Automatic sprayer control
Software version 1.05
Safety information

TeeJet Technologies is not responsible for damage or physical harm caused by failure to adhere to the following safety requirements. As the operator of the vehicle, you are responsible for its safe operation. The Radion 8140 in combination with any assisted/auto steering device is not designed to replace the vehicle's operator. Do not leave a vehicle while the Radion 8140 is engaged. Ensure the area around the vehicle is clear of people and obstacles before and during engagement. The Radion 8140 is designed to support and improve efficiency while working in the field. The driver has full responsibility for the quality and work related results. Disengage or remove any assisted/auto steering device before operating on public roads.
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## BOOM SECTIONS & SWITCHES

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NO.1 POWER ON, SWITCHES

Power On/Off Button
On – Press the POWER button to power on the console. Upon power up, the Radion will begin its start up sequence. Once start up is complete, the Operation screen appears.
Off – Press the POWER button. On the confirmation screen to acknowledge shut down mode, press Yes to power off the console.

WARNING! Wait 10 seconds before restarting the console.

Boom sections & Switches
The console operates with nine (9), seven (7) or five (5) section switches (depending on console model) and one (1) Master switch. Each section switch is associated with one of up to the same number of sections on the boom and illustrated on the Operation screen.

► Switches – control individual boom sections
  ▶ On – Flip the switch up
  ▶ Off – Flip the switch down

► Master switch – opens/closes the main product valves and enables/disables power to individual boom section on/off switches

Figure 1: System diagram

Matrix Pro & BoomPilot
Optional Accessory

Cable, BoomPilot adapter cable, Radion to Matrix Pro
197-100**: Direct
197-101*: CAN/power/data cable
98ET05513 Extension for main cable, 5 m
198-669**: GPS speed sensor cable, 6 m
96ET10-8D**: Speed sensor proximity, 6 m
90-02371 GPS speed sensor
99ET017-6** Speed sensor proximity, 6 m
96ET14 Cable, battery to COBO, 4 m

* Unlock code necessary to activate the BoomPilot function, contact TeeJet Technologies.
** Only one speed source at the same time.
NO.2 OPERATION SCREEN

Operation menu
The Options tab is always available on the Operation screen. This tab accesses the Operation menu where the Home button, regulation modes and target rate options display.

Operation menu buttons
- **Home**
- **Auto reg**
- **Man reg**

Automatic regulation mode
- **5%** Target rate boost percent increase
- **5%** Target rate boost percent decrease
- **0%** Return to target rate

Manual regulation mode
- **Regulation valve manual open**
- **Regulation valve manual close**

Close menu

![Figure 2: Options tab – Automatic mode](image1)
![Figure 3: Options tab – Manual mode](image2)
Information bar
The information bar displays:

- Application rate – displays the actual application rate or target application rate and accesses the preset target application rates options menu.
- Selectable information – displays user-selected information including volume applied, flow rate, flow pressure, speed, total area applied and job number.

Figure 4: Information bar

Regulation modes
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 percent increase/decrease buttons on the Operation menu. 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 section on the Information bar on 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 Regulation valve open/close buttons on the Operation menu.

1. From the Operation screen, press the OPTIONS tab to display the Operation menu.
2. Press the Regulation valve open/close buttons to manually turn the valves on/off.
3. Press the Close menu button.

Manual regulation mode
Manual regulation mode will retain an established regulation valve setting regardless of speed.

To open/close the valve:

1. From the Operation screen, press the OPTIONS tab to display the Operation menu.
2. Press the Regulation valve open/close buttons to manually turn the valves on/off.
3. Press the Close menu button.

Figure 5: Regulation options: Automatic / Manual
Figure 6: Manual regulation mode
1) SET UP THE LOCAL CULTURAL SETTINGS

Cultural configures language, units, date and time settings.

1. From the Home screen, press the CONSOLE button.
2. Press Cultural.
3. Select from:
   - Language – defines the system language
   - Units – defines the system measurements
   - Date – establishes the date
   - Time – establishes the time
4. Press RETURN arrow to return to the main Console settings screen.

Figure 7: Cultural options

<table>
<thead>
<tr>
<th>Code</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>cs</td>
<td>Czech</td>
</tr>
<tr>
<td>da</td>
<td>Danish</td>
</tr>
<tr>
<td>de-DE</td>
<td>German</td>
</tr>
<tr>
<td>en-GB</td>
<td>English (international)</td>
</tr>
<tr>
<td>en-US</td>
<td>English (USA)</td>
</tr>
<tr>
<td>es-ES</td>
<td>Spanish (Europe)</td>
</tr>
<tr>
<td>es</td>
<td>Spanish (Central/South America)</td>
</tr>
<tr>
<td>fr-FR</td>
<td>French</td>
</tr>
<tr>
<td>hu</td>
<td>Hungarian</td>
</tr>
<tr>
<td>it-IT</td>
<td>Italian</td>
</tr>
<tr>
<td>nl</td>
<td>Dutch</td>
</tr>
<tr>
<td>pl</td>
<td>Polish</td>
</tr>
<tr>
<td>pt-BR</td>
<td>Portuguese (Brazil)</td>
</tr>
<tr>
<td>ru</td>
<td>Russian</td>
</tr>
<tr>
<td>sk</td>
<td>Slovak</td>
</tr>
</tbody>
</table>

NOTE: Some languages listed may not be available on the console.

2) SET UP THE JOB PARAMETERS

Job parameters configures the target application rate settings and current nozzle. Selections are also active on the Operation screen.

1. From the Home screen, press the SETTINGS button.
2. Press Job parameters.
3. Press a setting value to adjust settings as needed.
   - Target application rate number – specifies up to three (3) target application rate presets from which to select
   - Target application rate – defines the target rate of product to apply for the selected number (these settings will be the same for all active jobs)
   - Nozzle type – selects the current nozzle type from the five (5) nozzle presets
4. Press the RETURN arrow to return to the main Settings screen.

Establish preset target application rates

1. From the Home screen, press the SETTINGS button.
2. Press Job parameters.
3. Select Application rate number 1.
4. Select an application rate to be associated with number 1.
5. Repeat steps 3 and 4 for Application rate numbers 2 and 3.

Figure 8: Establish preset target application rate 2
3) SET UP THE MACHINE

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

1. From the Home screen, press the SETTINGS button.
3. Select from:
   - 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
     - Section configuration – sets the number of nozzles on the boom which determines the spraying width during application
     - Nozzle preset setup – establishes options for up to five (5) nozzles including series, capacity, low/high pressure limits, reference flow and reference pressure
     - Regulation parameters – adjusts valve calibration and nozzle spacing and selects a regulation mode
   - Calibrations – establishes either manual/automatic settings of the Implement speed sensor, Flow sensor, Liquid pressure sensor, Fill flow sensor and Tank level sensor
   - Alarms – establishes alarms on/off and sets their trigger levels
4. Press RETURN arrow to return to the main Settings screen.

Operation

1. From the Home screen, press the SETTINGS button.
4. Press setting value to adjust settings as needed:
   - Application rate step – the percent of increase/decrease boost of the active application rate at which the product is applied
   - Speed source – selects whether to base the machine speed on input from the CAN, an Implement or a Simulated source
   - Simulated speed – establishes a speed for using the Simulated speed source
   - Minimum speed – establishes the minimum forward speed at which the system should automatically switch the main valve off
5. Press RETURN arrow to return to the Machine screen.
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Implement parameters
1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Select from:
   - Section configuration – sets the number of nozzles on the boom which determines the spraying width during application
   - Nozzle preset setup – where up to five (5) sets of nozzle options can be established to set the nozzle series, capacity, low/high pressure limit, reference flow and reference pressure
   - Regulation parameters – where adjustments to the valve calibration, nozzle spacing and regulations mode can be established
5. Press RETURN arrow to return to the Machine screen.

Figure 12: Implement parameters

Section configuration
Section configuration sets the number of nozzles on the boom which determines the spraying width during application.
1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Press Section configuration.
5. Press setting value to adjust settings as needed:
   - Section number – establishes the current section number to which changes can be made. Sections are numbered from left to right while facing in the machine forward direction
   - Number of nozzles – establishes the number of nozzles in the current section number
   - Copy section – sets all Number of nozzles counts to the same count for all boom sections based upon the current Section number
   - Section width – displays the width for the current section
6. Press RETURN arrow to return to the Implement parameters screen.

Establish number of nozzles
1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Press Section configuration.
5. Select Section number.
6. Set the number of nozzles for the selected section number.
7. Repeat steps 5 and 6 for additional Section numbers as available.
8. OPTIONAL: If all sections have the same number of nozzles, press Copy to set all sections to the current number of nozzles.

Figure 13: Establish number of nozzles

Nozzle preset setup
Nozzle preset setup establishes up to five (5) sets of nozzle options setting the nozzle type, capacity, low/high pressure limit, reference flow and reference pressure.

NOTE: Settings on both screen 1 and screen 2 are specific to the currently selected Nozzle preset number.
1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Press Nozzle preset setup.
5. Press setting value to adjust settings as needed:
   - Nozzle preset (number)
   - Nozzle series
   - Nozzle capacity
   - Factory settings
   - Low pressure limit
   - High pressure limit
   - Reference flow
   - Reference pressure
6. Press RETURN arrow to return to the Implement parameters screen.
Establish nozzle presets
1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Press Nozzle preset setup.
5. Select Nozzle preset number 1.
7. Select Nozzle capacity.
8. Repeat steps 5, 6 and 7 for Nozzle preset numbers 2 to 5.
9. OPTIONAL: Press NEXT PAGE arrow to adjust the settings for Low pressure limit, High pressure limit, Reference flow and Reference pressure. Each of these settings are specific to the current nozzle preset number.

Figure 14: Establish nozzle presets

Calibrations
For detailed instructions on sensor calibrations, see the Sensor calibrations section of this guide.
1. From the Home screen, press the SETTINGS button.
3. Press Calibrations.
4. Select from:
   - Implement speed sensor – establishes the wheel impulses over a specified distance
   - Flow sensor – establishes the impulses per litre through the Flow sensor
   - Liquid pressure sensor – establish the maximum pressure limit and no pressure calibration for the liquid pressure sensor
   - Calibrate each option in the following order:
     1. No pressure
     2. Maximum pressure
   - Fill flow sensor – establishes the impulses per litre through the Fill flow sensor
   - Tank level sensor – establishes the empty, minimum and maximum levels for the tank and calibrates the tank shape
     - Calibrate each option in the following order:
       1. Empty tank
       2. Minimum tank level
       3. Maximum tank level
       4. Tank shape
5. Press the RETURN arrow to return to the Machine screen.

Figure 15: Calibrations – Tank level sensor and Fill flow sensor
NO. 4 START NEW JOB OR CONTINUE JOB

The Data option, provides an overview of various system counters including job counters, campaign counters and total counters. From Data options screens, export as either PDF or CSV reports.

6. From the Home screen, press the DATA button.
7. Select from:
   - Jobs – displays, deletes and reports on job information
   - Campaign – displays and deletes campaign information
   - Totals – displays all counter information
   - CSV – compiles a CSV report of counters for all jobs, and for the campaign and console totals, then saves reports to a USB drive

**Figure 16: Data management options**

**Jobs**
One of up to ten (10) jobs may be selected to view job information. The current job, displayed/active on the Operation screen, may be exported as a PDF report.

Job information includes:
- Job number of information displayed
- Current date
- Applied area
- Volume of material applied
- Distance travelled
- Time travelled

1. From the Home screen, press the DATA button.
2. Press Jobs.
3. Press Job number to view information for a different job.
   - Enter any number to display another job
4. Press RETURN arrow to return to the main Data screen.

**Figure 17: Job data**

**Job data report**
The PDF button compiles active job information to be exported as a PDF report.

1. From the Home screen, press the DATA button.
2. Press Jobs.
3. Select the job from which to create a report.
4. Insert USB drive into the console and wait for PDF button to activate.
5. Press PDF button.
6. Press RETURN arrow to return to the main Data screen.

**Figure 18: Job data saved**

NOTE: The PDF icon is not available for selection (greyed out) until a USB drive is inserted properly.
Product: Radion 8140 automatic sprayer control

**SENSOR CALIBRATIONS**

### Implement speed sensor

The Implement speed sensor establishes the wheel impulses over a specified distance. Establish the value manually or automatically calibrate the value.

- **Calibration number** –
  - Automatic calibration will determine the number of impulses counted while driving 100 metres and convert the calibration number to the correct units.
  - Manual calibration, enter the calibration number in impulses per 100 meters
  - Automatic calibration – establishes the impulses using the automatic calibration function.

#### Implement speed sensor automatic calibration

1. Press **Calibrate** to start an automatic sensor calibration.
2. Drive a distance of 100 metres.
3. Press **Done** when complete.

To cancel the calibration, press **Cancel**, RETURN arrow or the Home button.

The counted wheel impulses will be displayed during the automatic calibration.

### Flow sensor

The Flow sensor establishes the impulses per litre. Establish the value manually or automatically calibrate the value.

- **Calibration number** – enter the amount of impulses counted while running 1 litre of water through the flow sensor. Use Automatic calibration to calculate impulses automatically. Manual calibration establishes the calibration and limits based on user-entered values.
- **Low flow limit** – enter the flow sensors low limit value.
- **High flow limit** – enter the flow sensors high limit value.
- **Automatic calibration** – establishes the calibration and limits if the number of impulses per litre for the flow meter is unknown or to make sure the value is correct.
- **Impulse count** – shows the number of impulses during calibration. Minimum of 10 impulses needed to do a calibration.
- **Collected volume** – enter the volume passed through the flow sensor during the calibration. Once encoded, a new flow sensor calibration value is calculated.
- **Master switch status / Cancel** – shows if the Master switch is off or on. Press the **Cancel** to cancel the calibration and return to the Flow sensor screen.
Flow sensor automatic calibration
1. Press **Calibrate** to enter automatic calibration mode.
2. Prepare to collect the ‘medium’ via the Flow sensor (minimum 100 litres).
3. Make sure the controller is in manual mode and flow is not regulated down.
4. Turn on the Master switch to start flow and calibration.
   - Impulses counted display during the automatic calibration
5. Once at the minimum 100 litres has distributed, turn off Master switch to stop calibration.
6. Press the Collected volume value.
7. Enter the precise volume which passed through the flow sensor during the calibration.

Once encoded, a new flow sensor calibration value is calculated.

To cancel the calibration, press **Cancel**, RETURN arrow or the Home button.

*Figure 21: Automatic calibration*

Liquid pressure sensor
The liquid pressure sensor settings establish the maximum pressure limit and no pressure calibration for the liquid pressure sensor.
1. From the Home screen, press the **SETTINGS** button.
2. Press **Machine**.
3. Press **Calibrations**.
4. Press **Liquid pressure sensor**.
5. Calibrate each option in the following order:
   - No pressure
   - Maximum pressure
6. Press RETURN arrow to return to the Calibrations screen.

*Figure 22: Liquid pressure sensor*

**No pressure**
Liquid pressure sensor->No pressure establishes the calibration while NO pressure is applied to the liquid pressure sensor.
1. Remove all pressure from the system.
2. Press **Calibrate** to record a new calibration value and finalise the calibration.

*NOTE: Manual calibration is not available.*

*Figure 23: Liquid pressure sensor->No pressure*
Liquid pressure sensor -> Maximum pressure

Maximum pressure

Liquid pressure sensor establishes the maximum allowed pressure limit for the liquid pressure sensor. The automatic calibration is based on the recommended maximum pressure level and a tested reference pressure level.

- Maximum pressure – enter the maximum allowed pressure limit for the liquid pressure sensor. Use Automatic calibration to calculate the maximum pressure automatically.
- Reference pressure – enter the pressure value used as reference for the actual liquid pressure sensor calibration. The reference pressure can be changed, but not while in the calibration mode.
- Automatic calibration – if the maximum pressure is not known, or to make sure the value is correct, automatic calibration establishes the calibration.
- Complete calibration – apply constant reference pressure to the sensor. Press “Done” when complete.
- Master switch status / Pressure adjustment – Shows if the Master switch is off or on. Press the UP/DOWN arrows to increase/decrease the pressure until reaching and maintaining the reference pressure.
- Minimum/maximum pressure bar – illustrates the change in pressure from minimum to maximum.

IMPORTANT: Make sure all section valves are open before opening the Master valve; otherwise, the pressure could build and damage the system.

1. Press the Reference pressure value.
2. Enter the pressure value used as reference for the actual liquid pressure sensor calibration.
3. Press Calibrate to start an automatic calibration of the sensor.
4. Turn on Master switch.
5. Press the UP/DOWN arrows to increase/decrease the pressure until reaching and maintaining the reference pressure.
6. Apply constant reference pressure to the sensor.
7. Press Done when complete.
8. Turn off Master switch to stop calibration.

To cancel the calibration, press the RETURN arrow or the Home button.

Figure 24: Liquid pressure sensor -> Maximum pressure

Figure 25: Automatic maximum pressure calibration
Maximum pressure manual calibration
1. Press the Maximum pressure value ₁.

2. Enter the maximum allowed pressure limit for the liquid pressure sensor.

Figure 26: Manual maximum pressure

Fill flow sensor
The Fill flow sensor establishes the impulses per litre. The Fill flow value can be established manually or automatically calibrated.

► Calibration number – enter the amount of impulses counted while running one (1) litre of water through the Fill flow sensor. Use Automatic calibration to calculate the impulses automatically. Manual calibration establishes the calibration and limits based on user entered values.

► Automatic calibration – establishes the calibration if the number of impulses per litre for the Fill flow meter is unknown, or to make sure the value is correct.

► Impulse count – number of impulses calculated during automatic calibration.

► Collected volume – enter the collected volume.

► Automatic calibration done – to complete the automatic calibration, press “Done” when collected volume has been entered.

Figure 27: Fill flow sensor

Fill flow sensor automatic calibration
1. Press Calibrate ₁ to enter automatic calibration mode.

2. Prepare to collect the ‘medium’ via the Fill flow sensor (minimum of 100 litres).

3. Turn on Master switch ₁ to start flow.

4. Press START CALIBRATION button ₁.

► Impulses counted display during automatic calibration

5. Once the desired amount has distributed, press the STOP CALIBRATION button ₁.

6. Turn off the Master switch ₁.

7. Press the Collected volume value ₁.

8. Enter the precise volume passed through the Fill flow sensor during the calibration.

9. Press Done ₁ to complete the automatic calibration.

To cancel the calibration, press RETURN arrow  or the Home button ₁.
Tank level sensor

Tank level sensor establishes the empty, minimum and maximum levels for the tank and calibrates the tank shape. Tank level sensor calibration settings can be exported to a USB drive and recalled for future use.

NOTE: Manual calibration is not available for any Tank level sensor calibrations.

1. From the Home screen, press the SETTINGS button.
3. Press Calibrations.
4. Press Tank level sensor.
5. Calibrate each option in the following order:
   a. Empty tank
   b. Minimum tank level
   c. Maximum tank level
   d. Tank shape
6. Press RETURN arrow to return to the Calibrations screen.

Figure 28: Fill flow sensor automatic calibration

Figure 29: Tank level sensor
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1. **Empty tank – Automatic calibration**
   Empty tank establishes the empty tank value.
   **IMPORTANT: The tank should be completely empty.**
   1. Press **Calibrate** to record a new calibration value and finalise the calibration.
   - The low-high graph should be empty
   **Figure 30: Tank level sensor – Empty tank**

2. **Minimum tank level – Automatic calibration**
   Minimum tank level establishes the minimum level of water on the tank sensor.
   **IMPORTANT: Make sure the tank is filled with the contents displayed on the screen. The amount displayed is established in Settings->OEM->Tank setup->Minimum tank content.**
   1. Press **Calibrate** to record a new calibration value and finalise the calibration.
   - The low-high graph should display approximately 5% full
   **Figure 31: Tank level sensor – Minimum tank level**

3. **Maximum tank level – Automatic calibration**
   Maximum tank level establishes the maximum level of water on the tank sensor.
   **IMPORTANT: Ensure the tank is filled with the contents displayed on the screen. The amount displayed is established in Settings->OEM->Tank setup->Maximum tank content.**
   1. Press **Calibrate** to record a new calibration value and finalise the calibration.
   - The low-high graph should display 100% full
   **Figure 32: Tank level sensor – Maximum tank level**
Tank shape – Automatic calibration

Tank shape establishes the tank shape.

1. Flip Master switch to start calibration.

- Tank level sensor graph will go from high to low as the calibration proceeds
- When Calibration progress graph reaches 100%, calibration will record a new calibration value and finalise the calibration

To pause the calibration process, flip the Master switch.

To cancel the calibration, press RETURN arrow or press the Home button.

Figure 33: Tank level sensor – Tank shape

Import / export

Tank level sensor calibration settings can be exported to USB drive and recalled for future use.

NOTE: The import/export buttons are not available for selection and are greyed out until a USB drive is inserted properly.

To import the calibration settings:
1. Insert USB drive.
2. Press IMPORT button.

To export the calibration settings:
1. Insert USB drive.
2. Press EXPORT button.

NOTE: Only one (1) tank calibration settings file can be saved on a USB drive at one time. If there is an existing file it will be overwritten.

Figure 34: Tank level sensor – Import/export
INFORMATION BAR

The information bar displays user selected information and application rate information.

Selectable information

Selectable information displays user-selected information.

1. Press either the left or right Selectable information section.
2. Select one (1) of six (6) available options to display for each side (options depend upon equipment in use).
   - Volume applied – displays volume applied for the current job number
   - Flow rate – displays current flow rate
   - Flow pressure – displays current flow pressure
   - Speed – displays vehicle speed
   - Area applied – displays applied area for the selected job number
   - Job number – displays the current job number

Selecting a job number

One of up to ten (10) jobs may be selected to view job information.

1. From the Operation screen, press the OPTIONS tab.
2. Press the HOME button.
3. From the Home screen, press the DATA button.
5. Press Job number to select current job number.
6. Press the HOME button.
7. From the Home screen, press the OPERATION button.

Figure 35: Information bar

Figure 36: Selectable information

Figure 37: Selectable information options

Figure 38: Selecting a job number
Application rate

Application rate displays or give access to:

► Application rate – while application is active, displays the actual application rate
► Target application rate – while application is inactive, displays the target rate of product to apply.
► Automatic regulation mode – Target application rate symbol will be active
Use the Boost/step percent increase/decrease buttons to adjust the target application rate
► Manual regulation mode – manual regulation symbol will remain active

► Preset target application rates options menu – defines the target rate of product to apply for the selected number. These settings will be the same for all active jobs. Range is 0 to 6,554 litres/hectare.

Select target application rate
1. Press the Application rate section.
2. Select one (1) of up to three (3) preset application rates.

Figure 39: Select target application rate

Change preset target application rate
The selected target rate can be changed either on the Operation screen or in Settings->Job parameters.

Operation
1. Press the Application rate section.
2. Select the target application rate to be changed.
3. Press KEYBOARD button.
4. Select an application rate.

NOTE: Value must be between 0 and 6,554 litres/hectare.

Figure 40: Application rate number
Settings
1. From the Home screen, press the SETTINGS button.
2. Press Job parameters.
3. Select Application rate number 1.
4. Select an application rate to be associated with number 1.
5. Repeat steps 3 and 4 for Application rate numbers 2 and 3.

Figure 41: Establish preset target application rate

Target rate percentage increase/decrease
Target rate boost/step percent increase/decrease buttons increase/decrease the application target rate per the established percentage set in the Settings->Machine->Operation setup screen under Application rate step.

Figure 42: Target rate boost/step percent

Increase/decrease percentage
1. From the Operation screen, press the OPTIONS tab to display the Operation menu.
2. Press the Boost/step percent increase/decrease buttons to adjust application rates.
3. Press the Close menu button.

Return to preset target rate
1. From the Operation screen, press the OPTIONS tab to display the Operation menu.
2. Press 0% to return to the preset target rate.
3. Press the Close menu button.

Figure 43: Application rate step

Change application rate step
Application rate step is the percent of increase/decrease boost of the active application rate at which the product is applied. Range is 1 to 20%.
1. From the Home screen, press the SETTINGS button.
4. Press Application rate step value.
5. Select an application rate step.
6. Press RETURN arrow to return to the Machine screen.
NOZZLE SELECTION

Nozzles must be preset to be available for current nozzle selection. Presets allow saving of up to five (5) nozzles for quick recall.

Selecting the current nozzle
1. From the Operation screen, press the CURRENT NOZZLE to display the Preset nozzle menu.
2. Select a nozzle type from among five (5) nozzle presets.

NOTE: Current nozzle can also be selectable on the Settings->Job parameters screen.

Presetting nozzles
Nozzle preset setup establishes up to five (5) sets of nozzle options setting the nozzle type, capacity, low/high pressure limit, reference flow and reference pressure. For more information see Settings->Machine->Implement parameters->Nozzle preset setup.

1. From the Home screen, press the SETTINGS button.
3. Press Implement parameters.
4. Press Nozzle preset setup.
5. Select Nozzle preset number 1.
7. Select Nozzle capacity.
8. Repeat steps 5, 6 and 7 for Nozzle preset numbers 2 to 5.
9. OPTIONAL: Press NEXT PAGE arrow to adjust the settings for Low pressure limit, High pressure limit, Reference flow and Reference pressure. Each of these settings are specific to the current nozzle preset number.

Figure 45: Nozzle type on Operation screen

Figure 46: Establish nozzle presets
Tank displays or give access to:

► Actual content – displays the current volume of content in the tank. Manual adjustment is directly relate to OEM fitted equipment. The volume cannot be manually adjusted if a Tank sensor is active.

► Tank filling – establishes the amount of actual and desired material in the tank and the density of that material. Options displayed directly relate to OEM fitted equipment. Different options will be available depending upon if a Tank sensor or Fill flow sensor is active. See Settings->Machine->Filling for additional information.

1. Press TANK 100.

2. Press setting value to adjust settings as needed:
   ► Actual content (unavailable when Tank sensor is active)
   ► Full tank (unavailable when Tank sensor or Fill flow sensor is active)
   ► Density type
   ► Density factor (available when Density type is Fertiliser)
   ► Desired content (available when Tank sensor or Fill flow sensor is active)
   ► Automatic filling (available when Tank sensor or Fill flow sensor is active)

3. Press RETURN arrow to return to the Operation screen.

Figure 47: Tank filling

ALARM WARNING

If there is an active alarm, an Alarm warning icon will appear next to the Tank. For a list of Alarm message codes see Appendix C – Alarm configurations.

1. Press ALARM WARNING icon to display a list all active alarms.

Figure 48: Active alarm warning list

Set up alarms

1. From the Home screen, press the SETTINGS button.
3. Press Alarms.
4. Press setting value to adjust settings as needed:
   ► Minimum tank content
   ► Flow/pressure cross check (alarm active only when both a Flow sensor and Liquid pressure sensor are active)
   ► Section output low
5. Press RETURN arrow to return to the Machine screen.

Figure 49: Alarms
PRESSURE GAUGE

The Pressure gauge displays current pressure compared with the recommended pressure range. Pressure sensor options are used to enter the sensor manufacturer maximum pressure rating and to set high and low user-determined pressure alarms.

**Recommended pressure range**
Displays the recommended pressure range for the selected nozzle. The pressure range will change depending upon the selected nozzle, target application rate (including boost/step percent increase/decrease) and working speed.

**Current working pressure**
Displays the current working pressure.

**Current droplet size**
A single nozzle can produce different droplet size classifications at different pressures. The colours displayed in the recommended pressure range are directly associated with the current droplet sizes. The droplet size displays as one (1) of eight (8) classification categories.

<table>
<thead>
<tr>
<th>Category</th>
<th>Symbol</th>
<th>Colour code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely fine</td>
<td>XF</td>
<td>Violet</td>
</tr>
<tr>
<td>Very fine</td>
<td>VF</td>
<td>Red</td>
</tr>
<tr>
<td>Fine</td>
<td>F</td>
<td>Orange</td>
</tr>
<tr>
<td>Medium</td>
<td>M</td>
<td>Yellow</td>
</tr>
<tr>
<td>Coarse</td>
<td>C</td>
<td>Blue</td>
</tr>
<tr>
<td>Very coarse</td>
<td>VC</td>
<td>Green</td>
</tr>
<tr>
<td>Extremely coarse</td>
<td>XC</td>
<td>White</td>
</tr>
<tr>
<td>Ultra coarse</td>
<td>UC</td>
<td>Black</td>
</tr>
</tbody>
</table>

BOOM SECTIONS & SWITCHES

The console operates with nine (9), seven (7) or five (5) section switches (depending on console model) and one (1) Master switch. Each section switch is associated with one of up to the same number of sections on the boom and illustrated on the Operation screen.

- **Switches** – control individual boom sections
  - On – Flip the switch up
  - Off – Flip the switch down
- **Master switch** – opens/closes the main product valves and enables/disables power to individual boom section on/off switches
  - Cannot be activated outside of the Operation screen
- **Boom sections spray status** – displays the status of the section switches in association to the master switch. Number of sections shown is established in Settings-> OEM-> Implement parameters.
  - Section on, master switch on – spray is blue
  - Section off, master switch on – spray is white
  - Master switch off – spray not shown

---

**Figure 50: Pressure gauge example**

**Figure 51: Master switch, 9 section switches**

**Figure 52: Boom sections**
### ALARM CONFIGURATIONS

<table>
<thead>
<tr>
<th>Code</th>
<th>Message / condition</th>
<th>Possible solution</th>
<th>Console path</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No flow impulses</td>
<td>Check flow sensor from test menu. Check components and programming steps related to flow.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs (1)-&gt;Flow sensor</td>
</tr>
<tr>
<td>2</td>
<td>Low liquid pressure</td>
<td>Check flow sensor from test menu. Check components and programming steps related to flow.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Liquid pressure sensor</td>
</tr>
<tr>
<td>4</td>
<td>Calibration error</td>
<td>Check components and programming steps related to implement or process registering a calibration error.</td>
<td>Settings-&gt;Machine-&gt;Calibrations -&gt; Calibration error</td>
</tr>
<tr>
<td>5</td>
<td>Density not equal to water</td>
<td>Select Water for tank contents or change fertiliser density No.. Check components and programming steps related to content.</td>
<td>Settings-&gt;Machine-&gt;Calibrations-&gt;Implement parameters-&gt;Density sensor</td>
</tr>
<tr>
<td>6</td>
<td>Below minimum speed</td>
<td>Increase speed. Check components and programming steps related to speed.</td>
<td>Settings-&gt;Machine-&gt;Operation-&gt;Target rates or Settings-&gt;Job parameters</td>
</tr>
<tr>
<td>7</td>
<td>Pressure based</td>
<td>Check components and programming steps related to implement or process registering a pressure error.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs or Settings-&gt;Machine-&gt;Implement parameters-&gt;Pressure sensor</td>
</tr>
<tr>
<td>8</td>
<td>Low flow</td>
<td>Increase speed. Check or clean nozzles. Check components and programming steps related to flow.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs or Settings-&gt;Machine-&gt;Implement parameters-&gt;Nozzle preset setup (2)</td>
</tr>
<tr>
<td>9</td>
<td>Tank almost empty</td>
<td>Refill tank. Check all components and programming steps related to contents.</td>
<td>Settings-&gt;Machine-&gt;Filling (1) or Settings-&gt;Machine-&gt;Alarms-&gt;Minimum tank contents</td>
</tr>
<tr>
<td>10</td>
<td>Target rate impossible to reach</td>
<td>Select a new target rate. Use larger nozzles. Check components and programming steps related to rates.</td>
<td>Settings-&gt;Machine-&gt;Target rates or Settings-&gt;Job parameters</td>
</tr>
<tr>
<td>11</td>
<td>Actual rate too high</td>
<td>Select a lower target rate. Check components and programming steps related to rates.</td>
<td>Settings-&gt;Machine-&gt;Target rates or Settings-&gt;Job parameters</td>
</tr>
<tr>
<td>12</td>
<td>Minimum regulation pressure</td>
<td>Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Regulation parameters</td>
</tr>
<tr>
<td>13</td>
<td>Maximum regulation pressure</td>
<td>Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Regulation parameters</td>
</tr>
<tr>
<td>14</td>
<td>Pressure too low</td>
<td>Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Nozzle preset setup (2)</td>
</tr>
<tr>
<td>15</td>
<td>Pressure too high</td>
<td>Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Nozzle preset setup (2)</td>
</tr>
<tr>
<td>16</td>
<td>Pressure/flow check</td>
<td>Check components and programming steps related to flow.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs or Settings-&gt;Machine-&gt;Implement parameters</td>
</tr>
<tr>
<td>19</td>
<td>Liquid pressure too low</td>
<td>Check flow sensor from test menu. Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Liquid pressure sensor</td>
</tr>
<tr>
<td>20</td>
<td>Liquid pressure too high</td>
<td>Check flow sensor from test menu. Check components and programming steps related to pressure.</td>
<td>Settings-&gt;Machine-&gt;Implement parameters-&gt;Liquid pressure sensor</td>
</tr>
<tr>
<td>21</td>
<td>No speed signal</td>
<td>Check components and programming steps related to speed.</td>
<td>Settings-&gt;Machine-&gt;Calibrations -&gt; Implement speed sensor</td>
</tr>
<tr>
<td>31</td>
<td>Work not possible</td>
<td>Insert or reset a USB device if saving to a USB port.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs or Settings-&gt;Machine-&gt;Calibrations</td>
</tr>
<tr>
<td>34</td>
<td>Save error</td>
<td>Check GNSS source for power/satellite reception. If no GNSS source, change speed source. Check components and programming steps related to speed.</td>
<td>Settings-&gt;Machine-&gt;Operation-&gt;Speed source</td>
</tr>
<tr>
<td>36</td>
<td>CAN speed missing</td>
<td>Check GNSS source for power/satellite reception. If no GNSS source, change speed source. Check components and programming steps related to speed.</td>
<td>Settings-&gt;Machine-&gt;Operation-&gt;Speed source</td>
</tr>
<tr>
<td>45</td>
<td>BoomPilot unit not responding</td>
<td>Check BoomPilot for power. Test BoomPilot under test menu.</td>
<td>Settings-&gt;Diagnostics-&gt;Test BoomPilot</td>
</tr>
<tr>
<td>46</td>
<td>BoomPilot unit in manual mode</td>
<td>Current operation mode is different than standard operation. If this is undesired, change mode to automatic under test menu.</td>
<td>Settings-&gt;Diagnostics-&gt;Test BoomPilot</td>
</tr>
<tr>
<td>47</td>
<td>Not all sections on</td>
<td>Current operation mode is different than standard operation. If this is undesired, check section switches are flipped up (ON). Check components and programming steps related to power.</td>
<td>Settings-&gt;Diagnostics-&gt;Test outputs (2) or Settings-&gt;Diagnostics-&gt;Test inputs (3)-&gt;Section changes or Settings-&gt;Machine-&gt;Implement parameters-&gt;Section configuration</td>
</tr>
<tr>
<td>49</td>
<td>Section output failure</td>
<td>Check components and programming steps related to sections.</td>
<td>Settings-&gt;Diagnostics-&gt;Test outputs (2)</td>
</tr>
<tr>
<td>50</td>
<td>Master output failure</td>
<td>Check Master switch if flipped up (ON). Check all components and programming steps related to Master switch.</td>
<td>Settings-&gt;Diagnostics-&gt;Test inputs (3)-&gt;Master switch</td>
</tr>
<tr>
<td>51</td>
<td>Fill valve output failure</td>
<td>Check fill valve under test menus. Check components and programming steps related to fill valve.</td>
<td>Settings-&gt;Diagnostics-&gt;Test outputs (2)-&gt;Fill valve</td>
</tr>
<tr>
<td>52</td>
<td>Low supply voltage</td>
<td>Check voltage supply under Diagnostics.</td>
<td>Settings-&gt;Diagnostics-&gt;Supply voltage</td>
</tr>
</tbody>
</table>
NO.1 POWER ON

NO. 2 OPERATION SCREEN

NO. 3 GO TO HOME
1) SET UP THE LOCAL CULTURAL SETTINGS
2) SET UP THE JOB PARAMETERS
3) SET UP THE MACHINE
   1) Operation
   2) Implement parameters
   3) Verify sensor calibrations

NO. 4 START NEW JOB OR CONTINUE JOB

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