If the automatic calibration fails, perform the manual calibration.

PC29144 —UN—26MAY23



Set Max Right Button

Manual Steering Calibration

When performing a manual steering calibration, Tracking, Accumulated, and Wheel Angle Sensor (WAS) sensitivities must be manually set. (See Steering Sensitivity—Active Implement Guidance section for further details on how to adjust these sensitivities.)

Select the Active Implement Guidance softkey > Calibrations tab > Manual Calibration button.

- Place the selected SCV in auto mode.
 - Place the SCV in extend detent position, not float.
 - Drive the machine forward, faster than 0.7 km/h (0.45 mph). Do not engage AutoTrac.
- (Reference the machine Operator's Manual for speed requirements of the SCV.)

Continued on next page

zb48j1t,1693514109289 -19-07AUG25-5/9

- Manually move the steering actuator to the center position, then select the Set Center button (A).

NOTE: Some implements require the sensor to be fully retracted to increase range of extend motion.

- Select the Extend Test button (B).

NOTE: Left-hand and right-hand directions are based on operator sitting in cab facing forward. If implement moves in the opposite direction as intended, select the Reverse Output checkbox (C).

- Select the decrease button (D) until there are no changes in the feedback voltage (E).

- Select the increase button (F) until the sensor voltage changes as slowly as possible while maintaining continuous movement.

NOTE: For finer adjustments beyond the 10 increments, click on the number box and manually enter values. This ensures the smoothest operation of the cylinders.

NOTE: If the implement steering cylinder reaches maximum or minimum stroke during test, reposition the cylinder.

- Fully extend the steering cylinder and select the related maximum position. If fully extended to the left, select Set Max Left (G) or if fully extended to the right, select Set Max Right (H).

The image shows a 'Manual Steering Calibration' screen. At the top, it says 'Valve Calibration II' and 'Status: Enabled Ready'. Below this is a note: 'Set the value as low as possible while getting smooth motion out of the cylinder during a test.' The screen is divided into several sections. On the left, there's an 'Extend Threshold' section with a '0' in a box, an 'F' (Increase) button, a 'D' (Decrease) button, and a 'B' (Extend Test) button. In the center, there's a 'Reverse Output' checkbox (labeled 'C') and a 'JD Proprietary' indicator with a green light and 'Not Ready' text. On the right, there's a 'Retract Threshold' section with a '0' in a box and 'Retract Test' and 'Retract' buttons. Below these is a 'Feedback Sensor Calibration' section with three buttons: 'G' (Set Max Left), 'A' (Set Center), and 'H' (Set Max Right). At the bottom, there's a 'Valve Flow Cmd (%)' section with a '0' in a box, a 'Feedback (V)' section with a '0.00' in a box, and a 'Return' button. The 'E' (Feedback Voltage) label is next to the '0.00' value.

Manual Steering Calibration

- | | |
|---------------------------|------------------------|
| A—Set Center Button | E—Feedback Voltage |
| B—Extend Test Button | F—Increase Button |
| C—Reverse Output Checkbox | G—Set Max Left Button |
| D—Decrease Button | H—Set Max Right Button |

zb48j1t,1693514109289 -19-07AUG25-6/9

- Select the Stop Test button.

PC29141 —UN—26MAY23



Stop Test Button

Continued on next page

zb48j1t,1693514109289 -19-07AUG25-7/9

- 10. Select the Retract Test button (A).
- 11. Select the decrease button (B) until there are no changes in the feedback voltage (C).
- 12. Select the increase button (D) until the sensor voltage changes as slowly as possible while maintaining continuous movement.

NOTE: For finer adjustments beyond the 10 increments, click on the number box and manually enter values. This ensures the smoothest operation of the cylinders.

NOTE: If the implement steering cylinder reaches maximum or minimum stroke during test, reposition the cylinder.

- 13. Fully retract the steering cylinder and select the related maximum position. If fully retracted to the left, select Set Max Left (E) or if fully retracted to the right, select Set Max Right (F).

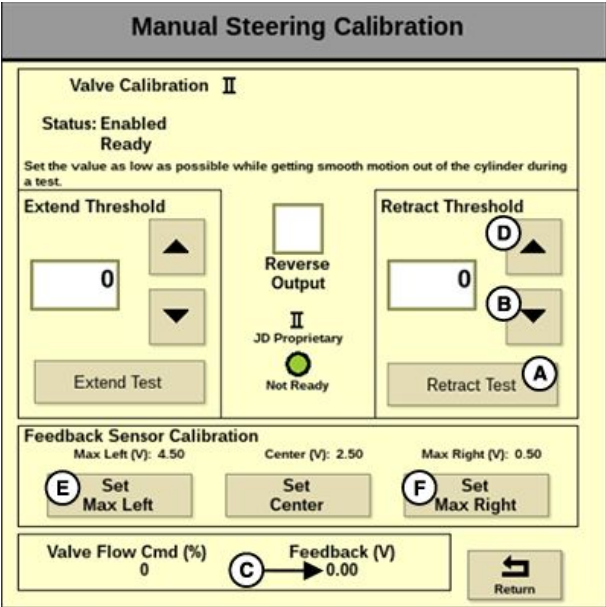
- A—Retract Test Button

B—Decrease Button

C—Feedback Voltage
- D—Increase Button

E—Set Max Left Button

F—Set Max Right Button

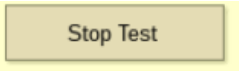


Manual Steering Calibration

zb48j1t,1693514109289 -19-07AUG25-8/9

- 14. Select the Stop Test button.

PC29141 —UN—26MAY23



Stop Test Button

zb48j1t,1693514109289 -19-07AUG25-9/9

PC29140 —UN—06JUN23

Steering Sensitivity—Active Implement Guidance

Select Active Implement Guidance softkey > Calibrations tab > Steer Sensitivity button.

To adjust steer sensitivity settings, select the decrease (A) or increase (B) button. Verify that adjustments decrease errors with each pass. To view errors, select the toggle button (C) to switch between Implement Tracking Error (D) or 95% Control Performance (E). The lower the error rates, the better the performance. Use the next page button (F) and previous page button (G) to navigate between pages.

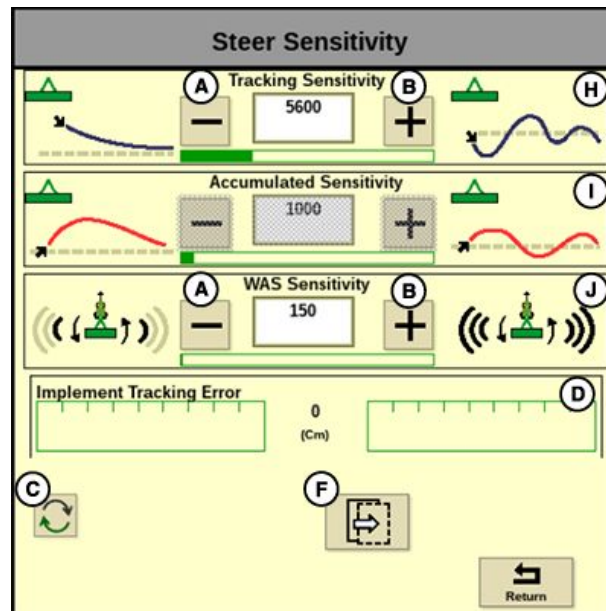
Tracking Sensitivity (H)—Tracking sensitivity indicates how quickly the machine is reaching the line. If it is not reaching the line quickly enough, increase the value. Affects both acquisition and tracking. It is a proportional gain, so the amount of commanded actuator position for a given lateral error is directly proportional. For example, if the tracking sensitivity value is 100 and an off-track error of 10 in (25 cm), the system commands 10% of the actuator position. If the value is increased to 1000, it commands 100% of the actuator position. This is the gain that generally affects how aggressive the implement is at correcting for lateral error.

Accumulated Sensitivity (I) — Affects line acquisition performance and on line performance. Determines how quickly the system reacts to errors while off-line, on hills, and slopes. Increasing the setting increases reaction speed during off-track conditions. Accumulated sensitivity is roughly 10—15% of tracking sensitivity. Accumulated Sensitivity is disabled when Side Shifting is selected.

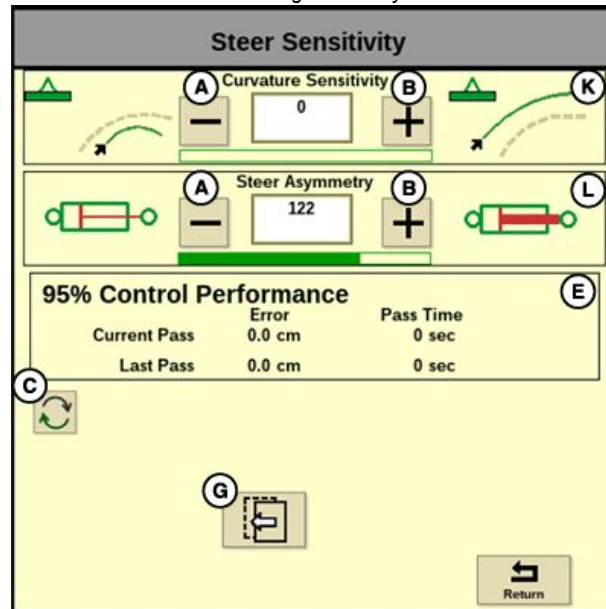
Wheel Angle Sensor (WAS) Sensitivity (J)—Affects the flow command amount for a given actuator position error. Adjust the value using a step test. Fine-tune the WAS sensitivity until the actuator steers aggressively with low overshoot and no steady state oscillation. Smaller cylinders have a lower value while larger cylinders have a higher value. To refine the wheel angle sensor sensitivity, proceed to Diagnostic Tests.

Position Command: Begin with this command. When executed, it will direct the machine to a specific position. To adjust the Wheel Angle Sensor Sensitivity, select a position and allow the machine to move to it, then modify the sensitivity until you achieve the desired speed with minimal overshoot. It is advisable to start with increments of 25. The machine must be in motion during this test. For more information, see Position Command—Active Implement Guidance in Troubleshooting section.

Flow Command: This test checks whether you can achieve a specific percentage of flow and determines if it can move in a designated direction, either to the right or left at a specified speed. If you suspect that your select control valve (SCV) is not operating at full capacity, it is advisable to perform this test first. For more information, see Flow Command—Active Implement Guidance in Troubleshooting section.



Steering Sensitivity 1/2



Steering Sensitivity 2/2

- | | |
|----------------------------|---------------------------|
| A—Decrease Button | G—Previous Page Button |
| B—Increase Button | H—Tracking Sensitivity |
| C—Toggle Button | I—Accumulated Sensitivity |
| D—Implement Tracking Error | J—WAS Sensitivity |
| E—95% Control Performance | K—Curvature Sensitivity |
| F—Next Page Button | L—Steer Asymmetry |

Frequency Sweep: This is rarely needed. It indicates that it will oscillate back and forth at a specified frequency. For more information, see Frequency Sweep—Active Implement Guidance in Troubleshooting section.

Continued on next page

zb48j1t,1693514411961 -19-10AUG25-1/2

Step Response: This is rarely needed. It involves making incremental increases in the flow commands. For more information, see Step Response—Active Implement Guidance in Troubleshooting section.

NOTE: Run the system fully after satisfied with the response. If desired results are not obtained, then move to Tracking Sensitivity and then Accumulated Sensitivity.

Curvature Sensitivity (K)—Determines amount of corrective wheel movement to keep the implement on a curved track. Increase value if implement tracks to the outside of curves, and decrease if implement tracks to the inside of curves.

NOTE: When traveling from a side hill back to flat ground, the sensitivity will still be present and will need to be adjusted again.

Steer Asymmetry (L)—Automatic steering calibration automatically sets this value. Change the value until extend and retract are the same speed. Increase the value when extend is faster than retract. Decrease the value when retract is faster than extend. Range is 50—150. A value of 100 means that there is no difference between extend and retract.

zb48j1t,1693514411961 -19-10AUG25-2/2

Error Correction—Active Implement Guidance

Select Active Implement Guidance softkey > Setup tab > Error Correction Edit button.

GPS receiver automatically populates based on the detected CAN devices and physical connections. If more than one implement GPS receiver is installed, ensure that the correct one is selected. Ensure that the lowest serial number GPS receiver is on the forwardmost implement and the highest serial number is on the rearmost implement.

1. Select GPS receiver from the drop-down menu (A).
2. If needed, select the checkboxes for:
 - Implement RowSense (B)—Use vision guidance, feelers, or other row sensing devices.
 - Speed Control (C)—Automatically adjusts speed to maximize working speed while maintaining acceptable performance.

NOTE: Speed Control requires a compatible tractor with a valid speed control activation.

Error Correction

GPS Receiver:
Imp. 1 (A)

(B) ☒ **Implement RowSense**
Use vision guidance, feelers, or other row sensing devices.

(C) ☒ **Speed Control**
Automatically adjusts speed to maximize working speed while maintaining acceptable performance.

Note: Speed Control requires a compatible tractor with a valid speed control activation.

Return

Error Correction

- A—GPS Receiver Drop-Down Menu
B—Implement RowSense Checkbox
C—Speed Control Checkbox

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PC29146—UN—26MAY23

Speed Control—Active Implement Guidance

Select Active Implement Guidance softkey > Calibrations tab > Speed Control button.

Speed Control enables automatic machine speed control to optimize operational speeds based on the performance of Active Implement Guidance. If performance degrades due to field conditions, the machine automatically slows down until performance improves to the threshold that the operator sets. Machine speed varies between the minimum and maximum tracking errors.

Adjust the tracking error limits to operator preferences. If the tracking performance degrades to the maximum tracking error threshold, the machine is commanded to the operator-configured minimum speed. Alternatively, when the tracking performance is better than the minimum tracking error, the machine is commanded to the operator-configured maximum speed.

1. Enter the maximum machine speed into the input box (A).
2. Enter the minimum machine speed into the input box (B).
3. Enter the machine acceleration into the input box (C).
4. Enter the machine deceleration into the input box (D).
5. Enter the maximum tracking error into the input box (E).
6. Enter the minimum tracking error into the input box (F).

The Speed Control screen is divided into three main sections. The top left section, 'Machine Speed', contains two input boxes: 'Maximum (mi/h)' with value 10.0 (labeled A) and 'Minimum (mi/h)' with value 2.0 (labeled B). The bottom left section, 'Machine Acceleration', contains two input boxes: 'Accel. (mph/sec)' with value 2.0 (labeled C) and 'Decel. (mph/sec)' with value 2.0 (labeled D). The right section, 'Tracking Error', contains two input boxes: 'Maximum (in)' with value 10.0 (labeled E) and 'Minimum (in)' with value 3.9 (labeled F). A diagram between the speed and acceleration sections shows a vertical line with green arrows pointing up and down, representing the tracking error range. A 'Return' button is at the bottom right.

Speed Control

- | | |
|-----------------------------------|------------------------------------|
| A—Maximum Machine Speed Input Box | D—Machine Deceleration Input Box |
| B—Minimum Machine Speed Input Box | E—Maximum Tracking Error Input Box |
| C—Machine Acceleration Input Box | F—Minimum Tracking Error Input Box |

zb48j1t,1693514214305 -19-31AUG23-1/1

PC29147 —UN—26MAY23

RowSense Settings—Active Implement Guidance

Select Active Implement Guidance softkey > Calibrations tab > RowSense button.

Implement RowSense requires a compatible RowSense sensor installed on the implement and configured correctly.

1. Enter the minimum confidence into the input box (A). The recommend starting value is 80% or higher. Confidence indicates how confident the sensor is in the reported values.
 - 0% = No data
 - 100% = Near perfect error estimation

The lower the minimum confidence level, the longer the RowSense sensor is used before the system switches to the GPS.

2. Enter the auto promote threshold into the input box (B). This is the threshold where Active Implement Guidance automatically switches GPS to the Local Error Source (RowSense), when valid.

The RowSense Settings screen has two columns for sensor data: 'Primary Sensor' and 'Secondary Sensor'. Each column lists 'N/A', '0 (in)', '0 (deg)', '0.0 (dpm)', and '0 %'. Below these is a 'Minimum Confidence' section with an input box (A) set to 90%. A note below says '0% = No Data, 100% = Near Perfect Error Estimation'. To the right is an 'Auto Promote Threshold' section with an input box (B) set to 4 (in). A note below says 'This is the threshold where AIG will automatically switch to Local Error Source, when valid.' A 'Return' button is at the bottom right.

RowSense Settings

- | | |
|--------------------------------|-------------------------------|
| A—Minimum Confidence Input Box | B—Automatic Promote Threshold |
|--------------------------------|-------------------------------|

zb48j1t,1693514239538 -19-31AUG23-1/1

PC26408 —UN—18OCT18

Automation Options—Active Implement Guidance

Select Active Implement Guidance softkey then the Setup tab then the Automation Options Edit button.

- Select resume switch behavior from the drop-down menu (A). Resume switch behavior allows the operator to select the synchronization behavior between AutoTrac and the Active Implement Guidance valve automation.
 - Independent—Engages implement guidance when SCV is manually put in forward detent.
 - Engage All—Engages both machine and implement guidance when the AutoTrac resume switch is pressed and the SCV for implement guidance is in detent.
- Select row entry mode from the drop-down menu (B). Row entry mode is the initial operating mode when first engaged.
 - GPS—When the AutoTrac resume switch is pressed, the system begins in GPS-only guidance. When the AutoTrac resume button is pressed a second time, the system utilizes AutoTrac Vision or RowSense when possible. When crop is not detected or AutoTrac Vision guidance cannot be achieved, the system automatically switches to GPS-only guidance. Use GPS mode only when the rows were planted with GPS.
 - RowSense—When the AutoTrac resume switch is pressed, the system automatically switches to AutoTrac Vision or RowSense whenever crop is detected. The system switches to GPS-only guidance whenever crop is not detected. Use the RowSense mode if GPS guidance was not used during planting or the rows are not straight.
- To have the system automatically switch to implement RowSense when the criteria is met, select the Auto switch to RowSense checkbox (C). Set the criteria in RowSense settings.

NOTE: On Generation 4 Displays, it is recommended to select the Disengage steering when working

Automation Options

- | | |
|---|---|
| A—Resume Switch Behavior Drop-Down Menu | D—Disengage Steering when Work Recording Off Checkbox |
| B—Row Entry Mode Drop-Down Menu | E—Digit Input Drop Down Menu |
| C—Auto Switch to RowSense Checkbox | F—Stay On Checkbox |

recording off checkbox (D) if using AutoTrac Turn Automation with Active Implement Guidance.

- To prevent steering while the implement is raised or to center the implement when it is raised, select the Disengage steering when work recording off checkbox (D). Steering can be engaged automatically from a height sensor if it is connected to the digital input (E).
- To keep Active Implement Guidance on and continue tracking the current guidance line even if AutoTrac disengages, select the Stay On checkbox (F). It continues to track until the current track number changes.

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PC29148—UN—08JUN23

Vision Guidance Camera Calibration—Active Implement Guidance

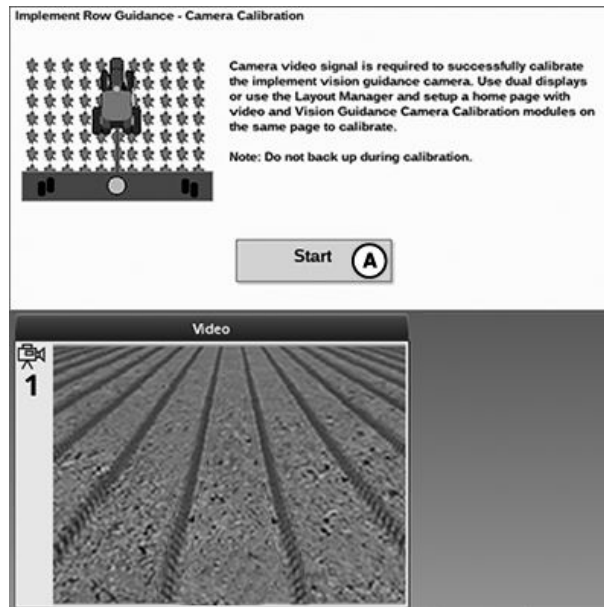
Select Active Implement Guidance softkey > Calibrations tab > Vision Guidance Camera Calibration.

Vision Guidance is an enhancement to Active Implement Guidance. A vision camera mounted to the implement looks for color differences between the crop and the ground to determine the location of the crop rows. Signals provided by the vision camera are integrated with existing sensor signals to keep the implement on the rows. When there is no signal from the vision camera (for example, when driving through a waterway), normal global positioning system (GPS) guidance keeps the implement on the guidance line.

Camera video signal is required to successfully calibrate the implement vision guidance camera. Use dual displays or use the Layout Manager application to set up a home page with video and Vision Guidance Camera Calibration modules on the same page to calibrate.

NOTE: Do not back up during calibration.

1. Select the Start button (A).



Vision Guidance Camera Calibration

A—Start Button

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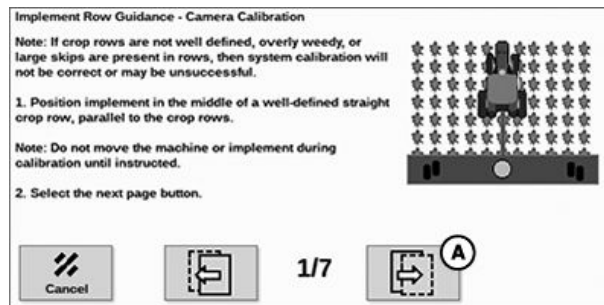
NOTE: If crop rows are not well defined, overly weedy, or large skips are present in rows, then system calibration will not be correct or may be unsuccessful.

2. Position implement in working position, parallel to the crop rows, and in the middle of a well-defined, straight crop row.

NOTE: Do not move machine or implement during calibration until instructed.

3. Select the next page button (A).

A—Next Page Button



Vision Guidance Camera Calibration

Continued on next page

zb48j1t,1693514331294 -19-31AUG23-2/6

4. Enter the row spacing into the input box (A).

5. Enter the crop height into the input box (B).

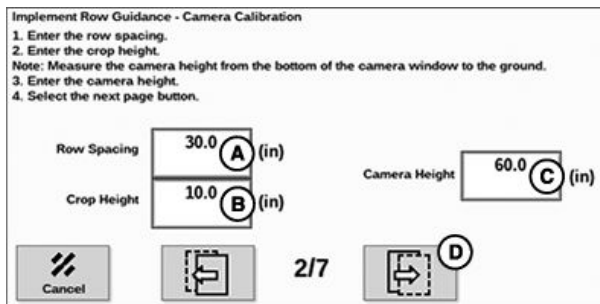
NOTE: While the implement is in working position, measure the camera height from the bottom of the camera window to the ground.

6. Enter the camera height into the input box (C).

7. Select the next page button (D).

A—Row Spacing Input Box
B—Crop Height Input Box

C—Camera Height Input Box
D—Next Page Button



Vision Guidance Camera Calibration

zb48j1t,1693514331294 -19-31AUG23-3/6

8. Adjust line 1 (A) and line 2 (B) to move the white box over the center two crop rows (C).

a. Select a line from the drop-down menu (D).

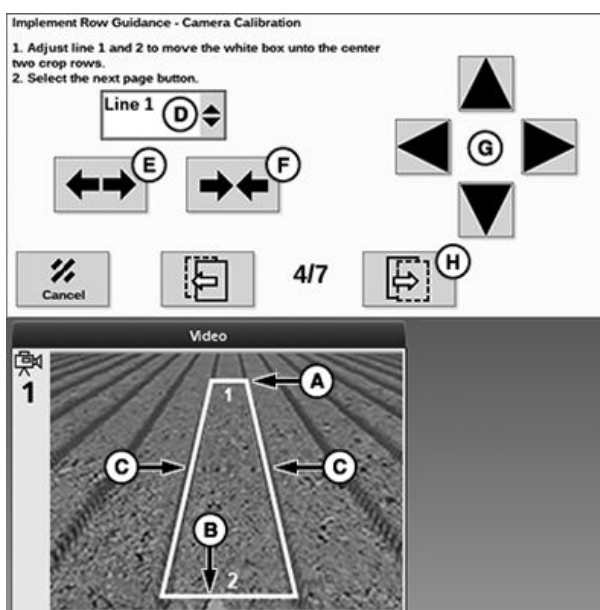
b. Select the buttons (E—G) and center the line on the two crop rows.

c. Repeat steps for both line 1 and 2 until the white box is centered on the crop rows.

9. Select the next page button (H).

A—Line 1
B—Line 2
C—Center Two Crop Rows
D—Line Selection Drop-Down Menu

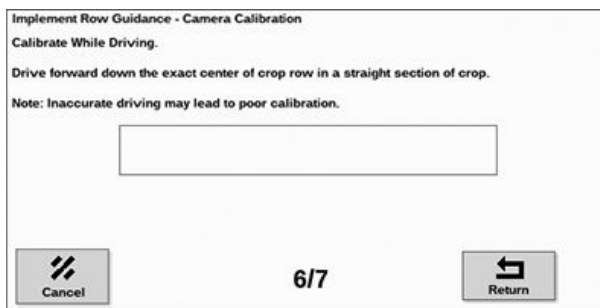
E—Make Line Wider Button
F—Make Line Narrower Button
G—Directional Buttons
H—Next Page Button



Vision Guidance Camera Calibration

zb48j1t,1693514331294 -19-31AUG23-4/6

10. Once the Calibrate While Driving page displays, drive forward down the center of the crop row in a straight section of crop.



Vision Guidance Camera Calibration—Calibrate While Driving

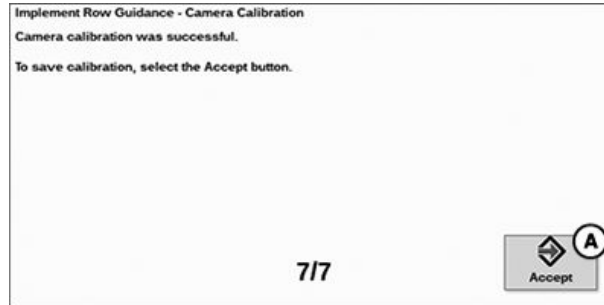
Continued on next page

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11. To save the calibration, select the Accept button (A).

NOTE: If the calibration fails, reposition the implement parallel to the crop rows in the middle of a well-defined, straight crop row. Ensure that there is enough room for the calibration and repeat the calibration process.

A—Accept Button



Vision Guidance Camera Calibration

zb48j1t,1693514331294 -19-31AUG23-6/6

PC26502 —UN—09NOV18

Implement Tracking—Active Implement Guidance

Select Active Implement Guidance softkey > Setup tab > Implement Tracking Edit button.

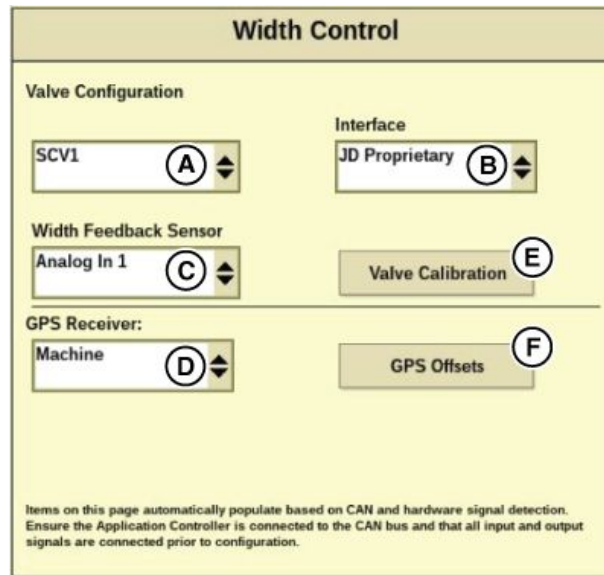
1. To offset the implement guidance line independently from the AutoTrac guidance line, select the Enable Independent Implement Line Shifting checkbox (A). It is typically used with straight tracks for controlled traffic applications when placing seed between rows.
 - a. Enter the direction into the input box (B) (0° = North, 90° = East, 180° = South, 270° = West).

NOTE: For example, to shift North-South track to the East, enter 90 for the direction.

- b. Enter the distance into the input box (C).

2. Enter local error shifting increments into the input box (D). This is the amount that the implement is adjusted each time the shift button is pressed.

NOTE: Implement shifting is only available when using local guidance (vision guidance) for navigation.



Implement Tracking

A—Enable Independent Implement Line Shifting Checkbox
B—Direction Input Box

C—Distance Input Box
D—Local Error Shifting Increments Input Box

zb48j1t,1693514360243 -19-31AUG23-1/1

PC589269 —UN—09AUG23

Setting Up—Tractor Integrated Active Implement Guidance

Tractor Integrated Active Implement Guidance Overview

CAUTION: To avoid serious injury or death, only use the bidirectional hydraulic cylinder during in-field operations and never on roadways. Before raising the implement, ensure that the hitch and implement are in the center position. Once the implement is lifted or in transport mode, do not activate selective control valve (SCV) float position.

Tractor Integrated Active Implement Guidance is a hardware solution sold in some areas that uses Active Implement Guidance. The compatibility and system functionality of Tractor Integrated Active Implement Guidance vary by location and equipment configuration. For more information about availability of components, system functionality, and compatibility, contact your John

Deere dealer or other service provider. Reference the Compatibility Guide on the Value Selling Navigator for additional information.

Tractor Integrated Active Implement Guidance is a cultivating solution that uses the following:

- Bidirectional hydraulic cylinder installed on the tractor

NOTE: StarFire Receiver installed on the implement is optional.

- StarFire Receiver installed on the tractor
- AutoTrac Vision camera installed on the implement
- Wheel angle sensor (WAS) installed on the lower links of the tractor

(For more information, reference the Tractor Integrated Active Implement Guidance Installation Instructions.)

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Set Up Active Implement Guidance for Tractor Integrated Active Implement Guidance

When setting up Tractor Integrated Active Implement Guidance, the following settings are required.

NOTE: When setting up the display, it is recommended to use the same working width, guidance tracks, and working direction for planting and cultivating.

1. Set up the machine and implement on the display. Ensure that hitch is selected for the display's recording source.

(For more information, reference the display Operator's Manual.)

2. In Steer Control, select the Side Shifting Steering checkbox (A).

A—Side Shifting Steering Checkbox

The screenshot shows the 'Steer Control' interface with a yellow background. At the top, it says 'Valve Configuration'. Below this, there are three main sections: 'Valve Selection' with a dropdown menu showing 'SCV2', 'Interface' with a dropdown menu showing 'JD Proprietary', and 'Steering Feedback Sensor' with a dropdown menu showing 'Analog In 1'. To the right of the 'Interface' section, there is a note: 'Minimum Control Speed is 0.06 mph (0.1 kph) for this valve interface.' Below the 'Steering Feedback Sensor' section, there is a checkbox labeled 'Side Shifting Steering' with a circled 'A' next to it. At the bottom of the interface, there are two buttons: 'Auto Calibration' and 'Manual Calibration'. In the bottom right corner, there is a 'Return' button with a back arrow icon. A small text note at the bottom of the interface states: 'Items on this page automatically populate based on CAN and hardware signal detection. Ensure the Application Controller is connected to the CAN bus and that all input and output signals are connected prior to configuration.'

Steer Control

Continued on next page

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PC29152—UN—26MAY23

- In Error Correction, select the Implement RowSense checkbox (A).

**A—Implement RowSense
Checkbox**

Error Correction

zb48j1t,1693514521757 -19-31AUG23-2/7

PC29153 —UN—26MAY23

- In RowSense Settings, enter 80% into the Minimum Confidence input box (A).
- Enter 10 cm into the Auto Promote Threshold input box (B).

**A—Minimum Confidence Input
Box B—Auto Promote Threshold
Input Box**

RowSense Settings

Continued on next page

zb48j1t,1693514521757 -19-31AUG23-3/7

PC27853 —UN—15MAY20

6. In Automation Options, select Engage All from the Resume Switch Behavior drop-down menu (A).

NOTE: GPS is optional and requires the installation of an implement StarFire Receiver.

7. Select the row entry mode from the drop-down menu (B).
8. Select the Auto switch to RowSense checkbox (C).
9. Select the Disengage steering when work recording off checkbox (D). This feature centers the implement when it is lifted.

A—Resume Switch Behavior Drop-Down Menu
B—Row Entry Mode Drop-Down Menu

C—Auto Switch to RowSense Checkbox
D—Disengage Steering when Work Recording Off Checkbox

Automation Options

zb48j1t,1693514521757 -19-31AUG23-4/7

PC29154 —UN—26MAY23

10. In Implement Tracking, do not select the Enable Independent Implement Line Shifting checkbox (A).
11. Enter shifting increment into the input box (B). This is the amount that the implement is adjusted each time the shift button is pressed.

A—Enable Independent Implement Line Shifting Checkbox

B—Shifting Increment Input Box

Implement Tracking

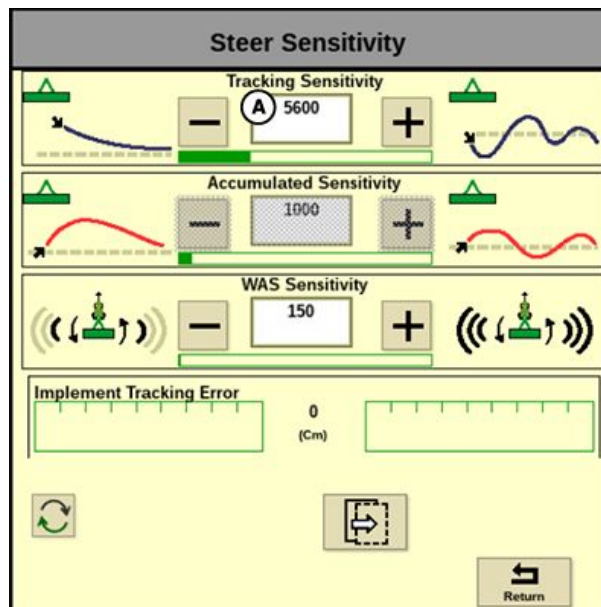
Continued on next page

zb48j1t,1693514521757 -19-31AUG23-5/7

PC29155 —UN—26MAY23

12. In Steer Sensitivity, set the tracking sensitivity (A) to 5600.

A—Tracking Sensitivity



Steering Sensitivity 1/2

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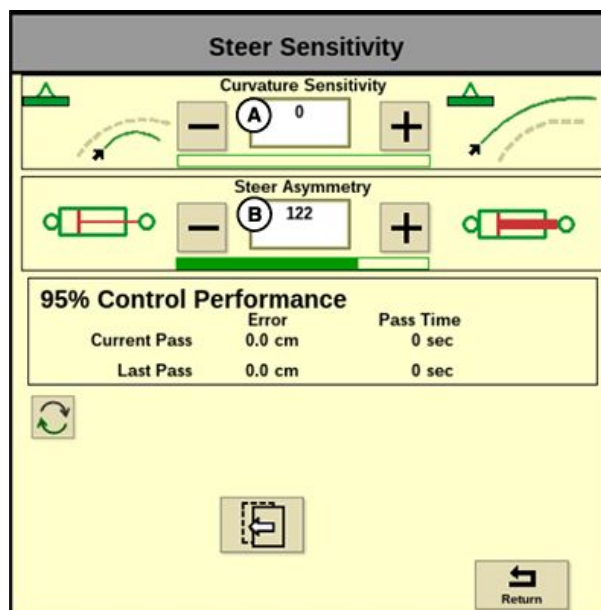
PC29156—UN—26MAY23

13. On the second page of Steer Sensitivity, set the curvature sensitivity (A) to 0.

14. Set steer asymmetry (B) to 122.

A—Curvature Sensitivity

B—Steer Asymmetry

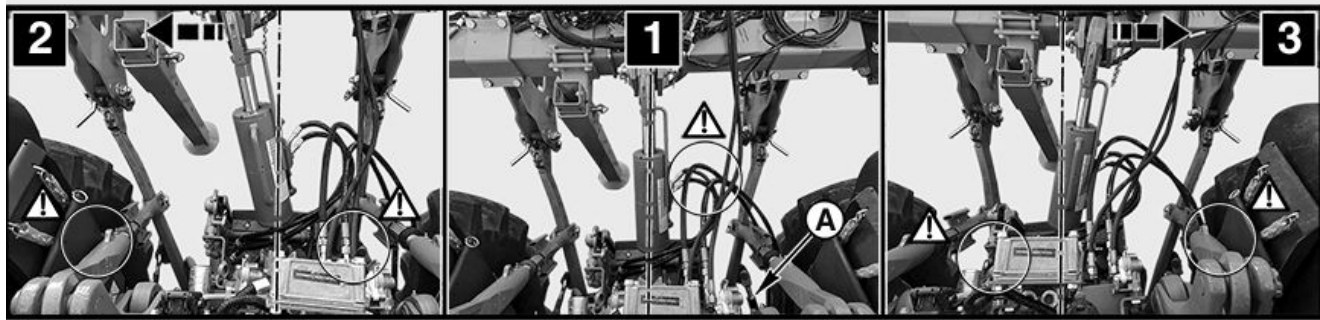


Steering Sensitivity 2/2

zb48j1t,1693514521757 -19-31AUG23-7/7

PC29157—UN—26MAY23

First Use - Set up Implement



First Use

- A—Hydraulic Cylinder
 1—Draft Link Position - Hydraulic Cylinder Centered
 2—Draft Link Position - Hydraulic Cylinder Fully Extended
 3—Draft Link Position - Hydraulic Cylinder Fully Retracted

Before first use, the implement setup and system calibration must be performed. Proceed as follows:

NOTE: To access the required calibration screens, refer to *Setting Up - Active Implement Guidance - Steering Calibrations - Active Implement Guidance*.

1. Set Up the Implement

IMPORTANT: Pay attention that the center link in pos. 1 or 3 does not hit or interfere with other tractor hydraulic hoses or similar components.

Pay attention that the center link in pos. 2 or 3 does not hit or interfere with any implement components.

IMPORTANT: Ensure that lower draft links in pos. 2 or 3 never hit or interfere with the tire or the differential housing when the hydraulic cylinder (A) is fully extended/retracted and the draft links fully up or down.

- Check hydraulic cylinder yoke pre-adjustment.
- Slowly extend the hydraulic cylinder (A) completely and pay attention to not hit or damage anything (e.g. differential housing).
- Shock absorber must have enough room and feedback sensor must not hit feedback sensor housing. If so, adjust length of shock absorber.
- Slowly retract the hydraulic cylinder (A) completely and check that lower links do not hit or damage anything (e.g. differential housing).
- Check that feedback sensor does not hit feedback sensor housing.
- Make sure that the implement stays in middle position behind the tractor when the hydraulic cylinder (A) is in middle position.

2. General Information

Check the wheel size and track space of tractor used.

If the system is used in other circumstances which require special settings, wheel size or track spaces (e.g.), use "Manual Calibration" ONLY.

Set "Min and max" to dedicated values, to not hit any parts/wheels.

3. Hydraulic Hoses

The hydraulic hoses must be connected correctly - Extend to extend and retract to retract. If this is done, a "Steer Asymmetry" of 124 can be entered (see **Steer Sensitivity** in **Controller Setup** page). Otherwise, 83 needs to be entered.

This can be checked doing a frequency sweep & position command = system steers/moves very smooth. The hydraulic cylinder (A) extends and retracts with the same speed.

4. Calibration/Tuning

Proceed to the implement and camera calibrations. The implement calibration can be done either manually or automatically (see John Deere Active Implement Guidance Operator's Manual).

NOTE: The Automatic Steering Calibration may lead to less aggressive Extend/Retract Thresholds. If more aggressiveness is required, perform a manual calibration.

After a system calibration, the "Tracking Sensitivity" and the "Steer Asymmetry" should not be changed.

If necessary, start fine tuning with:

- WAS Sensitivity – is important and makes the system more or less aggressive.
- Extend/Retract Threshold – shall be set once for implement and there is no need to change them afterwards. Implement will move as slowly as possible, while maintaining continuous movement.

Continued on next page

zb48j1t,1693514521707 -19-31AUG23-1/2

Setting Up—Tractor Integrated Active Implement Guidance

- Max Sensor Voltage – needs to be set once and can remain for this system (implement). Can be adjusted every time as needed.
- Camera Tuning – to improve the camera performance or to avoid lost of plant rows, the camera angle can

be changed (to point ahead of the front axle) , but the height must remain the same. In some cases, acting on the Extend/Retract Thresholds aggressiveness may also help.

zb48j1t,1693514521707 -19-31AUG23-2/2

Setting Up—Plow Steer

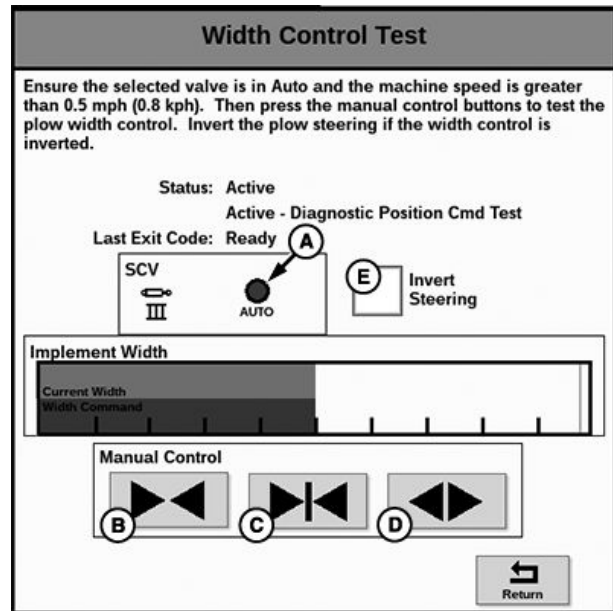
Width Control Test—Plow Steer

Select Plow Steer softkey > Calibrations tab > Width Control Test button.

1. Ensure that the selective control valve (SCV) status indicator (A) shows AUTO and the machine speed is greater than 0.1 km/h (0.06 mph).
2. To test the plow width control, use the manual control buttons (B—D).
3. If plow width moves in the opposite direction, select the Invert Steering checkbox (E).

A—SCV Status Indicator
B—Contract Button
C—Center Button

D—Broaden Button
E—Invert Steering Checkbox



Width Control Test

zb48j1t,1693514880552 -19-31AUG23-1/1

PC27025—UN—23MAY19

Manual SCV Calibration—Plow Steer

CAUTION: To avoid serious injury, keep area around equipment clear. Procedure requires machine to move forward. Implement moves during calibration. Read and follow Operate Implement Automation Systems Safely in Safety section before performing calibration.

NOTE: Threshold values are unique for every selective control valve (SCV) due to normal manufacturing tolerances. Fine-tune threshold value to lowest value that generates a sensor voltage change for optimal performance. The feedback sensor should have at least 1 V difference between maximum extended and retracted positions.

SCV calibration is used to calibrate the UCC2 Application Controller to determine minimum amount of signal that is required from the hydraulic control unit before the plow mechanism moves. Without an SCV calibration, the plow mechanism extends or retracts too fast, too slow, or does not perform as expected due to hydraulic limitations. These problems make it difficult for the control unit to maintain the required plow width to maintain even furrows.

NOTE: It is important that the wheel angle sensor moves simultaneously with the hydraulic cylinder that is causing movement in the plow mechanism.

Calibrate if:

- A new profile is created.
- Both extend and retract values are set at 5 or 250 (factory default values).
- Values are copied from another machine.
- Hydraulic hose routing changes between SCVs.
- Hydraulic component repairs are made on the machine or implement.
- Counterbalance valve is adjusted.
- Hydraulic flow rate is adjusted.

NOTE: Ensure that hydraulic oil is at operating temperature before performing the calibration.

Manual SCV Calibration

Select the Plow Steer softkey > Calibrations tab > Manual Calibration button.

1. Place the selected SCV in auto mode.
2. Place the SCV in extend detent position, not float.
3. Drive the machine forward, faster than 0.7 km/h (0.45 mph). Do not engage AutoTrac.

(Reference the machine Operator's Manual for speed requirements of the SCV.)

4. Select the Extend Test button (A).

Manual SCV Calibration—Extend Test

- A—Extend Test Button C—Decrease Button
B—Reverse Output Checkbox D—Increase Button

NOTE: Left-hand and right-hand directions are based on operator sitting in cab facing forward. If implement moves in the opposite direction as intended, select the Reverse Output checkbox (B).

5. Select the decrease button (C) until the implement does not move.
6. Select the increase button (D) until the implement moves as slowly as possible while maintaining continuous movement.

NOTE: If the implement steering cylinder reaches maximum or minimum stroke during test, reposition the cylinder.

Continued on next page

zb48j1t,1693514880488 -19-31AUG23-1/4

PC589251 —UN—09AUG23

7. Select the Stop Test button.

PC29141 —UN—26MAY23

Stop Test

Stop Test Button

zb48j1t,1693514880488 -19-31AUG23-2/4

8. Select the Retract Test button (A).
 9. Select the decrease button (B) until the implement does not move.
 10. Select the increase button (C) until the implement moves as slowly as possible while maintaining continuous movement.

NOTE: If the implement steering cylinder reaches maximum or minimum stroke during test, reposition the cylinder.

A—Retract Test Button
 B—Decrease Button

C—Increase Button

The image shows a 'Manual SCV Calibration' screen. The top section is 'Valve Calibration II' with a status of 'Valve Ready' and 'Ready'. It includes instructions to 'Set the value as low as possible while getting smooth motion out of the cylinder during a test.' There are two main sections: 'Extend Threshold' and 'Retract Threshold'. Both have a value of '999' and up/down arrows. The 'Retract Threshold' section has labels A, B, and C next to the arrows. Below these are 'Extend Test' and 'Retract Test' buttons. The bottom section is 'Feedback Sensor Calibration' with three buttons: 'Set Max Left', 'Set Center', and 'Set Max Right'. At the very bottom, there are fields for 'Valve Flow Cmd (%)' (set to -100) and 'Feedback (V)' (set to 0,01), along with a 'Return' button.

Manual SCV Calibration—Retract Test

zb48j1t,1693514880488 -19-31AUG23-3/4

11. Select the Stop Test button.

PC29141 —UN—26MAY23

Stop Test

Stop Test Button

zb48j1t,1693514880488 -19-31AUG23-4/4

Plow Configuration—Plow Steer

Select the Plow Steer softkey > Setup tab > Plow Configuration Edit button.

Total Implement Width measures implement minimum and maximum width from the outer most working points.

Individual Elements measures element minimum and maximum width between two adjacent working points.

Total Implement Width

1. Select Total Implement Width from the Mode drop-down menu (A).
2. Fully expand implement, enter the maximum physical limit into the input box (B), and then select the Set Maximum Width button (C).
3. Fully retract implement, enter the minimum physical limit into the input box (D), and then select the Set Minimum Width button (E).
4. Place implement in center position, enter the center position width into the input box (F), and then select the Set Center button (G).

NOTE: Ensure that the track width matches the implement width set in the Equipment Manager.

5. Enter the track width into the input box (H).

NOTE: Enter user limits to restrict the implement from reaching maximum or minimum width.

6. Enter the minimum user limit into the input box (I).

The screenshot shows the 'Plow Configuration' screen with the following sections:

- Definition Mode:** A dropdown menu set to 'Total Implement Width' (labeled A).
- Total Implement Width Physical Limits:** Three input boxes for 'Minimum' (800, labeled D), 'Center' (1600, labeled F), and 'Maximum' (2400, labeled B), each followed by 'cm'.
- Total Implement Width User Limits:** Three input boxes for 'Minimum' (800, labeled I), 'Maximum' (2400, labeled J), and 'Track Width' (200, labeled H), each followed by 'cm'.
- Feedback Sensor Calibration:** Three buttons: 'Set Min. Width' (labeled E), 'Set Center' (labeled G), and 'Set Max Width' (labeled C).
- Current Width (cm):** A display showing 800.
- Feedback (V):** A display showing 0,01.

Below the screen, the text 'Total Implement Width' is centered.

- | | |
|------------------------------------|-----------------------------------|
| A—Mode Drop-Down Menu | F—Center Position Width Input Box |
| B—Maximum Physical Limit Input Box | G—Set Center Button |
| C—Set Maximum Width Button | H—Track Width Input Box |
| D—Minimum Physical Limit Input Box | I—Minimum User Limit Input Box |
| E—Set Minimum Width Button | J—Maximum User Limit Input Box |

7. Enter the maximum user limit into the input box (J).

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PC589253—UN—09AUG23

Individual Elements

1. Select Individual Elements from the Mode drop-down menu (A).
2. Fully expand implement, enter the maximum physical limit into the input box (B), and then select the Set Maximum Width button (C).
3. Fully retract implement, enter the minimum physical limit into the input box (D), and then select the Set Minimum Width button (E).

4. Enter the number of elements into the input box (F).

5. Place implement in center position and select the Set Center button (G).

NOTE: Ensure that the track width matches the implement width set in the Equipment Manager.

6. Enter the track width into the input box (H).

NOTE: Enter user limits to restrict the implement from reaching maximum or minimum width.

7. Enter the minimum user limit into the input box (I).

8. Enter the maximum user limit into the input box (J).

The screenshot shows the 'Plow Configuration' screen with the 'Definition Mode' set to 'Individual Elements'. The screen is divided into three main sections: 'Physical Element Limits', 'User Element Limits', and 'Feedback Sensor Calibration'. In the 'Physical Element Limits' section, there are input boxes for 'Minimum' (100 cm, labeled D), 'Maximum' (300 cm, labeled B), and '# of Elements' (8, labeled F). In the 'User Element Limits' section, there are input boxes for 'Minimum' (100 cm, labeled I), 'Maximum' (300 cm, labeled J), and 'Track Width' (200 cm, labeled H). Below these are three buttons: 'Set Min. Width' (labeled E), 'Set Center' (labeled G), and 'Set Max Width' (labeled C). At the bottom, there are two readouts: 'Current Width (cm): 800' and 'Feedback (V): 0,01'. A note states: 'To properly function, ensure the AutoTrac track width matches the Plow Steer track width.'

Individual Elements

- | | |
|------------------------------------|--------------------------------|
| A—Mode Drop-Down Menu | F—Number of Elements Input Box |
| B—Maximum Physical Limit Input Box | G—Set Center Button |
| C—Set Maximum Width Button | H—Track Width Input Box |
| D—Minimum Physical Limit Input Box | I—Minimum User Limit Input Box |
| E—Set Minimum Width Button | J—Maximum User Limit Input Box |

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PC589254 —UN—09AUG23

Operation Setup—Plow Steer

Select the Plow Steer softkey > Setup tab > Operation Setup Edit button.

1. To move the plow back to the target track width position when the implement is raised and resume control when the implement is lowered, select the Use Implement Work State to Enable Control checkbox (A). When enabled and the implement is not in working position, Plow Steer is prevented from moving the implement.
2. To automatically flip the plow bodies by sending a selective control valve (SCV) retract command until the feedback sensor moves out of range and back into range, select the Flip Plow Elements when Work State Inactive checkbox (B).
3. To automatically flip the plow direction, select the checkbox (C) and select either Heading Based or Roll Based from the drop-down menu (D).
 - Roll Based automatically selects the plow direction based on the tractor roll angle (in-furrow plowing only).
 - Heading Based automatically toggles the plow direction when the guidance line heading changes orientation (straight track only).
4. Select either Independent or Engage All from the Resume Switch Behavior drop-down menu (E).
 - Independent engages implement guidance when the SCV is manually put in forward detent.
 - Engage All engages both machine and implement guidance when the AutoTrac resume switch is pressed and the SCV for implement guidance is in detent.

Operation Setup

A Use Implement Work State to Enable Control
This will move the plow back to its target track width position when the implement is raised and resume control when the implement is lowered.

B Flip Plow Elements when Work State Inactive
This will automatically flip the plow bodies by sending a SCV retract command until the feedback sensor moves out of range and back into range.

C Automatically Flip the Plow Direction
Heading Based **D**
This will automatically toggle the plow direction when the guidance line heading changes orientation (Straight Track Only).

Resume Switch Behavior
Independent **E** Allows the user to control automation by using SCV forward detent.

F Enable State Notification Tones

Return

Operation Setup

- A**—Use Implement Work State to Enable Control Checkbox
B—Flip Plow Elements when Work State Inactive Checkbox
C—Automatically Flip the Plow Direction Checkbox
D—Automatically Flip the Plow Direction Drop-Down Menu
E—Resume Switch Behavior Drop-Down Menu
F—Enable State Notification Tones Checkbox

5. To enable tones when the operation changes to a different state, select the checkbox (F).

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Calibrate Width Control—Plow Steer

Select Plow Steer softkey > Calibrations tab.

To adjust width control settings, select the decrease (A) or increase (B) buttons.

Width Control Sensitivity (C)—Determines how aggressively the system responds to width commands from the Application Controller. Higher values cause the system to respond more aggressively.

Width Control Deadband (D)—Determines a range or tolerance where the system does not move the plow for corrections. If set too low, the valve constantly adjusts the implement.

A—Decrease Button
B—Increase Button

C—Width Control Sensitivity
D—Width Control Deadband

Width Control Settings

A **B** **C** Width Control Sensitivity 50

A **B** **D** Width Control Deadband 6.0 (Cm)

Manual Calibration Width Control Test

Width Control Settings

zb48j1t,1693514880352 -19-31AUG23-1/1

Width Control—Plow Steer

Select Plow Steer softkey > Setup tab > Width Control Edit button.

Drop-down menus (A—D) automatically populate based on CAN and hardware signal detection. Ensure that the Application Controller is connected to the CAN bus and that all input and output devices are connected before configuration.

1. Ensure that each selection is correct.
2. Select the Valve Calibration button (E) and complete the manual calibration.
3. Select the GPS Offsets button (F) and enter receiver offsets.

(Reference Steering Calibrations for more information on the manual calibration.)

- | | |
|---|--------------------------------------|
| A—Valve Selection Drop-Down Menu | D—GPS Receiver Drop-Down Menu |
| B—Interface Drop-Down Menu | E—Valve Calibration Button |
| C—Width Feedback Sensor Drop-Down Menu | F—GPS Offsets Button |

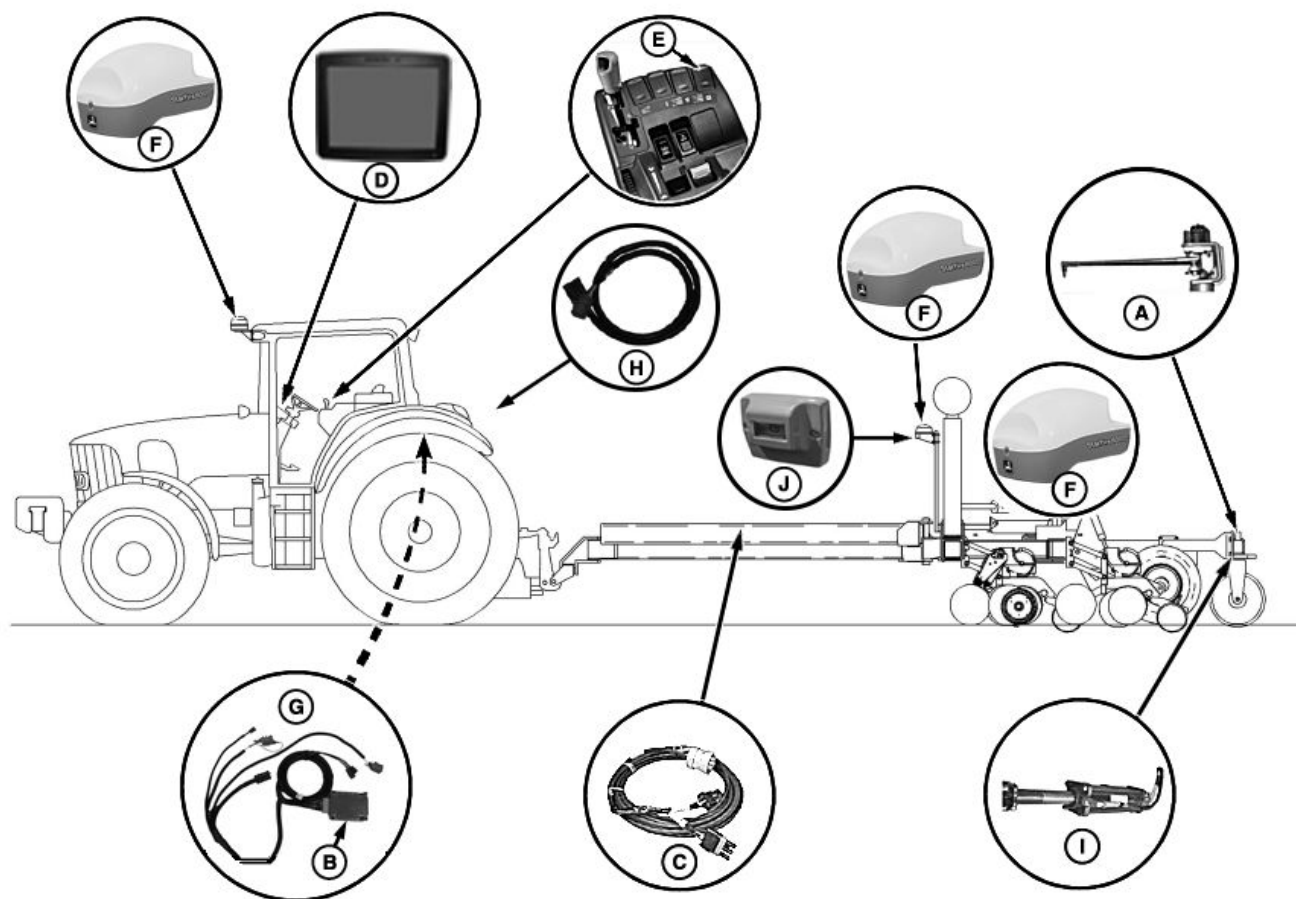
Width Control

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Operating

Basic Operation Overview



Active Implement Guidance Overview

- A—Wheel Angle Sensor
- B—UCC2 Application Controller
- C—Implement Feedback Sensor Harness
- D—Display
- E—SCV Control Lever
- F—StarFire Receiver
- G—Application Controller Harness

- H—9-Pin Machine-Side Implement Feedback Harness
- I—Implement Steering Mechanism
- J—AutoTrac Vision Camera (optional)

- Selective control valve (SCV) is set to auto mode.

NOTE: SCV cannot change to auto mode when machine is in park. Auto mode requires a speed of 0.1 km/h (0.06 mph) or greater to engage implement hydraulics automatically.

- Wheel angle sensor (A) communicates to the UCC2 Application Controller (B) through implement feedback sensor harness (C).
- Operator calibrates the system using display (D) and SCV control lever (E).
- UCC2 Application Controller calculates implement position using StarFire Receivers (F).
- When an adjustment is required, a signal is sent from UCC2 Application Controller, through Application

Controller harness (G), to either a machine SCV control unit through the implement feedback harness (H) or an external valve through the CAN bus.

NOTE: If using an external valve, 9-pin machine-side implement feedback harness cannot be used. Disconnect harness when machine is powered off.

- SCV control unit communicates instructions for sending hydraulic fluid to implement steering mechanism (I).
- AutoTrac Vision camera (J) is an optional component that communicates the local position to UCC2 Application Controller to calculate correction and increase performance.
- The system continuously monitors and adjusts implement position.

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PC27855 —UN—18FEB20

Engage Implement Automation

CAUTION: To avoid death or serious injury, disable machine and implement guidance systems before entering roadways.

1. Set up guidance line on the display.
2. Verify that the application is ready to be enabled:
 - Verify that Active Implement Guidance status pie (A) has 2/4 pieces.
 - Verify that Plow Steer has a Ready to Enable (yellow) status (A).

(Reference Diagnostics for more information.)

NOTE: SCV cannot change to auto mode when the machine is in park.

Auto mode requires a speed of 0.1 km/h (0.06 mph) or faster to engage implement hydraulics automatically.

3. Take the machine out of park.

NOTE: Leave SCV 3 in detent after each pass.

4. To engage implement auto mode, place the SCV control lever (A) in the forward-detent position.
 - If operating a machine with a TouchSet Display, verify that EC changes to AC (B).
 - If operating a machine with a CommandCenter, verify that auto mode OFF (C) changes to auto mode ON (D).
5. If applicable, lower implement into working position.

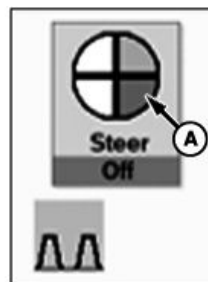
CAUTION: Active Implement Guidance begins to acquire the line immediately after being engaged. For implements using a coulter steering system, movement starts even if implement is not in contact with ground. To avoid death or serious injury, verify that bystanders are clear of the machine and implement.

6. Engage implement automation. The requirements to engage depend on the configuration.

NOTE: The system disengages if the machine speed is faster than the maximum speed.

- Active Implement Guidance maximum AutoTrac speed varies by platform. (For more information, reference the machine Operator's Manual.)
- Follow mode maximum speed is 36 km/h (22.4 mph).
- Plow Steer maximum speed is 15 km/h (9.3 mph).

Active Implement Guidance status pie (A) displays 4/4 pieces when engaged.



Steer Button

A—Status Pie

PC589256 —UN—09AUG23



Plow Steer Button

A—Ready to Enable Status



SCV Control Lever

A—SCV Control Lever

- a. Toggle the Steer button (B) ON.

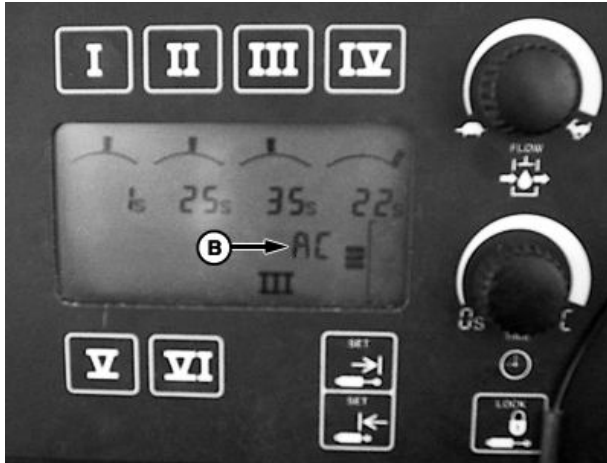
NOTE: Follow mode sets the implement guidance path in the same path as the machine receiver. This includes end row turns or while driving machine without a defined guidance line. Follow mode is useful during the first pass when the guidance line is being defined. Follow mode automatically disengages if the machine speed is slower than the minimum speed of 0.1 km/h (0.06 mph) for 120 seconds.

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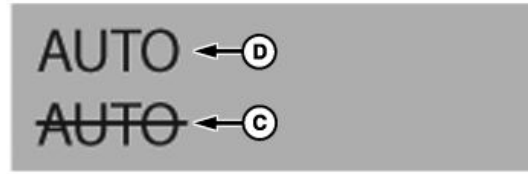
RHD Display

B—AC Mode

- Either enable AutoTrac and select the AutoTrac resume switch or select the Follow Mode button (C).
- If the Disengage steering when work recording off checkbox is selected, turn ON Work Recording.

Plow Steer displays an Active (blue) status (A) when engaged.

- Toggle the Plow Steer button (B) ON.
- If the Use Implement Work State to Enable Control checkbox is selected, turn ON Work Recording.
- If Engage All is selected for the Resume Switch Behavior, enable AutoTrac and select the AutoTrac resume switch.

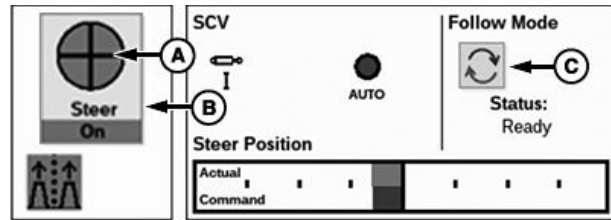


CommandCenter Auto SCV Control

C—Auto Mode OFF

D—Auto Mode ON

PC28291 —UN—17NOV20



AIG 4/4 Pie

A—Status Pie

B—Steer Button

C—Follow Mode Button

PC28293 —UN—17NOV20



Plow Steer Active Status

A—Active Status

B—Plow Steer Button

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Disengage, Deactivate, and Disable Implement Automation

CAUTION: To avoid death or serious injury, disable machine and implement guidance systems before entering roadways.

Disengage Implement Automation

- Slow the machine to speeds less than the minimum speed of 0.1 km/h (0.06 mph).
 - Active Implement Guidance and Plow Steer immediately disengages if going slower than the minimum speed.
 - Follow mode disengages after 120 seconds if going slower than the minimum speed.
- Depending on the configuration, either toggle the Steer button OFF, the Follow Mode button OFF, or the Plow Steer button OFF.

- Depending on the configuration, disengage AutoTrac. (For more information on AutoTrac, reference the display Operator's Manual.)

Deactivate Implement Automation

Depending on the configuration, either toggle the Steer button OFF, the Follow Mode button OFF, or the Plow Steer button OFF.

Disable Implement Automation

- Turn off the selective control valve (SCV).
- Turn off auto mode.
- Depending on the configuration, disable AutoTrac. (For more information on AutoTrac, reference the display Operator's Manual.)

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SCV Command Control

If the selected UCC2 Application Controller profile is set up to use selective control valves (SCVs), it commands control of those SCVs, even when the application is not in use, and other applications will not be able to send

commands to those SCVs. To release SCV command control, create and select a UCC2 Application Controller profile without SCVs or disconnect the UCC2 Application Controller.

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AutoTrac Vision Overlay

The AutoTrac Vision overlay displays the image from the vision camera and indicators of system inputs and statuses. The vision overlay is displayed on the home page using the Video option in Layout Manager.

Camera Icon (A) displays the color-coded confidence level of the vision camera. The actual confidence value (0-10) is displayed on the system diagnostic pages.

A confidence level of ten—displays the camera icon in green. This indicates that the vision guidance is confidently able to determine the location of the middle of the row.

A confidence level of eight or nine—displays the camera icon in yellow. In this state, the vision guidance is still active and capable of guiding the machine. However, the vision guidance is operating in less than ideal conditions, such as near the canopied crop, short crop, or weedy conditions.

A confidence level of seven or less—displays the camera icon in red. These confidence levels are not acceptable for guidance. If these conditions occur, the vision system is disengaged and global positioning system (GPS) guidance is used if a guidance line was set up. If a guidance line was not set up, the operator must take control of the machine and steer manually.

NOTE: *The confidence level of the vision camera is not a representative of how well the machine is tracking. Vision guidance only locates the middle of the row. The AutoTrac system is responsible for the machine tracking within the row.*

Roll Angle Icon (B) provides real-time feedback about slope conditions. AutoTrac is capable of slope



AutoTrac Vision Overlay

A—Camera Icon
B—Roll Angle Icon

C—Row Spacing Icon
D—RowSense Status Icon

compensation, however, as the slope increases, performance may be diminished. The icon displays the slope both numerically and by changing the color of the icon:

- Green Icon—slope is 0—2 degrees
- Yellow Icon—slope is 2—6 degrees
- Red Icon—slope is above 6 degrees

Row Spacing Icon (C) displays the current row spacing selected for the system. If the spacing displayed is not correct, the operator must input the correct row spacing and calibrate the AutoTrac Vision system.

The current offset applied to the system is also displayed on the icon. If the offset is not correct or should not be applied, the operator must change the setting using the setup procedure.

Continued on next page

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PC590596 —UN—21AUG23

Row Center Indicator (E)—A white dashed line indicates the center of the row and is the ideal location for the machine wheel to track. The line changes slightly with changes in crop conditions. More noticeable changes in the line occur when the machine is operating in a guess row or when the crop has been planted without the use of GPS guidance.

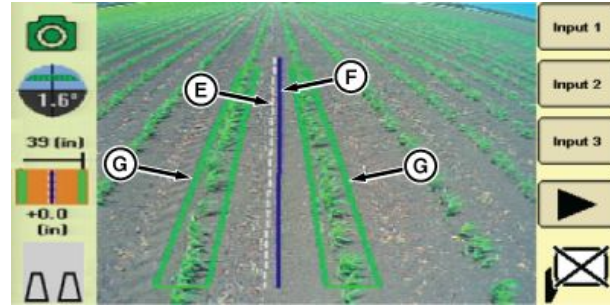
Wheel Center Indicator (F)—A solid blue line indicates the center of the wheel, which is defined during the calibration process. The wheel center indicator moves if an offset is applied to the system.

Crop Row Indicator (G)—Two green rectangles outline the crop rows and indicate where the vision camera has calculated their location.

RowSense Status Icon (D) indicates the RowSense status. Icon color indicates what is happening at that moment on the machine. Icon color changes based on the RowSense operation mode.

- Gray Color: System Installed
- Green Color: System Active, Operating with Both Row sensor and GPS
- Yellow Color: Lost GPS, Operating with Row Sensor Data Only
- Orange Color: Lost Row Sensor Signal, Operating with GPS Only

The following table contains general rules to be applied when observing the behavior of the row center indicator and wheel center indicator while traveling down the row.



AutoTrac Vision Overlay

E—Row Center Indicator
F—Wheel Center Indicator

G—Crop Row Indicator

AutoTrac Vision Calibration Quality	AutoTrac Setting	Observed Result
Good	Good	Row center indicator and wheel center indicator are aligned well (less than 10 cm [4 in] offset) at all speeds.
Good	Poor	Row center indicator and wheel center indicator are aligned well at slow speeds (less than 16 km/h [10 mph]). Indicators are too aggressive, slow to align, or slow to respond at higher speeds.
Poor	Good or Poor	Row center indicator and wheel center indicator are never aligned at any speed. Indicators may be crossed in this case.

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PC582181 —UN—21AUG23

Troubleshooting

Satellite Information

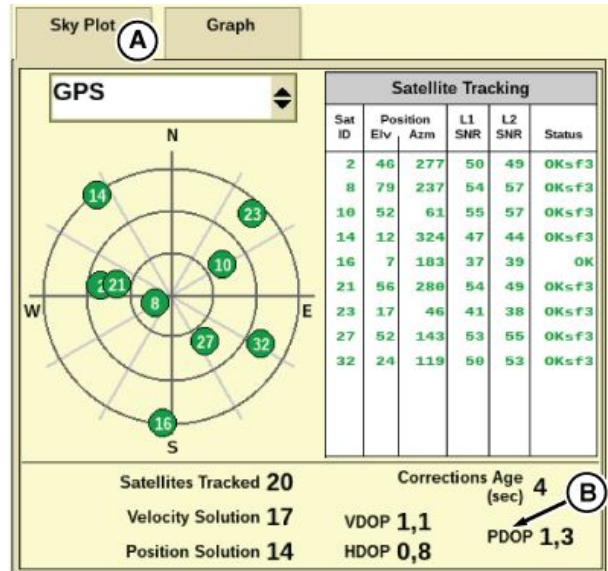
The UCC2 Application Controller depends on the distribution of satellites providing global positioning system (GPS) signals. Position dilution of precision (PDOP) is an indicator of GPS satellite coverage at the receiver. A lower PDOP value indicates better satellite coverage for calculating both horizontal and vertical position.

Before adjusting sensitivity or deadband values, verify that PDOP value is below 2.5. Sensitivity values set when PDOP value is above 2.5 are inaccurate and must be readjusted.

1. Navigate to StarFire pages.
2. Select the Sky Plot tab (A).
3. Verify that the PDOP (B) is below 2.5.

A—Sky Plot Tab

B—PDOP



Sky Plot Tab

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PC589257 —UN—09AUG23

Reset UCC2 Application Controller

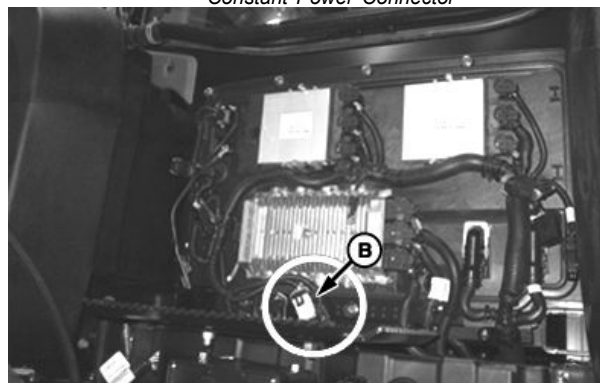
IMPORTANT: Do not connect the UCC2 Application Controller while machine is powered ON. Connecting while powered can create CAN bus communication errors and generate hydraulic control unit faults.

1. Turn OFF the machine.
2. Disconnect the constant power connector (A) and the option connector (B).

A—Constant Power Connector B—Option Connector



Constant Power Connector



Option Connector

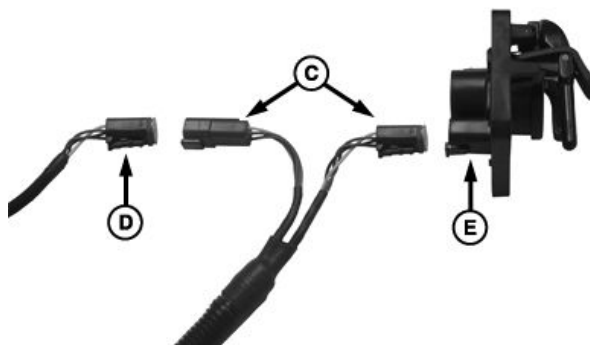
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PC22232 —UN—29FEB16

PC22233 —UN—29FEB16

3. Disconnect the CAN bus T-connectors (C) and connect the 4-pin CAN bus connector (D) directly to the ISO implement connector (E).
4. Start the machine. Once all systems start up, view and clear all machine diagnostic trouble codes, then turn OFF the machine.
5. Reconnect the constant power and option connectors.
6. Reconnect the CAN bus T-connectors between the 4-pin connector and the ISO implement connector.

C—CAN Bus T-Connectors E—ISO Implement Connector
D—4-Pin CAN Bus Connector



CAN Bus Connectors

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PC22234 —UN—29FEB16

Status Code, Navigation Source, and Exit Code

Status Code	Description	Solution
Disabled	The system has faults present.	Check the Active Implement Guidance Diagnostic pages for more information and to resolve faults.
Ready to Enable	The system is waiting for the operator to enable.	To enable, select the Steer On button.
Enabled	The system is waiting for the operator to turn on implement automation.	Enabling system depends on how the system is configured. (Reference the Operating section for more information.)
Active	System is actively controlling the implement utilizing global positioning system (GPS) based guidance.	The system is working normally.

Navigation Source	Description	Solution
No State	System is not active. No sensor in use.	Set up system.
Active—GPS	System is actively controlling the implement utilizing GPS-based guidance.	Normal operation, defined during setup.
Active—Primary Local Sensor	System is actively controlling the implement utilizing primary local errors-based guidance.	Normal operation, defined during setup.
Active—Secondary Local Sensor	System is actively controlling the implement utilizing secondary local errors-based guidance.	Normal operation, defined during setup.
Active—Steer Stay On GPS	System is actively controlling the implement utilizing GPS-based guidance. System will disengage implement automation when AutoTrac selects the next track.	Normal operation, defined during setup.
Active—Steer Stay On Primary Local Errors	System is actively controlling the implement utilizing primary local errors-based guidance. System will disengage implement automation when AutoTrac selects the next track.	Normal operation, defined during setup.
Active—Steer Stay On Secondary Local Errors	System is actively controlling the implement utilizing secondary local errors-based guidance. System will disengage implement automation when AutoTrac selects the next track.	Normal operation, defined during setup.

Exit Codes	Description	Solution
OK	Implement automation is ready to operate or is operating without errors. Any faults are likely to be independent of the UCC2 Application Controller system.	System working properly.
Not Activated	Desired application has not been activated on the UCC2 Application Controller.	Reference Enter Activation Code for more information.
Machine GPS Accuracy Not Met	No machine GPS signal available or accuracy level is too low.	Reference Satellite Information or the StarFire Receiver Operator's Manual for more information.
Implement GPS Accuracy Not Met	No implement GPS signal available or accuracy level is too low.	Reference Satellite Information or the StarFire Receiver Operator's Manual for more information.
Feedback Sensor Not Selected	No feedback sensor selected.	Select either: - Active Implement Guidance softkey > Setup tab > Steer Control edit button > a steering feedback sensor. - Select Plow Steer softkey > Setup tab > Width Control.
Feedback Sensor Not Detected	The selected feedback sensor is not available or is out of range (< 0.1 V or > 4.9 V).	Connect sensor or adjust linkage to stay within voltage range.
Feedback Sensor Not Calibrated	Max Left, Center, or Max Right not set for the selected steering feedback sensor or are set incorrectly.	Verify that Max Left, Center, or Max Right are set appropriately. Verify that Max Left and Max Right have at least 1 V difference. Adjust linkage as needed.
Valve Not Selected	Valve selection or interface not selected.	Select either: - Active Implement Guidance softkey > Setup tab > Steer Control edit button > a valve selection or interface. - Select Plow Steer softkey > Setup tab > Width Control.

Continued on next page

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Troubleshooting

Valve Not Available	The selected valve is not currently detected or is unable to function.	Verify the connections and then restart machine to attempt recovery.
Valve Not In Auto	The selected valve has not been placed into Auto mode.	If using Legacy JD Proprietary or JD Proprietary, detent the desired valve and release. If ISO valve interface, select the resume switch.
Valve Fault	The selected valve is reporting a fault and cannot be used.	Inspect valve and then restart machine to attempt recovery.
Valve Not Calibrated	The selected valve has not had thresholds calibrated.	Calibrate thresholds. Select either: • Active Implement Guidance softkey > Calibrations tab > Auto Calibration or Manual Calibration button. • Plow Steer softkey > Calibrations tab > Manual Calibration button.
No Machine AutoTrac	Machine AutoTrac not detected or not set up.	Verify that AutoTrac is installed and functioning.
Track Number Changed	Normal behavior and displays when steer stay on is enabled and the system disengages as AutoTrac changes selected track.	The system is working normally.
GPS Discontinuity	Positional dilution of precision (PDOP) or corrections age too high.	Verify GPS accuracy and satellites. (Reference the StarFire Operator's Manual for information.)
Speed Too Slow	The machine speed is below 0.1 km/h (0.06 mph) and cannot control valves.	Increase machine speed above the minimum speed threshold of 0.1 km/h (0.06 mph).
Implement Not Recording	Disengage steering when work recording off is enabled and the display is reporting work recording is off.	Verify the display work recording settings.
No Primary Local Error Detected	RowSense is enabled, but no local error sources are detected.	Connect a local error source or disable RowSense.
No Secondary Local Error	RowSense is enabled, but no local error sources are detected.	Connect a local error source or disable RowSense.
Waiting for User Enable	Waiting for the operator to select the Steer On button.	Select the Steer On button.
Speed Out of Range	Speed is too fast or too slow.	Operate machine between 0.1 km/h (0.06 mph) and maximum speed. • Active Implement Guidance maximum AutoTrac speed varies by platform. (For more information, reference the machine Operator's Manual.) • Follow mode maximum speed is 36 km/h (22.4 mph). • Plow Steer maximum speed is 15 km/h (9.3 mph).
Operator Not Present	Operator is not present.	Operator must be seated. Check the seat switch.
Ready	System ready to be engaged.	Select the resume switch.
Valve Error—Restart To Attempt Recovery	Valve fault is reported.	Check wiring and then restart machine to attempt recovery.
AutoTrac Not Active	AutoTrac is not active.	Engage AutoTrac.

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Diagnostic Trouble Codes (DTCs)

DTC	Description	Recommended Action
168.03	Switched power voltage is above normal.	Check the supplied power.
168.04	Switch power voltage is below normal.	Check the supplied power.
629	The operating system was unresponsive for 1 second.	If the issue persists, cycle the machine power.
517232.02	The implement CAN bus is inactive.	If the issue persists, cycle the machine power.
517857.14	The system has detected multiple Application Controllers on the CAN bus.	Disconnect one of the Application Controllers.
523773.03	Machine CAN bus high voltage is above normal.	If the issue persists, cycle the machine power.
523773.04	Machine CAN bus high voltage is below normal.	If the issue persists, cycle the machine power.
523774.03	Machine CAN bus low voltage is above normal.	If the issue persists, cycle the machine power.
523774.04	Machine CAN bus low voltage is below normal.	If the issue persists, cycle the machine power.
524215.03	Implement CAN bus high voltage is above normal.	If the issue persists, cycle the machine power.
524215.04	Implement CAN bus high voltage is below normal.	If the issue persists, cycle the machine power.
524217.03	Implement CAN bus low voltage is above normal.	If the issue persists, cycle the machine power.
524217.04	Implement CAN bus low voltage is below normal.	If the issue persists, cycle the machine power.
524259.00	Application Controller temperature is above 90°C (194°F).	Ensure that the Application Controller is clear of dirt, dust, or any foreign matter.

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Diagnostics

Select either:

- Active Implement Guidance softkey > Diagnostics tab > Diagnostics
- Plow Steer softkey > Diagnostics tab

Diagnostics displays:

- Status (A)—The operational state.
- Condition (B)—The requirements to reach each status.
- Is Ready (C)—Indicates that a condition has been met.

A—Status

B—Condition

C—Is Ready

Status	Setup	Calibrations	Diagnostics
Last Exit 1 Feedback Sensor Not Detected Codes Issued 2 Feedback Sensor Not Selected 3 Feedback Sensor Not Detected			
Diagnostics			
A Status	B Conditions	C Is Ready	
	Activated	Yes	
	Feedback Sensor (Selected, Available, Calibrated)	Yes, No, No	
	Control Valve (Selected, Available, Calibrated)	Yes, Yes, No	
	GPS Accuracy (Machine, Implement)	Yes, Yes	
	Machine AutoTrac	Yes	
	Steer toggle button was pressed and system is ready to be activated.	No	
	AutoTrac or Follow Mode Active	No	
	Implement Ready	No	
	Valve In Auto	No	
	Is Speed > 0.06 mph (0.1 kph)	No, Yes	
	Operator Presence	Yes	

Diagnostics—Active Implement Guidance

Status	Setup	Calibrations	Diagnostics
Last Exit 667 Feedback Sensor Not Selected Codes Issued 333 OK 000 OK			
A Status	B Condition	C Is Ready	
	Activated	Yes	
	AutoTrac and Guidance Line OK	Yes	
	Feedback Sensor (Selected, Available, Calibrated)	No, No, No	
	Control Valve (Selected, Available, Calibrated)	Yes, Yes, No	
	Is GPS Available, Ready	Yes, Yes	
	Equipment Offsets Valid	Yes	
	Plow toggle button was pressed and system is ready to be activated.	No	
	Implement Ready	Yes	
	Is Operator Present	Yes	
	Is Speed > 0.06 mph (0.1 kph) and < 9.3 mph (15 kph)	No	
	Valve In Auto	No	

Diagnostics—Plow Steer

zb48j1t,1693893964042 -19-05SEP23-1/1

PC589258 —UN—09AUG23

PC589259 —UN—09AUG23

Step Response—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Step Response.

CAUTION: To avoid injury, ensure that the area around the implement is clear from people and obstructions, and that the implement can change position without damaging equipment.

Step response tests the steering actuator by moving the implement to the calibrated center position. This helps evaluate the ability of the steering system to control position and system tuning.

Manually move the implement steering actuator away from the center position.

To execute test, hold the AutoTrac resume switch and select the Start Test button (A).

A—Start Test Button

Step Response

zb48j1t,1693893982740 -19-05SEP23-1/1

PC589270—UN—09AUG23

Frequency Sweep—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Frequency Sweep.

CAUTION: To avoid injury, ensure that the area around the implement is clear from people and obstructions, and that the implement can change position without damaging equipment.

Frequency sweep tests the steering actuator using a sinusoidal position command frequency sweep. This helps evaluate the ability of the steering system to control position, system tuning, and can change position without damaging the equipment.

To execute test, enter the desired test parameters (A—D), then hold the AutoTrac resume switch and select the Start Test button (E).

A—Position Command
B—Sweep Time
C—Start Frequency

D—End Frequency
E—Start Test Button

Frequency Sweep

zb48j1t,1693894028541 -19-05SEP23-1/1

PC589271—UN—09AUG23

Position Command—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Position Command.

CAUTION: To avoid injury, ensure that the area around the implement is clear from people and obstructions, and that the implement can change position without damaging equipment.

Position command tests the steering actuator by moving the implement to an operator specified position. This helps evaluate the ability of the steering system to control position and system tuning.

To execute test, enter the desired position command (A), then hold the AutoTrac resume switch and select the Start Test button (B).

A—Position Command

B—Start Test Button

Last Exit 1 Ready
Codes Issued 2 No Machine AutoTrac
3 OK

Position Command

Caution: Ensure that the area around the implement is clear from people and obstructions and can change position without damaging equipment.

Position command tests the steering actuator by moving the implement to an operator specified position. This helps evaluate the ability of the steering system to control position and system tuning.

To execute test, enter the desired test parameters, then hold the AutoTrac resume switch and select the Start Test button.

Position Cmd (% of Max) 0 A

Enabled B Start Test

Position Command

zb48j1t,1693894110616 -19-05SEP23-1/1

PC589272 —UN—09AUG23

Flow Command—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Flow Command.

CAUTION: To avoid injury, ensure that the area around the implement is clear from people and obstructions, and that the implement can change position without damaging equipment.

Flow command tests the steering actuator using a manually entered flow command percentage. This helps evaluate the efficacy of the control commands.

To execute test, enter the desired flow command (A), then hold the AutoTrac resume switch and select the Start Test button (B).

A—Flow Command

B—Start Test Button

Last Exit 1 Ready
Codes Issued 2 No Machine AutoTrac
3 OK

Flow Command

Caution: Ensure that the area around the implement is clear from people and obstructions and can change position without damaging equipment.

Flow command tests the steering actuator using a manually entered flow command percentage. This helps evaluate the efficacy of the control commands.

To execute test, enter the desired test parameter, then hold the AutoTrac resume switch and select the Start Test button.

Flow Command (%) 0.0 A

Enabled B Start Test

Flow Command

zb48j1t,1693894110545 -19-05SEP23-1/1

PC589273 —UN—09AUG23

Navigation Sensors—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Navigation Sensors.

Navigation sensors display the following information for the global position system (GPS), primary sensor, and secondary sensor:

- Source (A)
- Lateral Error (B)
- Heading Error (C)
- Curvature (D)
- Confidence (E)
- Source Address (F)
- Primary (G)

A—Source
B—Lateral Error
C—Heading Error
D—Curvature
E—Confidence
F—Source Address
G—Primary

Last Exit 1: Feedback Sensor Not Calibrated Codes Issued 2: OK 3: Ready			
Nav. Sensors			
		Primary Sensor	Secondary Sensor
Source: (A)	GPS	N/A	N/A
Lateral Error: (B)	0 (in)	0 (in)	0 (in)
Heading Error: (C)	0 (deg)	0 (deg)	0 (deg)
Curvature: (D)	0.0 (dpm)	0.0 (dpm)	0.0 (dpm)
Confidence: (E)	15	0 %	0 %
Source Addr: (F)	9C	--	--
Primary: (G)			

Navigation Sensors

zb48j1t,1693894128823 -19-05SEP23-1/1

PC26431 —UN—25OCT18

Speed Control—Active Implement Guidance

Select Active Implement Guidance softkey > Diagnostics tab > Speed Control.

Speed control displays:

- Control State (A)
- Limit State (B)
- Exit Code (C)
- Operator Limit (D)
- Machine Speed (E)
- Speed Command (F)

A—Control State
B—Limit State
C—Exit Code
D—Operator Limit
E—Machine Speed
F—Speed Command

Last Exit 1: No Machine AutoTrac Codes Issued 2: OK 3: Ready			
Speed Control			
Speed Control Diagnostics			
(A)	Control State: Error		
(B)	Limit State: Error		
(C)	Exit Code: OK		
(D)	Operator Limit:	0.0 (mi/h)	
(E)	Machine Speed:	0.0 (mi/h)	
(F)	Speed Command:	2.0 (mi/h)	

Speed Control

zb48j1t,1693894235577 -19-05SEP23-1/1

PC569274 —UN—09AUG23

Diagnostics—Plow Steer

Select Plow Steer softkey > Diagnostics tab.

Diagnostics displays:

- Status (A)—The operational status of Plow Steer.
- Conditions (B)—The requirements to reach each status.
- Is Ready (C)—Indicates if the condition has been met.

A—Status

B—Condition

C—Is Ready

Status	Setup	Calibrations	Diagnostics
Last Exit 667 Feedback Sensor Not Selected Codes Issued 333 OK 000 OK			
A	B	C	
Disabled	Activated	Yes	
Ready to Enable	AutoTrac and Guidance Line OK Feedback Sensor (Selected, Available, Calibrated)	Yes	No, No, No
Enabled	Control Valve (Selected, Available, Calibrated) Is GPS Available, Ready Equipment Offsets Valid	Yes, Yes, No	Yes, Yes
Active	Plow toggle button was pressed and system is ready to be activated. Implement Ready Is Operator Present Is Speed > 0.06 mph (0.1 kph) and < 9.3 mph (15 kph) Valve In Auto	No	Yes, Yes, No

Diagnostics

zb48j1t,1693894235528 -19-05SEP23-1/1

PC589259 —UN—09AUG23

Hardware/Software

Select the Controller Setup softkey > Diagnostics tab > Hardware/Software from the drop-down menu (A).

Hardware/Software displays the Application Controller:

- Hardware Version (B)
- Software Version (C)
- Serial Number (D)
- Primary Source Address (E)
- Secondary Source Address (F)

To enable broadcasting of diagnostic values and statuses for CAN recording, select the Enable CAN Diagnostics checkbox (G). CAN recordings are used for advanced troubleshooting.

A—Drop-Down Menu

B—Hardware Version

C—Software Version

D—Serial Number

E—Primary Source Address

F—Secondary Source Address

G—Enable CAN Diagnostics
Checkbox

Profile	Activations	Diagnostics
Hardware/Software (A)		
(B) Hardware Version 3,00 (C) Software Version 3.20P (D) Serial Number 312429 (E) Primary Source Address BA (F) Secondary Source Address B9 (G) Enable CAN Diagnostics		

Hardware/Software

zb48j1t,1693894235476 -19-05SEP23-1/1

PC589260 —UN—09AUG23

Hours

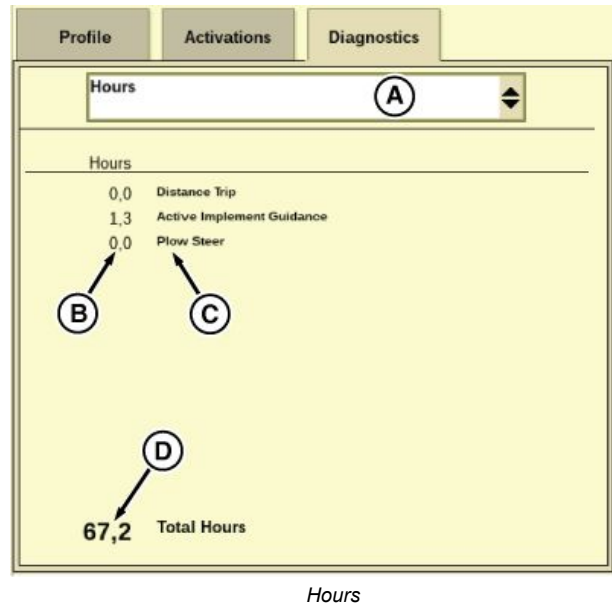
Select the Application Controller softkey > Diagnostics tab > Hours from the drop-down menu (A).

Hours (B) displayed are the amount of time each application (C) operated with an active status.

Total hours (D) displayed are the total time the Application Controller operated with an active status.

A—Drop-Down Menu
B—Hours

C—Application
D—Total Hours



Hours

zb48j1t,1693894235420 -19-05SEP23-1/1

PC589261—UN—09AUG23

SCV Diagnostics

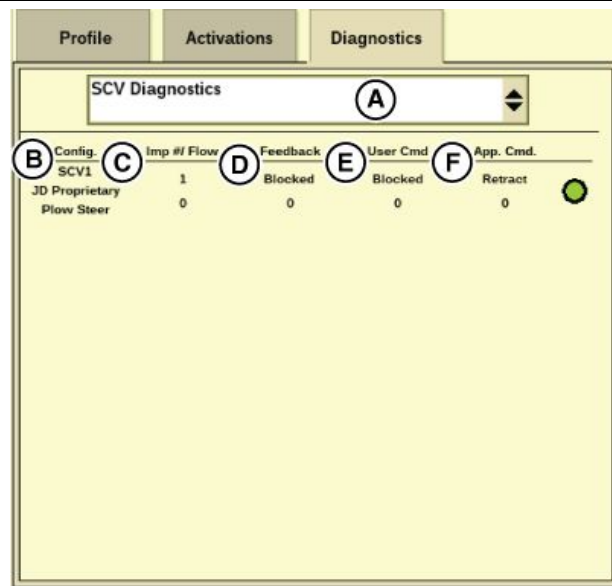
Select the Controller Setup softkey > Diagnostics tab > SCV Diagnostics from the drop-down menu (A).

SCV Diagnostics displays:

- Configuration (B)
- Implement Number Flow (C)
- Sensor Feedback (D)
- User Command (E)
- Application Controller Command (F)

SCV Diagnostics Values		
Flow State	Number	Definition
Blocked	0	Valve does not allow any flow.
Extend	1	Valve allows positive flow.
Retract	2	Valve allows negative flow.
Float	3	Valve is opened.
Error	14	Something went wrong.

SCV Diagnostics Values



SCV Diagnostics

A—Drop-Down Menu
B—Configuration
C—Implement Number Flow

D—Sensor Feedback
E—User Command
F—Application Controller Command

zb48j1t,1693894235326 -19-05SEP23-1/1

PC589262—UN—09AUG23

Input/Output Readings

Select the Controller Setup softkey > Diagnostics tab > Input/Output Readings from the drop-down menu (A).

Input/Output Readings display the signal type (B—D) and the pin number (E) used on the Application Controller connector.

- Analog signals display voltage (F).
- Digital signals display the state (G) and frequency (H).
- Low side drivers display the state (G) and current (I).

A—Drop-Down Menu
B—Analog Signal
C—Digital Signal
D—Low Side Driver Signal
E—Pin Number

F—Voltage
G—State
H—Frequency
I—Current

Input/Output Readings			
B Signal	E Pin	F Voltage	
Analog In 1	G2	0,01	
Analog In 2	K2	0,01	
Analog In 3	G3	0,00	
Analog Out 1	H1	0,03	
Analog Out 2	J1	0,02	
5 V In	E1	0,02	
5 V Out	K3	4,95	
C Signal	E Pin	G State	H Frequency (Hz)
Dig In 1	G1	0	0
Dig In 2	K1	0	0
Dig In 3	C3	0	0
D Signal	E Pin	G State	I Current (mA)
Low Side Driver 1	E3	0	25
Low Side Driver 2	E2	1	18
Low Side Driver 3	D3	1	10

Input/Output Readings

Analog and Voltage			SCV Type Selected			
Signal	Pin	Voltage	Legacy JD Proprietary	JD Propriety	ISO	External Valve
Analog In 1	G2	Wheel angle sensor voltage reading for the assigned SCV. (Plow Steer Dealer SCV calibration tool can use this input as well.) 0—5 V, 2.5 V = neutral	The current wheel angle sensor voltage reading when connected to the assigned selective control valve (SCV) on the implement feedback harness.			
Analog In 2	K2	Wheel angle sensor voltage reading for the assigned SCV. (Plow Steer Dealer SCV calibration tool can use this input as well.) 0—5 V, 2.5 V = neutral	The current wheel angle sensor voltage reading when connected to the assigned SCV on the implement feedback harness.			
Analog In 3	G3	Not applicable for Active Implement Guidance, Plow Steer, or Distance Trip.	Not applicable			
Analog Out 1	H1	Command SCV voltage value. 0—5 V, 2.5 V = neutral	When set up for SCV 1, this is the voltage commanded to the hydraulics control unit, or current command voltage of respective SCV if not in Auto mode.	Not applicable	Not applicable	When set up for SCV 1, this is the voltage reading of the external SCV lever. Approximately 2.8 V is neutral. If the voltage is close to 0 V and/or not changing with movement of the remote mount electronic SCV control lever, ensure that external valve is connected and the light is on.

Continued on next page

zb48j1t,1693894270695 -19-05SEP23-1/2

Troubleshooting

Analog Out 2	J1	Command SCV voltage value. 0—5 V, 2.5 V = neutral	When set up for SCV 3, this is the voltage commanded to the hydraulics control unit, or current command voltage of respective SCV if not in Auto mode.	Not applicable	Not applicable	When set up for SCV 2, this is the voltage reading of external SCV lever. Approximately 2.8 V is neutral. If the voltage is close to 0 V and (or) not changing with movement of the remote mount electronic SCV control lever, ensure that external valve is connected and the light is on.
5 V In	E1	0—5 V sensor voltage. With the implement feedback harness connected, it is 5 V. With a tractor SCV, it is 0 V and changes with command.	Voltage coming from the hydraulics control unit system should read 5 V.	Not applicable	Not applicable	Not applicable
5 V Out	K3	Supplied voltage for system. 0—5 V	Voltage supplied to system should read close to 5 V.			

Analog and Voltage

Digital Signal	Pin	State	Frequency (Hz)
Digital In 1	G1	External valve remote mount electronic SCV control lever, 0 = no command, 1 = command	Not applicable for Active Implement Guidance or Plow Steer.
Digital In 2	K1	Value displays 1	
Digital In 3	C3	Not applicable for Active Implement Guidance or Plow Steer.	

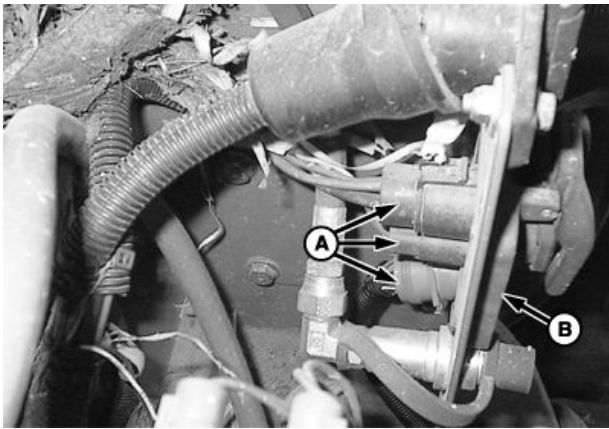
Digital Signal

Drivers	Pin	State	Current (mA)
Low Side Driver 1	E3	Driver for relay used for implements equipped with electronic brakes that lock and release steering wheels during turnaround events, implements with hydraulic steering systems that utilize electronic valves to allow steering cylinders to float during turnaround events. 0 = Active Implement Guidance is inactive, 1 = Active Implement Guidance is active	< 3000 mA
Low Side Driver 2	E2	Not applicable for Active Implement Guidance or Plow Steer.	< 3000 mA
Low Side Driver 3	D3	Not applicable for Active Implement Guidance or Plow Steer.	< 3000 mA

Drivers

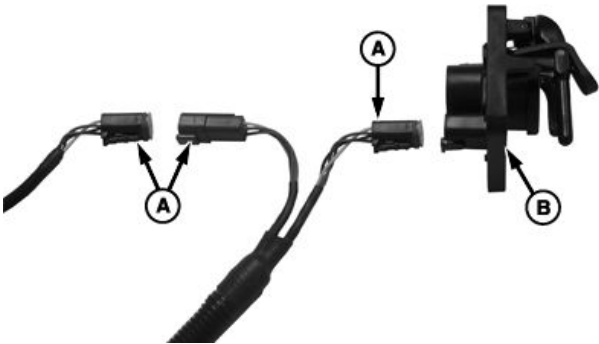
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Machine Configuration



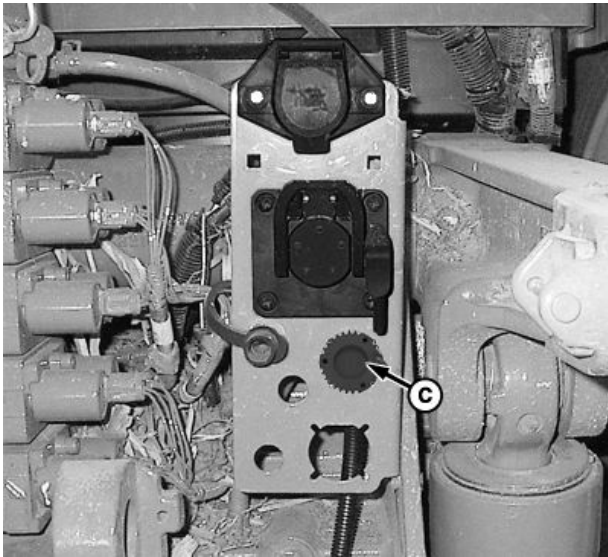
ISO Connector

PC19673 —UN—28MAY14



Y-Connector

PC19672 —UN—27MAY14



Feedback Sensor Connector

PC19674 —UN—28MAY14

A—Machine-Side Connectors C—Feedback Sensor Connector
B—ISO Connector

Symptom	Problem	Solution
Implement is not displayed or is inoperable.	Dirty or loose connectors (A) on the machine side of the ISO connector (B).	Clean connectors and reconnect tightly.
	GreenStar harness is improperly connected.	Power down machine and system, disconnect harness, clean, and install properly.
	There is an electrical short in harness.	Check electrical wiring for breaks, shorts, and damage.

Symptom	Problem	Solution
	The UCC2 Application Controller was connected with the machine powered on and (or) codes active on the machine.	Turn OFF the machine and completely disconnect the UCC2 Application Controller from system. Start the machine and allow the display to completely boot up. Turn OFF the machine and reconnect the UCC2 Application Controller and all harnesses.
	The UCC2 Application Controller is not communicating with CAN bus after key cycle.	Verify that the UCC2 Application Controller has switched power. If the UCC2 Application Controller has constant power, it does not power down and is not shown on the display when the machine is powered back on.
The selective control valve (SCV) does not enter Auto mode.	SCV option connector is not plugged in.	Verify that 9-pin SCV option connector is plugged into machine.
	SCV is not configured.	Verify that the SCV is configured. (For more information, reference Steer Control for Active Implement Guidance or reference Width Control and Plow Configuration for Plow Steer.)
AC (Auto Control) is not showing on the SCV display (30 series tractor or older). Auto Mode checkbox is grayed out and cannot be selected (R series tractors).	Dirty or loose machine-side implement feedback sensor connector (C) at rear of machine. Early versions of harness used a 10-pin rectangular connector.	Clean connectors and reconnect tightly.
	SCV is not in detent.	Ensure that SCV is in detent and not in float mode. If the SCV lever remains in forward position, then it is in float mode.
	Setup is incorrect.	Verify that correct control type is selected, SCVs are selected in the Active Implement Guidance setup, and power has been cycled.
	SCV selection is not correct in CommandCenter (R series).	On the CommandCenter, select the SCV being utilized.
System moves in one direction.	Inline check valves are installed in the system.	Remove the check valves.

Continued on next page

zb48j1t,1693894927443 -19-07AUG25-2/4

Symptom	Problem	Solution
	Hydraulic hoses are reversed.	Switch positions of hydraulic hoses or select the Reverse Output checkbox and calibrate SCV and feedback sensor. (For more information, reference Steer Control for Active Implement Guidance or reference Width Control and Plow Configuration for Plow Steer.)
	UCC2 Application Controller was connected while machine was running, creating hydraulic control unit fault codes.	(Reference Reset UCC2 Application Controller for more information.)
Side shift 3-point hitch locks in one direction after reaching headland.	Hitch travel is not parallel to the machine rear axle.	Install an implement feedback sensor and sensor harness. Change the control selection from Implement Shifting to Implement Steering. Calibrate left, center, and right positions.
Implement steers away from line when AutoTrac resume button is pressed.	SCV hoses are hooked up in reverse.	Switch positions of hydraulic hoses or select the Reverse Output checkbox and calibrate SCV and feedback sensor. (For more information, reference Steer Control for Active Implement Guidance or reference Width Control and Plow Configuration for Plow Steer.)
	Incorrect implement feedback sensor connector is plugged in to the wheel angle sensor.	Plug in the correct implement feedback connector for the SCV selected in the settings.
Machine is not steering to line.	EC is displayed on SCV display.	To bring up AC mode, push the correct SCV control lever into detent.
Hydraulic cylinder is not responding well.	Hydraulic cylinder is leaking fluid.	Check for leakage. (Refer to manufacturer of the implement steering cylinder for more information.) Repair or replace the cylinder. Contact your John Deere dealer or other service provider for assistance.
	There is insufficient machine hydraulic pressure.	Check machine hydraulic pressure. (Reference machine Operator's Manual for more information.)

Continued on next page

zb48j1t,1693894927443 -19-07AUG25-3/4

Symptom	Problem	Solution
		Ensure that the hydraulic oil is at operating temperature.
		Use the correct size hydraulic cylinders for machine pressure.
	Counterbalance valve is improperly adjusted.	Adjust counterbalance valve cartridges and perform threshold calibration.
	Hydraulic hoses are connected improperly or poorly.	Check hose O-rings, connect properly, and tighten connections.
	Valve is frozen.	Manually cycle hydraulic cylinders to the full right and left. If condition repeats, oil may be contaminated, causing plugging, or SCV may require a shuttle valve to prevent it from going into Desilting Mode during low flow conditions.
	The application settings are incorrect.	Verify that the system moves fluidly with the extend and retract tests, and adjust the sensitivities and thresholds accordingly.
The application does not engage.	The status does not display OK.	(Reference Status Code, Error Source, and Exit Code for more information.)
	UCC2 Application Controller was connected while machine was running, creating hydraulic control unit fault codes.	1. Turn OFF machine. 2. Disconnect the UCC2 Application Controller, constant power harness, and option connector from the external rear panel of cab. 3. Disconnect CAN bus T-connectors and connect 4-pin connector directly to the ISO implement connector. 4. Start machine. Once all systems start up, turn OFF machine. 5. Reconnect the UCC2 Application Controller, constant power harness, and option connector. 6. Reconnect CAN bus T-connectors between 4-pin connector and ISO implement connector.

zb48j1t,1693894927443 -19-07AUG25-4/4

External Valve

Symptom	Problem	Solution
The external valve is not responding.	Machine-side implement feedback sensor connector at rear of the machine for the integrated selective control valve (SCV) control is plugged in. Early versions of harness used a 10-pin rectangular connector.	Disconnect the feedback sensor connector on the machine side.
	External valve wiring harness is disconnected.	Connect external valve wiring harness. LED on the external valve should light up.
	External valve installed is not compatible with machine hydraulic system design (open-center versus closed-center designs).	Verify the part number of the valve installed on implement is compatible with the machine hydraulic system design. (Reference UCC2 Application Controller and External Valve Installation Instructions or contact your John Deere dealer or other service provider for more information.)
	SCV control harness has loose or no connection to Application Controller harness.	Verify the connections.
	SCV control harness is plugged into the implement receiver or front extension harness.	Verify that the SCV control harness is plugged into Application Controller harness.
	Inline check valve on the pump hose is not functioning or not present.	Install, repair, or replace check valve.

Continued on next page

RW00482,00007A8 -19-05AUG25-1/2

Symptom	Problem	Solution
LED light is red.	There is a buildup of back pressure in the external valve.	⚠ CAUTION: To avoid serious injury, keep area around equipment clear. When moving the external valve control lever, the implement may move. The hoses are connected in reverse, causing back pressure. Verify that the hoses are connected properly. If the problem still exists, perform the following: 1. With tractor running, put hydraulics in float. 2. Key off machine. 3. Cycle external valve control lever manually several times. 4. Cycle power to clear red light.
	External Valve Error.	Contact your John Deere dealer or other service provider.

RW00482,00007A8 -19-05AUG25-2/2

Receiver

Receiver Accuracy Warning

Connect the receiver with the highest level of accuracy to the primary machine (vehicle) to achieve better performance.



Receiver Accuracy Warning

PC13798 —UN—02JUN11

Symptom

Problem

Solution

Receiver Accuracy Warning is displayed.

Correction signal is higher on the implement receiver.

Shared signal automatically uses machine correction signal. Install receiver with higher correction signal on machine.

Accuracy warning does not disengage shared signal.

Unable to utilize shared signal when machine is moving.

There is a software issue.

Ensure that Application Controller, display, and receiver have latest software.

Both receivers utilize real time kinematics (RTK) and RTK is turned on.

Turn off RTK on the implement receiver.
(Reference StarFire Receiver Operator's Manual.)

Fore/aft values for the implement receiver are not set to zero.

Set implement fore/aft values to zero.

Receivers are not linked with Shared Signal.

Shared Signal is disengaged in Implement Steer Setup page.

1. Select the Menu button.
2. Select the Application Controller button.
3. Select the Application Controller Main softkey.
4. Select the Implement Steer Setup button.
5. Select Shared Signal Enabled from the drop-down menu.

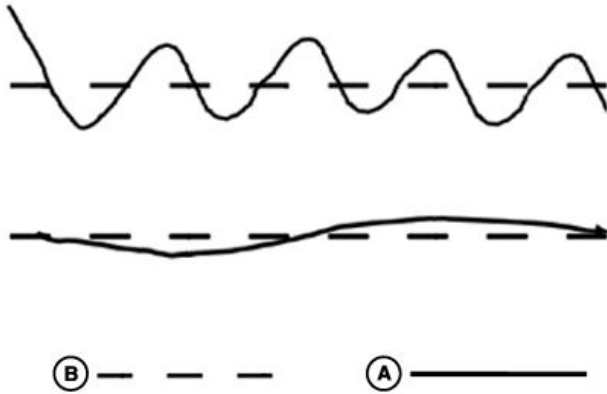
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AutoTrac Vision Camera

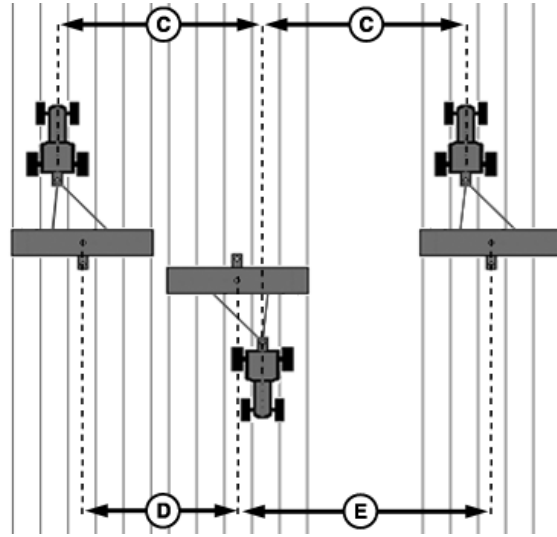
Symptom	Problem	Solution
No vision camera detected.	The AutoTrac Vision camera is not connected or is loose.	Verify that the vision camera is connected and not loose. If the problem persists, contact your authorized dealer or other service provider.
There is no image or the image is poor.	The camera lens is dirty or damaged.	Verify that the camera lens is not broken or damaged. Clean the camera lens.
The vision guidance performance is poor.	Weather is affecting performance.	Strong wind can cause heavy crop movement. Calibrate the system on a less windy day or, if available, switch to GPS guidance. Ensure that the vision camera lens is clean. Dust and mud from wind and rain can build up on the camera lens.
	Direct sunlight going into the camera or low daylight is affecting performance.	Angle the vision camera towards the ground with a clear view of at least two rows beside the tractor. Use the tractor field and running lights. If available, use GPS guidance until light conditions improve.
	The vision camera is not at a good angle.	Angle the vision camera towards the ground with a clear view of at least two rows beside the tractor.

zb48j1t,1693894999968 -19-07AUG25-1/1

Implement Performance—Active Implement Guidance



S-ing



Wide Narrow Row Spacing

A—Implement Travel Path
B—Desired Guidance Line

C—Machine Center-to-Center
Same Distance
D—Implement Center-to-Center
Narrow Distance

E—Implement Center-to-Center
Wide Distance

Symptom

S-ing —Implement travel path (A) continuous back and forth motion over the desired guidance line (B).

Problem

Field conditions are poor.

Drawbar is not locked in position.

Line sensitivity tracking or line sensitivity accumulated settings are not optimized.

Solution

Utilize tractor differential lock, if equipped.

Lock drawbar into position.

(Reference Steering Sensitivity for more information.)

Wide and Narrow Row Spacing—There are parallel inconsistencies in row spacing across the entire field length between passes.

Machine center-to-center distance (C) is the same between passes. Implement center-to-center distances (D and E) are different on each pass, causing narrow and wide rows between passes.

1. Ensure UCC2 Application Controller, display, and receiver have latest software.

(Go to www.StellarSupport.com and navigate to Software Updates.)

2. Turn on Terrain Compensation Module (TCM) and calibrate.

(For more information, reference Calibrate Terrain Compensation Module (TCM).)

3. Check and adjust machine ballast, tire pressure, and tire spacing.

(For more information, reference machine Operator's Manual.)

Continued on next page

zb48j1t,1693895025120 -19-05SEP23-1/3

Symptom	Problem	Solution
	Implement center-to-center distance is same between passes. Implement not tracking directly behind machine.	1. Measure and input accurate implement offsets. (For more information, reference GPS Offsets.) 2. Repair or replace worn or damaged implement components. (For more information, reference implement Operator's Manual.) 3. Adjust 3-point hitch. Adjust machine sway blocks and lift links to recommended settings. (For more information, reference machine Operator's Manual.) 4. Measure and adjust all row units to be symmetrical to implement center line. (For more information, reference implement Operator's Manual.)
Guidance AB line is not in correct location for implement.	Shifts were not cleared from display from a previous operation.	Recreate guidance line using A+ Heading. Best practice is to set guidance lines for most critical operation. Utilize shifts for less critical operations in the same field. Clear all shifts when leaving field. (For information on guidance line creation, reference display Operator's Manual.)
Performance is erratic.	Position dilution of precision (PDOP) value above 2.5 with obstructions more than 5 degrees above elevation.	Ensure that implement receiver is not being shaded by obstructions or machine cab in all travel directions.
	Real time kinematics (RTK) signal is weak or drops to RTK Extend (RTK-X) differential.	Utilize base station that provides signal with a clear line of sight.
	The PDOP value is above 2.5 with no obstructions.	Wait for satellite solution to improve. If settings and adjustments are made, record original setting values to input when PDOP drops below 2.5.
	After making headland turn, performance becomes erratic.	Ensure that application controller, display, and receiver have latest software. (Go to www.StellarSupport.com and navigate to Software Updates.)

Continued on next page

zb48j1t,1693895025120 -19-05SEP23-2/3

Symptom	Problem	Solution
	Guidance tracking error for the machine is greater than the tracking error of Active Implement Guidance on implement.	Determine root cause of high machine tracking error. (Reference display Operator's Manual for more information.)
Steer system is not responding, but status displays OK.	SCV Threshold is set too low.	Perform a steering calibration. (For more information, reference Steering Calibrations—Active Implement Guidance.)

zb48j1t,1693895025120 -19-05SEP23-3/3

Implement Performance—Plow Steer

Symptom	Problem	Solution
The hydraulic system is not responding, but the status displays OK.	The SCV threshold is set too low.	Perform a manual SCV calibration. (For more information, reference Manual SCV Calibration—Plow Steer.)
	The feedback sensor is not calibrated.	Perform a feedback sensor calibration. (For more information, reference Plow Configuration—Plow Steer.)
	Width control sensitivity or deadband settings are not correct.	Calibrate the width control sensitivity and deadband settings. (For more information, reference Calibrate Width Control—Plow Steer.)

RW00482,0000883 -19-06OCT21-1/1

Maintenance

Machine

Refer to manufacturer of implement steering module for servicing procedures.

CF86321.0000349 -19-23MAY11-1/1

Preseason Checklist

In addition to performing checklist before season begins, utilize preseason checklist if any of the following occur:

- A different tractor or implement is introduced to system.
- A hydraulic system component is repaired, replaced, or adjusted.
- An Ag Management Solutions (AMS) component is replaced.

Preseason Checklist

- ☐ Obtain the latest Operator's Manual.
(Reference John Deere Technical Information Bookstore for more information.)

NOTE: Ensure that the equipment has an uninterrupted power supply while updating software. Software update times vary based on the equipment, network or CAN bus speed, and file size of the program. For example, updating the UCC2 Application Controller takes an average of 30 minutes.

- ☐ Update software. Go to StellarSupport.com for latest software.
 - ☐ Display
 - ☐ Machine receiver
 - ☐ Implement receiver(s)

- ☐ Base station receiver
- ☐ Controller
- ☐ Activate applications on display.
- ☐ Inspect wiring harness for wear and damage around pinch points, corners, edges, and harness support locations. Repair as necessary.
- ☐ Inspect wiring harness at connectors for wear on exposed wires. Repair as necessary.
- ☐ Inspect connector seals and latching mechanisms. Repair as necessary.
- ☐ Inspect connector pins for wear, debris, and corrosion. Clean and repair as necessary.
 - ☐ ISO connector
 - ☐ Receivers
 - ☐ Display
- ☐ Inspect mounting hardware. Retorque as necessary.
 - ☐ Display
 - ☐ Receivers
 - ☐ Mast
- ☐ Adjust selective control valve (SCV) flow rates.
- ☐ Adjust counterbalance valve (if applicable).
- ☐ Calibrate SCV thresholds.
- ☐ Calibrate machine and implement terrain compensation modules (TCMs).
- ☐ Inspect implement hydraulic cylinder for leaks.

(Reference implement Operator's Manual for detailed checklists.)

RW00482.0000A8C -19-24NOV20-1/1

Daily Checklist

- ☐ Adjust line sensitivity tracking and accumulated settings to soil conditions.
- ☐ Inspect wiring harness for wear and damage around pinch points, corners, edges, and harness support locations. Repair as necessary.
- ☐ Inspect wiring harness at connectors for wear on exposed wires. Repair as necessary.
- ☐ Inspect mounting hardware. Retorque as necessary.

- ☐ Display
- ☐ Receivers
- ☐ Mast
- ☐ Inspect implement steering mechanism for wear.
- ☐ Inspect implement feedback linkage mechanism for wear.
- ☐ Inspect implement hydraulic cylinder for leaks.

(Reference implement Operator's Manual for detailed checklists.)

RW00482.0000307 -19-12JUN14-1/1

Postseason Checklist

- ☐ Inspect wiring harness for wear and damage around pinch points, corners, edges, and harness support locations. Repair as necessary.
 - ☐ Inspect wiring harness at connectors for wear on exposed wires. Repair as necessary.
 - ☐ Inspect connector seals and latching mechanisms. Repair as necessary.
 - ☐ Inspect connector pins for wear, debris, and corrosion. Clean and (or) repair as necessary.
 - ☐ ISO connector
 - ☐ Receivers
 - ☐ Display
 - ☐ Inspect mounting hardware. Retorque as necessary.
 - ☐ Display
 - ☐ Receivers
 - ☐ Mast
 - ☐ Inspect implement steering mechanism for wear.
 - ☐ Inspect implement feedback linkage mechanism for wear.
 - ☐ Inspect implement hydraulic cylinder for leaks.
- (Reference implement Operator's Manual for detailed checklists.)

RW00482,0000308 -19-02JUN14-1/1

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