

OPERATOR'S MANUAL

X35 SYSTEM

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1. Press and hold the **Green Power** button, located on the back.



2. To **Power Off** the X35 system, swipe upwards from the bottom of the screen to reveal the user control ribbon, press the Off Icon.





3. A **Power Down** Prompt will appear, simply just press the Green Check mark.



Important ECU SIMULATION - throughout the instruction manual, you may see screen captures which show the wording ECU Simulation. This is for training purposes only, if you ever encounter ECU Simulation on your X35 in the field stop and contact your Dealer immediately!!!



The following step have been performed at the Morris factory, please review to ensure your device is set correctly.



4. Press the Wrench on the Bottom Left Corner to enter the Set up Menu





- 5. Navigate to **User-Region-Units**. Always start from the bottom of the screen upwards.
 - -Units Imperial (US)
 - -Pressure units psi
 - -Short Distance Inches
 - -Area Units AC

Capacity Units - US bushels

Volume Units Dry - Pounds

Dry density units - Pounds per Cubic Foot





6. User – Environment

Audio Volume – **75**% icon, Adjust the volume to a comfortable level, consider tractor engine noise at working conditions.

Global Home Screen Mode - Select





7. Navigate from **System, Features,** and then **Console**

UNIVERSAL TERMINAL - Disabled

XTEND - Enabled





8. Continue to Vehicle - New.



9. Select you brand of tractor manufacture from the list.





10. Select the Model of tractor from the list. Press the White Check mark to Continue.



11. Adjust the name to match your model of tractor. Press on **Vehicle Name** Icon.



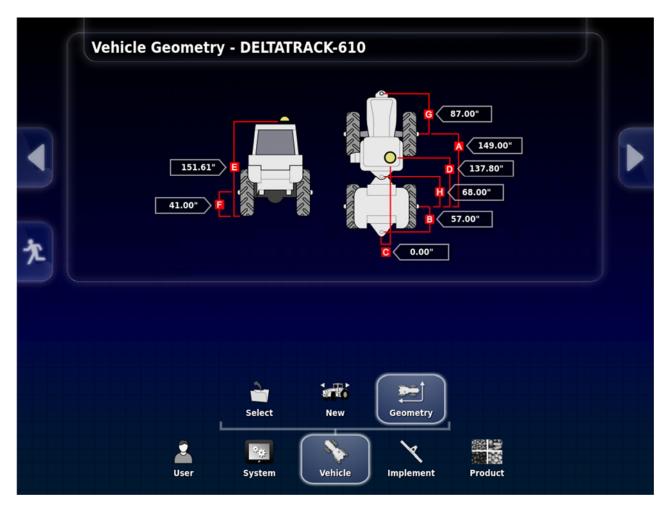


12. Type in the name of your model of your tractor. Apply with the Green check mark.



13. Confirm the model is correct. Apply with the green check mark.





14. Adjust the dimensions as needed. Use a tape measure, and record your dimensions on a note pad.

It is very important to have the dimensions as accurate as possible. Especially when equipped with an ICT unit.

Letter C is the GPS antenna Offset from the center of the hitch, normally the antenna is centered, and the value is left at 0.



GPS CONNECTIONS



15. Navigate from **System-GPS-Receiver**.

GPS Receiver - Nema Source

Baud Rate - 115200





Serial Port Setup

GPS Receiver Com - 1



ALARMS

Ensure All Seeder enabled, only the adjustable parameters are shown below.



Incorrect Rate - 5%



Tank Low - Threshold 10%





High Fan Speed -

Fan 1 Maximum RPM 5200 (user adjustable)

Fan 2 Maximum RPM 5200 (user adjustable)



Low Fan Speed -

Fan 1 Minimum RPM 2000 (user adjustable)

Fan 2 Minimum RPM 4000 (user adjustable)





Fluctuating RPM - Threshold 30%



Pack Control Incorrect Rate - Threshold 10%



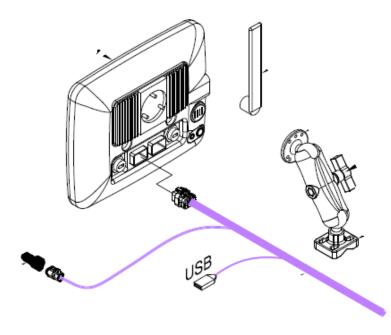


Ensure All General Alarms are enabled

16. Press the Running man icon to return back to the Home screen.



Create a backup profile on USB stick:



17. Insert a blank USB stick into the either the USB port on the X35 monitor or main harness.



18. Press the Inventory Manager Icon.





19. Press the CATEGORY tab.



20. A drop down list will appear, select **Implements** from the list. Press the Green check mark.





21. Highlight the Implements you wish to back up.



22. Press the **Export to USB** icon which is on the (**Right hand side**) of the screen.





23. The backup profiles will be transferred to the USB stick. When Complete press the Green check mark and eject the USB stick by using the eject feature. With a label maker add the decal - Morris Back up profile. Keep this USB stick in a safe location.



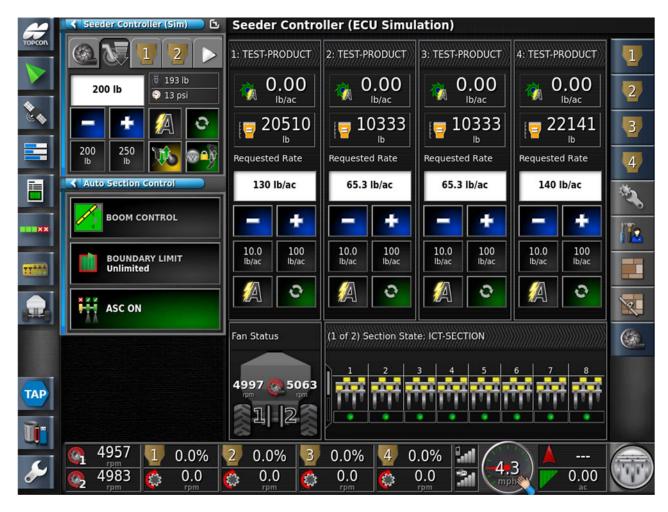
Firmware Release for Spring 2020 will include Home Screen Update. System INI.

However – you can review the Home screen layouts.



Seeder Home





Seeder Home

Configuration A - Pack Control -

Configuration B – Mapping mini View (no Pack Control).





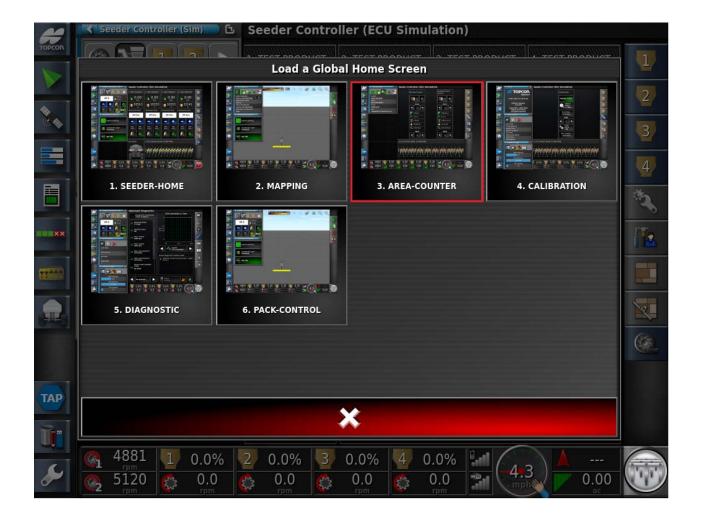
Mapping





Mapping





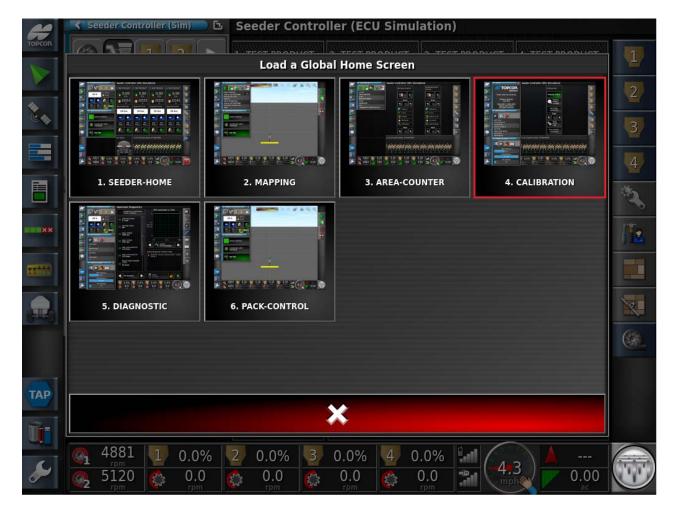
Area Counter





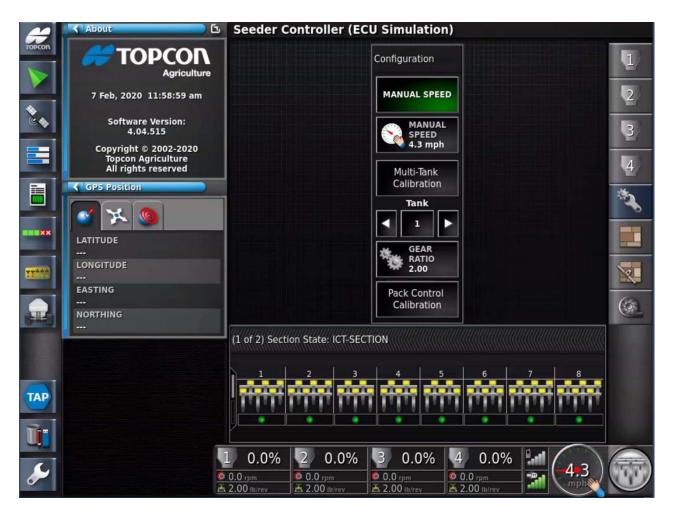
Area Counters





Calibration





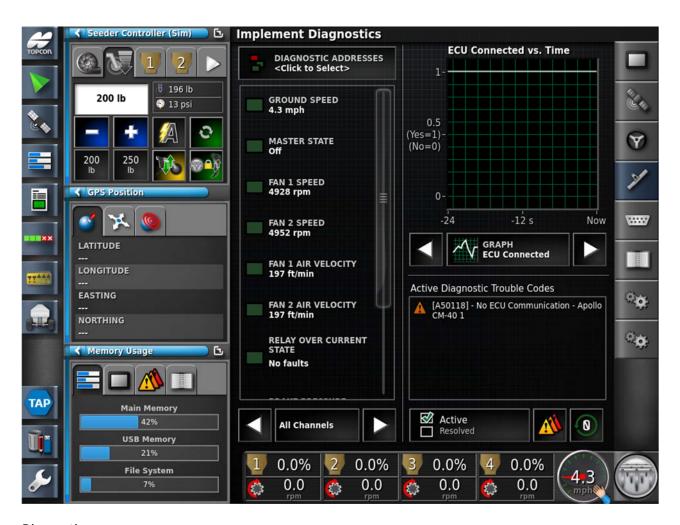
Calibration (wi-fi signal has been added for Xtend)





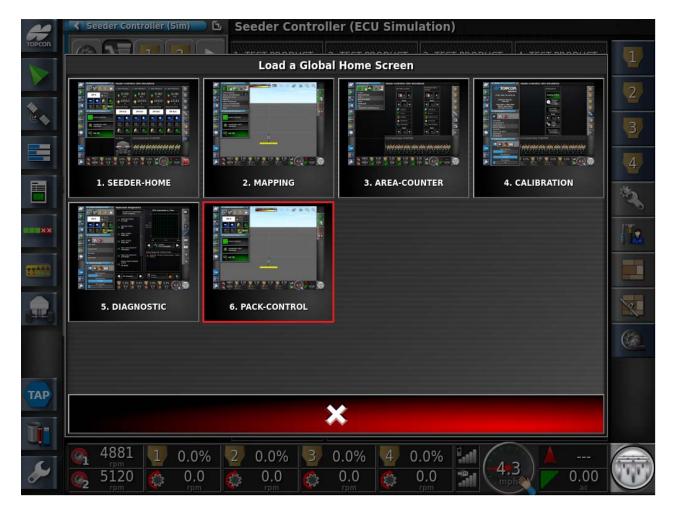
Diagnostics





Diagnostics





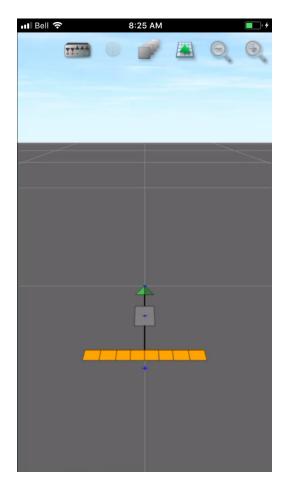
Pack Control





Pack Control





Xtend – Mapping Aux supplement Screen.

2 - Home Screen



Notes:





1. Swipe up and press the Home icon, to access the Global home screen menu at any time.



2. Select MAPPING





3. Note: The implement will only appear on the screen if the GPS is configured properly.



4. Press the **Field Menu** icon



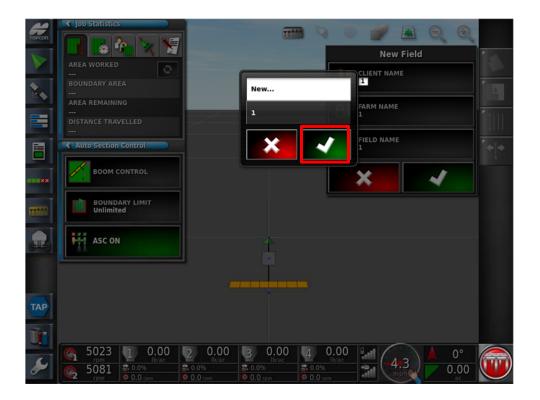
followed by the Create New Field icon







5. Press the on Client Name tab.



6. Select **New...** Apply the setting with the Green Check box.





7. Enter a Name for the Client. Always use - no spaces.



8. Press on the Farm Name < Create New > tab.





9. Enter the Farm Name. Apply the setting with the Green Check box.



10. Press on the Field Name < Create New > tab.





11. Enter the name of your first field. Apply the setting with the Green Check box.



12. Review the information you entered, apply and save the changes with the **Green check** mark. Once the Green check mark is pressed the field information has been saved.





13. You will now return to the Mapping screen.



14. At this time it is recommended to enter all of your fields into the monitor's memory. Simply press the Create new field icon once again to add another field.





15. This time only touch the Field Name.



16. Press the **Backspace button** to delete the old name.





17. Enter the new field name. Use nick names or Land location. Apply with the Green Check mark.



18. Apply the new Field Name with the Green Check mark. The field has now been saved. Repeat the above procedure to add all of your remaining fields into the X35's memory. Note: Remember to press the Green Check mark to Save the field name.





19. Once you are finished entering your fields Press the Select Field icon.





20. The fields we created are in the list. Notice how the last field we created has the Green Check beside it. Select the Field you wish to seed first. Press the Green Check mark to apply the settings.





21. To verify the field selected press the Job Setting Icon Field will be displayed in the mini view window.





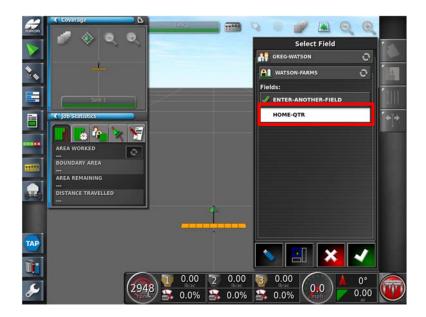
1. Select MAPPING



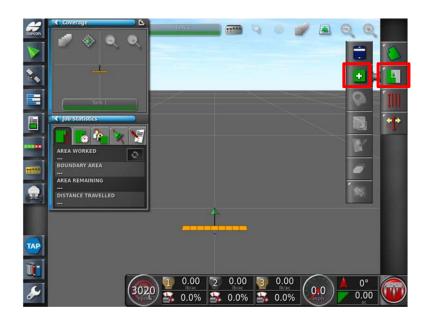
2. Open the **Field Menu** icon





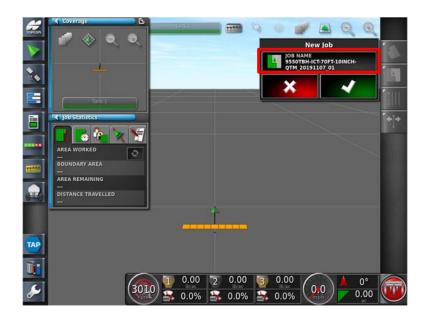


3. **Select the Field** followed by the Green Check mark to apply the settings.



4. Press the **Job menu icon**, and followed by the **Create New Job** icon





5. The system will automatically generate a new Job name based on the date. You can proceed to use the default name by pressing the green checkmark. However, the **Job Name** can be edited by simply pressing in the job name window.



6. It is recommended to edit job name to match the current **Field and Date and Product** used. Example: **HOME-CAN-MAY-14-20**; apply the settings with the Green Check mark.





7. Confirm the **Job Name** with the Green Check mark.



- 8. Press the **Job Setting** on the Job Statistics mini view to review that the Job information and Field are correct.
- 9. Proceed to -Add product to tanks.





1. Expand the Tank you wish to add the Product into.



2. Press on the Top area of the Tank- to open the Product Configuration Window

Note: You must have the Tank full expanded.



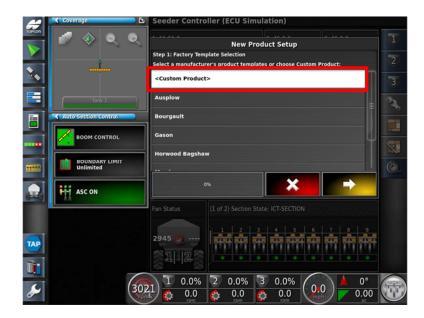


3. Press on the **Product Name Window**.



4. Select New Product.





5. Chose **Custom Product**, proceed by pressing the Yellow forward arrow after each step.

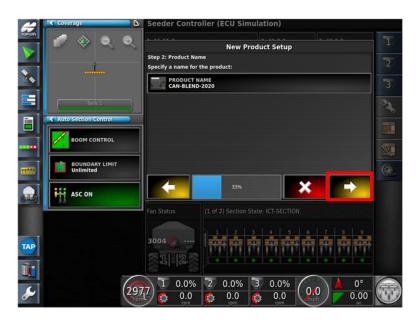


6. Tap on the **PRODUCT NAME.**





7. Enter a product name, as an example we are using **CAN-BLEND-2020**, followed by the Green Check mark.



8. Proceed with the Yellow forward arrow





9. Enter the density of the Product. The density of the product can be requested by the distributor of the seed or fertilizer manufacture. If a density is not available proceed with the default value.



10. If you would like to enter the density, press on the Product Density Tab.





11. Enter the new density value from the product manufacture. Followed by the green Checkmark.

Note: The X35 default rate is Pounds Per Cubic Foot. These settings can be changed in Regional Units.





12. Enter Product Rate increment and Preset Rates.

Rate increment- Used for quickly bumping the rates up or down (+/-) while moving.

Preset 1 – Enter the desired rate you will be seeding at.

Preset 2 – Can be used as a secondary rate as desired, example a lower rate used on hilltops or areas of the field which do not require as much product.

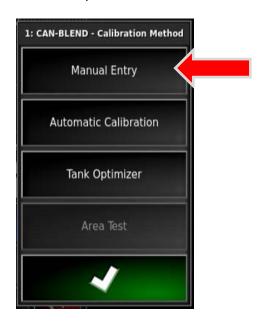


13. Proceed by touching the Green Check box.





14. Add a generic Calibration Factor- of 2.25lb/rev.



15. Press Manual Entry Icon.





16. Enter a generic value of **2.25lb/ac**, followed by the Green Check mark.



17. Review the product data, once satisfied with the values Apply with the Green Check mark.



18. You be prompted to Fill the Tank with the new Product. You can choose to fill the tank at this time.

5 - Create Product



Notes:



1. Swipe up and press the Home icon, access the Global home screen menu.



2. Select Seeder-Home



3. Expand the Tank you wish to add the Product into by pressing on the top Band.





4. Press on the **Top Area** of the Tank – to open the Product Configuration Window.



5. Press the **Product Name <Select Product>** tab.





6. **Select Product** from the list. Proceed by pressing with Green check mark.



7. Review the Rate Presets and Rate Increment settings.





8. ***ENSURE A CALIBRATION FACTOR IS ENTERED***

Note: If this is the first time using this product you will need to add a calibration factor.

Simply press on the Calibration Factor window, if a Calibration Factor is already present **skip to Step 13**.



9. Press Manual Entry





10. Press the Cal Factor Icon.



11. Using the keypad enter the following Cal factor 2.25 lb/Rev





12. Review the Cal Factor is set, press the Green checkmark.



13. Review the settings are correct press the Green Checkmark.





14. Do you want to fill the Tank with the New Product? Yes



15. Tank 1: has been filled with the desired product CAN-BLEND-2020.

Note: Preset 1 is automatically populated in the requested Rate window 60lb/ac.





16. Press the top band to Minimize Tank 1



17. Now press the Top band on next envelope to Expand Tank 2.





18. Add a Product to Tank 2.



19. Select the Product from the list. Proceed by pressing with Green check mark.





20. Adjust Increment settings, Rate presets and ensure a calibration value is entered, Review and proceed with the Green Check Mark.



21. Do you want to fill the Tank with the New Product? NO

*Since we are adding Canola to the tank we will use a different fill method.





22. Press on the Tank Fill Window.



23. Option A - Press the Weight icon.





24. Using the keypad enter the **Weight manually.** Proceed by pressing the Green Check mark.



25. Option B – Set a Weight Increment

Example: Each Canola Bag = 50lbs per bag



Each press of the icon will increase the total weight by one preset increment 50lb x 10 = 500lb.

6-12





27. The tank weight is now **500lbs**. Apply the changes with the Green Check mark.



28. Tank 2: has been filled with the desired product CANOLA-HYBRID.

Note: Preset 1 is automatically populated in the requested Rate window 2.5lb/ac.





29. Continue to add products into the Tanks 3 or 4.

Notes:



NOTE: BEFORE STARTING A CALIBRATION ENSURE THAT THE PRODUCT HAS A CAL FACTOR ASSIGNED. REFER TO: ADDING PRODUCT TO TANK - CHAPTER 6

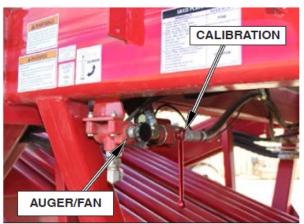
Rate Calibration

The practice of doing a rate calibration is strongly recommended, as it will confirm the **actual** amounts of product dispensed per motor revolution (Welght/Rev).

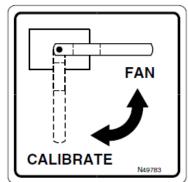
Welght/Rev (Calibration Factor) is used by the monitor to determine the shaft motor rpm required to deliver the correct application rate.

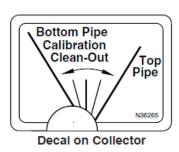
The following procedure should be followed for every change of product.

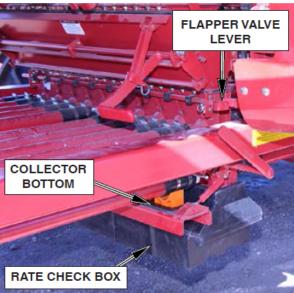
- · Engage hydraulic lever to run air cart.
- Turn off fan by switching selector valve (located in the fan supply line) to calibration position.
- Open collector bottom.
- Set Flapper Valves to "Calibration" as per the decal located on the front of the Collector.



Selector Valves - Tow Behind shown







Double Shoot Shown



Rate Calibration - Continued

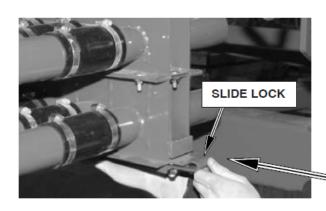
- Hook the Rate Calibration Insert on collector bottom and rotate up into postion. Secure in place with slide lock.
- Slide the rate check box onto the collector body.
- Prime metering wheels first by using the Start/Stop button on the keypad to start and stop the meter drive. Allow the drive to run until material begins to fall through the collector body. Press the rest button for 5 seconds to zero monitor count before collecting sample.

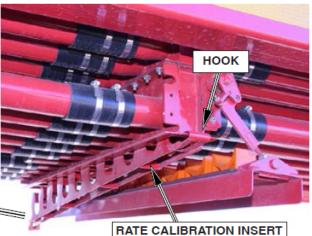
Note: The Topcon monitor must be turned ON in order for the primer switch to work.

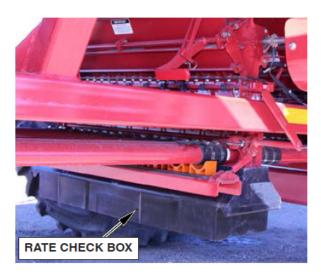
Note: Ensure the fan is not running.

 Empty material from rate check box and reinstall it on the same collector.











Rate Calibration - Continued

- Perform calibration as outlined in the Topcon manual.
- Remove the rate check box from the collector body.
 Weigh the sample by using tarp straps to hook rate check box to spring scale.

Note: Remember to subtract the weight of the rate check box from the total sample weight.

 Enter "Weight" of product collected as outlined in the Topcon manual.

Note: The Calibration Factor (Weight/Rev) is automatically calculated for the value being entered

- Remove rate calibration insert and close collector bottom ensuring that the seals are free from debris and leaks.
- Place rate check box into storage bracket.

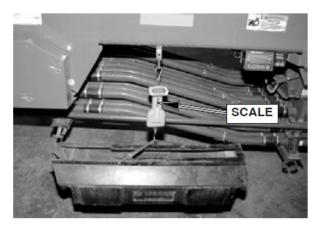
Follow the above procedure to check the rate of the other tanks.

Important

Proper measurement of sample weight is critical for application rate accuracy.

Prime metering wheels before taking actual sample.

Remember to subtract the weight of the rate check box from the total sample weight.





9450 Shown

Important

Raise Stairs before moving Cart.

Stair damage will occur in lowered position.





Seeding Fine Seeds (Canola, Mustard, etc.)

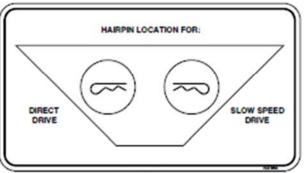
When seeding fine seeds such as canola or mustard, the slow speed transmission has to be engaged to ensure the low rates required for these products.

The slow speed transmission is incorporated in All the Posi-Drive Transmissions.

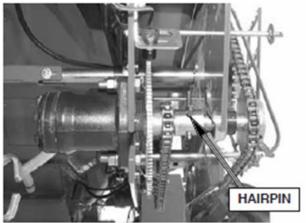
 To engage the slow speed, remove the large hairpin from the front shaft and install through the sleeve and shaft located at the rear of the transmission.

Note: Shaft will have to be rotated to align holes for pin insertion.

- To disengage the slow speed, reverse the above procedure.
- Rate checks can be performed the same way as for other seeds.
- Usually it is necessary to reduce the fan rpm when seeding fine seeds. See "Fan Speed" for specific fan speeds.



9450 Shown



Cover removed for clarity

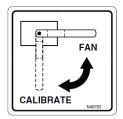
Important: ENSURE THE TRACTOR IS NOT RUNNING WHILE REMOVING OR INSTALLING PINS!

7-4

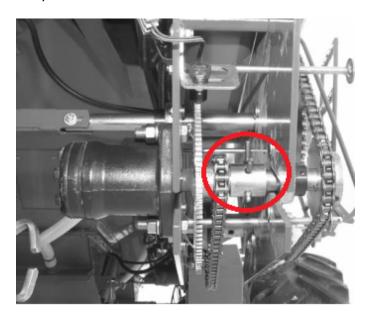


Quick Review Before Starting Calibration.

1. Divert hydraulic Flow from Fan



- 2. Adjust product diverters to Calibration setting
- 3. Insert the Calibration deflector.
- 4. Slide sample collection tray onto collector.



5. Adjust the transmissions to correct drive ratio by moving the locking pin from **Direct Drive** to **Slow Speed Drive** as required. (**DIRECT DRIVE SHOWN**) ENSURE THE TRACTOR IS NOT RUNNING WHILE REMOVING OR INSTALLING PINS!



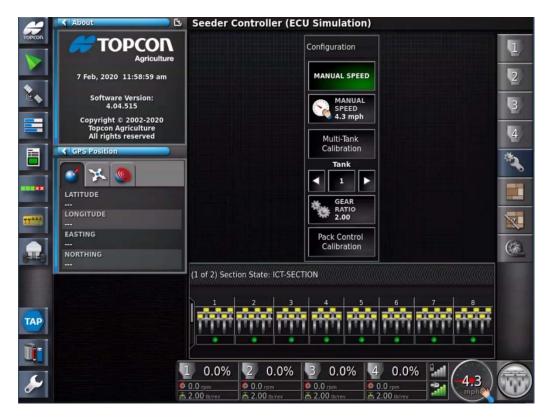


6. Swipe upwards above the Topcon logo to reveal the Ribbon menu, Press the **icon to** load the Global Home screen menu.

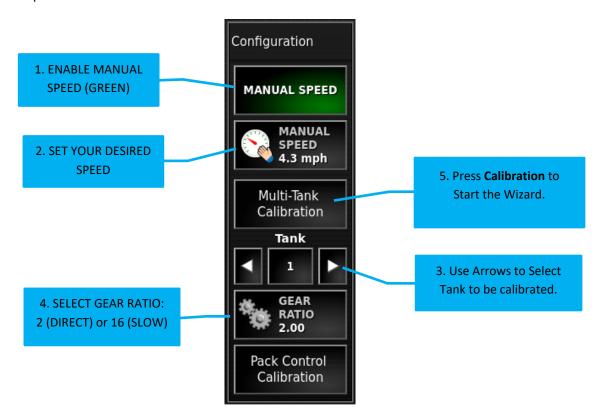


7. Select the **Calibration** page.



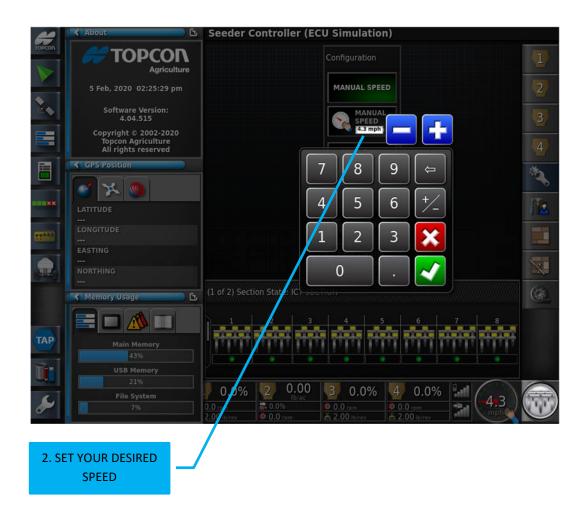


8. Set the parameters for the Calibration.



9. Follow the above step in sequence.





7-8









10. Ensure the Gear Ratios are set correctly for each Tank.

Gear Ratios:

Direct Drive: 2.00 (Cereals / Fertilizers)

Slow Speed: 16.00 (Canola / Inoculants)

See CHART SPECS on next page for when to switch RATIOS.

NOTE: Check Motor load - if calibration is exceeding 85%, switch to Direct.

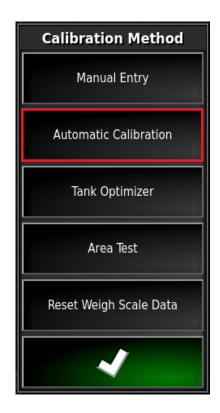
If direct is on the bottom end of the motor load, consider changing to Slow speed.



Direct Drive			
RATE CHART AIRSEEDER			
FERTILIZER — F1—	MEDIUM	48	
FERTILIZER — F2—	MEDIUM	52	
FERTILIZER F3	MEDIUM	60	
FERTILIZER 11-51-0 F4 (COARSE AGGREGATE BLENDS)	COARSE	56	
FERTILIZER 0-0-60 0-45-0 — F5—	COARSE	67 62	

Direct Drive			
RATE CH AIRSEE		P. S.	OENSITY LOS BUS
SAFFLOWER	- s-	MEDIUM	26
OATS	-0-	MEDIUM	39
BARLEY	-B-	MEDIUM	50
FLAX	-x-	FINE	54
SPRING WHEAT DURUM WINTER WHEAT FALL RYE	-w-	MEDIUM	62 63 60 56
LENTILS (LAIRD)	-L-	MEDIUM	60
LENTILS (ESTON)	-E-	MEDIUM	60
PINTO BEANS	-P-	COARSE	59
FABA BEANS GARBONZO BEANS CHICK PEAS (LARGE)	-z-	COARSE COARSE COARSE	62 62 57
ADMIRAL PEAS (SMALL & MEDIUM)	-A-	COARSE	62

Slow Speed Drive			
RATE CHART			
CANOLA	-c-	FINE	52
MUSTARD CANARY SEED	-M-	FINE	56 44
ALFALFA CLOVER	-A-	FINE	42 45
NODULATOR	-N-	MEDIUM	70
TAG TEAM	-T-	MEDIUM	53
EDGE	-E-	FINE	78
FORTRESS	-F-	FINE	50
RIVAL	-R-	FINE	55



11. Select Automatic Calibration, followed by the Green Checkmark.

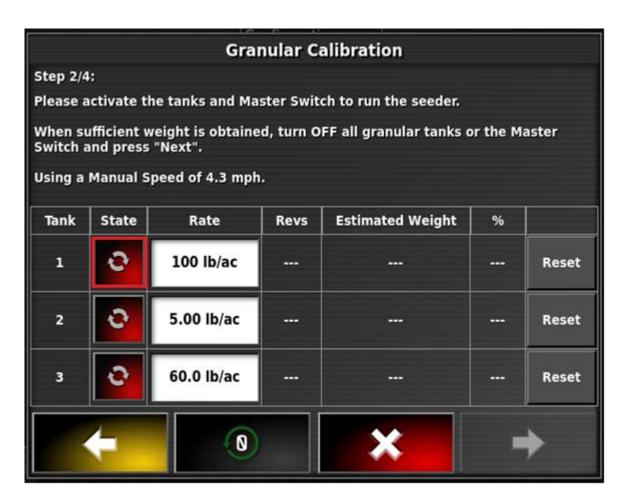
7-10





12. The Calibration wizard will now open.

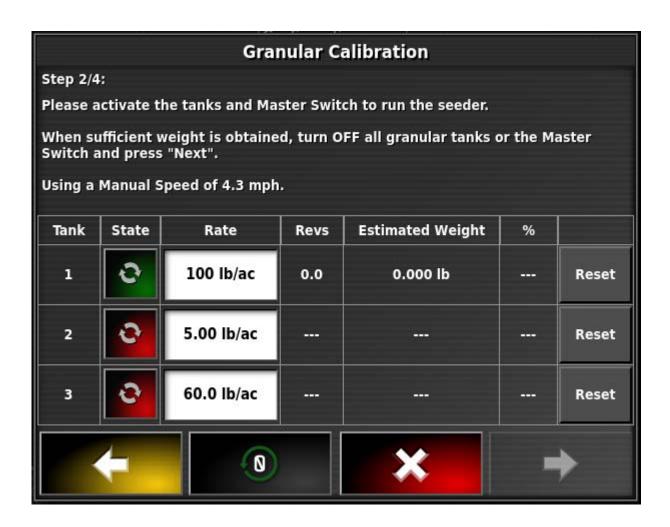
Follow the prompts, proceed with the yellow arrow.



13. Enable the State of the Tank you would like to Calibrate.

Note: Tank State Green = On Red = OFF





- 14. GREEN State indicates the Metering is Active and is ready to discharge product. The Tank Preset 1 Rate will automatically be displayed.
- 15. **Prime** the metering system this allows the metering wheel flutes to fill with product for an accurate calibration.



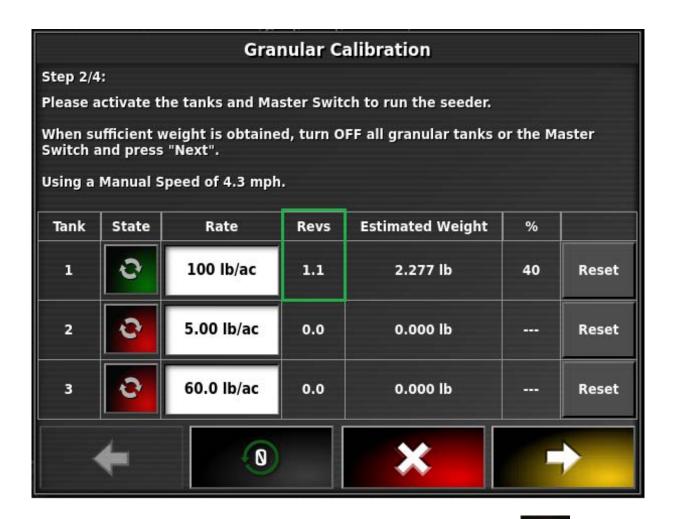




Turn the metering system ON by pressing the

Start Key.





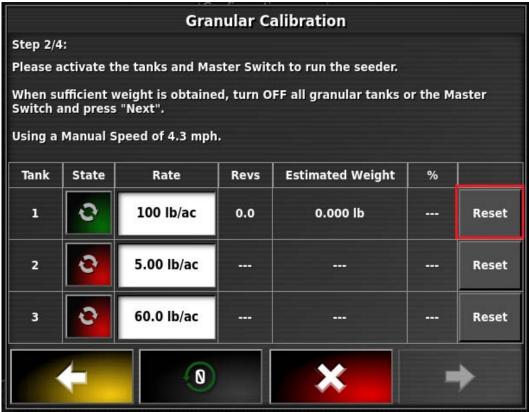
16. Allow the metering to run for several rotations, stop the metering by pressing the



17. Remove the sample collector and empty the product back into the tank. This is not a calibration but only to ensure the metering wheels are primed, do not weigh this sample.







- 18. Clear the priming data by pressing the Reset icon on the Xtend app.
- 19. Replace the sample collector tray onto the collector flange.

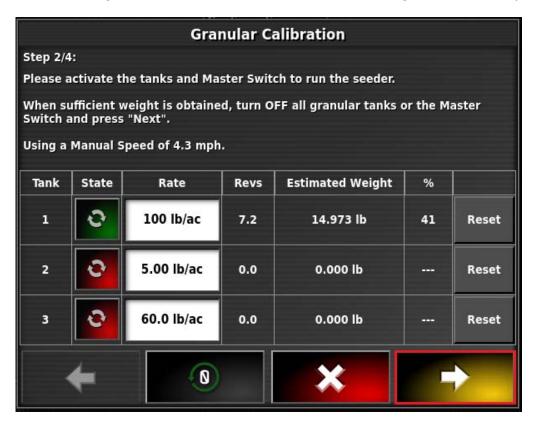




20. Turn the metering system ON by pressing the Start Key

Caution: The metering will engage and distribute the product into the sample collector.

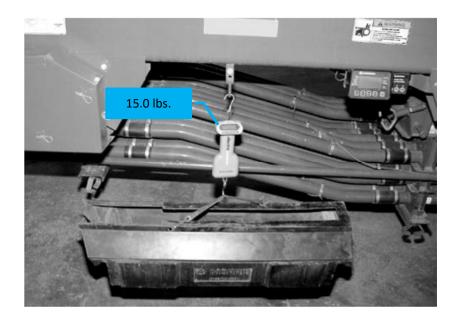
Note: The indicator lights are now Green which confirms that Metering is On and Actively flowing.



21. The Estimated Weight will count continuously as product is collected into the Sample Collector.

Stop the Metering when the Estimated weight is around <u>15.00lbs</u>. Proceed with the Yellow Forward Arrow.





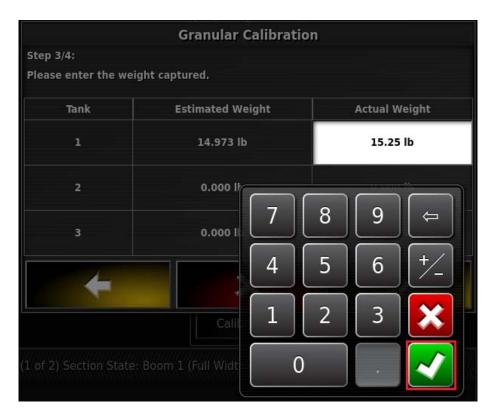
22. Remove the Collector Tray and Weigh the Product using the provided scale.

Note: Remember to subtract the weight of the rate check box from the total sample weight.

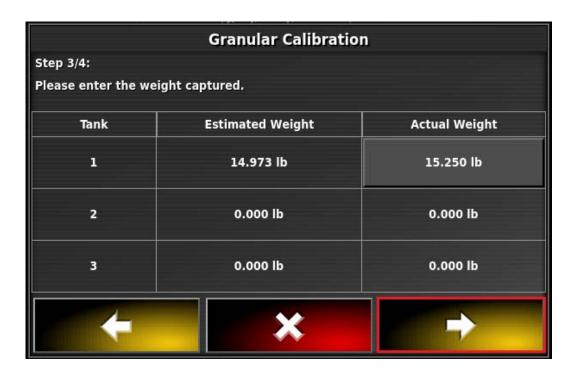
	Granular Calibratio	n
Step 3/4:	Mark a s	
Please enter the we	ight captured.	
Tank	Estimated Weight	Actual Weight
1	14.973 lb	0.000 lb
2	0.000 lb	0.000 lb
3	0.000 lb	0.000 lb
	×	

23. Press on the Tank Actual weight icon.



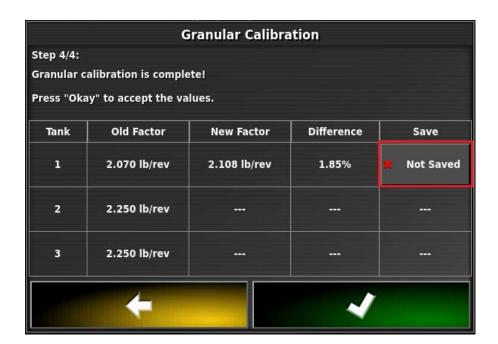


24. Enter the actual weight from the scale display Followed by the Green Checkmark.

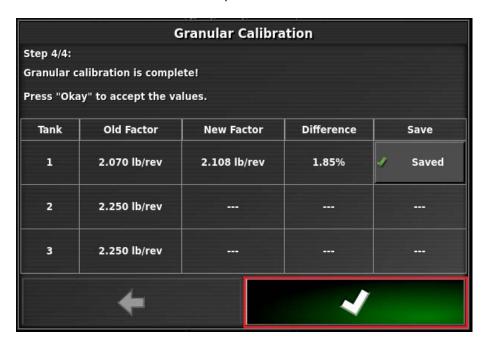


25. Review the information entered is correct, proceed to the next screen by pressing the **Yellow Forward arrow.**





26. Press the on the **Not Saved** icon to **SAVE** the updated Calibration Factors.

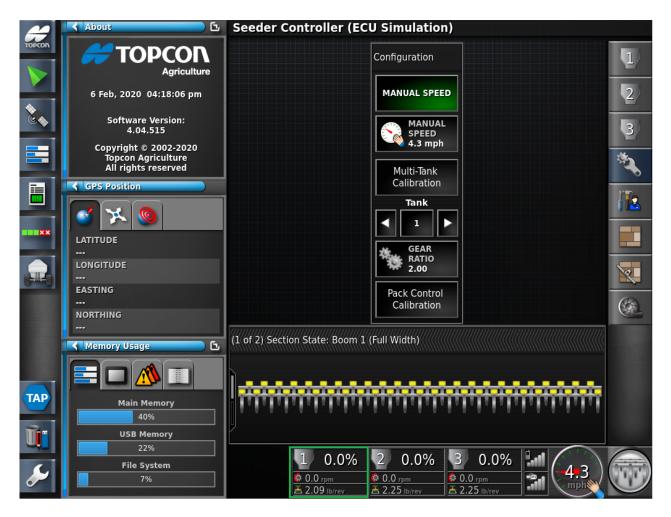


27. The Save status will change to **Saved**. Exit and Apply the Calibration Factor by pressing the Green check mark. It is recommended to repeat the calibration procedure 2 more times to fine tune and verify the calibration factor is accurate.

The calibration should become accurate to 1%.

If several calibrations are performed and the system does not become accurate to 1% check seed plate settings and monitor the motor load. Check for binding in the driveline and ensure the ICT sections are retracting freely into the application position.





28. Repeat the Calibration procedure until you are satisfied with the results. It is recommended to repeat the calibration procedure 2 more times to fine tune and verify the calibration factor is accurate.

The calibration should become accurate to 1%.

If several calibrations are performed and the system does not become accurate to 1% check seed plate settings and monitor the motor load. Check for binding in the driveline and ensure the ICT sections are retracting freely into the application position

Repeat the Calibration procedure on the remaining tanks.

Note: the new Calibration Factors are displayed at the bottom of the Dashboard. (Do not press the icon, this is for reference only).



NOTE: BEFORE STARTING A CALIBRATION ENSURE THAT THE PRODUCT HAS A CAL FACTOR ASSIGNED. REFER TO: ADDING PRODUCT TO TANK - CHAPTER 6

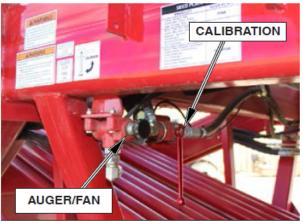
Rate Calibration

The practice of doing a rate calibration is strongly recommended, as it will confirm the **actual** amounts of product dispensed per motor revolution (Welght/Rev).

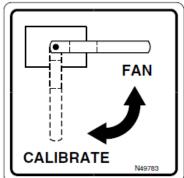
Weight/Rev (Calibration Factor) is used by the monitor to determine the shaft motor rpm required to deliver the correct application rate.

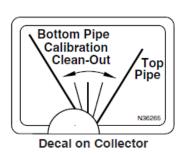
The following procedure should be followed for every change of product.

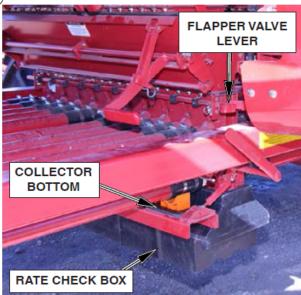
- Engage hydraulic lever to run air cart.
- Turn off fan by switching selector valve (located in the fan supply line) to calibration position.
- Open collector bottom.
- Set Flapper Valves to "Calibration" as per the decal located on the front of the Collector.



Selector Valves - Tow Behind shown







Double Shoot Shown



Rate Calibration - Continued

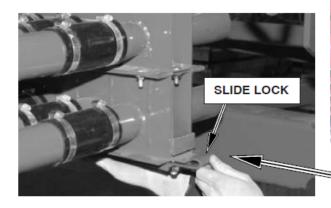
- Hook the Rate Calibration Insert on collector bottom and rotate up into postion. Secure in place with slide lock.
- Slide the rate check box onto the collector body.
- Prime metering wheels first by using the Start/Stop button on the keypad to start and stop the meter drive. Allow the drive to run until material begins to fall through the collector body. Press the rest button for 5 seconds to zero monitor count before collecting sample.

Note: The Topcon monitor must be turned ON in order for the primer switch to work.

Note: Ensure the fan is not running.

 Empty material from rate check box and reinstall it on the same collector.











Rate Calibration - Continued

- · Perform calibration as outlined in the Topcon manual.
- Remove the rate check box from the collector body.
 Weigh the sample by using tarp straps to hook rate check box to spring scale.

Note: Remember to subtract the weight of the rate check box from the total sample weight.

 Enter "Weight" of product collected as outlined in the Topcon manual.

Note: The Calibration Factor (Weight/Rev) is automatically calculated for the value being entered.

- Remove rate calibration insert and close collector bottom ensuring that the seals are free from debris and leaks.
- · Place rate check box into storage bracket.

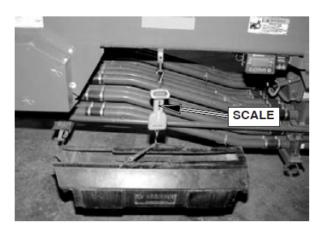
Follow the above procedure to check the rate of the other tanks.



Proper measurement of sample weight is critical for application rate accuracy.

Prime metering wheels before taking actual sample.

Remember to subtract the weight of the rate check box from the total sample weight.





9450 Shown

Important

Raise Stairs before moving Cart.

Stair damage will occur in lowered position.





Seeding Fine Seeds (Canola, Mustard, etc.)

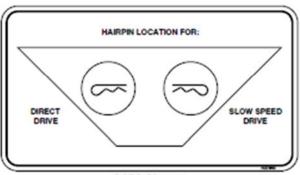
When seeding fine seeds such as canola or mustard, the slow speed transmission has to be engaged to ensure the low rates required for these products.

The slow speed transmission is incorporated in All the Posi-Drive Transmissions.

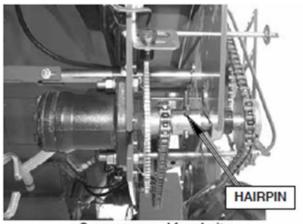
 To engage the slow speed, remove the large hairpin from the front shaft and install through the sleeve and shaft located at the rear of the transmission.

Note: Shaft will have to be rotated to align holes for pin insertion.

- To disengage the slow speed, reverse the above procedure.
- Rate checks can be performed the same way as for other seeds.
- Usually it is necessary to reduce the fan rpm when seeding fine seeds. See "Fan Speed" for specific fan speeds.



9450 Shown



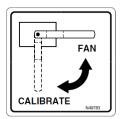
Cover removed for clarity

Important: ENSURE THE TRACTOR IS NOT RUNNING WHILE REMOVING OR INSTALLING PINS!

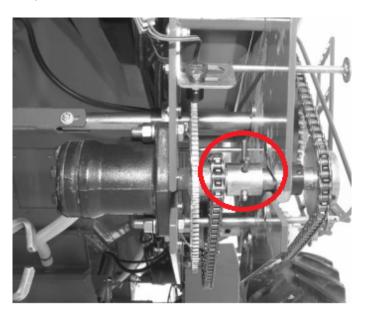


Quick Review Before Starting Calibration.

1. Divert hydraulic Flow from Fan



- 2. Adjust product diverters to Calibration setting
- 3. Insert the Calibration deflector.
- 4. Slide sample collection tray onto collector.



5. Adjust the transmissions to correct drive ratio by moving the locking pin from **Direct Drive** to **Slow Speed Drive** as required. (**DIRECT DRIVE SHOWN**) ENSURE THE TRACTOR IS NOT RUNNING WHILE REMOVING OR INSTALLING PINS!



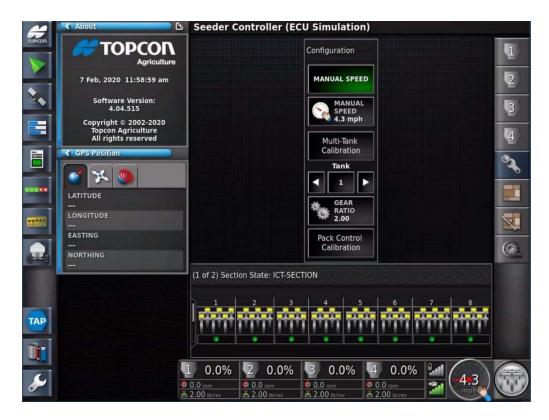


6. Swipe upwards above the Topcon logo to reveal the Ribbon menu, Press the **icon to** load the Global Home screen menu.

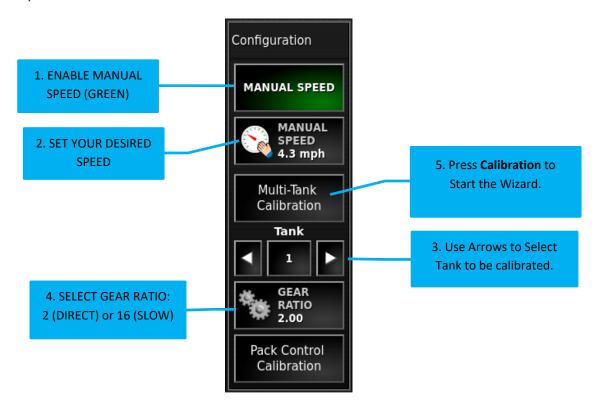


7. Select the **Calibration** page.



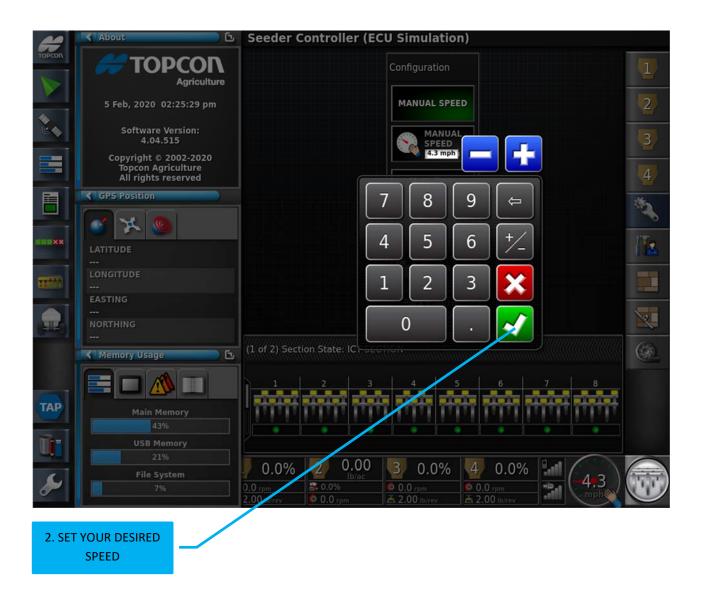


8. Set the parameters for the Calibration.



9. Follow the above step in sequence.













10. Ensure the Gear Ratios are set correctly for each Tank.

Gear Ratios:

Direct Drive: 2.00 (Cereals / Fertilizers)

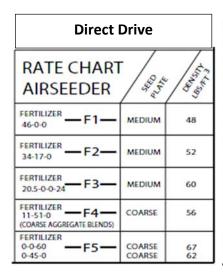
Slow Speed: 16.00 (Canola / Inoculants)

See CHART SPECS on next page for when to switch RATIOS.

NOTE: Check Motor load - if calibration is exceeding 85%, switch to Direct.

If direct is on the bottom end of the motor load, consider changing to Slow speed.





Direct Drive			
RATE CHART AIRSEEDER			
SAFFLOWER	-s-	MEDIUM	26
OATS	-0-	MEDIUM	39
BARLEY	-B-	MEDIUM	50
FLAX	-x-	FINE	54
SPRING WHEAT DURUM WINTER WHEAT FALL RYE	-w-	MEDIUM	62 63 60 56
LENTILS (LAIRD)	-L-	MEDIUM	60
LENTILS (ESTON)	-E-	MEDIUM	60
PINTO BEANS	-P-	COARSE	59
FABA BEANS GARBONZO BEANS CHICK PEAS (LARGE)	-z-	COARSE COARSE COARSE	62 62 57
ADMIRAL PEAS (SMALL & MEDIUM)	-A-	COARSE	62

Slow Speed Drive			
RATE CHART			
CANOLA	-c-	FINE	52
MUSTARD CANARY SEED	-M-	FINE	56 44
ALFALFA CLOVER	-A-	FINE	42 45
NODULATOR	-N-	MEDIUM	70
TAG TEAM	-T-	MEDIUM	53
EDGE	-E-	FINE	78
FORTRESS	-F-	FINE	50
RIVAL	-R-	FINE	55

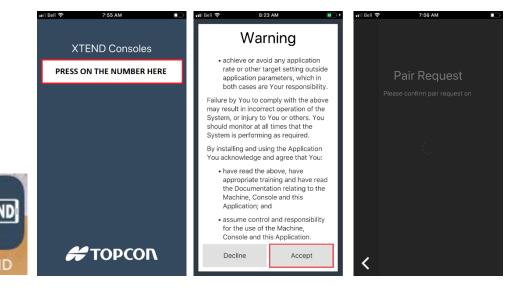
YOU MAY NOW OPEN THE XTEND APP or if Xtend is not used please review the Calibration using Keypad tutorial.



11. XTEND - Ensure the monitor and device are paired by viewing the signal bar status.

Note: If there is no connection present, check that the wi-fi is enabled on your device or reference Xtend Wi-fi set up.





12. OPEN the XTEND APP on your device.

Press on the Ip address box

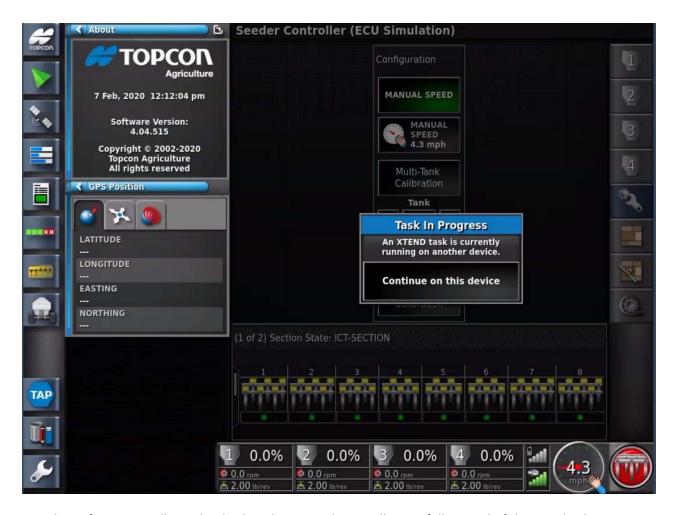
Read the Warning disclaimer and select Agree to proceed.

A Pair Request from the device to the monitor will initiate.



13. Accept the connection on the X35 display by pressing the Yes icon.

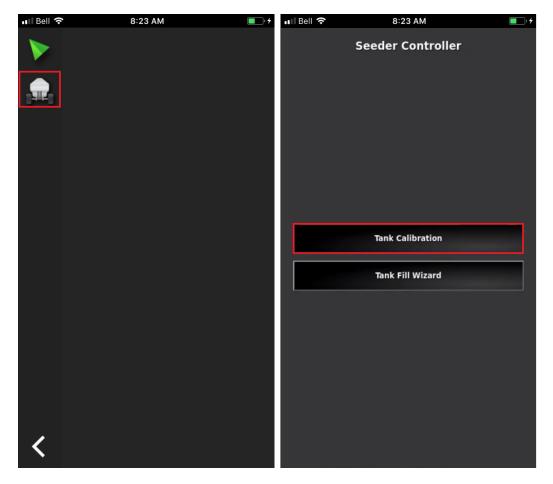




14. Xtend App functions will now be displayed on your device, allowing full control of the X35 display.

Note: If you would like to cancel the Xtend controls and return the control the X35 display, you may press Continue on this device prompt at any time.





15. The Xtend App is now communicating with the X35, select the Aircart icon, followed by the Tank Calibration Icon.



16. Select Automatic Calibration.





17. Step 1/4 press the Yellow Forward Arrow.





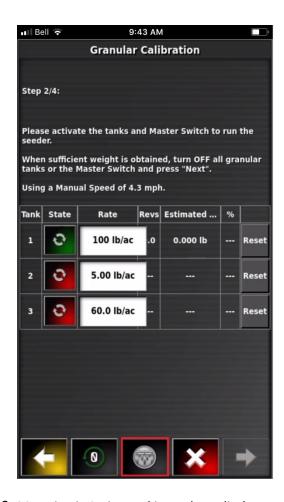
18. Step 2/4 Enable the State of the Tank you would like to Calibrate.





Prime the metering system - this allows the metering wheel flutes to fill with product for an accurate calibration.





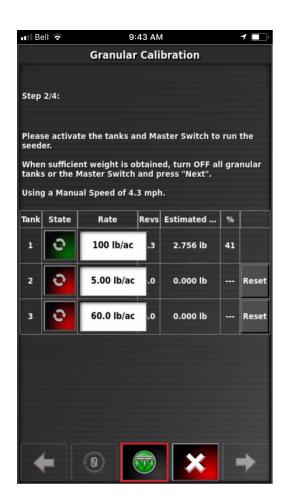
19. Metering is Active and is ready to discharge product. The Tank Preset 1 Rate will automatically be displayed.

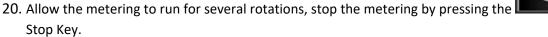


Turn the Metering system ON by pressing the

virtual Start / Stop key.





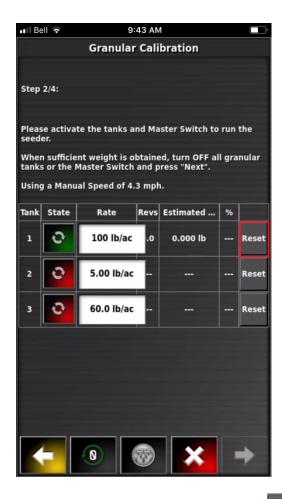




Start

21. Remove the sample collector and empty the product back into the tank. Since this is not an actual calibration but only to ensure the metering wheels are primed, it is not necessary to weigh the priming sample.

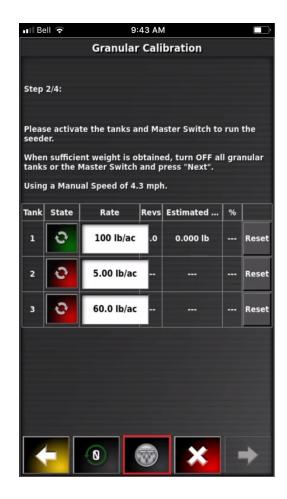




22. Clear the priming data by pressing the Reset Icon.

23. Replace the sample collector tray onto the collector flange. We will now perform an actual calibration.





24. Turn the metering system ON by pressing the

virtual Start / Stop key.

Caution: The metering will engage and distribute the product into the sample collector.

Note: The indicator lights are now Green which confirms that Metering is On and Actively flowing.





25. The Estimated Weight will count continuously as product is collected into the Sample Collector.

Stop the Metering when the Estimated weight is around <u>15.00lbs</u>. Proceed with the Yellow Forward Arrow.



26. Remove the Collector Tray and Weigh the Product using the provided scale.

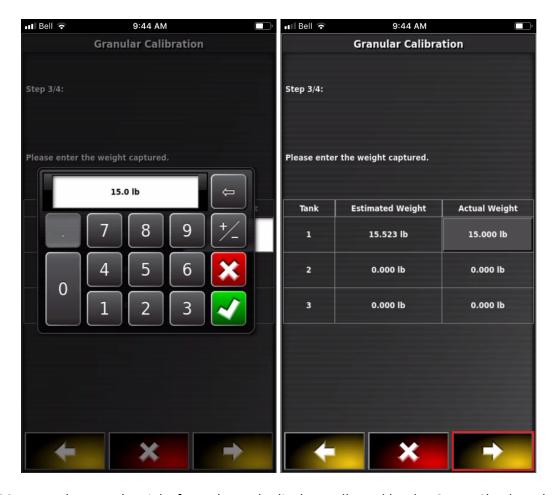
Note: Remember to subtract the weight of the rate check box from the total sample weight.





27. Press on the Tank Actual weight icon.

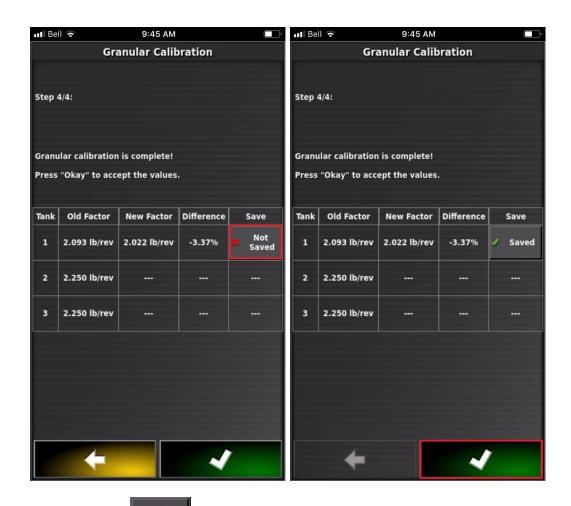




28. Enter the actual weight from the scale display, Followed by the Green Checkmark.

Review the information entered is correct, proceed to the next screen by pressing the **Yellow Forward arrow.**

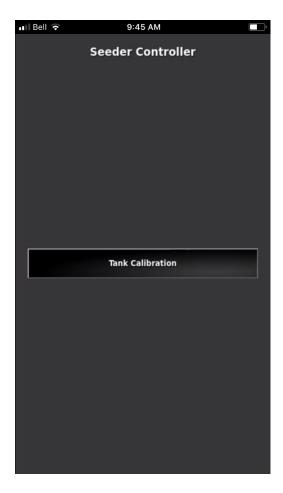




29. Press the on the Not Saved icon to SAVE the updated Calibration Factors.

The Save status will change to Saved. Exit and Apply the Calibration Factor by pressing the Green check mark.





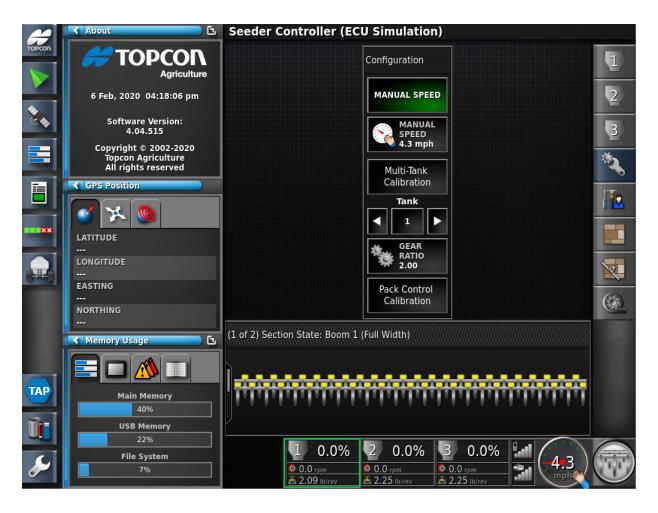
30. Repeat the Calibration procedure until you are satisfied with the results. It is recommended to repeat the calibration procedure 2 more times per tank to fine tune and verify the calibration factors are accurate.

The calibration should become accurate to 1%.

If several calibrations are performed and the system does not become accurate to 1% check seed plate settings and monitor the motor load. Check for binding in the driveline and ensure the ICT sections are retracting freely into the application position

Repeat the Calibration procedure on the remaining tanks.





31. Return to the X35 monitor

Note: the new Calibration Factors are displayed at the bottom of the Dashboard. (Do not press the icon, this is for reference only)



- 1. Follow the previous chapters. At this stage you will have;
 - Created Fields
 - Added Products to Tanks
 - Preformed Calibration tests on all Tanks



1. Select MAPPING



2. Open the **Field Menu** icon







3. **Select the Field** you wish to seed. Press the Green Check mark to apply the settings.

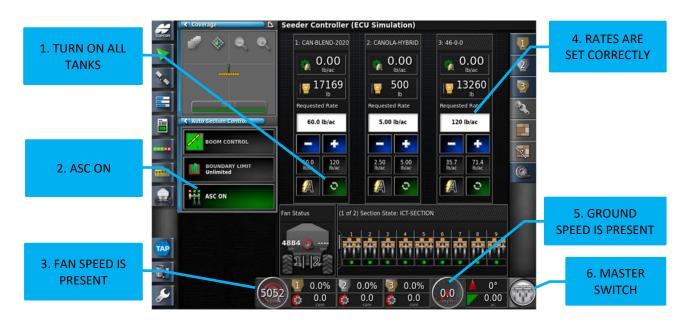


4. Press the **Job menu icon**, and followed by the **Create New Job** icon





5. Use the provided or create a new **Job Name**.



6. Return to the Seeder Home screen. Ensure the following items are checked before Engaging the **Master Switch**.





7. The following icons on the Seeder Home screen will change colours when the Master Switch is active.

Note: There is a several second delay for features on the screen to change to the colour green, this is based on the transition time of the product from the metering wheels to the openers.

Notes:



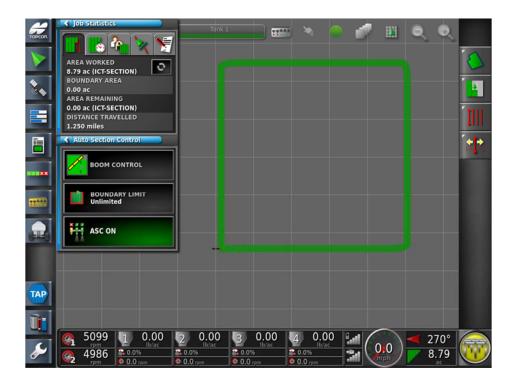


1. Select MAPPING



2. Proceed to create your first headland pass. Once the outside pass is competed, drive straight into the treated area, we want a closed perimeter of coverage.





3. Toggle the Map to the overhead view

Note: how the head pass is a closed loop of coverage, we cannot have any open gaps.



4. Press the Field icon followed by the Create Boundary from Coverage Icon.

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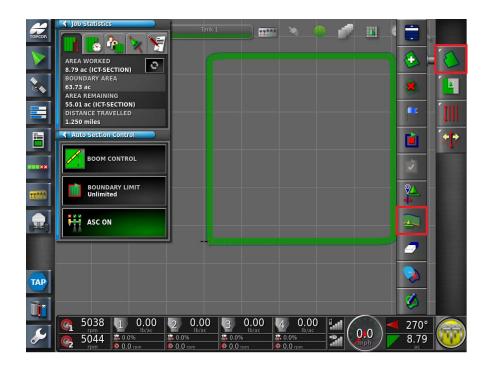


5. Use the default settings, proceed by pressing the Green Check mark.

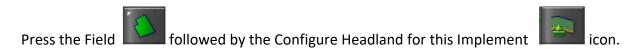


6. Creating Boundaries, message will be displayed. A Blue boundary will appear around the perimeter of the headland. Accept the Boundary by proceeding with the Green check mark.





7. Now that a boundary has been created, there a several new Headland and ASC options which have now become available.

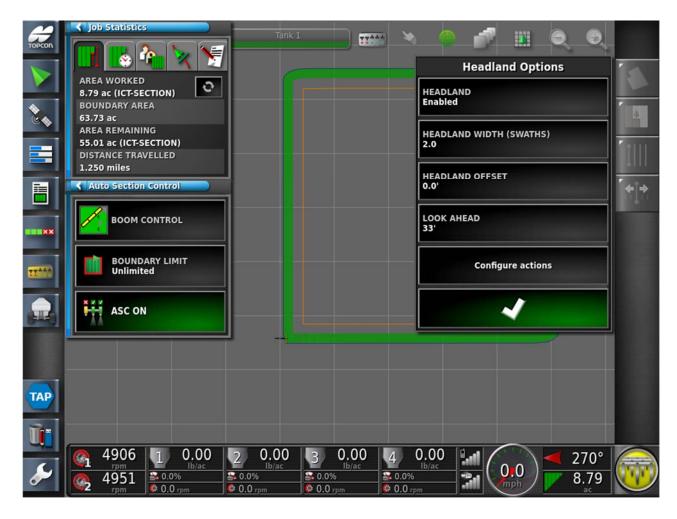




8. Press on the Headland icon, select Enable followed by the Green check mark.

8A-4



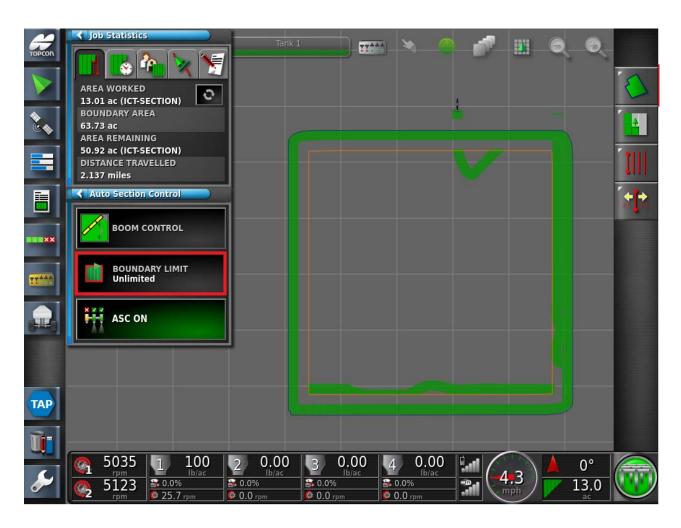


9. Press on the Headland Width (Swaths) icon, Enter the number of headland swaths desired. Example: 2.0 Swaths

Note: A larger number of swath widths maybe used, this will depend on your implement width and vehicle travel speed. Apply the settings with the Green check mark.

A virtual headland peremiter will now be displayed in an **Orange** boarder. Review and Apply the settings with the Green check mark.

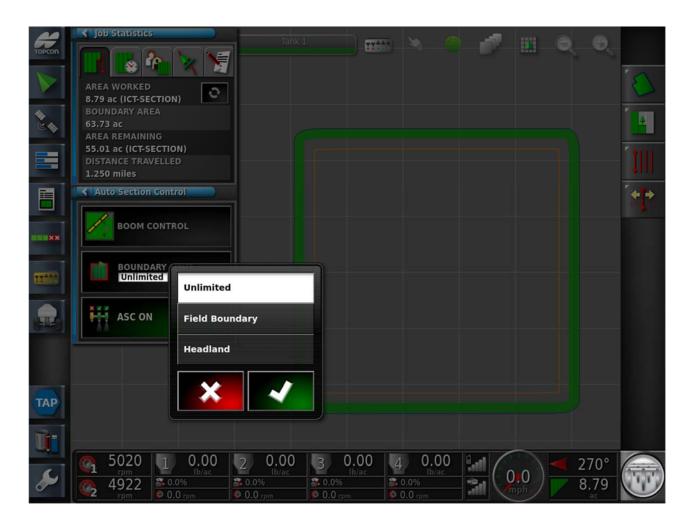




10. Under the Auto Section Control mini view, Press the Boundary Limit Icon. You may also



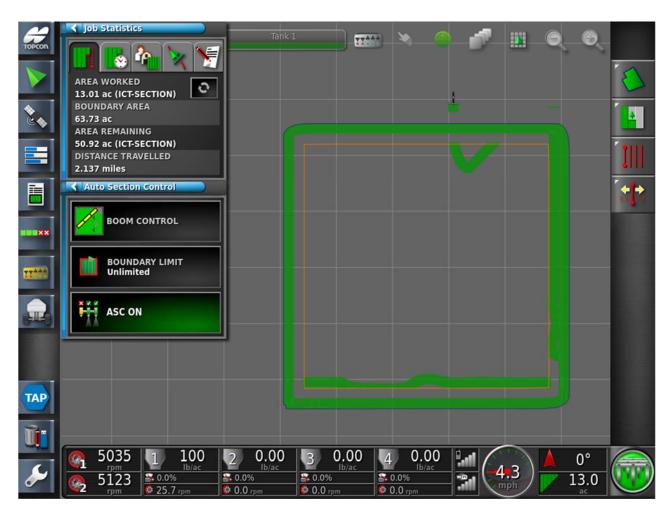




11. The following settings are available:

Unlimited Field Boundary Headland





12. Unlimited, Provides unrestricted application of product in all areas. Allows hired man to seed outside of your fields into the neighbor's field. It is recommended to use only seed on **Headland** and **Field Boundary** settings.

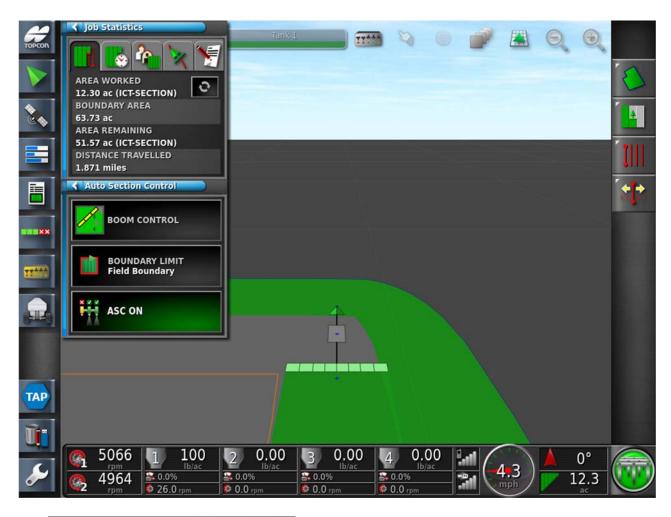






13. **Boundary Limit - Headland** - will exclude the headland area from receiving product, thus this region is seeded last to cover up any tracks and prevents seed disturbance and over compaction.





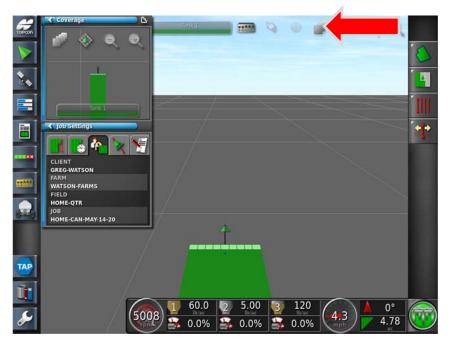


14. **Boundary Limit - Field Boundary** – the application of product within the boundary zone of the field. If the implement travels outside of the boundary of the field the metering system will not activate. This is useful to ensure the operator is seeding inside the correct field. Also, during Headland turns it prevents false applications as the ASC is not trying to activate the metering with false look ahead predictions.





1. Select MAPPING



2. For more detail, you can adjust the Map layers



to display a real time applied Rate.





3. Toggle the Coverage Map from to Coverage to Applied Rate Map



4. You may also toggle between the different Tanks, Press the Green Check Mark





5. Press on the Colour Band icon a the top of the screen.



6. Press on the Edit Icon.





7. Press the **Auto Applied** icon followed by the Green Check mark. Repeat the above procedure on the remaining tanks.



8. Save the Map layer settings by swiping upwards and selecting the

100

Icon.





9. Press on the middle of Mapping Icon (do not press the small Gears Icon).



10. A prompt will be displayed, Do you want to overwrite the Global Home Screen "Mapping"? **Yes**





11. Simply Press the Green Check Mark to confirm the name.



12. The As applied Data will now be displayed as a multicoloured graph, each colour shade

represents the lb/ac value. Toggling to the overhead view is a useful method to validate that the application rates have been applied properly. Return to the Map layers



icon to select and view the other tanks.

Section 9: Pack Control

Section Contents

Pack Control Installation	9-2
X35 Apollo - Lift and Pressure Control Wiring	9-4
Technician Settings	
Pack Control Home Screen Set-Up	
Setting Lift Lower Functions	
Calibration (Floor Scale Method)	
In Field Test	9-35
Lift Control Test	
Pack Control Test	

9 - Pack Control



Pack Control Installation

Install Pack Control Arm on the middle most opener on the rear row

Check to ensure load cell is installed correctly with the stamp "TOP" facing upward.

Secure cable to top side of packer arm with the inserted tie straps.

Route the cable along the side of the top link to front side of opener avoiding any pinch points.



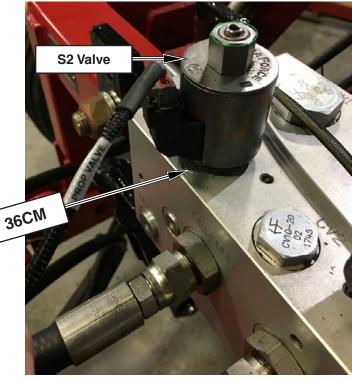


Pack Control Installation - Continued

Check the stamping on the base of the S2 Valve, it should be **TS12-36CM**.

If it is a 36AM cartridge replace it with Valve Cartridge S68007 (36CM)





IMPORTANT

To operate Pack Control, the S2 Valve must have Valve Cartridge - TS12-36CM (Part Number S68007)

The TS12-36CM Valve is optimized for use with the Topcon Pack Control System where as the TS12-36AM Valve is used exclusively with the Jem Control System. The 36AM operating range is incorrect for the X35 Apollo System.



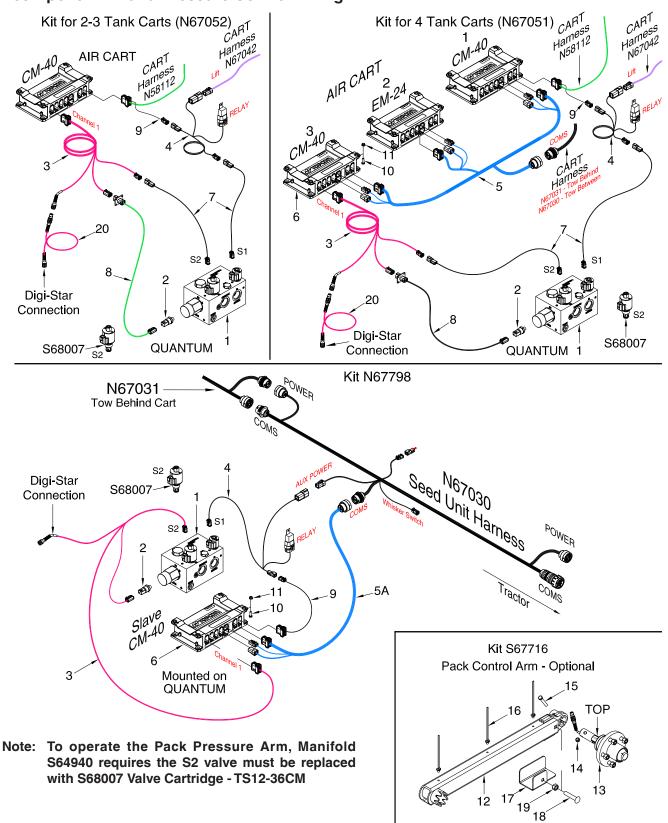
Pack Control Spindle Orientation - Top Decal Must be facing up.

Note: Guard S69154 removed to show Spindle.



Pack Control Installation - Continued

X35 Apollo - Lift and Pressure Control Wiring





Pack Control Installation - Continued

X35 Apollo - Lift and Pressure Control Wiring - Continued

Item	Part No.	Description	Qty
1 2 3 4 5 5A 5B 6 7 8 9 10	S64940 S68006 K62977 N67045 N67046 N67037 N67038 N68000 N55950 N59010 N64671 N68001 W-187 D-5279	Manifold - Opener Control (Requires S68007 see note below) Manifold - Opener Control - 2000 psi (Includes S68007) Pressure Transducer Harness - Pack Control (1026291-01) Harness - Lift Control (1006258-01) Harness - Triplex ECU Adapter (1005038-01) Harness - Single ECU (1005036-01) Harness Extension - 2m - (1028492-01) - Optional Apollo Master Module ECU - CM-40 - (AGA5339) Harness Extension - Work Switch - 5m - (AGA4468) Pressure Transducer Extension Harness - 7m - (1024230-01) AUX Lift Lower Signal Adapter Hex Bolt - 3/8 x 1 1/4 Lg - Bolts ECU to plate under manifold Locknut - 3/8 Serrated Flange	1 1 1 1 1 2 1 1 4
	N67052 N67051 N67798	Lift and Pressure Control Kit for 2-3 Tank Carts (Includes Items 3, 4, 7 and 8) Lift and Pressure Control Kit for 4 Tank Carts (Includes Items 3, 4, 5, 6, 7 and 8) Lift and Pressure Control Kit for 4 Tank Carts Tow Behind ONLY (Includes Items 3, 4, 5A, 6, 9, 10 and 11)	
12 13 14 15 16 17 18 19 20	S66267 S67715 M-3388 W-479 S67885 S69154 S47593 F-3405 N68002	Pack Control Arm - Optional Packer Arm - Digi-Star Axle Assembly - Digi-Star (Includes S66278 Spindle - Digi-Star) Lock Nut - 3/8 Unitorque Hex Bolt - 3/8 x 2 1/4 Lg Zip Tie - Push Mount Guard - Pack Master Cable Carriage Bolt - 1/2 x 3 1/2 Lg Locknut - 1/2 Unitorque Extension Cable - Optional	1 1 3 1 1 1
	S67716 S71738	Pack Control Arm Assembly (Includes Items 12 to 19) Pack Control Stubble Guard Field Kit (Includes Items 17 to 19) Pin 13 X35 Apollo - Wiring	
		Ensure the Single Purple wire is installed in pin 13 (Relay signal out on the Auxiliary harness) as shown. (Cart Harness N58112)	
		Connect 1006258-01 Lift lower harness to the following connections:	
		Trunk /Whisker - to the single wire connection to pin 13 on Aux harness	
		Relay Power - to AGA5343 ECU harness DTP power connector - (remove dust cap).	
		Lift Solenoid - to S1 on JEM Manifold block on Quantum drill	

9 - Pack Control



What is Pack Control?

The goal of the Pack Control system is to always maintain a consistent packing force across all areas of the field no matter the

Soil Types, Vehicle Speed, Moisture Content, Desired Seed Depth, and Boot designs.

Pack Pressure Control

Quantum drills equipped with the Topcon Pack Control option include a new packing arm [S67716]. The arm consists of a special Digi-Star spindle assembly [S67715] which is capable of measuring the downforce being applied onto the Packing Wheel.

The target Packing Force is entered into the X35 monitor. Once the desired Packing Force is set, the Topcon control loop analyzes the signal from the Spindle and will increase / decrease the amount of hydraulic pressure of the S2 solenoid to maintain the requested Packing Force Target.

Note: There is only 1 load cell spindle therefore the forces it is reading will be applied to the entire drill width.

What Is Lift Control?

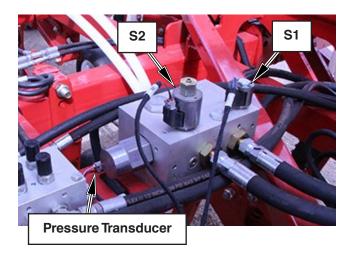
Lift control allows for automated lifting and lower functions of the Morris Quantum Drill.

Benefits:

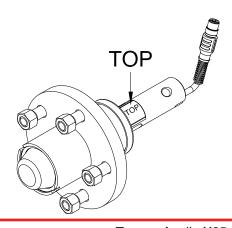
This reduces operator fatigue and ensures consistent repeatable lifting and lowering sequences

The drill can be set to raise and lower in virtual Headland boundaries, and when encountering previous treated areas.

Lifting and lowering times can be adjusted independently in the settings menu.

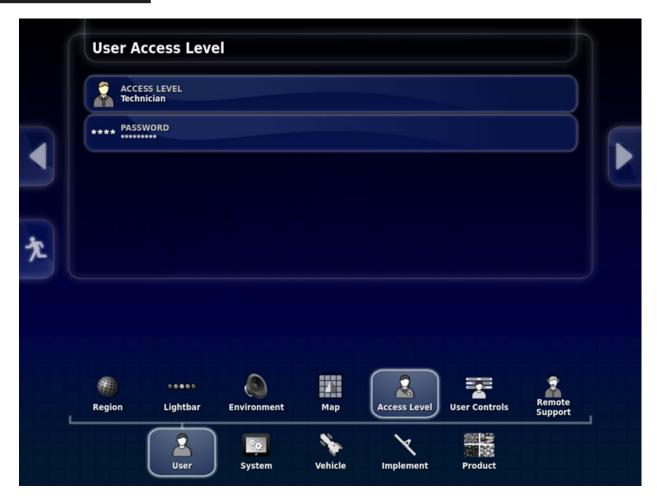








Technician Settings



Set-up of the **Pack Control System** can only be performed by trained Service professionals - as certain parameters are not accessible by standard operators, and access to the menus require unlocking with Dealer / Technician mode password.



Technician Settings - Continued



In the set-up menu navigate to:

Implement - Seeder - Drill Control - Lift Control

Drill Control: **Enabled**Lift Time: **2.0 Seconds**Lower Time: **8.0 Seconds**

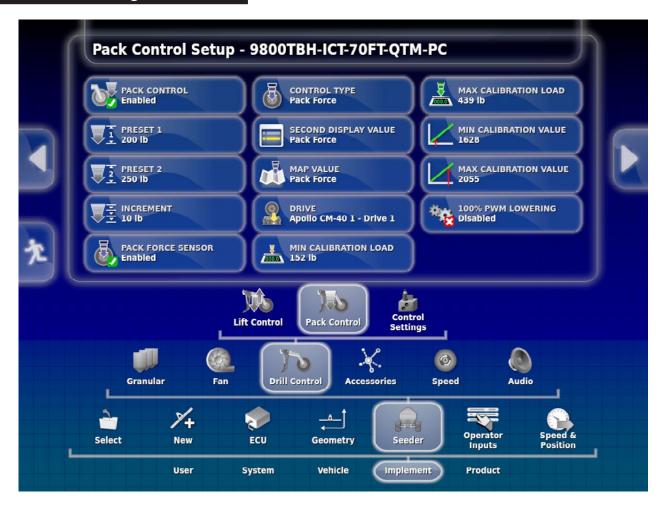
Lift Control Relay: Apollo CM-40 1: Relay 9 (TOPCON ECUS are mounted on AIRCART)

Apollo CM-40 2: Relay 9 (USE ONLY IF TOPCON CM-40 ECU IS MOUNTED DIRECTLY ON QUANTUM)

Refer to wiring illustration for details on page 4.



Technician Settings - Continued



Implement - Seeder - Drill Control - Pack Control

Pack Control: Enabled

Preset 1: 200lb / 90kg (do not set below 200lb / 90kg)

Preset 2: 250lb / 115kg Increment: 10lb / 5kg

Pack Force Sensor: **Enabled**Control Type: **Pack Force**

Second Display Value: Pack Force

Map Value: Pack Force

Drive Configurations:

2 Tank with Liquid - Apollo CM-40 1 - Drive 2

3 Tank with Liquid - Apollo CM-40 2 - Drive 1

2 or 3 Tank Granular Only - Apollo CM-40 1 - Drive 1

4 Tank Granular - Apollo CM-40 2 - Drive 1

* * * IMPORTANT * * *

100% PWM Lowering - Disabled

Note: Disabled is the recommended setting as feature may cause damage to openers in certain operating conditions.

Min Calibration Load: **152 lbs** (these numbers will be overwritten during calibration procedure)

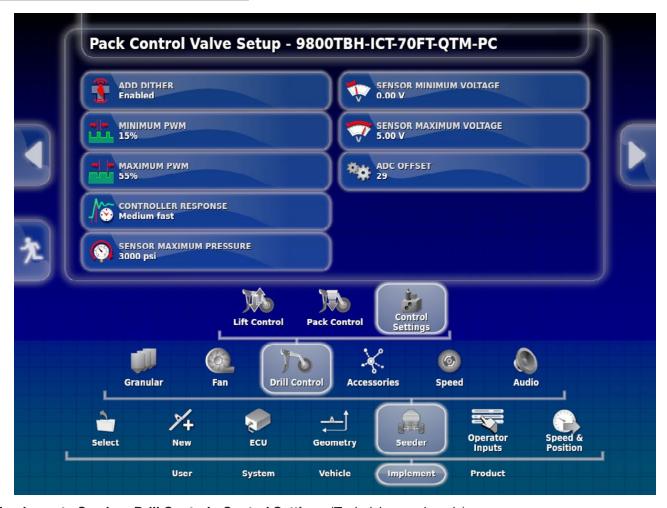
Max Calibration Load: **439 lbs** (and are provide as a recommendation, if your values are not near these baselines, the calibration has been compromised)

Min Calibration Value: 1628 (New packer Arm)

Max Calibration Value: 2055



Technician Settings - Continued



Implement - Seeder - Drill Control - Control Settings (Technician mode only)

Add Dither: **Enable**Minimum PWM: **15%**

Maximum PWM: 55% (do not exceed 55% or damage to Quantum can occur) - 2000 psi TS12-36CM

Controller Response: **Medium Fast**Sensor Maximum Pressure: **3000psi**

Sensor Min Voltage: 0.00 V

Sensor Maximum Voltage: 5.00 V

ADC OFFSET: 29



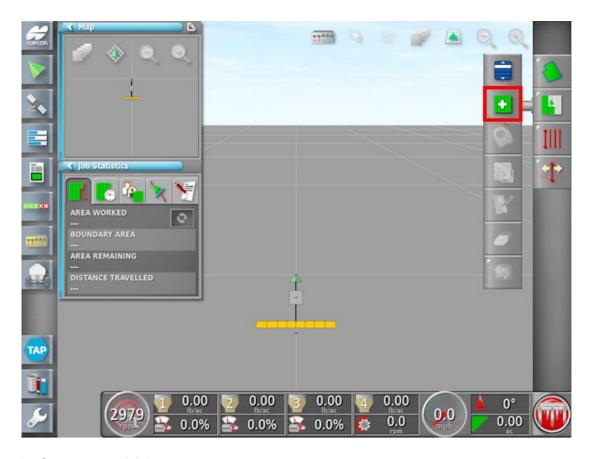
Pack Control Home Screen Set-Up

1. A dedicated Pack-Control Home Screen is required for the configuration of the Pack Control System. **NOTE: GPS SIGNAL IS REQUIRED FOR THIS TUTORIAL**



2. The first step is to create a dedicated Pack-Control Home Screen, start by select the Mapping screen.





3. Press the Create a new Job Icon



4. Create a new Job - PACK-TEST-1





5. Add the Seeder Control to the top mini view location, followed by pressing the Icon.



Pack Control



6. Open the **Map Layer** Icon, and Adjust the **Coverage Map** arrow to **Coverage** and the **Tank** arrow to **Pack Control**. Apply the settings with the Green check mark.





7. Open the Boom Control Tab located inside the Auto Section Control Mini View window.



Adjust the Auto Section Control Threshold for ICT-Section 95% and Drill Control to 95%.
 Apply with the Green Check Mark.

Setting to 95% - avoid Gaps, some overlap of application will occur near existing coverage and boundaries. The threshold adjusts how much of the section must travel through the coverage before turning On / Off.





9. Swipe Up to reveal the dashboard ribbon and press the



Manage Home screen







10.Press the <Save Home Screen> Icon.



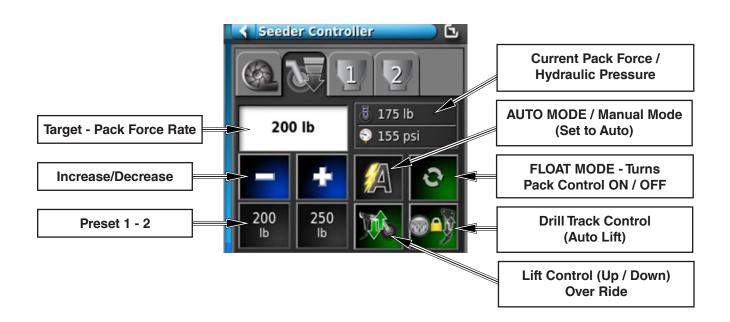
11.Name the home screen **Pack-Control**, followed by the Green check mark.





12.A Home Screen optimized for the **Pack-Control** is now available.

Note: Familiarize yourself with the Lift / and Pack Control Icons shown below.





Familiarize yourself with the Lift / and Pack Control Icons:

200 lb

Target Pack Force Weight display window.



Increase or decreases the amount of desired Packing Force



Preset 1-2 Pack force targets



Rate Control Mode is set to - Automatic



Pack Control - On/Off (Float mode)





Lift Control On/Off (Up/Down Override)



Drill Track - (Auto Lift) locks the opener Lift Lower controls to the



Master Switch.

Familiarize yourself with the Master Switch Icons:



Yellov

Auto section control has the master switch turned off.



Yellow / white

Seeder controller is in preload mode (for granular products). The seeder will turn on when the countdown timer reaches zero.



Green

Seeder controller is on and working. Select the master switch to turn the seeder off.



White

Seeder controller is in standby. Select the master switch to turn the seeder on.



Red

Seeder controller is off and cannot be used.



Blue

Virtual or keypad master switch is on. Implement master switch is off





Swipe up and press the at any time.

 $\textbf{Home} \ \mathsf{icon}, \ \mathsf{access} \ \mathsf{the} \ \textbf{Pack-Control} \ \mathsf{page} \ \mathsf{from} \ \mathsf{the} \ \textbf{Global Home Screen} \ \mathsf{menu}$



9 - Pack Control



Setting Lift Lower Functions

- 1. Perform the following procedures:
 - Lift Lower Set up
 - Lift / Lower testing (stationary)
 - Lift Lower with Fan speed test



2. Open the Seeder Home Screen.





3. If the **Pack Control** mini view is not displayed press the mini view.



Pack Control Icon inside the Seed Controller



4. The Pack Control Tab is now opened.





5. Enable the following icons on the Pack Control system: Click each icon until they match colors below.



Pack Control - ON



Drill Lift Track Control - ON



Lift Control – Automatic (Green Arrows with Yellow Background)





6. Ensure all Tanks are OFF



for the next test.



WARNING THE OPENERS WILL NOW BECOME ACTIVE AND WILL LOWER WITH THE MONITOR CONTROLS unexpected automatic cycling of raising and lowering can occur.



7. Testing the LIFT / LOWER HYDRUALIC functions.



Place the Tractor in

Park and unfold drill if not already in Field Position.



Openers drop with full down force when powering up or rebooting the X35 with hydraulics engaged.

Ensure opener hydraulic system is disabled before working underneath machine.





- Perform a visual inspection for bystanders around or under the Quantum Drill once clear, proceed to rotate the Openers ball valve into open unlocked position.
- Opener lift / lower Hydraulics are normally connected to the #1 SCV.
- Contact your Dealer for correct hydraulic plumbing.
- Push the Opener Hydraulic lever forward until it locks into Continuous operation.

Set the tractor SCV to 40% see "Tractor User Guide" for setting of Hydraulic systems

Tractor SCV should be set to 25GPM.

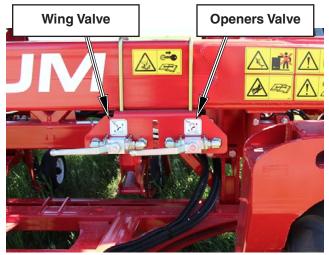
If not set the QUANTUM opener valve will flow up to 35 gpm which could starve the oil flow from the Air Cart Fan. Total Fan speed should not drop by more than 300 RPM while the drill is lowered.

During normal operation, using the suggested settings with the tractor hydraulics engaged the openers should now be in the raised position.

Note: If the openers do not raise or lower correctly, adjust hoses or tractor hydraulic controls orientation.







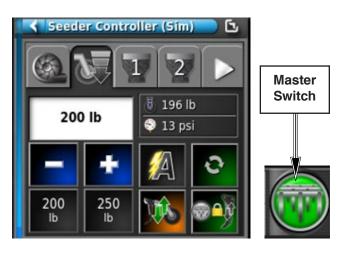
Valves in Unlocked Position







• Using the above settings, the Openers are being commanded from the Monitor to be in raised position.



 Pressing the Master switch, the openers will now begin to lower into the working position. Cycle the openers several times up and down to ensure proper functionality.

Note: The Lift Control Icons change colour to represent their current state





Yellow / Green - Opener are Raised in the Transport Position.



Orange - Openers are transitioning from Raised into the Lowered position.



Green - Opener are lowered, sequence is complete, Pack Control is active.



Yellow / Red - Automatic mode OFF - (Raised test operation).



- Once satisfied that the openers are lifting and lowering correctly, bring Fan 1 and Fan 2 up to normal operating speed.
- Perform additional raising and lowering tests of the drill, however pay close attention to the Fan speed.
- The Morris Quantum drill should be able to lower into the working position within 7 seconds without any substantial fan speed interruption.
- If you experience excessive fan speed drop, please review information on optimizing Quantum hydraulic plumbing. Contact your Dealer for correct hydraulic plumbing.

Total Fan speed should not drop by more than **300 RPM** while the drill is lowered.





Calibration (Floor Scale Method)

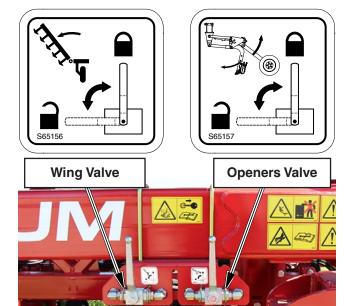
- 1. Positon Drill on a flat level surface to perform the calibration procedure.
- 2. Raise Drill into the Up position, turn off Tractor Hydraulics and Lock the Opener Ball valve into locked position.
- 3. Remove the Shank assembly.

Place Pan Scale under Packer Wheel.

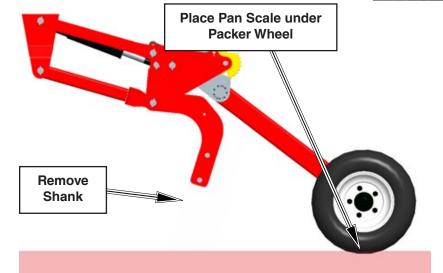
Align scale so Packer Wheel will sit in the middle of scale.

Open Ball Valve to normal operation.

Note: Use a Pan Scale with a range of 0-450 lbs. (0-200 kg) with fresh batteries installed.



Valves in Locked Position





Note: The Loadcell decal Top must be facing Upwards.

Important: Perform the calibration procedure on a flat level surface.



Openers drop with full down force when powering up or rebooting the X35 with hydraulics engaged.

Ensure opener hydraulic system is disabled before working underneath machine.







4. Select Calibration from the Global Home Screen menu.





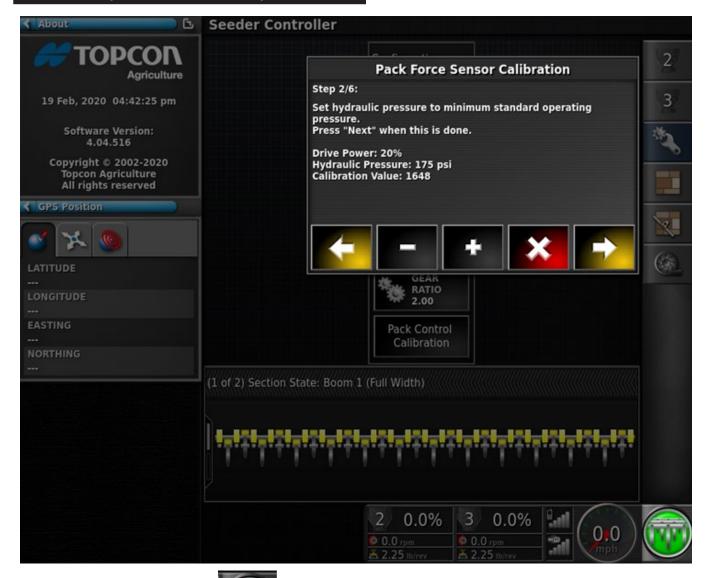
5. Press the Pack Control Calibration Icon



6. Read the Warning and check for bystanders once clear, engage the Tractor Lift Lower Hydraulics circuit - Followed by the Yellow arrow.

Warning the Drill will now lower into the working position







7. Note: Turn on Master Switch

to energize the circuit.



Increase the Drive Power % by pressing on the Press the Yellow Forward Arrow to proceed.

icon until 20% is displayed.



8. Enter the weight displayed on the Pan Scale.





9 Proceed with the Yellow arrow (Note: Do not use the numbers used in this guide, enter the weight from the Pan Scale).





10.Increase the Drive Power % by pressing on the



icon until 60% is displayed.

The system pressure should be between 1350psi and 1450psi (this will depend on oil temp).

Note: These settings are for Valve Cartridge TS12-36CM only.

STOP! DO NOT Press the Yellow Forward Arrow, you must **first read the weight value from the Floor pan scale** before Proceeding to the Step 5.

During Step 4/6 the Drive Power to the solenoid is active, if you move to Step 5 the Drive power is switched off and the calibration will be incorrect.

Once the Drive power is at 60%, go to the scale and read the Value displayed.



VERY IMPORTANT!!!

Go read the Floor Pan Scale (take a picture of it for reference)
Before Proceeding to the Step 5





11. Press Arrow to Proceed to step 5.

Enter the weight that was displayed on the Pan Scale (review the picture you just took for verification).

If the weight is under 400 lb, the calibration has been performed incorrectly





12. Press Arrow to Proceed to step 6.



13. Apply with the Green Check Mark.



14.Turn off Master Switch





In Field Test

Once the Lift/Pack setup and Pack calibration has been completed the following tests need to be performed to adjust settings to field conditions and operator's preferences.

- -Lift Lower testing (Dynamic)
- -Field test / passes (Dynamic)
- -Pack control settings (basic operation)
- -Pack Control Map Layers
- -Key pad assignment

Lift Control Test

Open the Seeder-Home Screen.



Seeder Controller (Sim)

200 lb

250

200

🖥 191 lb

13 psi

Set a Packing Force Target, by typing in a value or by using the Preset icons.

Review your Pack Control settings, to match the picture.

1. Enable the following icons on the Pack Control system:



Pack Control - ON



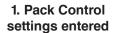
Drill Lift Track Control - ON



Lift Control – Automatic (Green Arrows with Yellow Background)



Lift Control Test - Continued





- 2. Ensure the following items are Ready and proceed to a test area in the field.
- Pack control setting are entered correctly
- ASC is ON
- Fan Speed is above 1000RPM
- Tanks are Off
- · Ground Speed is present when tractor is moving

NOTE: Product will not be applied during this test





3. Select Pack-Control from the Global Home Screen menu.



4. Double check the Ground Speed, Fan, ASC, and Pack-control are set properly







5. Press the

Master Switch

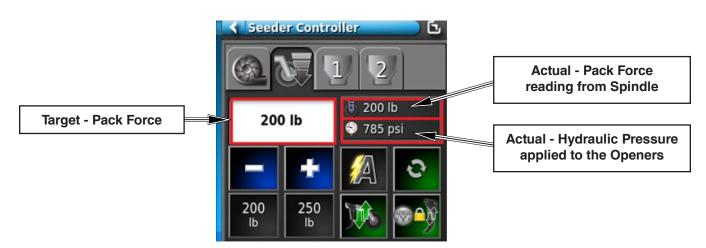








6. The openers will now begin to lower into the working position under hydraulic pressure.



- 7. The openers at this point should now be fully lowered into the soil and locked into the working position.
 - The control system will now try to match the requested Pack Control Target rate.
 - The Actual Packing Force Rate being read from the Loadcell spindle is displayed in the upper right-hand side window.





8. The Hydraulic Pressure will fluctuate depending on the soil conditions, this is normal as the control system is adjusting the hydraulic pressure continuously maintain the desired packing force over the variable field terrain.

Hydraulic Pressure will automatically increase while travelling over rough and highly compacted soil.

Hydraulic Pressure will automatically be reduced when travelling over soft loamy conditions.

The goal of the Pack Control system is to always maintain a consistent packing force across all areas of the field.

NOTE: Detailed information on the Pack Control is located in latter areas of this document, only the basic operation is required to verify the Lift Lower automation segment of this lesson.



9. Continue to drive forward and create 3 back to back coverage passes. Drive approximately 2 squares on the map (650' / 200M). It is recommended to set an A/B line on the tractors steering system at this time.





10.Once the 3 x passes are complete adjust your screen to the overhead view by toggling the **Overhead View** Icon



Align the implement to the coverage at a 90° heading, engage the Master Switch and proceed to drive directly through the coverage area without stopping at normal operating speeds. We are now testing the automation of the drill Lift / Lower functions.

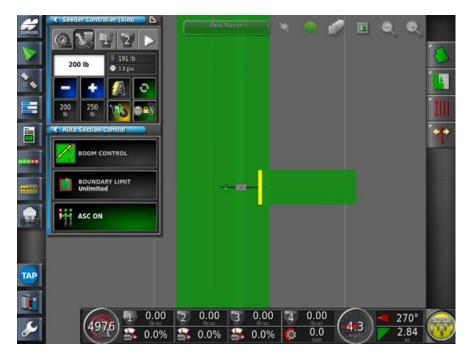




ASC feature is ON.







11. When approaching headlands and previously treated coverage areas, the control system will automatically raise the openers out of the ground.

Note: The color of the Lift Control and Master Switch are Yellow indicating that the ASC system has automatically turned the Master Switch off (ready to lower).



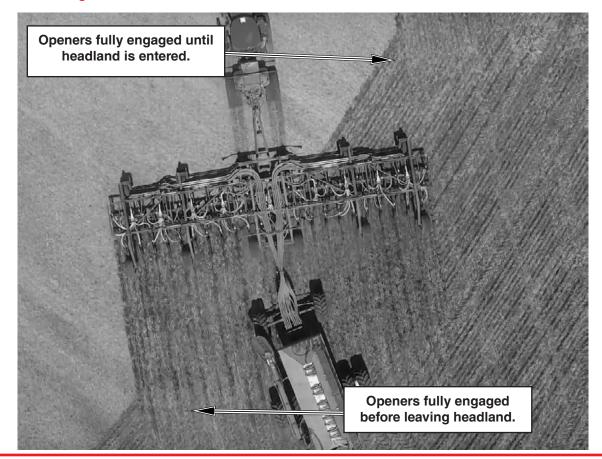


12.As the implement exits the previously treated area and passes into the untreated coverage area, the control system will automatically lower the implement.

The Master Switch and Lift Control return to their normal operation showing the green color state. The Drill should now be completely lowered and openers locked into the working position.

Exit the Tractor and verify the Lift and Lower coverage. Inspect that the latest pass furrows are firmly packed slightly before leaving the previously treated area.

Caution the Hydraulics are still running at this point. It is recommended to turn the opener tractor hydraulics off when exiting the vehicle



9 - Pack Control



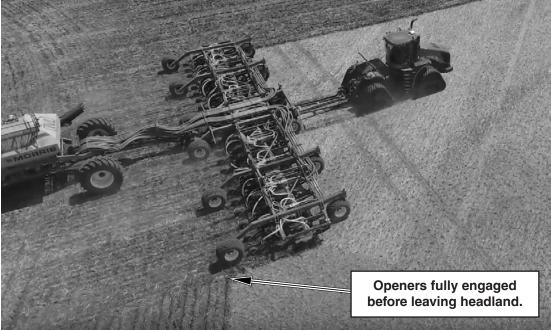
Lift Control Test - Continued

Try to achieve approximately 3' (1 M) of overlap at 4.3mph, however the timing for Lift / Lower can be adjusted as per the operator's preference. However, be cautious when adjusting these times.

Note: A Dealer or Morris Service Technician is necessary to unlock the Lift time editing panel. Lowering Time is adjustable on all user levels.

If your Quantum is equipped with the optional Accumulator kit, the lowering times may need additional look ahead time (headland perimeter) to refill the accumulator's internal reservoirs.









13.To adjust the Lowering time, press the Setup Wrench, and navigate to:

Implement - Seeder - Drill Control - Lift Control

Increasing the Lowering time will allow the drill to lower sooner and provide more overlap and ensure the openers are locked into the working position.

Decreasing the Lowering time will allow the drill to lower later and provide less overlap.

Risks - openers are not at working position - seed depth is affected.

Recommendation is adjusting the lowering times in .5 seconds intervals.

Travel Distance						
MPH	Feet/second	kph	m/s			
3.75	5.50	6	1.67			
4	5.87	6.44	1.79			
4.25	6.23	6.84	1.90			
4.5	6.60	7.25	2.01			
4.75	6.97	7.5	2.08			
5	7.33	8	2.22			
5.25	7.70	8.5	2.36			
5.5	8.07	8.85	2.46			
5.75	8.43	9.25	2.57			
6	8.80	9.66	2.68			
6.25	9.17	10	2.78			
6.5	9.53	10.46	2.91			





14. Drive around and make a second pass starting at the same side as the first pass, this will make it easier to compare the Lift and lower times against each other.

Note: The as applied coverage map show the locations of where drill has been lowered, the time change has pushed the lowering closer to the edge of the previously treated area.





15.Perform an additional pass at a 45° angle.



16.Notice how the entire implement must fully travel through the previously treated area, only once the entire drill is inside the coverage will the Lift command be activated.

Note: Individual sections do not lift on the Quantum.



Pack Control Test



1. Select Pack-Control from the Global Home Screen menu.



2. Open the **Map Layer** Icon, and toggle the Coverage Map arrow to **Applied Rate Map**, and the Tank Arrow to **Pack Control**. Apply the settings with the Green check mark.





15.Open the Pack Control map Legend, by pressing on top of the screen.



located at the



16.Press the

Edit





Set Range

17.Press the

Set Range Icon.



18. Adjust the Minimum and Maximum Values.

19.Set the values to Min 180lb and 280lbs. Apply with the Green check mark.





20. Review the settings are correct, Notice the colour legend represent a different levels of packing force.

The colour legend can also be changed, by pressing on the arrow keys. You can choose to use a different colour band if desired, or simply use the default colours by applying the changes with the green check mark.



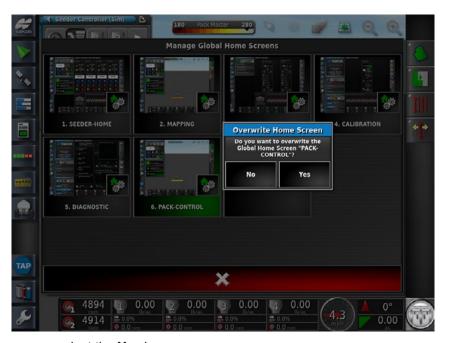


21.Note the legend now shows the Minimum and Maximum Pack force Values assigned. These colours will be displayed on the coverage map of the actual packing force applied in the field.





22.Swipe Up to reveal the dashboard ribbon and press the dashboard ribbon and press the center of the Pack-Control icon. Do not press the green house.



23. Overwrite Home screen - select the Yes Icon.





24. Simply press the Green check mark.



25.Increase the Pack Control to 250lb by pressing the Preset 2 Icon.

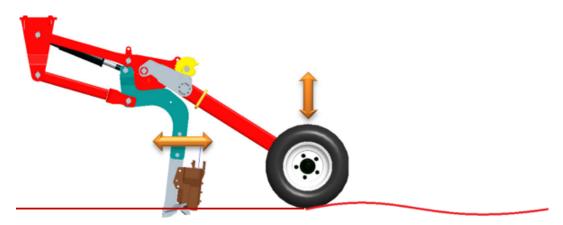




26. Since the system is now being commanded to apply 250lb of packing force, the pack control coverage map is now painting a different shade of colour. This is a quick reference and provides validation that the system is functioning correctly.

Note: The pack control coverage map should be very uniform, and should not consist of many colour ranges, if the map colour is up and down, you likely have the system set too low.

27.Experiment with different pack control values to suit your field conditions.



28. During a test pass, have someone drive along side the Quantum and inspect the openers. Communicate with each other on the current settings used and if the openers appear to be locked into the working position. If they

appear to be kicking back or "dancing" try increasing the Pack Control settings by pressing the This will increase the packing pressure in 10 lb increments.







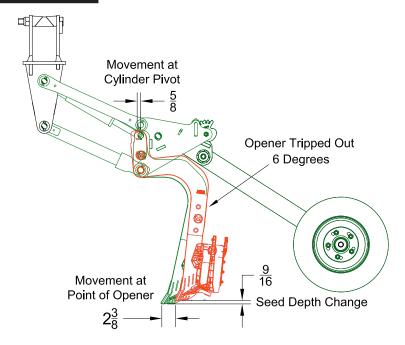


29.If the Pack Force is set incorrectly an Alarm will be displayed - If the minimum Pack Force is set too low the control system will perform erratically. It is recommended to set the system above 200lb packing force, this allows the PWM to operate in a usable range.



Special operation - Pack Control - On/Off (Float mode) button when toggled to OFF, allows the openers to Float over terrain in the downward working position with no pressure applied. This function is useful when travelling over a wash out or in muddy conditions when the unit is on the verge of becoming stuck. Using Float feature allows for the application of product to be broadcast on top of the ground.





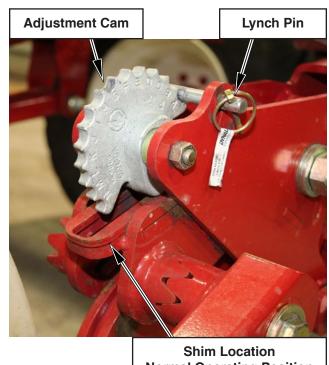
If the Morris Quantum minimum operating Pack Force is set too low (generally under 200lbs of Pack Force) this could cause the system to fall out of the locked working position. This is due to the draft forces of the soil exceeding the amount of hydraulic pressure, the openers will drag backwards into a partially tripped position. If the opener shank assembly becomes partially tripped the seed depth accuracy will become compromised as the seed depth does in fact change. Even if the openers are slightly pushed back from the locked working position to 6°, the changes in geometry can altered the seed depth by over 1/2".

Increasing the Packing Force Settings to increase the Seeding Depth is not recommended.

Using higher Pressures / Pack Force settings causes higher Trip out forces, which requires more Power to pull the drill, added fuel consumption, as well as additional wear on the packer tires.

Only adjusting the seed depth by using the depth cam located on the row unit assemblies.

If the seed depth cam is adjusted, a new Pack Force control setting may be required in order to have good firming of soil in the furrow.



Normal Operating Position

9 - Pack Control



Notes



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