Seed Hawk Startup.

Preparing you for the season to come.

VÄDERSTAD

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Seed Hawk iCon Control

The modern iPad-based control system Seed Hawk iCon Control provides simple, complete control of your Seed Hawk air cart and toolbar.

Wireless control provides substantial benefits for seed drill systems. Carry your iCon controlled tablet with you to gain full seeder control and eliminate the need to go back and forth between the tractor cab and the machine.

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Vaderstad E-Control

The modern iPad-based control system Väderstad E-Control can be used to download manuals, instructions and QuickStarts to be stored for offline use on your iPad.

View Presentation

Customer Clinic Presentation

We share a wide variety of information, tips, tricks and troubleshooting at our customer clinics.

In case you missed anything you can view the presentation at any time by following the QR code to the right.

View Folder Contents

Seed Hawk Cheat Sheets

To ensure you have the right information at your fingertips when you need it, we have created a folder of cheat sheets, tips, tricks, trouble shooting, and a copy of this Start Guide.

Follow the QR code to the right to view the folder and download the files to your iPad or phone for quick, easy access in the field.

View Folder Contents

QuickStart Videos

We have laid out the steps for many of the main functions of your Seed Hawk seeding system in this guide, to get you started with your new machine.

Follow the QR code to the right to view all Seed Hawk QuickStart videos.

Seed Hawk iCon Cloud

The Seed Hawk iCon Control uses a cloud based system to store job files and transfer prescription map files to and from the machine.

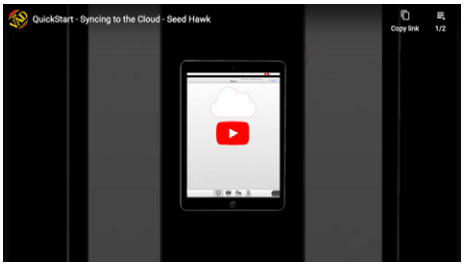
Visit the cloud at https://cloud.seedhawk.com/

iCon Cloud

Your login details:

Username:

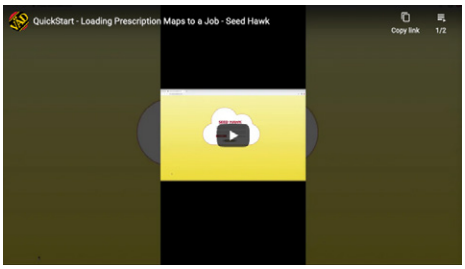
Password:



Syncing to the cloud

Learn how to sync your iCon operating system with the cloud.

View QuickStart Video



Loading prescription maps to a job

Learn how to upload prescription map data to the cloud, and then utilize it in a job in the iCon operating system.

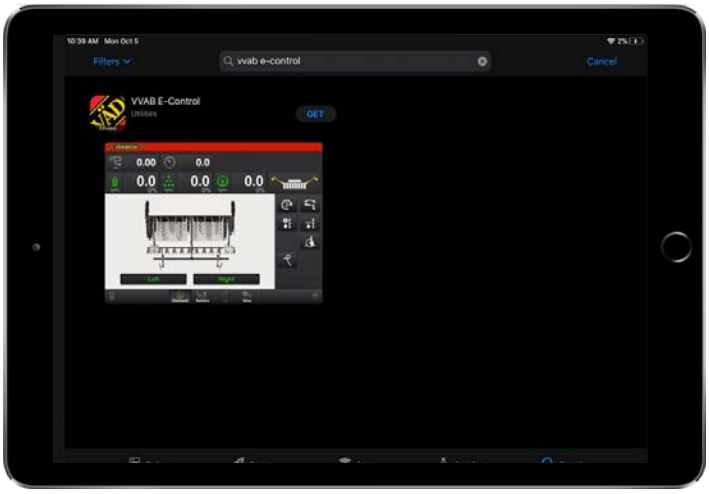
View QuickStart Video

Loading product documents to your iPad

You can use the Väderstad e-Control app to load manuals, instructions and QuickStarts on your iPad for use while away from a wifi connection.

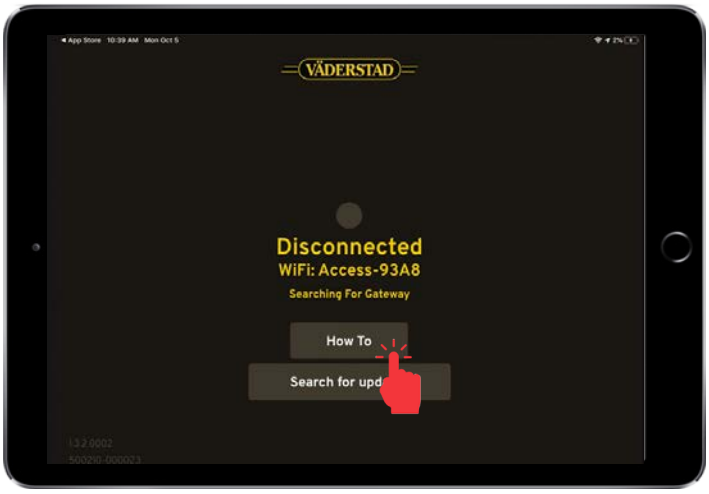
E-Control App

View QuickStart video



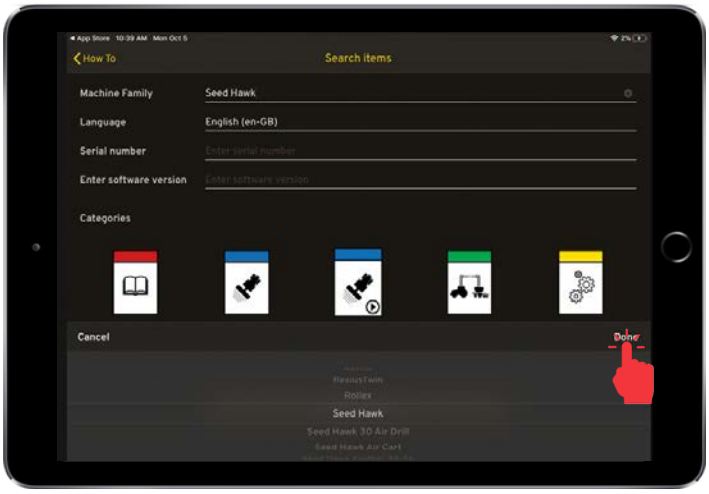
Search VVAB e-Control in the App Store

Install on your iPad



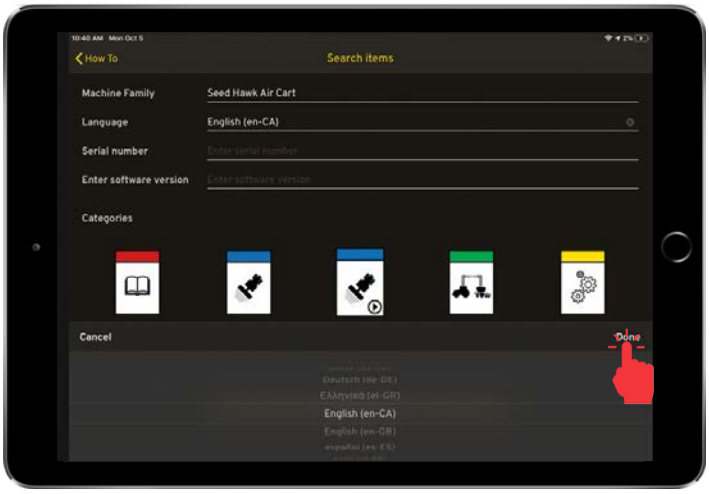
Launch E-Control

Tap the How To Button



Tap the Machine Family

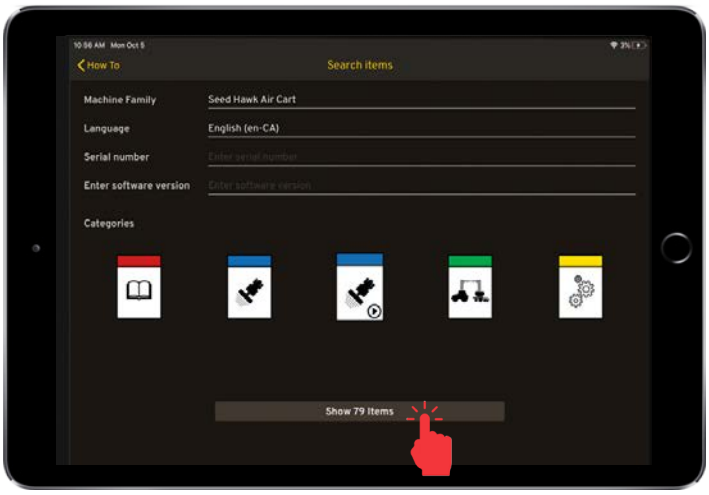
Select Product family and tap Done



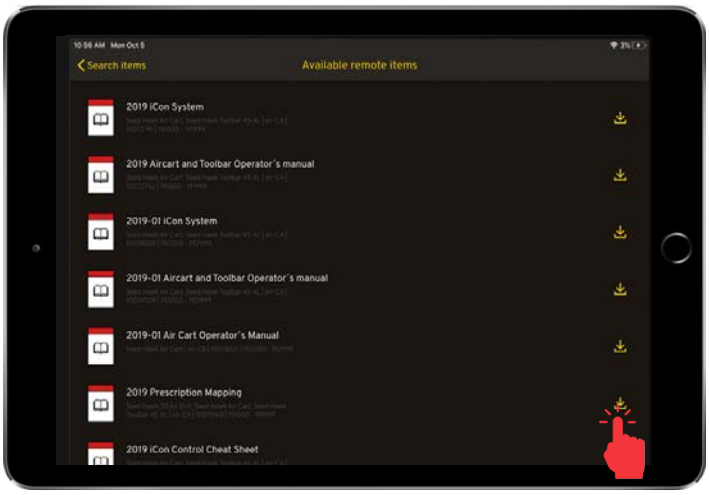
Tap the Language

Select English [en-CA] and tap Done

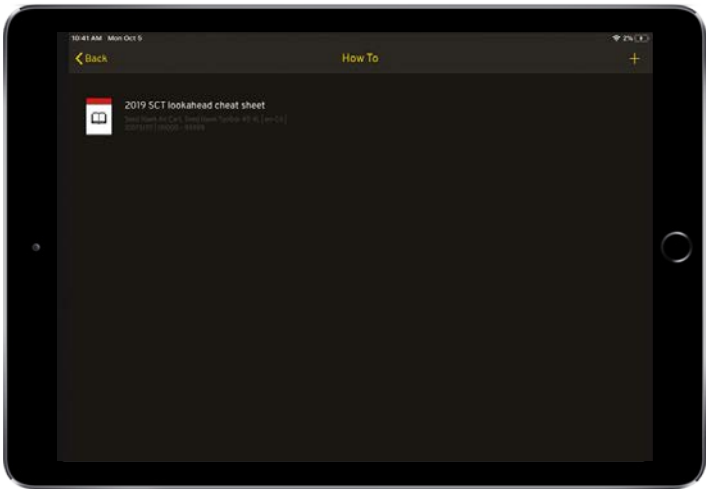
You may also enter in Serial Number and Software version to further refine results



After specifying search filters tap Show Items for results



Now you can scroll all results and tap the download button to add to your iPad for use offline



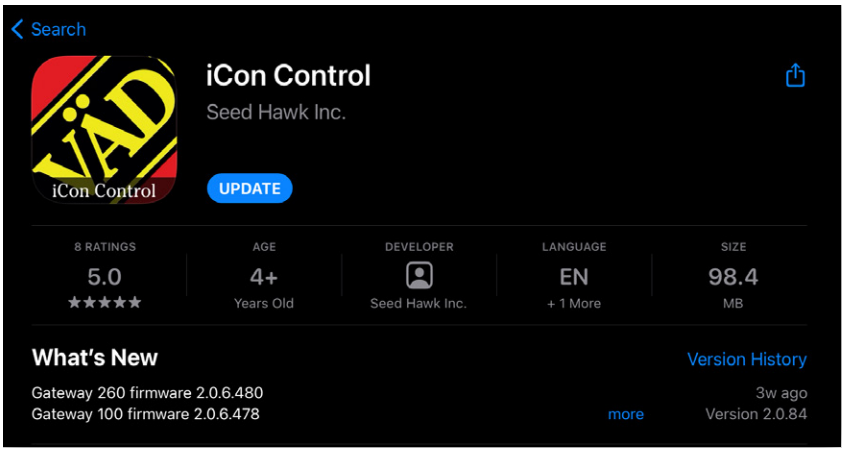
When you have finished all of your chosen documents/ QuickStart videos can be found in the How To Section of the app. These items are now housed on your iPad and can be viewed without wifi connection.

Let's get started!

Before you begin operating make sure you have the most updated version of the iCon Control operating System.

Updating software

1. Visit iCon Control in the App Store
2. If the Update button appears in blue, click it, and let your operating system update.



iCon Control App

Before you begin operating make sure you have turned your fans on, opened the bulk shut off, and ensured your ladder is secured in the up position.

Connect to the Gateway

1. Ensure your Control Panel switch is on and the green led is lit.
2. Wait for the PM4X LED's to remain solid red before connecting IPAD to the gateway
3. Go to Settings, Select WiFi
4. Select ICONXXXXXX
5. Password for network is "seedhawk"
6. Once initially paired to machine, the WiFi network will be saved to iPad.

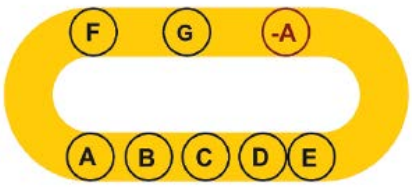
View QuickStart video

Setting seed depth

Placing the seed at the proper depth and keeping the depth setting consistent are critical to achieving optimum germination. The packer wheels are factory set to place seed at a depth of 3/4 in. below the packed surface of the soil.

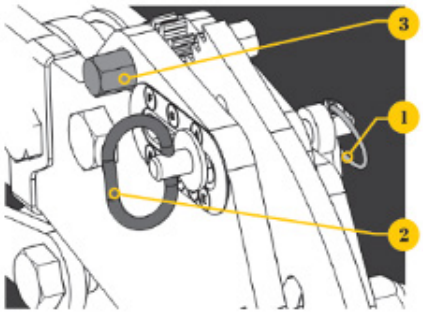
View QuickStart video

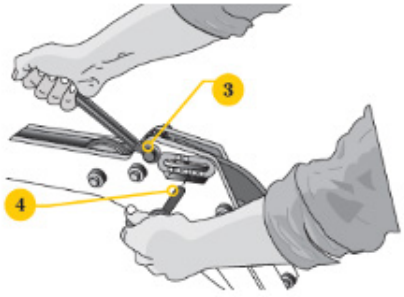
- Factory seed depth setting is “D”, which equates to approximately ¾”.
- The fertilizer to seed offset will place the fertilizer ¾” below and 1 ½” to the side of the seed.
- The depth of this offset can be manually adjusted by the slide on the fertilizer knife.
- It is important to ensure you always manually check your seed and fertilizer depth to guarantee proper placement.
- The seed depth is adjusted by removing the retaining pin on the opener and utilizing a ¾” wrench to turn the packer wheel gear to the desired setting.
- Additionally, growers will often utilize the fertilizer knife to seed crops such as peas. This is providing that the nutrients being put down are okay to be in the seed row. At factory setting of “D” this would give a depth of 1 ½” on the seed when putting it through the fertilizer knife.
  Note: *Please check with your local agronomist to confirm this practice with your nutrients, and soil composition*



Seed depth pin legend

A. 3/8” (9.5mm)
B. 1/2” (12.7mm)
C. 5/8” (15.9 mm)
D. 3/4” (19.0 mm)
E. 1” (25.4 mm)
F. 1-1/4” (31.7 mm)
G. 1-1/2” (38.1 mm)
-A. Less than 3/8” (<9.5mm)





1. Remove retaining pin from the quick pin.
2. Remove quick pin from opener shank.
3. Rotate the packer arm gear using a 3/4 in. wrench, and align the corresponding pin hole with the desired depth setting (marked on the decal).
4. Replace the quick pin and the retaining pin.

Packing pressure

Packing pressure could vary greatly depending on the soil type, moisture and crop being seeded. The following considerations should be considered when setting opener pressure.

- The opener chain is the key visual guide to ensure you are at least set at the lowest minimum packing pressure. When in the field, pay attention to the opener chains behind your tractor wheels/mainframe wheels. During field operation, the chain should be remaining tight. It is considered normal for it to "twitch" momentarily while seeding but should stay tight for the most part.
- The packing pressure operational range is 800-1500 psi
    - In wet conditions, you will likely be in the 800-1100 psi range.
    - In dry conditions, you will likely be in the 1100-1500 psi range.
- Always check your furrow to ensure you are achieving a consistently packed finish.
- You can set a packing pressure lower than 800 psi, depending on conditions. This would mostly be recommended for your when you utilize your "quick dump override".

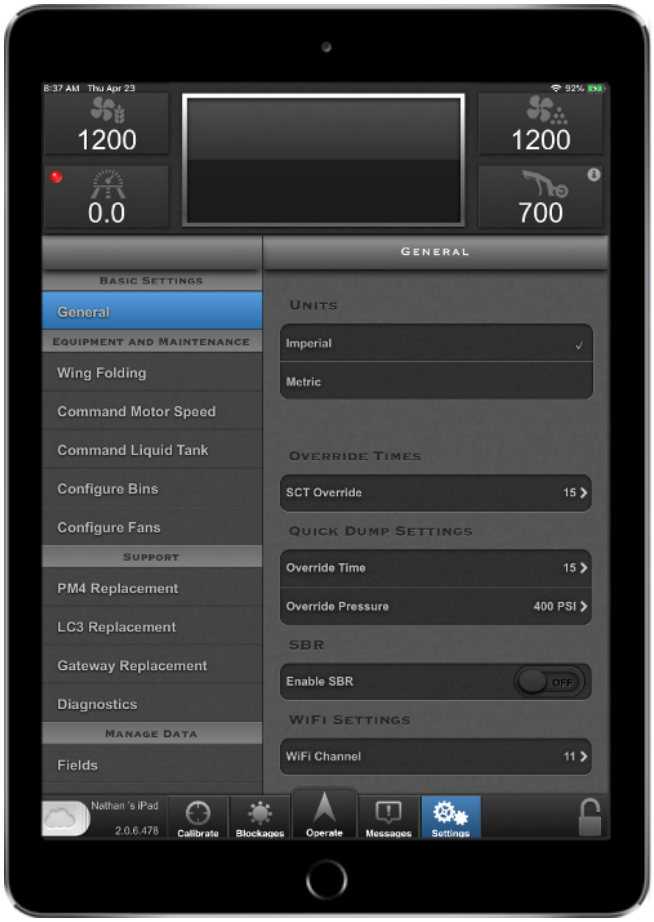
Packing Pressure Display/Button

Packing Pressure Adjustment Page

Quick dump override

- The quick dump override feature is utilized for when you encounter wet areas in the field that require less packing pressure.
- Pushing the button will dump your packing pressure down to a user selected psi and time.
- The time and psi are set in the settings menu, in the “General” tab.
- It is important to note that lessening the packing pressure in wet areas will also help prevent the machine from getting stuck.

Quick Dump Override

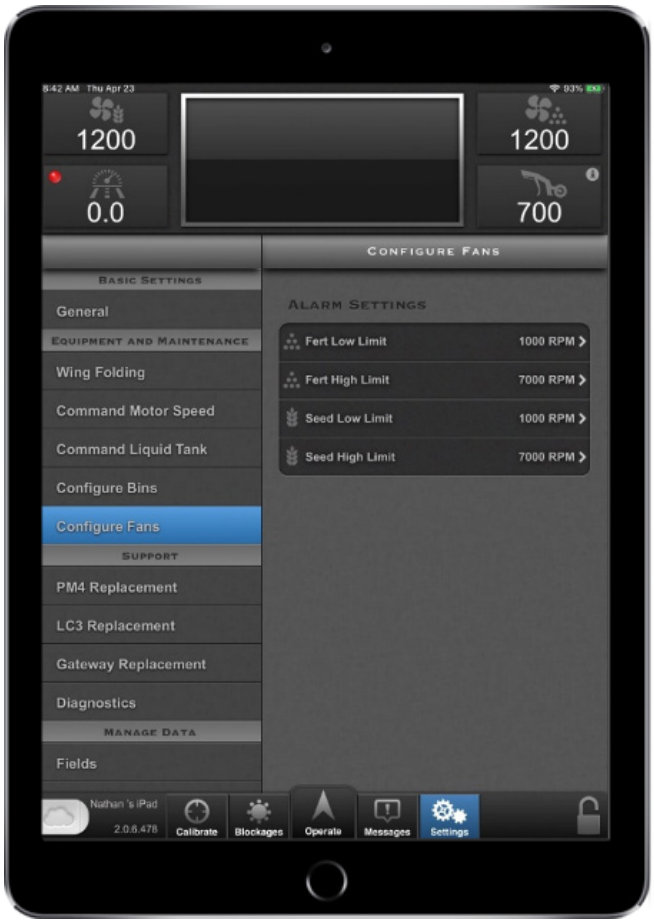


Quick Dump Override Settings

Fan settings

- Fan settings are based on product lift versus a pre-defined chart.
- Product lift should be 18-24”
- To test product lift:
  - Remove secondary hose from furthest opener to outside on either end of drill. This would involve either removing the hose from metal drop tube, or sliding complete rubber drop tube from support.
  - Attach secondary hose to frame pointing upward.
  - Operate drill at normal seeding speed and observe product lift.
  - Adjust fan RPM until 18-24” of product lift is achieved.
  - Re-install secondary hose on machine.
  - Verify field operation by operating and check for product on ground and proper depth being achieved.
- High and Low limit fan alarms are setting in the settings menu, Configure Fans tab.

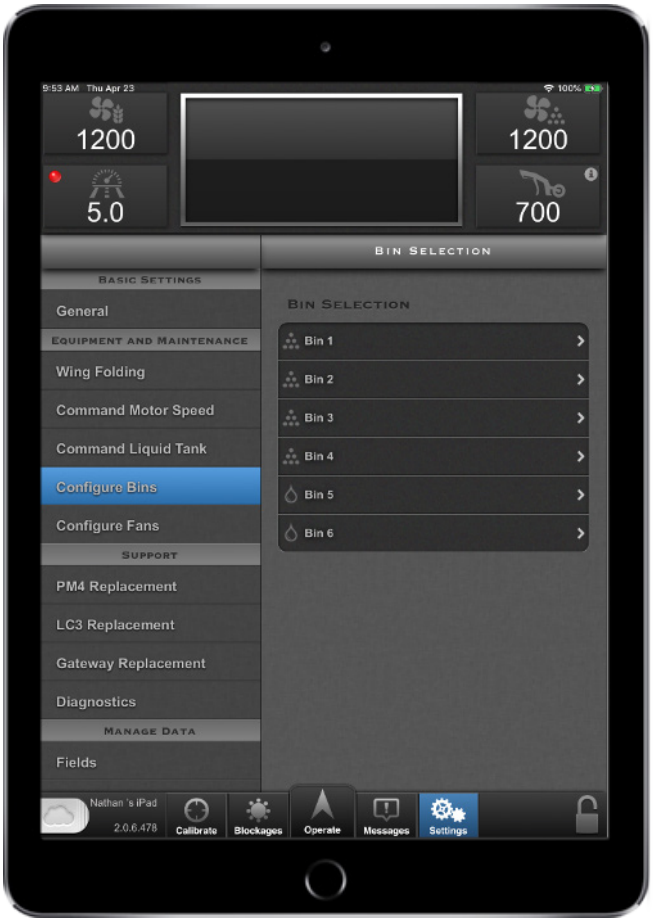
Fan Displays



Fan Alarm Limit Settings

Tare individual tank load cells

- It is important to tare your load cells prior to putting any product into the tank for the first time.
- Subsequent tares should be performed in between product changes at the very least.
- Important things to remember are:
  - Ensure that there is nothing on top of tanks that would affect weight reading.
  - Ensure ladder going to tanks 2, 3 and 4 does not have anything on it, as it is attached to tank 2.
  - Ensure that tanks are completely empty prior to tare. Any product left in tank when a tare is completed could result in negative weight (0 weight) values when seeding.
- The primary function of the load cells is to allow the operator to see the level of product in the tank and enable functions such as in-field calibration and fit-to-field product rate adjustment. To tare the tanks, go to settings and select the "Configure Bins" tab. From here select the tank you wish to tare and select the "Tare Bin" button when ready. As a side note, you can also view individual bin weights in this area.



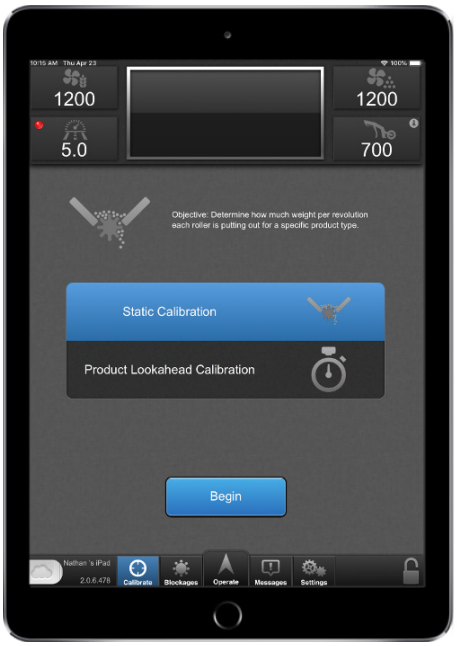
Configure Bins

Tare Bin Button

Static calibration / in field calibration

View QuickStart video

- **YOU MUST** do a static calibration to create a new product profile
- You can **EDIT** an existing product profile when performing a static cal
- ***NOTE:** It is recommended to do at least one static calibration for every product per year
- The In-Field Calibration is meant to be a check on the accuracy of your static calibration. It is **NOT** recommended that you utilize the In-Field calibration to find the correct cal number
- Write down or screenshot your cal numbers in case you lose them
- To perform a Static Cal:



Select the “Calibrate” button to access the calibrate screen.

Select “Static Calibration” then “Begin”

Measure the weight of your calibration bucket and enter the number into the empty bucket weight.

Select the bin you are going to calibrate and how many meters sections you wish to run. It is recommended to run all sections when using factory calibration bucket.

Select “Next: Select Roller Type”

Select the type of roller you have installed in your machine.

Select “Next: Prime Meters”

Fenix III Meter Rollers				
Color	Blue	Grey	Black	Yellow
Volume cc	18 cc	120 cc	400 cc	500 cc
Roller Output (lbs/ac)	Low (1-12)	Medium (6-60)	High (30-350)	Ultra (40-400)
Product				
Fertilizer		•	•	•
Canola	•			
Barley			•	
Oats			•	
Large Bean				•
Flax		•		
Wheat			•	
Inoculants	•			
Peas				•

Remove the meter diverter plate and install calibration bucket on the bottom of meters you are calibrating.

Push “Prime Meters”, the meters will turn 2 revolutions and stop.

Remove the calibration bucket, empty and re-install onto meter.

Select “Next: Perform”

General recommended roller speed is 30%.

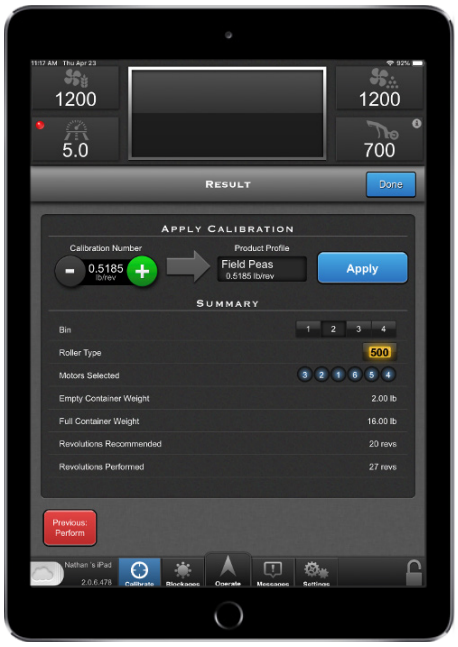
Push and hold “Turn Motors On”, if you wish to not have to hold the button, push “Lock Motors” while holding “Turn Motors On”.

Product will now collect in calibration bucket. Allow the Calibrate bar to fill and turn green prior to stopping the calibration.

To stop the calibration, either let go of “Turn Motors On”, or touch “Turn Motors On” if motors were locked.

Remove and weigh calibration bucket and enter number into “Final Bucket Weight”

Select “Next: Result”



On the “Results” screen, you will see your Calibration Number on the upper left portion.

To apply this to a product, touch the box below “Product Profile”.

From here you can select your product type. If you do not want to apply it to a generic profile, you will still have to select the generic profile, but press “New” instead of the product name. You can then enter the specific name and select done.

It is not important to modify the application rate or calibration number when initially selecting. You should now see the name of the product in the box under “Product Profile”.

Push “Apply”, you should now see the lb/rev number in the product profile box change to the calibration number from the left portion of screen.

Once completed, push “Done”

Sectional Control Technology lookaheads

Engage Lookaheads

Engage lookaheads compensate for the amount of time between when a section is engaged and when product begins to hit the ground. They can be configured from 0 to 30 seconds, however in most cases they will be less than 10. Larger lookahead values cause the sections to begin applying product earlier yielding more overlap. Once a section has begun to engage, it cannot be disengaged until its lookahead period has expired. For example, if a section with an engage lookahead of 15 seconds begins to engage, but then encounters seeded area, it will remain engaged for at least 15 seconds. The only exception to this rule is that a section may disengage early if it leaves the field boundary.

Disengage Lookaheads

Disengage lookaheads compensate for the amount of time between when a section is engaged and when product stops hitting the ground. They can be configured from -30 to 30 seconds, however in most cases they will be less than 10. Larger disengage lookahead values cause the sections to disengage later yielding more overlap.

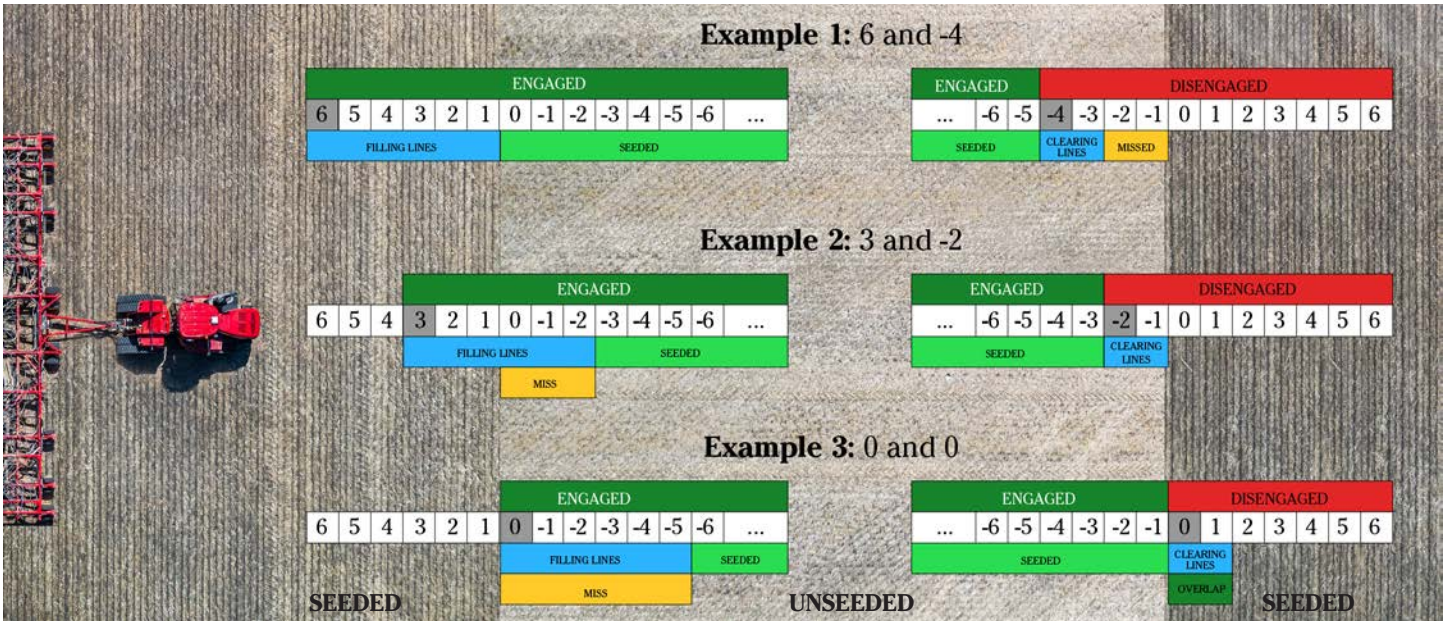
Product vs. Opener Lookaheads

There are two main sources of mechanical delay that engage/disengage lookaheads account for:

- the time it takes for the openers to get into the ground
- the time it takes for the product to flow from the tank to the openers.

The iCon system accounts for each of these separately. The user may set unique lookahead values for the openers and each of the product tanks.

Note: *Look ahead times are the responsibility of the operator and can vary due to machine, product and environmental conditions.*



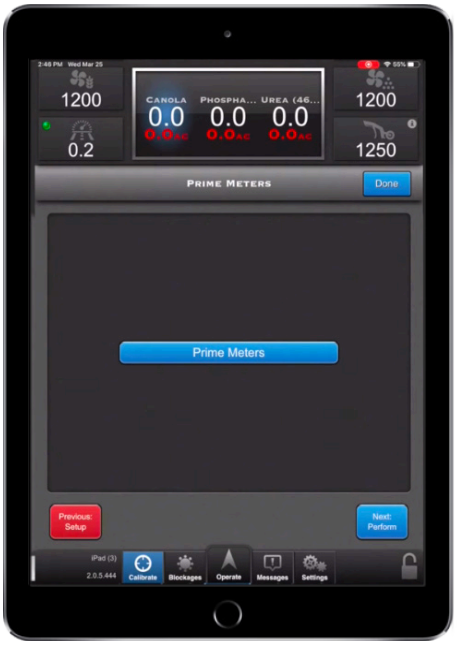
Lookahead examples

1. In example one, the engage lookaheads are set to 6 seconds and the disengage lookaheads are set to -4 seconds. The sections engage 6 seconds early, yielding possible overlap as the lines fill. The sections also disengage 4 seconds before the headland yielding a possible two second miss where no product is applied.
2. In example two, the engage lookaheads are set to 3 seconds and the disengage lookaheads are set to -2 seconds. This yields a possible 3 second miss as lines fill going into the pass, there should be little overlap as the lines clear out going into the headland.
3. In example three, the engage lookaheads are set to 0 seconds and the disengage lookaheads are set to 0 seconds. This yields 6 seconds of possible miss entering the pass and two seconds of overlap at the end of the pass.

Setting product and opener SCT times

View QuickStart video

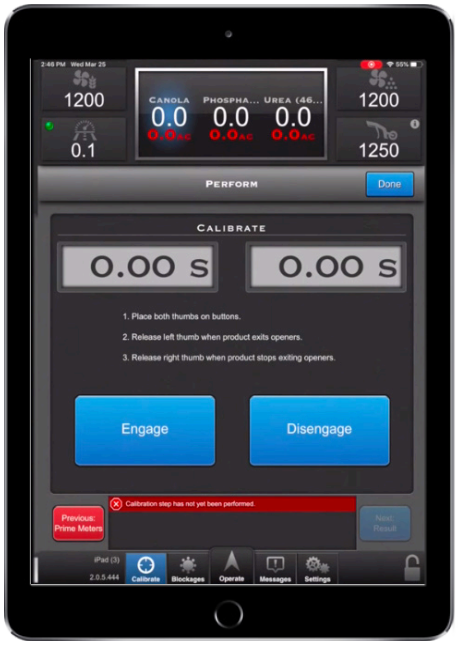
- The iCon control system will automatically engage/disengage products and openers when SCT mode is turned on.
- Because product takes time to travel from the meter to the opener, lookahead allows SCT to accurately engage and disengage meters to account for the time it takes product to travel down the network of hoses, towers, and feed tubes. A properly calibrated lookahead time allows for sections to stop and resume seeding quickly as the sections encounter previously seeded land, which results in accurate SCT operation.
- For proper operation of the system, the operator must determine and enter the appropriate engage and disengage times into the system for Products 1-6 and the openers.



Tap the calibrate button, choose product lookahead calibration, tap begin.

Select the bin to calibrate and choose the Next: prime meters button located in the bottom right of your screen.

Tap the prime meters button, this will turn your rollers over 2 times to ensure they are fully primed so as soon as you start the calibration product will be coming out.



The instructions for the next part are written on your screen, you will place both thumbs on the engage and disengage buttons.

Note: Your engage times should be set to your longest pipes, because it takes the longest for product to flow out of those ones, and the disengage times should be set to the centre of your toolbar which takes the shortest amount of time for product to stop entering.

Release your left thumb when product exits the openers.

Release your right thumb when product stops exiting the openers.

The result will display instantly.

You can hit reset to reperform the calibration, or choose the next result button in the bottom right corner of your screen to go to the summary page. Here you will hit apply to apply the calibration to the system.

***Quick Note:** The more positive the number means the more overlap you will generally see. If you were not happy with the 7 Second engage, you could increase that number to be more positive to see more overlap.*

Similar with the disengage, if you wanted to see more overlap you would make that number more positive. By increasing the positivity of those numbers you will ensure you will see overlaps in your field instead of skips. Make sure to hit the apply button anytime you alter these numbers.

It is always the operator's responsibility to get out and dig to check for product to ensure the settings are correct and minimized the risk of unapplied areas in the field.

Opener engage and disengage times follow the same logic as the product and are set from the opener setting window. Please ensure that the openers are fully in the ground and that the chains are tight prior to entering an unseeded area.

Starting a job

- Open the iCon Control App and wait for the iPad to connect to the Gateway
- From the Operate screen, tap Select Job
- Tap the blue (+) button in the top right corner
- Tap the Job Name input field to enter the name of the job
- Tap the Field Name drop down box to select or enter a new field

View QuickStart video

Setup the Product Configuration by tapping the bin for each product

Select the product for the bin

Select the desired rate of application

Select the desired calibration number if you have a previously verified number. A default value is initially provided. **It is always recommended for the operator to perform a static calibration for each new product before seeding.**

Select the Roller Type. *Ensure you have the same roller in the tank that you select*

Select the Prescription Map if applicable.

Select the Multiplier. *Leave it at 100% unless your prescription map requires other.*

Select the Tank Pairing if you would like to chain or combine bins.

Chain: One tank will empty before the next of the same product.

Combine: Multiple tanks will empty at the same time of the same product.

Ensure all tanks are set up with the products that are in each tank

Ensure each tank is set up in the correct air stream

Seed is a wheat stalk. Fertilizer is a pile of granules.

Select the Headland size.

Enter the value that would implement a “false” headland in order to seed a second or third headland at the end of seeding the field.

To calculate your overlap multiply the width of your drill by 2 and subtract 10’ for proper overlap. Ex: for a 60 foot drill you would enter 110 (60 x 2 = 120 - 10 =110).

Tap Begin , you will then be directed back to the job screen with an open job.

Turning on the machine

Select the switchbox on the RH side of the operate screen. In here you will see you bins and sections. Turn the product on by pushing on the bins one at a time. A green light will appear on each button. For chained or combined tanks, the button on only one of the tanks will need to be pushed to turn it on.

Once the tanks are on the sections must be engaged to operate the machine.

Turn your sections on by either selecting the green “All On” button , or engage SCT using the blue “All SCT” button

When section lights are green, it means that the machine is on, and will dispense seed and engage openers regardless of being on or around seeded ground. Blue light will appear directly below the green when SCT mode is engaged. In SCT mode the machine will only operate providing that it see’s ground speed and a GPS signal.

You can also operate the sections individually by pressing the corresponding button on the screen.

Important tips: if you are in SCT mode, the first push of the button will turn it to on, so a double tap is required to turn off. You must also push “All SCT” to re-engage any sections back into SCT mode.

From the operate screen you can identify the machines state of operation by the light bar.

The top row indicates opener section operation, while the bottom row indicates tank section operation. Green is on, Blue is SCT mode and Grey is off.

The section number also indicates if there is a blockage. When the numbers are white, that means everything is working properly. If the numbers turn red, it indicates a blockage on that section. Refer to the blockage page to determine which runs are plugged. One the blockage page, the lights above each individual opener number indicate fertilizer, and the ones below indicate seed.

Adjusting product rate in a job

From the operate page, push on the product rate that you wish to change

On the next page, you can adjust application rate, see current product level, select paint on map (this would be the map displayed on operate screen) and enable fit-to-field.

Exiting a job

Whether you are done the field or just shutting down for the evening, you must exit the job for it to save properly.

Select the job info box in the upper LH corner of the screen. From here you can select “Exit Job”

This will take you back to the job creation page. From here you can shut the system down, if the job is incomplete, or choose to dispose, end or resume, depending on the state of the job. Disposing will completely remove the job from your iPad, Ending will zip the job to a file, preparing it for cloud transfer and removing it from the active job list. Resuming will restart the job at the point where you would have exited it.

View QuickStart video

Creating field boundary

- Begin Seeding
- Tap red Record button to begin recording the boundary
- Once the implement comes back to the beginning of the field boundary, a notification ring and a green check mark will allow you to tap Close Boundary.
  - If you need to stop in the middle of recording the boundary, tap the Pause button
  - Ensure to press the resume button once you begin seeding again

View QuickStart video

Edit headland mode

- This mode will automatically show up if you entered a “false” headland and once you have closed the boundary
- If you would like to remove headlands from two edges of the field do the following:
- Tap and Hold from the black edge around the outside of the field and drag your finger to the inside of the field
  - Do the same for how many cuts you would like to make in the field
  - Tap the Pencil at the top of the screen in order to finish Edit Headland mode

Creating obstacles

- Seed around the Obstacle
- Double tap the gray portion of the field that is the Obstacle
  - This will adjust any acreage that has and will be seeded in the Job information

View QuickStart video

Other tips and tricks for seeding

- In Field calibration works best when your starting static calibration number is close. If you are having trouble getting in field cal to settle, try doing or redoing a static calibration
- Set up jobs in the field, not before. There is a 10km buffer, outside of that, the job won’t open
- **DO NOT** turn outside the field when mapping a field boundary
- Start field boundaries after 50+ feet of seeding, so you have room to close the boundary
- **ALWAYS** dig to double check your product turn on/off times
- **ONLY** use fit to field when you are close to finished (less than 20 acres)
- **DO NOT** reconfigure the machine with product in the tanks, no way to tare tanks to zero

Prescription Mapping

A prescription map, or variable rate map, is used to automatically adjust the target application rate of a product for a particular field area. Prescription maps are downloaded from a user's cloud account and pushed to the Gateway via the iPad. Once enabled, the target rate data is used to control application rate and displayed to the user as a color-coded map.

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Prescription maps are read into the system via three file types:

Shape file (*.shp)
Shape files indicate "zones" in the field that will have different rates. These zones can appear either as a grid or as more of a contour map. The file contains simple GPS polygons, with each individual polygon mapping to a zone.

The system requires the following values for specific parameters in the shape file and will not accept shape files without these values. Refer to an ICD for shape files for more information: https://www.esri.com/library/whitepapers/pdfs/shapefile.pdf.

- o Shape file version = 1000
- o Shape type = Polygon Shape Id (5)

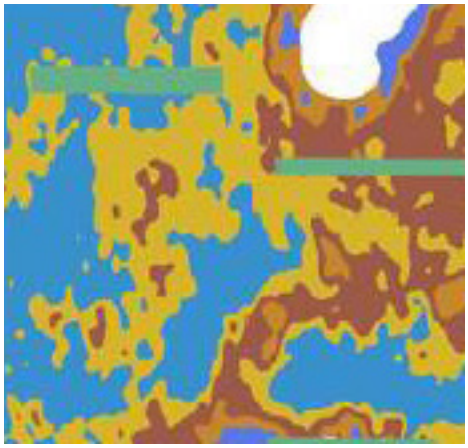
Shape file index (.shx)
- Helps index into the shape file
- Can be used to speed up reading, currently NOT used by the SeedHawk system.

Database format (*.dbf)
The database format file specifies the rates used for each zone. The row in the dbf file corresponds to the polygon id in the shape file. There can be multiple columns of data in the dbf file that corresponds to different products that can be selected.
The system requires the following values for specific parameters in the dbf file and will not accept dbf files without these values. Refer to an ICD for dbf files for more information.

- o Data Type = Numeric ('N')

When the prescription maps are used, they are read into the system and the shape and dbf files are combined to create a single prescription map. The image to the right is an example of a prescription map that has been read into the system.

Example prescription map



To use a prescription map, the user must first upload the map to their user cloud account. An important note here is that the user will define the units for the prescription map when uploading it. If the incorrect units are selected, incorrect rates will be used during the job.

When a map is uploaded, the cloud server does a simple check to ensure that the map is valid. Following this, a

cloud sync is necessary to pull the prescription map down from the cloud onto the user's iPad. At that point, the prescription map is being stored locally on the iPad and can be used at any time.

Once downloaded to the iPad, the user can assign a prescription map to a particular product when creating a job. This process includes selecting a particular prescription map and corresponding product column from the dbf file. There is also the option to adjust the prescription map rate by a multiplier percentage. This value will scale all rates provided by the prescription map by a anywhere from 50% – 200%.

NOTE: The product profile's normal application rate will be used as a fallback for when the system is in an area that has not been defined by the prescription map.

Once the job is started, the prescription map for a particular product will be displayed when that product is painted on the map. The target rate will automatically adjust based on the prescription map and system will not allow for the user to override this rate.

Because the system uses electric motors, each section's rate is controlled individually according to the prescription map. The system also averages the rates over an entire section. This means that the displayed application rate may change gradually during zone transitions.

The iCon system requires that prescription maps adhere to the following constraints:

• When uploading maps to the cloud, there is a total file size limit of 20 MB.

• The total area of the prescription map must be less than 1200 acres.
• The system reads NH3 prescription maps as lbs of actual NH3, not lbs of N. However, the system will display all values for NH3 as lbs of N.
• Prescription maps cannot utilize a zero rate either, the rate must be entered in accordance to the minimum rate of the roller used.

Additional Notes:

The attribute database format for the .dbf component file is based on an older dBase standard. This database format inherently has a number of limitations:

While the current dBase standard, and GDAL/OGR (the main open source software library for reading and writing shapefile format datasets) support null values, ESRI software represents these values as zeros — a very serious issue for analyzing quantitative data, as it may skew representation and statistics if null quantities are represented as zero

• Poor support for Unicode field names or field storage
• Maximum length of field names is 10 characters
• Maximum number of fields is 255
• Supported field types are: floating point (13 character storage), integer (4 or 9 character storage), date (no time storage; 8 character storage), and text (maximum 254 character storage)
• Floating point numbers may contain rounding errors since they are stored as text

The zone number really only represent processing time and not so much limitations of usage of the rx maps. The application will spend time reading in a storing all the zones and then it will apply it to the map. Its during this application process that we get rid of all notions of zones. So the zone number only affects how long it will take to start the job and not so much in job performance.

Seed Hawk Troubleshooting Tips

Below is a listing of commonly asked questions and basic troubleshooting steps for Seed Hawk seeding systems.

Complaint	Troubleshooting Advice
Toolbar not responding	Ensure the toolbar breaker is in the ON position on the control panel. If all tank PM4s are blinking, it indicates your CAN network has a problem. Go up to the Gateway and replace terminator 3 (toolbar) with terminator 4 (spare). If that works, you can function without terminator 4, as it is only a spare.
The openers are lifting without commanding them to do so	Check for burned wire/plug in the Toolbar PM4x For sections 1,2,3 check PM4X #1 For sections 4,5,6 check PM4X #2 For sections 7,8,9 check PM4X #3
Opener section is not engaging	Check opener coils for magnetization. They should be magnetized when you have 12V to them. Hold screwdriver over top nut to check. If not magnetized it indicates a failed coil. If it is magnetized, it could be the valve under it. In 2019, we found some nuts that were over torqued, backing it off just until the seal break will fix this.
No packing pressure	Check the big coil on the far right hand side of the opener block (packing pressure). It should magnetize with 12V (hold a screwdriver to the top nut to see if it is magnetized). If it is not, the secondary O-ring in the valve is most likely the problem.
Wings will not fold	Check the wing block from left to right, gauge are outer wing pressure – inner wing pressure, the gauge should read around 2800PSI, this is the minimum needed to fold. Check wing pressures: 45X outer 400-500PSI inner 900-1000PSI XL outer 400-500PSI, inner 1100-1200PSI On a TBT, you can adjust the needle valve on the powerskid to give more pressure to the wings and still charge the battery.
Wings are vibrating upon folding	Find the 2 check valves (321578) on the power skid circuit and check for proper function.
Tank not responding	Ensure the tank breaker is in the ON position on the control panel. If all tank PM4s are blinking, it indicates your CAN network has a problem. Go up to the Gateway and replace terminator 1 (tank) with terminator 4 (spare). If that works, you can function without terminator 4, as it is only a spare. If that does NOT work, check cables going to each bin, unplug one at a time and see if the PM4 lights turn solid. This will help you identify the bad cable. Then unplug each PM4 on that cable until you locate the bad connector.
ECU not turning off on TBT	We are currently working on this, for now at the end of each work day, unplug the ISO harness from the tractor to avoid draining the battery.
ECU not showing up upon pairing	If the red light on the ECU is solid, the ECU needs replacing. If the ECU light is blinking, try changing the wifi channel. Note that wifi interference (from your home, shop, etc) can cause this.

Complaint	Troubleshooting Advice
Load cells not reading accurately	Go into tech app/LC3 and find the bin you are having issues with. Make sure the raw and filtered weights are even or close to it for all 3 load cells. If one is way off you likely have a failed load cell. Make sure the voltage on the bottom line reads 24 or 25. Also check to ensure there is a gap between the stainless primary pipes and meter bottom.
Meter motor not turning	Check operating system for error codes needing to be cleared. Swap a functioning motor from a different tank with the non functioning one, this will determine if it is a problem with the PM4 or the motor itself.
No fan RPM	Check gap between the fan speed sensor and the fan plate, it should be 1/16". Make sure fan is turning. Switch the sensor plugs and run to see if it is a failed sensor.
No product being discharged	Check to see that bulk shut-offs on each tank are open. Make suer that each bin is pressurizing the correct air stream (banjo valves on side of tanks)
No power to the entire unit	Ensure your ISO harness is plugged into your tractor correctly (this starts the gateway and ECUs). If ECUs are blinking then ISO power is working and you will need to check the relay in the control panel.
No power to gateway	Ensure the toggle switch on the control panel is in the ON position. Ensure your ISO power cable is plugged into your tractor correctly, check the fuse on the cable
Disconnects	Change wifi channel (at least 2 channels from the current). Ensure you are running both iPads. Is it a gateway 100? If so, see service bulletin on troubleshooting and potential upgrade to Gateway 260. If it is a gateway 260, check connection points for loose or pushed in pins.
App not loading on iPad	Ensure you are connected to the gateway wifi channel. Ensure you have the latest version of the app, if not, the old version will not load and you will need to connect to the internet to install the latest version to your iPad.

Maintaining your Väderstad machine is always a good investment

Väderstad is known to farmers all over the world for innovation and high-quality products. But even high-quality products need service and support.

Väderstad Service is represented in over 40 countries, either by importers, our fully owned subsidiaries or at more than 1000 dealer locations worldwide. Since we support well over 70 000 machines worldwide, we always stay close to our customers so that we can provide quick and competent support – whenever it's needed.

If you experience issues with your Väderstad machine, you should always turn to your local dealer first. Most of the time they can help you out themselves, but in some difficult cases, they need to reach out to Väderstad's global service organization. They are a team of five service specialists, two service technical support and one service developer – and they are always available for support and finding solutions for new problems.

The best way to keep everything running is to maintain and service your Väderstad machine after the season, and check that everything is good-to-go for the upcoming season. That way you can avoid having to discover a part that must be changed just a couple of days before the new season starts. Preventive maintenance is the best way to make sure your Väderstad machine can do the job it's designed to do – and secure reliability for the upcoming season.

In this issue of Parts News you will get some tips on how to maintain your machine after the season. Enjoy and good luck with the upcoming season!

Contact your local dealer for more information: www.väderstad.com/ca-en/find-a-dealer/

Maintenance

Your Väderstad machine is a high-quality high-tech machine. Like all technical equipment a regular maintenance and good care is the basis for a trouble-free operation, and a good investment for the future.

If you experience a break down during an intense working period, every hour counts and the time your machine is down causes a lot of frustration and costs money. By proactive monitoring and preventive maintenance, a great step is taken to avoid situations like that.

After each season thoroughly wash the machine and for drills clean all parts in the seed feed systems. Check the status of wearing parts and follow the greasing and other maintenance intervals given in the operator manual. During the season, regularly re-tighten joints and inspect for wear, excessive wear on joints may be an indication that the machine setup is not optimal.

Clean

- Wash the machine with a high pressure washer
- For all drills clean inside the seed feed units and distributor heads with compressed air
- Clean electrical components with compressed air or by wiping them with a slightly dampened cloth
- Pay special attention to sections that are affected by fertilizer products
- Never rinse the bearings with a high-pressure water supply! It is important to grease the bearings after washing in order to remove any water that has remained behind

Lubricate

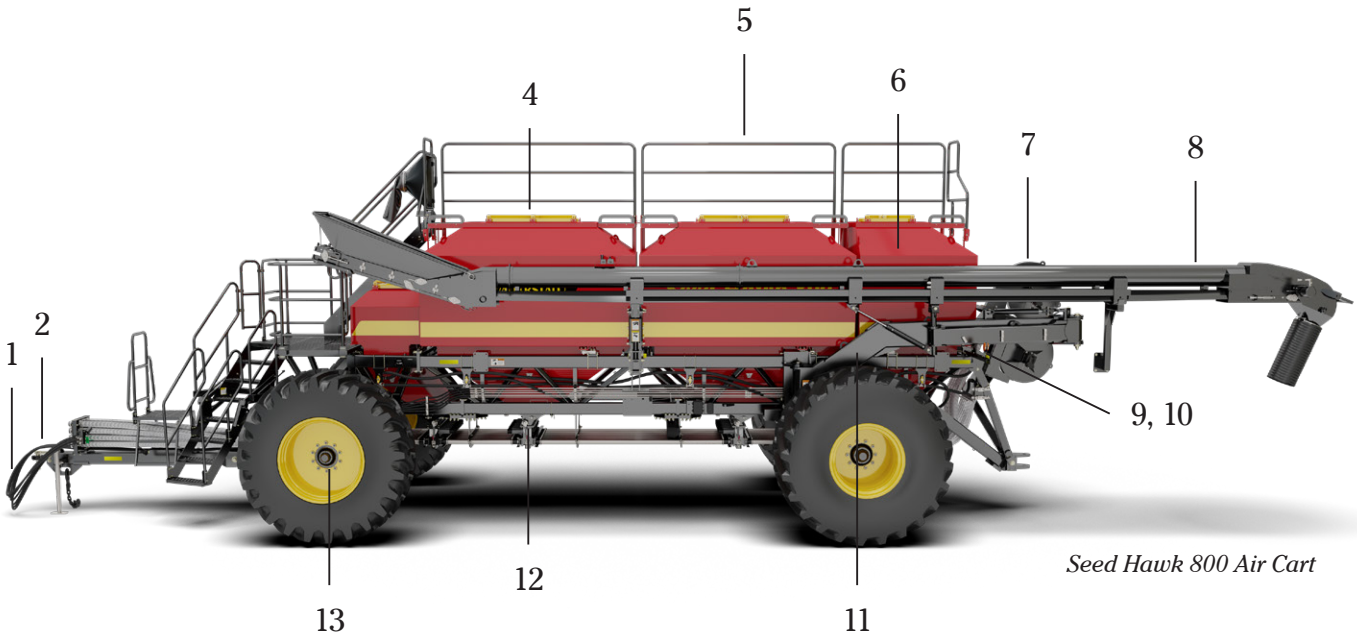
It is essential that the machine is lubricated according to the intervals specified in the lubrication chart

Beside lubrication intervals:
- Always lubricate prior to and after winter storage
- Always lubricate after washing with high-pressure equipment

Inspect

- Inspect the wear parts. After a certain point of wear the parts are no longer bringing the result you expect from your Väderstad machine
- Regularly check that screws and bolts are tightly fitted
- Inspect for wear in the joints that connect frame sections and hydraulic cylinder mountings. Especially on machines for tillage, excessive wear on joints and hydraulic cylinder mountings may be an indication that machine setup is not optimal. Information to reset to a basic setting can be found in the machine's quick start instruction

Seed Hawk air cart



Seed Hawk 800 Air Cart

1. **Clean the hydraulic couplings**
   Make sure that the couplings are clean and check colour markings.

2. **Check wear on hitch pin & safety chain**
   If the hitch pin shows signs of wear or damage it will need to be serviced/replaced.

3. **Order new wear parts in time**
   Change individual rollers when they exhibit wear, or if they have not been stored properly over the winter.

4. **Tank lids**
   Check condition of seals and springs. Adjust latch as needed. When storing for the winter ensure bin lids are closed but remain unlatched to protect the seal from damage that may be caused by fluctuating temperatures.

5. **Check Stairs/Handrails**
   Ensure stairs/handrails are in good working condition. Confirm rails are securely fastened and secure.

6. **Agitator Shafts**
   During post season clean out, ensure your bins are completely cleaned out and lubricate the agitation shafts within each bin.

7 **Fans**
Remove covers and check couplings. Inspect sensor for visible defects.

8 **Fill systems**
Inspect fill system arm assembly. Grease should be added to the 6 bushings in the arm assembly before and after every season. Refer to your operators manual to keep augers/ conveyors in good condition. Follow maintenance procedures as described in the manual. Ensure you have properly cleaned out the system at the end of the season.

9 **Check the Power Skid**
Thoroughly examine charging system. Inspect and adjust belt if equipped. Blow out the alternator with compressed air. Grease zerk found on underside of alternator. Ensure you reattach the ground wire on the back when reinstalling the alternator cover.

10 **Battery**
Load test the battery, confirm adequate CC/CCA is present. Remove and store battery in a heated, controlled environment during off season storage.

11 **Lubricate**
Consult the operator's manual to locate all grease points and maintenance instructions for the your air cart.

12 **Fenix III**
Ensure meter housing is completely cleaned out when switching rollers, or during post season maintenance. Rollers should be washed and stored in a cool, dark temperature controlled environment. Lubricate motor shafts before reinstalling.

13 **Re-tighten wheel bolts and check tire pressure**
Consult your operator's manual for proper torque specs and tire pressures.

Safety!
Carefully read the safety instructions in the instruction manual before any service or maintenance work is carried out. Inspect and follow all safety decal instructions at all times.

Good to know!

Winter storage tips

Properly maintaining and storing your equipment will save you time and money. After completing your post season maintenance, prepare your equipment for winter storage by following the above tips and consulting our QuickStart videos available on our website.

During post season clean up/maintenance, run floor dry through your fill system and each section to absorb any excess moisture. Ensure tank lids are closed but unsealed to protect against damage caused by fluctuating temperatures.

Rollers (cleaned and washed), battery, and all electronics (iPads, fill system remotes, switchbox) should be stored in a cool, dark, temperature controlled environment.

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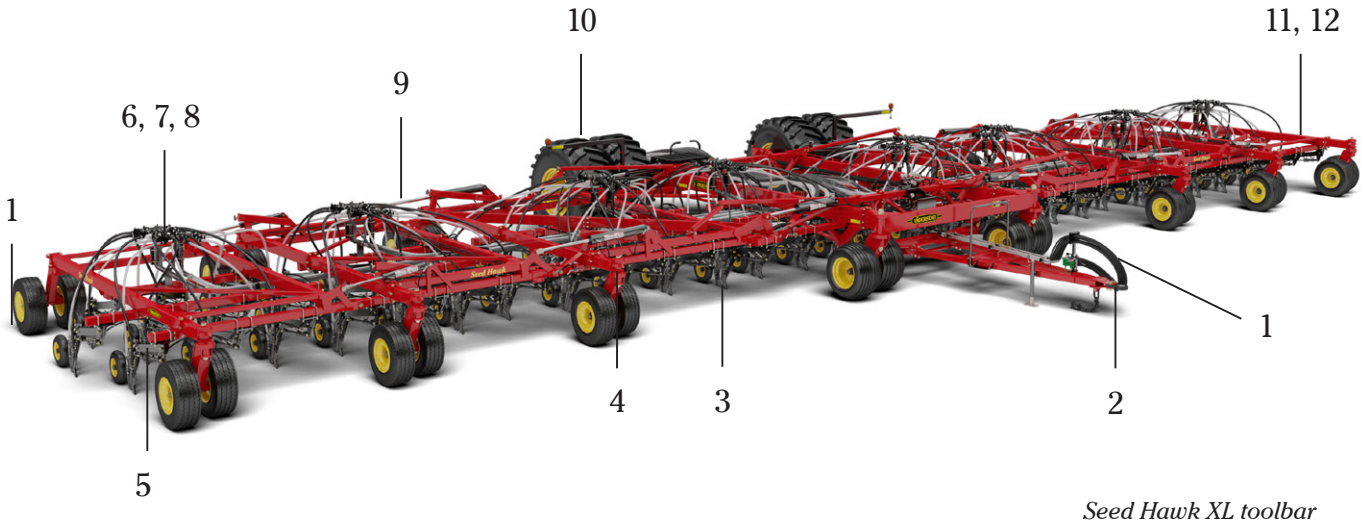
Seed Hawk toolbar



Seed Hawk XL toolbar

1 **Clean the hydraulic couplings**
Make sure that the couplings are clean and check colour markings.

2 **Check wear on hitch pin & safety chain**
If the hitch pin shows signs of wear or damage it will need to be serviced/replaced.

3 **Order new wear parts in time**
Check seed and fertilizer knives for wear – if carbides are worn off they need replaced. Adjust when necessary. Tighten hose clamps.

4 **Castors**
Check castor plate to weldment gap is less than 1/8". Adjust as required.

5 **Shanks**
Check condition and torques throughout the toolbar. Consult the operator's manual for torque specs.

6 **Air pack & manifold**
Check for defects and/or damage. Turn primary hoses as necessary.

7 **Towers & secondary hoses**
Look for loose hardware. Tighten as required. Check for kinked hoses, replace as necessary.

8 **Blockage ECUs**
Inspect and confirm ECU acoustic tubes are not kinked or damaged.

9 **Check the hydraulic cylinders, hoses and couplings for leakage**
Leakage on the hydraulic system affects functionality of the machine. Confirm correct wing pressures are present – consult operator manual for correct pressure values. Coat cylinders if storing outside for the winter.

10 **Re-tighten wheel bolts and check tire pressure**
Consult your operator's manual for proper torque specs and tire pressures.

11 **Frame**
Inspect frame for any visible defects.

12 **Lubricate**
Consult the operator's manual to locate all grease points and maintenance instructions for the your toolbar.

Safety!
Carefully read the safety instructions in the instruction manual before any service or maintenance work is carried out. Inspect and follow all safety decal instructions at all times.

Good to know!

Why two knives on Seed Hawk toolbars?

The perfect separation of fertilizer and seed is obtained through the dual-knife system where the second knife covers the fertilizer with soil before dropping the seed. This creates a barrier between the seed and fertilizer, preventing fertilizer burn while allowing the seed early access to nutrients.

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Customer:	Model:
Name:	Acres:
Address:	Serial Number:
Phone:	Date:
Technician:	

iPad Check	Condition		Check Specification	Comments
	Ok	Repair Replace		
iCon App software			Confirm the latest app is downloaded	
Jobs / Fields			Sync & delete old jobs. Check memory	
Toolbar Sections			Check operation & proper section correspondence	
Blockage			Confirm blockage is working correctly, tap sensors gently from each section	
Packing Pressure			Check packing pressure functionality on iPad	
Fan Speeds			Confirm speeds are displayed	
Wing Folding			Confirm the wing unfold solenoid works correctly	
Tank Scales			Stand on each tank and confirm correct weight readout is present	
Tank Configuration			Run each motor and check the configuration of each tank.	
Seed Placement Distribution			Confirm all tank distribution sensors are working correctly	
Agitators			Confirm agitator operation	
GPS			Confirm GPS connectivity (green light present)	
Codes			Clear and confirm no codes are present	

View maintenance presentation

Air Cart Check	Condition		Check Specification	Comments
	Ok	Repair Replace		
Hitch pin & safety chain			Check for wear or damage	
Air pack / Manifold			Check for defects & damages turn primary hoses as required	
Bin / Tank Lids			Check condition of seals, springs and adjust latch as needed	
Fans			Remove covers and check couplings. Inspect sensor for visible defects	
Check tank tires & steering linkage			Adjust pressures, Check condition & wheel torque	
Power Skid			Check charging system, Inspect and adjust belt if equipped. Blow out alternator with compressed air	
Battery			Load test battery, confirm a adequate CC / CCA is present	
Hydraulics			Check for leaks	
Stair / Handrail			Check condition. Confirm rails are fastened and secured	
Safety decals & lights			Check all decals for visible defects / confirm operation	

Conveyor Check	Condition		Check Specification	Comments
	Ok	Repair Replace		
General check over			Confirm belt is not seized before operation. Check arm for wear or play	
Grease			Grease fill system arm assembly bushings	
Bearings			Check for wear or play. Confirm bearings aren't seized	
Tension			Check tension before and after operation. Adjust as required	
Remote			Check remote functionality. Pair remote if necessary	
Tracking			Check tracking adjust as needed	
Condition			Check for wear / visible defects	
Lights			Check function	
Safety decals & lights			Confirm safety decals and shield are intact	

Toolbar Check	Condition		Check Specification	Comments
	Ok	Repair Replace		
Hitch pin & safety chain			Check for wear or damage	
Air pack / Manifold			Check for defects / damages turn primary hoses as required	
Check towers & secondary hoses			Check loose hardware or kinked hoses	
Blockage ECU's			Inspect, confirm ecu acoustic tubes are not kinked or damaged	
Shanks			Check condition and torque throughout toolbar	
Hydraulic System			Check for any leaks or defects on valve blocks and openers	
Check seed & fertilizer boots			Check wear, adjust if needed, tighten hose clamps	
Check toolbar tires / wheels			Adjust pressure / Check condition & wheel torque	
Wing Cylinders			Check for any visible defects or leaks. Confirm correct wing pressures are present	
Castors			Check castor plate to weldment gap is less than 1/8th inch. Adjust as required	
Frame			Check for any visible defects	
Grease			Grease all hubs, castors, pivot points, packer wheels and re-pack spindles as per service manual	
Torques			Check all main wing and center wing torque	
Safety decals and lights			Check for any visible defects / confirm operation	

Post Season Storage	Condition		Check Specification	Comments
	Ok	Repair Replace		
Toolbar hydraulics			Coat exposed wing lift cylinders if stored outdoors	
Hydraulic			Relieve hydraulic pressure as required	
Bin / Tank Lids			Remove tension from the lids to prevent seal damage over winter	
Grease			Grease as required	
Agitators			Lubricate bearings to prevent seizing	
Section Care			Run floor dry through each section to absorb any excess moisture	
Conveyor			Run floor dry through conveyor, thoroughly clean and back off tension. Lubricate joints and bearings to prevent seizing	
Conveyor Remote			Store Indoors, remove from storage box	
Rollers			Remove and wash all rollers. Place in a controlled environment	
Motors			Remove electric motors, lubricate shafts & reinstall to prevent seizing	
Battery			Remove battery, charge and store in a heated location	
Clean Machine			Wash implement as required	

Reliable and durable farm machinery

1
Year
Warranty

*Entire machine comes with 12 month or 25,000 acres warranty from Warranty Start Date.**

3
Year
Warranty

*Frame structure comes with 36 month or 25,000 acres warranty from Warranty Start Date.**

** Warranty valid period is which-ever limit occurs first.*

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