



DCY

AutoTrac Universal (ATU)

OPERATOR'S MANUAL AutoTrac Universal (ATU) OMPFP11451 ISSUE I1 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Ag Management Solutions
(This manual replaces OMPFC21578)

Worldwide Edition
LITHO IN THE U.S.A.



OMPFP11451

Introduction

Foreword

WELCOME TO GREENSTAR™ system offered by John Deere.

READ THIS MANUAL carefully to learn how to operate and service your system correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your system and should remain with the system 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 of forward travel.

KEEP A RECORD OF PRODUCT IDENTIFICATION NUMBERS (P.I.N.). Accurately record all the numbers to

GREENSTAR is a trademark of Deere & Company

help in tracing the components should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

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 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.

OUO6050,0000FA6 -19-12MAY09-1/1

www.StellarSupport.com

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

OUO6050,0000FB1 -19-10AUG10-1/1

Read This Manual

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

IMPORTANT: The following GreenStar components are not weather-proof and should only be used

on vehicles equipped with a cab. Improper use may void warranty.

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

JS56696,0000491 -19-04JUN10-1/1

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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.



T81389 —UN—07DEC88

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

Understand Signal Words

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

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

 **DANGER**

 **WARNING**

 **CAUTION**

TS187 —19—30SEP88

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

Follow Safety Instructions

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

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

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

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



TS201 —UN—23AUG88

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

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

Practice Safe Maintenance

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

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

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

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

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

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



TS218 —UN—23AUG88

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

Handle Electronic Components and Brackets Safely

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

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

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform.



TS249 —UN—23AUG88

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

Operate Guidance Systems Safely

Do not use guidance systems on roadways. Always turn off (disable) guidance systems before entering a roadway. Do not attempt to turn on (activate) 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 include any application that automates vehicle steering. This includes, but may not be limited to, AutoTrac, iGuide, iTEC Pro, ATU, and RowSense.

To prevent injury to the operator and bystanders:

- Never get on or off a moving vehicle.
- Verify the machine, implement, and guidance system are set up correctly. If using iTEC Pro, verify accurate boundaries have been defined.
- 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 vehicle configuration when selecting vehicle speed.

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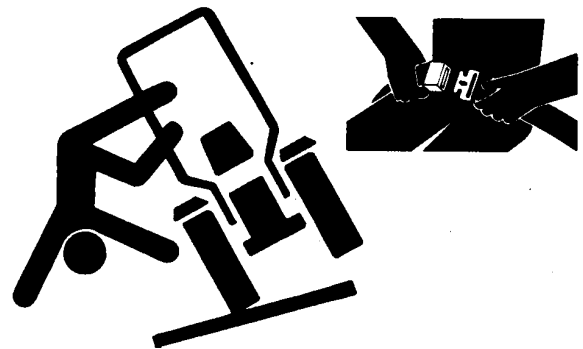
Use Seat Belt Properly

Use a seat belt when you operate with a roll-over protective structure (ROPS) or cab to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS or cab.

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

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



TS205 —UN—23AUG88

DX,ROPS1 -19-29OCT07-1/1

Operate AutoTrac Universal Safely

Use AutoTrac Universal only on approved vehicles – see www.StellarSupport.com for a list of approved vehicles.

When initially setting up an ATU system, carefully optimize all settings for best performance. Incorrect settings will affect steering, possibly resulting in erratic or unexpected behavior while AutoTrac is active.

ATU utilizes an operator presence system. If seat switch is selected, the external seat switch must be plugged into the

AutoTrac Universal wiring harness. If the operator leaves the seat for more than 7 seconds, AutoTrac is deactivated.

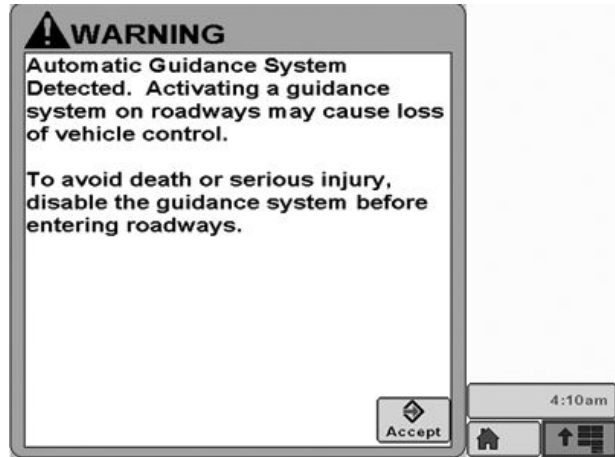
If activity monitor is selected, AutoTrac Universal requires operator activity every 7 minutes. The operator gets a time-out alert 15 seconds before AutoTrac is deactivated. In this case, pressing the resume switch resets the activity monitor timer.

BA31779,0000231 -19-20JUL11-1/1

Safety Signs

AutoTrac Detected

This message occurs during start-up on vehicles with AutoTrac installed.



PC13157—19—17FEB11

BA31779,000023C -19-26JUL11-1/1

AutoTrac Universal

Accuracy

IMPORTANT: The AutoTrac system relies on the GPS system operated by the government of the United States, which is solely responsible for its accuracy and maintenance. The system is subject to changes that could affect accuracy and performance of all GPS equipment.

The overall AutoTrac system accuracy is dependent upon many variables. Equation looks like: AutoTrac System Accuracy = Signal accuracy + Vehicle Setup + Implement

Setup + Field and Soil Conditions. It is important that receiver has gone through warmup period upon start-up. Vehicle must be set up properly (ballasted according to vehicle operators manual). The implement is set up to run properly (wear parts such as shanks, shovels, and sweeps are in good working condition). You understand how field and soil conditions affect the system (loose soil requires more steering than firm soil, but firm soil can cause uneven draft loads).

OUO6050,0001117 -19-08JUN09-1/1

POWER REQUIREMENTS

ATU 200 requires a steady power source with a voltage of 12.5 VDC and a current around 4.0 amps while engaged. If there is inadequate current, ATU 200 disengages due to ATU Temperature exit code or Invalid SSU voltage exit code.

To provide ATU 200 with a steady power source connect ATU 200 as follows:

1. On a non-GreenStar Ready Machine, it is recommended that ATU 200 is powered using a PF90420 kit (Universal GreenStar Harness).
2. On John Deere 50, 60, and 70 series GreenStar Ready Combines, if the ATU 200 is powered using the PF80976 Y—harness, we recommend providing power to ATU 200 as follows:

The combine has a 6-pin CAN termination resistor in the headliner behind the visor. For power, use

PF80906 or PF80921 if on a 50 series, and connect the terminator to it. Mate the 4-pin Deutsche connector from PF80906 or PF80921 to the 4-pin connectors on the PF80845 harness. Use RE67015 (order from JDParts) and connect it to the power strip and to PF80873 (order from JDParts). Mate 2-pin Deutsche connectors on PF80873 to the 2-pin Deutsche connectors on PF80845. Connect the 2-pin Deutsche connectors on PF80906 to get power to the display.

3. On any other GreenStar ready John Deere Machine, always power the ATU 200 using the 2pin-4pin connectors as indicated the ATU 200 installation manual.

NOTE: If the ATU 200 dis-engages with a temperature exit code, it takes approximately 20—30 minutes to cool down before the operator can re-engage.

OUO6050,0001118 -19-08JUN09-1/1

General Information

All operators must be familiar with AutoTrac system and operating characteristics before operation. The following is a suggested procedure for operator to become familiar with system:

1. Read and understand Operators Manual for GreenStar2 Guidance—Parallel Tracking and AutoTrac assisted steering systems.
2. Choose an open area free of hazards (for example ditches, buildings).
3. Set Track Spacing to 92.0 m (300 ft.).
4. Set a Track 0 (A—B Line).

NOTE: Operate vehicle at a speed you are comfortable, recommend less than 8 km/h (5 mph).

5. Enable AutoTrac on display by turning Steer ON.
6. Press Resume switch to activate AutoTrac. (See Activating system later in this section).
7. After driving a short distance, then turn steering wheel to turn vehicle off track to deactivate AutoTrac. (See Deactivating System later in this section).
8. Practice Activating AutoTrac at different distances before and after crossing track and at different angles. Increase and decrease speeds to simulate different operating conditions.
9. Reduce Track Spacing to acquire multiple tracks and continue practicing activating AutoTrac at different angles and varying speeds to understand how AutoTrac behaves under different conditions.

Always be prepared to resume manual control if AutoTrac does not perform expected maneuvers or machine course

must be changed to avoid injury or property damage. Operator can regain manual steering by turning steering wheel or Disabling AutoTrac by turning off Steer on display. It is recommended practice to be as close as possible to desired track before activating AutoTrac to ensure correct track and direction are acquired.

The AutoTrac basic system is intended to be used as an assistance tool to mechanical markers on planters. Operator must evaluate overall system accuracy to determine specific field operations where assisted steering is used. This evaluation is necessary because accuracy required for various field operations differ depending on farming operation. Because AutoTrac uses StarFire differential correction network along with Global Positioning System (GPS), slight shifts in position occur over time.

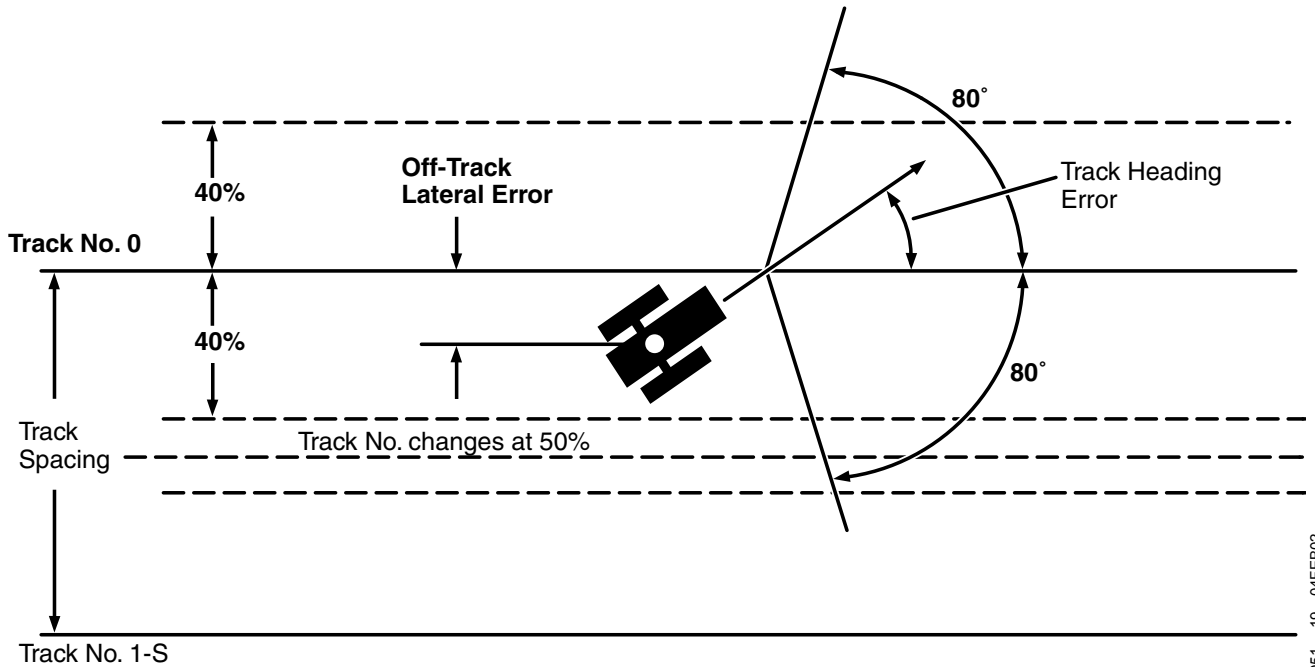
To operate AutoTrac operator must set track 0 (like parallel tracking) and all tracks are drawn parallel to track 0 using track spacing.

The AutoTrac system operating status can exist at four levels: INSTALLED, CONFIGURED, ENABLED, and ACTIVATED.

After enabling AutoTrac (see Enabling AutoTrac), AutoTrac is activated by pressing resume switch on armrest (see Activating AutoTrac). To return to manual steering, operator must deactivate system (see Deactivating System).

Track can be shifted left, right, or centered using shift track feature on display. (See Shift Track).

Necessary Conditions for Activating AutoTrac



PC7051—19—04FEB02

Once tractor is at end of row operator must turn system to next pass. By turning steering wheel, AutoTrac is deactivated. Operator must turn onto next track.

1. System is enabled (steering ON on RUN screen).
2. The machine is within 40% of track spacing.
3. Track heading is within 80° of track.

AutoTrac can be activated by pressing resume switch only after following conditions are met:

NOTE: Calibration procedure must be complete with a passing status before using AutoTrac.

OUC6050,000111A -19-05JUN09-1/2

Once two pieces of the PIE are achieved, the operator can enable AutoTrac by selecting the Steer On icon.

PC11972—UN—09APR09



Steer On icon

If two pieces of the PIE cannot be achieved, the operator cannot activate AutoTrac.

- A diagnostic button is located next to the PIE icon.
- If two pieces of the PIE cannot be achieved, select wrench icon to view AutoTrac Diagnostics.

PC11971—UN—09APR09



Pie Pieces

The Diagnostics page indicates what is needed for each of the four PIE pieces and the status of all requirements.

PC11973—UN—09APR09



AutoTrac Diagnostics Wrench

AutoTrac does not become available until hydraulic temperature has reached pre set level (1 PIE piece only until warm). This issue does not provide any diagnostic code or show in the status menu.

OUC6050,000111A -19-05JUN09-2/2

Optimizing AutoTrac Universal Performance

Optimizing AutoTrac Universal Performance

There are six sensitivities that can be set to optimize the performance of AutoTrac Universal.

Vehicle Type	Steering Speed	Acquire Sensitivity (Adjust in Increments of 5)	Line Sensitivity - Tracking (Adjust in Increments of 20)	Line Sensitivity - Heading
Row Crop Tractor	190	80	160	80
Track Tractor	190	80	160	80
Articulated Tractor	100	80	160	80
Sprayer	190	80	160	80
Combine	190	80	160	80
Windrower	190	80	160	80
Forage Harvester	190	80	160	80
Cotton Harvester	190	80	160	80

Recommended Starting Adjustments

When operating in curves, start with the curve sensitivity equal to the optimized acquire sensitivity.

These recommended settings are a good starting point for most vehicles. Each setting can be adjusted to try and optimize performance. Readjust line sensitivity - heading and line sensitivity - tracking for best results. Increase or decrease settings to change aggressiveness as desired. If system is not responsive enough, increase sensitivity settings. If desired performance is not achieved, see TROUBLESHOOTING section for more detail.

OOU6050,000111C -19-05JUN09-1/1

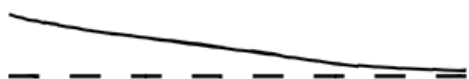
Step 1: Optimize Steer Wheel Speed

- Tune speed by operating parallel to and 1.2 m (4 ft.) off of the A—B Line.
- Engage AutoTrac Universal and observe performance.
- Tune steer wheel speed down until the system no longer disengages while acquiring the line.

- While tuning, adjust in increments of 10 between Steer wheel speeds 20 – 190 and in increments of 2 between 190-200.
- In general, optimum performance is achieved when steer wheel speed is set at higher settings.

OOU6050,000111D -19-05JUN09-1/1

Step 2: Optimize Acquire Sensitivity



Acquire Sensitivity Too Low

- Tune speed by operating parallel to and 1.2 m (4 ft.) off of the A—B Line.
- Engage AutoTrac Universal and observe performance.
- Tune Acquire Sensitivity until machine acquires the line smoothly.

PC8797—UN—21FEB06



Acquire Sensitivity Too High

PC8999—UN—08MAR06



A—Desired Track—Broken Line

B—Actual Track—Solid Line

PC8796—UN—21FEB06

OOU6050,000111E -19-05JUN09-1/1

Step 3: Optimize Line Sensitivity



Line Sensitivities Too Low

PC8794 —UN—08MAR06



Line Sensitivities Too High

PC8795 —UN—08MAR06

A: Line Sensitivity—Tracking

- Tune line sensitivity tracking while operating on the A—B line.
- If machine wanders too far from the A—B line adjust line sensitivity – tracking higher.
- If machine becomes unstable around A—B line adjust line sensitivity – tracking lower.

B: Line Sensitivity—Heading

- Tune line sensitivity heading while operating on the A—B line.
- If the front of the machine wanders too far from the track direction adjust line sensitivity – heading higher.
- If machine becomes unstable adjust line sensitivity – heading lower.

PC8999 —UN—08MAR06



A—Desired Track—Broken Line

B—Actual Track—Solid Line

NOTE: Line Sensitivities work together – If both are set too high the vehicle can become unstable. If both are set too low, the vehicle can wander around the A—B line

OUC6050,000111F -19-05JUN09-1/1

Curve Sensitivity



Curve Sensitivity Too Low

PC8944 —UN—21FEB06



Curve Sensitivity Too High

PC8943 —UN—21FEB06

- Tune Curve Sensitivity while operating in Curve Track
- If vehicle turns outside of the curve adjust sensitivity higher
- If vehicle turns inside of the curve adjust sensitivity lower.

PC8999 —UN—08MAR06



A—Desired Track—Broken Line

B—Actual Track—Solid Line

OUC6050,0001120 -19-02JUN09-1/1

Steer Play

- Steer Play is only used for vehicles that have excess play in the steering system.
- If overall performance is unacceptable due to high play in the steering system, adjust steer-play setting higher until effects of loose steering system are minimized.

- If Steer Play is set too high, system can become unstable.

Find the combination of values that works best for the vehicle.

OUC6050,0001121 -19-05JUN09-1/1

Troubleshooting

AutoTrac Universal

Symptom	Problem	Solution
Tractor turns right or left unexpectedly when the resume switch is pressed and the vehicle is already lined up on the line.	Encoder out of range when wheels are pointed forward	With front wheels pointed forward encoder is +/- 500. Drive forward with wheels pointed straight ahead until encoder is in limit.
ATU disengages	Anti-rotation device too tight – causing misalignment of ATU with the steering shaft.	Reposition ATU so it slides easily on steering shaft then adjust anti-rotation device
	Steering Wheel speed too high on a vehicle with high steering resistance.	Lower Steering wheel speed
	Looseness or rotation in the Steering console	Insert shims to take out play in Steering console
	Steering Wheel turns hard after ATU installed.	Lubricate Steering Shaft where it goes through console
ATU unstable when entering track	Disengagement force set too low for a vehicle with high steering resistance.	Set disengagement force setting from normal to high.
	Acquire sensitivity too high	Decrease acquire sensitivity
ATU takes too long to enter next track	Acquire sensitivity too low	Increase acquire sensitivity
ATU constantly weaves in the row	StarFire Height or Fore-Aft not properly set	Enter correct StarFire Height and Fore-Aft dimension
	StarFire Receiver not in front of or even with Fixed Axle (Even with or Behind for Articulated)	Position StarFire in front of or even with Fixed Axle (Even with or Behind for Articulated)
	Line sensitivities incorrect.	Optimize line sensitivities (See OPTIMIZING AUTOTRAC UNIVERSAL PERFORMANCE in Setup section.)
	StarFire mount direction in SETUP different from actual mount direction	Correctly match TCM SETUP mount direction to actual mount direction
	Too much play in steering mechanism	Check steering cylinder bushing; tie rod ends, and so on, for proper tolerance. Increase steer-play
	ATU did not establish direction correctly	Drive forward at a speed greater than 1 mph and turn steering wheel greater than 45 degrees in one direction
	Looseness or rotation in the Steering console	Insert shims to take out play in Steering console

Continued on next page

OOU6050,0001123 -19-08JUN09-1/2

Troubleshooting

Symptom	Problem	Solution
	Loose Soil	Add Ballast
AutoTrac Universal does not engage. AutoTrac does not resume.	Stop Code encountered	See list of stop codes to find issue
AutoTrac Universal does not appear on INFO or SETUP screens	System not recognizing AutoTrac Universal on CAN Bus line	Ensure AutoTrac Universal is connected to GreenStar Harness and receiving power Check for blown fuses in ATU wiring harness
Direction cannot be determined	Old TCM Software	Update TCM Software to newest software (Version 1.08 or greater)
	No differential Correction	Establish differential correction
	No GPS	Establish signal
	ATU did not establish direction correctly	Drive forward at a speed greater than 1 mph and turn steering wheel greater than 45 degrees in one direction
AutoTrac Universal drives inside curve	Curve Sensitivity too high	Lower curve sensitivity
AutoTrac Universal drives outside curve	Curve Sensitivity too low	Increase curve sensitivity

OUO6050,0001123 -19-08JUN09-2/2

AutoTrac Universal Stop Codes

FAULT CONDITION	FAULT DESCRIPTION	ALARM TEXT
AutoTrac Deactivation Messages		
Text Message on Display		
Steering wheel has moved		Steering Wheel Moved
Wheel speed too slow		Speed Too Slow
Wheel speed too fast		Speed Too Fast
Incompatible gear selected		Invalid Gear
Track number changed		Track number changed
No dual frequency GPS		Invalid GPS Signal
SSU fault active		SSU Fault
Bad GSD messages		Invalid Display messages
No parallel tracking		No Parallel Track Mode
No KeyCard present		No AutoTrac Activation
Heading error too large		Heading Error Too Large
Lateral error too large		Off - Track Error too large
Seat switch open		Out Of Seat
Oil temperature too low		Oil Temp Too Cold
No TCM		No TCM Corrections
Invalid activation code		Invalid SSU Activation
Diagnostic mode has control of the valve		SSU In Diagnostic Mode
Combine header switch is not on		Header Off
Combine road-field switch is on		Road Mode
Voltage is not yet stable		Invalid SSU Voltage
AutoTrac active in reverse too long		Reverse Time Out
AutoTrac active below LOW_SPEED_THRESHOLD too long		Vehicle too slow
Curvature too high		Curve Too Sharp
Vehicle not traveling in a forward direction		Vehicle not traveling in a forward direction
The ELX line is low, indicating a shutdown		Vehicle Shutting down
SSU receiving bad gear data from either reverser		Gear data error
SSU receiving bad data from resume switch		Resume Switch error
key switch message is not sending valid data		key switch error
SPFH AutoTrac-Row Guidance switch is not on		SPFH Auto Trac switch is not on
SPFH Quick Stop Switch is on		SPFH Quick Stop switch is on
ATU Not Enabled		ATU Not Enabled
Acquiring Line		ATU is Acquiring Line
Tracking On Line		ATU Tracking on Line
Unknown Direction		Unknown Vehicle Direction
Row sensor transition to GPS too large		Transition to GPS too large
Row sensor out of row without GPS		Out of Row
Sensor coast time-out		Sensor Coast Time Out
Vehicle steering control unit receiving bad message sequence from GreenStar control unit		Invalid Message Sequence
Commanded track curvature unreasonable		Curvature Error
Current speed mismatch		Speed Mismatch
Present track curvature mismatch		Curvature Mismatch
Vehicle in park		Vehicle in Park
Auxiliary steering commands timed out		Steering Message Timeout
Auxiliary steering status timed out		Steering Status Timeout
Bad data from seat switch		Seat Switch Error
Unknown VIN		VIN Data Error
Unknown wheel base		Wheel Base Data Error
TCM info message timed out		TCM Information Not present

Continued on next page

OUC6050,0001124 -19-08JUN09-1/2

Troubleshooting

Vehicle automation message timeout	Automation Message Not present
Vehicle roll and yaw rate message timeout	TCM Yaw Rate Not Present
Wheel based speed and direction message timeout	Speed Data Not Present
Track data timed out	Track Data Not Present
Unknown steering control unit failure	Steering Controller Fault
ATU temperature	ATU Temperature Fault
AutoTrac Active In Four Wheel Steer Too Long	Four Wheel Steer Timeout
Vehicle in Crab Steer	Vehicle in Crab Steer

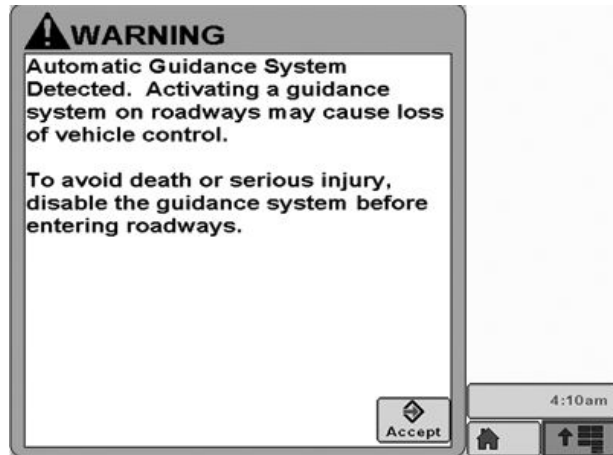
OUO6050,0001124 -19-08JUN09-2/2

GS2 2600 and 2100 Display

Start-up Screen

Each time a machine equipped with AutoTrac is started, this screen appears as a reminder of operator responsibilities when using AutoTrac steering system. To clear this screen press I AGREE.

IMPORTANT: When starting machine with AutoTrac installed and this start-up screen is not displayed, update AutoTrac software through www.StellarSupport.com.



PC13157—19—17FEB11

BA31779,000023F -19-26JUL11-1/1

Enabling System

Press STEER On-Off button to toggle between enable and disable AutoTrac.

To enable system, all of the following criteria must be met:

- AutoTrac activation is detected.
- Track 0 has been set up.
- Tracking mode selected.
- Proper operator presence mode selected.
- TCM must be installed and turned on.
- AutoTrac Controller Steering Kit is plugged in.

OOU6050,0001126 -19-05JUN09-1/1

Activating System

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

After system has been ENABLED, operator must manually change system to ACTIVATED status when steering assistance is desired.

Press resume switch (A) to initiate assisted steering.

In order to activate system following criteria must be met:

- Vehicle speed is greater than 0.5 km/h (0.3 mph).
- Forward vehicle speed is less than
 - Tractor - 30 km/h (18.6 mph)
 - Sprayer - 37 km/h (23 mph)
 - Combine - 20 km/h (12.4 mph)
- Reverse vehicle speed is less than 10 km/h (6.0 mph).
- Vehicle within 45 degrees of desired track.
- Operator is seated.
- TCM is on.
- In reverse AutoTrac remains activated for 45 seconds. After 45 seconds, the machine must be put in a forward gear before reverse activates again.



A—Resume Switch

PC8700—UN—11AUG05

OOU6050,0001127 -19-05JUN09-1/1

Deactivating System

CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

To turn off AutoTrac from **GUIDANCE VIEW** tab, toggle **STEER ON** and **OFF** button until **STEER OFF** is displayed.

AutoTrac system can be made DEACTIVE by following methods:

- Turning steering wheel.

- Slowing to speeds less than 0.5 km/h (0.3 mph).
- Exceeding forward speed of Tractor - 30 km/h (18.6 mph)
Sprayer - 37 km/h (23 mph)
Combine - 20 km/h (12.4 mph)
- Exceeding reverse speed of 10 km/h (6.0 mph).
- Toggle **STEER ON** and **OFF** button until **STEER OFF** is displayed in **GUIDANCE VIEW** tab.
- Operator out of seat for more than 5 seconds if using seat switch or no activity detected by operator presence monitor for 7 minutes.

OUC6050.0001128 -19-05JUN09-1/1

Set-up

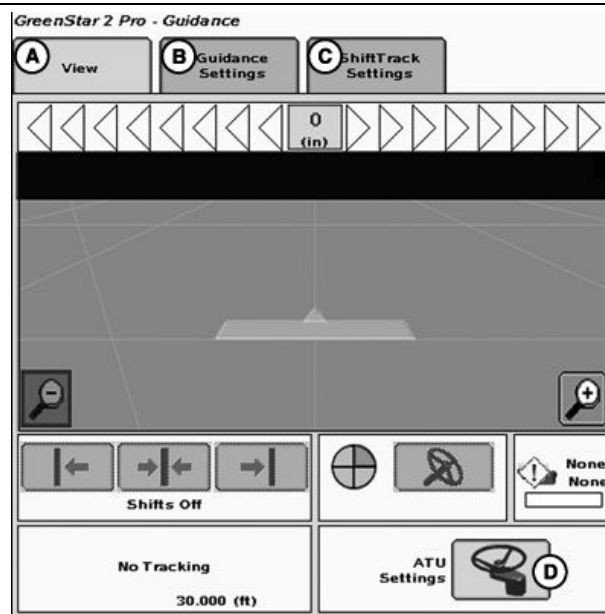
Press **ATU SETTINGS** button to set up ATU.

A—View tab

B—Guidance Settings tab

C—ShiftTrack Settings tab

D—ATU Settings button



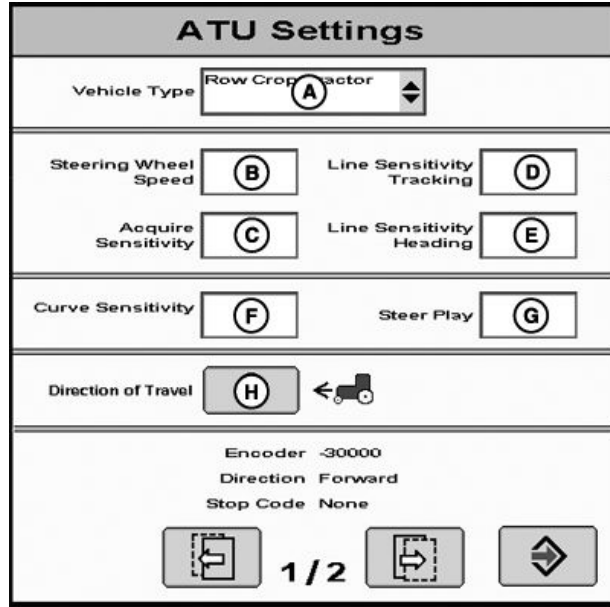
PC108570B —JUN—04JUN09

Continued on next page

OUC6050.000114D -19-08JUN09-1/2

CAUTION: AutoTrac Universal does not steer properly in reverse for Articulated Tractors and Windrowers. Do not activate AutoTrac in reverse for Articulated Tractors and Windrowers.

- A—Vehicle Type
- B—Steer Wheel Speed (20—200)
- C—Acquire Sensitivity (20—200)
- D—Line Sensitivity Tracking (20—400)
- E—Line Sensitivity Heading (20—200)
- F—Curve Sensitivity (0—200)
- G—Steer Play (0—500)
- H—Direction of Travel



PC108570A—JUN—03JUN09

ATU Settings Page 1/2

OUO6050,000114D -19-08JUN09-2/2

Vehicle Type

Vehicle settings can be saved for each vehicle type listed. These settings can be saved and recalled when the ATU kit is installed on different machines. To start, each vehicle type defaults to the recommended starting adjustment settings. The settings are saved under the selected vehicle type.

- Row Crop Tractor 1
- Row Crop Tractor 2
- Articulated Tractor 1
- Articulated Tractor 2

- Windrower 1
- Windrower 2
- Combine 1
- Combine 2
- Sprayer 1
- Sprayer 2
- Track Tractor 1
- Track Tractor 2
- Harvester 1
- Harvester 2

If customer is using AutoTrac at high vehicle speeds, then they can choose sprayer as the vehicle type.

OUO6050,000114E -19-08JUN09-1/1

Steer Wheel Speed

(This setting is not used with the ATU 200. It is grayed out when connected to an ATU 200.) Determines the maximum speed the steering wheel turns to make corrections. Higher gains turn the steering wheel faster. Lower gains are required for vehicles with slower hydraulic systems. The maximum steering wheel speed increases with steer wheel speed settings from 20 to 190. From

190 to 200 the maximum steering wheel speed stays the same, but the rate at which the steering wheel accelerates increases. Adjust the steer wheel speed in increments of 10 from 20 through 190 and in increments of 2 from 190 through 200. Setting the steer wheel speed too high causes ATU unit to deactivate. **Adjust the steer wheel speed as high as possible without causing deactivation of the steering wheel.**

OUO6050,000114F -19-08JUN09-1/1

Acquire Sensitivity

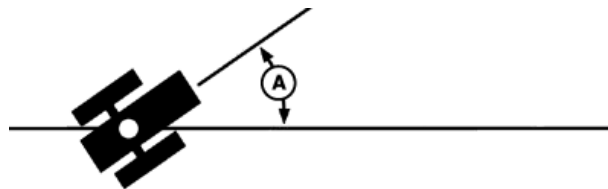
Determines how aggressively the vehicle acquires the track. Higher gains result in more aggressive steering

while acquiring the track. Lower gains give smoother entry into the next track. Setting sensitivity too high causes vehicle instability; setting too low delays acquisition. This setting affects performance while acquiring the track only.

OUO6050,0001150 -19-05JUN09-1/1

Line Sensitivity – Heading

Determines how aggressively ATU responds to heading errors while the vehicle is on the track. Heading error is the difference between the actual direction of the vehicle and the track direction. Setting this number higher causes the ATU to respond more aggressively to match the actual vehicle direction and track direction. Higher numbers result in more aggressive wheel motion. Lower numbers can result in reduced accuracy. This setting affects performance while on track only.



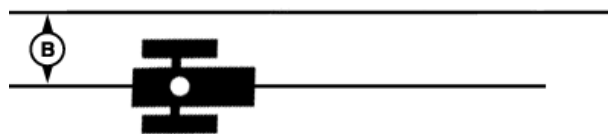
A—Heading Error

PC8994 —UN—07MAR06

OUC6050,0001152 -19-05JUN09-1/1

Line Sensitivity – Tracking

Determines how aggressively ATU responds to tracking errors while the vehicle is on the track. Tracking error is the distance between the location of the vehicle and the desired track. Setting this number higher causes the ATU to respond more aggressively to match the vehicle location to the desired track. Higher numbers result in more aggressive wheel motion. Lower gains can result in reduced accuracy. This setting affects performance while on track only.



B—Tracking Error

PC8993 —UN—09MAR06

OUC6050,0001151 -19-05JUN09-1/1

Curve Sensitivity

Determines how aggressively ATU responds to a curve in the track. If the tractor is turning inside of the curve,

set the number lower. If the tractor is turning outside of the curve, set the number higher. This setting affects performance in curve track only.

OUC6050,0001153 -19-05JUN09-1/1

Steer Play

Some vehicles have excess play in their steering system which allows the steering wheel to be turned without change in the vehicle direction. This setting controls the distance that the steering wheel turns to take up this excess play. When the ATU is placed on a machine that

has excess play this setting is used. This number is set higher on vehicles which require greater steering wheel movement before the steering system responds. This setting is only used on vehicles with excess play in their steering system. This number is set to 0 on most vehicles except windrowers.

OUC6050,0001154 -19-08JUN09-1/1

Direction of Travel

For ATU 200 (2.01G or newer software) and ATU (1.10G or newer software), an operator has the ability to change the direction of travel on the ATU.

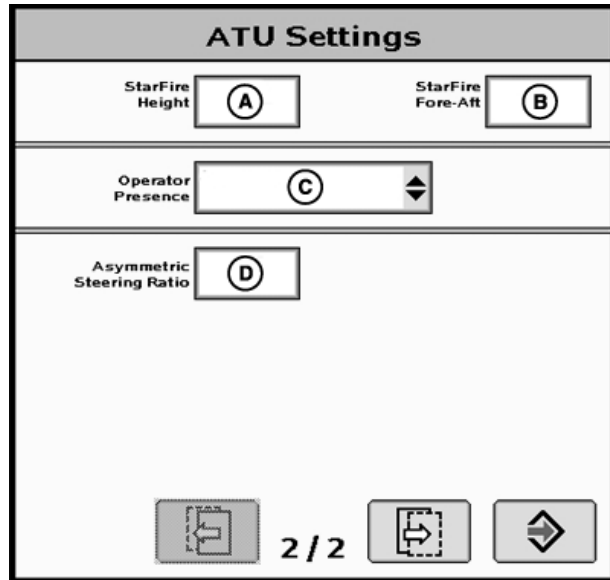
NOTE: This option is not available for Articulated and Windrowers. This option is also not available if the ATU direction is unknown or if AutoTrac is active and tracking.

OUC6050,0001155 -19-08JUN09-1/1

AutoTrac Settings, Page 2/2

NOTE: Be sure to complete setup information on both pages including StarFire height and fore and aft, on page 2 of the ATU Settings, before operating AutoTrac Universal.

- A—StarFire Height
- B—StarFire Fore/Aft
- C—Operator Presence
- D—Steer Asymmetry (50—200)

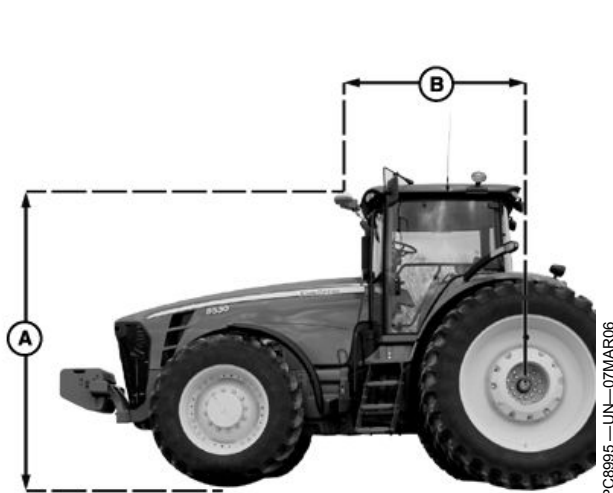


ATU Settings Page 2/2

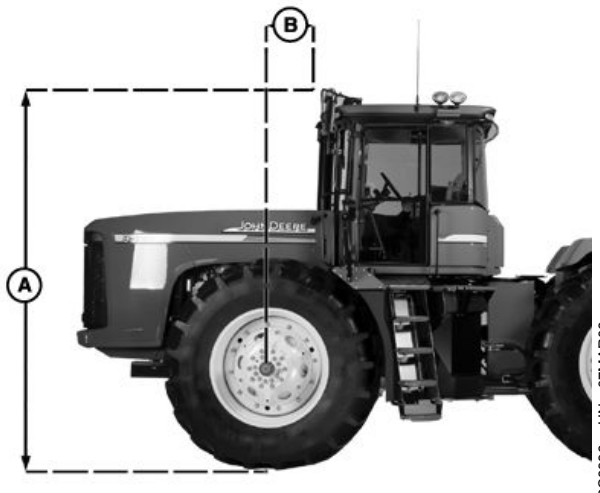
PC9468B — UN — 23OCT06

OUC6050,000117D -19-08JUN09-1/1

StarFire Height and Fore-Aft



Fixed-Axle Machines
(Row Crop, Sprayers)



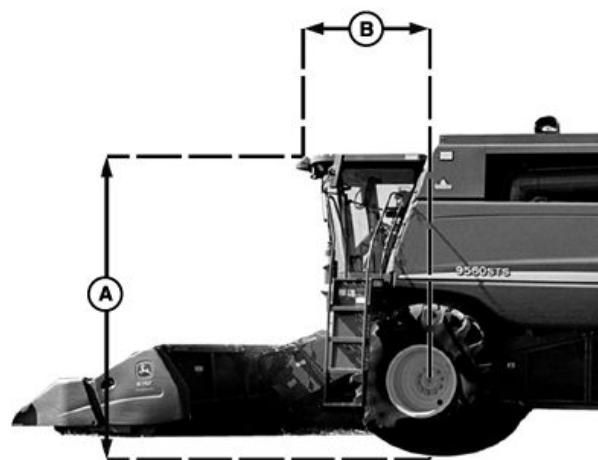
Articulated Machines

StarFire Height (in.) Enter the height of the StarFire receiver. Height is measured from the ground to the top of the dome.

StarFire Fore-Aft (in.) Enter the Fore-Aft measurement (the distance from the fixed axle of the vehicle to the receiver). The fixed axle is the rear axle on a row-crop tractor and sprayer, or the front axle on an articulated tractor, windrower, combine, forage harvester, and cotton harvester. For track machines, this measurement is 0. The receiver must be at or in front of the fixed axle for all machines except articulated tractors. On articulated tractors, the receiver is behind the front axle.

A—Height

B—Fore-Aft



Combines, Self-Propelled Forage Harvester, Windrower, Cotton Picker

OUO6050,000112B -19-08JUN09-1/1

Operator Presence

Select a seat switch or operator activity monitor to detect operator presence.

NOTE: When seat switch is chosen, the external seat switch must be plugged into the AutoTrac Universal wiring harness. If operator leaves the seat for more than 7 seconds, AutoTrac is deactivated.

NOTE: When activity monitor is chosen, AutoTrac Universal looks for operator activity every 7 minutes. Operator gets a time-out warning 15 seconds before AutoTrac deactivates. Pressing resume resets activity monitor timer.

OUO6050,0001156 -19-05JUN09-1/1

Steer Asymmetry

In certain vehicles, the hydraulic steering system is configured in a manner in which the vehicle does not steer the same in each direction. The end result of this situation is that the vehicle consistently steers to one side of the A—B line. Steering Asymmetry is a value that can be

changed to compensate for these differences in steering. Please refer to the platform-specific document for your vehicle for the appropriate Steering Asymmetry value. This document can be found at www.StellarSupport.com. If your vehicle is not an asymmetric vehicle a value of 100 is used for Steering Asymmetry.

OUO6050,0001157 -19-05JUN09-1/1

Steering Asymmetry Value Calculation

PC10857HR —UN—08DEC08

Determine if steering asymmetry exists by:

1. Turn steering wheel to full left position
2. Count steering wheel revolutions to turn full right
3. Count steering wheel revolutions to turn full left
4. If the number of revolutions right is not equal to the number of revolutions left, steering asymmetry is used.

SA = Steer Asymmetry

$$d_c^2$$

Hydraulic steering cylinder inside diameter

PC10857HS —UN—08DEC08

$$d_r^2$$

Hydraulic steering cylinder rod diameter

PC10857HP —UN—08DEC08

$$SA = \frac{d_c^2}{(d_c^2 - d_r^2)} \times 100$$

If right is greater than left, use this formula

PC10857HQ —UN—08DEC08

$$SA = \frac{(d_c^2 - d_r^2)}{d_c^2} \times 100$$

If left is greater than right, use this formula

OUO6050,0001158 -19-08JUN09-1/1

Diagnostic Readings

GreenStar Deluxe - Diagnostic Readings

Read the latest Operator Manual prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com.

View **AutoTrac Controller** (A)

- Software Version x.xxy ← (B)
- Hardware Version 1 ← (C)
- Serial Number xxxxxx ← (D)
- Mode Active ← (E)
- Total Hours 0.0 ← (F)
- AutoTrac Hours 0.0 ← (G)
- Resume Switch Off ← (H)
- Seat Switch Off ← (I)
- Stop Code None ← (J)
- Wheel Angle Sensor Type ---- ← (K)
- WAS Calibration ← (L)
 - Left 0.0 ← (M)
 - Right 0.0 ← (N)
 - Center 0.0 ← (O)
- Calibration Complete No ← (P)
- Valve Calibration ← (Q)
 - Left 0.0 ← (R)
 - Right 0.0 ← (S)
- Calibration Complete No ← (T)

Navigation icons: A (Map), B (Table), C (Wrench), D (Serial Number), E (Mode), F (GS2 Logo), G (Sun/Clouds), H (Tractor), I (Chart), J (123).
 Digital clock: 11:07 am
 Home icon, Back icon

A—View Drop-Down Menu
 B—Software Version
 C—Hardware Part Number
 D—Serial Number
 E—Mode Status

F—Total Hours
 G—AutoTrac Hours
 H—Resume Switch Status
 I—Seat Switch Status
 J—Stop Code

K—Wheel Angle Sensor Type
 L—WAS Calibration
 M—Left WAS Calibration Number
 N—Right WAS Calibration Number
 O—Center WAS Calibration Number

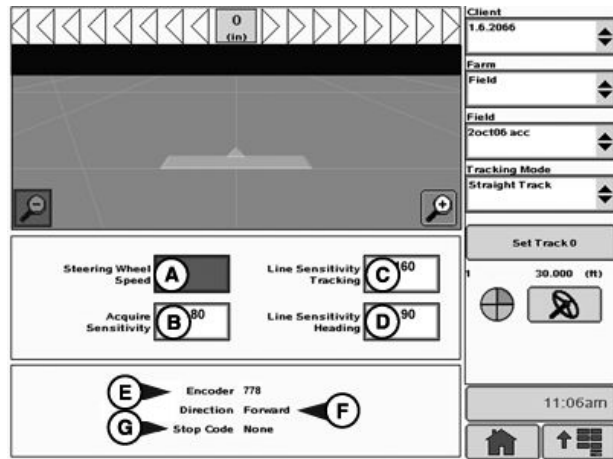
P—WAS Calibration Complete Status
 Q—Valve Calibration
 R—Left Valve Calibration Number
 S—Right Valve Calibration Number
 T—Valve Calibration Complete Status

Read the latest Operator Manual before operation. To obtain a copy, see your dealer or visit www.StellarSupport.com.

Homepage Layout

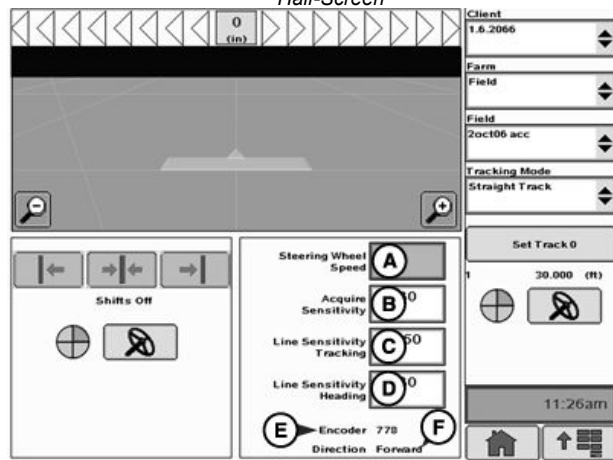
ATU information can be arranged on the homepage as a half-screen, quarter-screen, or in the softkey area. (See GreenStar2 Display—Basic Applications on how to change the layout of the homepage.)

- A—Steering Wheel Speed¹
- B—Acquire Sensitivity
- C—Line Sensitivity Tracking
- D—Line Sensitivity Heading
- E—Encoder
- F—Direction
- G—Stop Code



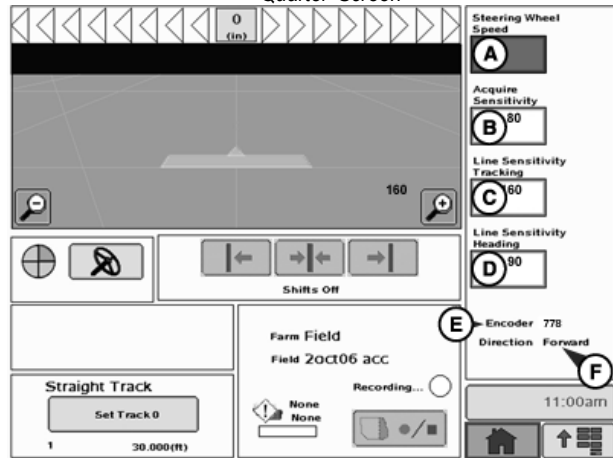
PC1085701—UN—04JUN09

Half-Screen



PC108570J—UN—04JUN09

Quarter Screen



PC108570K—UN—04JUN09

SoftKey Area

¹This setting does not apply to ATU 200.

Troubleshooting—GS2 2600/2100 Display

Guidance Warnings

SSU Communication Error	No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer. <i>NOTE: It is normal for lost communication during reprogramming. Do not remove power during reprogramming.</i>
Turn Predictor Turned On	Turn predictor is turned ON. Use the check box to turn it OFF
AutoTrac deactivated	AutoTrac system deactivates when operator is out of seat for more than 5 seconds
AutoTrac	The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
Data Card Problem!	A data card must be inserted in the compact flash drive with the door closed to use the GreenStar2 Pro application.
No Setup Data!	Set up data for the GreenStar2 Pro application could not be found on the data card. The GreenStar2 Pro application is not available until a data card with setup data is inserted
AutoTrac SSU Software Incompatible	See your John Deere Dealer for SSU update.
Communication Error	Communication problem with control unit. Check connections to control unit.
GPS Communication Problem	No communication with GPS receiver. Check connections at GPS receiver.
Tracking Inaccurate	The GPS receiver must be set to report at the 5 Hz message output rate. Confirm settings on GPS receiver and change output to 5 Hz,
Invalid Boundary	An invalid boundary has been recorded. You can continue recording or clear the current boundary and start recording again.
Activation Error	Invalid activation code. Please reenter activation code.
Invalid Filter	All the fields that are required to be filled out based on the Totals Type Selected have not been filled out.
Flags of Same Selection	Selected the Flags of same name and mode.
Name Already Exists	The name you have entered exists in this list. Please enter a new name.

Warnings

GPS Communication Problem	No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
Curve Track Memory Full	Internal memory available for Curve Track is full. Data must be cleared to continue Curve Track Operation. Clear curved track data from system
AutoTrac Disabled	AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
AutoTrac Disabled	AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
License Problem	No license available for the selected tracking mode. Previous tracking mode is selected.
Duplicate Name	Name exists. Select another name.
Curve Track Recording	Curve Track recording in progress. Cannot perform operation until recording is turned off.
Circle Definition Problem	There was an internal error during Circle definition. Redefine the circle.
Circle Definition Problem	Communication with GPS receiver was lost during circle definition. Redefine the circle once communication has been re-established.
Circle Definition Problem	Center point is too far. Select another center point.
A—B Line Definition Problem	There was an internal error during A—B line definition. Redefine the A—B line.
A—B Line Definition Problem	A timeout occurred during A—B line definition. Redefine the A—B line.
A—B Line Definition Problem	A and B points of the A—B line are too close. Perform operation again.
Loss of GPS While Recording Boundary	GPS has been lost while recording the boundary. Point logging resumes when the GPS signal returns. This can result in an inaccurate boundary.
Data Card Full	Unload and cleanup data card or insert new data card.
Data Card 90% Full	Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Curve Track. Unload and cleanup data card or insert new data card.
Low Memory	Low Memory available for Curve Track. Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Straight Track. Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Circle Track. Unload and cleanup data card or insert new data card.
Circle Definition Problem	The distance from the vehicle to the center point is greater than 1.6 km (1 mi.). Select another center point or drive another circle.
Zero All Totals	You have decided to zero all totals for the selected filter.
Incorrect RS232 Controller Model Selected	The RS232 control unit model selected is incorrect. Please verify and reenter manufacturer and model number.
Prescription Error	Control unit is not setup to accept prescriptions.
Prescription Error	Control unit is set up to accept prescriptions. No control unit prescription has been selected.

Continued on next page

OUO6050,000112E -19-08JUN09-1/2

Prescription Error	Prescription rate is out of control unit range.
Control unit Unit of Measure Error	Control unit only operates when using metric units.
Control unit Unit of Measure Error	Control unit only operates when using English (US) units.
Control unit Unit of Measure Error	Control unit only operates when using metric or English (US) units.
Control unit Operation Error	Invalid operation selected for control unit.
Prescription Warning	Out of field prescription rate is now being applied.
Prescription Warning	Loss of GPS signal has occurred. Loss of GPS prescription rate is now being applied.
Prescription Warning	Control unit does not support selected prescription.

INFO

OJ06050,000112E -19-08JUN09-2/2

Trouble Code Pop-Up Boxes—Guidance Software

FAULT CONDITION	FAULT DESCRIPTION	ALARM TEXT
Issued once (at power up) the first time an SSU is detected, when an AutoTrac key is activated. (Any guidance mode with AutoTrac key and AT capable SSU.)		The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
Loss of SSU Communication for more than 1 second		No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.
Within 5 seconds away of a gap in Curved Track data		Gap in Guidance Path
Within 5 seconds away from a curve of more than 30° between consecutive segments		Approaching Sharp Curve
The operator leaves the seat for more than 7 seconds while in a tracking mode that supports Turn Predictor and TP is off (valid SSU, AT license, and seat switch		Turn predictor is turned ON. Uncheck the box to turn it OFF.
SF1 AT Key with SF2 corrections turned on.		AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
SF1 AT Key with old SF1 StarFire software.		AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
The operator attempts to switch to a tracking mode for which there is no valid license available.		No License available for the selected tracking mode. Defaulting to previous tracking mode.
The operator attempts to perform an operation that requires a GPS signal (presses SetA, SetB, Curve Track recording, or Circle Track recording buttons).		No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
The GPS signal is lost during definition of a circle using the driving method.		Communication with GPS receiver was lost during circle definition. Redefine the circle once GPS communication has been re-established.
The operator inputs an A or B point that is too close to the other while defining an AB Line (can occur using A+B and Lat and Long methods).		A and B points of the AB Line are too close. Must have 10 m (30 ft.) between point A and B. Perform operation again.
The operator defines a circle with the center point at a distance greater than 1.6 km (1 mi.) from the vehicle location. This warning can also occur if the operator selects a circle with a center point that is far away.		The distance from the vehicle to the center point is greater than 1.6 km (1 mi.). Select another center point or drive another circle.
A timeout (operator has not reached the minimum AutoB distance within 45 sec.) occurs during AB Line definition using the AutoB method.		A timeout occurred during AB Line definition. Redefine the AB Line.
The operator attempts to change the tracking mode while recording in Curve Track.		Curve Track recording in progress. Cannot perform operation until Curve Track recording is turned off.
Press clear all shifts button		Clearing all shifts restores original guidance track locations for the current field. Are you sure you want to proceed?
Incompatible AutoTrac SSU Software. AutoTrac Deactivated (SSU exit code)		AutoTrac has detected a compatible SSU (Vehicle Controller) version. Contact your John Deere Dealer to obtain the latest software updates for your SSU in order to operate AutoTrac.

OJ06050,000112F -19-08JUN09-1/1

Trouble Code Pop-Up Boxes—ATU

⚠ CAUTION: Unknow Direction of Travel

The system was not able to detect the vehicle direction of travel. Please select your direction of travel.

If ATU cannot detect the direction once the operator changes Steer - On and Off button to ON, a pop-up message asks the operator to choose the direction of travel.



UNKNOWN DIRECTION OF TRAVEL MESSAGE

PC10857HJ—UN—10DEC08

OUC6050,000114C -19-08JUN09-1/2

⚠ CAUTION: SSU Communication Error

No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.

NOTE: It is normal for lost communication during reprogramming. Do not remove power during reprogramming.



SSU Communication Error

PC10857HO—UN—10DEC08

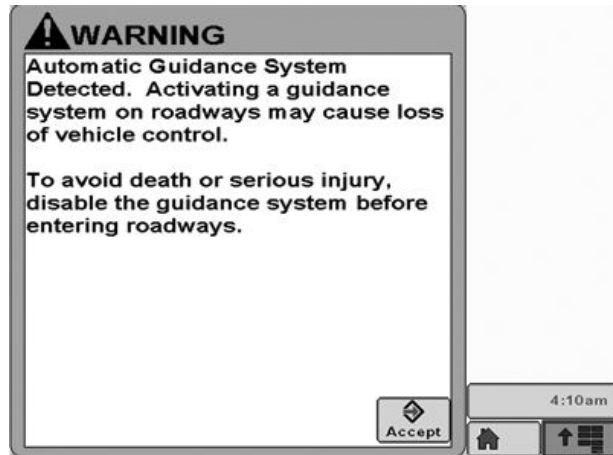
OUC6050,000114C -19-08JUN09-2/2

GS2 1800 Display

Start-up Screen

Each time a machine equipped with AutoTrac is started, this screen appears as a reminder of operator responsibilities when using AutoTrac steering system. To clear this screen press I AGREE.

IMPORTANT: When starting machine with AutoTrac installed and this start-up screen is not displayed, update AutoTrac software through www.StellarSupport.com.



BA31779,000023E -19-26JUL11-1/1

Enabling System

Press STEER ON and OFF button to toggle between enable and disable AutoTrac.

To enable system, all of the following criteria must be met:

- AutoTrac activation is detected.
- Track 0 has been set up.
- Tracking mode selected.
- Proper operator presence mode selected.
- TCM must be installed and turned on.
- AutoTrac Controller Steering Kit is plugged in.

OOU6050,000115A -19-05JUN09-1/1

Activating System

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

After system has been ENABLED, operator must manually change system to ACTIVATED status when steering assistance is desired.

Press resume switch (A) initiating assisted steering.

In order to activate system following criteria must be met:

- Vehicle speed is greater than 0.5 km/h (0.3 mph).
- Forward vehicle speed is less than
 - Tractor - 30 km/h (18.6 mph)
 - Sprayer - 37 km/h (23 mph)
 - Combine - 20 km/h (12.4 mph)
- Reverse vehicle speed is less than 10 km/h (6.0 mph).
- Vehicle within 45 degrees of desired track.
- Operator is seated.
- TCM is on.
- In reverse AutoTrac remains activated for 45 seconds. After 45 seconds, the machine must be put in a forward gear before reverse activates again.



A—Resume Switch

OOU6050,000115B -19-05JUN09-1/1

Deactivating System

CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

To turn off AutoTrac from **GUIDANCE VIEW** tab, toggle **STEER ON** and **OFF** button until **STEER OFF** is displayed.

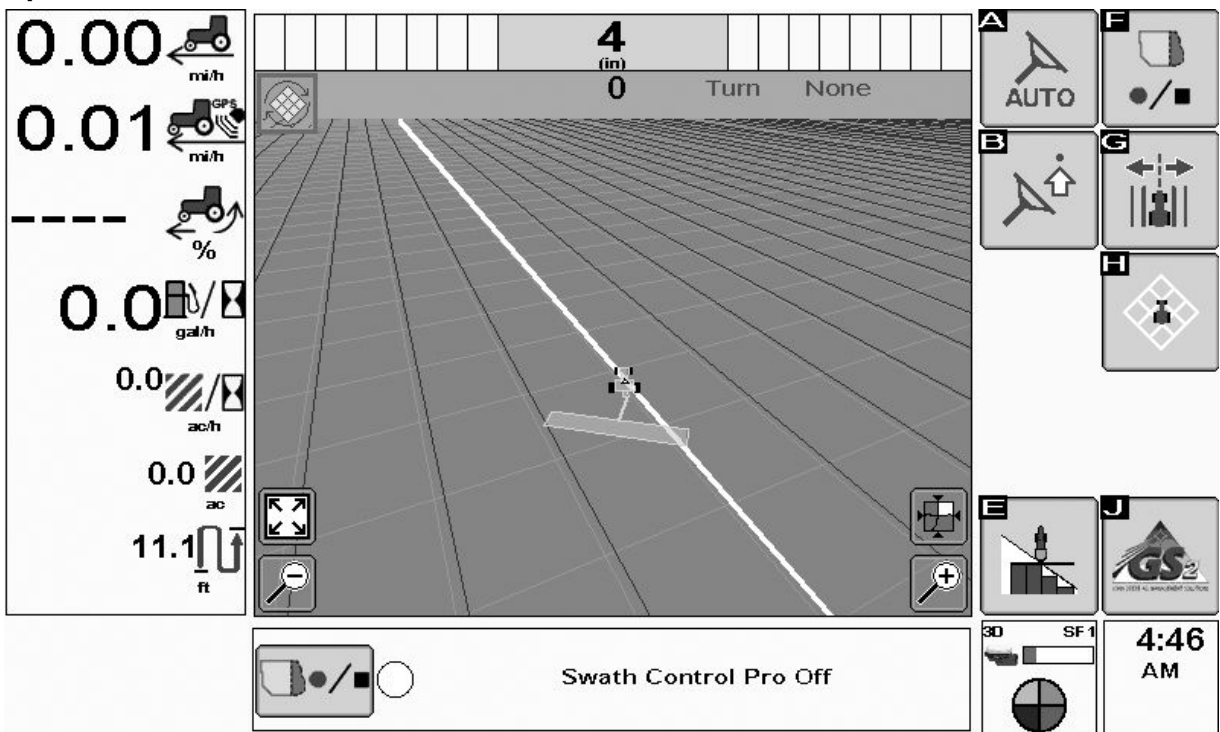
AutoTrac system can be made DEACTIVE by following methods:

- Turning steering wheel.

- Slowing to speeds less than 0.5 km/h (0.3 mph).
- Exceeding forward speed of Tractor - 30 km/h (18.6 mph)
Sprayer - 37 km/h (23 mph)
Combine - 20 km/h (12.4 mph)
- Exceeding reverse speed of 10 km/h (6.0 mph).
- Toggle **STEER ON** and **OFF** button until **STEER OFF** is displayed in **GUIDANCE VIEW** tab.
- Operator out of seat for more than 5 seconds if using seat switch or no activity detected by operator presence monitor for 7 minutes.

OUC6050,000115C -19-05JUN09-1/1

Set-up



Press ATU SETTINGS button (B) to set up ATU.

Continued on next page

OUC6050,000115D -19-08JUN09-1/3

PC-108570C —UN—04-JUN09

PC10857JC —UN—13APR09



Menu Button

PC10857JE —UN—13APR09



GreenStar2 Pro Button

PC10857JI —UN—13APR09



Go!

PC10857OG —UN—04JUN09



AutoTrac Settings

OUC6050,000115D -19-08JUN09-2/3

CAUTION: AutoTrac Universal does not steer properly in reverse for Articulated Tractors and Windrowers. Do not activate AutoTrac in reverse for Articulated Tractors and Windrowers.

- A—Vehicle Type
- B—Steer Wheel Speed (20—200)
- C—Acquire Sensitivity (20—200)
- D—Line Sensitivity Tracking (20—400)

- E—Line Sensitivity Heading (20—200)
- F—Curve Sensitivity (0—200)
- G—Steer Play (0—500)
- H—Direction of Travel

AutoTrac Settings

AutoTrac Universal Machine Profile

Row Crop Tractor 1 (A)

Steering Wheel Speed	Curve Sensitivity
190 (B)	0 (F)
Acquire Sensitivity	Line Sensitivity Heading
80 (C)	90 (E)
Line Sensitivity Tracking	Steer Play
200 (D)	0 (G)
Direction of Travel	Encoder: -2078
(H)	Direction: N/A
	Stop Code: No TCM Corrections

(F)

ATU Settings

PC10857OE —UN—04JUN09

OUC6050,000115D -19-08JUN09-3/3

Vehicle Type

Vehicle settings can be saved for each vehicle type listed. These settings can be saved and recalled when the ATU kit is installed on different machines. To start, each vehicle type defaults to the recommended starting adjustment settings. The settings are saved under the selected vehicle type.

- Row Crop Tractor 1
- Row Crop Tractor 2
- Articulated Tractor 1
- Articulated Tractor 2

- Windrower 1
- Windrower 2
- Combine 1
- Combine 2
- Sprayer 1
- Sprayer 2
- Track Tractor 1
- Track Tractor 2
- Harvester 1
- Harvester 2

If customer is using AutoTrac at high vehicle speeds, then they can choose sprayer as the vehicle type.

OUO6050,000115E -19-05JUN09-1/1

Steer Wheel Speed

(This setting is not used with the ATU 200. It is grayed out when connected to an ATU 200.) Determines the maximum speed the steering wheel turns to make corrections. Higher gains turn the steering wheel faster. Lower gains are required for vehicles with slower hydraulic systems. The maximum steering wheel speed increases with steer wheel speed settings from 20 to

190. From 190 to 200 the maximum steering wheel speed stays the same, but the rate at which the steering wheel accelerates increases. The steer wheel speed is adjusted in increments of 10 from 20 through 190 and in increments of 2 from 190 through 200. Setting the steer wheel speed too high can cause ATU unit to deactivate. **Adjust the steer wheel speed as high as possible without causing deactivation of the steering wheel.**

OUO6050,000115F -19-08JUN09-1/1

Acquire Sensitivity

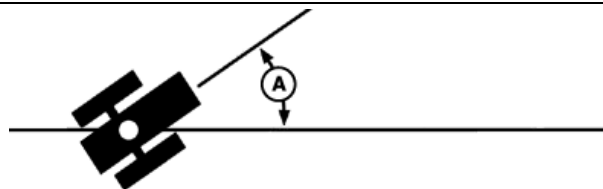
Determines how aggressively the vehicle acquires the track. Higher gains result in more aggressive steering

while acquiring the track. Lower gains give smoother entry into the next track. Setting sensitivity too high can cause vehicle instability; setting too low delays acquisition. This setting affects performance while acquiring the track only.

OUO6050,0001160 -19-05JUN09-1/1

Line Sensitivity – Heading

Determines how aggressively ATU responds to heading errors while the vehicle is on the track. Heading error is the difference between the actual direction of the vehicle and the track direction. Setting this number higher causes the ATU to respond more aggressively to match the actual vehicle direction and track direction. Higher numbers result in more aggressive wheel motion. Lower numbers can result in reduced accuracy. This setting affects performance while on track only.



A—Heading Error

PC8994 —JUN—07MARC06

OUO6050,0001162 -19-05JUN09-1/1

Line Sensitivity – Tracking

Determines how aggressively ATU responds to tracking errors while the vehicle is on the track. Tracking error is the distance between the location of the vehicle and the desired track. Setting this number higher causes the ATU to respond more aggressively to match the vehicle location to the desired track. Higher numbers result in more aggressive wheel motion. Lower gains can result in reduced accuracy. This setting affects performance while on track only.



PC8893 —UN—09MAR06

B—Tracking Error

OOU6050,0001161 -19-05JUN09-1/1

Curve Sensitivity

Determines how aggressively ATU responds to a curve in the track. If the tractor is turning inside of the curve,

set this number lower. If the tractor is turning outside of the curve, set this number higher. This setting affects performance in curve track only.

OOU6050,0001163 -19-05JUN09-1/1

Steer Play

Some vehicles have excess play in their steering system which allows the steering wheel to be turned without change in the vehicle direction. This setting controls the distance that the steering wheel turns to take up this excess play. When ATU is placed on a machine that

has excess play this setting is used. This number is set higher on vehicles which require greater steering wheel movement before the steering system responds. This setting is only used on vehicles with excess play in their steering system. This number is set to 0 on most vehicles except windrowers.

OOU6050,0001164 -19-08JUN09-1/1

Direction of Travel

For ATU 200 (2.01G or newer software) and ATU (1.10G or newer software), an operator has the ability to change the direction of travel on the ATU.

NOTE: This option is not available for Articulated and Windrowers. This option is also not available if the ATU direction is unknown or if AutoTrac is active and tracking.

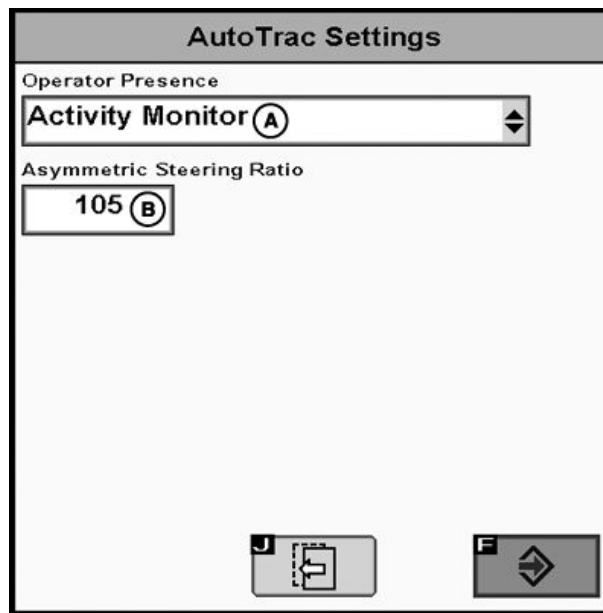
OOU6050,0001165 -19-08JUN09-1/1

AutoTrac Settings, Page 2

NOTE: Be sure to complete setup information on both pages, before operating AutoTrac Universal.

A—Operator Presence

B—Asymmetric Steering Ratio



ATU Settings

PC108570F —UN—04JUN09

OUC6050.000116F -19-05JUN09-1/1

Operator Presence

Select a seat switch or operator activity monitor to detect operator presence.

NOTE: When seat switch is chosen, the external seat switch must be plugged into the AutoTrac Universal wiring harness. If operator leaves the seat for more than 7 seconds, AutoTrac is deactivated.

NOTE: When activity monitor is chosen, AutoTrac Universal looks for operator activity every 7 minutes. Operator gets a time-out warning 15 seconds before AutoTrac deactivates. Pressing resume resets activity monitor timer.

OUC6050.000116F -19-05JUN09-1/1

Steer Asymmetry

In certain vehicles, the hydraulic steering system is configured in a manner in which the vehicle does not steer the same in each direction. The end result of this situation is that the vehicle consistently steers to one side of the A—B line. Steering Asymmetry is a value that can be

changed to compensate for these differences in steering. Please refer to the platform-specific document for your vehicle for the appropriate Steering Asymmetry value. This document can be found at www.StellarSupport.com If your vehicle is not an asymmetric vehicle a value of 100 is used for Steering Asymmetry.

OUC6050.0001168 -19-05JUN09-1/1

Steering Asymmetry Value Calculation

PC10857HR —UN—08DEC08

Determine if steering asymmetry exists by:

1. Turn steering wheel to full left position
2. Count steering wheel revolutions to turn full right
3. Count steering wheel revolutions to turn full left
4. If the number of revolutions right is not equal to the number of revolutions left, steering asymmetry is used.

SA = Steer Asymmetry

$$d_c^2$$

Hydraulic steering cylinder inside diameter

PC10857HS —UN—08DEC08

$$d_r^2$$

Hydraulic steering cylinder rod diameter

PC10857HP —UN—08DEC08

$$SA = \frac{d_c^2}{(d_c^2 - d_r^2)} \times 100$$

If right is greater than left, use this formula

PC10857HQ —UN—08DEC08

$$SA = \frac{(d_c^2 - d_r^2)}{d_c^2} \times 100$$

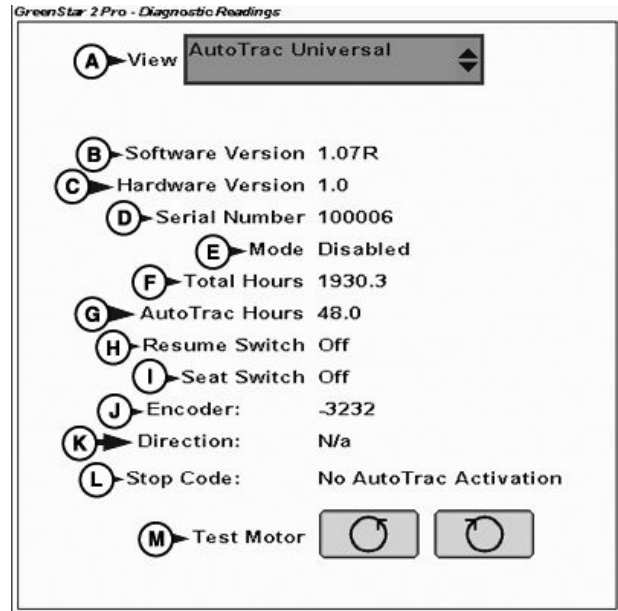
If left is greater than right, use this formula

OUO6050,0001169 -19-08JUN09-1/1

Diagnostic Readings

Read the latest Operator Manual before operation.
To obtain a copy, see your dealer or visit
www.StellarSupport.com.

- | | |
|------------------------|------------------------|
| A—View Drop-Down Menu | H—Resume Switch Status |
| B—Software Version | I— Seat Switch Status |
| C—Hardware Part Number | J— Encoder |
| D—Serial Number | K—Direction |
| E—Mode Status | L—Stop Code |
| F—Total Hours | M—Test Motor |
| G—AutoTrac Hours | |



GreenStar2 Pro - Diagnostic Readings

PC10857JC —UN—13APR09



Menu Button

PC10857JE —UN—13APR09



GreenStar2 Pro Button

PC10857JL —UN—13APR09



GreenStar Diagnostics

OUO6050,000116A -19-05JUN09-1/1

PC10857OH —UN—04JUN09

Troubleshooting—GS2 1800 Display

Guidance Warnings

SSU Communication Error	No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer. <i>NOTE: It is normal for lost communication during reprogramming. Do not remove power during reprogramming.</i>
Turn Predictor Turned On	Turn predictor is turned ON. Use the check box to turn it OFF
AutoTrac deactivated	AutoTrac system deactivates when operator is out of seat for more than 5 seconds
AutoTrac	The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
Data Card Problem!	A data card must be inserted in the compact flash drive with the door closed to use the GreenStar2 Pro application.
No Setup Data!	Set up data for the GreenStar2 Pro application could not be found on the data card. The GreenStar2 Pro application is not available until a data card with setup data is inserted
AutoTrac SSU Software Incompatible	See your John Deere Dealer for SSU update.
Communication Error	Communication problem with control unit. Check connections to control unit.
GPS Communication Problem	No communication with GPS receiver. Check connections at GPS receiver.
Tracking Inaccurate	The GPS receiver must be set to report at the 5 Hz message output rate. Confirm settings on GPS receiver and change output to 5 Hz,
Invalid Boundary	An invalid boundary has been recorded. You can continue recording or clear the current boundary and start recording again.
Activation Error	Invalid activation code. Please reenter activation code.
Invalid Filter	All the fields that are required to be filled out based on the Totals Type Selected have not been filled out.
Flags of Same Selection	Selected the Flags of same name and mode.
Name Already Exists	The name you have entered exists in this list. Please enter a new name.

Warnings

GPS Communication Problem	No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
Curve Track Memory Full	Internal memory available for Curve Track is full. Data must be cleared to continue Curve Track Operation. Clear curved track data from system
AutoTrac Disabled	AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
AutoTrac Disabled	AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
License Problem	No license available for the selected tracking mode. Previous tracking mode is selected.
Duplicate Name	Name exists. Select another name.
Curve Track Recording	Curve Track recording in progress. Cannot perform operation until recording is turned off.
Circle Definition Problem	There was an internal error during Circle definition. Redefine the circle.
Circle Definition Problem	Communication with GPS receiver was lost during circle definition. Redefine the circle once communication has been re-established.
Circle Definition Problem	Center point is too far. Select another center point.
A—B Line Definition Problem	There was an internal error during A—B line definition. Redefine the A—B line.
A—B Line Definition Problem	A timeout occurred during A—B line definition. Redefine the A—B line.
A—B Line Definition Problem	A and B points of the A—B line are too close. Perform operation again.
Loss of GPS While Recording Boundary	GPS has been lost while recording the boundary. Point logging resumes when the GPS signal returns. This can result in an inaccurate boundary.
Data Card Full	Unload and cleanup data card or insert new data card.
Data Card 90% Full	Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Curve Track. Unload and cleanup data card or insert new data card.
Low Memory	Low Memory available for Curve Track. Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Straight Track. Unload and cleanup data card or insert new data card.
No Memory	No Memory available for Circle Track. Unload and cleanup data card or insert new data card.
Circle Definition Problem	The distance from the vehicle to the center point is greater than 1.6 km (1 mi.). Select another center point or drive another circle.
Zero All Totals	You have decided to zero all totals for the selected filter.
Incorrect RS232 Controller Model Selected	The RS232 control unit model selected is incorrect. Please verify and reenter manufacturer and model number.
Prescription Error	control unit is not setup to accept prescriptions.
Prescription Error	Control unit is set up to accept prescriptions. No control unit prescription has been selected.

Continued on next page

OJ06050,000116C -19-05JUN09-1/2

Prescription Error	Prescription rate is out of control unit range.
Control unit Unit of Measure Error	Control unit only operates when using metric units.
Control unit Unit of Measure Error	Control unit only operates when using English (US) units.
Control unit Unit of Measure Error	Control unit only operates when using metric or English (US) units.
Control unit Operation Error	Invalid operation selected for control unit.
Prescription Warning	Out of field prescription rate is now being applied.
Prescription Warning	Loss of GPS signal has occurred. Loss of GPS prescription rate is now being applied.
Prescription Warning	Control unit does not support selected prescription.

INFO

OUO6050,000116C -19-05JUN09-2/2

Trouble Code Pop-Up Boxes—Guidance Software

FAULT CONDITION	FAULT DESCRIPTION	ALARM TEXT
	Issued once (at power up) the first time an SSU is detected, when an AutoTrac key is activated. (Any guidance mode with AutoTrac key and AT capable SSU.)	The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
	Loss of SSU Communication for more than 1 second	No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.
	Within 5 seconds away of a gap in Curved Track data	Gap in Guidance Path
	Within 5 seconds away from a curve of more than 30° between consecutive segments	Approaching Sharp Curve
	The operator leaves the seat for more than 7 seconds while in a tracking mode that supports Turn Predictor and TP is off (valid SSU, AT license, and seat switch)	Turn predictor is turned ON. Uncheck the box to turn it OFF.
	SF1 AT Key with SF2 corrections turned on.	AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
	SF1 AT Key with old SF1 StarFire software.	AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
	The operator attempts to switch to a tracking mode for which there is no valid license available.	No License available for the selected tracking mode. Defaulting to previous tracking mode.
	The operator attempts to perform an operation that requires a GPS signal (presses SetA, SetB, Curve Track recording, or Circle Track recording buttons).	No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
	The GPS signal is lost during definition of a circle using the driving method.	Communication with GPS receiver was lost during circle definition. Redefine the circle once GPS communication has been re-established.
	The operator inputs an A or B point that is too close to the other while defining an AB Line (can occur using A+B and Lat and Long methods).	A and B points of the AB Line are too close. Must have 10 m (30 ft.) between point A and B. Perform operation again.
	The operator defines a circle with the center point at a distance greater than 1.6 km (1 mi.) from the vehicle location. This warning can also occur if the operator selects a circle with a center point that is far away.	The distance from the vehicle to the center point is greater than 1.6 km (1 mi.). Select another center point or drive another circle.
	A timeout (operator has not reached the minimum AutoB distance within 45 sec.) occurs during AB Line definition using the AutoB method.	A timeout occurred during AB Line definition. Redefine the AB Line.
	The operator attempts to change the tracking mode while recording in Curve Track.	Curve Track recording in progress. Cannot perform operation until Curve Track recording is turned off.
	Press clear all shifts button	Clearing all shifts restores original guidance track locations for the current field. Are you sure you want to proceed?
	Incompatible AutoTrac SSU Software. AutoTrac Deactivated (SSU exit code)	AutoTrac has detected a compatible SSU (Vehicle Controller) version. Contact your John Deere Dealer to obtain the latest software updates for your SSU in order to operate AutoTrac.

OUO6050,000116D -19-08JUN09-1/1

Trouble Code Pop-Up Boxes—ATU

CAUTION: Unknown Direction of Travel

The system was not able to detect the vehicle direction of travel. Please select your direction of travel.

If ATU cannot detect the direction once the operator changes Steer - On and Off button to ON, a pop-up message asks the operator to choose the direction of travel.



Unknown Direction Of Travel Message

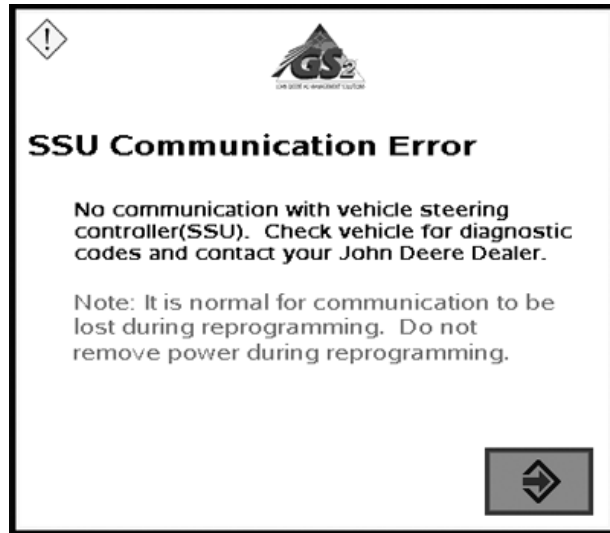
PC108570D—UN—04JUN09

OUC6050,000116E -19-05JUN09-1/2

CAUTION: SSU Communication Error

No communication with vehicle steering control unit (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.

NOTE: It is normal for lost communication during reprogramming. Do not remove power during reprogramming.



SSU Communication Error

PC10857HO—UN—10DEC08

OUC6050,000116E -19-05JUN09-2/2

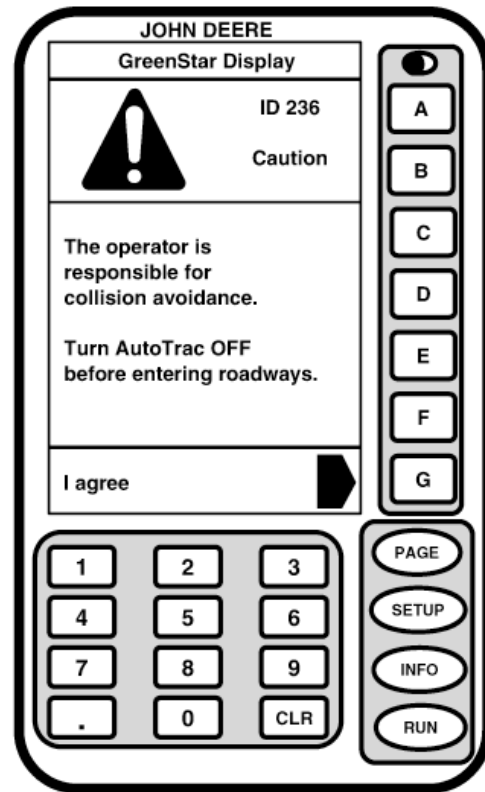
Original GreenStar Display

Start-up Screen

Each time a machine equipped with AutoTrac is started, this screen appears as a reminder of operator responsibilities when using AutoTrac steering system. To clear this screen press letter button next to I AGREE .

IMPORTANT: When starting machine with AutoTrac installed and this start-up screen is not displayed, update AutoTrac software through www.StellarSupport.com.

A—ID 238	E—Turn AutoTrac OFF Before
B—Caution	Entering Roadways.
C—	F—
D—The operator is responsible	G—I Agree
for collision avoidance.	



PC9632—JN—24 OCT06

OUO6050,000113B -19-05JUN09-1/1

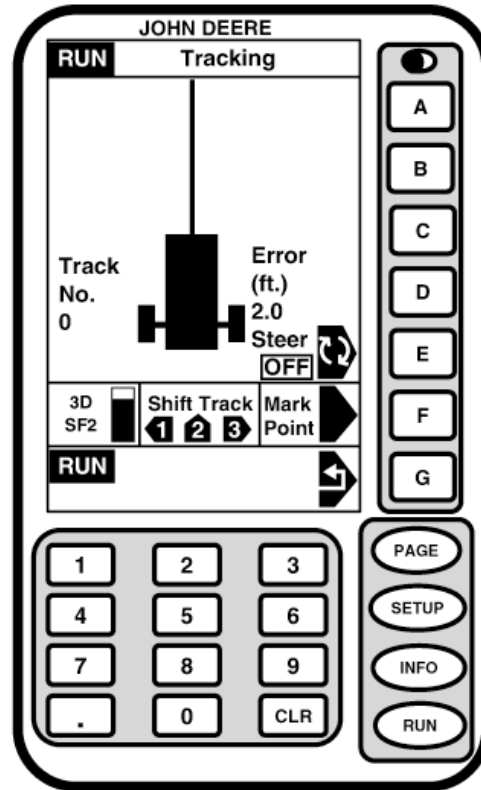
Enabling AutoTrac Universal

The system is enabled when ON is shown next to STEER. The system is disabled when OFF is shown next to STEER. Press letter Button next to STEER to toggle between enable and disable AutoTrac.

To enable system all of the following must be met:

- AutoTrac KeyCard in Mobile Processor for Original GreenStar System
- Tracking is on and has been set up
- Operator presence mode selected
- TCM installed, calibrated, and turned on
- AutoTrac Universal Steering Kit harnesses are connected and powered up

- | | |
|----|---------------------------------|
| A— | E—Steer |
| B— | F—3D, SF2 Signal / Shift Track, |
| C— | Mark Point |
| D— | G—Return |



PC9633—UN—24OCT06

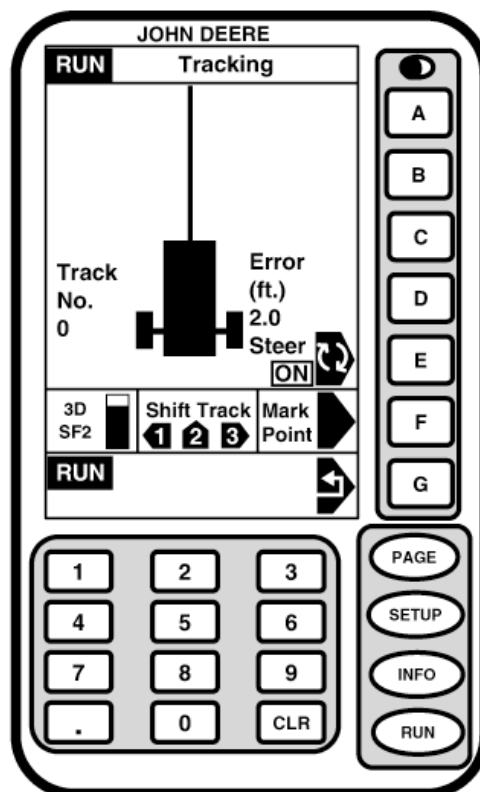
OUO6050,000113C -19-05JUN09-1/1

Activating System

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.



Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.



PC8700—UN—11AUG05

PC9626—UN—24OCT06

A—Resume Switch
B—

C—
D—

E—Steer
F—3D, SF2 Signal / Shift Track,
Mark Point

G—Return

After system has been ENABLED, operator must manually change system to ACTIVE status when steering assistance is desired.

Press resume switch (A) initiating assisted steering.

In order to activate system following criteria must be met:

- Vehicle speed is greater than 0.5 km/h (0.3 mph).
- Forward vehicle speed is less than
 - Tractor - 30 km/h (18.6 mph)

- Sprayer - 37 km/h (23 mph)
- Combine - 22 km/h (13.6 mph)
- Reverse vehicle speed is less than 10 km/h (6.0 mph).
- Vehicle within 80° of desired track.
- Operator is seated.
- In reverse AutoTrac remains active for 45 seconds. After 45 seconds, the machine must be put in a forward gear before reverse activates again.
- Machine within 40% of track spacing.
- AutoTrac knows direction of travel.

OU06050,000113D -19-08JUN09-1/1

Deactivating System

⚠ CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

AutoTrac system can be made DEACTIVE by following methods:

- Turning steering wheel.
- Slowing to speeds less than 0.5 km/h (0.3 mph) for more than 15 seconds.

- Exceeding forward speed of
Tractor - 30 km/h (18.6 mph)
Sprayer - 37 km/h (23 mph)
Combine - 20 km/h (12.4 mph)
- Exceeding reverse speed of 10 km/h (6.0 mph).
- Pressing letter button next to STEER on RUN screen.
- Operator out of seat for more than 7 seconds if using seat switch or no activity detected by operator presence monitor for 7 minutes.
- Operate in reverse for more than 45 seconds.

OUC6050,000113E -19-05JUN09-1/1

UNKNOWN DIRECTION OF TRAVEL MESSAGE

When the operator changes Steer-On and Off button to ON on an ATU 200 or original ATU (1.07R or newer software), a new unknown direction of travel message appears if the ATU cannot detect direction .



On GSD4 or GSD4 emulation

PC10857HK—UN—08DEC08

OUC6050,000113F -19-08JUN09-1/1

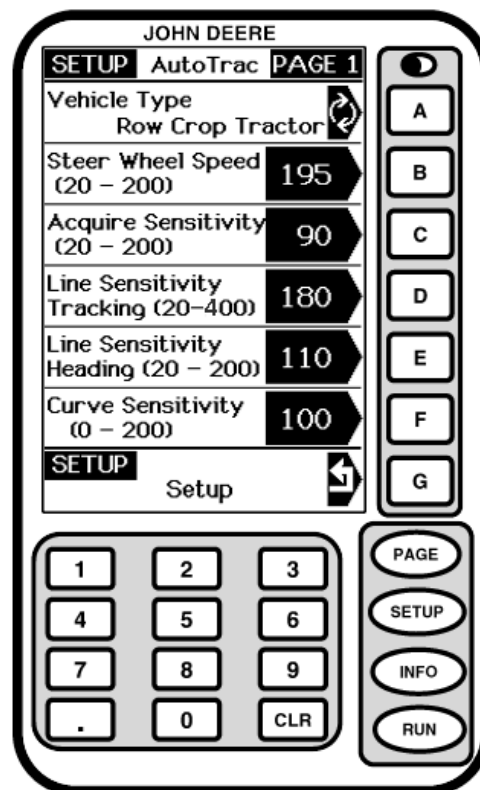
Setup

SETUP - AUTOTRAC - PAGE 1

CAUTION: AutoTrac Universal does not steer properly in reverse for Articulated Tractors and Windrowers. Do not activate AutoTrac in reverse for Articulated Tractors and Windrowers.

NOTE: Set StarFire height and fore and aft before adjusting other settings.

- | | |
|-----------------------------|----------------------------|
| A—Vehicle Type | E—Line Sensitivity Heading |
| B—Steer Wheel Speed | F—Curve Sensitivity |
| C—Acquire Sensitivity | G—Return |
| D—Line Sensitivity Tracking | |



PC9619—UN—24OCT06

OUO6050,0001171 -19-08JUN09-1/1

Vehicle Type

Vehicle settings can be saved for each vehicle type listed. These settings can be saved and recalled when the ATU kit is installed on different machines. To start, each vehicle type defaults to the recommended starting adjustment settings. The settings are saved under the selected vehicle type.

- Row Crop Tractor 1
- Row Crop Tractor 2
- Articulated Tractor 1
- Articulated Tractor 2
- Windrower 1

- Windrower 2
- Combine 1
- Combine 2
- Sprayer 1
- Sprayer 2
- Track Tractor 1
- Track Tractor 2
- Harvester 1
- Harvester 2

If customer is using AutoTrac at high vehicle speeds, then they can choose sprayer as the vehicle type

OUO6050,0001172 -19-05JUN09-1/1

Steer Wheel Speed

(This setting does not apply to ATU 200) Determines the maximum speed the steering wheel turns to make corrections. Higher gains turn the steering wheel faster. Lower gains are required for vehicles with slower hydraulic systems. The maximum steering wheel speed increases with steer wheel speed settings from 20 to 190. From 190 to 200 the maximum steering wheel

speed stays the same, but the rate at which the steering wheel accelerates increases. The steer wheel speed is adjusted in increments of 10 from 20 through 190 and in increments of 2 from 190 through 200. Setting the steer wheel speed too high can cause ATU unit to deactivate. **Adjust the steer wheel speed as high as possible without causing deactivation of the steering wheel.**

OUO6050,0001173 -19-08JUN09-1/1

Acquire Sensitivity

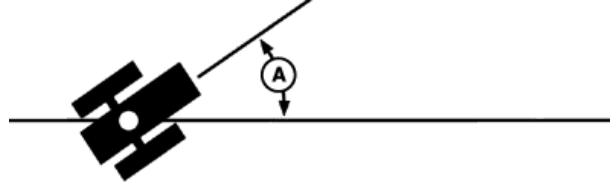
Determines how aggressively the vehicle acquires the track. Higher gains result in more aggressive steering

while acquiring the track. Lower gains give smoother entry into the next track. Setting sensitivity too high can cause vehicle instability; setting too low delays acquisition. This setting affects performance while acquiring the track only

OUC6050,0001174 -19-05JUN09-1/1

Line Sensitivity – Heading

Line Sensitivity – Heading determines how aggressively ATU responds to heading errors while the vehicle is on the track. Heading error is the difference between the actual direction of the vehicle and the track direction. Setting this number higher causes the ATU to respond more aggressively to match the actual vehicle direction and track direction. Higher numbers result in more aggressive wheel motion. Lower numbers can result in reduced accuracy. This setting affects performance while on track only.



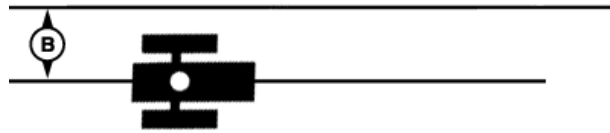
PC8994 —UN—07MAR06

A—Heading Error

OUC6050,0001176 -19-05JUN09-1/1

Line Sensitivity – Tracking

Line Sensitivity – Tracking determines how aggressively ATU responds to tracking errors while the vehicle is on the track. Tracking error is the distance between the location of the vehicle and the desired track. Setting this number higher causes the ATU to respond more aggressively to match the vehicle location to the desired track. Higher numbers result in more aggressive wheel motion. Lower gains can result in reduced accuracy. This setting affects performance while on track only.



PC8993 —UN—08MAR06

B—Tracking Error

OUC6050,0001175 -19-05JUN09-1/1

Curve Sensitivity

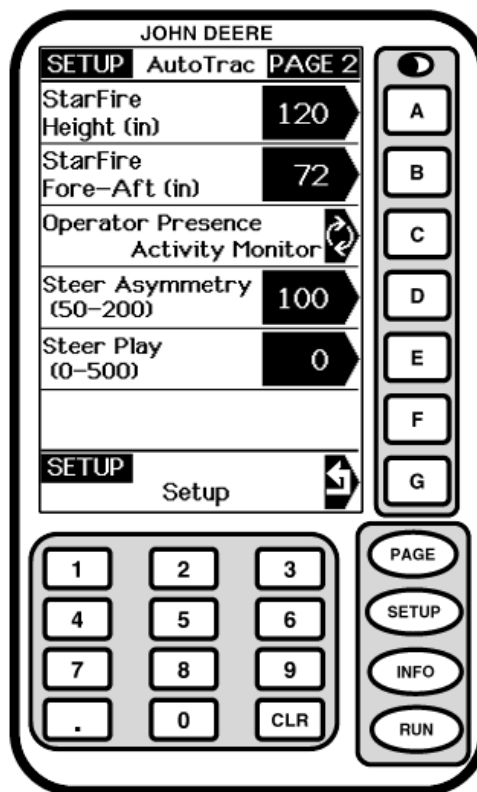
Curve Sensitivity determines how aggressively ATU responds to a curve in the track. If the tractor is turning

inside of the curve, set this number lower. If the tractor is turning outside of the curve, set this number higher. This setting affects performance in curve track only.

OUC6050,0001177 -19-05JUN09-1/1

Setup, Page 2

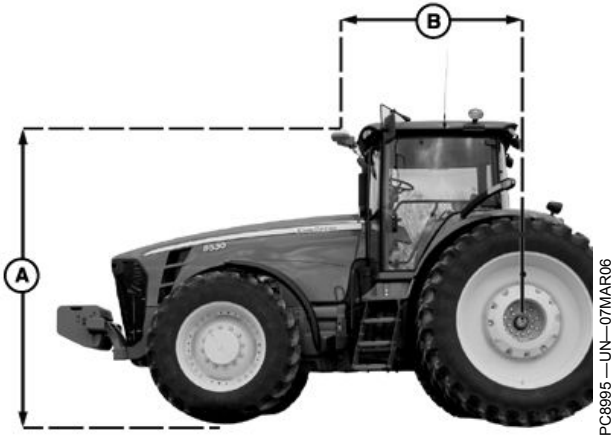
- A—StarFire Height
- B—StarFire Fore-Aft
- C—Operator Presence Activity Monitor
- D—Steer Asymmetry (50—200)
- E—Steer Play (0—500)
- F—
- G—Setup (Return)



PC9383—UN—10OCT06

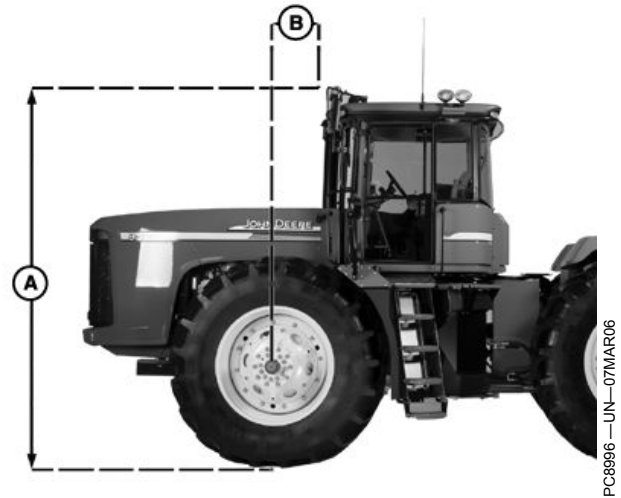
OUC6050,0001179 -19-04JUN09-1/1

StarFire Height and Fore-Aft



Fixed-Axle Machines
(Row Crop, Sprayers)

PC8995—UN—07MAR06



Articulated Machines

PC8996—UN—07MAR06

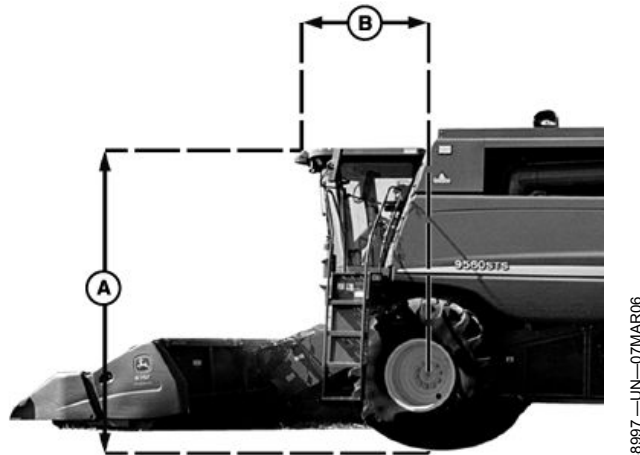
SETUP - AUTOTRAC - PAGE 2

StarFire Height (in.) Enter the height of the StarFire receiver. Height is measured from the ground to the top of the dome.

StarFire Fore-Aft (in.) Enter the Fore-Aft measurement. This is the distance from the fixed axle of the vehicle to the receiver. The fixed axle is the rear axle on a row-crop tractor and sprayer or the front axle on an articulated tractor, windrower, combine, forage harvester, and cotton harvester. For track machines, this measurement is 0. The receiver must be at or in front of the fixed axle for all machines except articulated tractors where the receiver is behind the front axle.

A—Height

B—Fore-Aft



Combines, Self-Propelled Forage Harvester, Windrower, Cotton Picker

PC8997—UN—07MAR06

OOU6050,0001178 -19-08JUN09-1/1

Operator Presence

Operator Presence selects a seat switch or operator activity monitor to detect operator presence.

OOU6050,000117A -19-08JUN09-1/1

Steer Asymmetry

Steer Asymmetry in certain vehicles, the hydraulic steering system is configured in a manner in which the vehicle does not steer the same in each direction. The end result of this situation is that the vehicle consistently steers to one side of the A—B line. Steering Asymmetry is a value that can be

changed to compensate for these differences in steering. Please refer to the platform-specific document for your vehicle for the appropriate Steering Asymmetry value. This document can be found at www.StellarSupport.com If your vehicle is not an asymmetric vehicle a value of 100 is used for Steering Asymmetry.

OOU6050,000117B -19-05JUN09-1/1

Steering Asymmetry Value Calculation

PC10857HR —UN—08DEC08

Determine if steering asymmetry exists by:

1. Turn steering wheel to full left position
2. Count steering wheel revolutions to turn full right
3. Count steering wheel revolutions to turn full left
4. If the number of revolutions right is not equal to the number of revolutions left, steering asymmetry is used.

SA = Steer Asymmetry

$$d_c^2$$

Hydraulic steering cylinder inside diameter

PC10857HS —UN—08DEC08

$$d_r^2$$

Hydraulic steering cylinder rod diameter

PC10857HP —UN—08DEC08

$$SA = \frac{d_c^2}{(d_c^2 - d_r^2)} \times 100$$

If right is greater than left, use this formula

PC10857HQ —UN—08DEC08

$$SA = \frac{(d_c^2 - d_r^2)}{d_c^2} \times 100$$

If left is greater than right, use this formula

OUO6050,000117C -19-08JUN09-1/1

Steer Play

Some vehicles can have excess play in their steering system which allows the steering wheel to be turned without change in the vehicle direction. This setting controls the distance that the steering wheel turns to take up this excess play. When the ATU is placed on a machine

that has excess play this setting is used. This number is set higher on vehicles which require greater steering wheel movement before the steering system responds. This setting is only used on vehicles with excess play in their steering system. This number is set to 0 on most vehicles except windrowers.

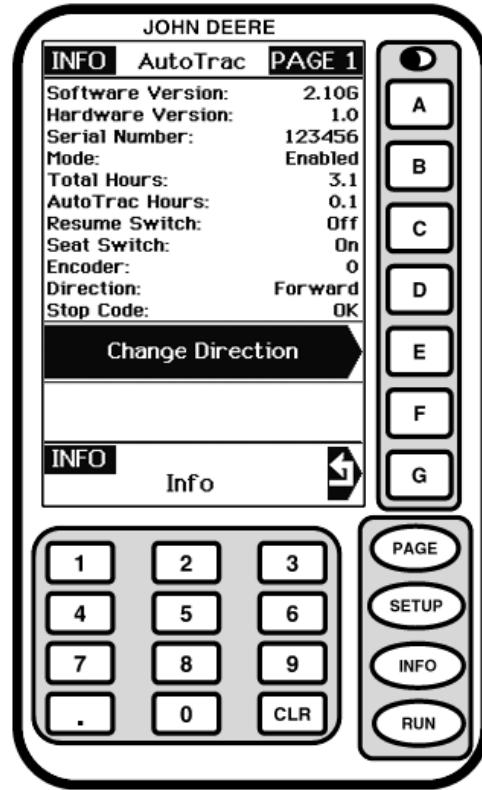
OUO6050,0001170 -19-05JUN09-1/1

ATU DIRECTION SWITCH BUTTON

For ATU 200 (2.01G or newer software) and ATU (1.10G or newer software), an operator has the ability to change the direction of travel on the ATU.

NOTE: This option is not available for Articulated and Windrowers. This option is also not available if the ATU direction is unknown or if AutoTrac is active and tracking.

NOTE: On the GSD4, Test Motor Left and Test Motor Right buttons have been moved from AutoTrac—Info—Page 1 to AutoTrac—Info—Page 2.



GSD4 (Under Info - AutoTrac - Page 1)

PC110857HM—UN—08DEC08

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Motor Test and AutoTrac Information

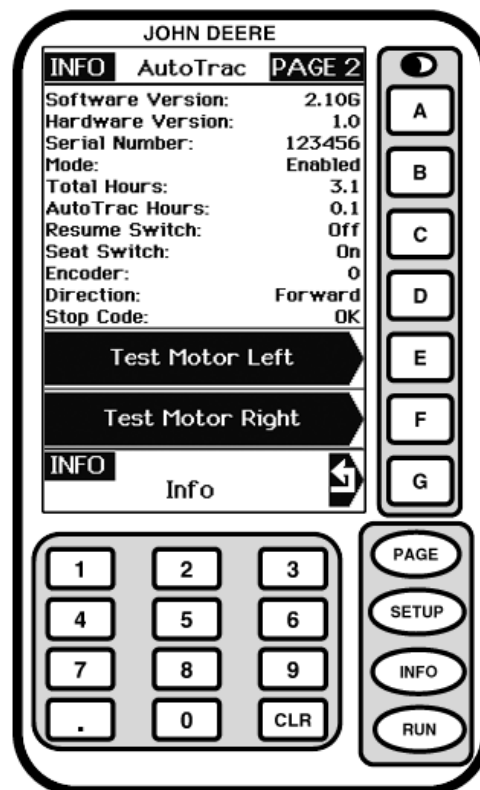
- **Software Version** – Version of AutoTrac Universal software
- **Hardware Version** - Hardware Version Number
- **Serial Number** Serial number of the AutoTrac Universal
- **Mode** Status of AutoTrac: Disabled, Enabled, or Active
- **Total Hours** Hours the system has been powered up
- **AutoTrac Hours** Number of hours AutoTrac has been activated
- **Resume Switch** Shows Resume Switch state. It changes from OFF to ON when resume switch is pressed.
- **Seat Switch** Shows OFF and ON.
- **Encoder** Represents the location of the steering wheel.

IMPORTANT: Encoder is within +/- 500 when front wheels are straight ahead for proper performance. If wheels are straight and encoder is outside this range, drive straight until encoder is within these settings.

- **Direction** Indicates vehicle direction determined by AutoTrac Universal.

IMPORTANT: Operator must drive at least 1.6 km/h (1 mph) and turn steering wheel 45° in one direction with at least SF1 signal. Direction is determined within 3 seconds.

- **Stop code** Indicates why the system is not working or why AutoTrac deactivated. (See AUTOTRAC UNIVERSAL STOP CODES in Troubleshooting section.)
- **Test Motor Left** By pressing the “E” button the AutoTrac Universal motor turns the steering wheel to the left. Used to test the motor to make sure it is working.
- **Test Motor Right** By pressing the “F” button the AutoTrac Universal motor turns the steering wheel to the right. Used to test the motor to make sure it is working.



INFO AUTOTRAC PAGE 2

- | | |
|---|----------------------|
| A—Software Version, Hardware Version, Serial Number | E—Test Monitor Left |
| B—Mode, Total Hours, AutoTrac Hours | F—Test Monitor Right |
| C—Resume Switch, Seat Switch, Encoder | G—Return |
| D—Direction, Stop Code | |

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PC10857HN —UN—08DEC08

EC Declaration of Conformity

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

The person named below declares that

Product: AutoTrac™ Universal

fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Electromagnetic Compatibility Directive	2004/108/EC	Annex II of the Directive

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

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

Place of declaration: Kaiserslautern, Germany

Date of declaration: 15 September, 2009

Manufacturing unit: John Deere Intelligent Solutions Group

Name: John H. Leinart

Title: Engineering Manager, Ag Management Solutions



DXCE01 —UN—28APR09

BA31779,0000246 -19-28JUL11-1/1

Troubleshooting—Original GreenStar Display

Warning Screens

Warning screens and alarms provide operator alerts to monitor system operational problems. Each screen displays a Diagnostic Trouble Code (DTC) on upper right corner (D), keyword strings (E) and text strings (F). (See DIAGNOSTIC TROUBLE CODE LISTS to get specific operational problem and recommended corrective action.)

Each diagnostic trouble code has a priority. Priority of diagnostic trouble code is by relevant icon (A), (B) or (C) displayed:

- Icon (A) belongs to FULL PAGE CAUTION screens. Cautions are displayed at bottom of RUN screens or as a FULL screen if display is NOT on a RUN screen. Audible alarm sounds at highest level.

NOTE: When caution screen appears, corrective action must be taken before continuing operation.

- Icon (B) belongs to FULL PAGE WARNING screens. A full page warning overrides any other display function in progress.

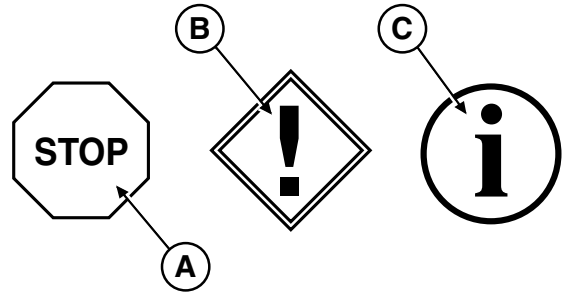
NOTE: The RUN, SETUP, and INFO buttons are NOT active during this display.

If a CAUTION or ADVISORY alarm is in progress when a FULL PAGE WARNING occurs, that alarm is interrupted and FULL PAGE WARNING alarm sounds.

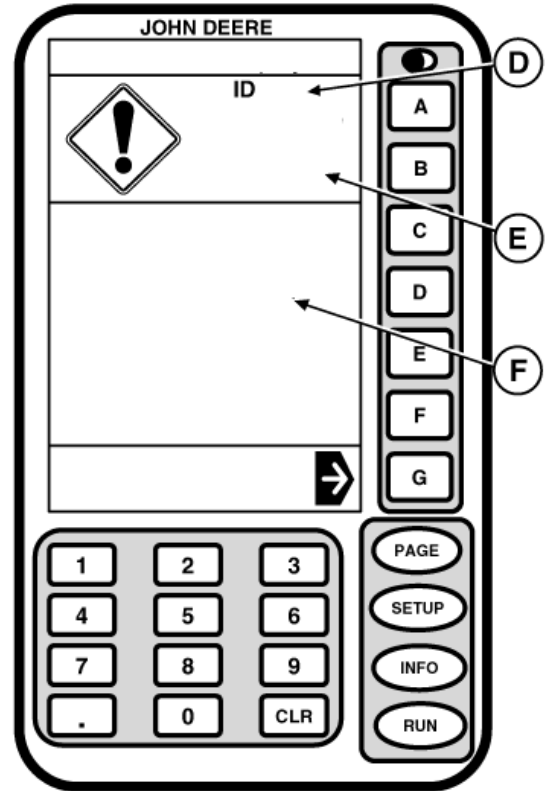
NOTE: When warning screen appears, corrective action is taken before continuing operation.

- Icon (C) belongs to FULL PAGE INFO screens.

A—Full page caution icon	D—Diagnostic Trouble Code (DTC)
B—Full page warning icon	E—Keyword strings
C—Full page INFO icon	F—Text strings



ZX026095



ZX026095 —UN—19JUN01

PC8757 —UN—08SEP05

OUC06050,0001143 -19-08JUN09-1/1

Diagnostic Trouble Code List

Trouble Code	Key Word Strings	Text Strings	Description or Reason	Comments
100	PC Card Error	PC Data Card Error. An error has been detected. Error code is 02-02-00. Please check PC Card.	PC Data Card or KeyCard has a problem	Cycle power. If trouble code 100 appears again then contact your dealer
155	PC Card Warning	KeyCard has been removed. Please reinsert KeyCard.	KeyCard is not accessed by Mobile Processor	Check KeyCard insertion
200	CAN Bus Problem	The following Device(s) are no longer communicating with display. Check indicated device(s) and CAN Bus wiring.	Communication problem between display and one or several other devices.	Contact your dealer
201	CAN Bus Problem	Two Devices are requesting same RUN screen section. Perform RUN PAGE LAYOUT to correct conflict.	Display conflict.	Perform RUN PAGE LAYOUT
210	CAN Bus Problem	Too many devices are attempting to communicate with display. Remove 1 or more devices.	Attempted to logon more than 8 devices to CAN Bus.	Disconnect unnecessary device
211	CAN Bus Problem	CAN Bus communications overload. Reset display or turn power off and then back on.	Display keys pushed too rapidly.	Cycle power
213	Internal error	A failure has been detected in the internal memory of the display.	Internal problem with display.	Cycle power. If trouble code 213 appears again then replace display.
230	Display Address Change	You are about to change address of display. Selection of wrong address causes loss of communication with implements.	Device address change.	Make sure to set Display to PRIMARY display address
232	CAN Bus Problem	No Primary GreenStar Display detected. All systems require a primary display.	Wrong Display address used (that is, AUX1).	Set Display to PRIMARY display address
233	Language Selection Problem	The following device(s) do not support selected language. They continue to use previously selected language.	The system shows which component(s) do not have language loaded that is selected.	Load all necessary languages to each component of system, then select desired system language
259	KeyCard Warning	Product reprogramming Error. A PRP file specified in a BIN file is missing on card.	Program error while programming from Parallel Tracking system to Yield Mapping System using SETUP/KeyCard/YIELD MAPPING sequence.	Use INFO/KeyCard/PROG. TARGET sequence to reprogrammed system to Yield Mapping
301	Warning	StarFire Network Problem. Please stand by.	Receiver is not receiving correction messages from StarFire network.	Contact your dealer
302	Warning	Receiver Not Receiving on Alternate Frequency.	The receiver is not locked onto a differential signal	Switch to default frequency
303	Warning	GPS Corrections License has Expired.	Renew License	Renew license or use grace periods, if available
304	Warning	Corrected GPS Position is not Available.	Differential correction has been lost	Wait until differential correction has been recovered
305	Warning	GPS Position is not Available.	Signal is lost	Wait until signal has been recovered
306	Warning	Update StarFire GPS Software. Please stand by.	New StarFire software loading process	Wait until programming has completed

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Display Diagnostic Trouble Code List

Trouble Code	Problem	Description or Reason	Comments
20	Implement disconnected.	A previously logged on implement has been disconnected from CAN Bus.	Check all component connectors for proper engagement.
21	Display conflict.	An implement has attempted to write to a RUN page display section it has not previously been allocated.	Make a RUN Page Layout
30	Too many devices on CAN Bus.	Attempted to logon more than 8 implements to CAN Bus.	Disconnect unnecessary implements.
31	Display overload.	Display keys pushed too rapidly.	Cycle power.
33	Memory failure.	Internal problem with display.	Cycle power. If trouble code 33 appears again then replace display.
40	No GPS Communication	Loss of communication with position receiver.	Check connection with position receiver. Contact your dealer.
41	No GPS Differential	Loss of differential signal.	Contact you dealer.
44	No KeyCard Installed	No KeyCard installed in mobile processor	Insert a KeyCard in mobile processor.
45	1 Hz GPS Operation	1 Hz GPS Operation	
46	No GPS Signal	Position receiver is not receiving a GPS signal.	Signal has been lost or position receiver is not functioning. Make sure that position receiver is not blocked.
47	Display is not functioning	Device address has been changed.	See you dealer.
48		Device Address changed	Set device address to auto.
49		No primary display address on CAN Bus.	Set display address to primary.
50	No SSU Communication	Loss of CCD Communication to steering control unit	See you dealer.
51		Operator alertness check.	
52		More than one display with a primary address on bus.	Set parallel tracking display to auxiliary.
53		An AUX address detected CCD active. CCD is only active on the primary display.	See your dealer.
54		Auto-detect layer disagrees with operator selected CAN layer.	Set display CAN Bus layer to auto.
60	FLASH Erase failed.	Erasing of Curve track memory failed	See your dealer.
61	FLASH write failed	A write to Curve track memory failed	See your dealer.
110	CAN Bus problem.	Communication problem with CAN Bus.	Check CAN Bus wiring harness and terminators. Contact your dealer.
111	CCD bus problem.	CCD bus hardware or wiring errors.	Check CCD wiring between digital tach and display. Contact your dealer
112	Display conflict RUN Page Layout.	Two or more devices are requesting same screen allocation.	Make a RUN Page Layout
115	CAN Bus address conflict	Two or more devices are requesting same CAN address.	See your dealer.
126	AutoTrac disabled.	Using a version of mobile processor application code that is not using secure CAN.	See your dealer.

OUO6050,0001145 -19-05JUN09-1/1

Original GreenStar Display

Symptom	Problem	Solution
Display is blank.	No power.	Check harness connections at display.
	Out of contrast or insufficient backlighting.	Adjust contrast.
		Change backlighting level.
Display audible alarm does not sound.	Possible failed alarm.	See your John Deere dealer.
Display is locked up on a certain page.	Communication problem.	Turn key switch OFF and ON.
Dual display is not operating properly.	Incorrect display address.	Make sure Parallel Tracking display is set to auxiliary 1 and main display is set to primary.
		If using a single display make sure that address is set to primary.
Parallel Tracking system is slow or sluggish.	Incorrect update rate.	Make sure receiver is set to 5 Hz.
Display does not work properly.	Incorrect display software.	See your John Deere dealer for display upgrade kit PF90091.

OUO6050,0001146 -19-08JUN09-1/1

Mobile Processor

Symptom	Problem	Solution
KeyCard does not fit in slot.	KeyCard is backward.	Align arrow on KeyCard with arrow on mobile processor.
System locks up during reprogramming.	Incorrect message from display.	Turn key switch off. Disconnect wiring harness from mobile processor. Turn on key switch and reconnect mobile processor wiring harness.
		Reprogramming continues.

OUO6050,0001147 -19-05JUN09-1/1

Position Receiver

Symptom	Problem	Solution
No differential correction.	Differential license has expired.	Contact GreenStar software support. To acquire latest version of software, visit www.StellarSupport.com or contact your John Deere dealer.
	Interference with two-way radio.	Relocate two-way radio antenna at least 2 m (6.5 ft.) from position receiver.

OUO6050.0001148 -19-03JUN09-1/1

Fault Codes

IMPORTANT: To determine if fault code conditions are still active, manually clear all fault codes and see if any fault codes appear.

Stored fault codes indicate that a problem has been detected. Stored fault codes remain in memory until they are cleared by the operator. It is possible that fault condition is no longer active.

Fault Code	Description	Problem	Solution
523319.18	Low switched voltage	TCM detected low voltage on key switched power supply.	Check switched battery voltage, check grounds, check harness. Contact dealer if problem persists.
523792.18	Low unswitched voltage	TCM has detected low voltage on unswitched battery power supply.	Check unswitched battery voltage, check grounds, check harness. Contact dealer if problem persists.
523792.1	No unswitched voltage	TCM has detected no voltage on unswitched battery power supply. TCM is unable to save setup changes when key is turned off.	Check unswitched battery voltage, check grounds, check fuses. Contact your John Deere dealer.
2028.12	No StarFire communication	The TCM has lost communication with receiver	Check TCM harness to ensure proper connection between receiver and TCM. Check CAN voltages. Contact your John Deere dealer.
523773.3	StarFire CAN voltage out of range	StarFire CAN High signal voltage is out of range high.	Check TCM harness to ensure proper connection between receiver and TCM. Check CAN StarFire voltages. Contact your John Deere dealer.
523773.4	StarFire CAN voltage out of range	StarFire CAN High signal voltage is out of range low.	Check TCM harness to ensure proper connection between Receiver and TCM. Check CAN voltages. Contact your John Deere dealer.
523774.3	StarFire CAN voltage out of range	StarFire CAN Low signal voltage is out of range high.	Check TCM harness to ensure proper connection between receiver and TCM. Check CAN voltages. Contact dealer.
523774.4	StarFire CAN voltage out of range	StarFire CAN Low signal voltage is out of range low.	Check TCM harness to ensure proper connection between receiver and TCM. Check CAN voltage. Contact your John Deere dealer.
956.16	Roll Sensor out of range	Internal Roll Sensor is out of normal operating range. TCM cannot correct position for roll angles.	Contact your John Deere dealer.
2146.14	Temp Sensor out of range	Internal Temperature Sensor is out of normal operating range.	Contact your John Deere dealer.
523309.7	Yaw Sensor not responding	Internal Yaw Sensor is not responding. TCM cannot compensate for terrain changes.	Contact your John Deere dealer.
523309.16	Yaw Sensor out of range	Internal Yaw Sensor is out of normal operating range. TCM cannot compensate for terrain changes.	Contact your John Deere dealer.
523310.2	Memory Error	An internal memory error has occurred.	Contact your John Deere dealer.
523442.31	No Fore and Aft setting	Fore and Aft setting has not been entered for this vehicle. Go to SETUP - TCM screen.	See FORE and AFT in TCM or StarFire iTC section.
523441.31	No StarFire Height setting	The StarFire Height setting has not been entered for this vehicle. Go to SETUP - TCM screen.	See HEIGHT in TCM or StarFire iTC section.
2146.13	TCM not calibrated	TCM has not been calibrated for this vehicle. Please go to SETUP - TCM screen to calibrate.	See CALIBRATE in TCM or StarFire iTC section.
523572.31	Unsafe Shutdown-parameters not stored	TCM was unable to save setup changes when key was turned off. Must have unswitched battery voltage after key off to save changes.	With the key off, check unswitched battery voltage at TCM. Check harness. Contact John Deere dealer.

OUC6050,0001149 -19-08JUN09-1/1

Warning Screens

Warning Screens

Warning screens and alarms alert operator to monitor system operational problems.

NOTE: When a warning screen appears, corrective action is taken before continuing operation.

Warning and alarms do NOT prevent machine from starting, operating, or recording data.

Each warning screen displays a specific operational problem and recommended corrective action.

Full Page Warning Screens

NOTE: The RUN, SETUP, and INFO keys do not become active during this display.

Symptom	Problem	Solution
KeyCard error warning screen.	Mobile processor does not recognize KeyCard in slot.	Verify that KeyCard is securely in slot and black eject button is popped up).
Communication problem warning screen.	Data network communication problem.	Cycle power, if problem persists see your John Deere dealer.
Program not found warning screen.	Programs are not found on KeyCard.	Verify that programs are in correct directory on KeyCard.
No communication screen.	Position receiver communication problem.	Check all connections indicated on screen. Cycle power, if problem persists see your John Deere dealer.
Battery voltage low.	Battery voltage too low at mobile processor.	Check battery voltage. Check machine fuses. Replace as needed. If problem persists, see your John Deere dealer.
Battery voltage low at mobile processor.	Battery voltage too low.	Check battery voltage. Check machine fuses. Replace as needed. Check system ground. If problem persists, see your John Deere dealer.

Full page warning override any other display function in progress.

Audible alarm sound at highest level. If a CAUTION or ADVISORY alarm is in progress when a full page warning occurs, that alarm is interrupted and full page warning alarm sounds.

Full Page Caution Screens

Cautions are displayed at bottom of RUN screens or as a full screen if not a RUN screen.

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John Deere Service Literature Available

Technical Information

Technical information can be purchased from John Deere. Some of this information is available in electronic media, such as CD-ROM disks, and in printed form. There are many ways to order. Contact your John Deere dealer. Call **1-800-522-7448** to order using a credit card. Search online from <http://www.JohnDeere.com>. Please have available the model number, serial number, and name of the product.

Available information includes:

- **PARTS CATALOGS** list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.
- **OPERATOR'S MANUALS** providing safety, operating, maintenance, and service information. These manuals and safety signs on your machine may also be available in other languages.
- **OPERATOR'S VIDEO TAPES** showing highlights of safety, operating, maintenance, and service information. These tapes may be available in multiple languages and formats.
- **TECHNICAL MANUALS** outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in separate component technical manuals
- **FUNDAMENTAL MANUALS** detailing basic information regardless of manufacturer:
 - Agricultural Primer series covers technology in farming and ranching, featuring subjects like computers, the Internet, and precision farming.
 - Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
 - Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
 - Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.



TS189 —UN—17JAN89



TS191 —UN—02DEC88



TS224 —UN—17JAN89



TS1663 —UN—10OCT97

DX.SERV.LIT -19-31.JUL03-1/1

John Deere Service Keeps You On Job

John Deere Is At Your Service

CUSTOMER SATISFACTION is important to John Deere.

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

- Maintenance and service parts to support your equipment.
- Trained service technicians and the necessary diagnostic and repair tools to service your equipment.

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

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

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

- Machine model and product identification number
- Date of purchase
- Nature of problem



2. Discuss problem with dealer service manager.

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

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

TS201 — UN—23AUG88

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

