RADION
AUTOMATIC SPRAYER CONTROL

SIMPLIFIED REFERENCE GUIDE

Software Version 1.00

TeeJet® TECHNOLOGIES

A Subsidiary of Spraying Systems Co.®

Table of Contents

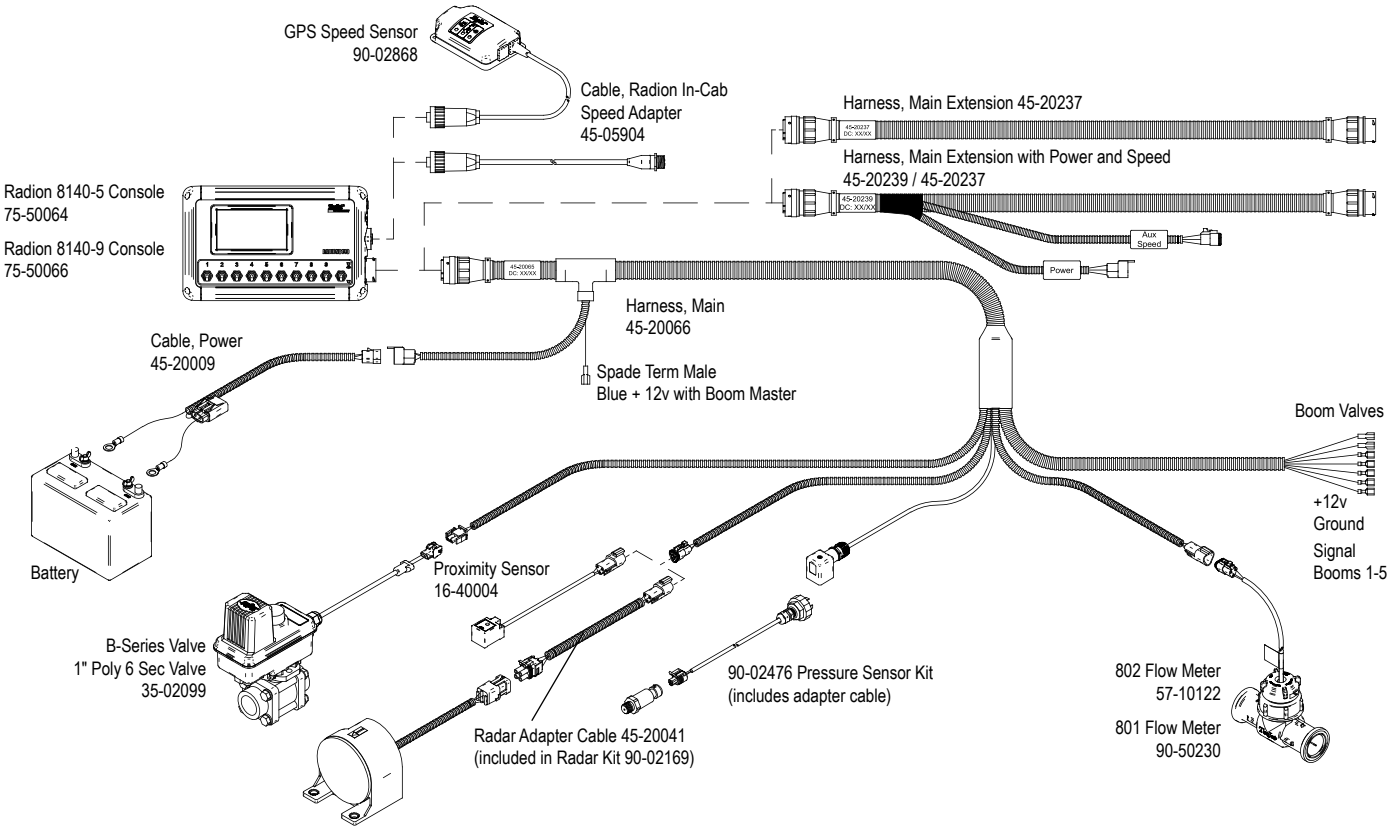
SYSTEM DIAGRAM

Computer-Controlled Spraying Has Never Been So Easy

Designed with simplicity in mind, Radion offers spraying advantages not found in other controllers. Simply set your target application rate and the unique VisiFlo® display on the controller helps select the right TeeJet tip for the application. Once spraying begins, the large display shows application rate, volume sprayed, system pressure, sprayer speed, and area covered.

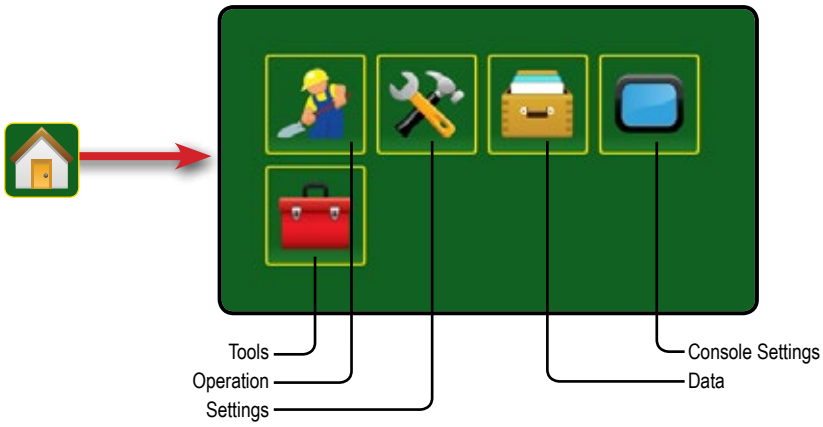
Radion's built-in planning tool automatically displays the available speed range for the target rate and spray tip that have been selected. This unique visual planning tool makes choosing the correct spray tip for an application a quick and simple task. Radion is available as an individual controller, or in a complete package with the valves, cables, and sensors needed to put together a total sprayer control system.

Figure 1-1: System Diagram



HOME

The Home screen gives access to the Operation, Settings, Data, Console and Tools screens.



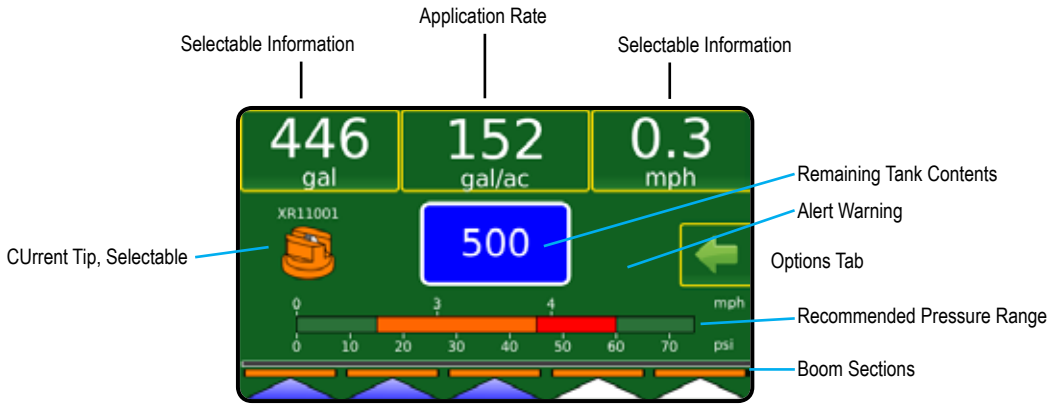
OPERATION

If there are questions concerning the operation of the Radion system, or due to the changes in component specifications the parts supplied in the kit are not exactly as presented in this document, please contact your dealer or TeeJet Customer service representative for clarification before operation. TeeJet Technologies is not responsible for misuse or incorrect operation of the system.

NOTE: Settings are automatically saved when selected.

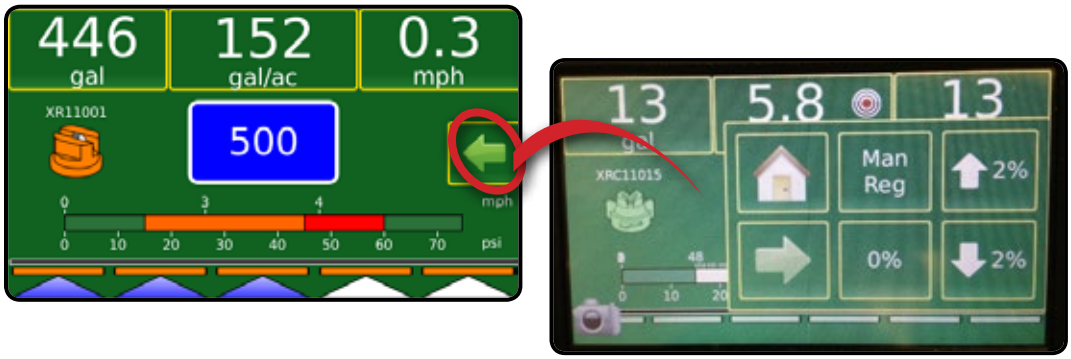
NOTE: The menu structure on your display might vary from the one displayed in this User Manual depending on the virtual terminal being used.

Figure 1-2: Overview of the Operation screen



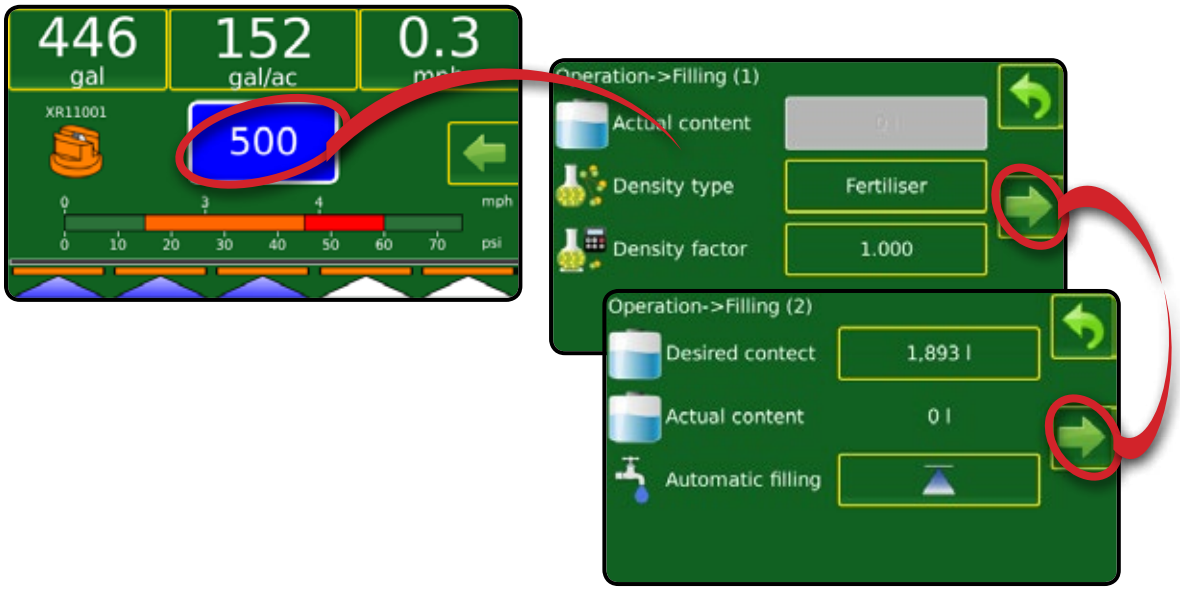
Options Tab

Figure 1-3: Option Tab



Tank Filling

Figure 1-4: Tank Filling



Automatic or Manual Regulation Mode

Automatic regulation mode will automatically adjust the application rate based on the current speed in reference to the target rate. The target rate can be adjusted using the BOOST/STEP % INCREASE/DECREASE buttons on the OPTIONS tab. Preset Application Rates define up to three (3) target rates for product being applied per hectare/acre. These can be toggled using the Application rate box at the top of the Operation Screen.

Manual regulation mode will retain an established regulation valve setting regardless of speed. The regulation valve setting can be adjusted using the UP/DOWN arrows on the OPTIONS tab.

Figure 1-5: Auto/Manual button on Options tab

Boom Sections

Boom Sections displays the active and inactive boom sections as well as if they are on (spray is blue) or off (spray is gray).

The color on the boom sections indicates the color of the selected tip series.

Established Tip Sizes and Colors			
Size	**Color**	**Size**	**Color**
01	Orange	05	Brown
015	Green	06	Gray
02	Yellow	08	White
025	Purple	10	Light Blue
03	Blue	15	Light Green
04	Red	20	Black

Figure 1-6: Boom Sections

Radion 8140 Automatic Sprayer Control

SETUP

The main setup menu contains four options. Each of these options either directly access settings or additional menus.

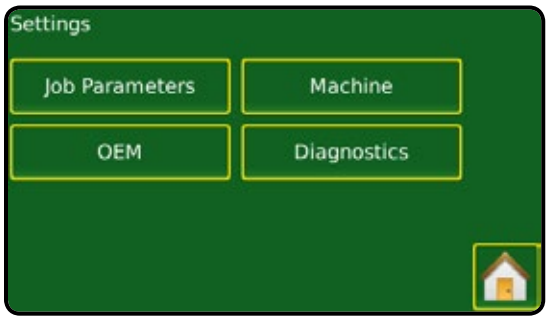
MAIN SETUP MODE MENU STRUCTURE

Job Parameters	Machine		Oem	Diagnostics
	Filling		Sensor Presence	Test Inputs
	Operation	Section Configuration	Implement Parameters	Test Outputs
	Implement Parameters	Tip Preset Setup	Valve Setup	Test ABSC
Implement Speed Sensor	Calibrations	Regulation Parameters	Tank Setup	
Flow Sensor	Alarms		Regulation Details	
Liquid Pressure Sensor			Clear Totals	
Tank Level Sensor			Export	
Fill Flow Sensor				

NOTE: Select functions may not be visible due to OEM settings, available equipment or sensors.

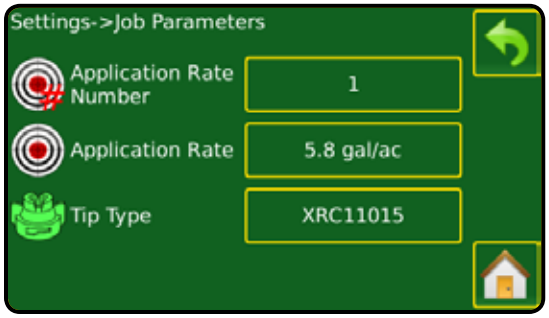
The OEM setup menu is password protected and the settings in this menu are directly related to the fitted OEM equipment.

- ► JobParameters – used to configure application settings including preset application rate and tip series.
- ► Machine – used to configure machine settings:
  - ◄ Filling – establishes the amount of actual and desired material in the tank and the density of that material.
  - ◄ Operation – establishes application rate step, speed source, simulated speed and minimum speed
  - ◄ Implement Parameters – establishes the section configuration, tip preset setup and regulation parameters
  - ◄ Calibrations – establishes either manual or automatic settings of the sensors
  - ◄ Alarms – establishes alarms on or off or sets their trigger level
- ► OEM – The OEM setup menu is password protected and the settings in this menu are directly related to the fitted OEM equipment. Refer to the OEM Setup Manual for information regarding OEM settings.
  - ◄ Sensor Presence – used to establish sensors for Flow, Liquid Pressure, Fill Flow and the Tank
  - ◄ Implement Parameters – used to establish the number of sections and circulation
  - ◄ Valve Setup – used to establish the regulation valve type, section valve behavior and section valve type
  - ◄ Tank Setup – used to establish maximum and minimum tank content, auto filling mode and auto filling offset value
  - ◄ Regulation Details – used to adjust the control of the regulation valve
  - ◄ Clear Total – used to delete the total count system counter for area, volume and time back to the default settings
  - ◄ Import/Export – used to import or export settings
- ► Diagnostic – used to troubleshoot input/output of the controller (sensor or actuator) or ABSC.
  - ◄ Test Inputs – displays the input high and low values on the installed sensors
  - ◄ Test Outputs – sets the Liquid Valve PWM Dutycycle percentage as well as if Master Valve, Fill Valve and Section Valves are on or off
  - ◄ Test ABSC – displays automatic boom section control correction, mode and section input status. (Only available when feature is unlocked.)



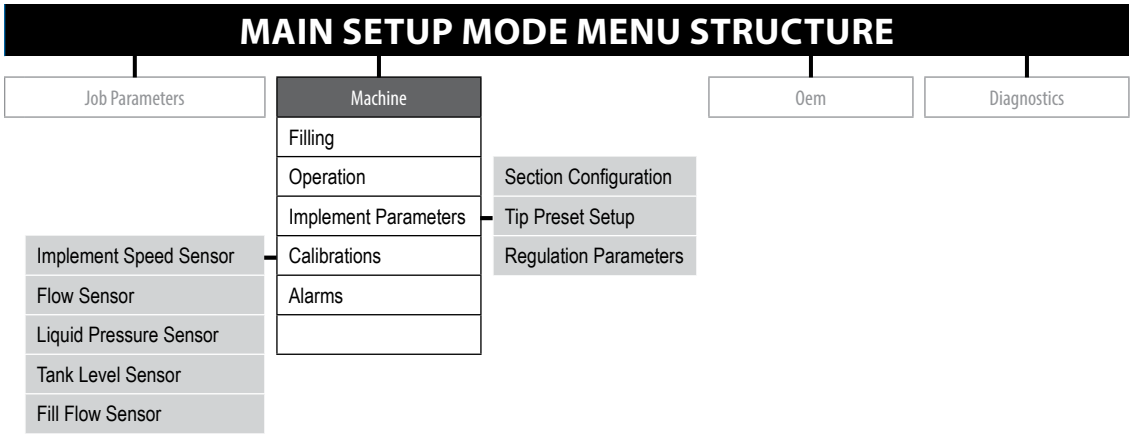
JOB PARAMETERS

Job Parameters configures application settings. Options include preset application rates and tips.

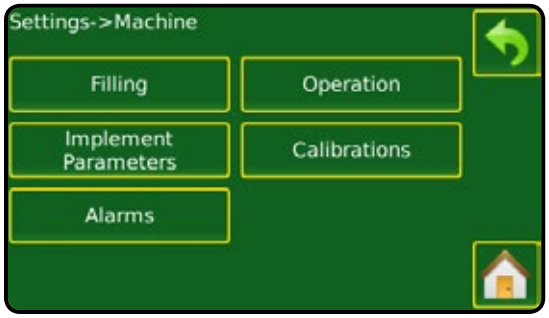


MACHINES

Machine configures machine settings. Options include Filling, Operation, Implement parameters, Calibrations and Alarms.

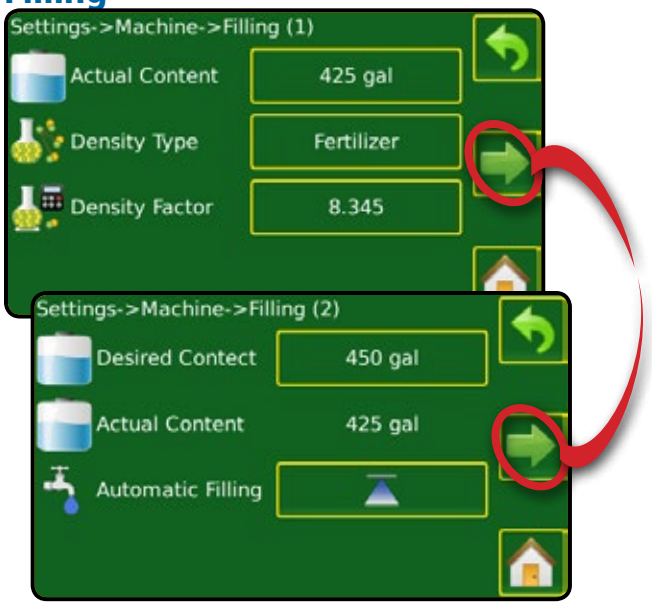


- ► Filling – establishes the amount of actual and desired material in the tank and the density of that material
- ► Operation – establishes application rate step, speed source, simulated speed and minimum speed
- ► Implement Parameters – establishes the section configuration, tip preset setup and regulation parameters
- ► Calibrations – establishes either manual or automatic settings of the sensors
- ► Alarms – establishes alarms on or off or sets their trigger level

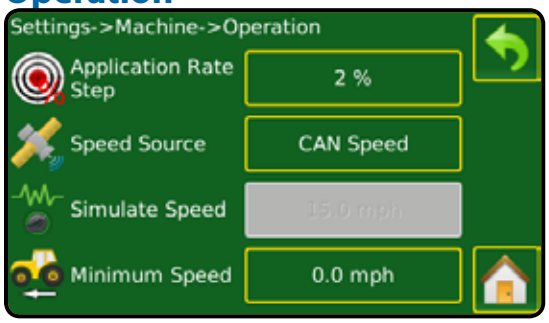


Radion 8140 Automatic Sprayer Control

Filling

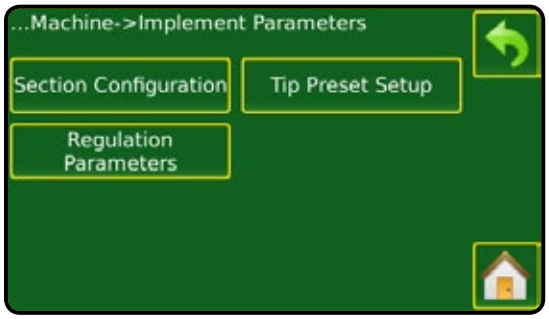


Operation

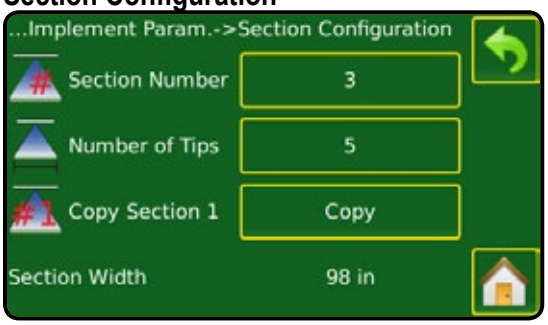


Implement Parameters

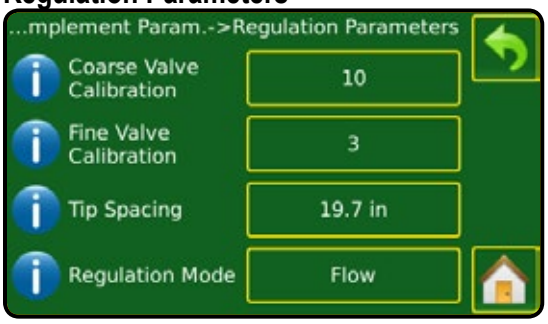
- Section Configuration – sets the number of tips on the boom which determines the spraying width during application.
- Tip Preset Setup – where up to five (5) sets of tip options can be established to set the tip series, capacity, low/high pressure limit, reference flow and reference pressure.
- Regulation Parameters – where adjustments to the valve calibration, tip spacing and regulations mode can be established.



Section Configuration



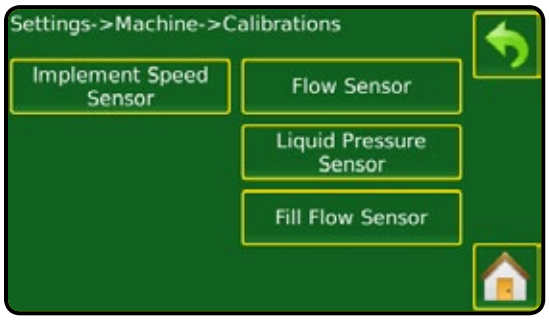
Regulation Parameters



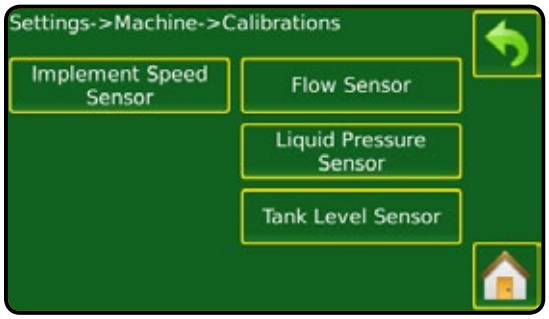
Tip Preset Setup

Calibrations

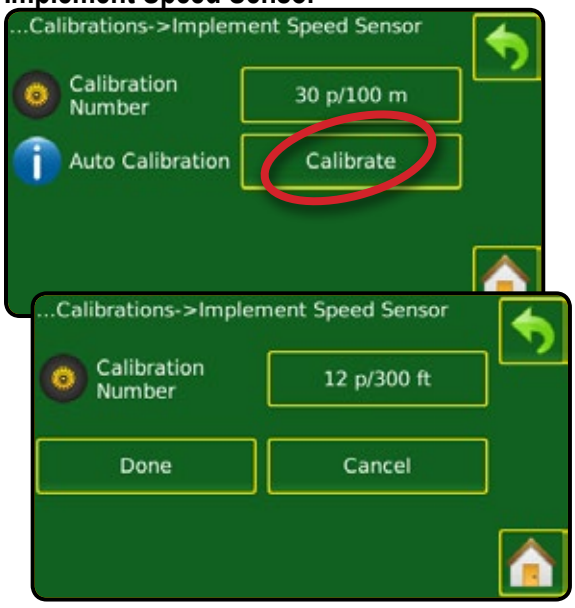
- ▶ Implement Speed Sensor
- ▶ Flow Sensor
- ▶ Liquid Pressure Sensor
- ▶ Tank Level Sensor
- ▶ Fill Flow Sensor



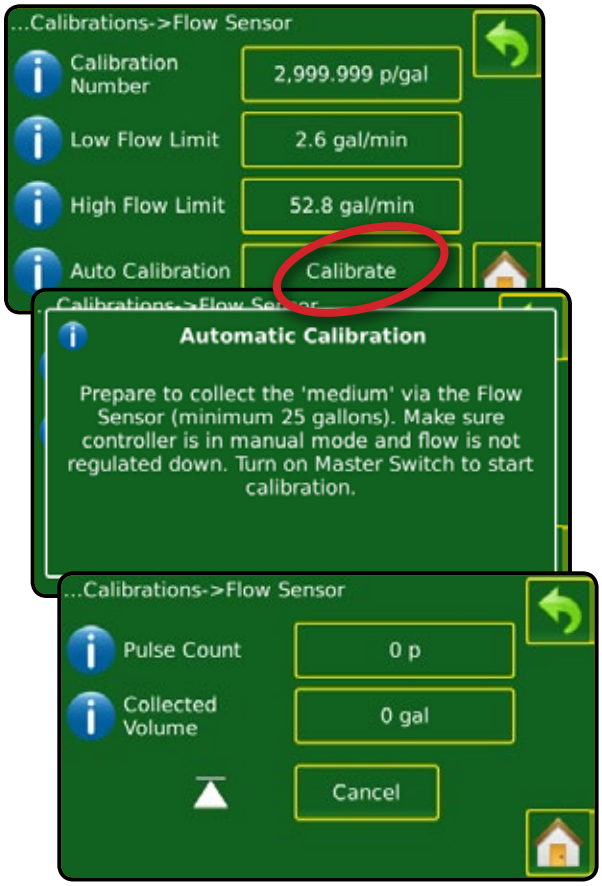
or



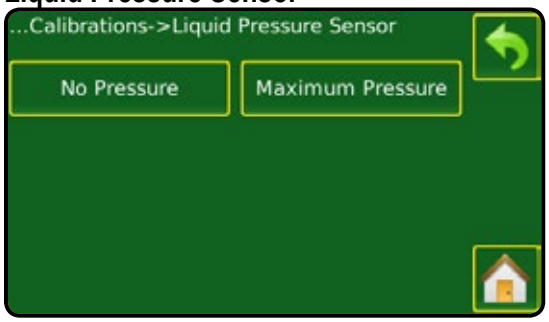
Implement Speed Sensor



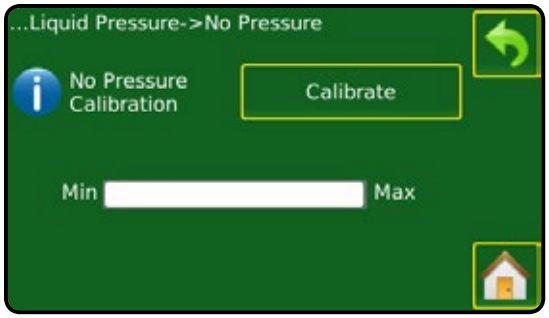
Flow Sensor



Liquid Pressure Sensor

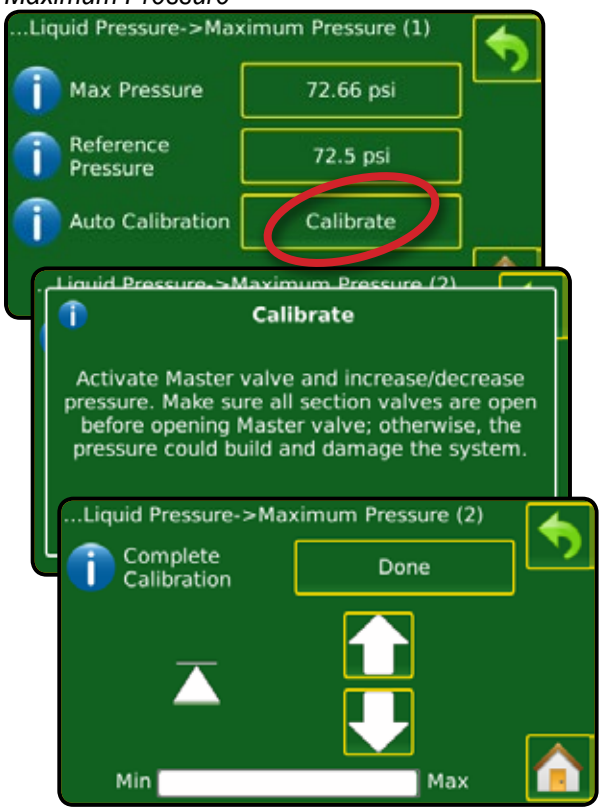


No Pressure

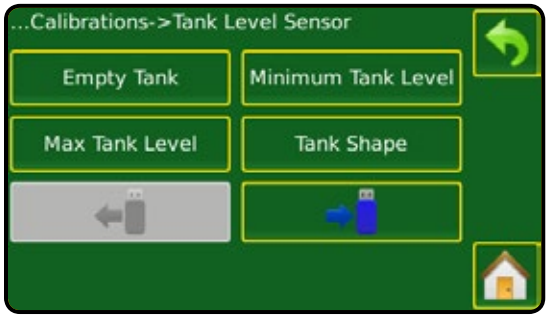


Radion 8140 Automatic Sprayer Control

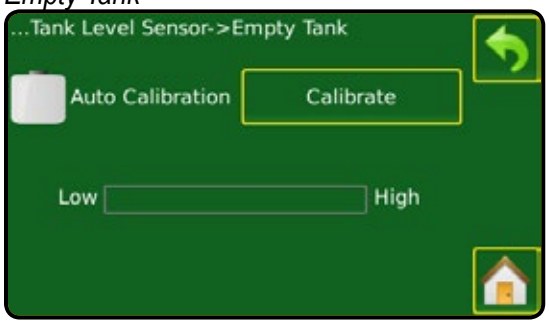
Maximum Pressure



Tank Level Sensor

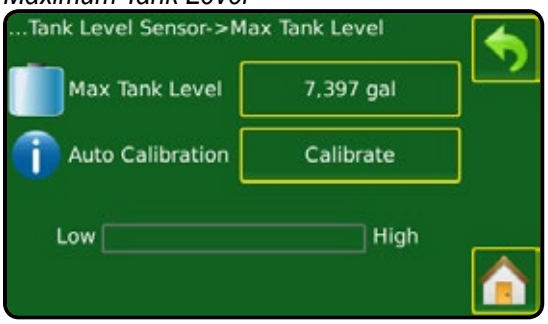


Empty Tank

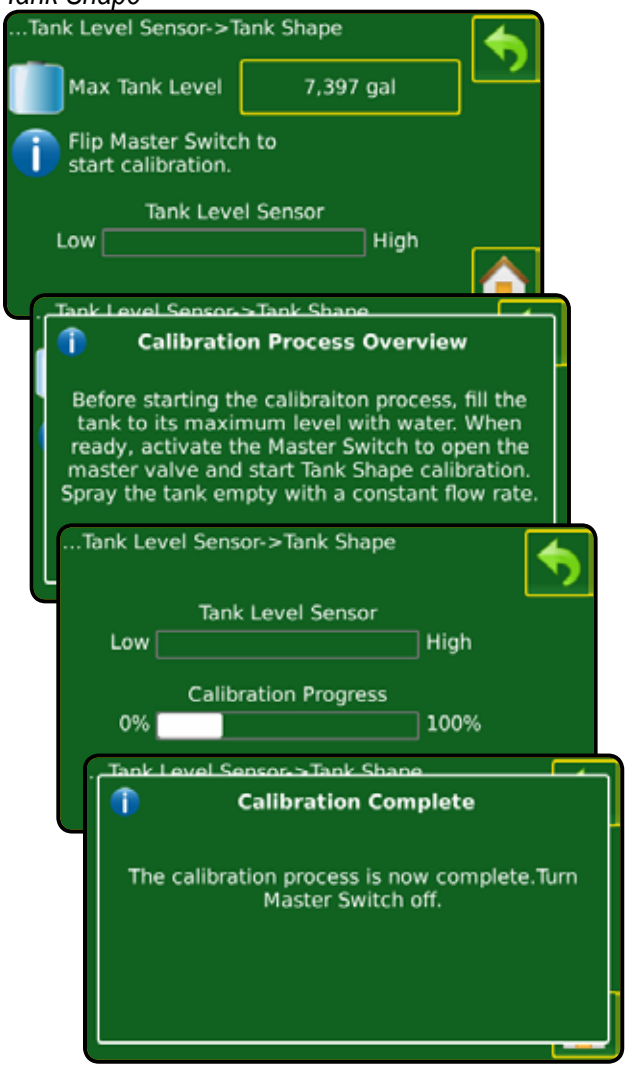


Minimum Tank Level

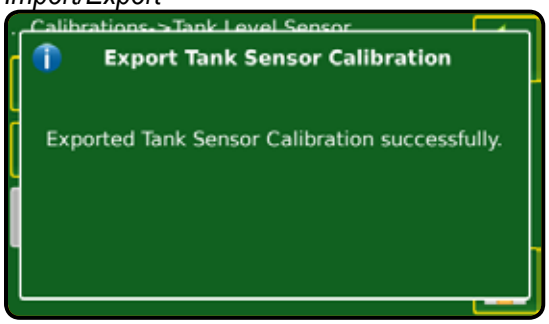
Maximum Tank Level



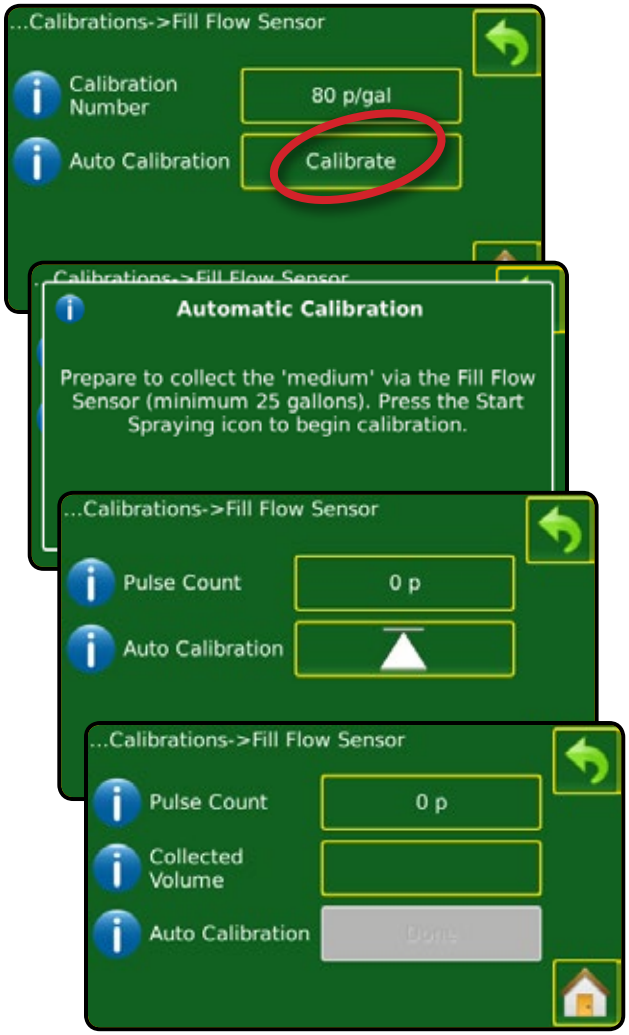
Tank Shape



Import/Export

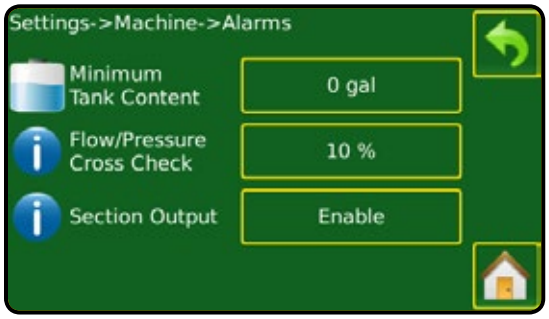


Fill Flow Sensor



Alarms

Alarms establishes alarms on or off or sets their trigger level.



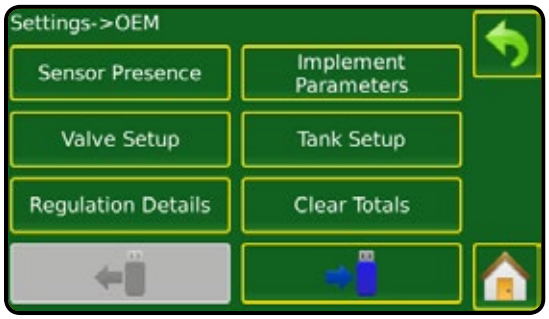
OEM

The OEM setup menu is password protected and the settings in this menu are directly related to the fitted OEM equipment. To obtain an access code, contact your local dealer or TeeJet Technologies Customer Service.

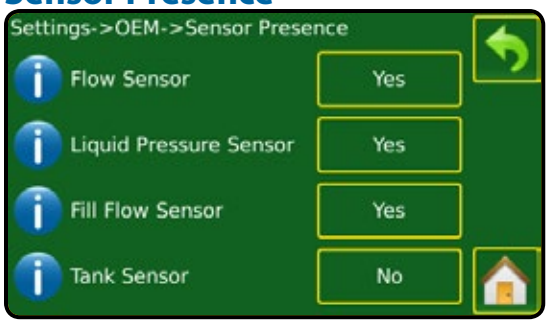
MAIN SETUP MODE MENU STRUCTURE

- Job Parameters
- Machine
- Oem
  - Sensor Presence
  - Implement Parameters
  - Valve Setup
  - Tank Setup
  - Regulation Details
  - Clear Totals
  - Export
- Diagnostics

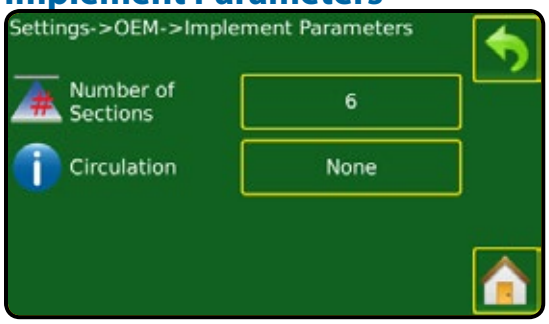
- ► Sensor Presence – used to establish sensors for Flow, Liquid Pressure, Fill Flow and the Tank
- ► Implement Parameters – used to establish the number of sections and circulation
- ► Valve Setup – used to establish the regulation valve type, section valve behavior and section valve type
- ► Tank Setup – used to establish maximum and minimum tank content, auto filling mode and auto filling offset value
- ► Regulation Details – used to adjust the control of the regulation valve
- ► Clear Total – used to delete the total count system counter for area, volume and time back to the default settings
- ► Import/Export – used to import or export settings



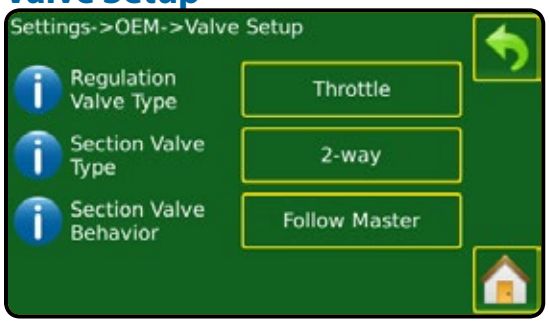
Sensor Presence



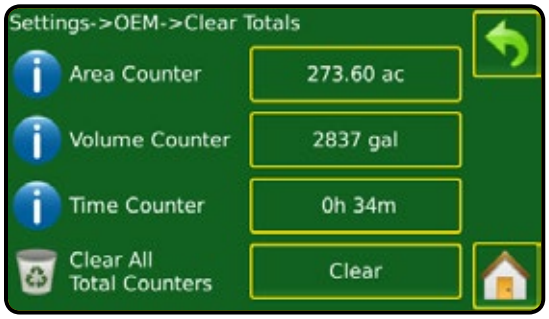
Implement Parameters



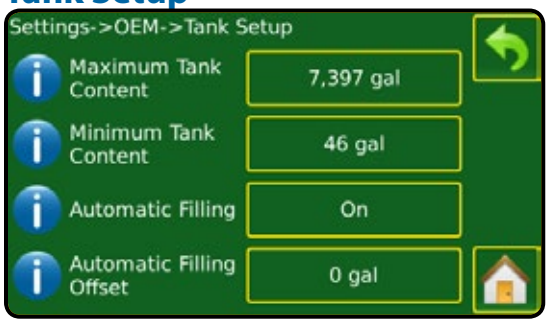
Valve Setup



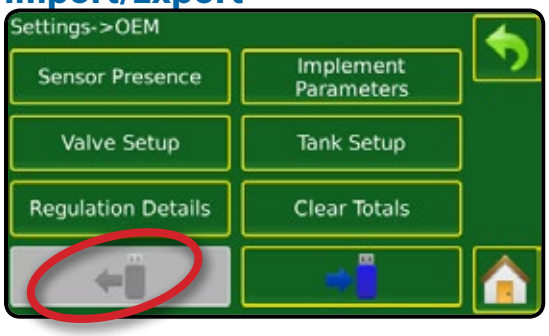
Clear Totals

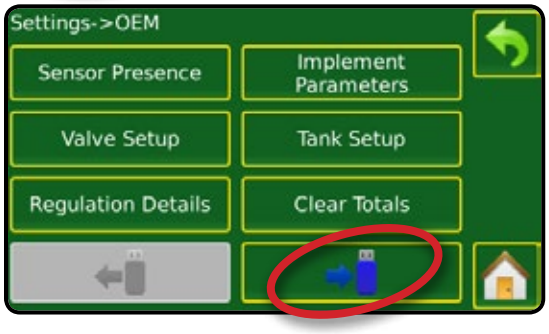


Tank Setup

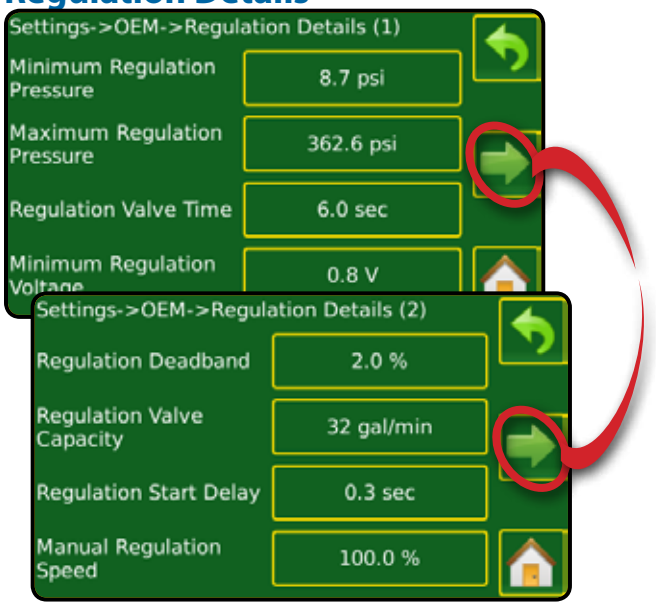


Import/Export





Regulation Details



DIAGNOSTICS

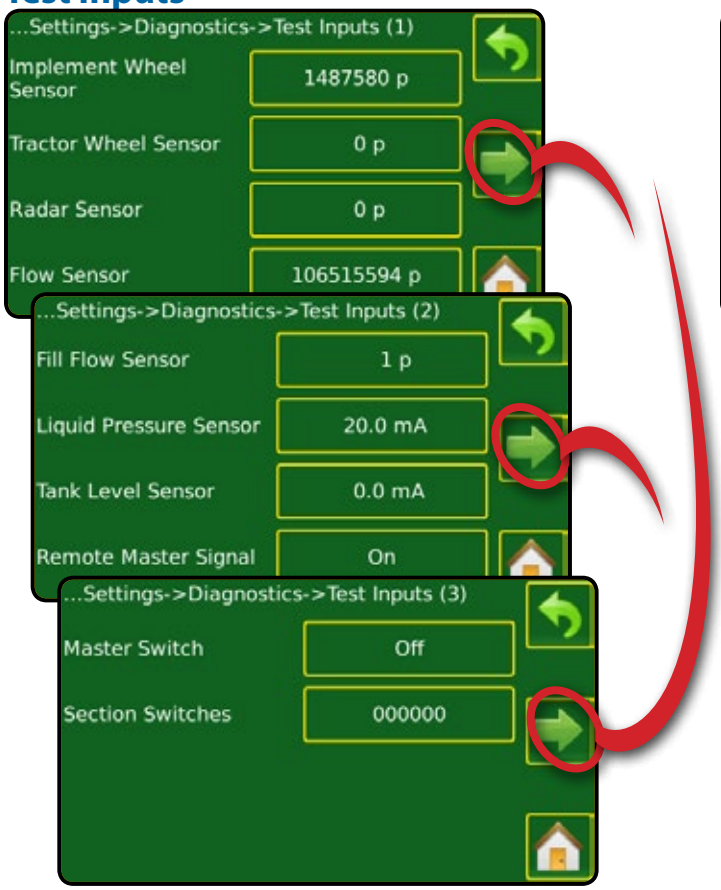
Diagnostic is used to troubleshoot input/output of the controller (sensor or actuator).

- ► Test Input – displays the input high and low values on the installed sensors.
- ► Test Output – sets the Liquid Valve PWM Dutycycle percentage as well as if Master Valve, Fill Valve and Section Valves are on or off.
- ► Test ABSC – displays automatic boom section control correction, mode and section input status. (Only available when feature is unlocked.)

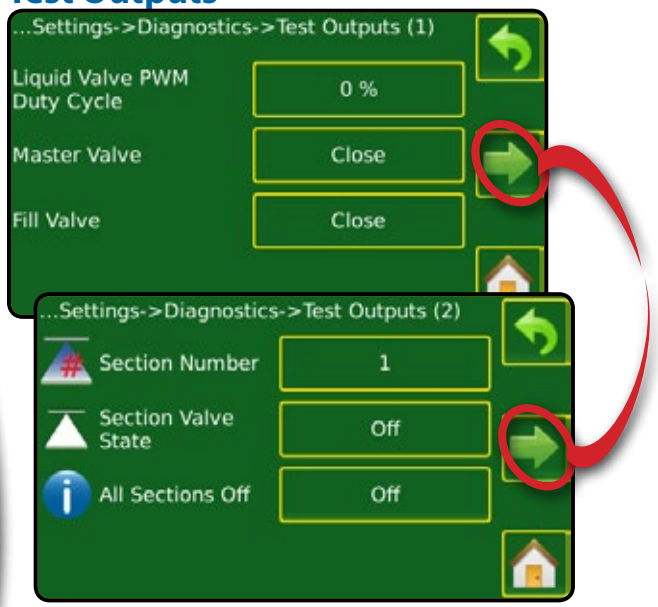
MAIN SETUP MODE MENU STRUCTURE

- Job Parameters
- Machine
- OEM
- Diagnostics
  - Test Inputs
  - Test Outputs
  - Test ABSC

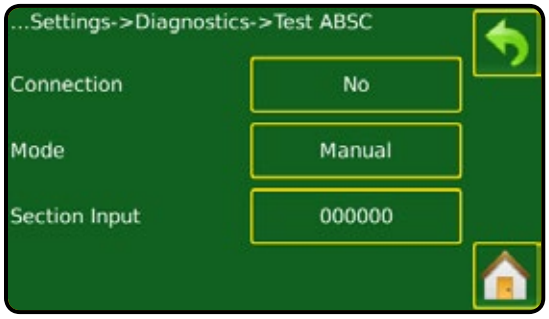
Test Inputs



Test Outputs



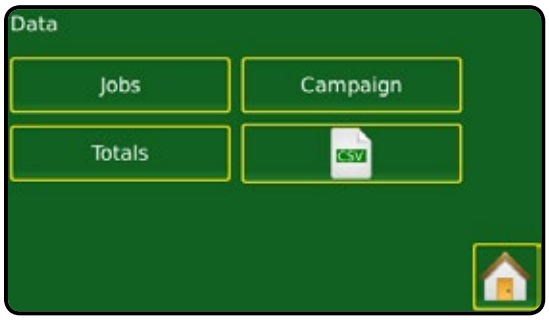
Test ABSC



DATA

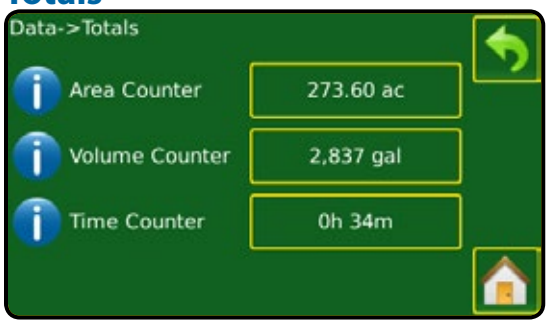
The Data screen gives access to job information, campaign information, total accumulated information and exporting a report.

- ► Jobs – used to display information regarding area, distance, time and amount applied
- ► Campaign – used to display information regarding area, amount applied and time for all trips
- ► Totals – used to display information regarding area, amount applied, and time for all activity
- ► Report– allows counter information to be exported in CSV format

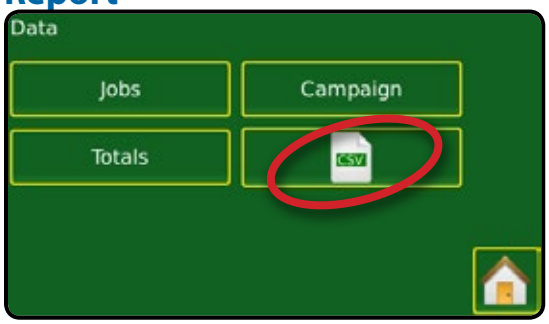


Jobs

Totals



Report



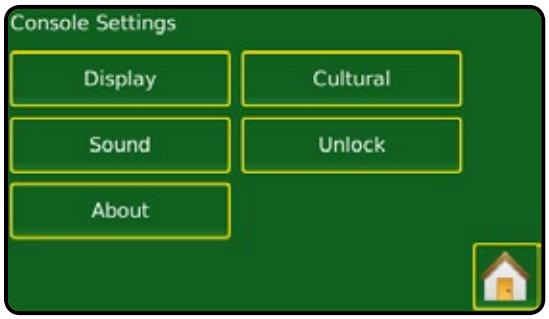
Campaign

Radion 8140 Automatic Sprayer Control

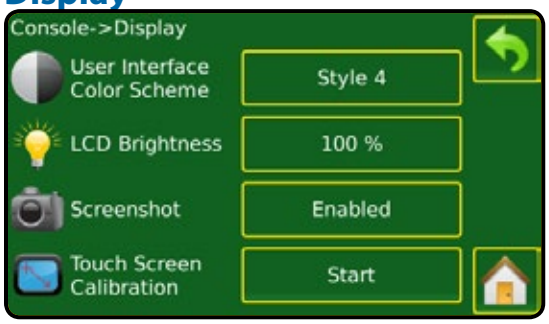
CONSOLE SETTINGS

Console setup is used to configure the display and cultural settings. Information about the console can be found in the About section.

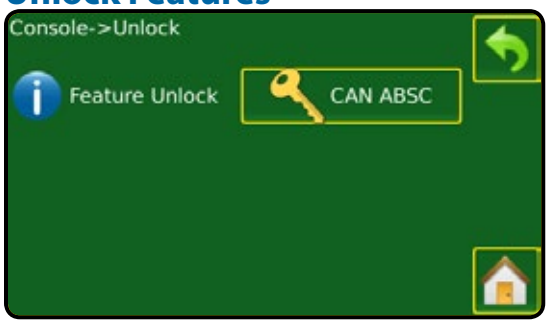
- ► Display – used to configure color scheme and LCD brightness, establish screenshot availability and calibrate the touchscreen
- ► Cultural – used to configure units, language, date and time settings
- ► Sound – used to enable or disable the key beeps
- ► Unlock Features – used to unlock CAN ABSC.
- ► About – used to display the system software version



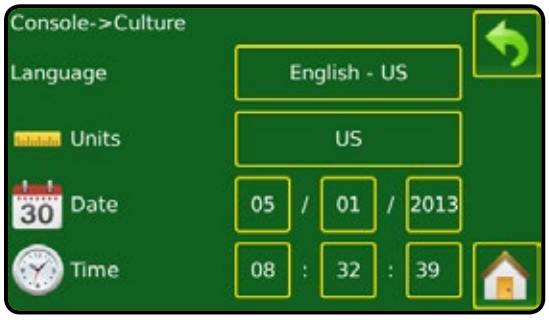
Display



Unlock Features

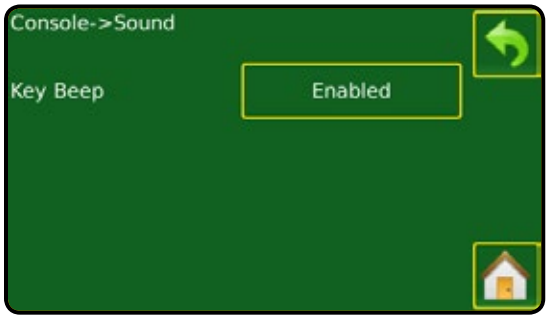


Culture



About

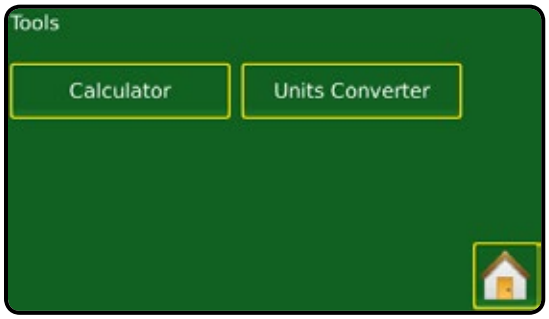
Sound



TOOLS

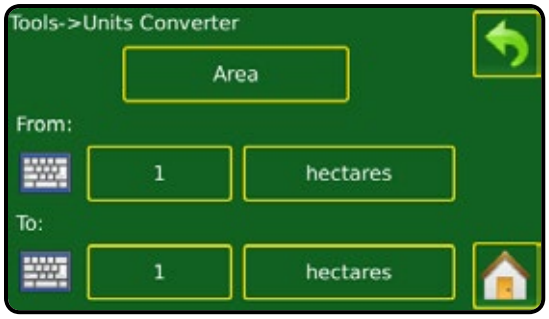
The Tool menu allows the operator to do various calculations on a regular calculator or on a unit converter. The unit converter calculates various measurements based on area, length or volume.

- ► Calculator – used to perform mathematical calculations
- ► Units Converter– used to perform unit conversions for area, length and volume



Calculator

Units Converter



RADION
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