AutoTrac™ Universal Quick Reference Guide – Setup

Step 1 Verify Equipment Offsets
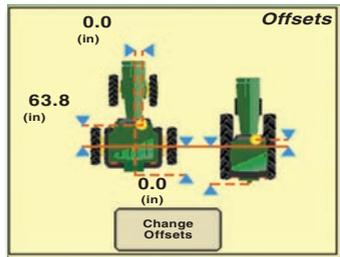
Select Question Mark button for more information on each Advanced AutoTrac™ Setting.

Select ATU Settings

Select Machine Type
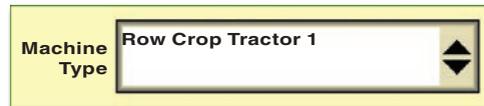
AutoTrac™ Universal (ATU) Settings – (page 1)

Select Machine Type
Line Sensitivity – Tracking
Determines how aggressively ATU responds to off-track (lateral) error.
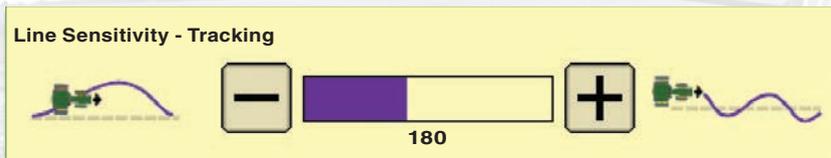
Line Sensitivity – Heading
Determines how aggressively ATU responds to heading error.
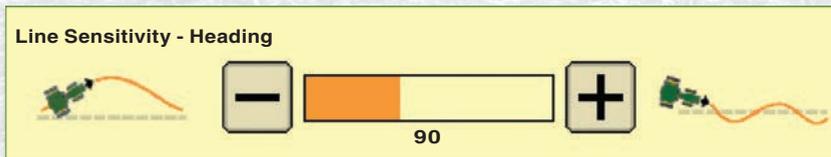
Steering Wheel Speed
Determines the maximum speed steering wheel turns to make corrections. This setting is only available for ATU 100.

Steer Play
Controls the distance that the steering wheel turns to take up excess play in machine's steering system.

Acquire Sensitivity – (page 2)
Determines how aggressively machine acquires the track.

Curve Sensitivity
Determines how aggressively AutoTrac™ responds to a curve in the track.

StarFire™ Height (cm (in.)) – (page 3)
Enter StarFire™ Receiver height. Height is measured from the ground to center of dome.

StarFire™ Fore-Aft (cm (in.))
Distance from receiver to pivot point.
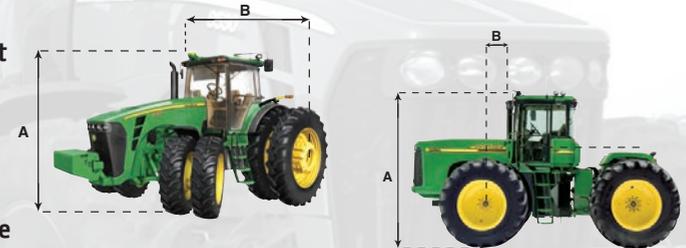
Operator Presence
Select Activity Monitor or Seat Switch to detect operator presence.

Asymmetric Steering Ratio
In certain machines, the hydraulic system does not steer the same in each direction. If machine is not asymmetric, use a value of 100.
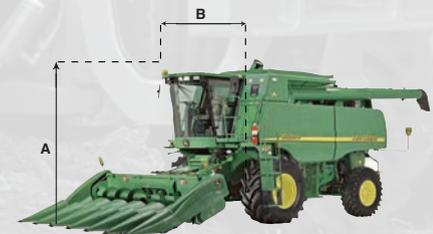
Encoder
Represents steering wheel position. Encoder should be within +/- 500 when front wheels are straight ahead for proper performance.

Direction
Indicates machine direction determined by system.

Stop Code
Indicates why system is not working or AutoTrac™ disengaged.

ATU Voltage
Measurement of battery voltage supplied to ATU.

Recommended Starting Adjustments

Machine Type	Acquire Sensitivity	Line Sensitivity Tracking	Line Sensitivity Heading
Row Crop Tractor	80	180	80
Track Tractor	80	180	80
Articulated Tractor	80	180	80
Sprayer	100	200	110
Windrower	90	190	110
Harvester	90	190	90

These recommended settings are a good starting point for most machines. Check ATU Look-Up Tool on www.StellarSupport.com for machine specific starting adjustments.

Optimizing AutoTrac™ Universal Performance

Step 1) Tune Acquire Sensitivity

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

Step 2) Tune Line Sensitivities

A) Line Sensitivity – Tracking

- Tune Line Sensitivity – Tracking while operating on 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 A–B Line.
- If front of machine wanders too far from track direction, adjust Line Sensitivity – Heading higher.
- If machine becomes unstable, adjust Line Sensitivity – Heading lower.

Line Sensitivities work together – If both are set too high, machine will become unstable. If both are set too low, machine will wander around A–B line. Operator may need to readjust Line Sensitivity – Heading and Line Sensitivity – Tracking for best results. Increase or decrease settings to change aggressiveness as desired.
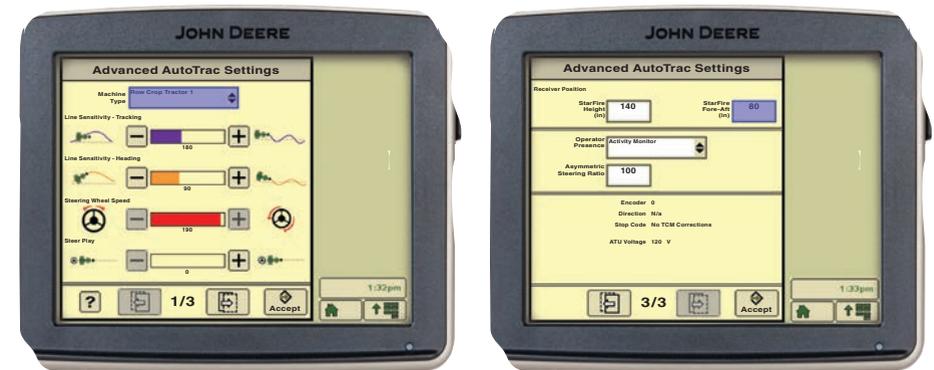
Step 3) Tune Curve Sensitivity – if running Curve Track

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

Step 4) Tune Steer Play – system has excess play or on windrower

- Steer Play is only used for machines that have excess tolerance in the steering system.
- If overall performance is unacceptable due to high tolerance in steering system, adjust Steer Play setting higher until effects of loose steering system are minimized.
- If Steer Play is set too high, system will become unstable.

Step 5) Tune Steering Asymmetry

- Steering Asymmetry is only for machines that do not steer the same in each direction.
- See platform specific document for your machine for the appropriate Steering Asymmetry value.
- If machine is not asymmetric, use a value of 100.

Use AutoTrac™ Universal only on machines approved by John Deere. Visit www.StellarSupport.com for list of approved machines.

Excessive wear on steering components may impact accuracy. Make sure steering system components have proper tolerances. Steer Play setting may improve performance on some machines, but cannot compensate for all wear. After installing AutoTrac™ Universal Steering Kit, check steering system every 500 hours for proper tolerance and wear. Operator needs to tighten nut on steering wheel to manufacturer's specified torque.

AutoTrac™ Universal Quick Reference Guide - Diagnostics

AutoTrac™ Universal (ATU)
Diagnostic Quick Reference Guide
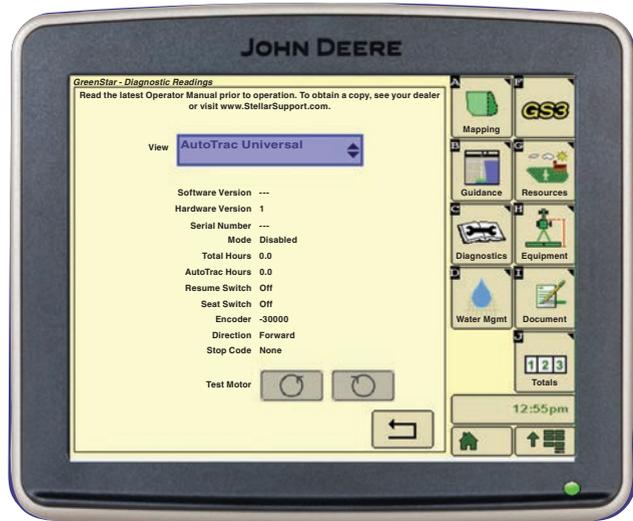
AutoTrac™ Universal information is found under Diagnostic icon.

Diagnostic Readings:

1. Software Version: Version of AutoTrac™ Universal.
2. Hardware Version: Hardware version number.
3. Serial Number: Serial number of the AutoTrac™ Universal.
4. Mode: Status of AutoTrac™: Disabled, Enabled, or Active.
5. Total Hours: Hours the system has been powered up.
6. AutoTrac™ Hours: Number of hours AutoTrac™ has been engaged.
7. Resume Switch: Shows resume switch state. It changes from Off to On when resume switch is pressed.
8. Seat Switch: Shows the operator presence state. It is on when operator is in seat and seat switch is hooked up.
9. Encoder: Represents steering wheel position.

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

10. Direction: Indicates machine direction determined by AutoTrac™ Universal.

Note: To acquire machine direction, have minimum of SF1 signal, drive at least 1.6 km/h (1 mph), and turn steering wheel 45 degrees in one direction.

11. Stop Code: Indicates why the system is not working or why AutoTrac™ disengaged. (See Stop list below.)
12. Test Motor Left: Used to test basic system functionality. AutoTrac™ Universal motor turns steering wheel left.
13. Test Motor Right: Used to test basic system functionality. AutoTrac™ Universal motor turns steering wheel right.

Stop Code	Description
Steering wheel moved	Steering wheel has moved to disengage AutoTrac™
Speed too slow	Machine speed too slow to engage AutoTrac™
Speed too fast	Machine speed too fast to engage AutoTrac™
Invalid gear	Incompatible gear selected
Track number changed	The track number changed
Invalid GPS signal	Lost dual frequency (AutoTrac™ must have StarFire™ signal to stay active)
Steer Ctrl fault	Unknown steering controller (SSU) fault
No AutoTrac™ activation	No AutoTrac™ activation on display
Heading error too large	Heading error is out of range
Off-track error too large	Lateral error is out of range
Out of seat	Operator is not present
No TCM corrections	Either no TCM present or TCM is turned off
Reverse time-out	AutoTrac™ was active in reverse for too long
Machine too slow	AutoTrac™ was active below the low speed threshold for too long
Curve too sharp	Curvature is too high
Machine not traveling in a forward direction	Machine not traveling in a forward direction
Acquiring line	Acquiring line
Tracking on line	Tracking on line
Unknown direction	Direction is unknown
ATU temperature fault	Temperature out of range

AutoTrac™ Universal - Troubleshooting

Symptom	Problem	Solution
Tractor turns right or left unexpectedly when the resume switch is pressed and the machine is already lined up on the line.	Encoder out of range when wheels are pointed forward.	With front wheels pointed forward, encoder should be +/- 500. Drive forward with wheels pointed straight ahead until encoder is in limit. Update ATU software.
ATU disengages.	Anti-rotation device too tight causing misalignment of ATU with the steering shaft. Steering Wheel Speed too high on a machine with high steering resistance. Looseness or rotation in the steering console. Steering wheel turns hard after ATU installed. Unstable power source.	Re-position ATU so it slides easily on steering shaft, then adjust anti-rotation device. Lower Steering Wheel Speed (ATU 100 only). Insert shims to take out tolerance in steering console. Lubricate steering shaft where it goes through console. Check power connections.
ATU unstable when entering track.	Acquire Sensitivity too high.	Decrease Acquire Sensitivity.
ATU takes too long to enter next track.	Acquire Sensitivity too low.	Increase Acquire Sensitivity.
ATU performance is unsatisfactory.	StarFire™ Receiver Height or Fore-Aft not properly set. StarFire™ Receiver not in front of or even with fixed axle (even with or behind for articulated). Line sensitivities incorrect. StarFire™ Receiver mount direction in SETUP different from actual mount direction. ATU did not establish direction correctly. Looseness or rotation in the steering console. Loose soil. ATU settings are incorrect. ATU machine type incorrect. Machine with symmetric steering has incorrect Asymmetric Steering setting.	Enter correct StarFire™ Height and Fore-Aft dimension. Position StarFire™ Receiver in front of or even with fixed axle (even with or behind for articulated). Optimize line sensitivities - See Advanced AutoTrac™ Settings screen. Match TCM Mount Direction on receiver Setup screen with physical StarFire™ Receiver mount direction. Drive forward at a speed greater than 1.6 km/h (1 mph) and turn steering wheel greater than 45 degrees in one direction. Insert shims to take out play in steering console. Add ballast. Adjust ATU settings. Select correct machine type in ATU settings. Set Asymmetric Steering setting to 100.
ATU won't engage or resume.	Stop Code encountered.	See list of Stop Codes to find issue.
ATU does not appear on INFO or SETUP screens.	System not recognizing ATU on CAN Bus.	Ensure ATU is connected to GreenStar™ harness and receiving power. Check for bad fuses in ATU wiring harness.
Direction cannot be determined.	Old TCM software. No differential correction. No GPS. ATU did not establish direction correctly.	Update receiver, ATU, and display software. Establish differential correction. Establish signal. Drive forward at a speed greater than 1.6 km/h (1 mph) and turn steering wheel greater than 45 degrees in one direction.
AutoTrac Universal works away from the line.	Machine with symmetric steering has the wrong Asymmetric Steering setting.	Set Asymmetric Steering setting to 100.
AutoTrac Universal hangs off the line after headland turn.	Machine with symmetric steering has the wrong Asymmetric Steering setting. Machine with asymmetric steering has the wrong Asymmetric Steering setting. ATU encoder reading is inaccurate.	Set Asymmetric Steering setting to 100. Update ATU software. Refer to the machine's platform specific document for asymmetric setting. With front wheels pointed forward encoder should be +/- 500. Drive forward with wheels pointed straight, ahead until encoder is in limit.

JOHN DEERE