

# System Tuning

Use this screen to adjust the performance when acquiring the line. Can be adjusted between 1 and 20. The higher the number, the more aggressive it will be.



These are the only 2 screens you will use to tune the SmarTrax system.



Use this screen to adjust the on-line performance. Can be adjusted between 1 and 20. The higher the number, the more sensitive it will be.

## Calibration Process

During the calibration process the Smartrax will turn the machine several times back and forth to learn the characteristics of the hydraulics on your machine. You will need a large open field to drive during this process. You must drive the machine between 3 and 6 MPH during the entire process.

1. The SmarTrax will first turn the wheels all the way to the left lock. After the wheels are all the way to the left, it will turn the wheels to the right at 100% PWM for 3 seconds. It will then bring the wheels back to the left lock.
2. Next it will turn back to the right at 90% PWM. This will happen 8 more times until the final PWM is 20%.
3. After the SmarTrax learns the right gain it will repeat the process from the right lock.

- If you keep getting steering switch activated errors, you can set the steer pulse time as described below.
- If you get a valid points low error it means the Smartrax detected some values that did not make sense and the calibration must be done again.
- If you get a high gain error, it means the values for your gains for your left and right movements are too far apart. You can attempt running the system with this error. If it does not work you may have hydraulic issues.

## Troubleshooting

To verify foot switch, steer switch and hydraulics, enter the status menu.



Activate the foot switch and steer switch and they should appear in capital letters. Verify the hydraulics by pressing the left and right arrows.

If the SmarTrax continually disengages during calibration, press the down arrow once and increase the Steer Pulse time.



Then press the down arrow followed by the foot switch to continue with calibration.

TO FLUSH AND HEAT BLOCK From this screen, press the left and right arrows.



Hold the right button, wheels will turn.



# SmarTrax

Straight shot to easy steering

## Initial System Start-Up

## Quick Start Guide

P/N 016-0159-982 Rev G

1. Upon initial start-up, the SmarTrax controller will prompt you to answer 'Yes' or 'No' to having read and understand the Operation Manual. To continue with start-up, you must answer 'Yes' by pressing the Right arrow button.
2. Press the Left or Right arrow to select the Sensor Type you are using (SPS or Yaw). Once the correct type is displayed, press the Down arrow.  
*Yaw: If 'Yaw' is selected as the Sensor Type, refer to the instructions in blue to help set up your SmarTrax controller.*
3. Press the Left or Right arrow to select the machine type you are using (Articulated, Front Steered, +Track, or a specific Tune Set). Once the correct type is selected, press the Down arrow.
4. Press the Left or Right arrow to select the Driving Device (Hydraulic or QuickTrax). Once the correct device is selected, press the Down arrow.
5. Turn the steering wheel to verify that the pressure switch is working properly. The words "STEERING WHEEL" will display in capital letters and a new screen will display when the console detects a change from the steer switch.
6. Press the foot switch to ensure that it is connected properly. The words, "foot switch" will display in capital letters and a new screen will display when the console detects a change from the foot switch.
7. *Yaw: Skip to Step 10*  
Turn the wheels all the way to the left. Press the Right arrow to save the displayed value. The next screen will display.  
*Important: The number must be greater than 10, but less than 1000.*
8. Turn the wheels to the center. Press the Right arrow to save the displayed value. The next screen will display.  
*Important: The number must be at least 100 more than the right number.*
9. Turn the wheels all the way to the right. Press the Right arrow to save the displayed value. The next screen will display.  
*Important: The number must be greater than 10, but less than 1000 and must be at least 100 more than the center number.*
10. If SPS was selected as the Sensor Type in Step 2, skip this step. *Make sure the vehicle is at a complete stop before pressing the Right arrow button to Zero the Yaw Rate. Press the Down arrow to proceed to the next step.*
11. Press the Left or Right arrow to select the distance units (Feet, Decimal, Feet-Inches, or Metric). Press the Down arrow to lock in your selection.  
*Yaw: If tune set selected, skip to Step 14.*
12. *Note: If a tune set was selected in Step 3, skip to Step 14.*  
Measure and enter the correct wheel base for your machine. Use the Left or Right arrow to enter the value. Press the Down arrow to lock in your measurement.  
*Note: Entering an inaccurate number will cause the system to operate incorrectly. See the SmarTrax manual for information on measuring the wheel base correctly.*  
*Yaw: skip to Step 14.*

13. Measure and enter the correct minimum turn radius for your machine. Use the Left or Right arrow to enter the value. Press the Down arrow to lock in your measurement.  
*Note: Entering an inaccurate number will cause the system to operate incorrectly. See the SmarTrax manual to measure the minimum turn radius correctly.*
14. Measure the horizontal distance between the rear axle and the GPS antenna. Use the Left or Right arrow to enter the number. Press the Down arrow to lock in your measurement.  
*Note: Entering an inaccurate number will cause the system to operate incorrectly.*
15. Measure and enter the height of the GPS antenna above ground. Use the Left or Right arrow to enter the value. Press the Down arrow to lock in your measurement.
16. SmarTrax will automatically detect the DGPS signal. If the signal is found, the setup will continue to step 17.
17. Turn the machine up to the working RPM. Move to an open space. Drive ahead 3-6 mph (5-9 km-h) and press the foot switch to begin calibration.
18. The "Calibrating" screen will display and the wheels should be turning. If the pressure switch is triggered, calibration will stop and will need to be re-started. The Home screen will display when calibration is complete.

# SmarTrax Controller Menu Structure

Below you will find the menu structure for the SmarTrax controller. When you power up and after the initial start-up and calibration, the Home screen will display after pressing the right arrow.

Press the Up and Down arrows simultaneously to return to the Home screen at any time.

Press and hold the Left arrow for 5 seconds to reset defaults and recalibrate.

Press and hold the Right arrow for 5 seconds to recalibrate hydraulics.

## Home Screen



press ↓  
Aggressiveness Line Acquire 12

1 - 20 See the System Tuning section for more information.

press ↓

Sensitivity OnLine 14

1 - 20 See the System Tuning section for more information.

press ↓

Hold → To Enter Advanced Menu

press → and hold to enter Advanced Menu

press ↓

Return to Home screen

## Vehicle Setup



press ↓

Machine Type Front Steered

Displays the selected Machine Type (Front steered, Rear steered, Articulated, Track, or a specific machine Tune Set).

press ↓

Driving Device Hydraulic

Displays the Driving Device selection (Hydraulic or QuickTrax).

press ↓

Sensor Type SPS

Displays the selected Sensor Type (SPS or Yaw).

follow the menu structure for the selected Sensor Type

Sensor Type Yaw

press ↓

Zero Yaw Rate Offset +0.40°

While the machine is at a complete stop, press the Right arrow button to re-zero the Yaw Rate

press ↓

Left 256 SPS SPS cal Left →

Current SPS Count Turn the wheel to the left. Press the Right arrow to calibrate.

press ↓

Cntr 512 SPS SPS cal Center →

Current SPS Count Turn the wheel to the center. Press the Right arrow to calibrate.

press ↓

Rght 768 SPS SPS cal Right →

Current SPS Count Turn the wheel to the right. Press the Right arrow to calibrate.

press ↓

Wheel Base 9.8ft

Refer to the machine's owners manual or the SmarTrax Operation Manual for information on measuring the Wheel Base.

press ↓

Min Turn Radius 19.7ft

Refer to the machine's owners manual or the SmarTrax Operation Manual for information on measuring the Minimum Turning Radius.

press ↓

Antenna Position +8.7ft

Refer to the SmarTrax Operation Manual for help with programming the antenna position.

press ↓

Antenna Height 13.2ft

Sets the height from the ground to the GPS Antenna.

press ↓

Steer Pulse Time 150ms

Sets the length of pulse from the pressure switch needed to disengage the system. Press the Left or Right arrow to set this value.

press ↓

Return to top of menu

## GPS Enhancer\*



press ↓

R 00.0 P 00.0  
G 00.0 E 00.0

Roll Pitch Enhancer Heading Angle of sensor

press ↓

Ut9 Config DMU/Corr

This is the correct setting for this screen

press ↓

Firmware Version 5025-0290-04\_D

Displays the enhancer software version

press ↓

Reset Enhancer →→

Press the Right arrow to reset the enhancer

press ↓

To99le Enhancer Bypassed →→

Press the Right arrow to switch select Active or Bypassed mode for the enhancer

press ↓

Return to top of menu

\* This advanced menu screen is only available if you are using a GPS enhancer.

\*\* Holding the Left and Right arrows while at the Home screen will send a forward command to the enhancer.

## TM-1 Tilt Sensor\*



press ↓

Fwd Ok  
-2.9° +42.0°G

Temperature of the tilt sensor

press ↓

Zero Tilt Angle 0.0°

Press the Right arrow to reset the sensor to zero. Be sure the machine is on level ground before pressing the Right arrow.

press ↓

Tilt Filter Normal

Refers to the tilt compensation speed. Press the Right arrow to select from the available settings (Off, Slow, Normal, or Fast).

press ↓

\* This advanced menu screen is only available if you have a tilt sensor installed.

## Console Configuration



press ↓

LCD Back Light On

Press the Right arrow to turn the back light On or Off.

press ↓

LCD Contrast 44%

Press the Left or Right arrow to adjust the LCD Contrast.

press ↓

Distance Units Feet-Decimal

Sets the displayed units. Press the Right arrow to select from Feet-Decimal, Feet-Inches, or Metric.

press ↓

Speed Units Mph

Sets the speed units. Press the Right arrow to select from Mph or Km/h.

press ↓

5Hz Viper Output Off

Sets the GPS output on the programming port. Press the Right arrow to choose On or Off.

press ↓

Key Beep On

Toggles the sound when a key is pressed. Press the right arrow to select from On or Off.

press ↓

Serial Number 40891

Displays the serial number of the controller.

press ↓

Lockout Setting Changes Off

This screen locks the calibration values that are entered for the machine. Press the Right arrow to select On and lock the settings or Off to allow settings to be modified.

press ↓

Return to top of menu

## Status Menu Configuration



press ↓

←L foot switch R→ steer switch 236

See the Tuning section for more information.

press ↓

DeltaTime actual 0.1 sec 0.110s

Displays the actual receiver speed. Cannot be adjusted. 2 = 5 Hz, 1 = 10 Hz

press ↓

Err Log 00:12:20 1 NoLB GER Msg

Displays error logs 1-10. Press the Right arrow to view errors.

press ↓

UTC : : date / /

Displays the GPS date and time.

press ↓

Yaw Rate +0.2 °/s

If 'Yaw' is selected as the Sensor Type, the current Yaw Rate of the sensor.

press ↓

1: 0% 4: 0%  
8: 0% STAT50

Displays the percentage of time verses inches for the last hour that the system has been engaged.

press ↓

Avg Sp 0.0Mph  
Avg Err 0.0ft

Average speed and error over the last 5 minutes that the system has been engaged.

Return to top of menu