

INSTALLATION & CONFIGURE GUIDE**MONOSEM PLANTER SEEDSTAR™ 2 INSTALLATION & CONFIGURE GUIDE
SILVER WEDGE BOX (AA102798)**

This guide provides instructions on how to complete the installation and configuration of John Deere SeedStar™ 2 control and monitoring on a Monosem planter.

This guide applies to the installation and configure of the SILVER colored SMVR module (wedge box) only – John Deere part number AA102798.

This guide was created by Monosem, to assist the dealer in installation and setup of SeedStar™ 2 on a Monosem planter. Installations may vary, consult your John Deere™ Integrated Solutions Specialist for more information.

The following guide was created using the display simulator in MyJohnDeere™ with these settings:

Display - 4640 Universal Display

Planter - 1720 CCS™ Integral 16 row

Two hydraulic drive motors

SeedStar™2 Controller

Other installations will vary; however, they will follow the same set of instructions.

READ ALL INSTRUCTIONS COMPLETELY BEFORE BEGINNING INSTALLATION

NOTE: It may be necessary to work among the planting units during the installation. Please make sure planter is parked on clear, flat area and lowered to the ground.

Please follow steps below.

Installation:**1. Upon delivery of the planter:**

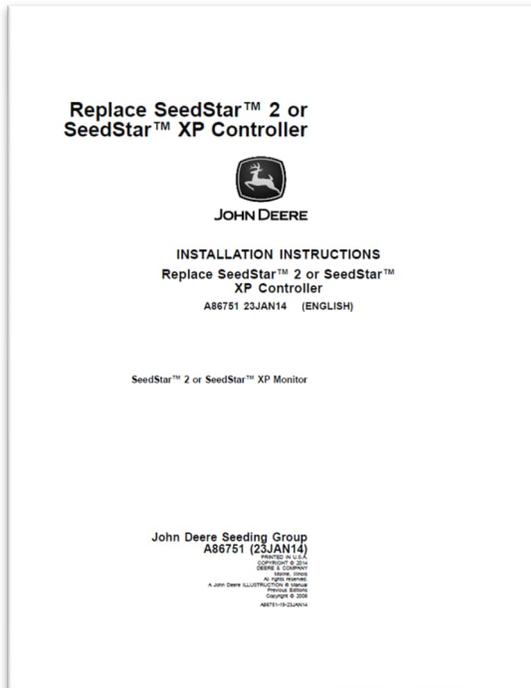
- Perform standard Pre-Delivery Inspection.
- Install John Deere™ dealer sourced parts onto the planter.
- This includes the Controller(s), Front Harness, and CAN Terminator.

ORDER FROM JOHN DEERE DEALER			
24 ROWS OR LESS			
Quantity	Part Number	Description	
1	AA102798	Wedge Box Controller - Not Programmed	
1	AA70061	Front Harness	
1	RE207311	CAN Terminator	
ORDER FROM JOHN DEERE DEALER			
25 - 48 ROWS			
Quantity	Part Number	Description	
2	AA102798	Wedge Box Controller - Not Programmed	
1	AA70061	Front Harness	
1	RE207311	CAN Terminator	

- Ensure all electrical connections are secure.
- Safely connect the planter to the tractor.

2. Programming Controller – AA102798 (Silver Box)

- Reference John Deere Publication - A86751
 - Can be downloaded from the John Deere Technical Information Store.



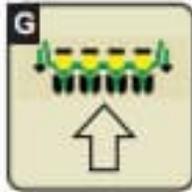
- **NOTE: Controllers are shipped without software!**
- The latest SeedStar™ 2 software must be downloaded from the John Deere Custom Performance Website and programmed with Service ADVISOR™ before use.
- Use Generic PIN: **1A01700AA32000000**

- **FOLLOW ALL STEPS OUTLINED IN A86751 BEFORE PROCEEDING.**

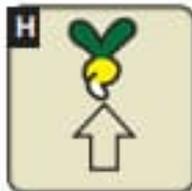
3. Run Screen Key:



Planter – Main: Select for planter main run screen.



Planter – Configuration: Select to change planter frame, drives, and sensor configuration.



Planter – Rates: Select to change crop type, rates, and meter configuration.

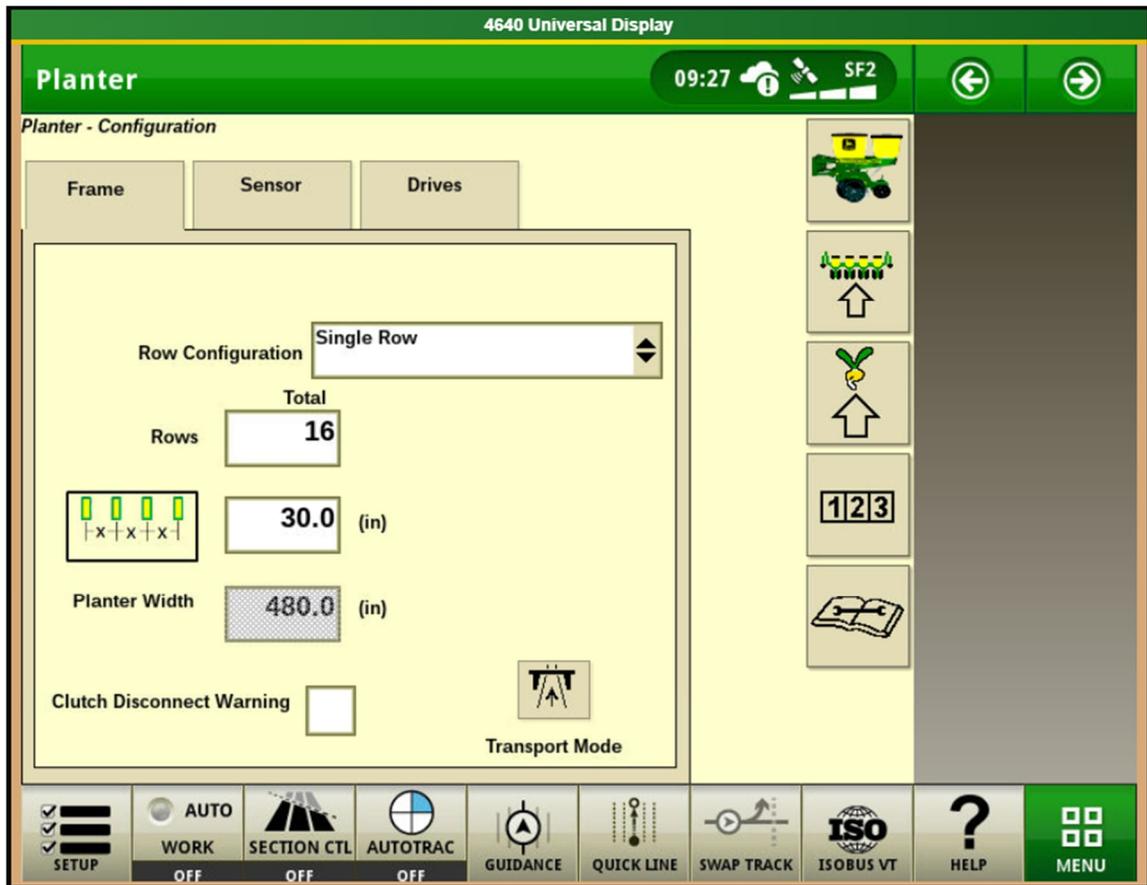


Totals: Select to view planted area, hours, and calculators.



Diagnostics: Select to view sensor readings and fault codes.

4. Configure Frame and Row Layout



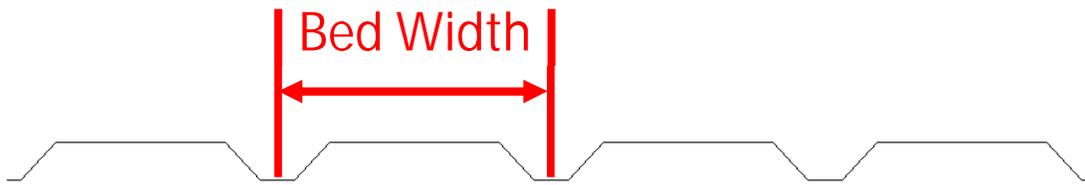
- Select **Planter-Configuration**
- Select **Frame** tab
- Set **Row Configuration** to **Single Row**
- Select **Rows** and enter the total number of rows (or seed lines)
- Select **Row Spacing**
 - Enter the distance (inches) between each row
 - For MS planter spacing, see step 5 below
- **Planter Width** is automatically calculated

5. Calculate MS Planter Row Spacing

MS row spacing calculation:

$$\frac{\text{Bed Width}}{\text{Number of lines per bed}} = \text{Row Spacing}$$

Number of beds x lines per bed = # of Rows

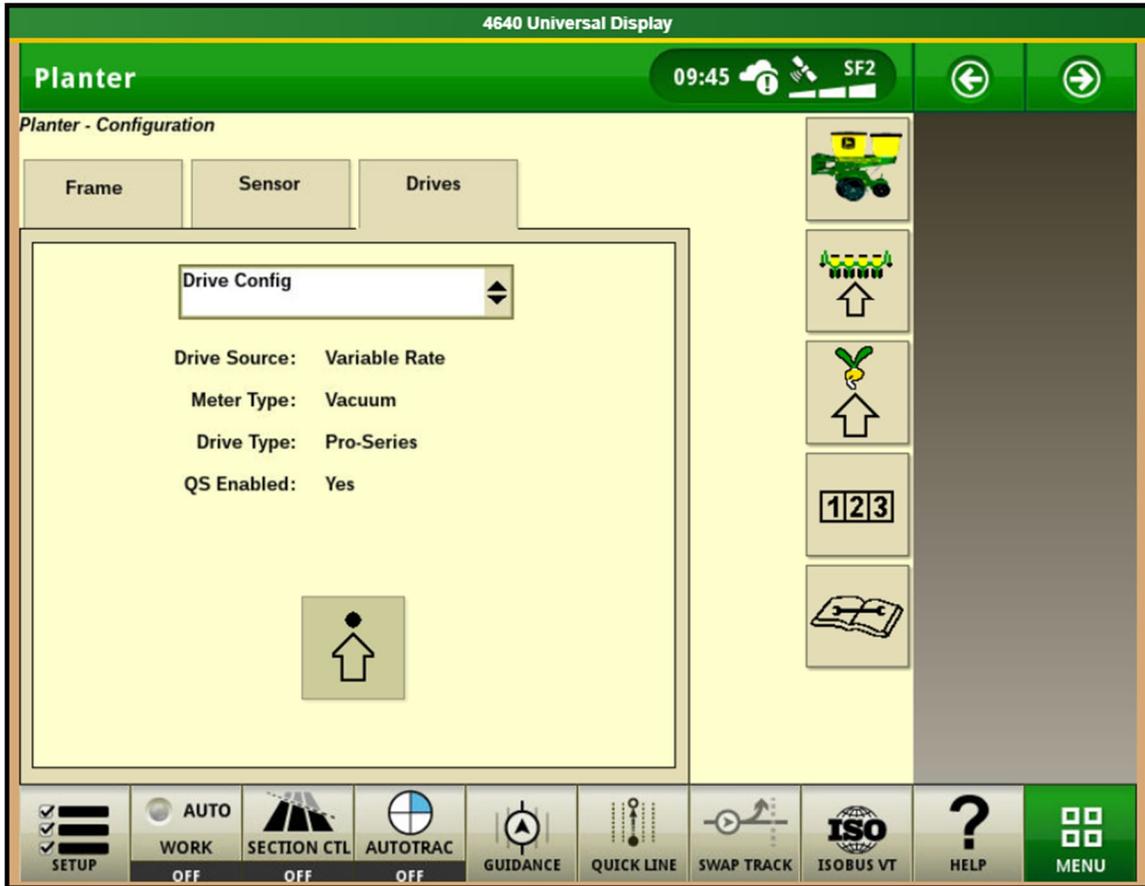


- Example: 3 beds with 80-inch bed width and 8 lines per bed:

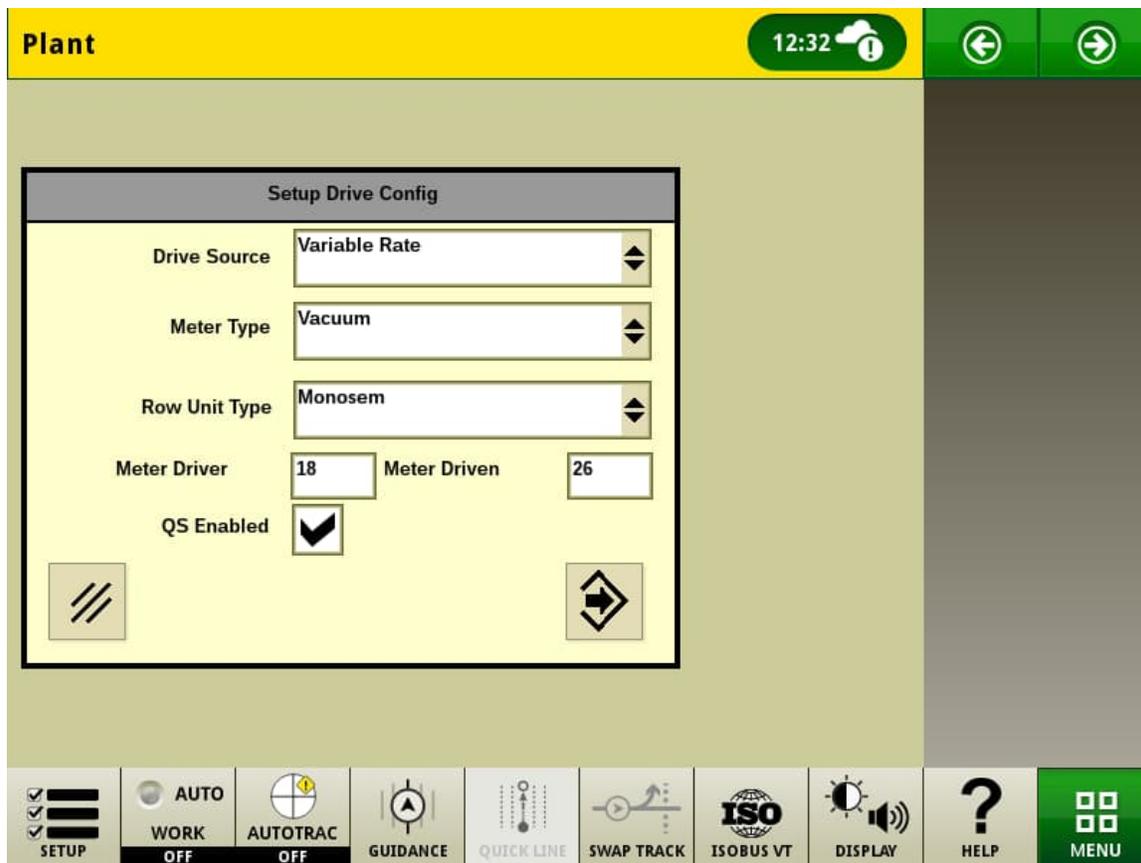
$$80\text{-inch bed} / 8 \text{ lines per bed} = \mathbf{10 \text{ inch row spacing}}$$

$$3 \text{ beds} \times 8 \text{ lines per bed} = \mathbf{24 \text{ rows}}$$

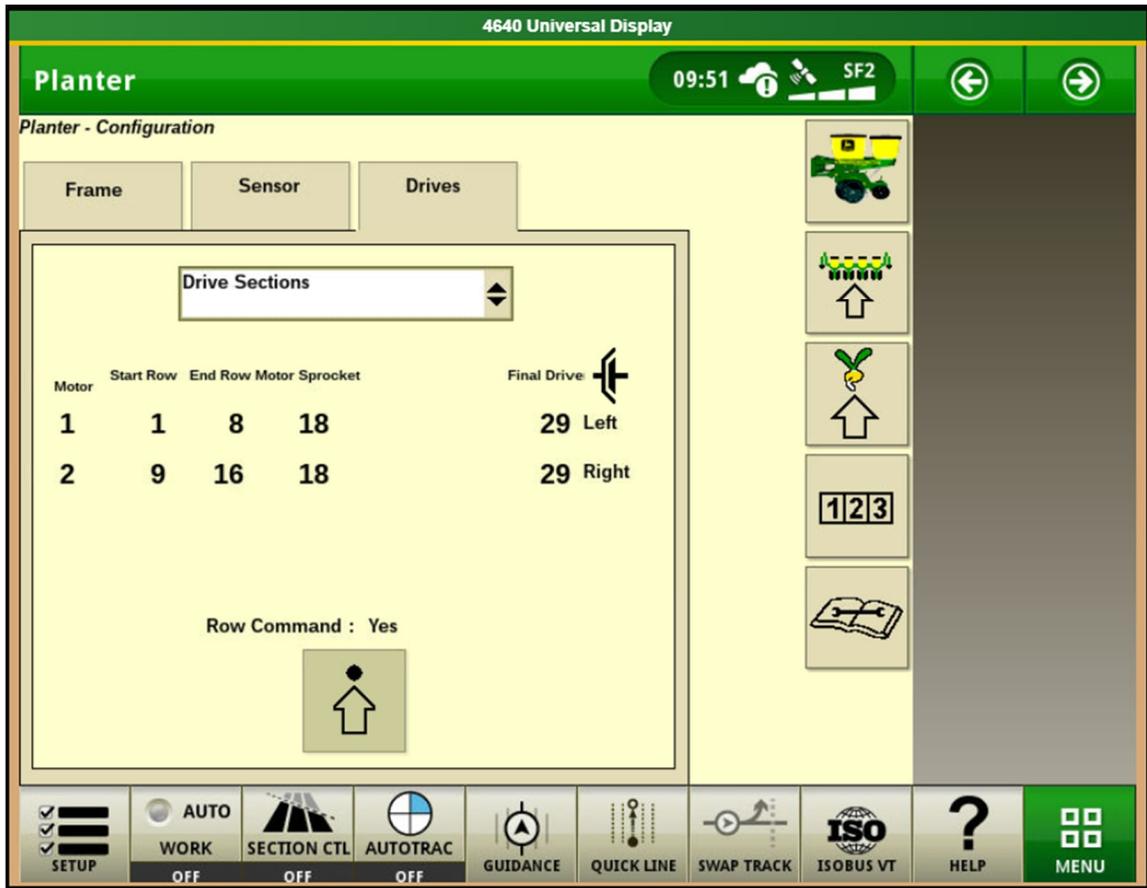
6. Configure Drive Sections



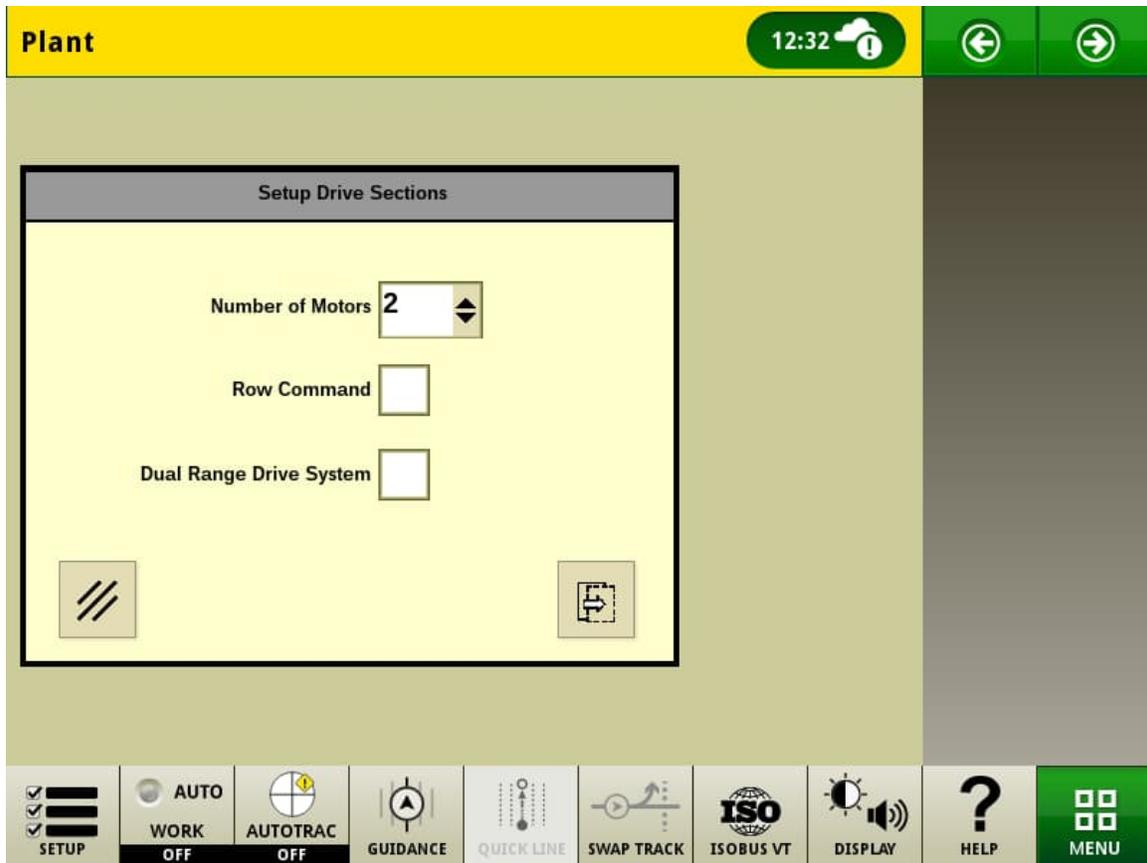
- Select **Drives** tab
- Select **Drive Config** in the drop-down menu
- Select **Settings** (Up Arrow)



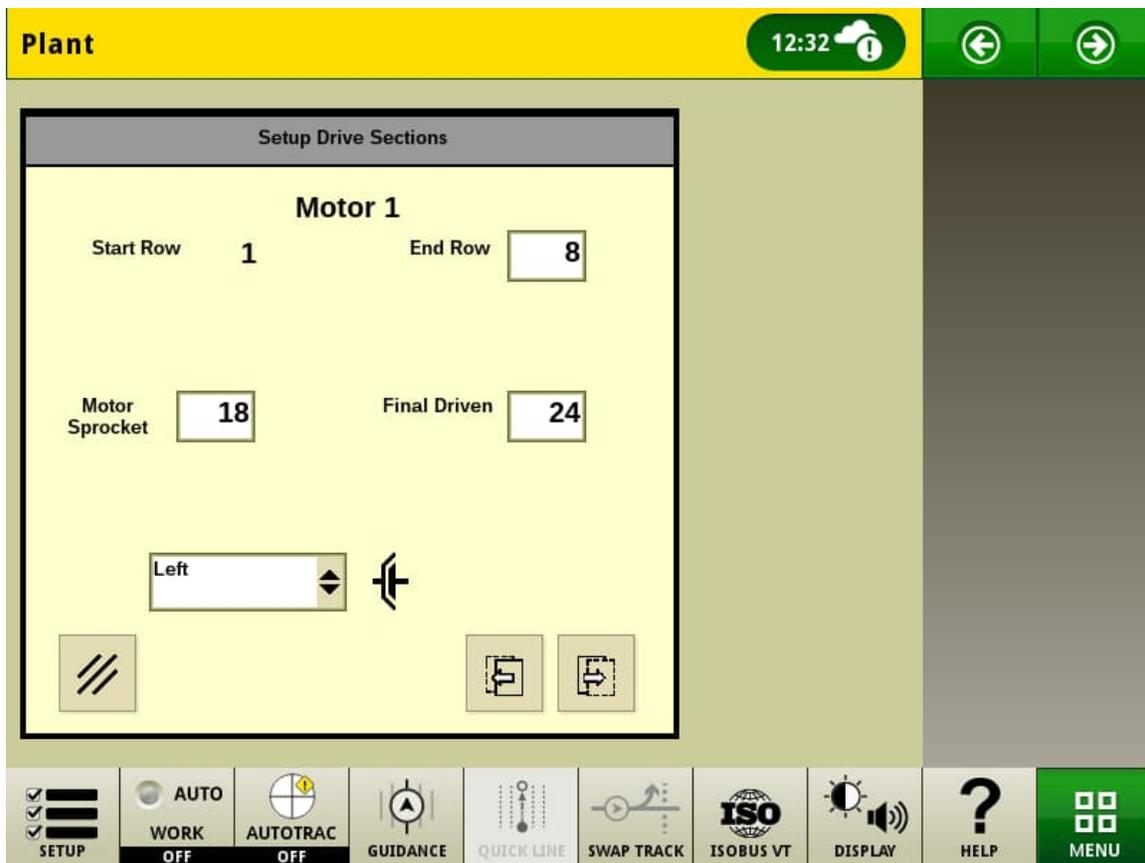
- Select **Drive Source – Variable Rate**
 - If SeedStar™ 2 is being configured for monitoring only on a ground drive planter, select **Drive Source – Ground Driven**
 - A power cycle will be required, then jump forward to step #7
- Select **Meter Type – Vacuum**
- Select **Row Unit Type – Monosem**
- Enter correct **Meter Driver** and **Meter Driven** sprocket tooth count from **chart below**
- Check **QS Enabled**
- Select **Continue** (Right Arrow)



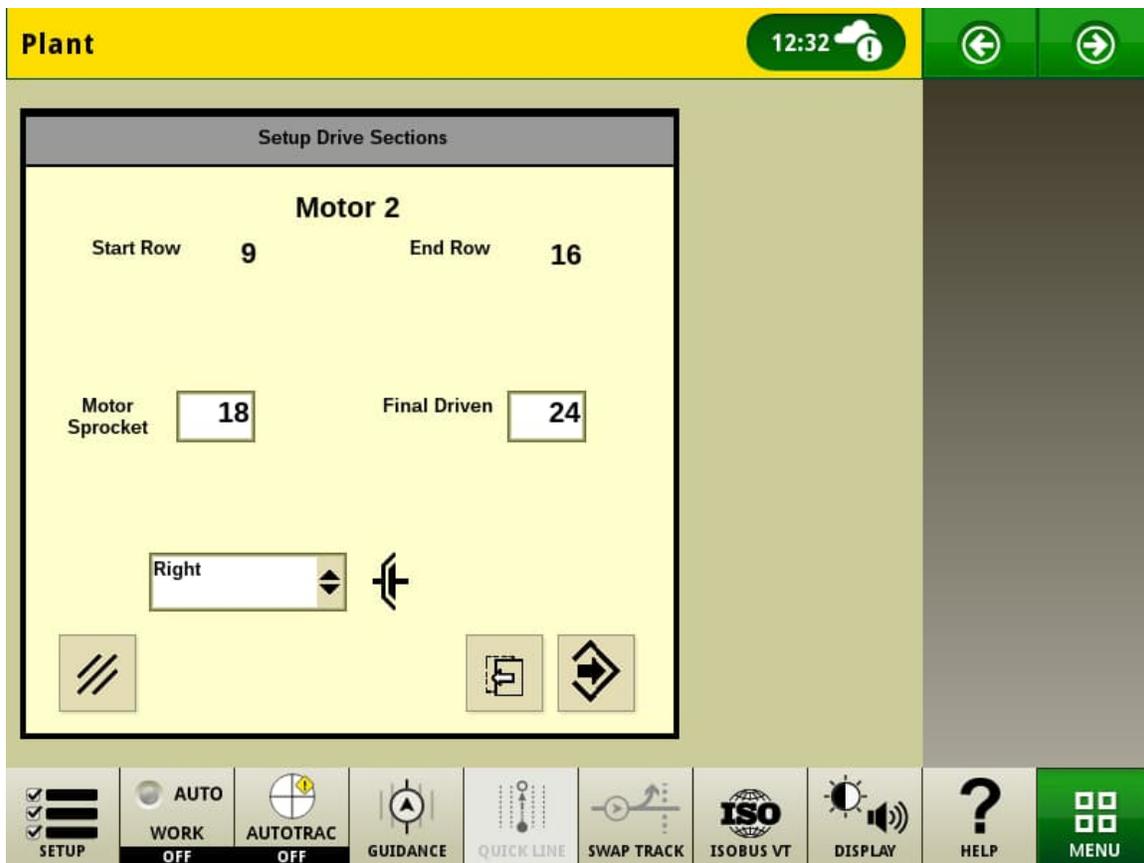
- Select **Drive Sections** in the drop-down menu
- Select **Settings** (Up Arrow)



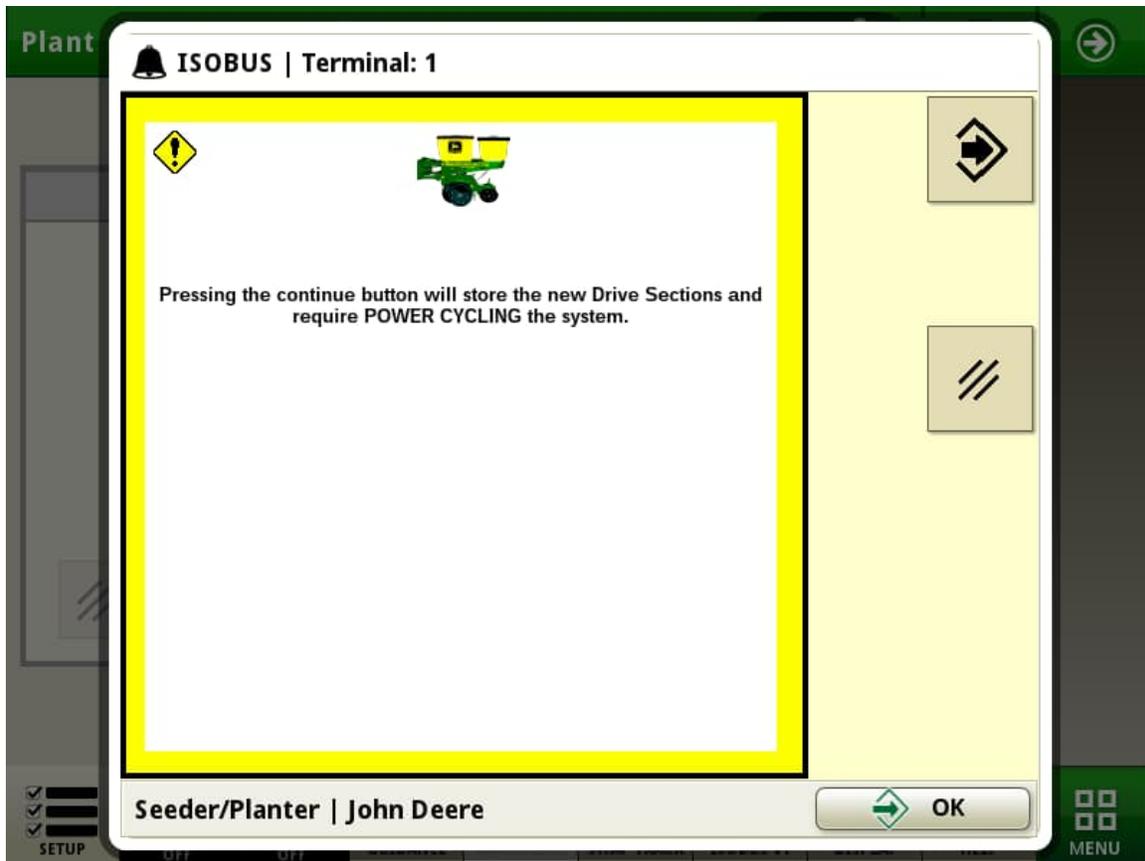
- Select **Number of Motors** –
 - Select **1, 2, or 3** (Do not select 4)
- Uncheck **Row Command**
- Uncheck **Dual Range Drive System**
- Select **Continue** (Right Arrow)



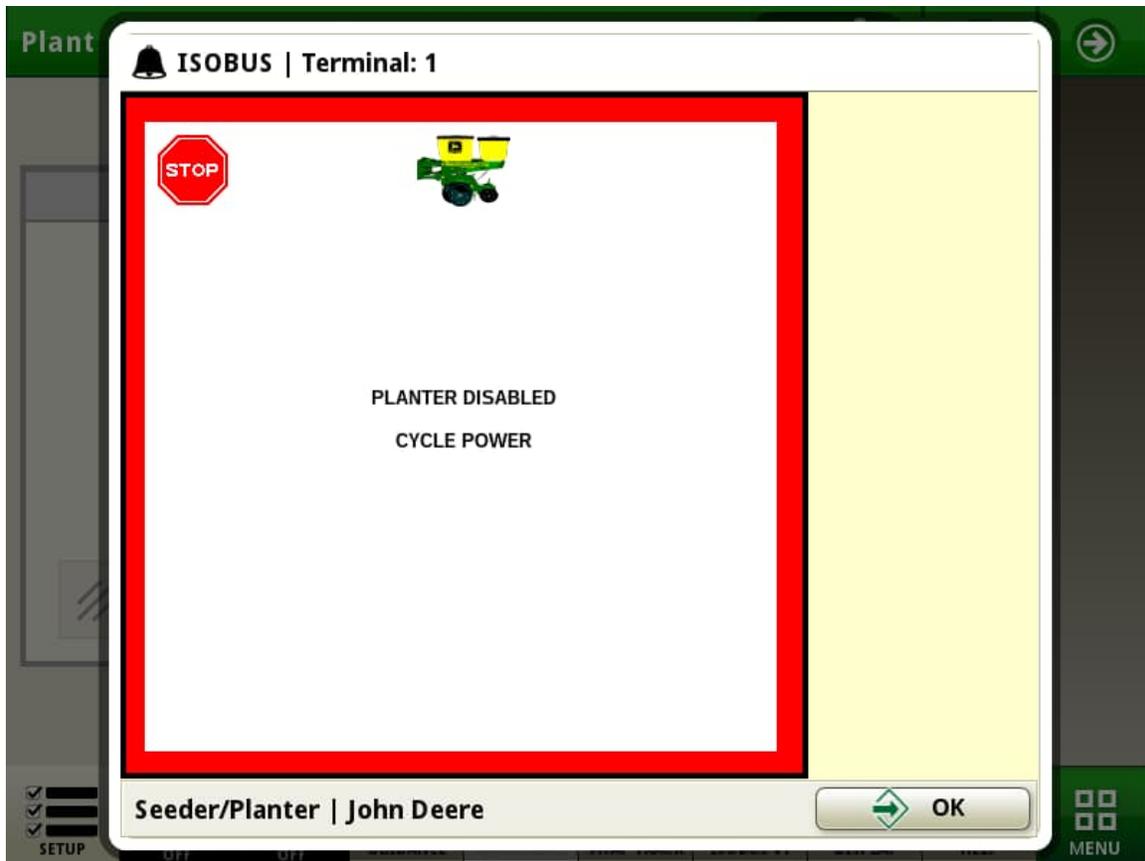
- Enter the **End Row** for **Motor 1** (left-most motor)
- Enter the correct **Motor Sprocket** and **Final Driven** sprocket tooth count from chart below
- Select motor position – **Left, Center, Right**
- **Motor 1** is usually **Left**
- Select **Continue** (Right Arrow)



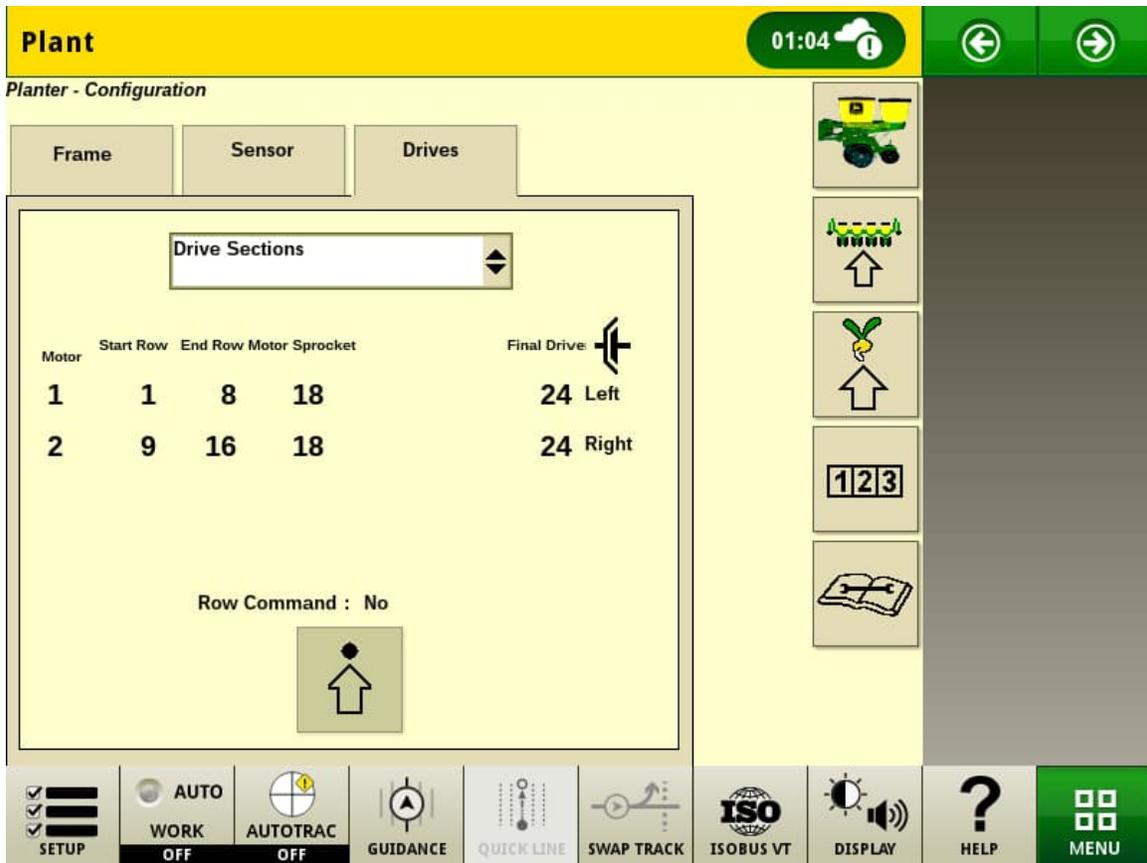
- **Start Row** and **End Row** will auto populate if 2 motor configuration
- If 3 motor configuration, enter the **End Row** for motor 2
- Enter the correct **Motor Sprocket** and **Final Driven** sprocket tooth count from chart below
- Select motor position – **Left, Center, Right**
- **Motor 2** is **Right** (for 2 motors) or **Center** (for 3 motors)
- Select **Continue** (Right Arrow)
- Enter details for **Motor 3** if applicable
- **Motor 3** is usually **Right** (if equipped)
- Select **Continue** (Right Arrow)



- A **POWER CYCLE** is now required to save the settings
- Select **Continue** (Right Arrow top right)



- Turn tractor key off for at least 60 seconds to allow all electronics to save and completely power off
- Turn tractor key on and allow system to fully reboot



- The **Drive Sections** drop-down should now show correct motor configuration information

Gear Ratio Chart:**NG+ STANDARD**

Meter Driver: 18 Meter Driven: 26
Motor Sprocket: 18 Final Driven: 24

NG+ SYNC ROW

Meter Driver: 18 Meter Driven: 18
Motor Sprocket: 11 Final Driven: 24

NG+ NON-STANDARD

Meter Driver: 18 Meter Driven: 18
Motor Sprocket: 18 Final Driven: 24

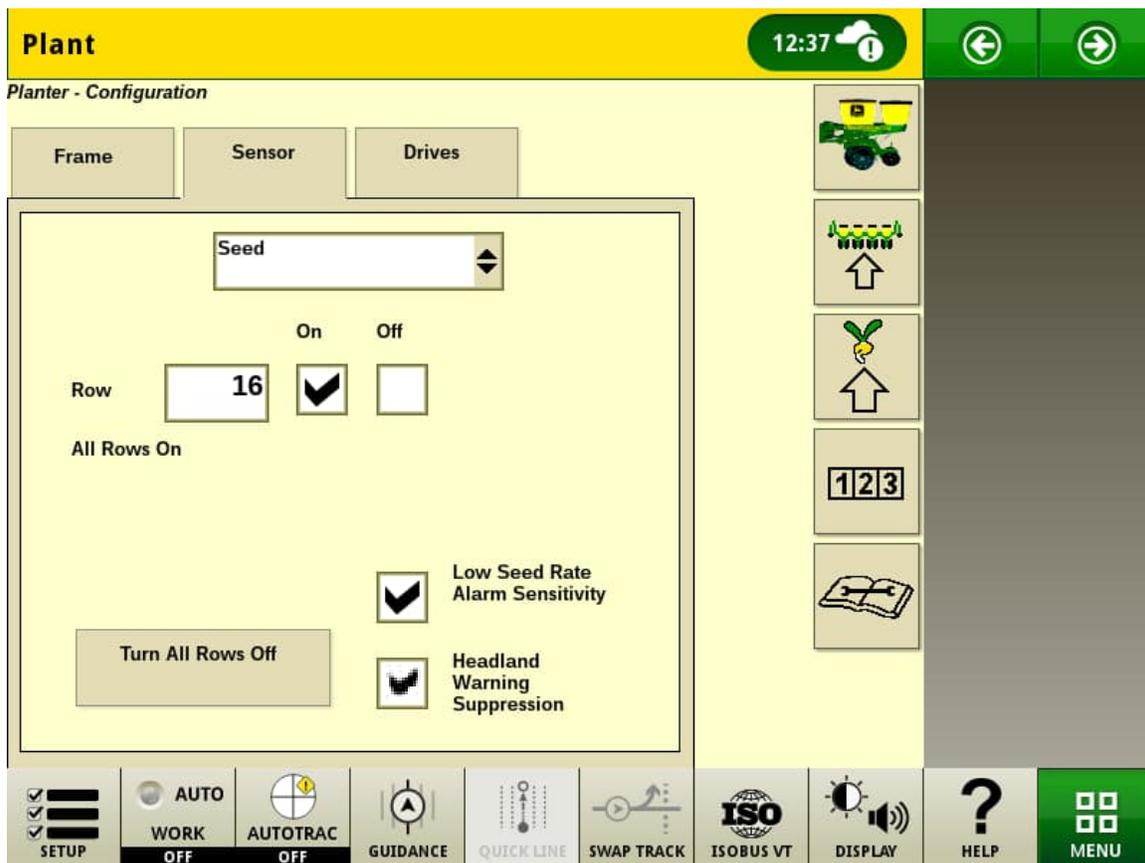
MS (A,B,C,D,G)

Meter Driver: 14 Meter Driven: 21
Motor Sprocket: 18 Final Driven: 24

MS (M) (MOTOR ON BED)

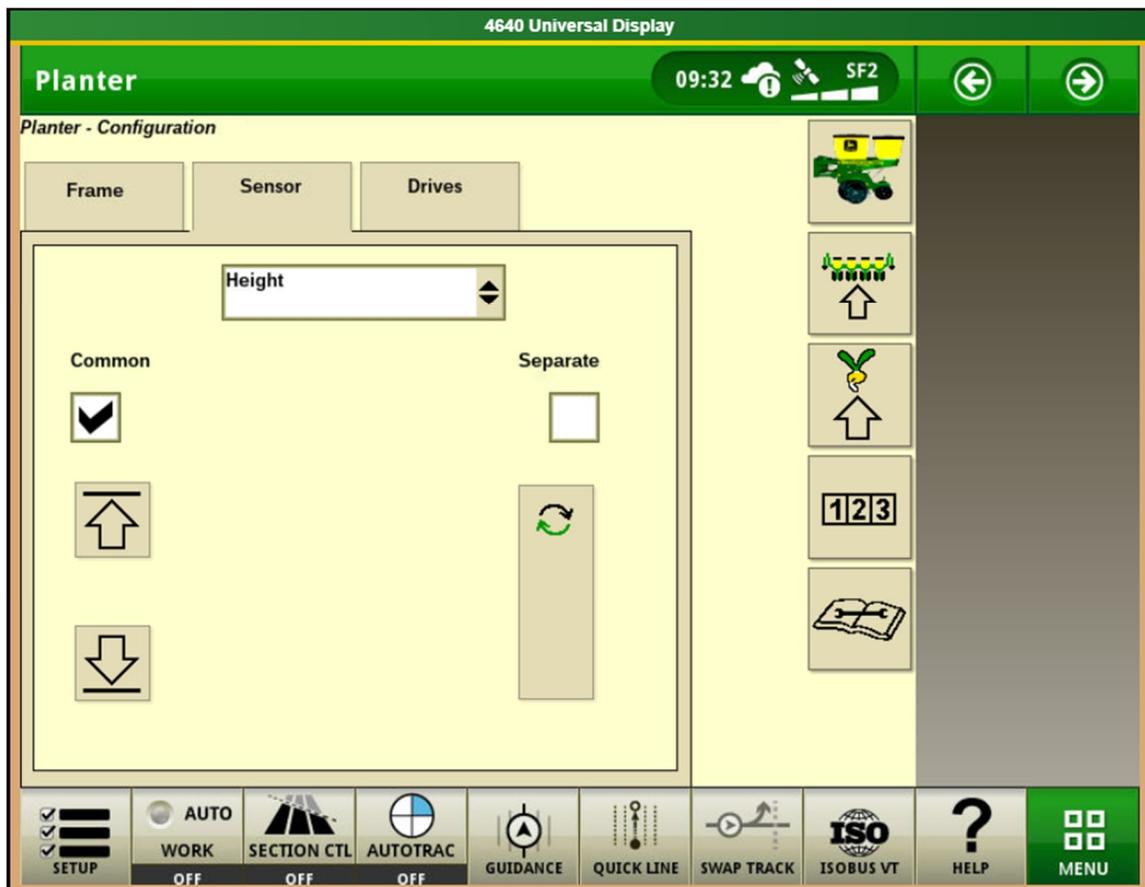
Meter Driver: 18 Meter Driven: 21
Motor Sprocket: 11 Final Driven: 18

7. Seed Sensor Settings



- Select the **Sensor** tab
- Select **Seed** in the drop-down menu
- Turn **On** all rows
 - If planter not equipped with seed sensors, Select **Turn All Rows Off**
- **Low Seed Rate Alarm Sensitivity**
 - Check for machines planting < 15,000 seeds per acre rate.
 - Check when planting speeds regularly drop below 2 mph.
 - This will remain **UNCHECKED** for most machines.
 - Reference DTAC Solution 218986 for more information.
- Check **Headland Warning Suppression**

8. Height Sensor Settings



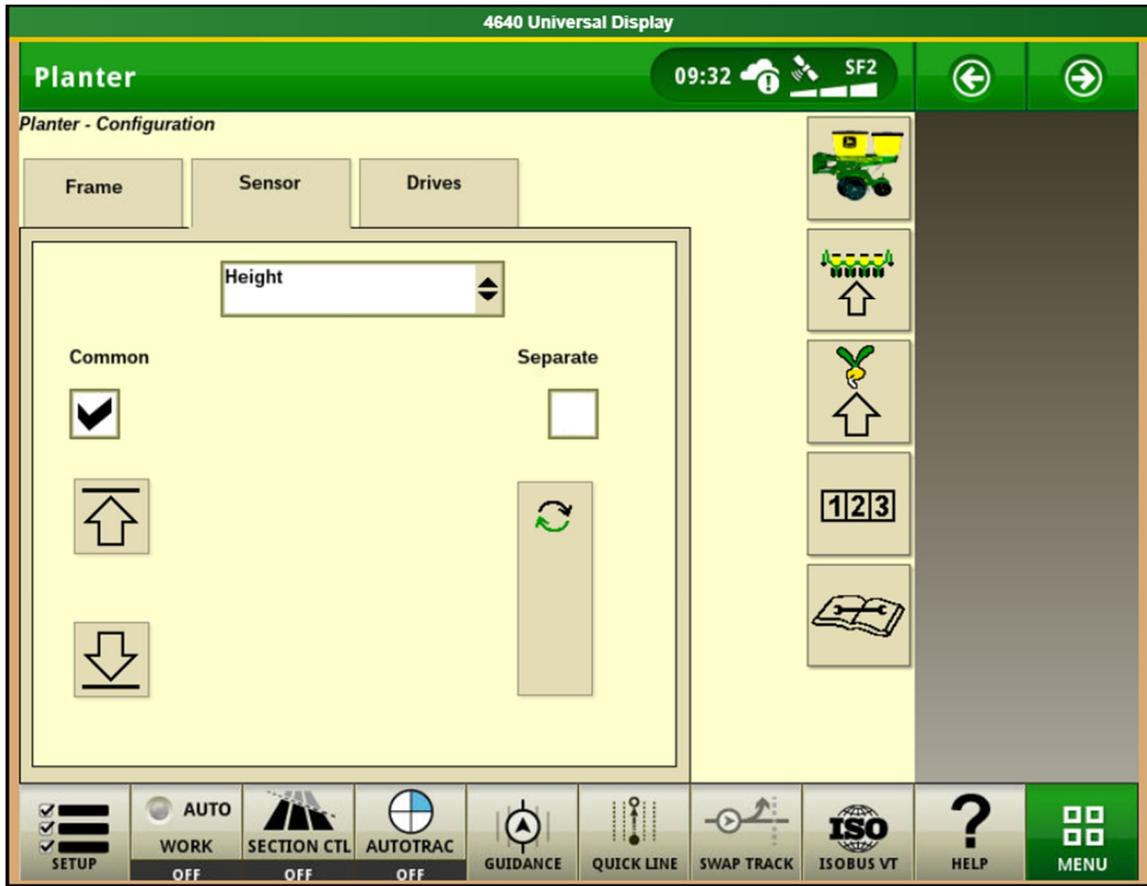
- Planter is equipped with two button switches located on two row units in center section of planter. When planter is raised, the button switches are compressed to signal controller the planter is raised.
- Select the **Sensor** tab
- Select **Height** in the drop-down menu
- Check **Common**
 - Common start/stop points are used when planter is equipped with row unit parallel-arm button switches. Planters with wheel frame potentiometer height sensor can use Separate start/stop points.
- Press the **UP** Arrow



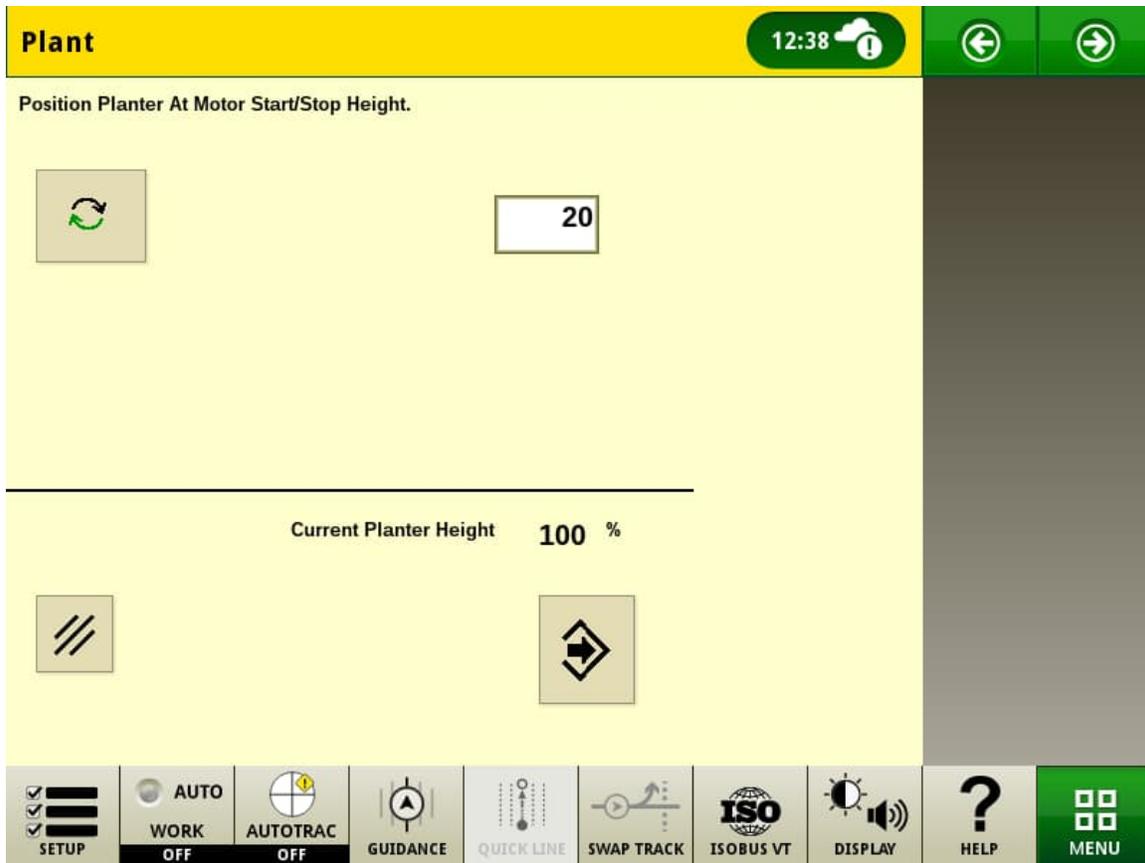
- Fully **Raise** the planter
- Select **Continue** (Right Arrow)
- Press the **DOWN** Arrow



- Fully **Lower** the planter
- Select **Continue** (Right Arrow)
- Press the **Circling Arrows**

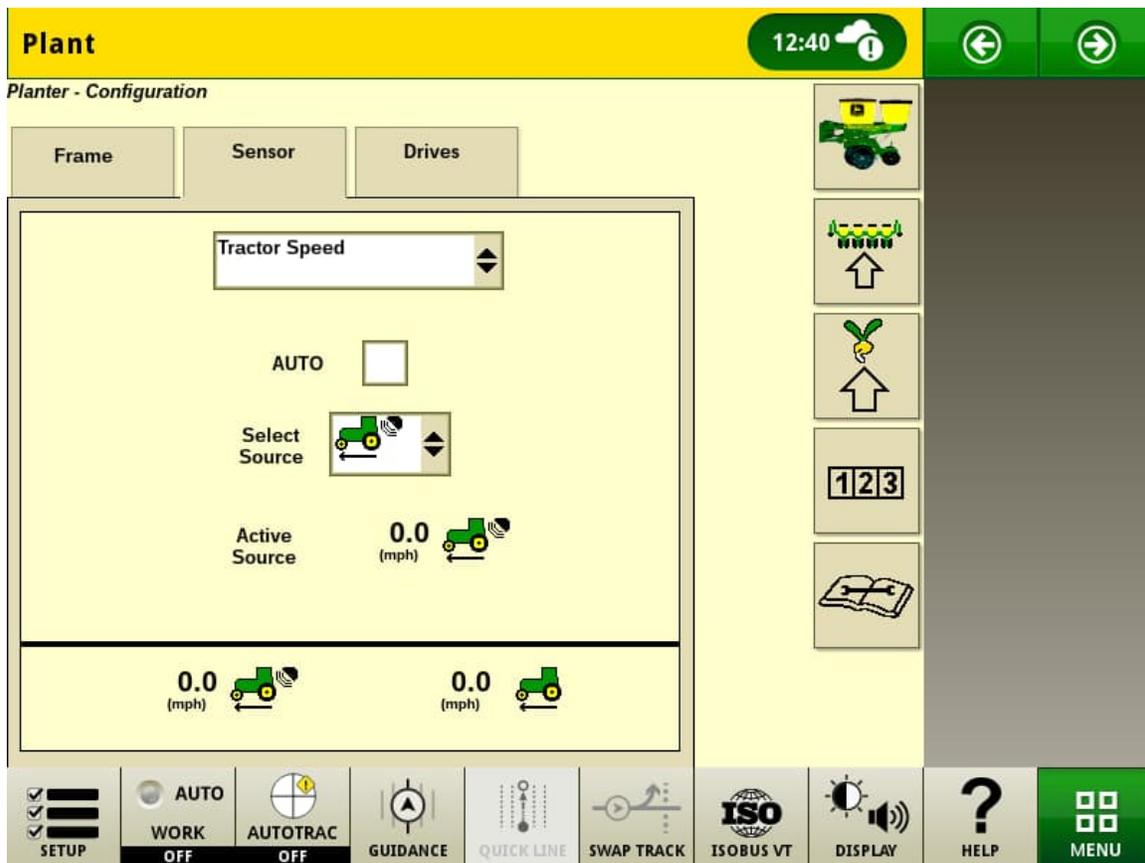


- Press the **Circling Arrows** key



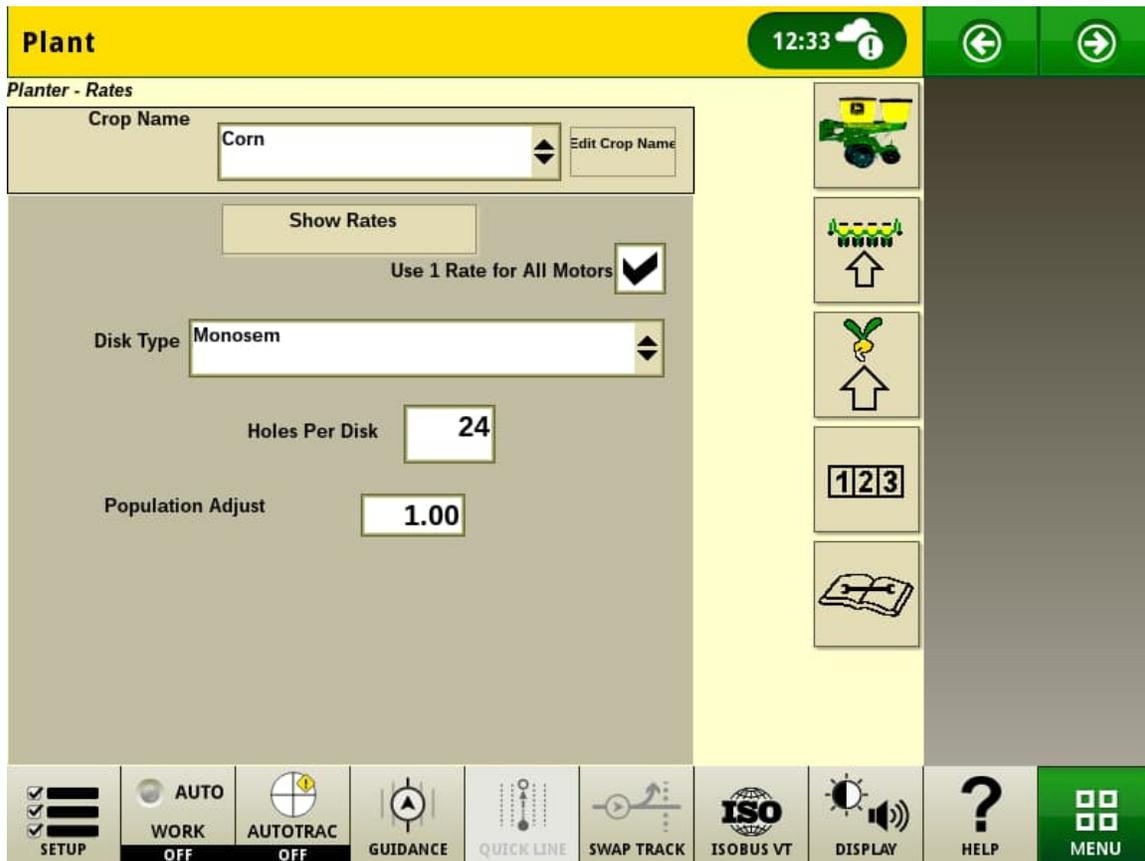
- This sets the planter start/stop height
- A value of 20 – 50 is recommended for **Common** setting with button switches
- A value of less than 20 is not recommended
- Select **Continue** (Right Arrow)

9. Speed Source Setting

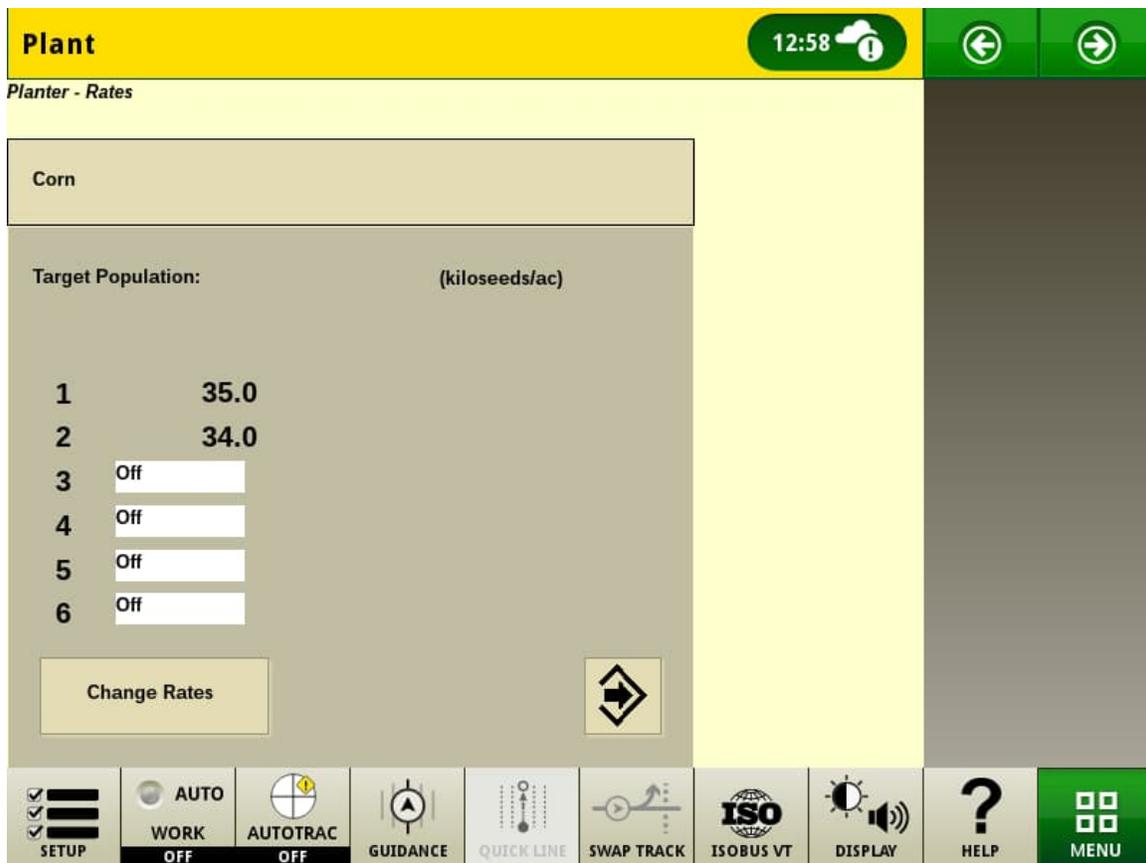


- Select the **Sensor** tab
- Select **Tractor Speed** in the drop-down menu
- **AUTO** box checked is the recommended option
 - Radar speed and tractor wheel speed are shown on bottom of screen. The Active Source used currently is displayed in the middle of the screen.
- To force the controller to use only one speed source, clear the **AUTO** checkbox and select **Radar** or **Wheel** speed from the drop-down.

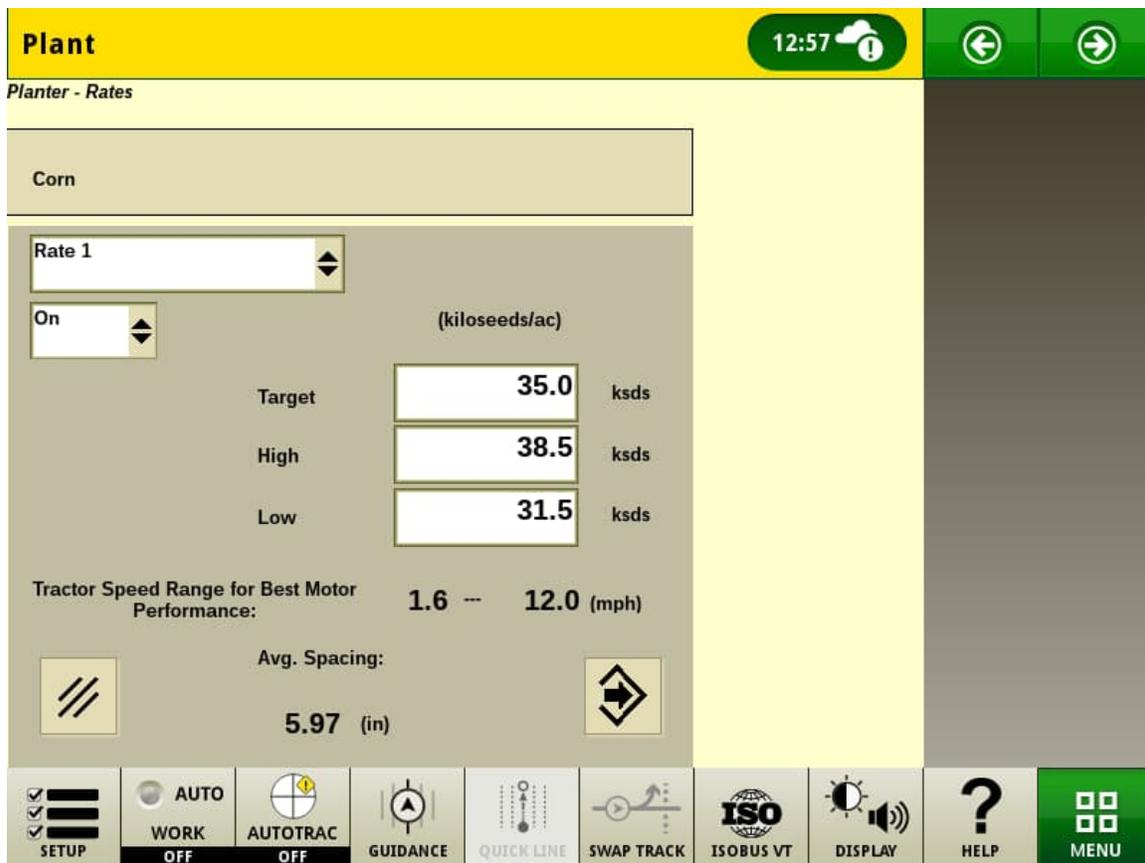
10. Disk Type and Seed Rate



- Press **Planter – Rates**
- Select **Crop Name** from drop-down menu
 - Enter custom name if desired
- Select **Disk Type – Monosem**
- Enter **Holes Per Disk**
 - This is indicated on the back of the seed disk
 - Example: Corn Disk (DN2450) has 24 holes each 5.0mm in diameter
- **Population Adjust – 1.00** (default)
- Select **Show Rates**



- Select **Change Rates**
- **NOTE!** – Seeding rate is displayed in **kiloseeds / acre**
 - 1 kiloseed = 1000 seeds
 - To set a rate of 34,000 seeds/acre, enter 34.0
 - Reference DTAC Solution 218986 for more information

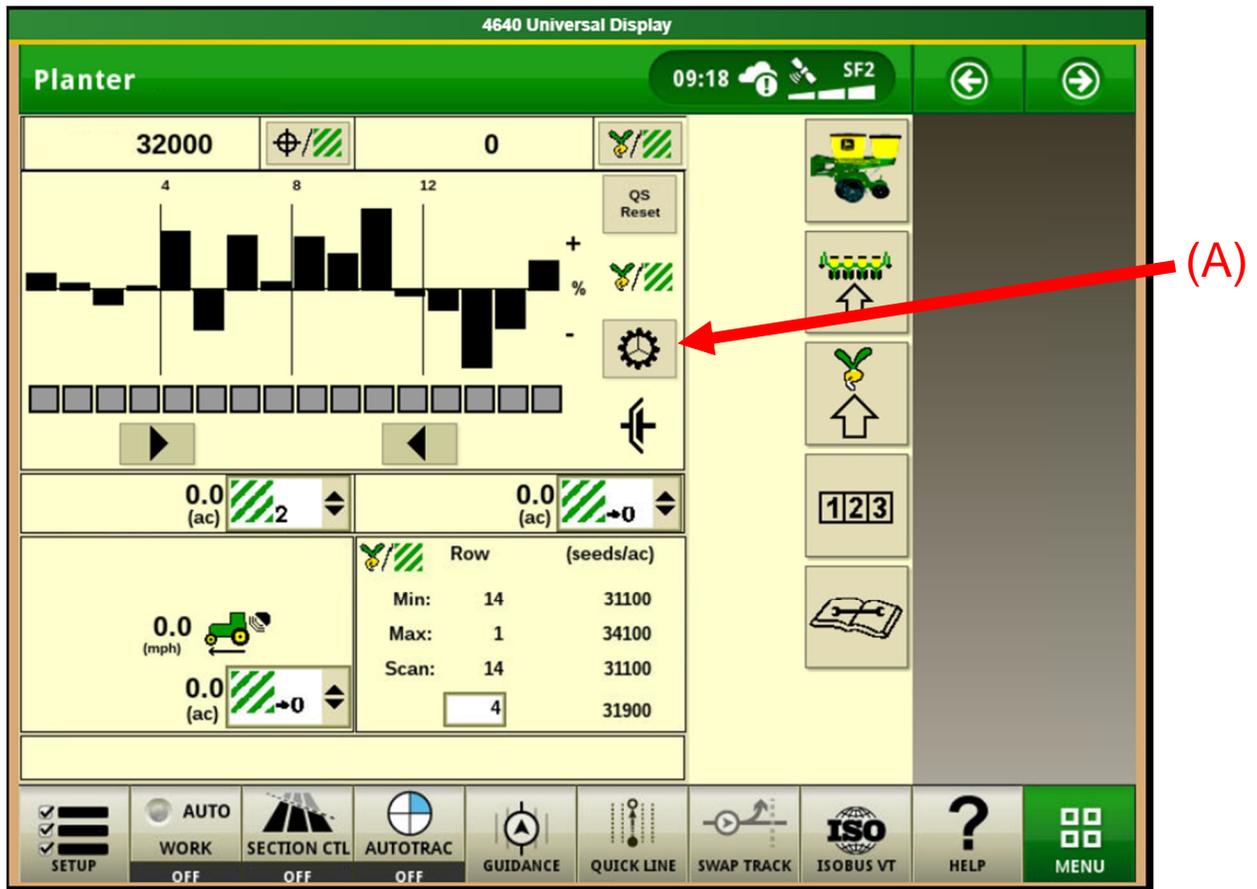


- Select **Rate 1**
- Turn **Rate 1 – On**
- Enter the **Target Rate** (in ksds/ac)
- **High** and **Low** are auto populated based on Target value
 - These values set when alarms will sound
 - Default value is +/- 10% of target value
 - Alternate High and Low alarm values can be entered if desired
- Enter additional **Rates** as needed using drop-down
- Select **Continue** (Right Arrow) when complete

11. IMPORTANT STEP!!!

- New controllers installed on VRD machines must perform an automatic VRD valve calibration sequence the **FIRST** time the planter drives are activated!
- After all controller software configuration steps are complete:
 - Activate the VRD hydraulic circuit and operate (drive) the planter in the field position for 1 minute.
 - The VRD motors will run at 45% for 10 seconds, stop for 1 second, then restart and operate normally thereafter.
- **NOTE: Rotate Seed Meters and VRD Valve Flush functions WILL NOT work until above calibration has been completed successfully.**

12. Rotate Meters



- After VRD calibration step is complete, stop and fully raise the planter. With VRD hydraulic circuit active, select **Rotate Seed Meters** button **(A)** several times to rotate seed meters and verify that VRD calibration was successful.
- If **Rotate Seed Meters** function does not work, check VRD calibration below

13. Check VRD Calibration

Plant 01:02

Planter - Diagnostics

Readings Tests

VRD Data

Target Population: 35.0 (ksds/ac)
 Tractor Speed: 0.0 (mph)
 Wheel Sensor: INACTIVE
 Planter Position: UP (100)

Motor	Target rpm	Actual rpm	Valve %
1:	0.0	0.0	0.0
2:	CAL	0.0	0.0

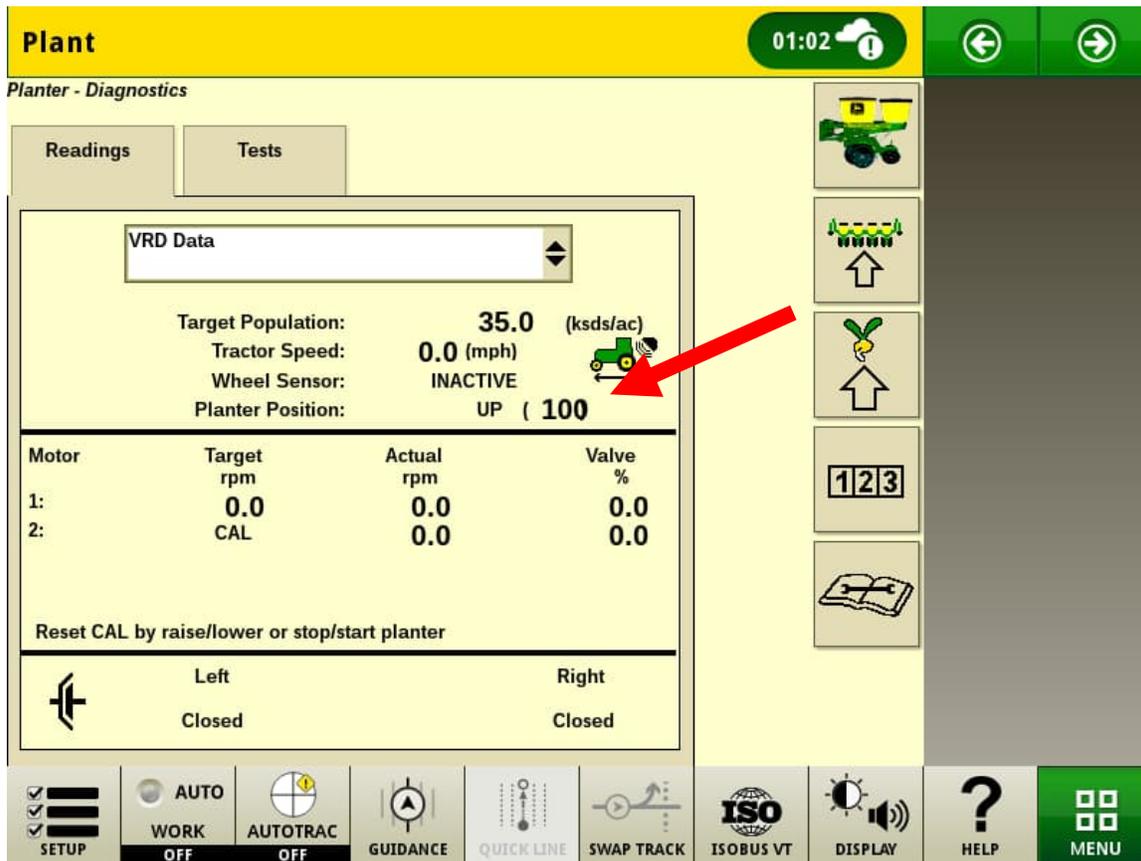
Reset CAL by raise/lower or stop/start planter

Left Closed Right Closed

SETUP AUTO WORK OFF AUTOTRAC OFF GUIDANCE QUICK LINE SWAP TRACK ISOBUS VT DISPLAY HELP MENU

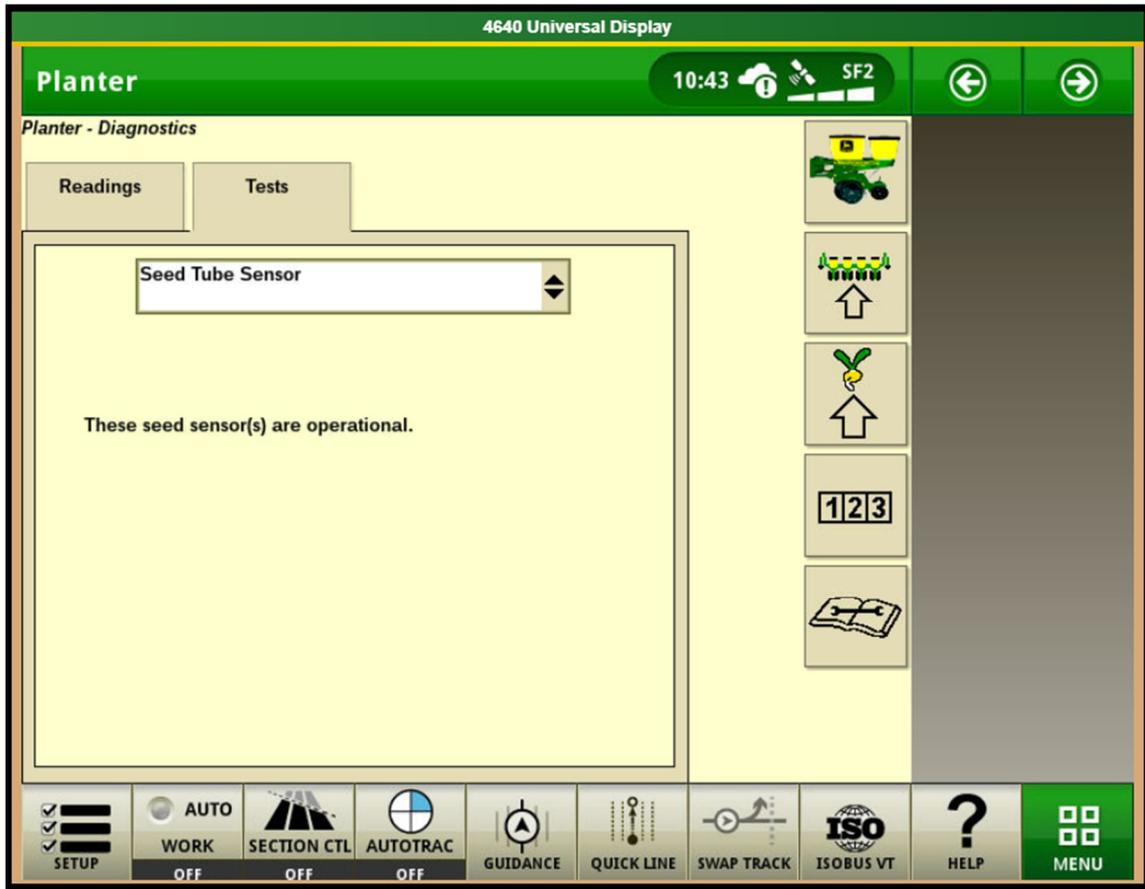
- To verify successful VRD calibration – Select **Diagnostics** screen
- Select **Readings** tab
- Select **VRD Data** from drop-down menu
- For each drive motor, **Target rpm** should show value of **0.0** after successful calibration
- If **Target rpm** shows value of **CAL**, the VRD calibration was not successful
 - Refer to SeedStar™ 2 Operators Manual and verify VRD setup in monitor.

14. Check Lift and Wheel Sensors



- The **VRD Data** diagnostic screen can be used to verify correct operation of the planter wheel sensor and lift switches
- With planter raised, **Planter Position** should show **UP**
- With planter lowered, **Planter Position** should show **DOWN**
- If not correct, verify adjustment of lift switches on planter
- With planter down and moving forward, **Wheel Sensor** should show **ACTIVE**
- If not correct, verify adjustment on planter wheel sensor

15. Check Seed Sensors



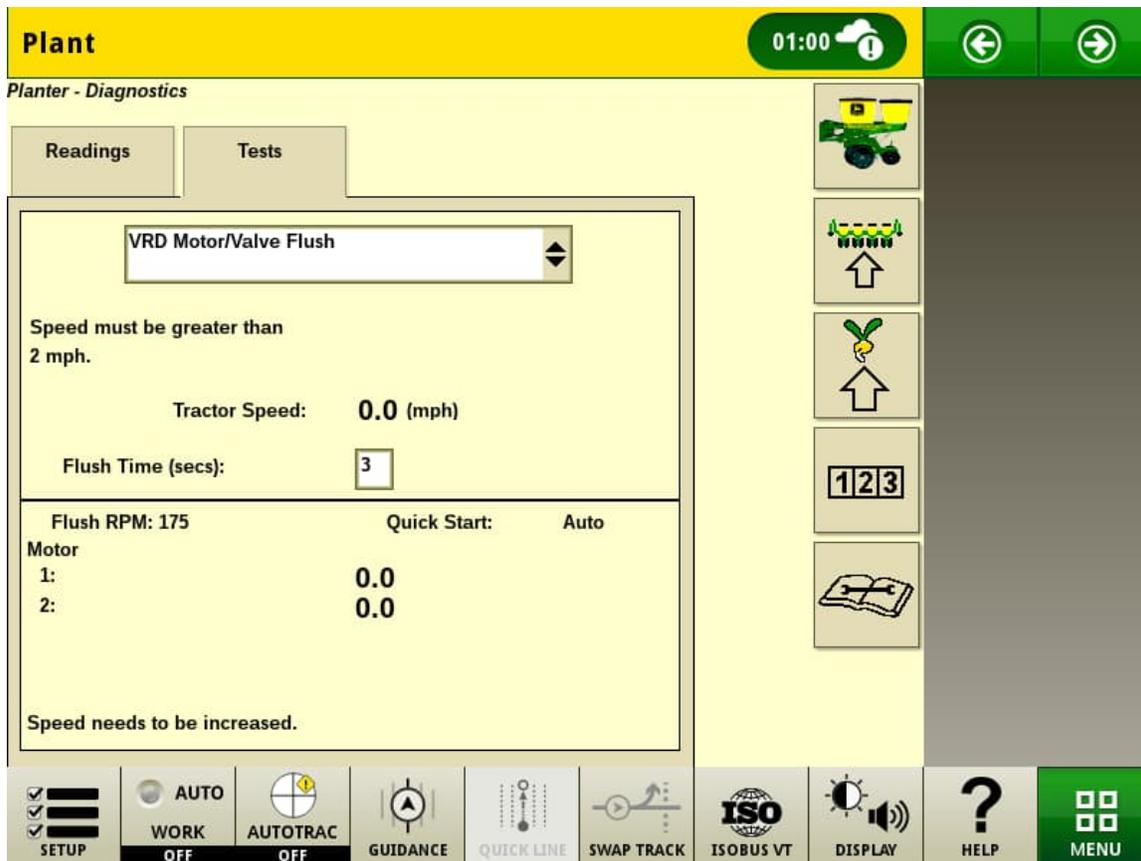
- Select **Diagnostics**
- Select **Tests** tab
- Select **Seed Tube Sensor** from drop-down menu
- All seed sensors should show as operational

16. Setup Complete

- Programming of SeedStar™ 2 controller is complete.
- Return to the main run page
- Place a small amount of seed into the hoppers and do a test plant.
- Check seed spacing and verify it is correct.

ADDITIONAL USEFUL INFORMATION

VRD Motor/Valve Flush



- If the hydraulic motors are not turning in sync, a **VRD Motor/Valve Flush** should be done
- Select **VRD Motor/Valve Flush** on **Diagnostics Tests** page
- Set **Flush Time** (secs) to **3**
- Engage SCV for VRD control
- Lower the planter
- Drive forward 2+ MPH
- Press the **Start** button that appears once all the above conditions are met

Population Adjust



- This is used when planting high population seeds to adjust the monitor to read correctly.
- **Population Adjust** is beneficial when planting high population rates or planting small seeds. Under these two conditions, some sensors detect fewer seeds than are delivered. To adjust for the undetected seeds, a correction factor must be calculated and entered into the monitor to adjust the displayed population.
- Always reset **Population Adjust** factor back to **1.00** when changing crops, seed varieties, or populations. Calculate new **Population Adjust** factor only if necessary.
- Example: If 160,000 seeds are detected and displayed when 180,000 are planted, divide 180,000 by 160,000 to obtain a Population Adjust value ($180,000 \div 160,000 = 1.13$). Enter value of 1.13 into the monitor. The monitor multiplies each detected seed by 1.13 and displays an adjusted population of 180,000.

QS Enabled – Quick Start



- A skip is an area where a seed is expected but has not been planted.
- The **Quick Start** feature allows the operator to reduce a skip when the planter starts from a stop. **Quick Start** reduces the skip to approximately 1 – 4 ft.
- When **Quick Start** is selected and activates, the control unit engages the motors at the minimum operational rpm represented by a target ground speed. The motors overpopulate until actual ground speed reaches the target speed calculated by the control unit.

To Use Quick Start:

- Raise planter.
- Begin forward travel in a low gear at high idle.
- Select QS Reset on display.
- Lower planter.
- When the height sensor indicates a lowered position **QS 6** appears on screen and begins counting down. The VRD motors engage at the minimum speed.
- Gradually shift up to planting speed.
- When timer reaches zero, the control unit checks for a minimum ground speed of 1.6 km/h (1 mph).
 - If minimum speed is not reached, system shuts down.
 - If speed is over minimum, but less than target, timer resets to 6 seconds. When timer reaches zero again, the control unit checks for the minimum ground speed again.
 - If minimum speed is not reached, system shuts down.
 - If speed is over minimum, but less than target, motors continue to run below optimum limits and a warning is issued to increase speed.
 - If target speed is reached at any point while timer is active, Quick Start deactivates and normal operation resumes.

Main Planter Screen

Planter At a Glance

Black bars indicate row is planting normally.

Orange bars indicate row is planting above or below alarm setpoints.

Red bars indicate row is not planting.

Drives Status ICON



Clutch Icon: Sections can only be controlled manually by operator.

4640 Universal Display

Planter 09:18 SF2

32000 0

4 8 12

QS Reset

0.0 (ac) 0.0 (ac)

Row	(seeds/ac)
Min:	14 31100
Max:	1 34100
Scan:	14 31100
4	31900

0.0 (mph) 0.0 (ac)

SETUP
 AUTO WORK OFF
 SECTION CTL OFF
 AUTOTRAC OFF
 GUIDANCE
 QUICK LINE
 SWAP TRACK
 ISOBUS VT
 HELP
 MENU



Target Seeds per Area displays the desired seeding rate entered in Planter Rates Setup. On VRD machines, select this button to toggle between programmed rates including R_x prescriptions (Rate 6, VRD only).



Average Seeds per Area displays the actual average rate planted. Select button to toggle between whole planter average and drive section average.

Other Useful Buttons



Toggle Home Screens



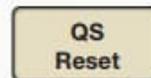
Enter, Done, Save, Finish



Toggle



Rotate Seed Meters

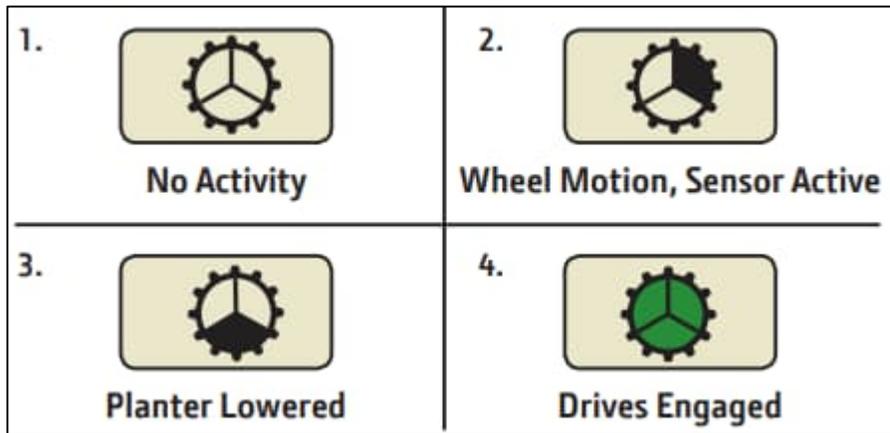
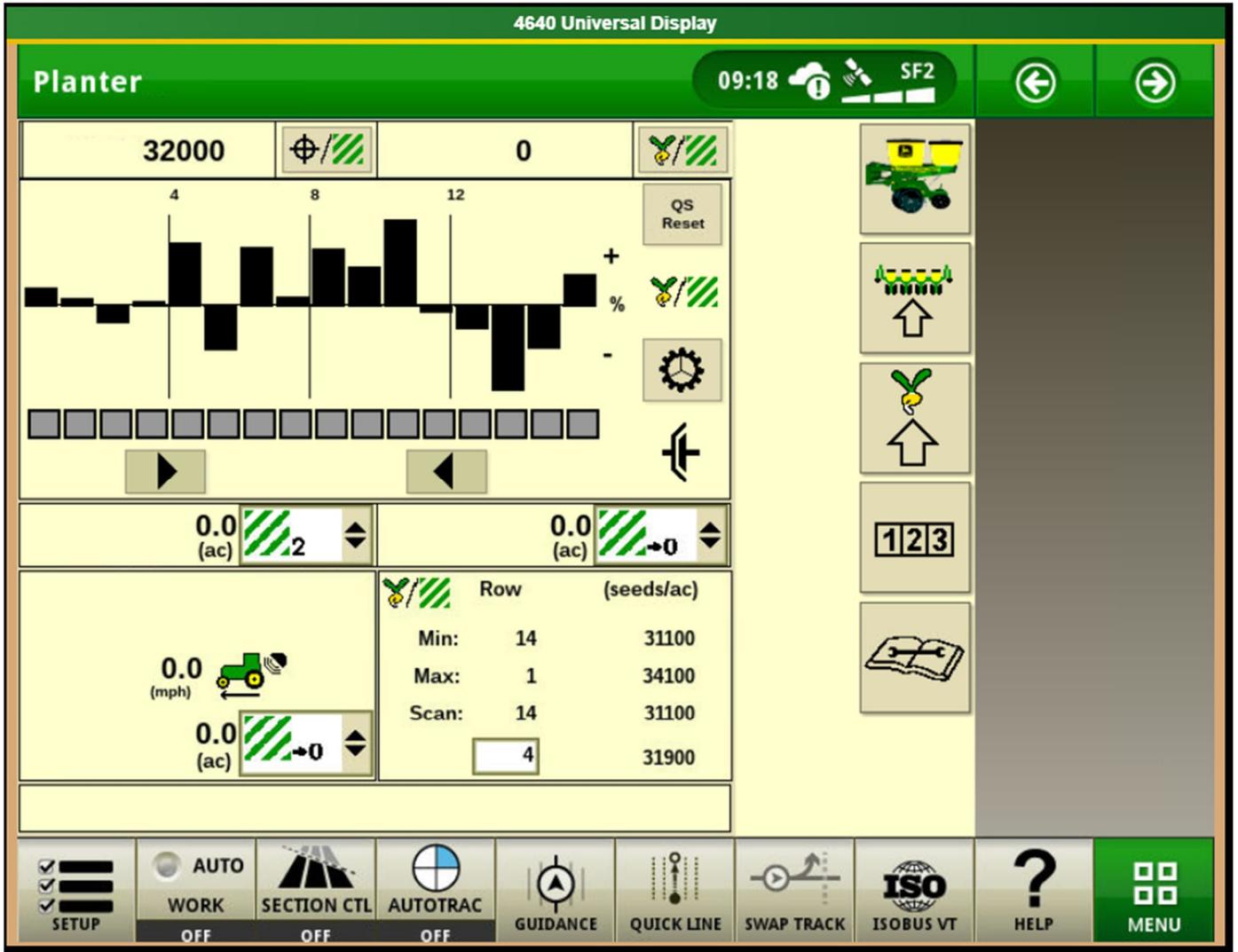


Quick Start Reset

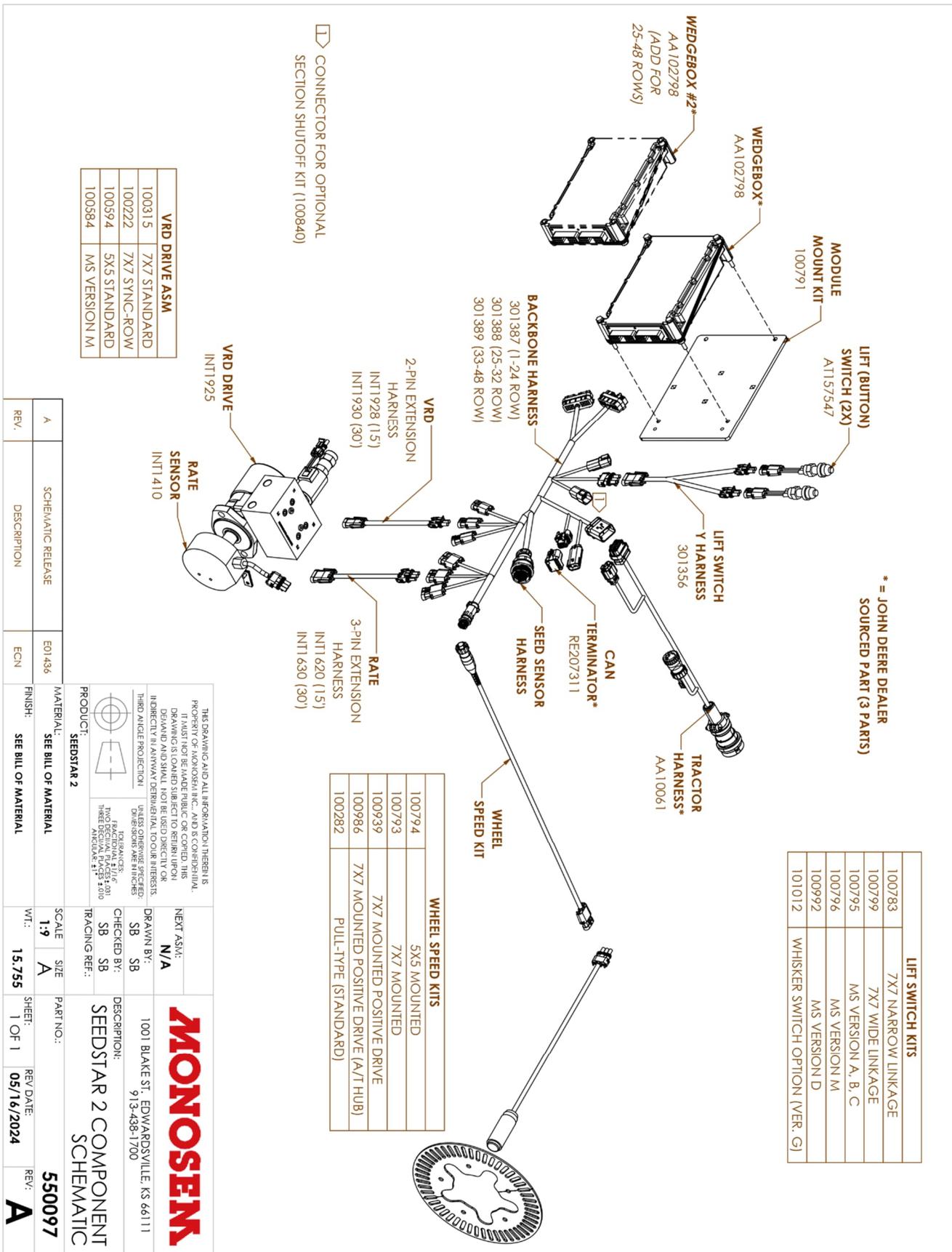


Cancel

Drive Icon



System Schematic



* = JOHN DEERE DEALER SOURCED PART (3 PARTS)

REV. A	SCHEMATIC RELEASE	E01436	SCALE: 1:9	SIZE: A	PART NO.:	1001 BLAKE ST. EDWARDSVILLE, KS 66111
REV. EGN	DESCRIPTION	FINISH: SEE BILL OF MATERIAL	WT: 15.755	SHEET: 1 OF 1	REV. DATE: 05/16/2024	REV. A

MONOSEN

Optional Section Disconnect



- A section disconnect kit (100840), is available to purchase from Monosem, with the addition of parts purchased from a John Deere dealer.
 - John Deere sourced parts:
 - AA61810
 - AA56670
- This kit allows the operator manual on/off control each individual hydraulic drive motor.

Optional Section Disconnect Kit

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	805008	PLATE, SWITCH BOX BALL MOUNT
2	1	301205	BALL MOUNT, 1.5IN BALL, 2 HOLE
3	1	301108	RAM ARM & BASE KIT
4	1	301312	HARNESS, SS2 SECTION SWITCH-BOX

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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

FINISH: SEE BILL OF MATERIAL

SCALE: 1/4" = 1"

SIZE: A

WT.: 8.467

SHEET: 1 OF 1

REV. DATE: 05/03/2022

REV: A

PRODUCT: SEESTAR 2

MATERIAL: SEE BILL OF MATERIAL

FINISH: SEE BILL OF MATERIAL

WT.: 8.467

SCALE: 1/4" = 1"

SIZE: A

REV. DATE: 05/03/2022

REV: A

1001 BLAKE ST. EDWARDSVILLE, KS. 66111
 913-458-1700 913-458-5451(FAX)

MONOSEM Inc.

KIT, MANUAL SECTION CONTROL, SS2

PART NO.: 100840

References:

- John Deere™
 - Replace SeedStar™ 2 or SeedStar™ XP Controller
 - A86751
 - SeedStar™2 and SeedStar™XP Monitors for Planters - Manuals
 - OMA89851, OMA93890, OMA96222, OMA102656
 - OMA90949 – Twin Row
 - SeedStar™2 Quick Reference Guide
 - A93891
 - DTAC Solution 218986
 - Planter Software Release Notes (Silver Seedstar2/XP Controller – AA102798) December 14, 2021
- Monosem Planter Manuals
 - <https://monosemusa.com/manuals-pdfs/>