
BOURGAULT
X30
Monitor/Controller
TOPCON
Precision Agriculture
INGENUITY.
SIMPLICITY.
DURABILITY.
www.bourgault.com

X30 System Components

X30 Monitor

- Monitor is 12.1 inches
- LINUX operating system – not windows
- Can-based communication. No serial ports
- New part number 3132-10

BOURGAULT

X30 Monitor/Controller

Note: please follow the shut down procedure and DO NOT hold button until display shuts down.

Reset Button

Next to the green power button there is a red button, that is used to reset the console when it freezes or can not be turned off in the normal way. Only use this method as a last resort.

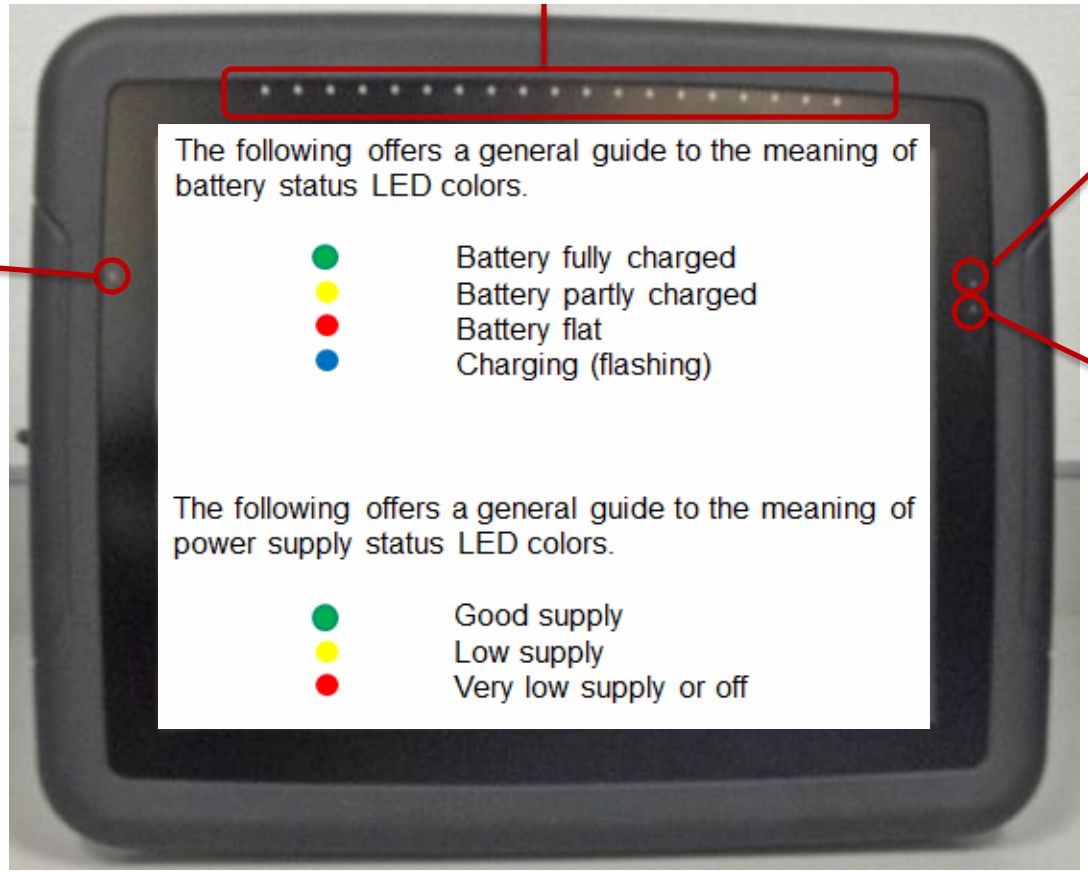
Turning On

To turn on the X30 console, press and hold green power button (approximately 3 sec), located on the back of the console in the lower left corner.

Shutting Down

To shut down the console, briefly press the green ON/OFF button. The system will ask if you want to power down. Select YES to turn off or No to continue working

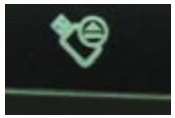
LED Light Bar



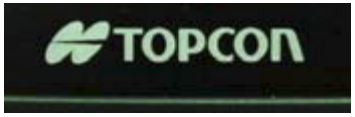
Light Sensor

Battery Status LED

Supply Status LED

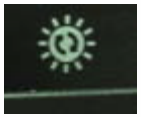


Before removing the USB, always disconnect first by touching the **USB Eject** icon on the base of the console. A message will display that it is safe to remove the USB.

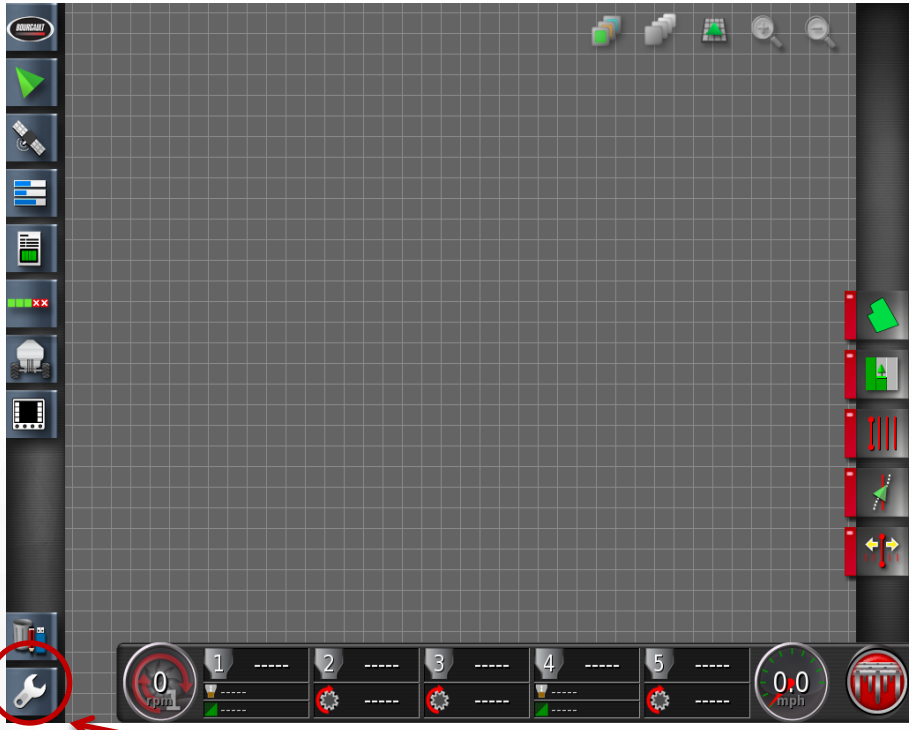


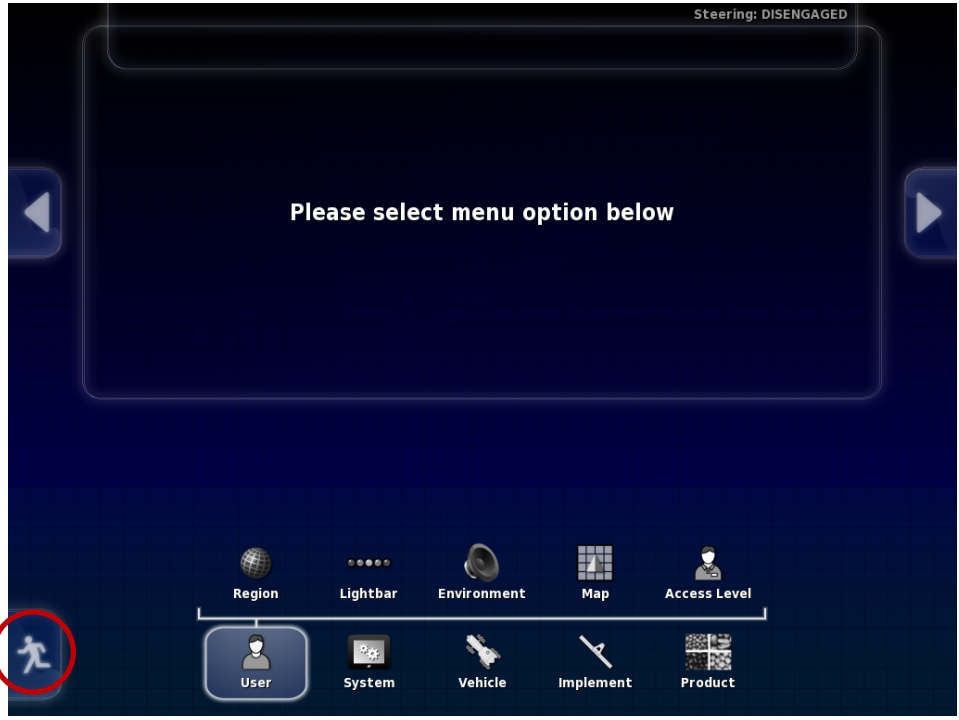
Topcon Logo can perform one of the following functions: take a screen shot or save/load global home screen.

Brightness Control adjusts the brightness of the display. Use plus or minus to adjust display.



Day/Night mode changes the brightness of the display. Settings are Day, Night and Auto. Auto light mode will set the mode automatically depending on light conditions



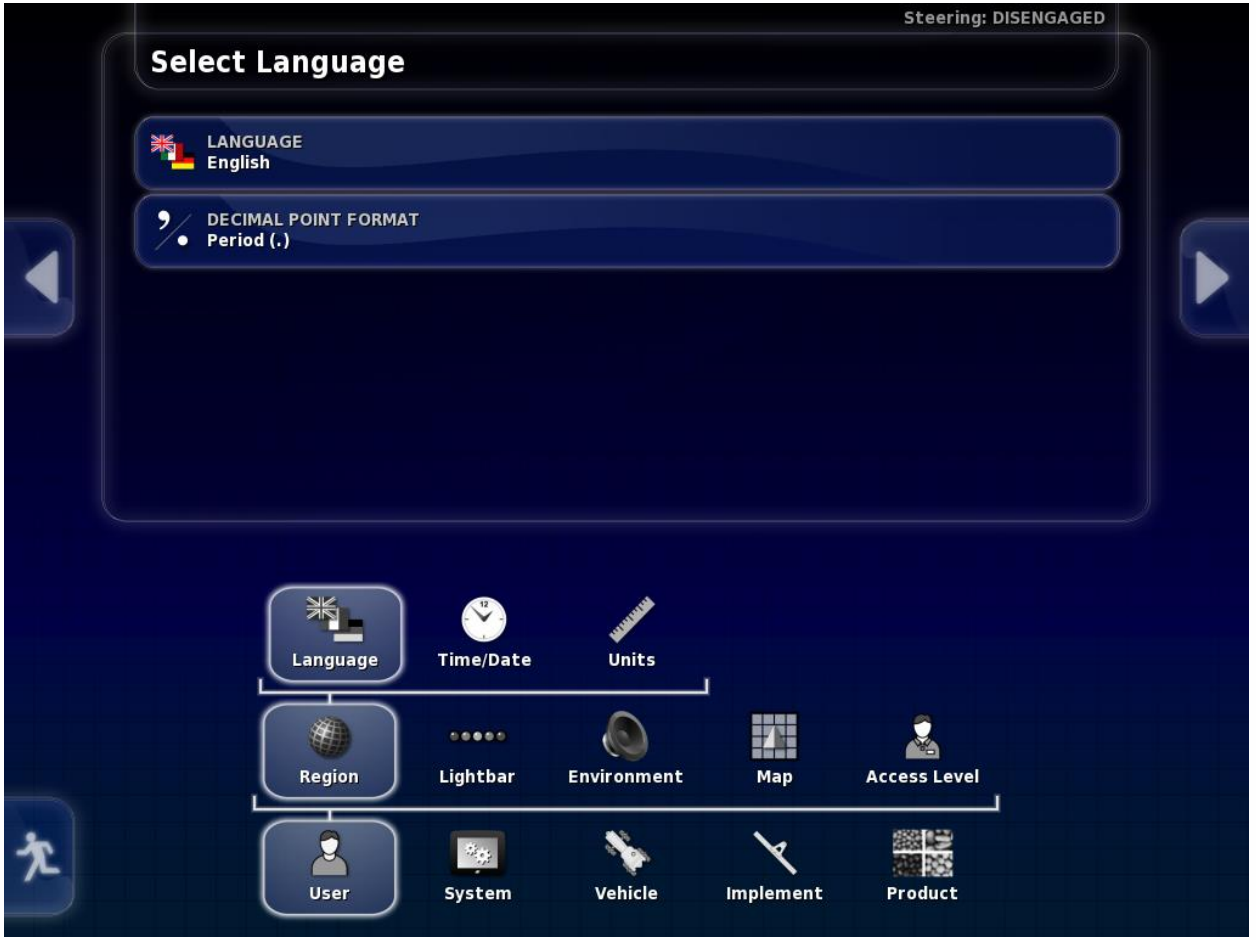


Setup

- All configuring and parameter entry is completed in the setup menu
- To toggle though the screens use the wrench on the guidance screen and the running man on the settings page

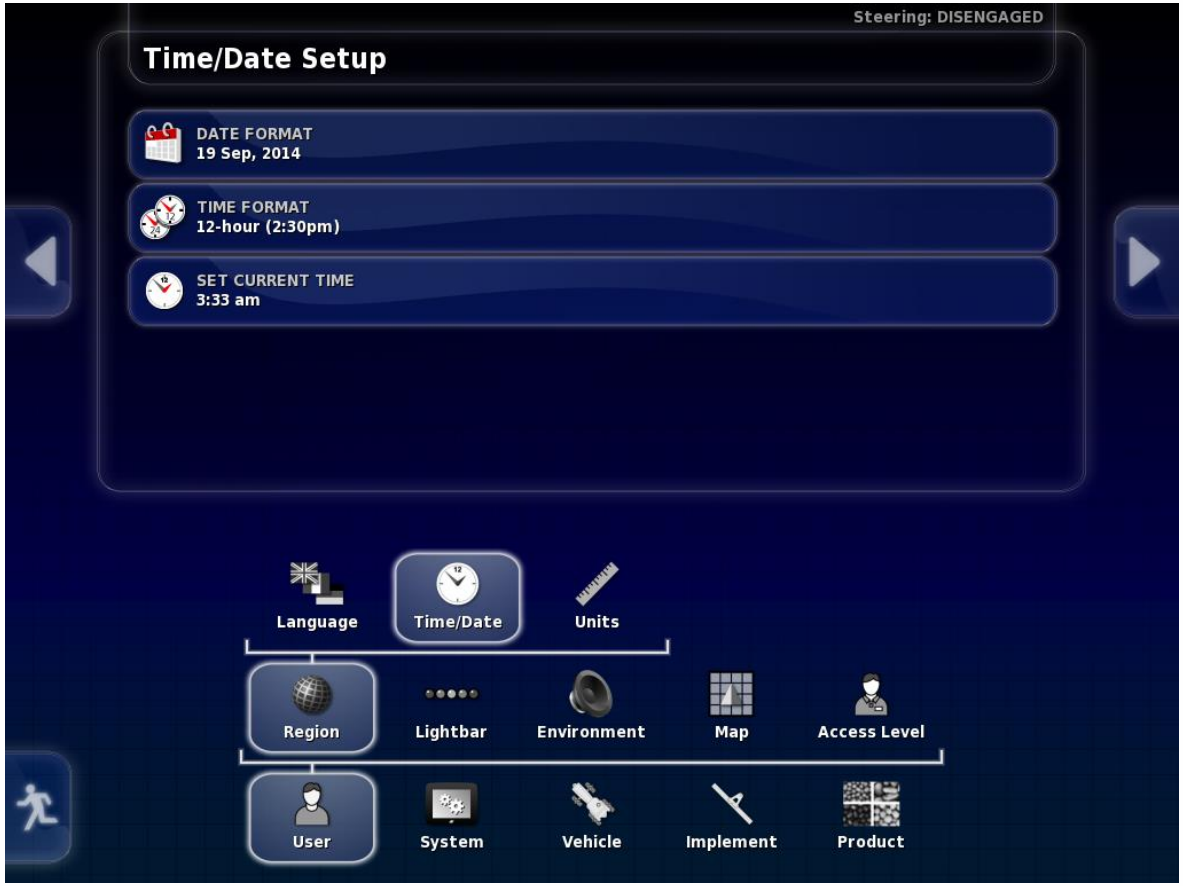
Language

- Language: change the operating language
- Decimal point format: Period or coma



Time/Date

- Just touch each bar to
  Set the Date format: the way it shows
  Set the Time format: 12hrs or 24hrs
  Set the current time: this will set itself when you hook to GPS signal. With out GPS signal the time will be incorrect.



Units

- Units**: imperial (US)**
- Latitude: **DMS**
- Pressure: **PSI**
- Short Distance Units: **Inches**
- Area: **acre**
- Dry Product: **bushels**
- Dry Density: **pounds per cubic foot**
- Liquid units**: Gallons**
- Application Rate**: fixed rate**

Environment Setup

- **Audio Volume %**

The volume of the audio and button clicks.

- **Button Clicks on/off**

Clicking sound every time you touch a button.

- **Alarm Audio on/off**

Whether or not you want the audio part of the alarm

- **Touchscreen Calibration**

If the screen is out of calibration. Restart required

- **Sensitivity of touchscreen**

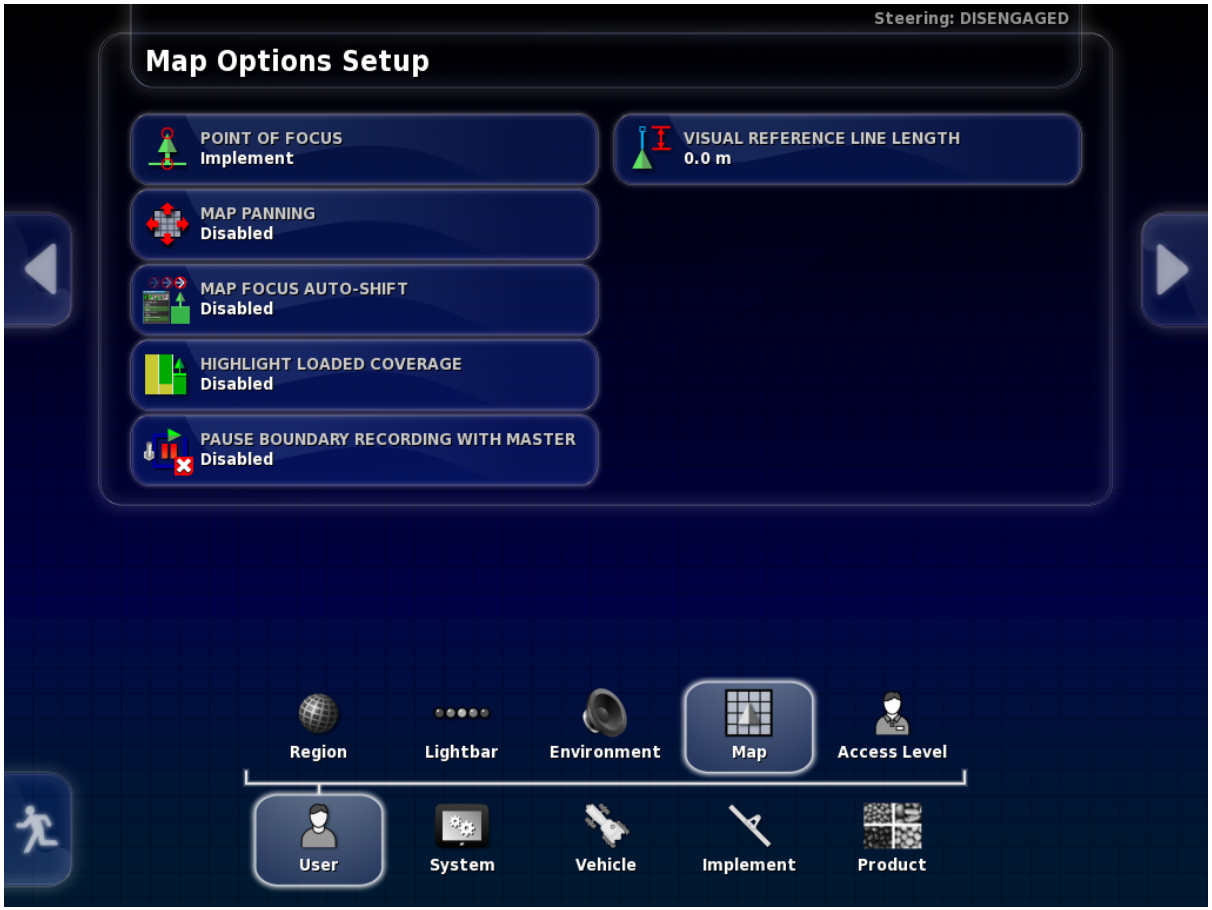
Change the sensitivity. Restart required

- **Multi-function region mode-** assigns the function to the Topcon icon button on the screen
- **System transfer** Not used
- **Steering status** Topcon steering

Toolbar Button Size allows to select button size for mini-view and job/guidance menu options that appear on the right and left sides of the operating screen.

Map

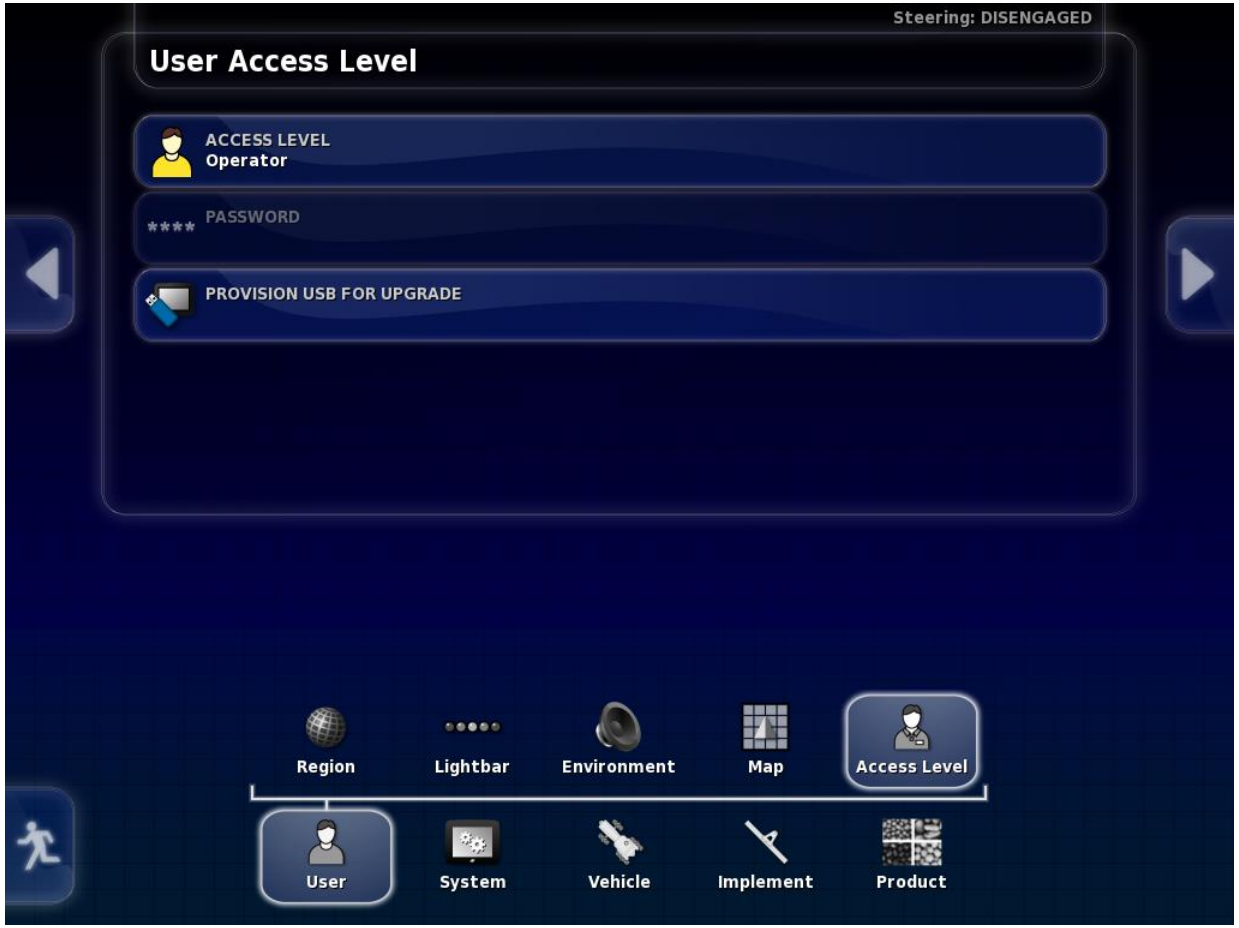
- **Point of focus:** Allows you to set the point focus either the vehicle or the implement
- **Map Planning:** allow you to pan though the map with your finger and drag it to where ever you like. So you can see parts of the map that aren't on the screen
- **Map focus auto shift:** if this is enabled it will automatically refit the map in the guidance screen when you have any mini views out.
- **Highlight loaded coverage:** when enabled, as product is being applied covered area will be in green and the previously covered will be yellow.
- **Pause boundary recording with master:** allows to enable or disable pausing of boundary recording with the master switch.
- **Visual reference line length:** allows you to Set a visual reference line length



Access Level

- Allows for access to some feature (like diagnostics) not accessible at the Operator level

Provision USB for Upgrade: this will unlock the thumbdrive to prepare for software upgrade



Console

Universal terminal: Not used
File server: enabled for upgrading firmware on ECU's
Cameras: Not used
Per-point Data logging: Not used
Wireless Network: connect to a wireless network for remote support.
Remote Assistance: team viewer remote support from the dealer.
Cloud Based Service: Not used
VDC Support: Not used

Guidance

- **Guidance** (this is always enabled)
- **Auto Steer** (used with Topcon Steer)
- **Controlled Traffic** (Topcon Steer)
- **Job helper mode** Job assist or Quick Start

Job Assist - when job assist icon on the guidance/coverage map screen selected, it will bring up a window, that will automatically display some brief instructions as different job and field related menus are selected.

Quick Start - when quick start icon on the guidance/coverage map screen selected, it will prompt the operator to perform an action or enter information that is required to start/ continue with a job.

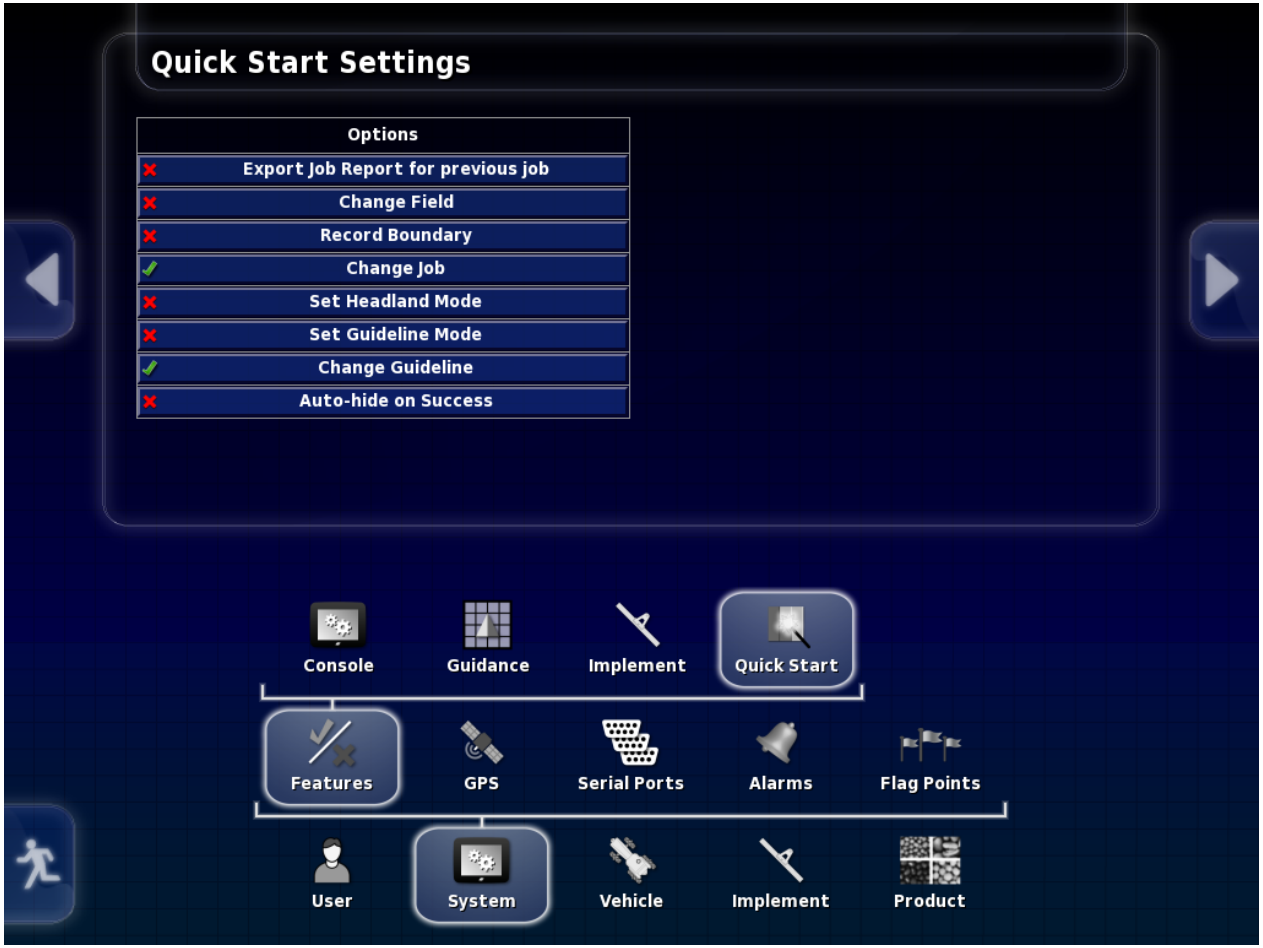
Implements

- **Auto Sectional Control**: **ON** if you want the guidance to turn the clutches on and off. Or if your using sectional control NH3 or Liquid.
- **Variable Rate Control** if using a VR map
- Task Data (not used)
- **Area Counters** on or off
- **Reset Job Area Counters**
- Never - never reset area counters
- Prompt - prompt before resetting area counters
- Auto - automatically reset area counters.
- **Water conservation** Not Used

Quick Start

When Job Helper mode set to Quick Start prompts for specific jobs that will be carried out, can be customized under System/Features/Quick Start. There are several options that can be enabled or disabled. Green checkmark beside the option indicates that option is enabled, red cross indicates that option is disabled.

Note: please refer to our web site for more instruction on this.



GPS Receiver

- **GPS Receiver** use Other for non Topcon WAAS or Omnister.
- **Baud Rate** needs to match what your receiver is outputting

GPS Output

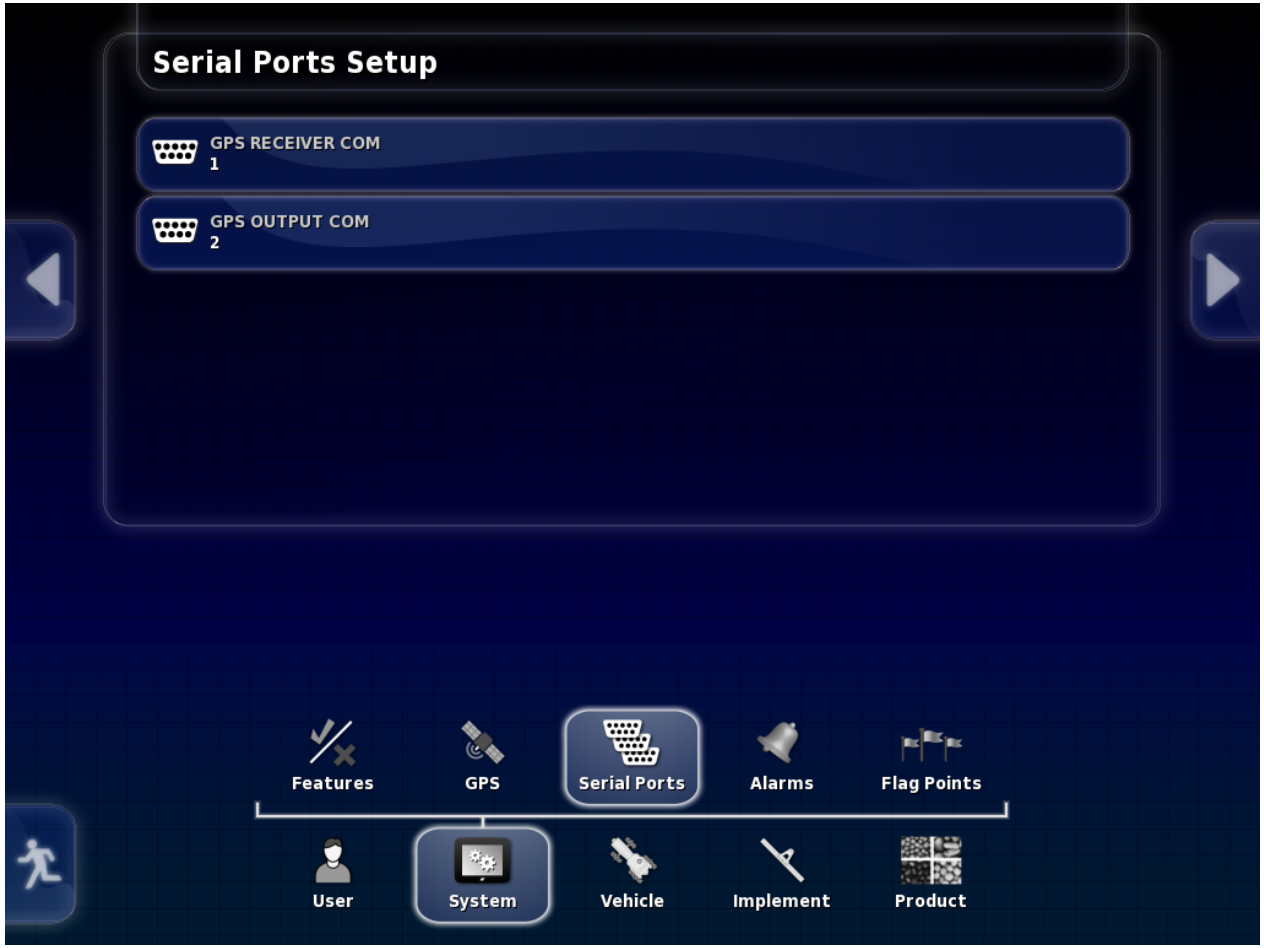
NOT USED

Radar

NOT USED

Serial Ports

GPS receiver com; this can be set the either 1 or 2, depends on how you are connected into the main X30 harness.
GPS Output Com: must be set to something different then the receiver coms



Alarms

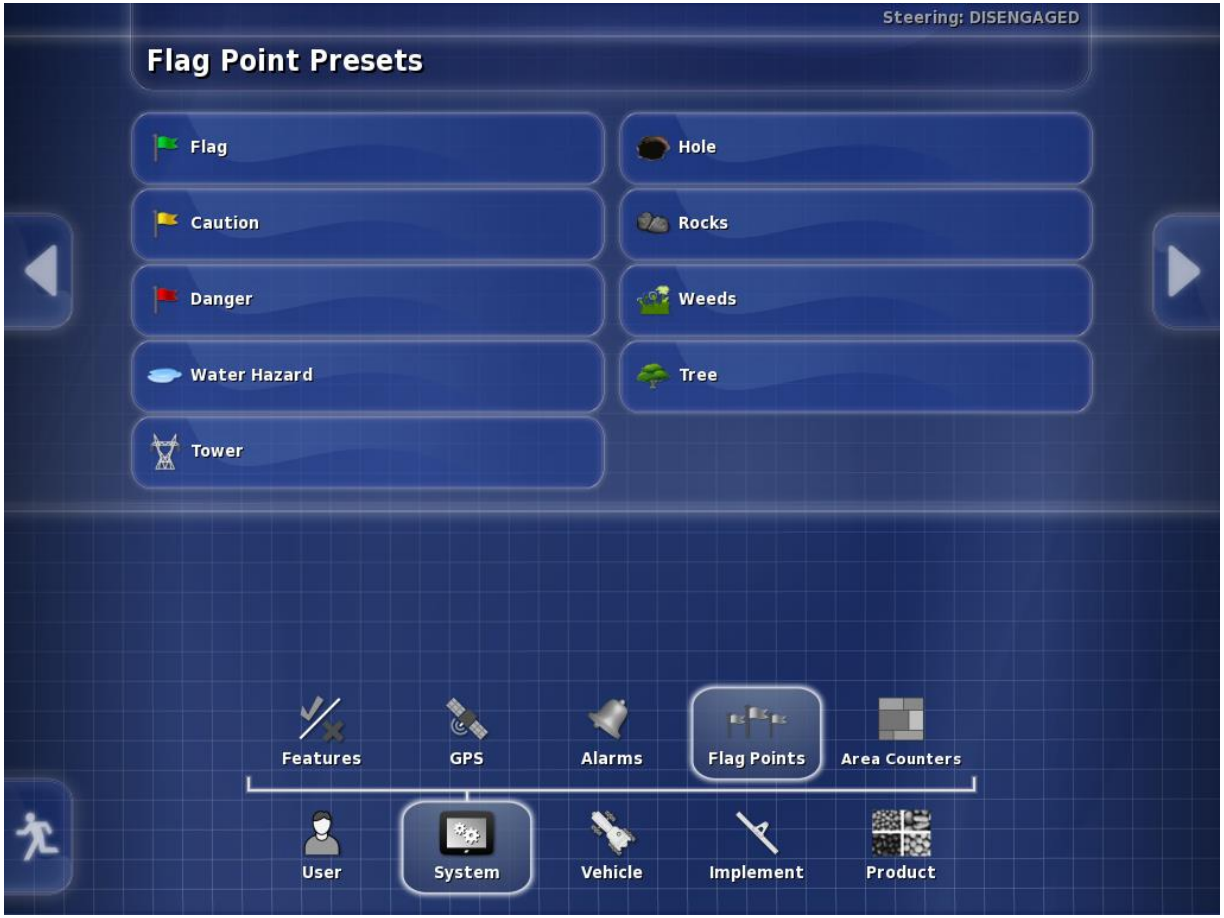
- Alarms that deal with the console, GPS or Steering. All can be disabled.

Seeder Alarms

- All the alarms for the seeder, can be turned on or off individually.

Flag Points

- With all the flag points you can change the description or name of the point



Select Vehicle

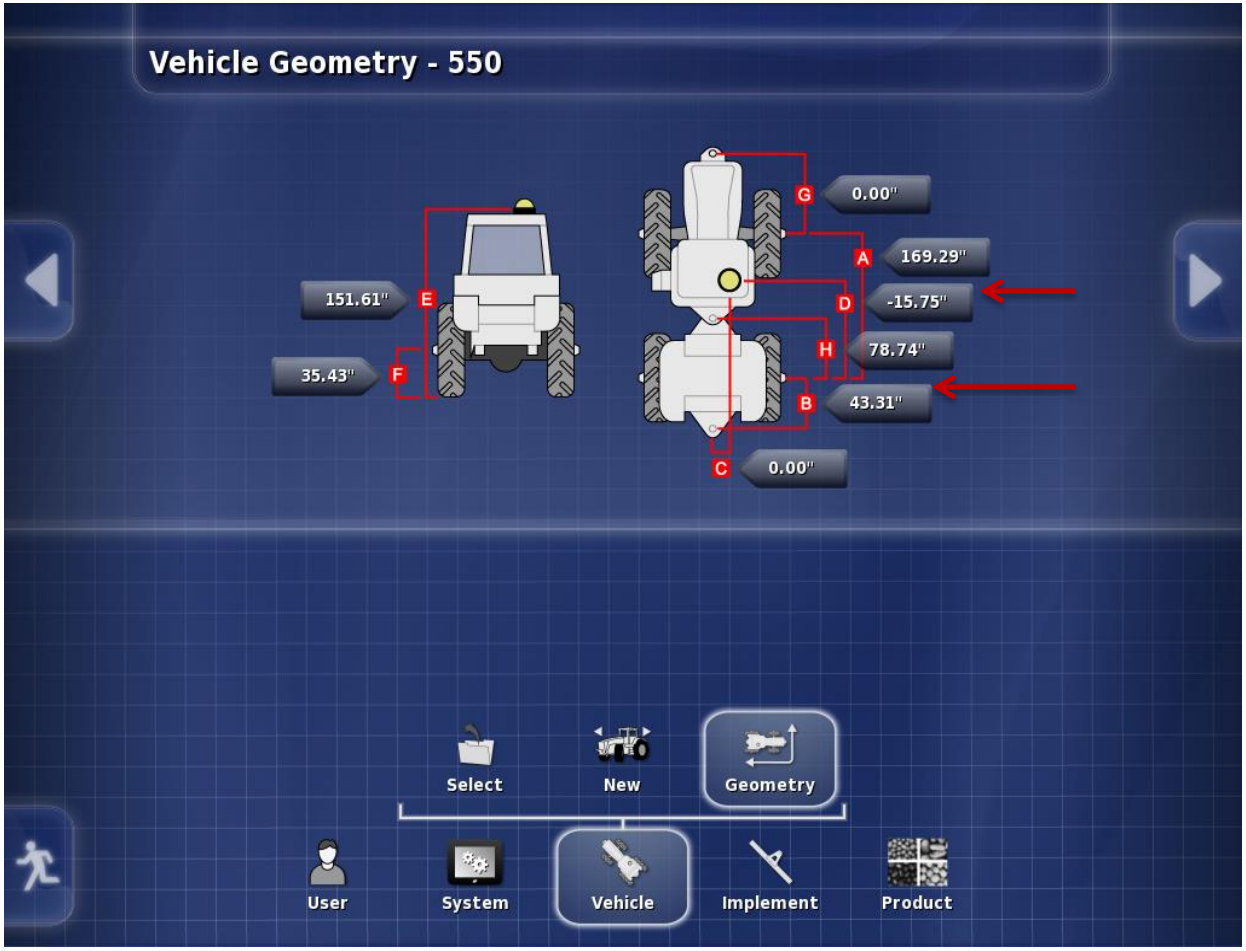
- You can change between different vehicles that you have created
- You can load a vehicle from another monitor through a USB
- If you change the vehicle in this page it will restart the monitor

New Vehicle

- This is were you can go in and create a new vehicle by selecting the proper manufacture.
- Then it will ask you to pick the model of the unit if its not there pick a model that is close to right one.

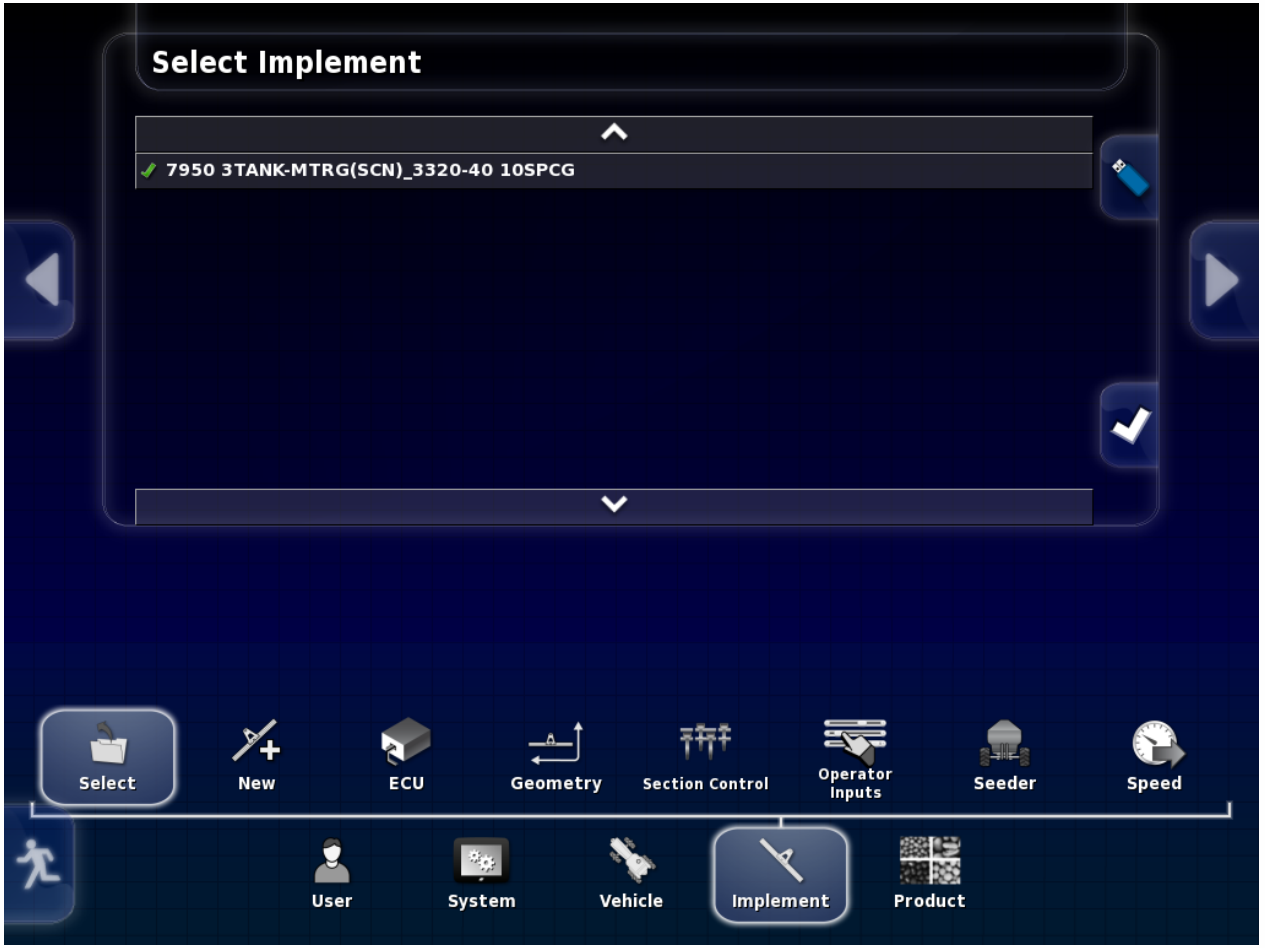
Vehicle Geometry

- After the unit is picked you will have to come in and adjust the measurements specific to each vehicle
- Ensure distance from receiver to rear axle and rear axle to the hitch are accurate as this will affect ASC/Mapping
- The rest are primarily for steering application
- Some steer systems require odd dimensions to steer (AES25) Topcon



Select Implement

- This is were you will pick the machine that you are operating
- Every time you create a new profile it will appear here

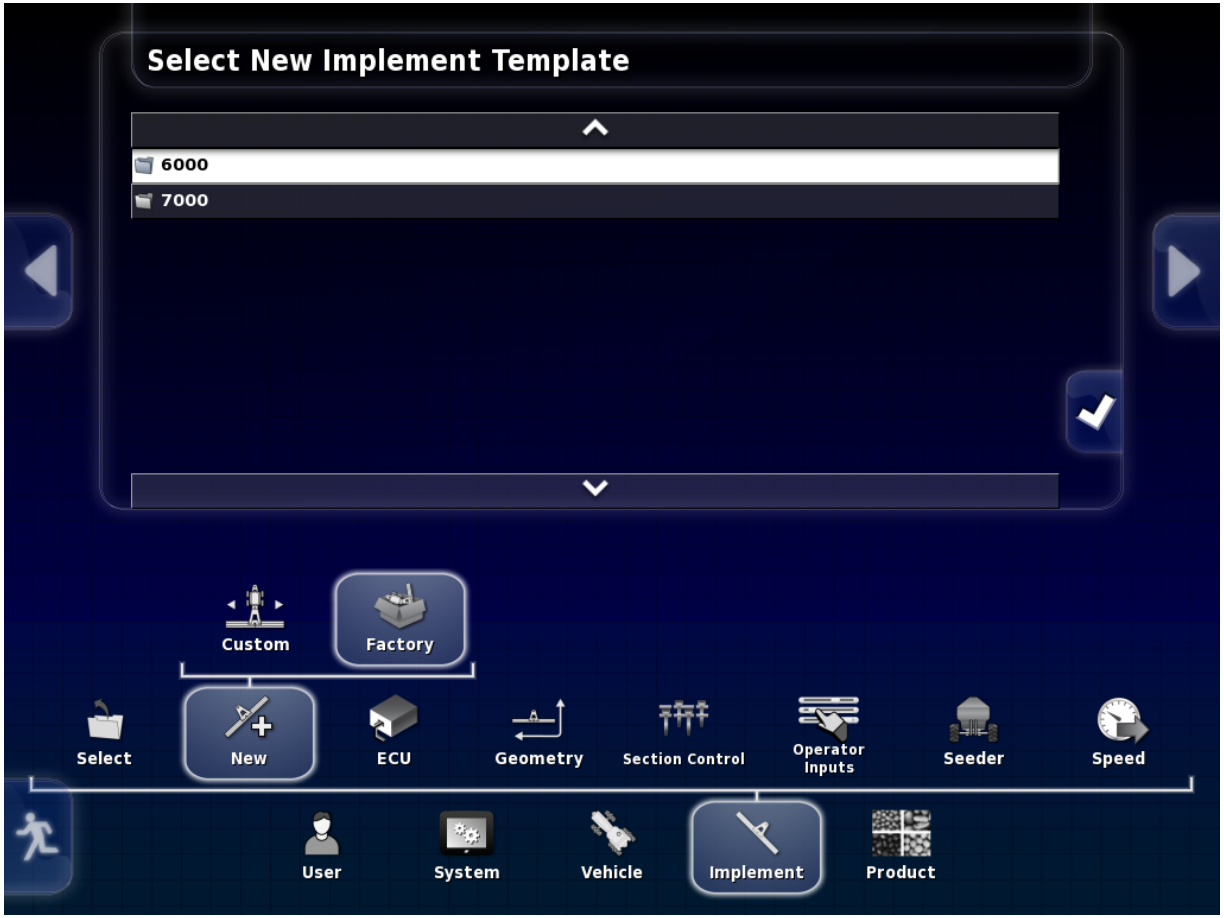


Factory Profile

Follow though a few steps to configure your monitor to the machine you are working with.

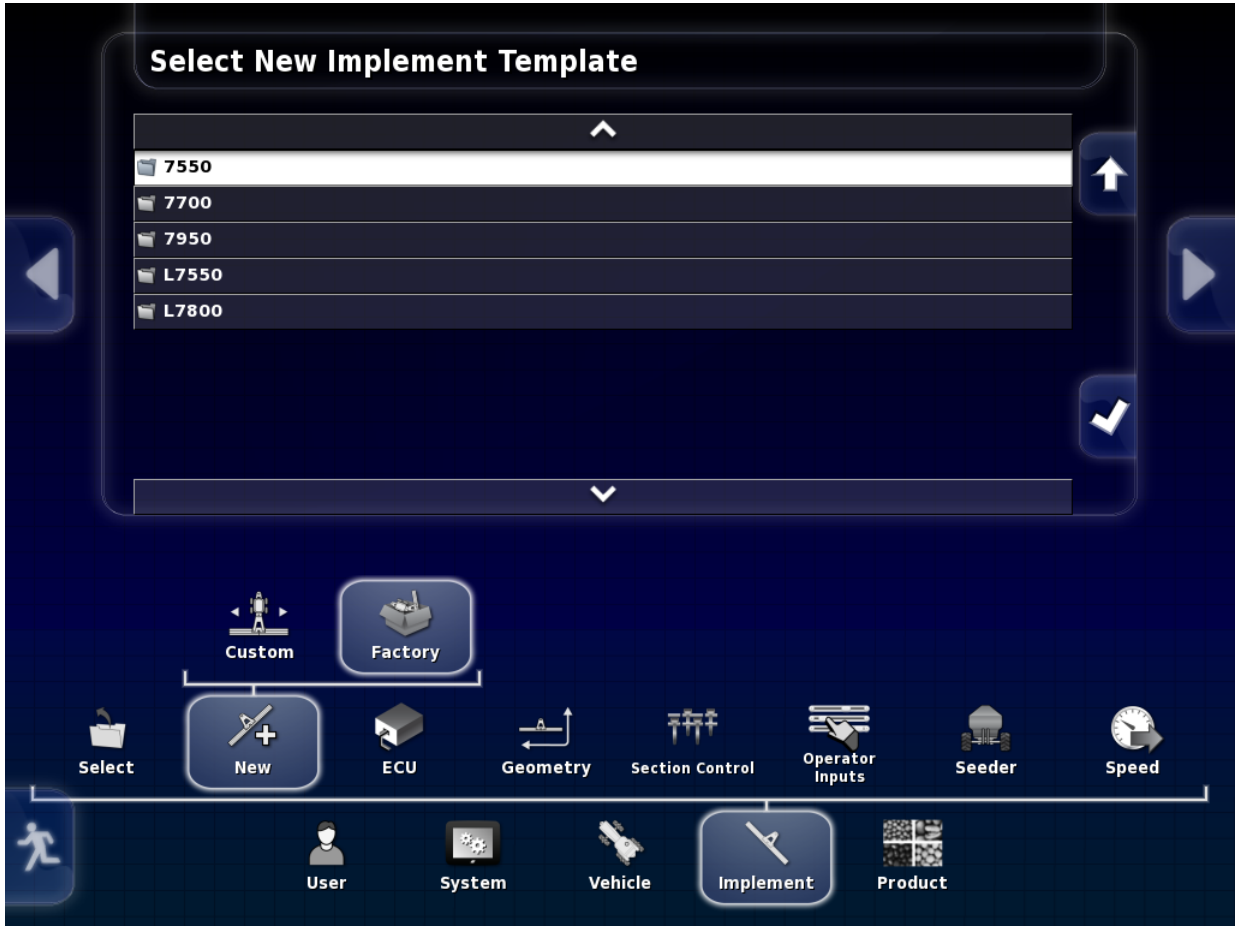
-Start by picking the series of tank that you have. Touch and highlight the proper one then press the arrow.

-Setting up a profile for both 6000/7000 is basically the same as you go though



Factory Profile

Select the model for tank by highlighting it then press the arrow to move on.

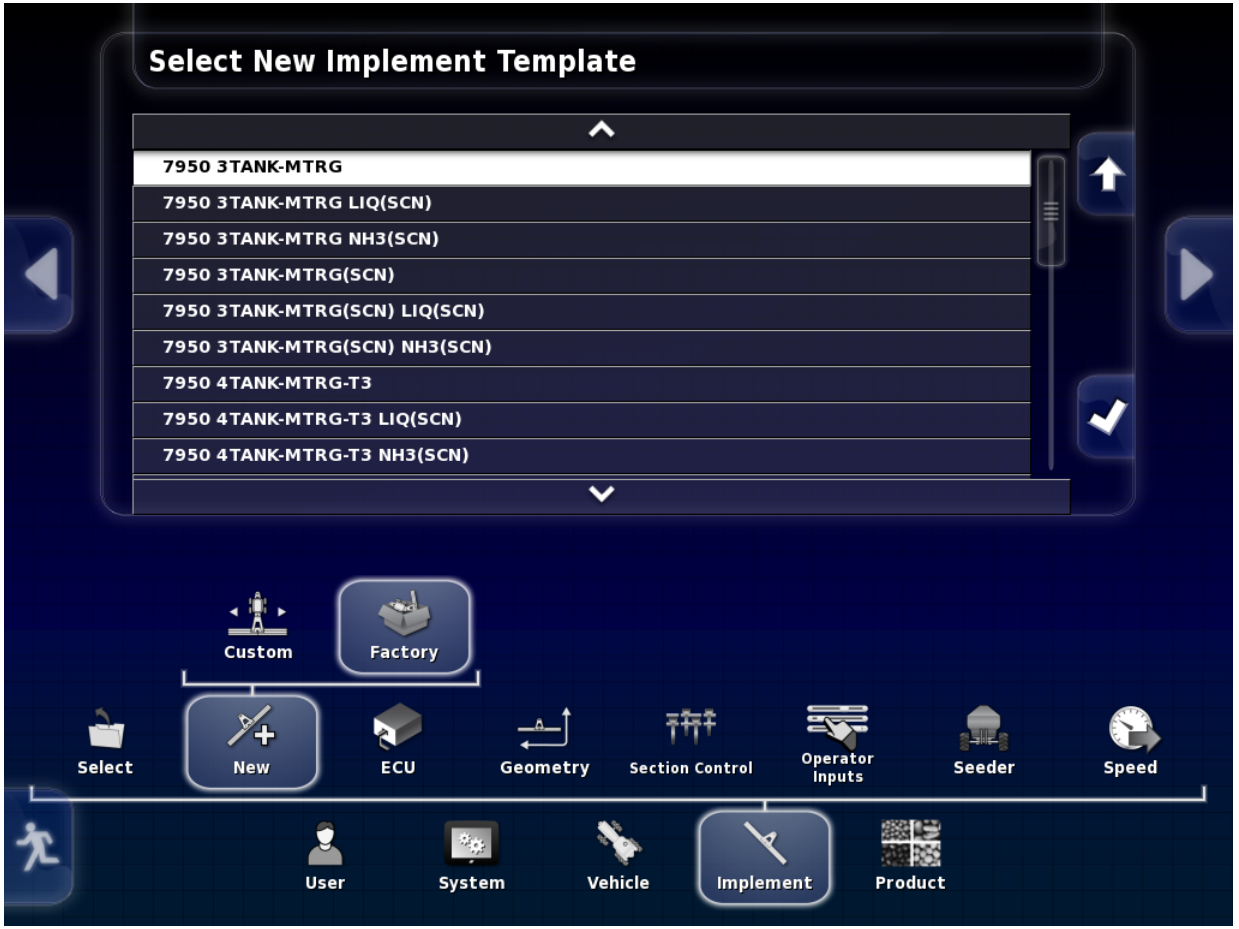


Factory Profile

This is were you pick how your machine is configured. How many meters and whether or not you have sectional control granular or NH3/LIQ. Find the one that fits your tank and highlight it and press the check mark.

NOTE: you will see in a four tank configuration that it has a T3 or a T5.

T3 - means that the fourth meter is on tank three.
T5 – means that the fourth meter is on the saddle tank.

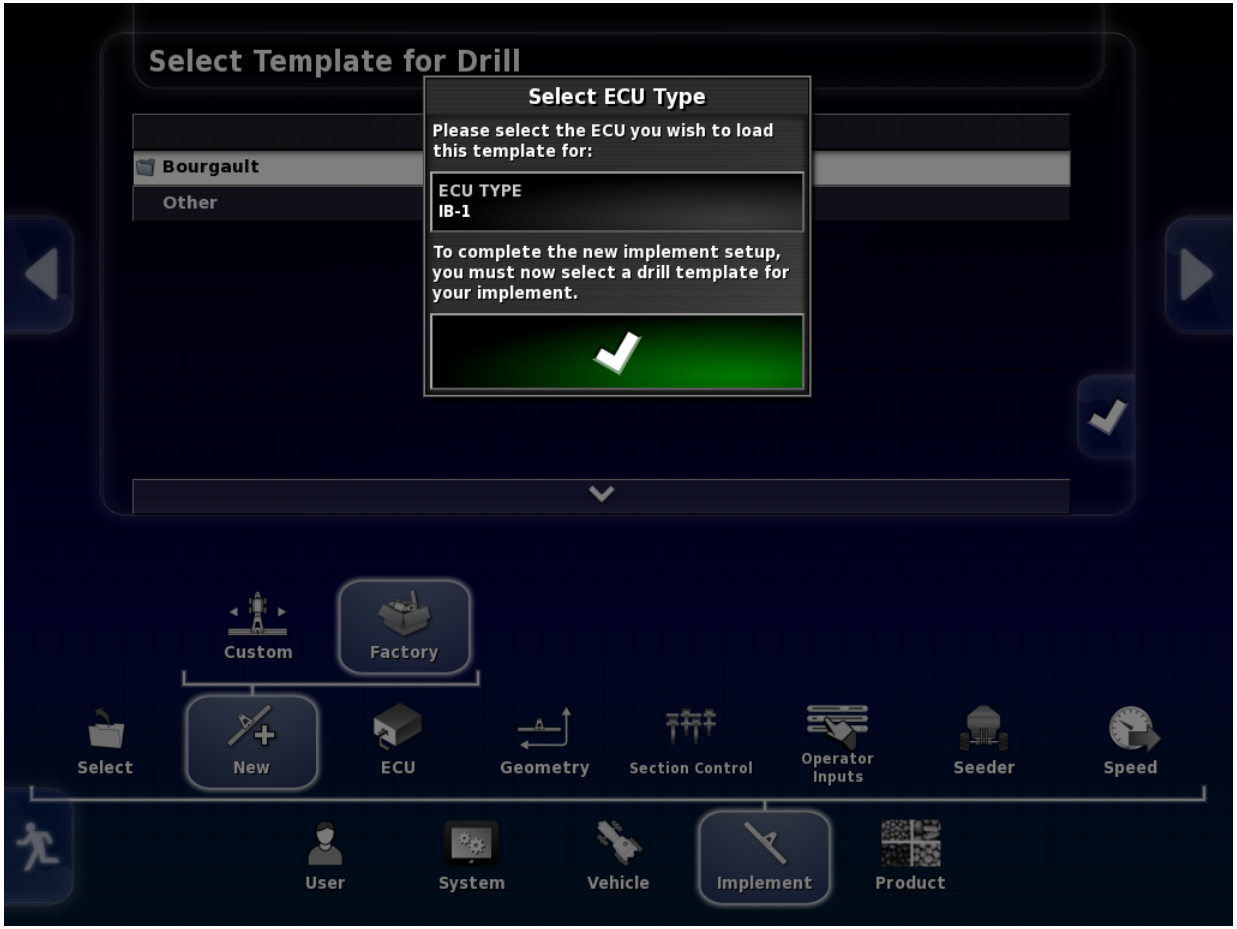


Factory Profile

This is asking you what ECU type your machine is.

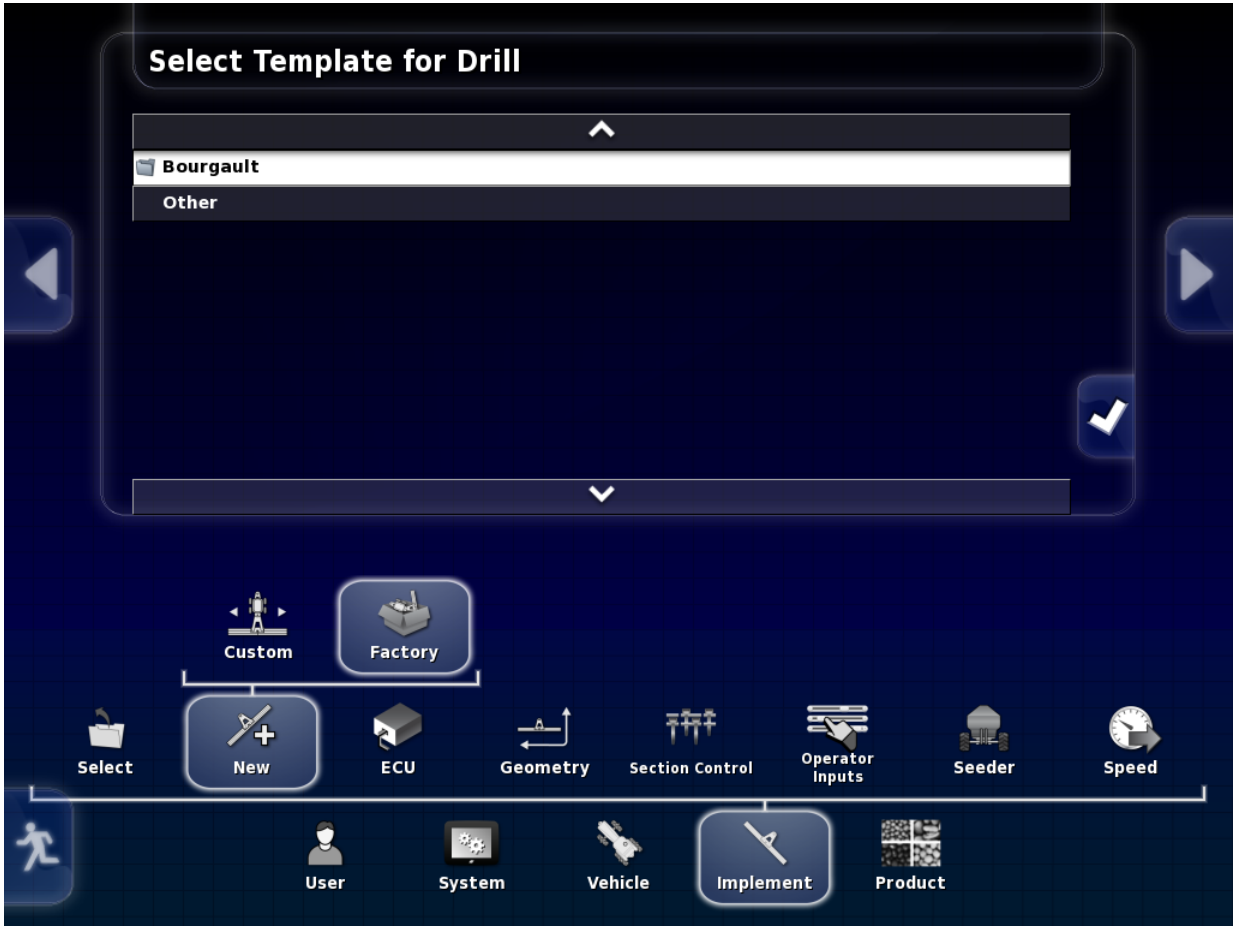
IB-1 is tanks built before May of 2014 and will have white box in cab

Apollo tanks built after May of 2014 will have the ISO connection to tractor



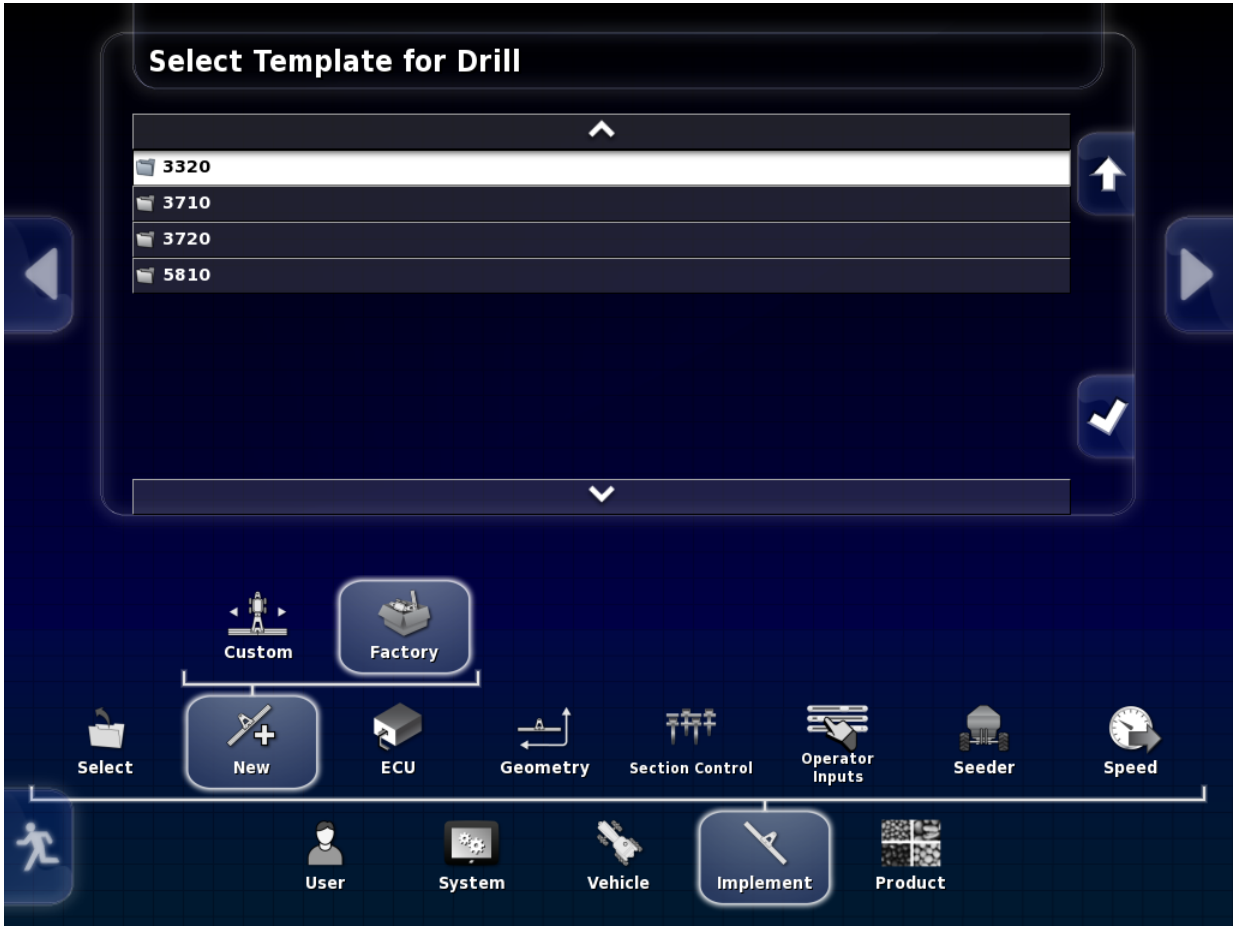
Factory Profile

- Pick Bourgault then go ahead and press the check mark.



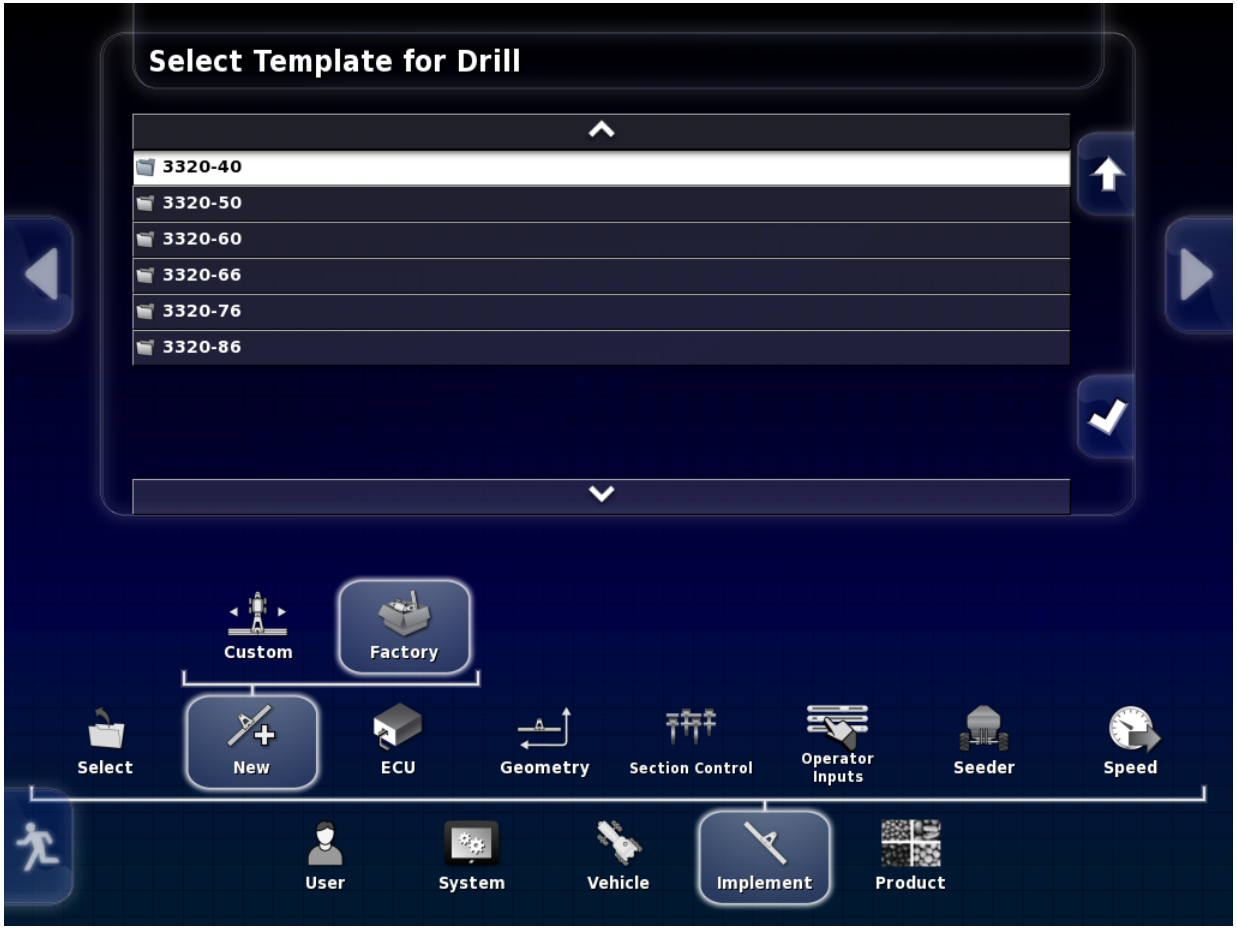
Factory Profile

- Highlight the machine that you will be using. Then press the check mark to proceed.



Factory Profile

- Find the machine that fits then highlight it and hit the check mark to move on

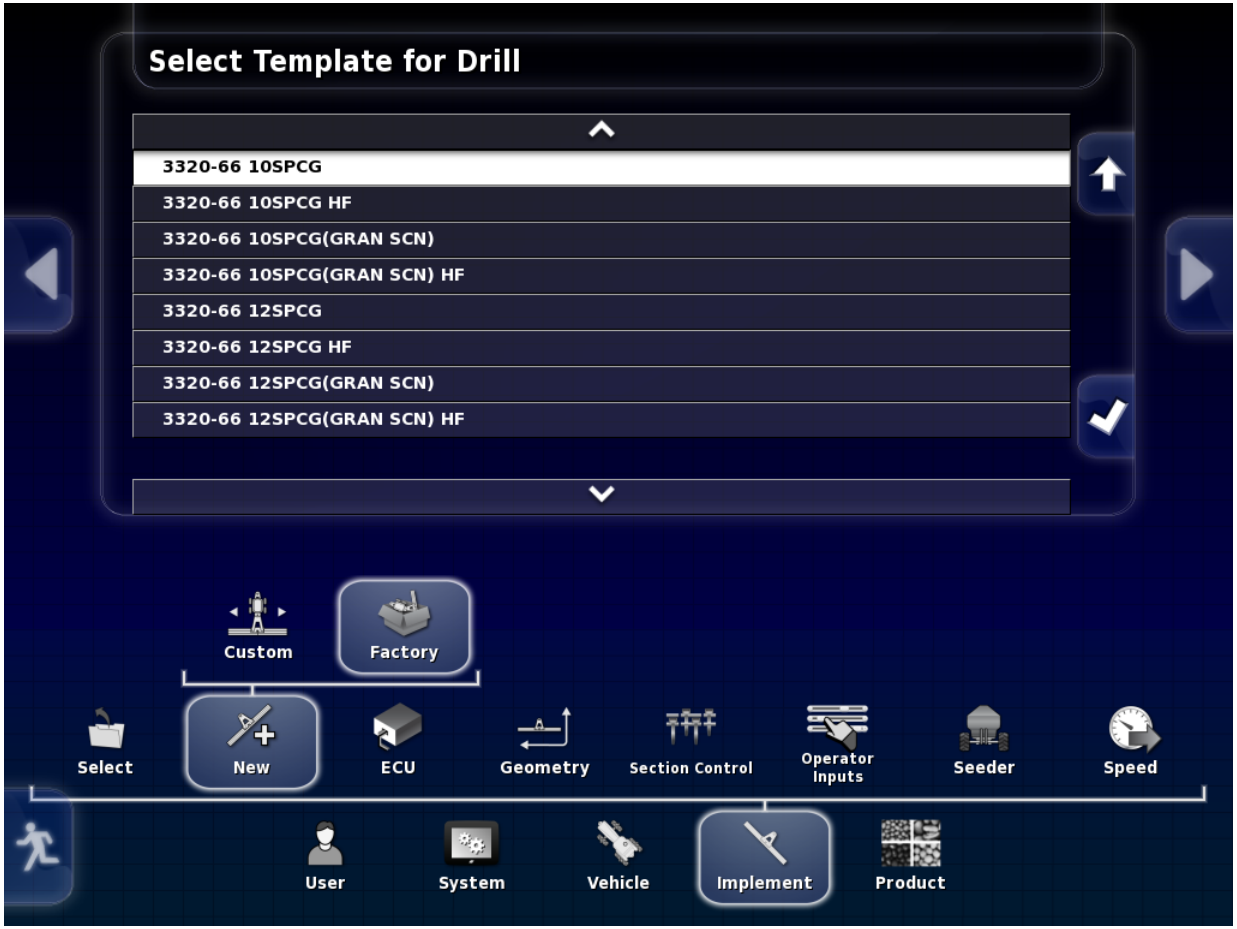


Factory Profile

- Pick the one that matches your machine, highlight and pick the check mark to move on.

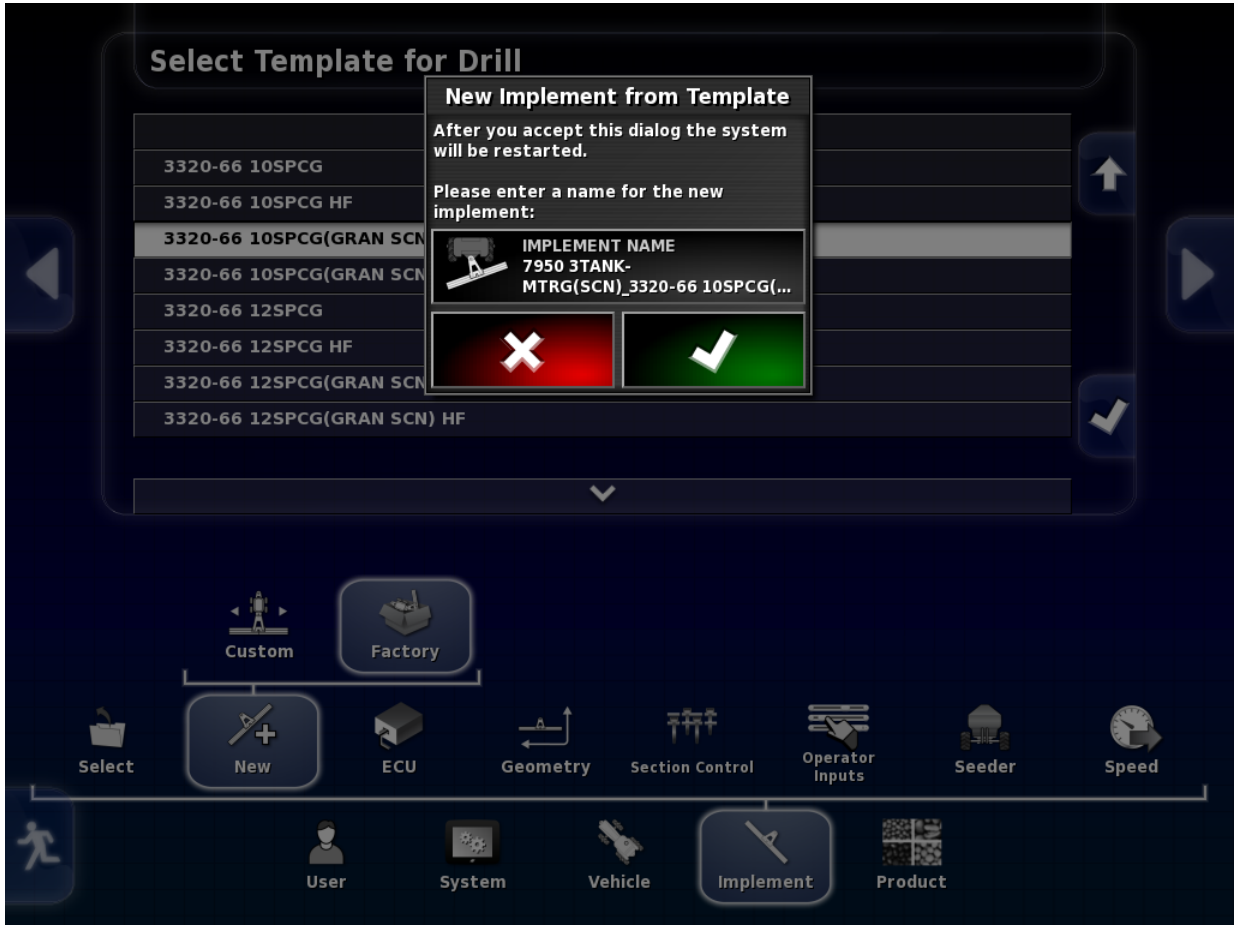
- **HF** High flotation

- **Gran Scn** Granular sectional control



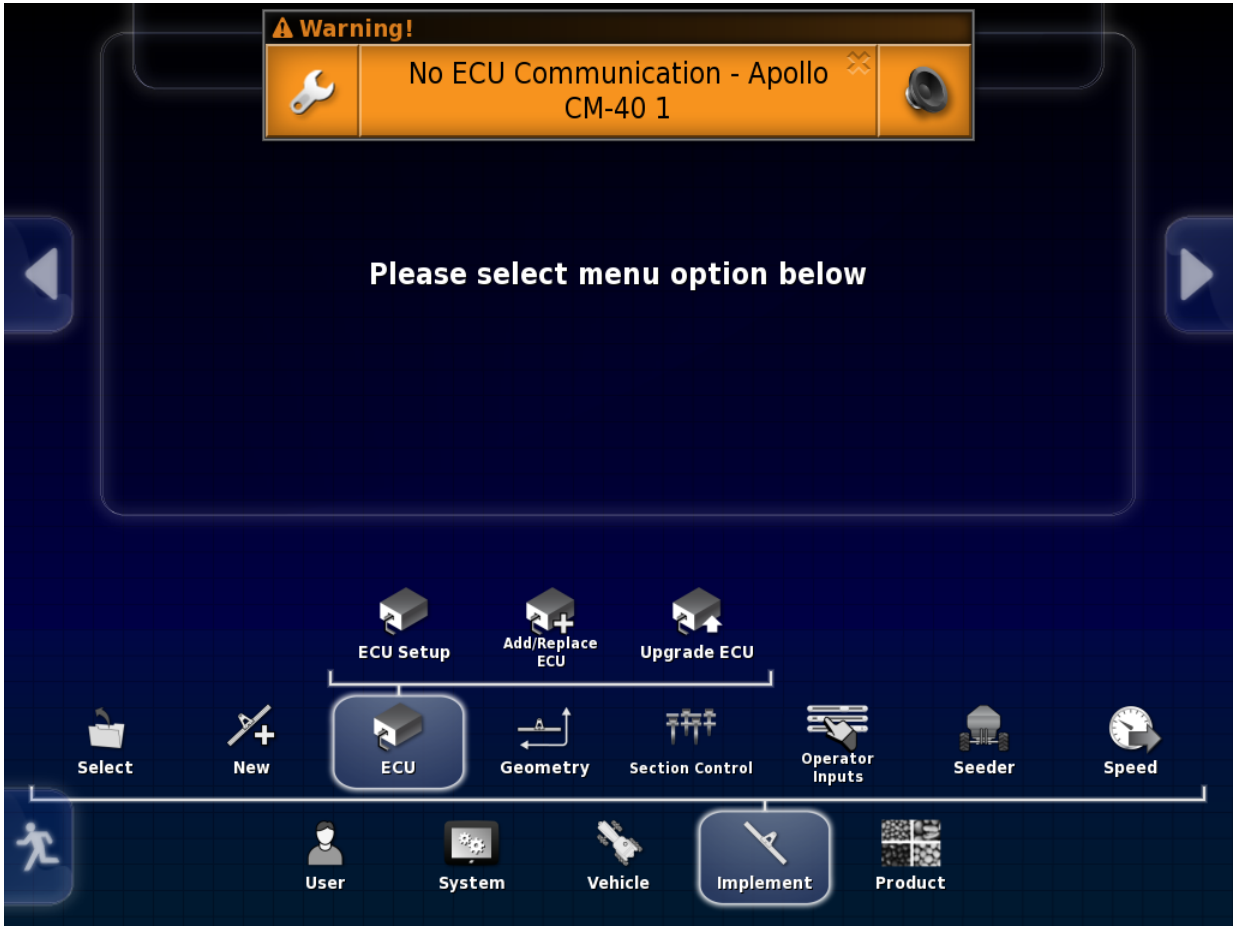
Factory Profile

- On this screen it allows you to the name the unit simply by touching on the box with the name in it.
- Then a key pad will come up for you to type the name.
- When finished then touch the green check mark to move on
- The monitor will then restart

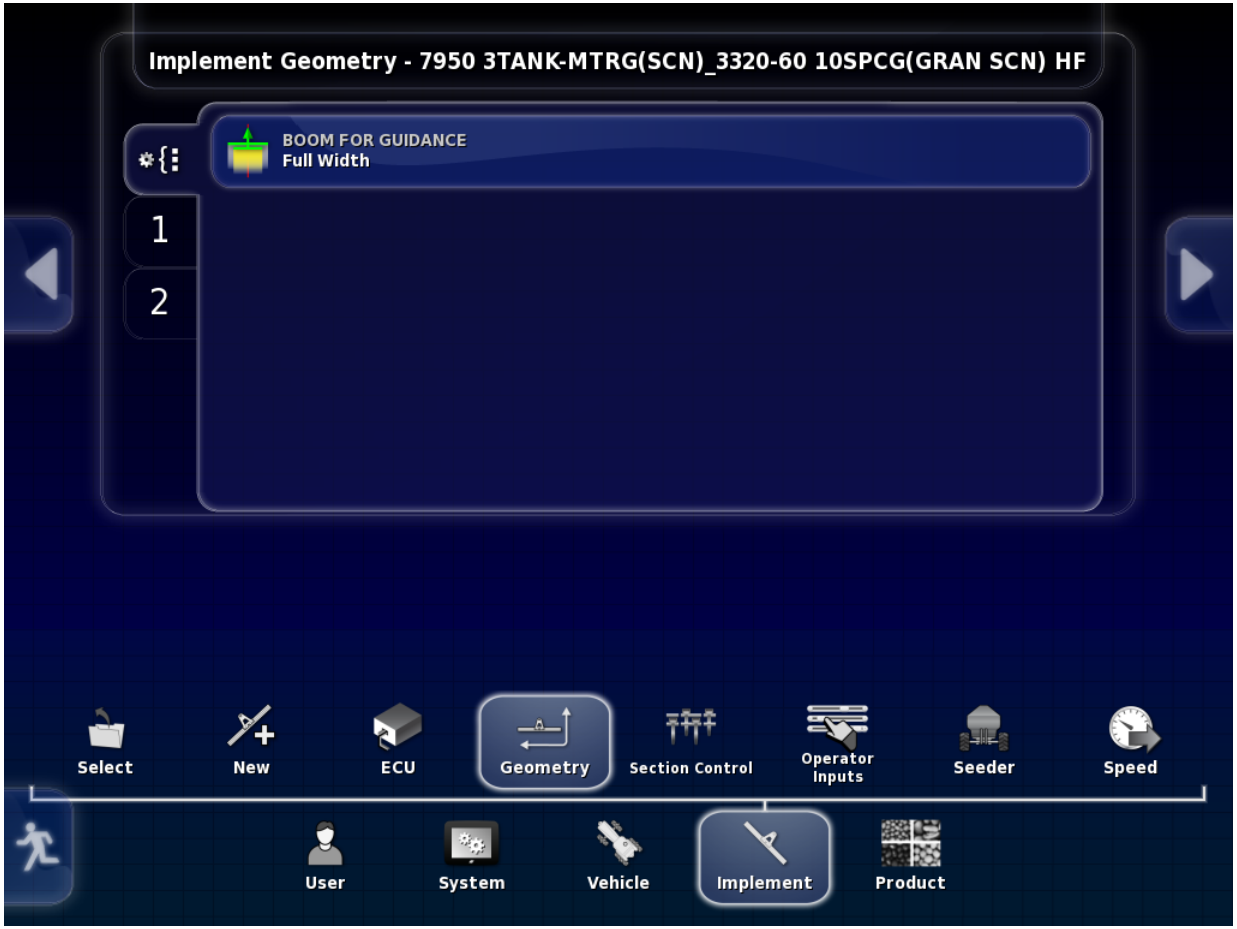


ECU SETUP

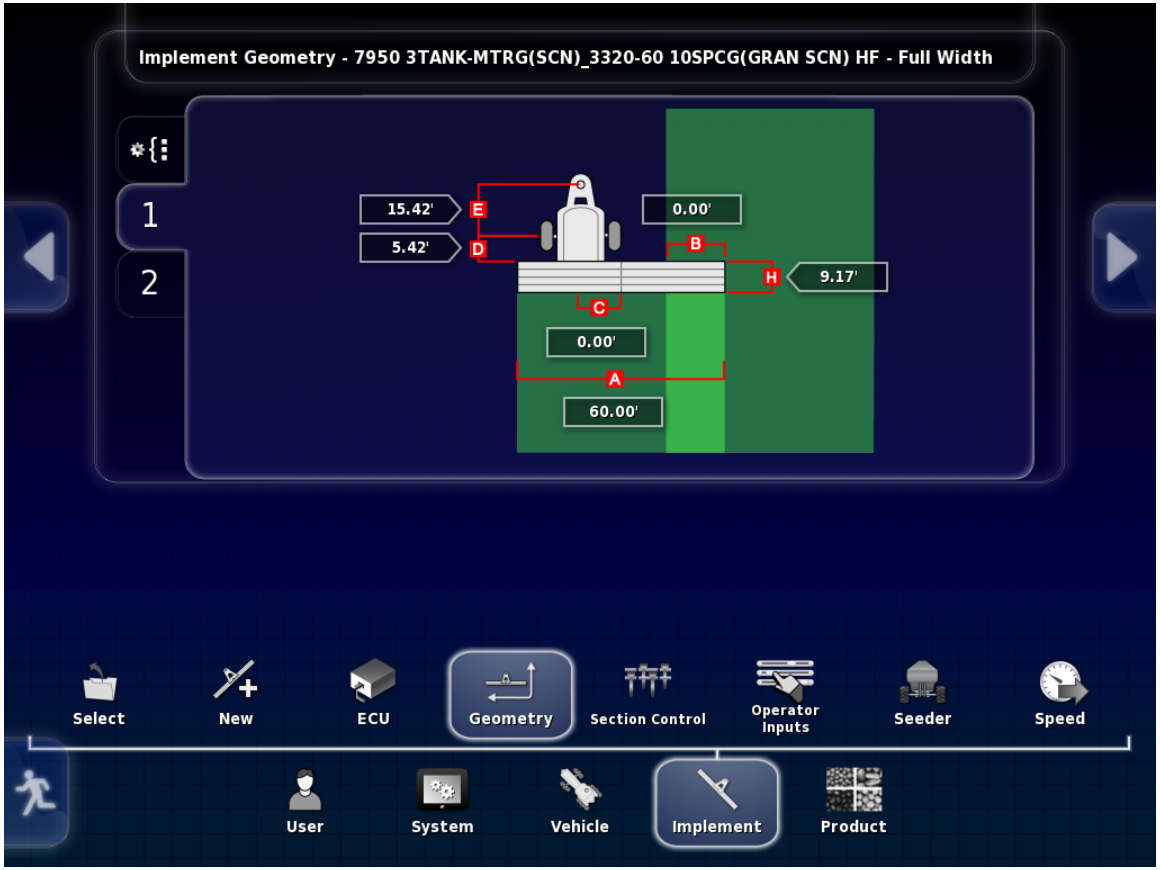
Please refer to our website for more information on ECU setup.



Not used


Implement Geometry - 7950 3TANK-MTRG(SCN)_3320-60 10SPCG(GRAN SCN) HF
BOOM FOR GUIDANCE
Full Width
1
2
Select
New
ECU
Geometry
Section Control
Operator Inputs
Seeder
Speed
User
System
Vehicle
Implement
Product

A - **Swath Width** - working width of the implement.
B - Overlap - the width of the overlap between two adjacent swathes. It is mostly used for auto steer and guidance. This value is typically set to 0.
C – Not used
D - Implement Wheels Offset - distance from pivot point of the drill to front row of openers. Enter:
- negative number for standard machine as pivot point is back tires.
- positive number for High Flotation machine as pivot point is front tires.
E - Implement Offset - distance from the front hitch to pivot point of the drill.
- regular drill, pivot point is back tires.
- high flotation drill, pivot point is front tires.
H - Working Length - depth of boom (distance from the front row of openers to the back row of openers).



Section Setup

- Enter # of section and the width of each for the Multi-section boom
- It can be set all the same or individually
- If using multi-section the total width will auto Populate into the geometry screen

TIMING

This will set times for product to get from the section control valves to the openers.

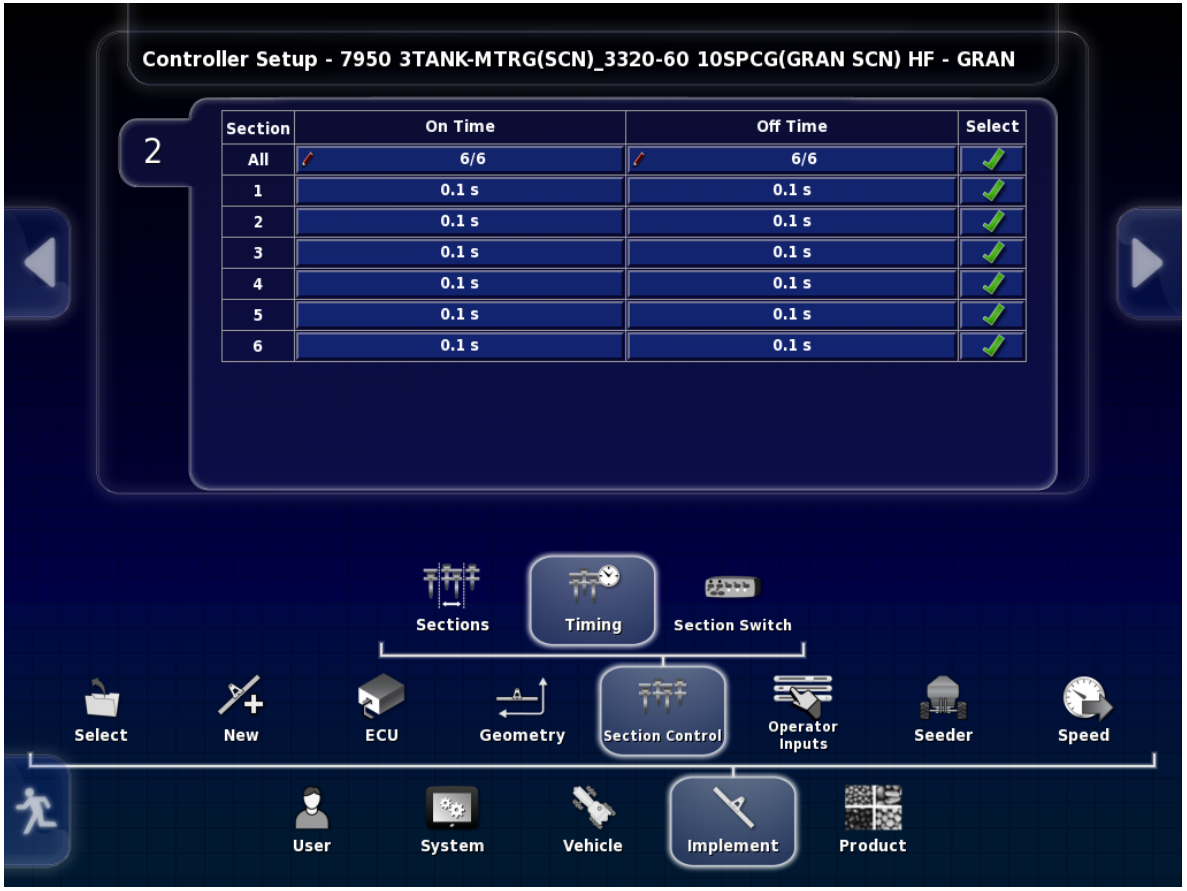
1. Select boom from the tabs on the left side, the name of that boom will be shown in the title bar.

2. ON time - it should be the time from when the section control valve opens until product is flowing at the exit of the opener.

3. OFF time - it should be the time from when the section control valve closes until product stops flowing at the exit of the opener.

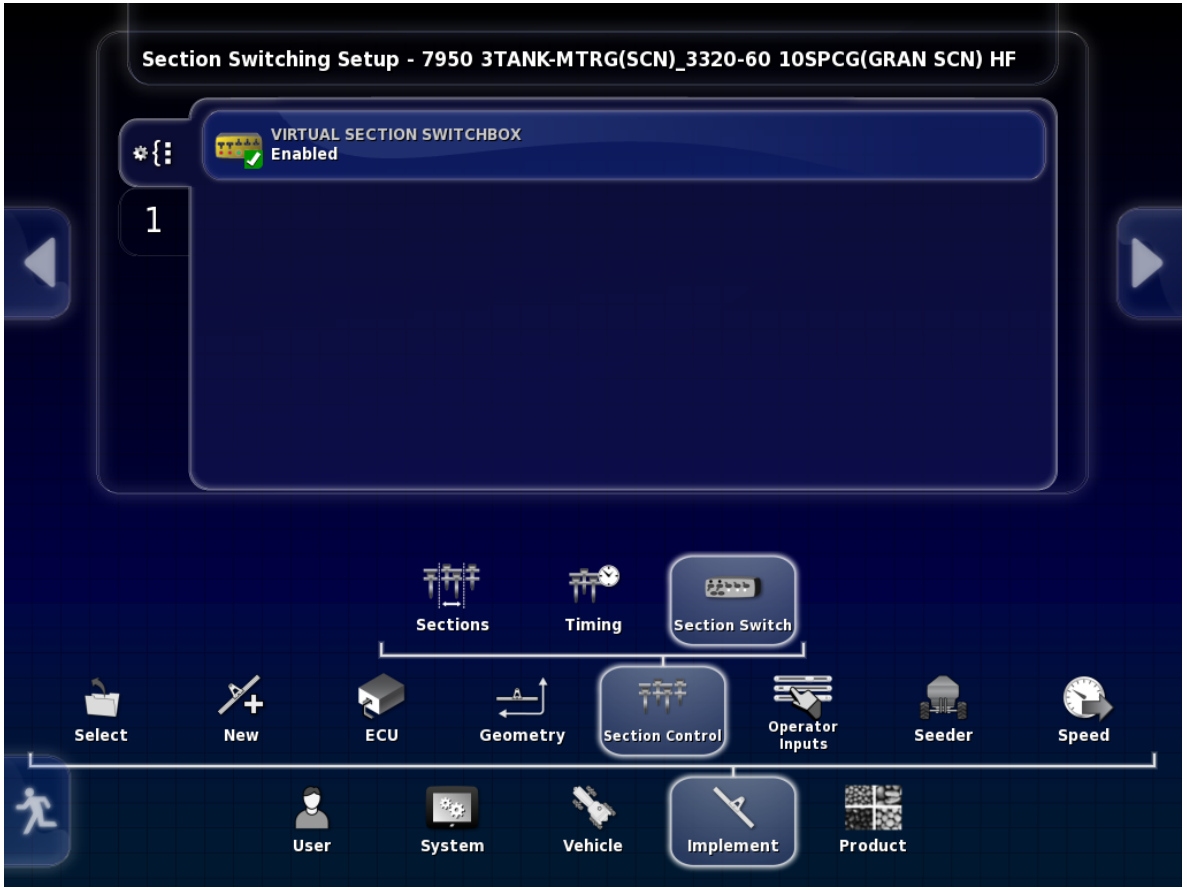
All sections can be set to have the same on/off time (the worst case) or they can have individual times for granular sections to have even less overlap. Since the product for the inner sections has less distance to travel they don't need to start as soon or stop as late so can have a shorter on/ off time.

Note: please refer to the website for more on section control timing.



Section Switch

- Enable a virtual switchbox so that you can manually control sections on screen
- This virtual switchbox will show up on the guidance Page
- Only works if your using sectional control



MASTER SWITCH

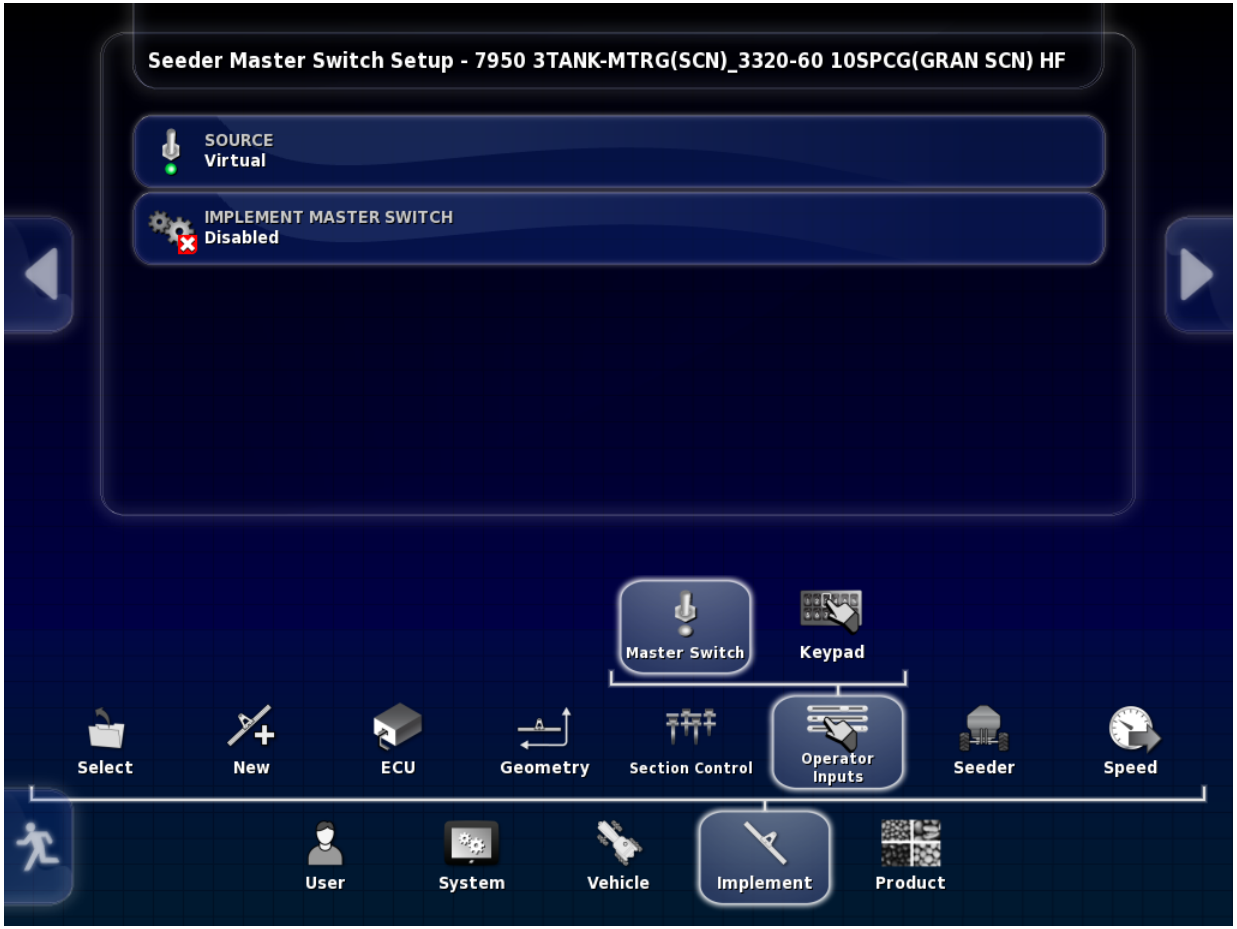
- **Virtual** - use this selection if you do not have a cabin switchbox connected and only want the master switch to be controlled from the X30 console screen.

- **External Console Input** - allows use of remote mapping connector on the X30 harness as an alternative master signal.

- **Apollo CM-40** - not used

- **Implement** - use this selection if you want the auto clutch switch on your drill to act as the master switch

Implement Master Switch - allows use of auto clutch as a secondary along with the other Master switch selection.



KEYPAD

This menu option will allow you to identify and assign the right in-cab and on-frame switchbox, assign functions to the buttons that have no functions assigned to them (A, B & C buttons), select how you prefer to control tanks.

There are two tabs, one for the in-cab switchbox and the other for the switchbox on the frame of the air seeder.

GRANULAR SETUP

Name as Bin or Tank - select Bin or Tank, depending on how you would like the individual compartments of your air seeder to be referred to.

Use Product as Name - if enabled, name of the product that is assigned to the tank will be used as a name for that Bin/Tank. If no product assigned to the tank, the tank name will correspond to the tank number.

Preload time – this setting only effective for 7000 AS with hydraulic drive. This is time that meters will run when master is switched on while stationary Preload time is also the length of time that the meters will run when the “prime” button on the on-frame switchbox is pushed.

Fan Speed to Start This prevents the possibility of running meters without fans engaged and subsequent plugging of the distribution pipes.

INDIVIDUAL TANK SETUP

Name - here you can enter the name for the specific tank of the air seeder.
Capacity - tank volume is factory preset and loaded from the implement profiles.
Status - this setting will be shown only for the tanks which have drive assigned to them according to the air seeder tank model that was selected during the implement setup. Set status to "enable" if this tank will be metered from.
Section Control (7000AS) - these settings appear only if granular section control is enabled in the profile.

Sectional Boom:
On Time to SC location - it should be the time from when meter starts until product is at the section valve.
Off Time to SC location - it should be the time from when meter stops turning until product stop flowing through section valve.

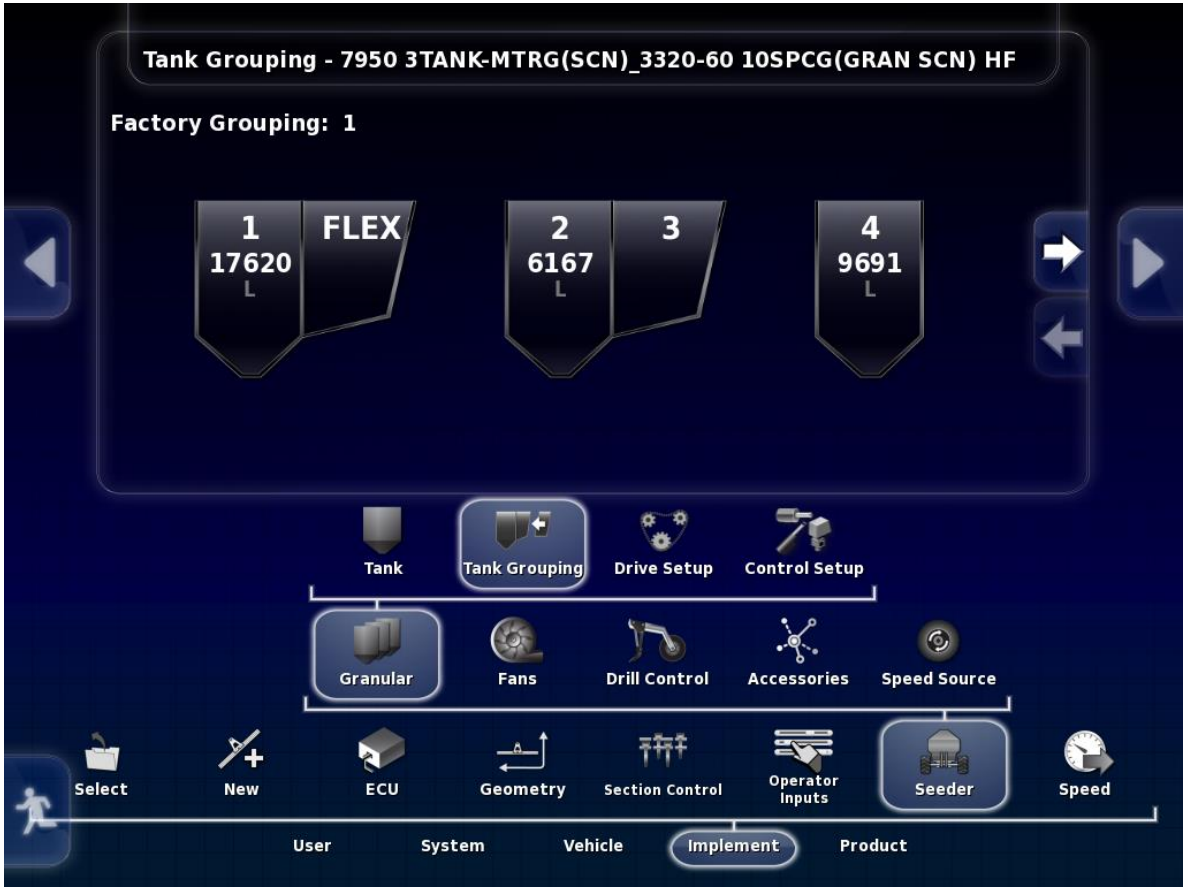
Full Width Boom:
On Time to Ground - it should be the time from when meter starts until product is at the opener on longest run.
Off Time to Ground - it should be the time from when meter stops turning until product stop flowing through the opener at shortest run.

HINT: if tank is not being used disable it otherwise system won't allow you to start applying. All enabled tanks need a cal factor even if the switched off

Tank Grouping

- Groupings are pre-set from the factory use the arrows on the right hand side to scroll though them

- Tank volumes update automatically



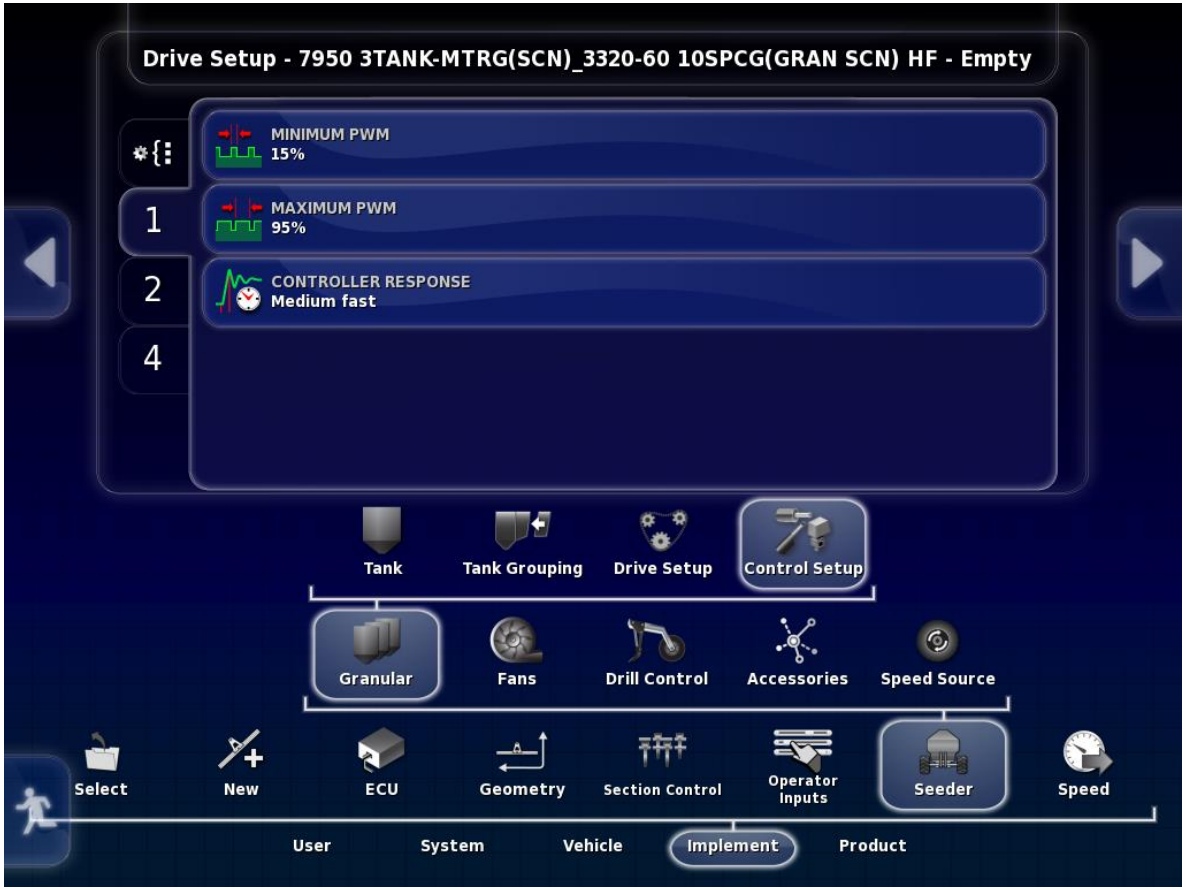
Drive Setup

- Toggle between the tanks with the tabs on the left Hand side

- Drive type – **proportional for 7000 AS**
  -linear for 6000 AS
- Pulses/ Revolution – **32 for 7000 AS**
  16 for 6000 AS
- Minimum RPM set at **10**
- Maximum RPM set at **1000**
- Metering Auger pick corresponding augers to each tank

Controller Settings

- Minimum PWM **(15%)**
- Maximum PWM **(95%)**
- Controller Response **(medium fast)**



Tank Setup

- Product Name enabled/disabled

Tank Setup

- **Name** - can name each tank/bin
- **Capacity** – can be changed to match your tank
- Status (enable/disable) if your not using one for a field

Section Control - Available selections are Full Width and NH3/or Liquid. If using sectional control select NH3 or Liquid (the boom that is setup as sectional). If not using multi-section then select Full Width.

On Time to Ground - it should be the time from when master is turned on until product is at the opener on longest run.

Off Time to Ground - it should be the time from when master is turned off until product stops flowing through the opener at shortest run.

Pump Speed (not used)

Flow Setup

- Calibration Factor – Can be set here or on the SRC screen
- Flow Confirmation (not used)

PROPORTIONAL VALVE SETTINGS

Flow Meter Sampling - Default setting is "standard". The optional "Reduced" sensitivity setting slows the reaction time of the proportional valve. This may be required for very low flow rates or if flow is highly irregular or worn equipment.

Minimum/Maximum PWM - are the limits of the PWM (Pulse Width Modulation) drive and they vary with the type of drive.

Min PWM: Is a percentage of voltage drive to the coil.

Max PWM: Is a percentage of voltage drive to the coil.

Controller Response - This will adjust how fast the controller will respond to changes. The default is set to Fastest.

Dump Valve - Used to apply signal to a dump valve or master valve.

- Enabled - applies power when tank is off.
- Reversed - applies power when tank is on.

REGULATOR VALVE SETTINGS

Flow Meter Sampling - Default setting is "standard". The optional "Reduced" sensitivity setting slows the reaction time of the regulator valve. This may be required for very low flow rates or if flow is highly irregular or worn
equipment.

Close Valve When Off- some regulating valves are a combination regulating and on/off valve, which means they must close when the tank is turned off

Reverse Valve - this will allow for the polarity of the regulating motor of NH3 or liquid systems to be reversed if it was wired incorrectly.

Dump Valve - Used to apply signal to a dump valve or master valve.

- Enabled - applies power when tank is off.
- Reversed - applies power when tank is on.

Controller Mode - this is the controller model selection.

Minimum On Time - is the minimum amount of time the controller will pulse the valve when it is trying to make a small correction.

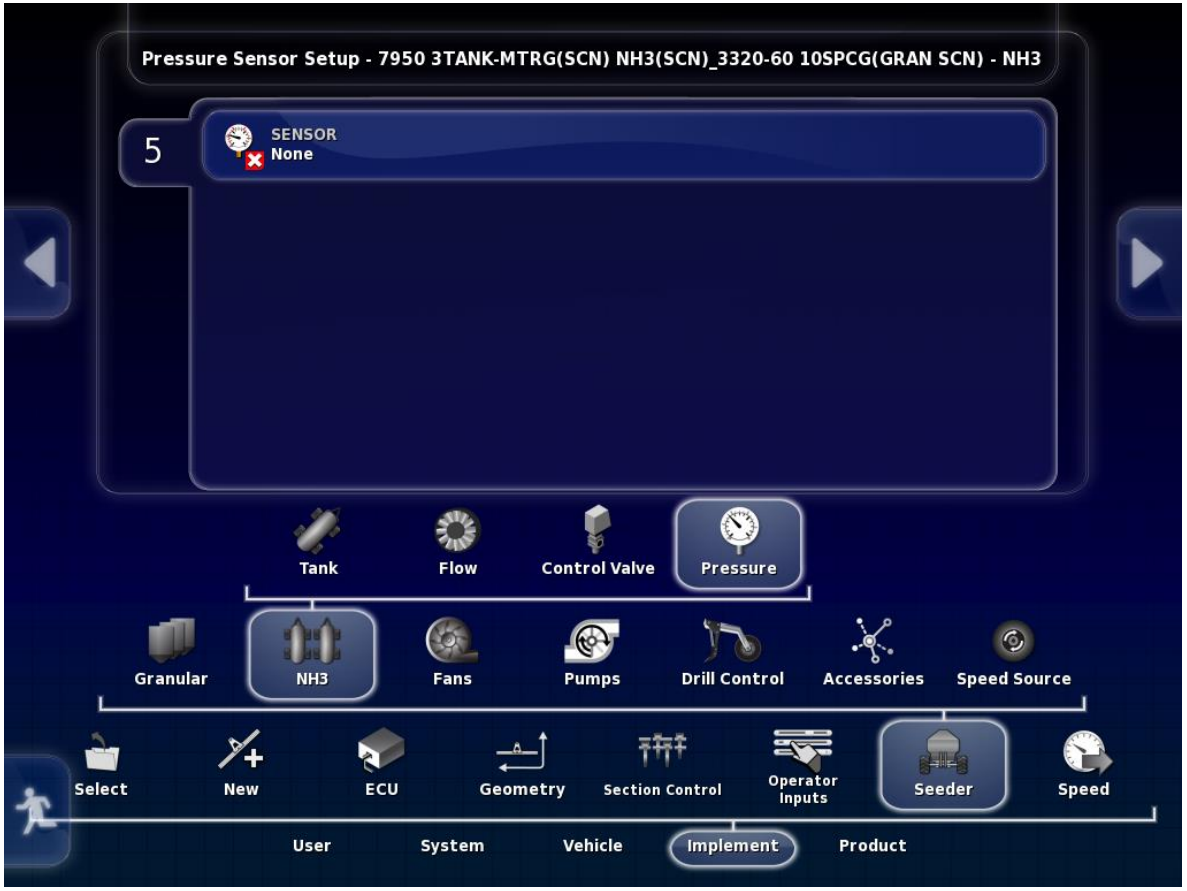
Maximum On Time - is the maximum amount of time that the controller will pulse the control valve before checking the rate. It is used to make a large correction for the rate.

Gain Setting - is a software setting that either increases or reduces how hard the controller tries to stay on rate. The higher the Gain setting, the faster the valve responds. If this number is set too fast, it will lead to an overshoot, which then has to be corrected.

PWM Setting - is the Pulse Width Modulation. Lowering this number reduces the voltage supplied to the valve, slowing it down.

Pressure Sensor

Not Used



Fan Setup

- Toggle though the different fans using the tabs On the left hand side

- Fan speed – disable if not using one of fans
- Pulses (1)

Pump Speed

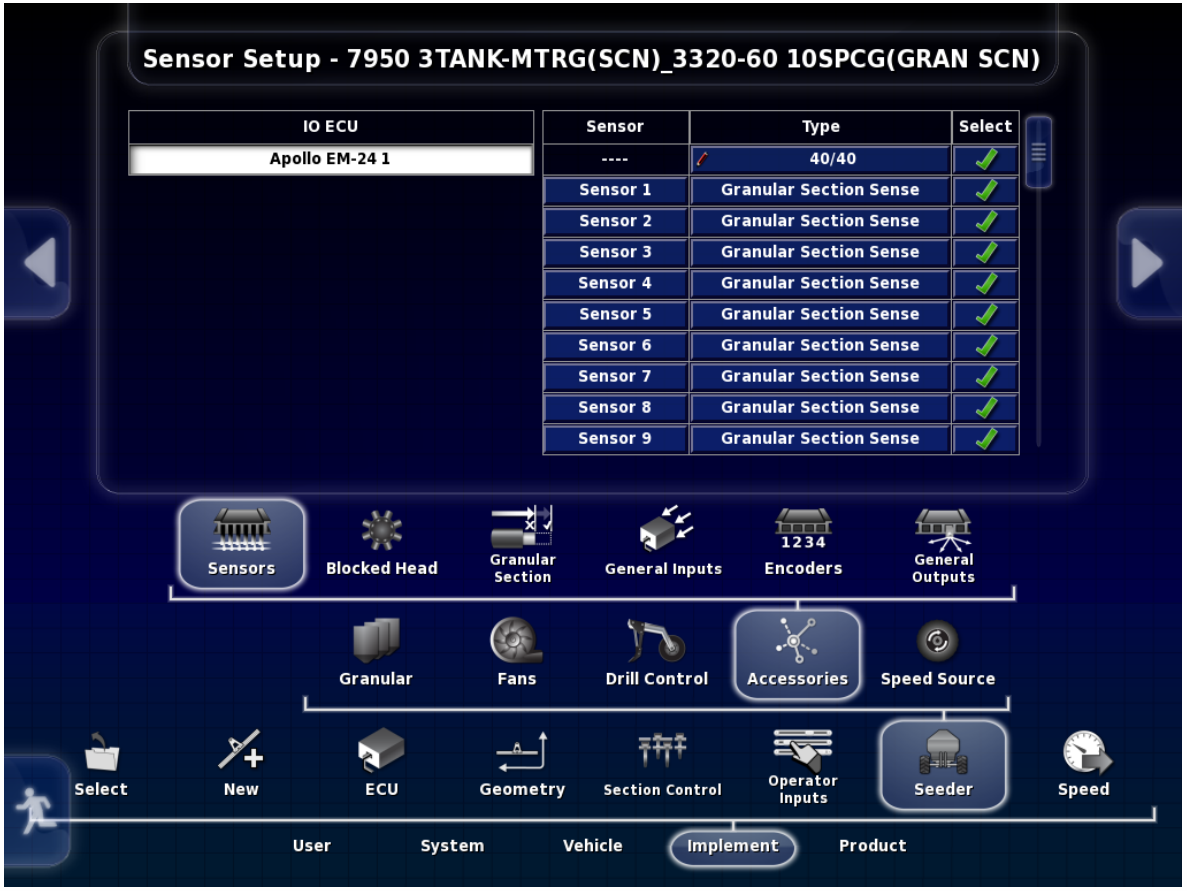
Not Used

Drill Control

Not used this year

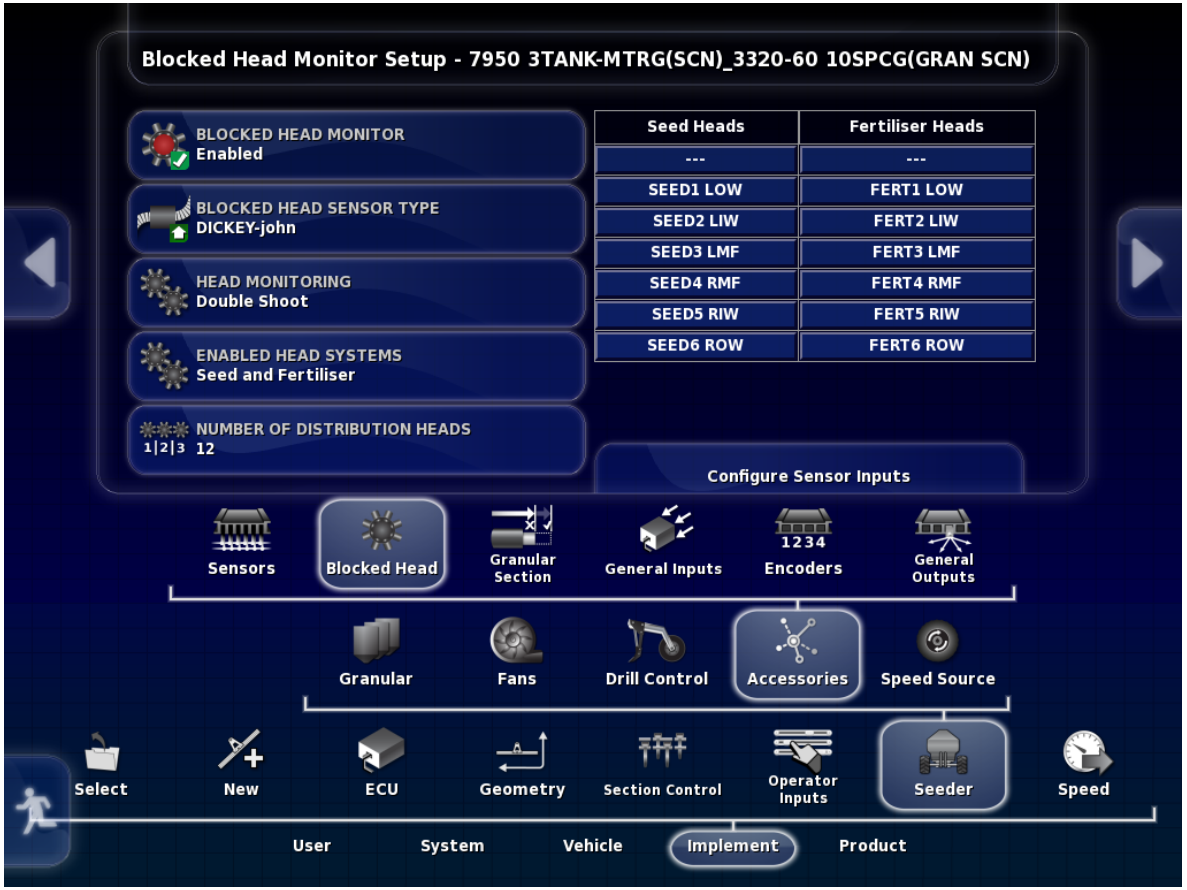
Sensor Setup

Don’t need to touch if you have made a factor implement profile.



Blocked Head Monitor

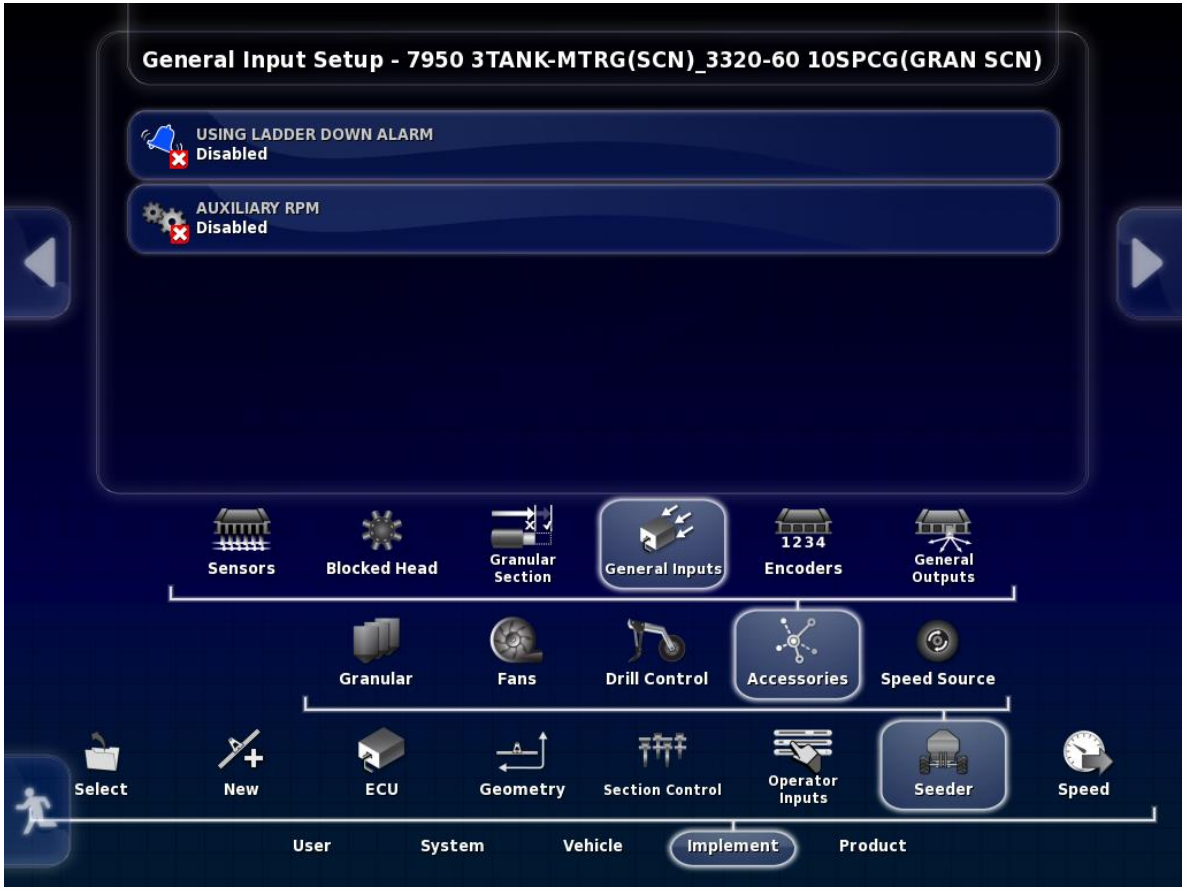
- Block head monitor **(enabled/disabled)**
- Sensor Type **(dickey - john)**
- Head monitoring **Single/double shoot**
- Number of sensors **1 – 16 max**
- On the right hand you can name individual runs



Don’t need to touch if you have made a factor implement profile.

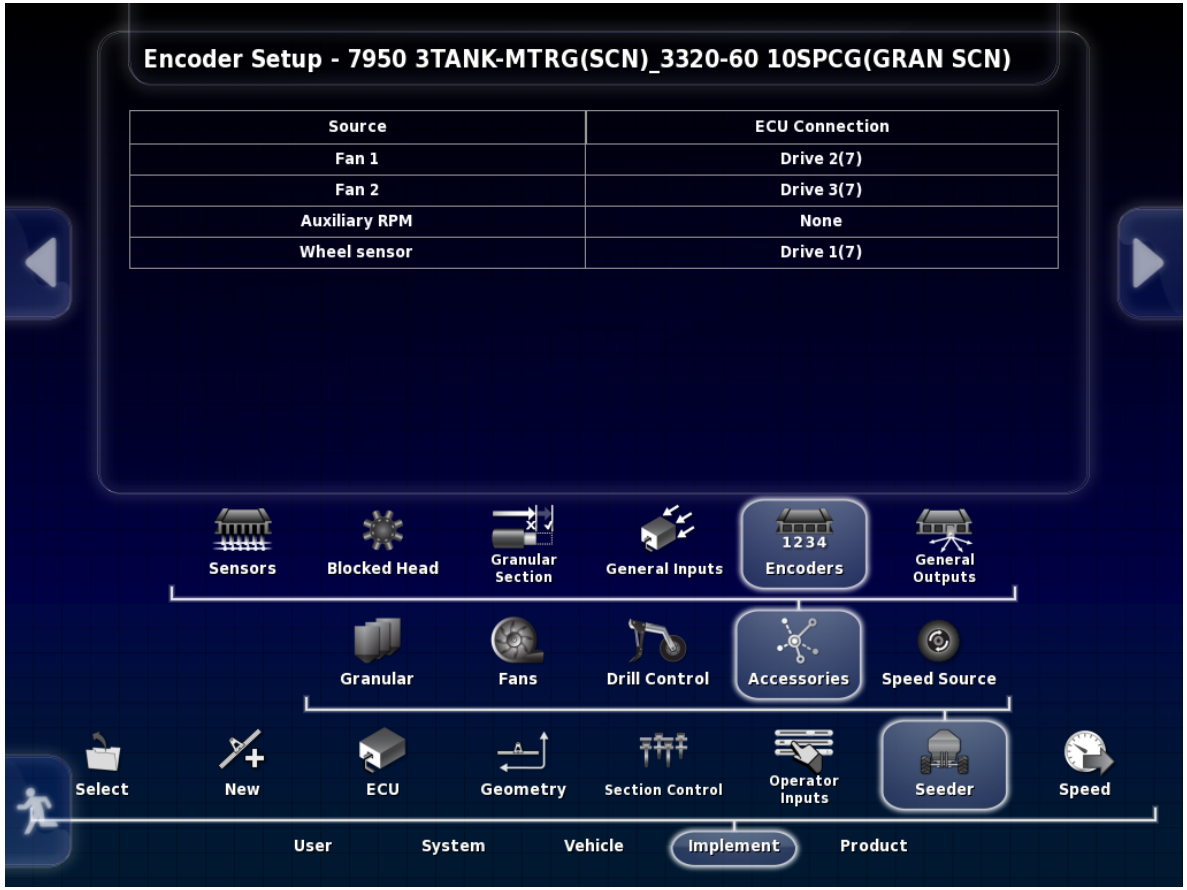
GENERAL INPUTS

This is an option that is related to other types of equipment and not used with Bourgault Air Seeders. Settings should be left disabled.



ENCODER

Encoder settings designed for the technicians and can be accessed only if Access Level set to Dealer or Technician. Defaults are preassigned.



GENERAL OUTPUT

This setting allows you to assign a relay output from one of the ECU drives. Not supported through Bourgault harnessing.

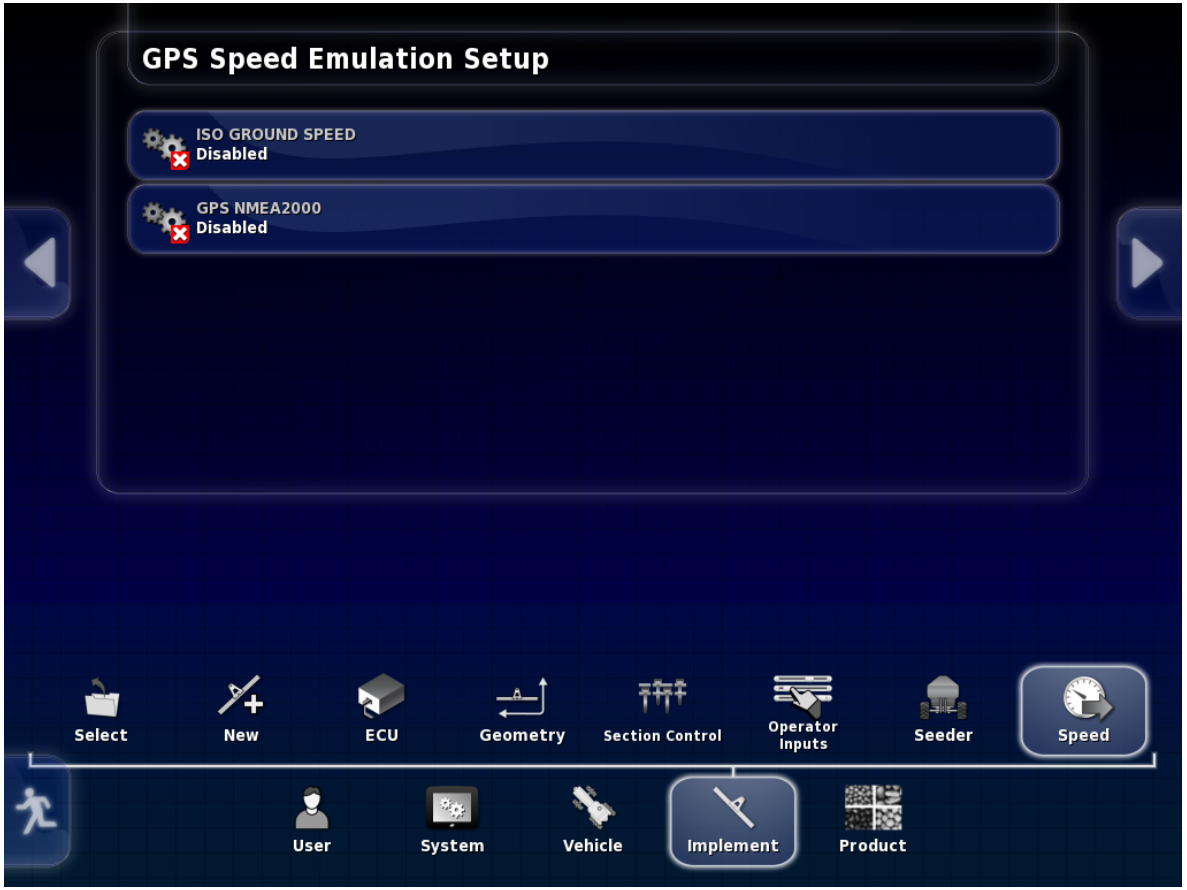
Speed setup

Speed Source - allows user to select the speed source:
GPS - to use GPS signal for speed.
Wheel Sensor - to use wheel sensor on the air seeder tank for speed.
Manual - to use custom manual speed entered in the Configuration panel on the Seeder Controller screen.

Fallback Type In case the GPS signal is lost, to continue seeding, system will automatically switch to use speed source set in the Fallback Type.

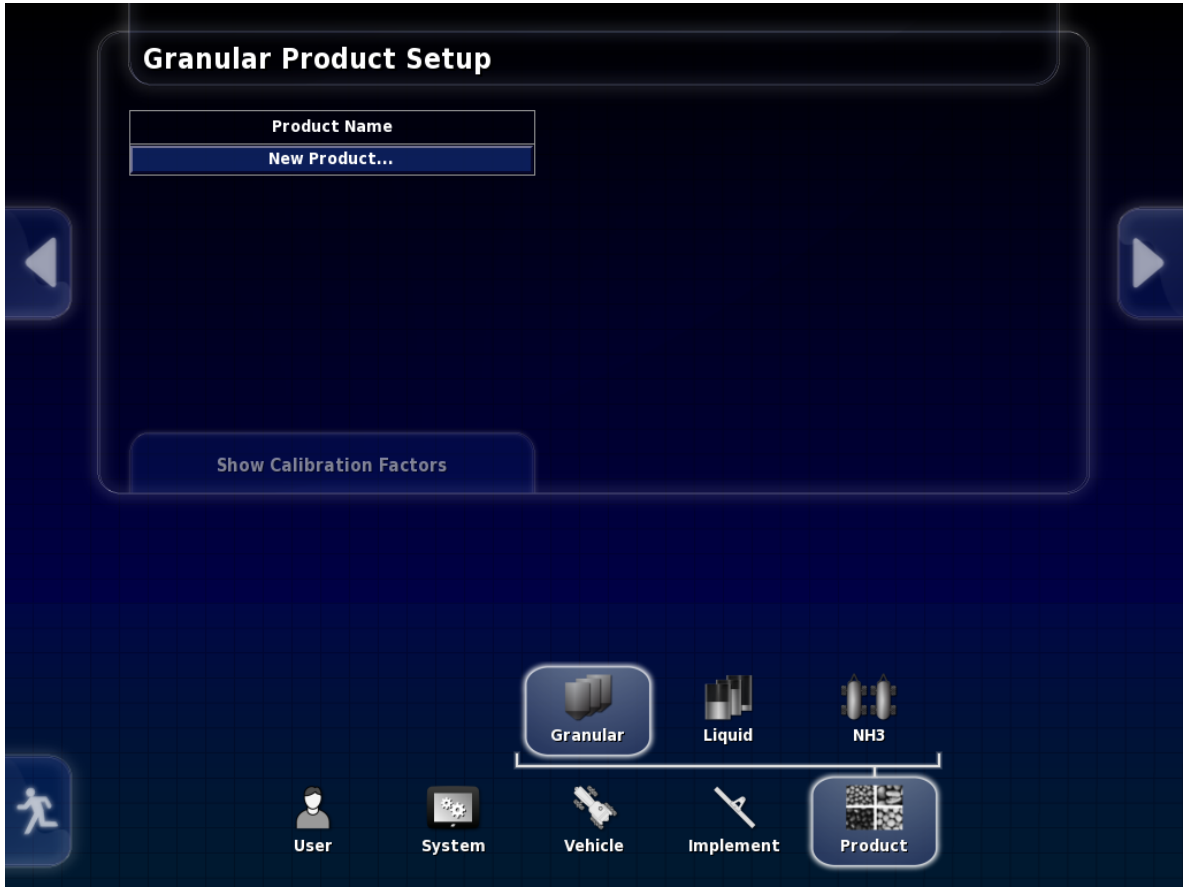
Wheel factor is pre-entered from the factory with a theoretical value and it represents the distance travelled by the seeder in the time between pulses from the ground speed sensor. The speed sensor is located on the rear left wheel, for 7000AS. For 6000AS it is located on a the transmission plate new the rear left wheel.

Not Used


GPS Speed Emulation Setup
ISO GROUND SPEED
Disabled
GPS NMEA2000
Disabled
Select
New
ECU
Geometry
Section Control
Operator Inputs
Seeder
Speed
User
System
Vehicle
Implement
Product

New Product Setup

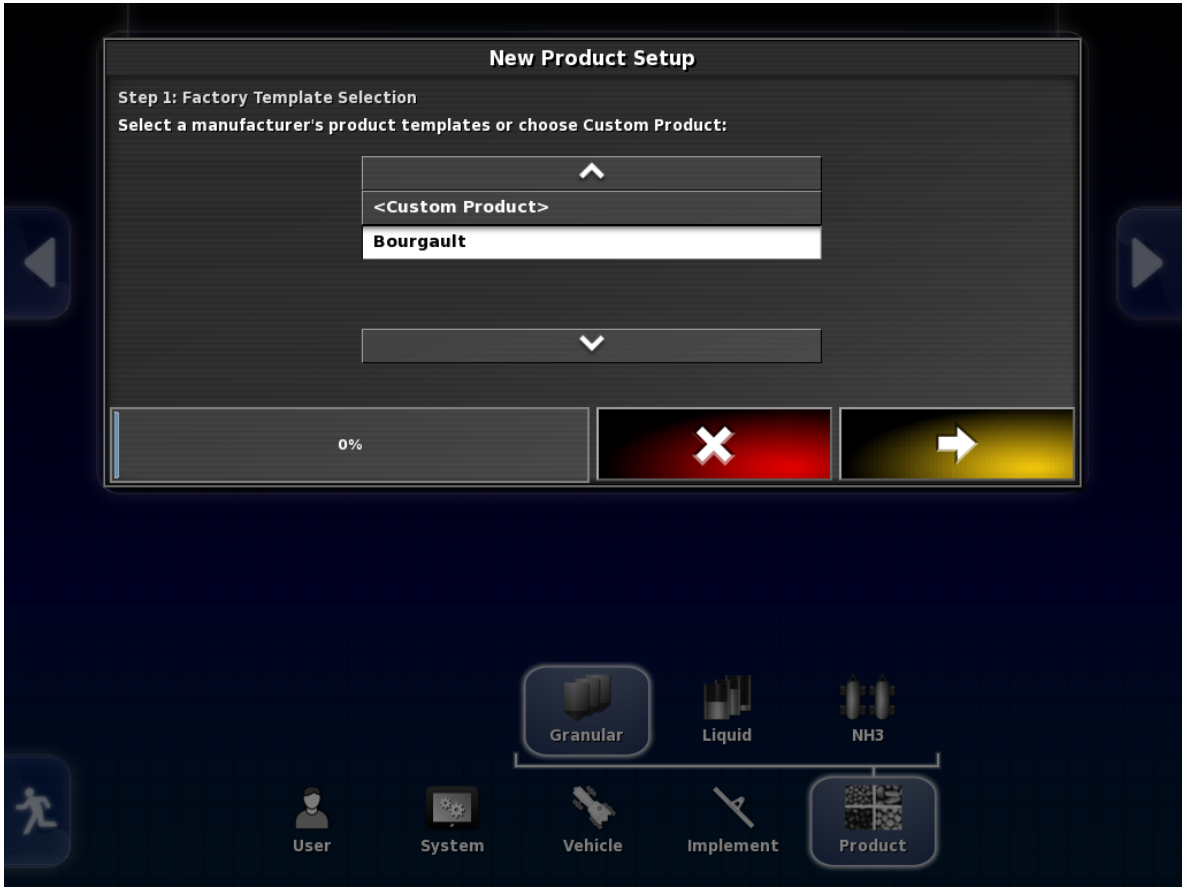
Touch on the New product Bar to start



New Product setup

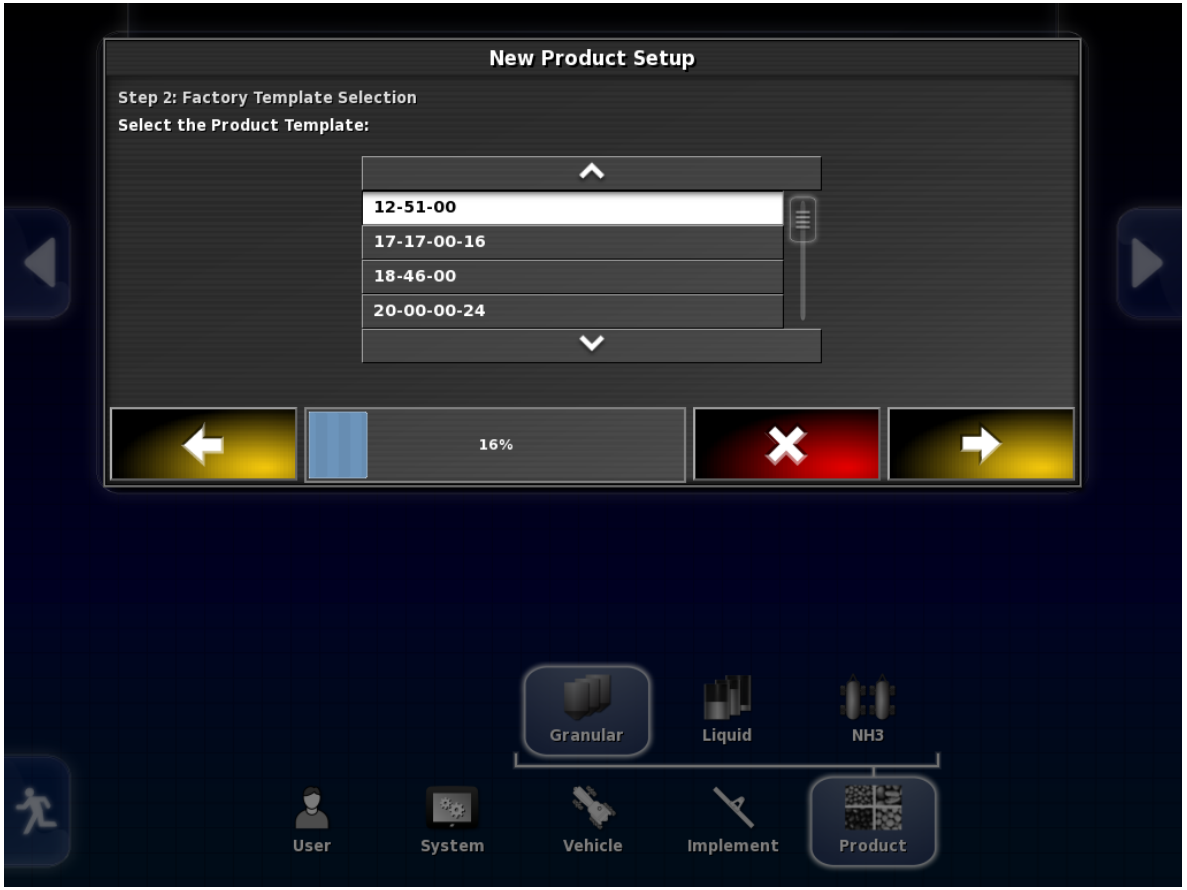
- Pick Bourgault for our built in products list or Custom Products to build you own. This presentation will cover both.

- Then click the side arrow to advance to the next screen



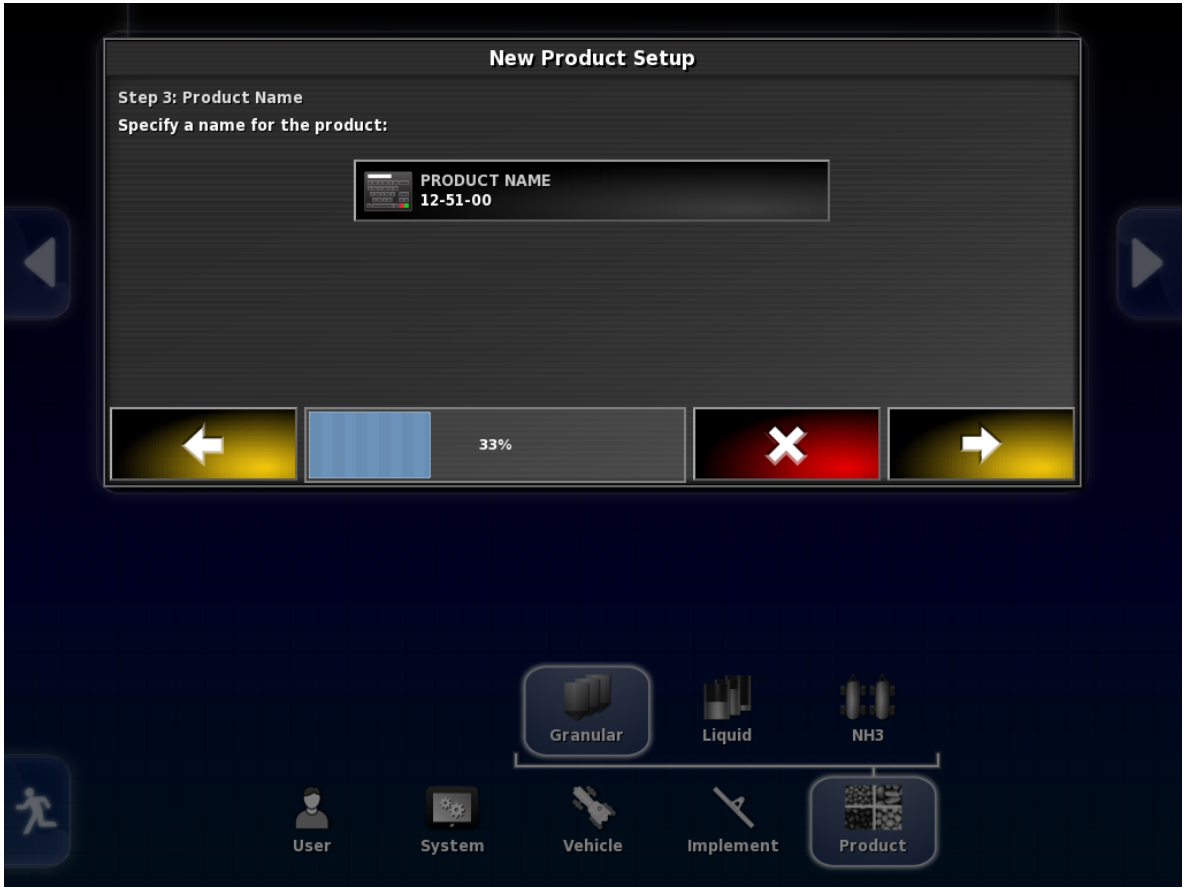
New Product setup

- Scroll though the list of different product till you find the one you need. Click the product needed
- Then click the side arrow to move to the next screen



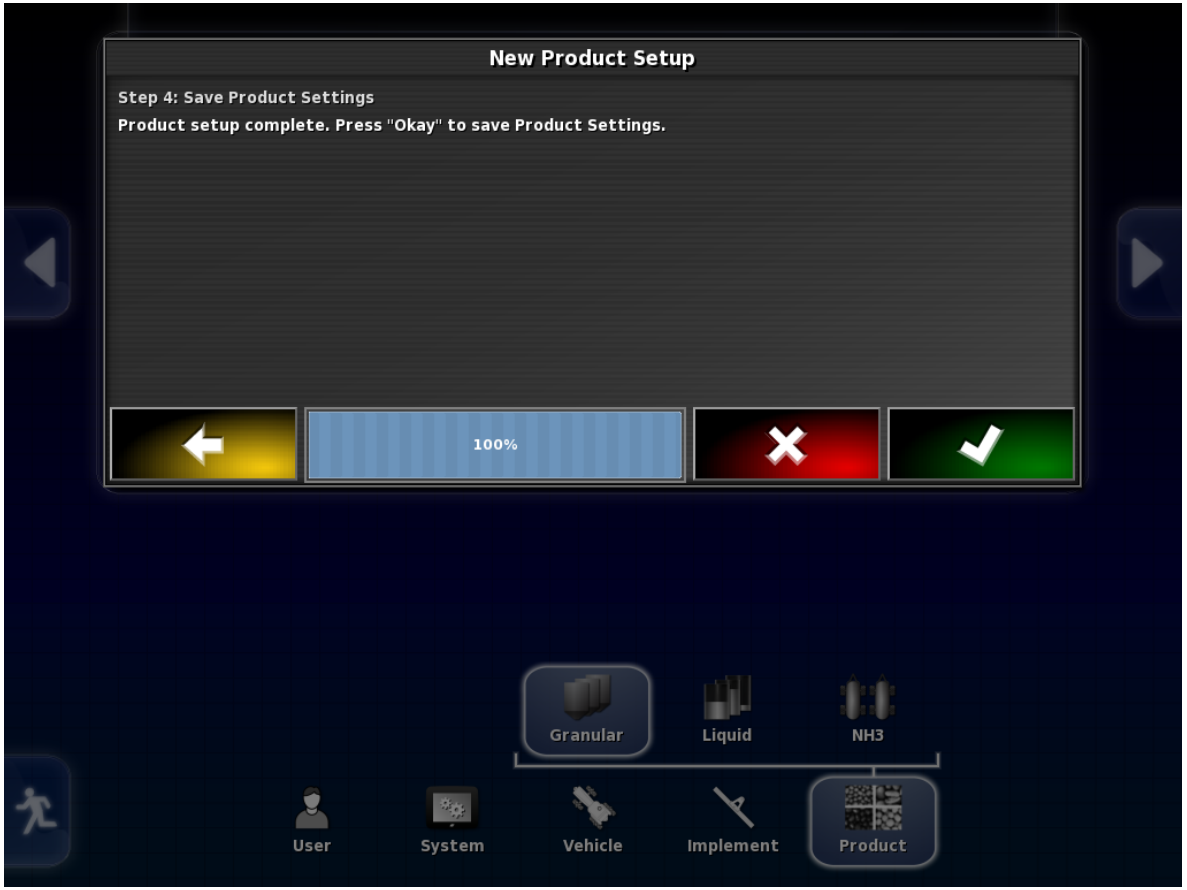
New Product setup

- You can click on the product name to change to what ever you like
- Once finished click the side arrow to advance to the next screen



New Product Setup

To finish it off press the green check mark



New Product Setup

- You see the new product in your list. Now you can change and add information to the right hand side of the page

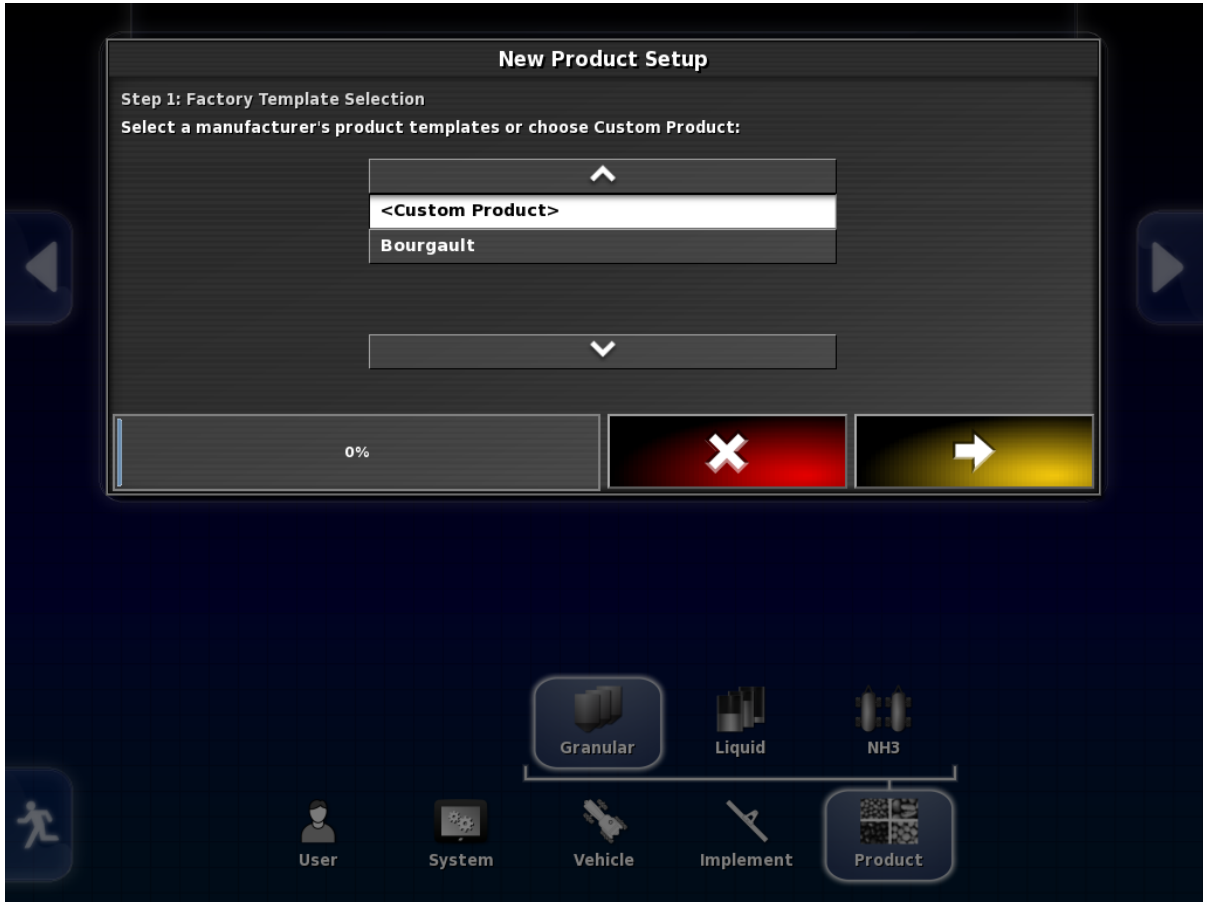
- If you were unable to find the product that you need in our list you can go through and make a custom product.

- Follow through the next couple slides on how to do that.

- Start by touching the New Product icon.

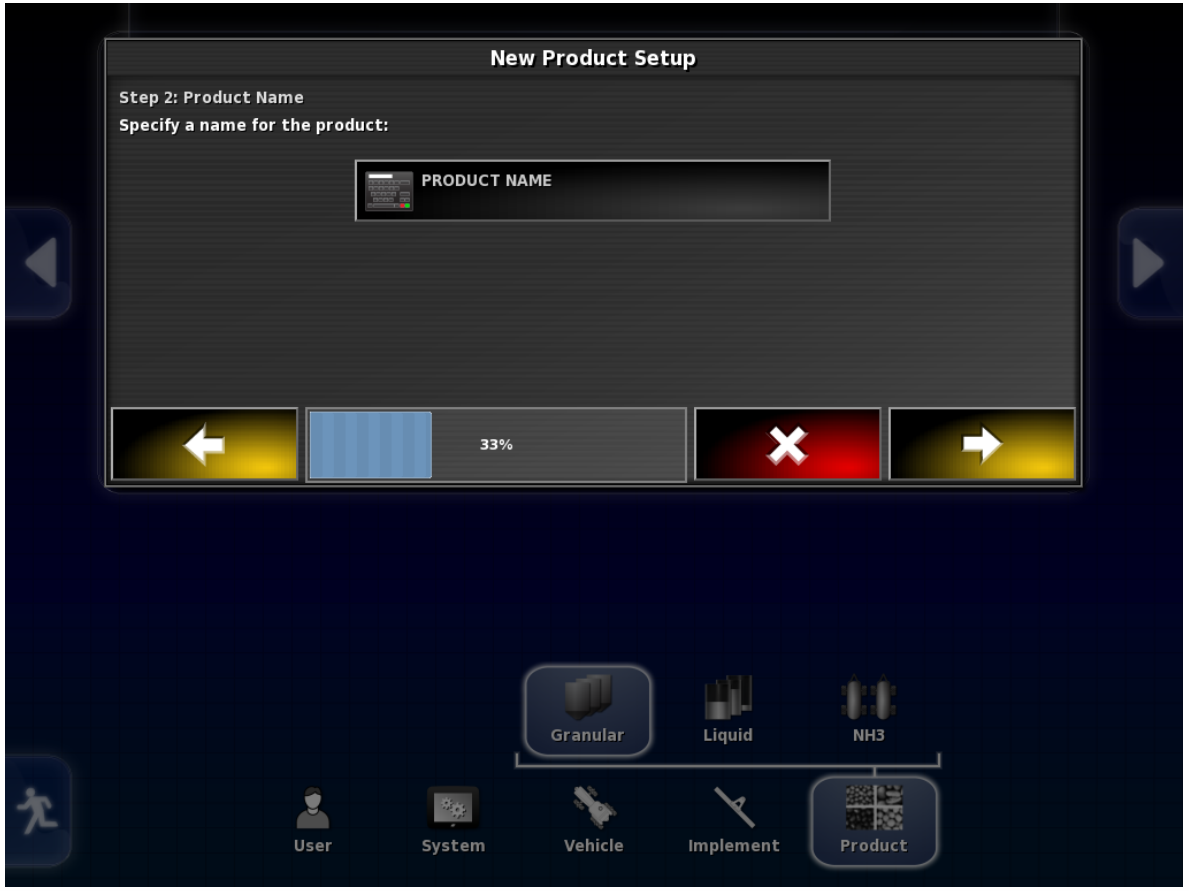
Custom Product

- Touch on custom Product then press the side arrow.



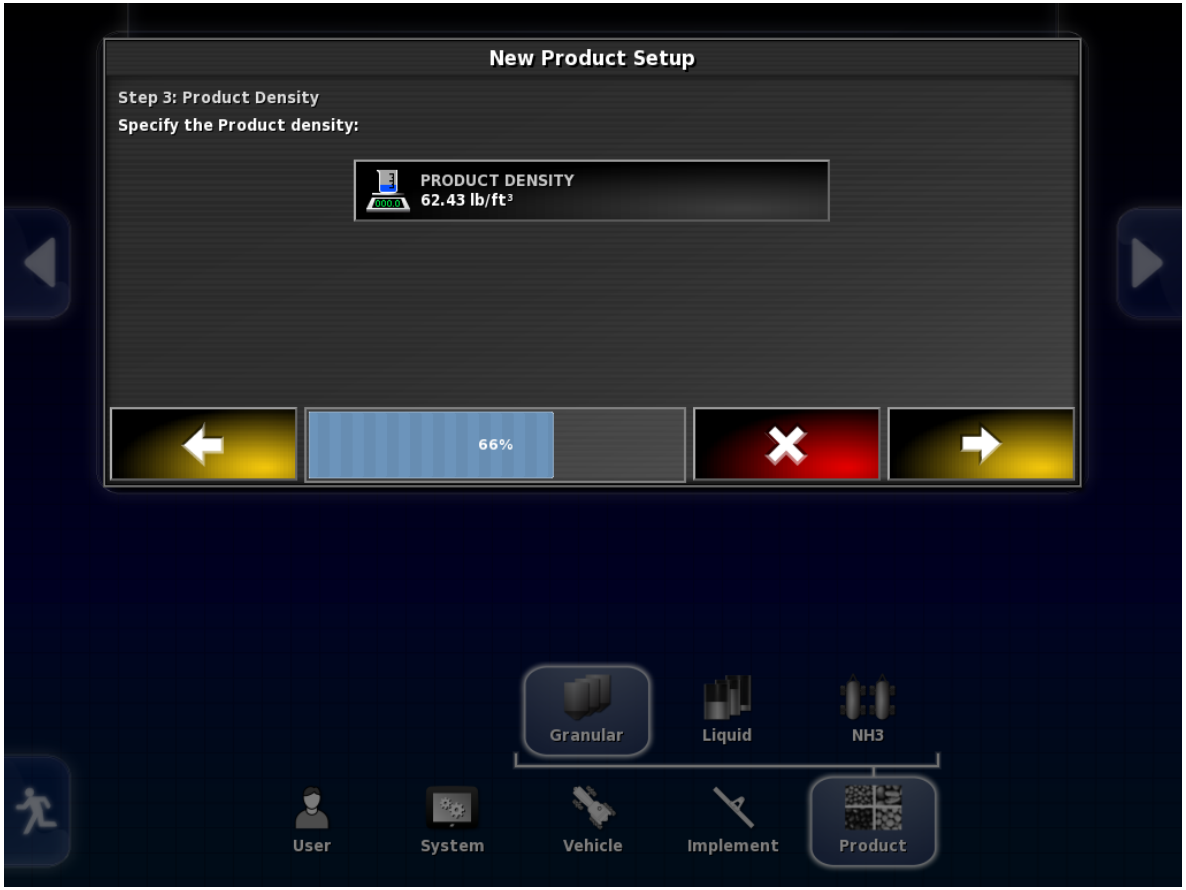
Custom Product

This screen will prompt you to enter product name. Select Product Name button and keyboard screen will appear. Enter the product name and confirm. Select yellow arrow to proceed to the next step.



Custom Product

This screen will prompt you to enter product density only if you are adding granular product, it is not required for liquid product.



Custom Products

Rate Increment is used during operation to increase/decrease requested rate by preset value.

Product Rate Preset 1 & 2 are preset rates, that are used to immediately adjust the application rate to that value during operation.

Select Product Increment button, using numeric keypad enter required value and confirm. Repeat for Rate Preset 1 and Rate preset 2.

Product setup is complete and next screen will prompt you to save product settings or cancel it,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