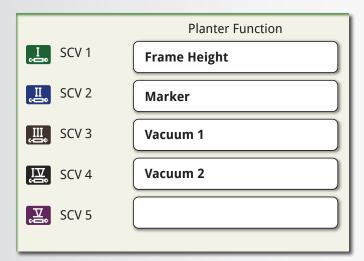




CAUTION: Review, understand, and follow all procedures and safety messages in the operator's manual. This guide is not a replacement for the operator's manual.

NOTE: The 4640 Universal Display is only compatible with John Deere GPS receivers.



Verify the hydraulic connections. See the connection recommendations in the planter operator's manual. Record the hose functions and SCV number. Vacuum and frame control automation depend upon the correct SCV assignment. Other functions depend upon the correct setup. Load the Tractor Implement Automation into the display when using Easy Fold.





Turn OFF (disengage) the electric power generation (EPG) using the toggle before deactivating the tractor or planter power generation.



Select the Advanced Settings button in the SeedStar™ application to access the SCV Assignments.

NOTE: If the planter is moved to a new tractor, install the planter application from the Software Manager onto the tractor display.

NOTE: To perform a Runoff procedure through a mobile device, download the PlanterPlus™ application from the Apple™ App Store™ or the Google Play™ store.



Help information is available from the pages accessed through the SeedStar™ application.

Pre-Operational Checks



Advanced Settings



SeedStar™



Equipment Manager



PlanterPlus™

Select the Advanced Settings button in the SeedStar™ application and verify the basic parameters for various systems. Verify the SCV connections to the tractor and the SCV assignments. See the planter operator's manual for connection recommendations.

Select the Equipment Manager application and verify the implement profile settings for the planter.

Select the SeedStar™ application and then select the Setup screen area. Verify the crop type and seed variety within the Work Setup. Select the seed disk used for the crop. See the seed meter settings in the planter operator's manual. Verify the Product Alarms and the Gauge Wheels downforce settings.

Select the Target Rate screen area and establish the targets for this crop.

Verify that the planter is ready (tire pressure, frame height, lubrication, service, and other adjustments). Refer to the planter operator's manual or the PlanterPlus™ application.

Select the Diagnostics and Calibrations. Select the Calibrations tab. Review the application Help to determine if calibrations are needed.

Activate the tractor or planter power generation and then engage the EPG system.

Engage the vacuum and select the Fill button.

Select the Vacuum and establish the targets for this crop. See the planter operator's manual for vacuum recommendations.

Select the Diagnostics and Calibrations. Select the Procedures tab. Perform a runoff, make the required meter adjustments, and then conduct performance testing as required. See the planter operator's manual for settings and adjustments.

PlanterPlus[™] helps with setup and configuration. It also allows Runoff and Meter Performance tests to be controlled from a mobile device. Download the application from the Apple[™] AppStore[™] or the GooglePlay[™] store.

Run Pages

Color Indicators:

Colors are used on the tiles, the bar graphs, and the value readings. **Black:** The value is within a target range. Amber: The value is near an alarm limit. Green: The value is within a target range. Red: The value is outside an alarm limit. 12 lb 65 lb 75 lb Pause 14:14 🦄 RTK **Planter Overview ((+)** Scrolls through the active run pages. Location EPG Use the Layout Manager Field ON OFF application to configure the run pages. Fertilizer 120 Engaged psi 160 Vacuum Frame Control Plant Mode 12 | 12 Drawbar Select to access the **Active Marker** frame controls. **Population** Row Cleaners Gauge Wheels Auto Mode 52 lb 32.644 98% Left **328,004** 👯 79 lb | 🕀 75 lb ◆ 50 lb View or select which Right marker activates next. Singulation Seed Spacing Closing Wheels 31 lb 94.9% 0.13 Counters A /// ac 2.4 X Tools All of the modules can be moved or replaced using the Layout Manager 0 믦 O AUTO application and saved as additional SECTION CTL OFF SEEDSTAR3 QUICK START run pages. GUIDANCE MENU Opens the Spacing details. When a tile is selected, Returns to the Opens the Downforce details. main tile layout. the tile area changes to show details for the tile selected. A bar also appears with • 1/**////** 36,000 1 👯 99 lb several tabs.

Layout Manager — Run Pages

Y/% 35,600

Opens the

Population details.



Layout Manager

To add shortcut keys, select the Menu, Applications tab, Layout Manager application, and the Active Set or All Run Pages tab.

- Select a run page to edit or select Add New.
- Select the Add Module. After selecting Add, choose an application to see the associated modules available.

100 lb

98.7%

Opens the

Singulation details.

Opens more

tile options.

• Save the edited or new run page. Select the Active Set tab and add the new run page. Select a page on the list to arrange the order displayed using the arrow buttons.

Run Pages Seed Spacing: Select this to display a Population: Select this to display the target rate selections, edit the rates, or bar chart showing the spacing consienter new rates. Alarm settings are here stency, referred to as the Coefficient in the Advanced Rate mode. of Variation (CV). Row Cleaners: Select this to Gauge Wheels: Select this open the row cleaner controls. **Singulation:** Select this to to display bar charts that display bar charts that show the show the downforce **Closing Wheels:** Select this to percentage of seed skips and margin, ground contact, open the closing wheel controls. multiples for each row. and downforce. 14:14 RTK **(Planter Details** \odot SeedStar Planter **0** ft Gauge Wheels **Row Cleaners** Population 31,140 **52 lb** 98% **36,000** 👯 79 lb | 🕀 75 lb ⊕ 50 lb Singulation **Seed Spacing** Closing Wheels 95.7% 31 lb 0.12 The row with the Gauge Wheels Select to open the highest population. **Population** downforce controls. R12 83,300 Select to enter a row to view the 73 lb R4 34,400 population. 79 lb • 75 lb 'R6 23,900 The row with the X Tools Pause lowest population. (3) O AUTO Add the SeedStar™ shortcut Operational status of each meter Select to pause the automatic that is commanded ON or OFF either keys using the Layout Manager downforce adjustment while

Access to quick link buttons for helpful features.

manually or by section control.

- Seed disk, variety setup, and alarm settings.
- Basic or advanced seed rate option.
- Tractor speed, planter height, and downforce settings.
- Tractor hydraulic assignments.

application.

- Frame folding controls.
- Vacuum, row cleaner, and closing wheel settings.
- Fast Start settings.
- Planter and row Runoff.
- Various calibration and diagnostic screens.

in the active downforce mode.

Layout Manager — Shortcut Bar



Layout Manager

To add shortcut keys, select the Menu, Applications tab, Layout Manager application, and the Shortcut Bars tab.

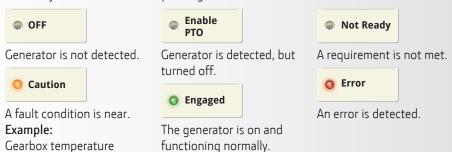
- Select the shortcut bar to edit.
- Select the shortcut keys to remove or add. After selecting Add, choose an application to see the associated shortcuts available.
- Select a shortcut key to add and save the edited shortcut bar.

Run Page Modules

Electric Power Generation



Engages and disengages power to the row unit motors. This does not control the tractor PTO or hydraulics that run the power generator.



Vacuum



Manual vacuum control engaged.



Vacuum sensor error.



Hydraulics are not engaged.



Automated vacuum engaged.



Tractor hydraulics are incompatible.



Tractor is compatible. Vacuum sensor error.



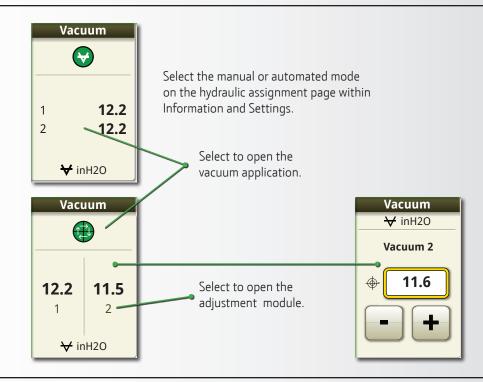
Tractor hydraulics are configured wrong.



Tractor hydraulics are not engaged.



The seed meters are not filled with seed.



Gauge Wheel Downforce



Active downforce engaged.



Downforce sensor error.



Downforce system is ready.



Planter is lowered.



Ground speed met.



Automatic downforce adjustment is paused.



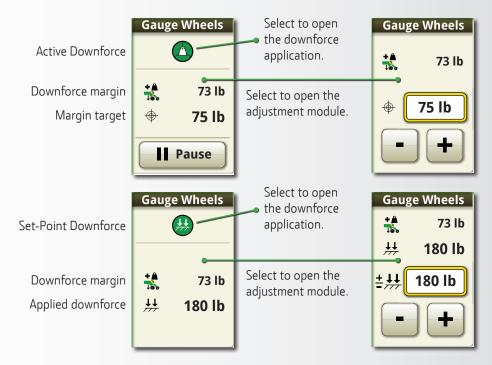
Set-Point downforce engaged.



System error.



Ready, but not engaged.

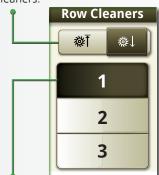


Row Cleaners



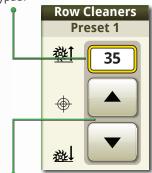
Select to open the Row Cleaner control screen in the SeedStar™ application.

Select to engage or disengage the row cleaners.



Select to choose one of the preset pressures. Adjust the pressure for each preset in the SeedStar™ application.

Select to enter a pressure using the keypad.



Select to adjust the pressure by the increment set on the Information and Settings screen.

Section Control

Select the Section Control area of the Run Page or enter the SeedStar™ application to command the sections ON and OFF.

Select the Equipment Manager application to assign the Rate Groups for mapping.



Indicates the drive status of the seed metering system.



Indicates sections that are actively delivering seed.



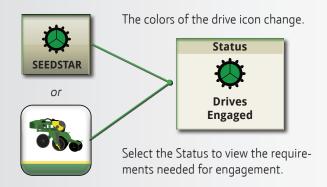
Indicates inactive sections that were commanded OFF with the arrow buttons.



Indicates inactive sections that were commanded OFF by Section Control.

Indicates that a section is commanded ON and the planter is ready to plant.

Indicates that a section is disabled (typically seen when split rows are OFF).





Select to access manual control of the sections.



Use the buttons for manual command of the sections.



Indicates that the Section Control application is in command of the sections.



Indicates that Section Control is disabled.



Indicates that Section Control is not available or not activated.



Error detected. Messages appear.



The power generation is OFF.



The power generation is ON.



The ground speed requirement is met.



The planter is lowered.



All sections are commanded off, but all the drive requirements are met and ready.

The SeedStar™ shortcut key provides access to the SeedStar™ application. The icon alters appearance according to the status of the seed meter drives. Select the drives status on the SeedStar™

The Target Rate shortcut key shows the selected target rate. When only two target rates are loaded, the key toggles between the two rates. When three or more target rates are loaded, the key provides direct access to the target rate selection and setup page.

application main page for details.

Short Keys

If the meter drives requirements are met (except motion and ground speed) the Fast Start shortcut key engages the seed meters, at the target rate, for six seconds. This provides immediate seed delivery when the planter is motionless. If the ground speed requirement is met within the six seconds, normal operation resumes.

Select the Advanced Settings within the SeedStar™ application to auto-enable Fast Start when the planter is lowered.







Frame Control

(if equipped)

Access the frame control through a run screen module or the Frame Control button on the main page of the SeedStar™ application.

The Frame Control module shows the main control mode and the current function. Select the module screen area to adjust all frame functions.

The Marker area shows the current mode of operation and which marker is active. Select a button to switch the active marker.

Do not detent the selective control valves (SCV) while controlling the Transport frame functions.

If equipped with Easy Fold, verify the SCV assignments and height settings through the advanced settings in the SeedStar™ application before use.

The Tractor Implement Automation feature must be activated to use Easy Fold with planters that connect to a tractor 3-point hitch. Engage the tractor auto-resume to activate the Easy Fold feature. If the 3-point hitch movement is interrupted by the operator, the tractor Auto Resume must be selected to resume the Easy Fold control of the hitch.





Tiles and Tabs

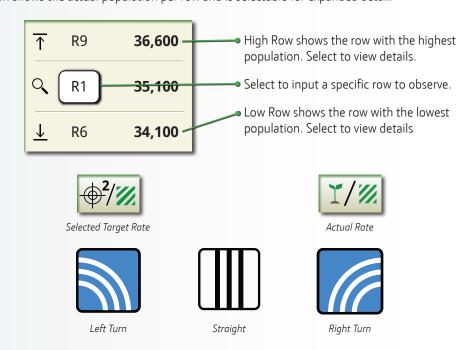
Population: Shows the planter average (actual) and the current target (the average target with advanced rates). Select the tile or tab to open a target rate selections area. The bar graph shows the actual population per row and is selectable for expanded detail.





The Curve Compensation icon appears above the bar graph when the feature is turned ON. Select the More Features tab (available after selecting a tile) to access the curve compensation feature.

Select the Equipment Manager application to assign the Rate Groups for mapping. Select the Work Setup application to edit the seed variety layout when using the advanced seed rates.

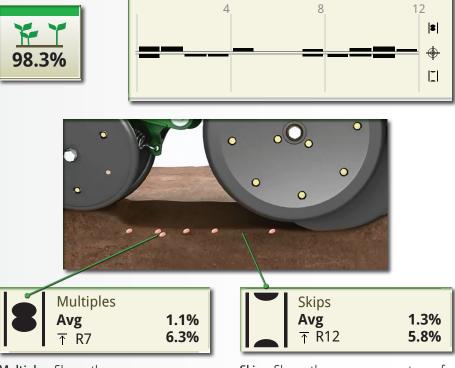


Singulation: Shows the average seed singulation for all rows. Select the tile or tab to open a bar graph that shows the percentage of multiples across the top of the graph and the percentage of skips across the bottom.

Singulation 98.0%

<u>↓</u> R12 **76.3%**

The row with the lowest singulation percentage is shown above the graph.



Multiples: Shows the average percentage of multiple seed drops and the row with the highest percentage of multiple seed drops.

Skips: Shows the average percentage of seed skips and the row with the highest percentage of seed skips.

NOTE: With MaxEmerge row units, dashes appear in place of values when the seed counts exceed 40 seeds per second. The target rate, row spacing, and ground speed affect the seed count.

Gauge Wheels: Both the tile and tab indicate if the downforce system is in Active or Set-Point mode. The tile shows the percentage of ground contact, the downforce margin, and the target margin. The tab shows the downforce margin. Select the tile or tab to open bar graphs for downforce and ground contact.

To access the adjustment page, select the bar graph, the run page module (Gauge Wheels), or the edit button on the Alarms page. Access the Alarms page from the Tools button on the run page or through the SeedStar™ application.





The downforce margin is shown in the upper bar chart. The target margin is displayed as well as the two rows with the highest and lowest reading.





Applied Downforce: The bars show the applied force for each row unit. The average force is shown next to the toggle button.





Ground Contact: The bars show the percent of good ground contact. The percentage is also shown for the overall average and the row with the lowest value.

To verify the correct downforce as the field conditions change, use field checks. Plant a short distance with a closing wheel held above the soil (use a chain or strap with the closing force at zero). Inspect the seed furrow. Adjust the target margin or applied force accordingly.



Too Much Downforce: The furrow walls are compacted, root growth is impeded, and the furrow is difficult to close.



Too Little Downforce: The furrow walls crumble and seed placement is inconsistent.







The toggle button alternates the lower bar chart between Ground Contact and Applied Downforce.



Set-Point Mode: In this mode the applied force is adjustable and remains at the set level. The downforce margin is displayed. The icon turns green when downforce is engaged.



Active Mode: In this mode, the target margin is adjustable and the system automatically sets the applied force. Areas of the icon turn green as the conditions are met for engagement. Select the icon to view the status indicators.



Ideal Downforce: The furrow walls are firm, but not compacted.

NOTE: With the row units in the planting position with downforce applied, attempt to rotate the gauge wheels by hand. Wheels that turn too easily are a sign of too little downforce. Wheels that are impossible to turn are a sign of too much downforce.

Seed Spacing **0.12**



Seed Spacing: Both the tile and tab show the average seed spacing for all rows. Select the tile or tab to open a bar graph that shows the consistency of seed spacing. Spacing is less consistent as the bar height increases. The degree of consistent spacing is displayed as the coefficient of variation (CV).

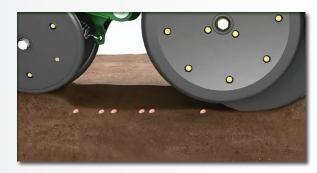
Multiples	
Avg	1.1%
₹ R7	6.3%
Skips	
Avg	1.3%
⊤ R12	5.8%

↑ R10 **0.18**

Multiples: Shows the average percentage of multiple seed drops and the row with the highest percentage of multiple seed drops.

Skips: Shows the average percentage of seed skips and the row with the highest percentage of seed skips.

The row with the least consistent spacing is shown above the graph.



- Zero CV is perfect spacing.
- 1.0 CV is the poorest possible spacing.
- 0.35 CV is typical spacing.

Row Cleaners: The tile shows the target and current down pressure. Depending on the setup, the tile either shows the pressure for the entire planter or shows the wing frames and center frame separately. Select the tile to open a screen area for row cleaner control. The screen area for row cleaner control provides information and control of the row cleaner system.

Row Cleaners + **52** + 50



To view or hide the Up Pressure, choose the option on the advanced settings page in the SeedStar™ application.







Indicates the status. Select to view a status page.





Toggles the row cleaners down into the active position or up into the inactive position.



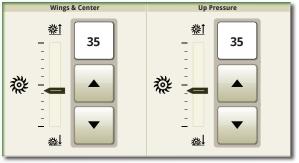


Select a preset. The target pressures and actual pressures appear. Select the pressure screen area to make adjustments to the preset selected.

Wings	Center	Up Pressure
⊕ 35	⊕ 35	⊕ 35
₩ ↓ +36	≱ ↓ ↑36	₩ ↓ +36

Unsynchronized View

In general, adjusting the down pressure alone moves the row cleaners up and down. Once a position is established, adjusting the down pressure and up pressure in the same increments changes the floatation. Similarly, once the floatation is established, adjusting the down pressure alone changes the position.



Synchronized View

The slide bar represents the pressure value, not the row cleaner position.

Ride Quality \$\frac{1}{2}\$ 95%

Ride Quality: The tile shows the average ride quality for all rows. Select the tile to open a bar graph that shows the ride quality for each row. Ride quality is better as the bar height increases.

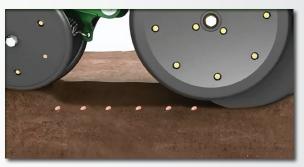
 Ride Quality

 ↑ R36
 100%

 ↓ R45
 91%

The values next to the graph show the row with the highest ride quality and the row with the lowest ride quality.





Ride quality can effect seed spacing and depth (especially for MaxEmerge™ planters. Increasing the downforce improves the ride quality, but too much downforce reduces the quality of the seed furrow. Once the downforce is maximized, reduce the ground speed to improve the ride quality.

Curve Compensation: The tile shows the status of the feature. Select the tile to open the feature control.



Left Turn



Straight



Riaht Turr



The indicator on the gauge shows the current degree of turn.

The status is shown next to the ON/OFF toggle button when the feature is ON.

The bar graph displays the ground speed for each row unit. The ground speed for the tractor and for the row units with the highest and lowest speed is shown above the graph.

The meter motors adjust to the ground speed for an accurate population at every row.

Other Settings

Settings Manager: Saves the values and settings entered by the operator. The application saves things like the seed disk and crop settings, alarm limits, population targets, planter configurations, the advanced planter settings, the Implement Profile settings, downforce, row cleaner, and pneumatic closing wheel settings, and the tractor settings for SCV and transmission.

In order to recall parameters, the various entries must be selected within the Settings Manager. Select the SeedStar $^{\text{M}}$ entry to save the planter settings and select other entries to save the tractor settings and more.

To function correctly, the planter must be attached to the same tractor with the same hitch configuration. When connecting to another tractor, either save a new entry or edit a current entry using the new tractor parameters.



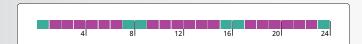
Select the Settings Manager application to choose one of the following actions:

- Select a saved entry to initiate those settings.
- Edit a saved entry to change what settings are saved.
- Select Save Current Settings to either create a new entry or update the current selection with the current settings.

Advanced Target Rates: Allows you to assign different rates for each row.



The Advanced Target Rate must be selected in the Advanced Settings.



Access the target-rate Setup page from the Population screen area on the Run Page or application Overview or from a Target Rate module. Select the screen area for the variety layout.



- Select the Work Setup application and select the crop variety.
- Select a single, dual, or custom layout.
- Enter each variety with a corresponding color designation.
- Access the target rate Setup and edit the target population for each color designation.

Split Row Alternation: Quickly alternate between narrow and wide row spacing.





- Select the planter application.
- Select the Setup screen area.
- Select the Seed tab and change the number of rows enabled.

Other things to remember when you change crops are target rates, seed meter settings, alarm settings, marker length, hitch position, vacuum settings, and more. The Settings Manager is a good place to save the wide and narrow row configurations.

How to Find Topics

SeedStar™ application: **Select**



Onscreen Help: Select







or and then the Help tab.

Implement Profile: Select



then Planter:

All navigation begins from the SeedStar $\!\!^{\mathtt{m}}$ application main page unless otherwise noted by the * symbol. Most items are also accessible from the run page modules.

Topic	Item	Navigation to Item
Advanced Settings Help	Information and Settings Help	From a SeedStar™ App screen > select the Help Information or Advanced Settings button > select Help tab > scroll to and select the Advanced Settings link > select a topic link for Help. From a SeedStar™ App screen > select the Help Information or Advanced Settings button > select Help tab > select SeedStar™ quick link > select SeedStar™ link > scroll to and select the Advanced Settings link > select a topic link for Help
Electric Power Generation	ON/OFF toggle	EPG screen area
	Motor speed gauge	
	Hydraulic pressure gauge	Diagnostics and Calibrations button > EPG > Overview with
	Component status	the planter power generation system
	System voltages	
	Main voltage gauge	
	Gearbox temperature	Diagnostics and Calibrations button > EPG > Overview with
	Component status	the tractor power generation system
	System voltages	
	Drive status	Status
Seed Meter Motor	Rotate to fill the seed disk	Meter Fill button
	Rotate to purge the brush	Brush Purge button
	Crop selection	Setup > Work Setup button > Crop and Variety input boxes *Work Setup application > Crop and Variety input boxes
Seed meter	Seed disk (bowl) selection	Setup > Seed tab > Seed Disk input box
	Split row enable/disable	Setup > Seed tab > Number of rows enabled
Seed motor start and stop (frame height)	Common or separate heights	Advanced Settings button > Seed Motor > Edit Settings > Common Threshold checked or unchecked
	Set the position	Advanced Settings button > Seed Motor > Edit Settings > input box or set current position button
Fast Start	Automatically enable as planter lowers	Advanced Settings button > Fast Start > check or uncheck Auto-Enable
	Override section control during Fast Start	Advanced Settings button > Fast Start > check or uncheck Override
	Manually activate Fast Start	Shortcut key
Seed Meter Runoff	Meter, row, and planter runoff	Diagnostics and Calibrations button > Procedures tab > Runoff

Topic	ltem	Navigation to Item
Basic Target Rate	Choose the basic rates method	Advanced Settings button > Rate Setup unchecked
	Select another target	Target Rate > radio button Population screen area (*or run page overview) > Population tab > radio buttons
	Change or enter a target rate or prescription	Target Rate > input box Population screen area (*or run page overview) > Population tab > Edit button > input boxes
Advanced Target Rate	Choose the advanced rates method	Advanced Settings button > Rate Setup checked
	Setup advanced rates	Target Rate > row layout image > Single, Dual, or Custom tab >
	Enter seed varieties	seed variety input-boxes
	Select another target	Overview > Population tab > Population screen > radio but- tons *Run page module or overview > Population tab > Popu- lation screen > radio buttons
	Change or enter a target rate or prescription	Overview > Population tab > Population screen > Edit button > input boxes *Run page module or overview > Population tab > Population screen > Edit button > input boxes
	Folding, unfolding, and planting frame functions (planters that need frame control)	Frame Control button
Frame control	Selective control valve (SCV) mapping	Advanced Settings button > SCV Assignments > Edit button > input boxes
	Height sensor calibration	Diagnostics and Calibrations button > Diagnostics > Height - Drives > Calibrate
	Height setting for seed meter start/ stop	Advanced Settings button > Seed Motor > Edit Settings
	Automation ON/OFF toggle	Vacuum
	Automation ON/OFF toggle	Advanced Settings button > SCV Assignments > Edit button > input boxes
	Adjustment (with automation ON)	Vacuum > input box or +/- buttons
Vacuum	Adjustment increment (with automation ON)	Advanced Settings button > Vacuum Automation > Increment Adjust > input box
	Adjustment (with automation OFF)	Tractor hydraulic flow (on-screen or manual valve)
	System status	Vacuum > mode icon
	Sensor setup	*Equipment Manager application > Sensor Setup > input box
Alarms	Seed Population (with basic target rates)	Setup > Product Alarms tab > input boxes
	Seed Population (with advanced target rates)	Overview > Population tab > Population screen > Edit button > input boxes *Setup > Product Alarms tab > Target Rates button > Edit Rates button > Edit button > input box
	Seed Singulation	Setup > Product Alarms tab > input box
	Seed Spacing	Setup > Product Alarms tab > input box
	Liquid Fertilizer	Setup > Product Alarms tab > input box
	Down force Margin	Setup > Gauge Wheels tab > input boxes
	Ground contact	Setup > Gauge Wheels tab > input boxes
	Ride quality	Setup > Gauge Wheels tab > input boxes

Topic	ltem	Navigation to Item
		Population screen area (*or run page overview) > Gauge
	Access all down force	Wheels tab > Margin, Contact, or Down force screen area
	Access all down force	Setup > Gauge Wheels tab > Down force Settings button *Run
		page module > Status icon (available on some modules
	Active or Setpoint ON/OFF toggle	See the Access all down force item
	Pause timer	See Access all down force item
	r dusc timer	*Available on some run page modules
Down force	Pause timer duration	Advanced Settings button > Gauge Wheels > Pause Timer >
		input box
	Davin favor adjustment	See the Access all down force item
	Down force adjustment	*Available on some run page modules
	David fares a division and in an analysis	Advanced Settings button > Gauge Wheels > Increment Adjust
	Down force adjustment increment	> input box
	System status	See the Access all down force item
	A I	Setup > Gauge Wheels tab > input boxes
	Alarms	See the Access all down force item
	B 1	Population screen area (*or run page overview) > Population
	Population	tab
		Population screen area (*or run page overview) > Down force
	Down force (Setpoint and Margin)	tab
		Population screen area (*or run page overview) > Singulation
	Seed Singulation	tab
Bar Graphs	Seed Spacing	Population screen area (*or run page overview) > Spacing tab
	Dista Ossalitas	Population screen area (*or run page overview) > Other tiles
	Ride Quality	tab > Ride Quality tab
	5 1	Population screen area (*or run page overview) > Other tiles
	Seed meter and belt revolutions	tab > rpm tab
	6 1	Population screen area (*or run page overview) > Other tiles
	Seed motor and belt motor torque	tab > Torque tab
	Control screen	Population screen area (*or run page overview) > Other tiles
		tab > Row Cleaners tab
Row Cleaners		*Run screen module
	Enable and disable	Advanced Settings button > Row Cleaners > toggle button
	Adjustment increments	Advanced Settings button > Row Cleaners > Step Size input
		box
	Reset to defaults	Advanced Settings button > Row Cleaners > Reset button
Closing Wheels	Control screen	Population screen area (*or run page overview) > Other tiles
		tab > Closing Wheels tab
		*Run screen module
	Group enable and disable	Advanced Settings button > Closing Wheels > toggle button
Curve Compensation		Population screen area (*or run page overview) > Other tiles
	Details screen	tab > Curve Compensation tab
		*Run screen module
	Enable and disable	Toggle button on the Details screen





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