MORRIS

OPERATOR'S MANUAL

X30 ICT SYSTEM

N55799-01

Table of Contents

Section 1:
ICT Cylinder Bleeding 1-1

Section 2:
ICT Global Home Screen Setup 2-1

Section 3:
LAPTOP GPS SIM 3-1

Section 4:
ICT Section Alarm Test 4-1

Section 5:
ICT Section ON/OFF Timing Test 5-1

Section 6:
ICT Sequencing Timing 6-1

Table of Contents

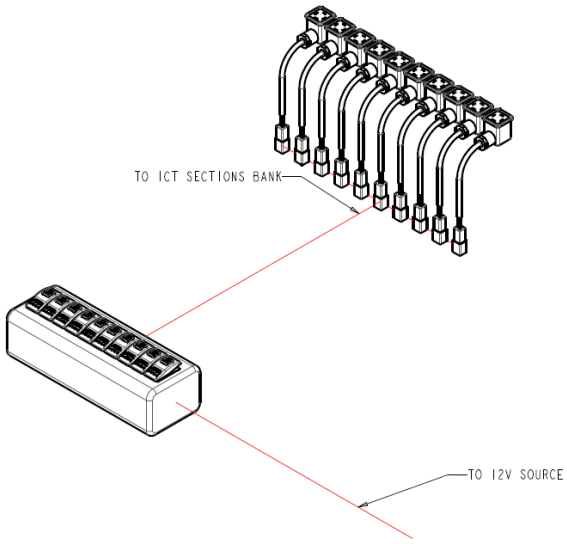
Notes:

1 - ICT Cylinder Bleeding

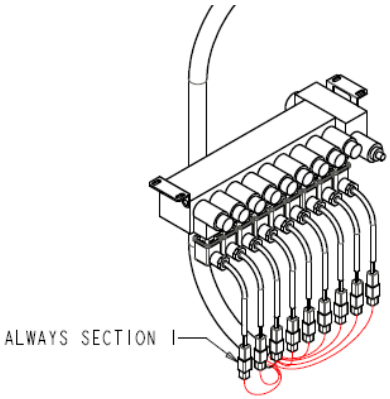
1. Tools required;
   -Morris Handheld switch box
   -7/16” & 11/16” wrenches
   -Latex gloves
   -Safety glasses
   -Sponge/Rags
   -4 Oil Collection trays
   -Floor Dry

2. Aircart hydraulic flow Knob is **OUT** for **FAN**, move lever to **CALIBRATE.**

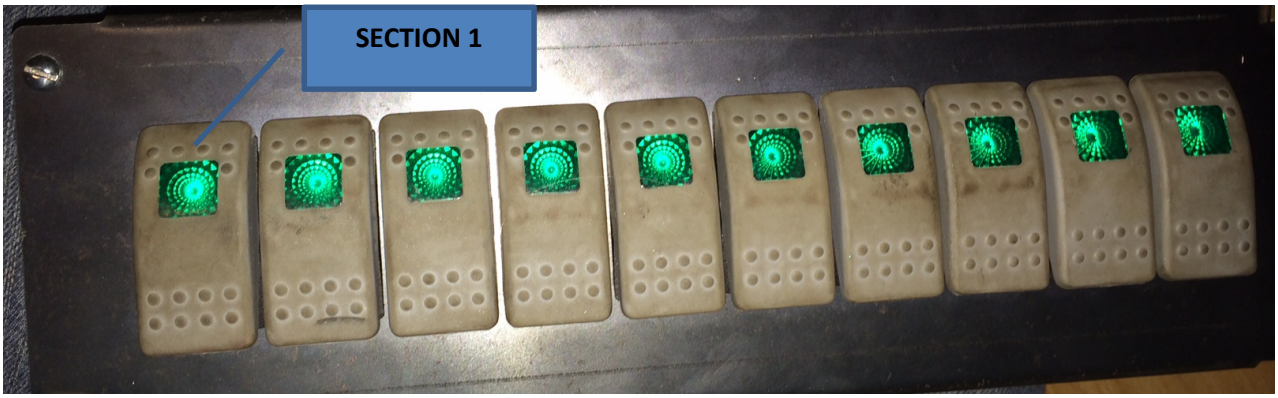
3. Connect the **Morris handheld Switch box** power harness to the **Trailer Plug receptacle** on the back of the Aircart.



4. Connect the Morris handheld switchbox granular section harness to the 1-9 Pigtail adapters on the back of the aircart. You may need to temporally disconnect the factory installed harness.



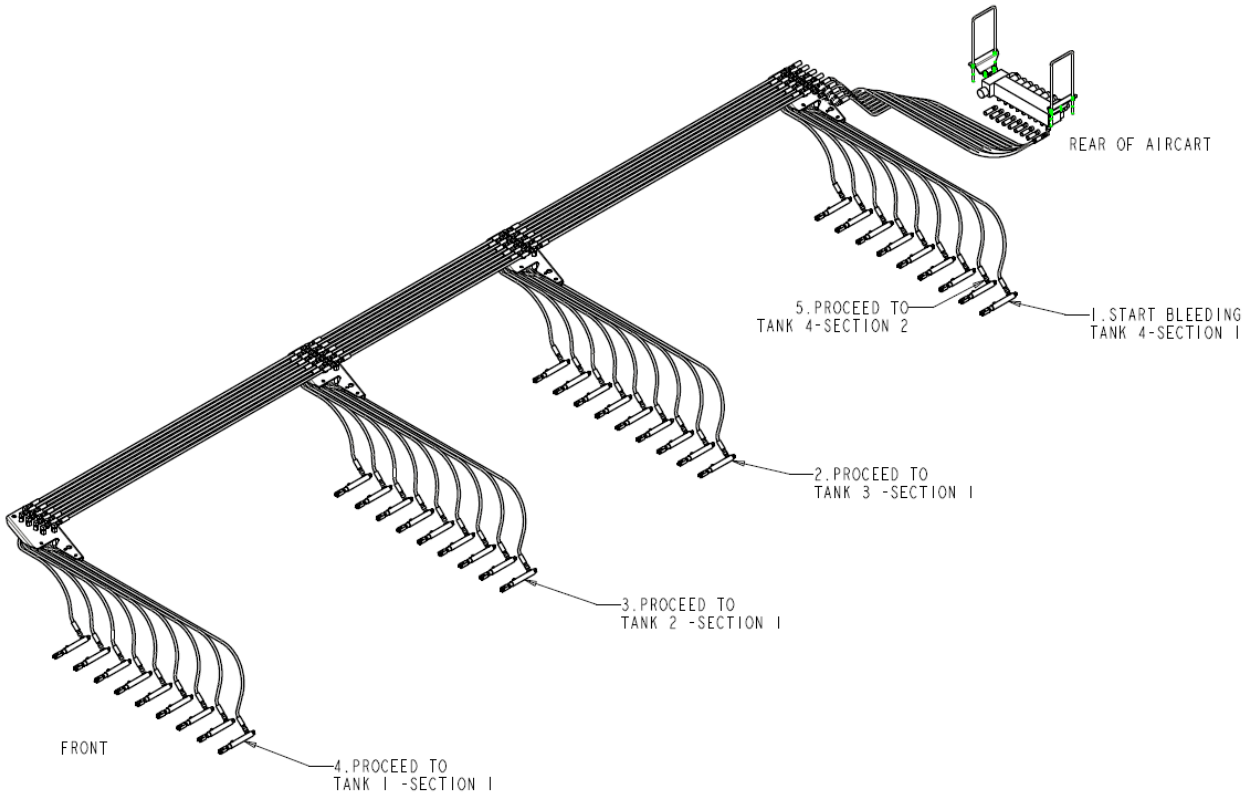
5. Section 1 is always on the very left side of the aircart.



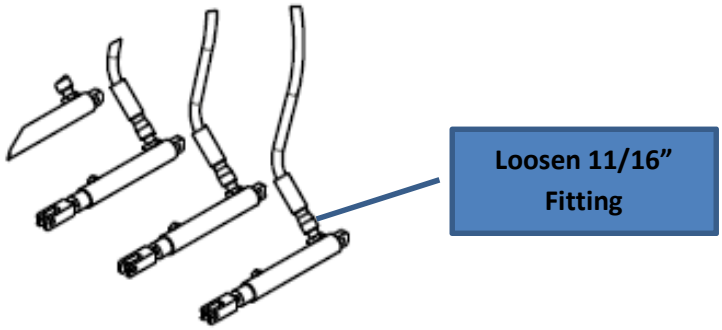
6. Toggle the switches into the ON position to ensure power is present. Turn switches **OFF** until further instructed.

7. Sound the Air Horn 3 times, Complete a circle check by walking around the aircart to ensure all personal have cleared away from the area, look for any left behind tools or items.

8. Turn on and engage the hydraulic flow on the power pack. Return to the aircart immediately. Proceed to bleed the hydraulic cylinders.



9. Start at the rear of the aircart (Tank 4 - Section 1 hydraulic cylinder). This method applies to both TBT and TBW aircarts. Follow the above diagram.

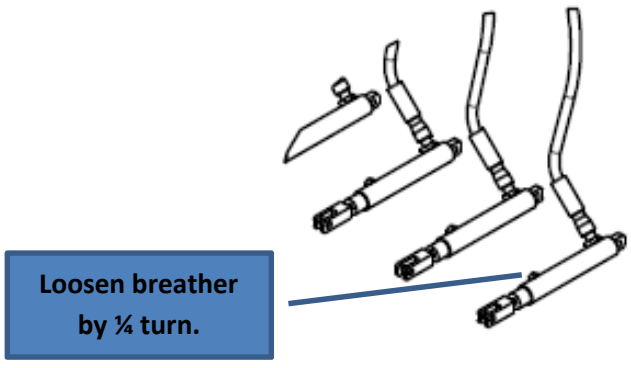


10. Place collection bucket underneath the cylinder. Hold the elbow fitting (on the cylinder) firmly with your 7/16” wrench, use the 11/16” wrench to break loose the hydraulic hose fitting.

11. Wrap your sponge/ rags around the fitting, have your partner engage the Section 1 switch on the switch box. Allow the air and oil to bleed out of the hydraulic line for approximately 3 seconds. Turn the switch off for several seconds. Repeat by cycling the cylinder 2 more times until no more air is present.

12. Turn OFF switch, and tighten fittings.

13. Repeat the procedure on the next tank same cylinder, Move Back to Front, Left to Right. Following the #9 diagram.

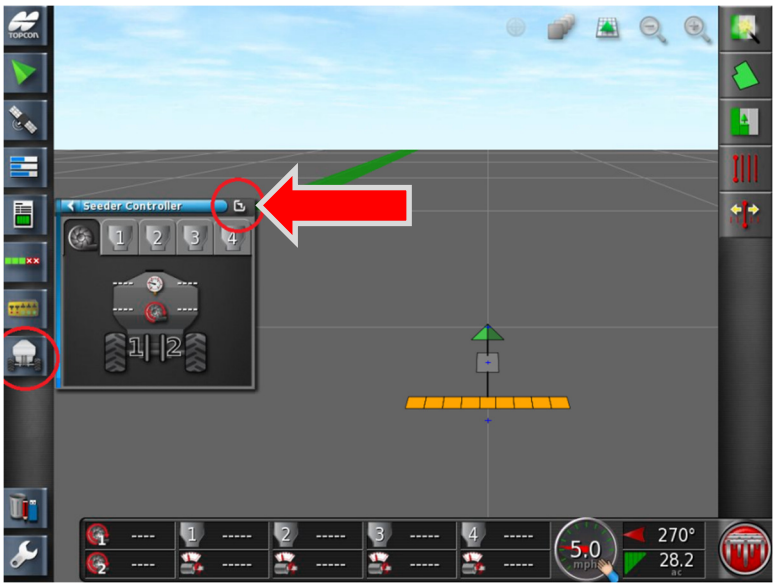


14. Once the cylinders are bleed, cycle the section on /off repeatedly, visual inspect that the operation is smooth and free of obstruction. If the cylinder is slow or does not retract properly loose the breather fitting by a ¼ turn. The breathers are known to bind on the main cylinder shaft if over tightened. Also check that mounting hardware is not binding.

15. Leave sections engaged visually inspect for any leaking cylinders. When completed, turn all Sections off with Morris Switchbox.

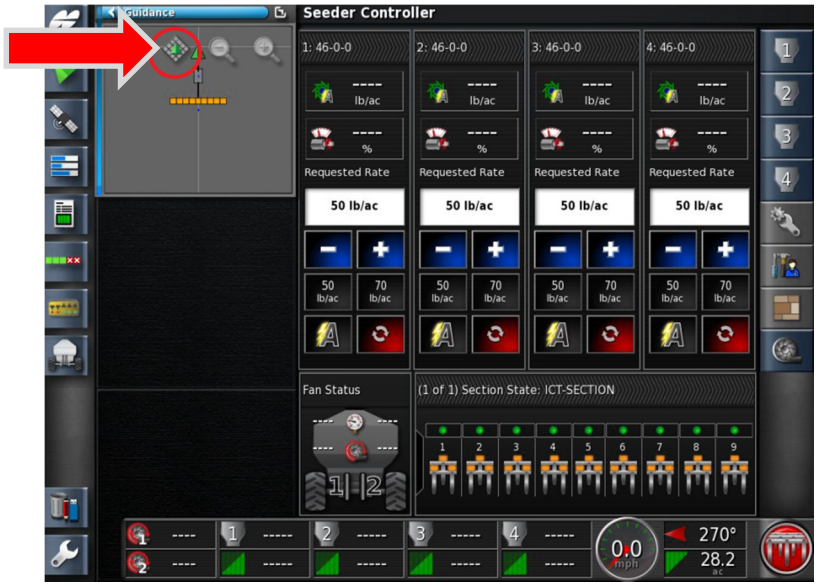
NOTES:

ICT Global Home Screen Setup

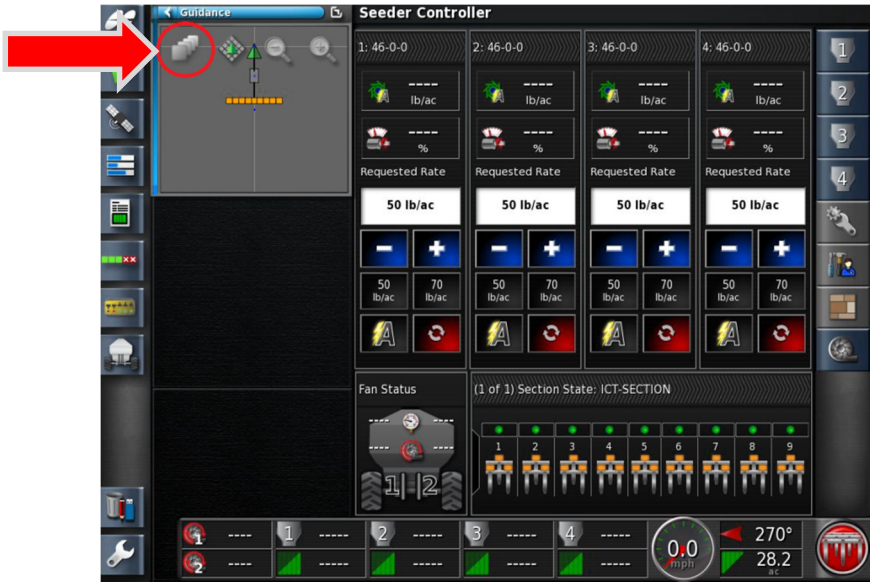


1. The **Seeder Controller** must be fully expanded. Hide any of the mini windows by pressing the small **Left Arrows**.

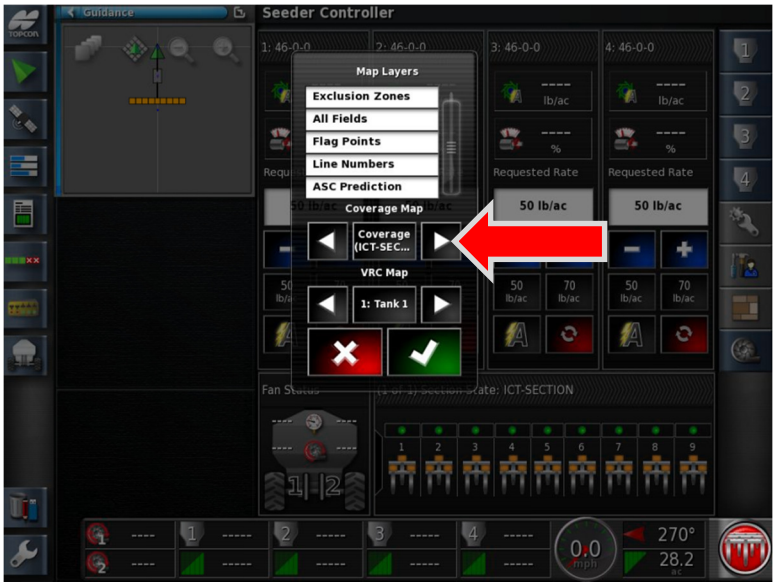
2. Press the **Guidance Icon** to bring up the mini view **Guidance window**.



3. Toggle to the **North up map view** (DIAMOND SHAPE).



4. Press the **Select Visible Map Layers** Icon.



5. Coverage Map Type; **Coverage (ICT-SECTION)**

6. Press the **Auto Section Control Configuration** Icon.

7. The mini **Auto Section Control** will appear.

8. Customize the **Dash Board** by simply tapping on the bottom row of icons. **ENABLE THE FOLLOWING:**

Fan Speed

1:

2:

3:

4:

Speed

Heading / Area Covered

9. While the **Customize Dashboard** option is open, by tapping the Dashboard again within the **Tank 1 Zone** will allow for further customization. Notice how the **Select Data** window is now visible.

10. Adjust the **Select Data** to include**: Motor Load,** and **Area Remaining.** Apply your changes with the Green check mark.

11. Match the parameters in the **Tank 2, 3, 4 Zones**.

12. Touch the on the **Compass Heading** icon.

13. Ensure **Heading** and **Area Covered** is highlighted. Apply with the Green Check mark on both Menus.

14. Touch on the Tank information.

15. Adjust Tank information to include **Application Rate** and **Weight Remaining**.

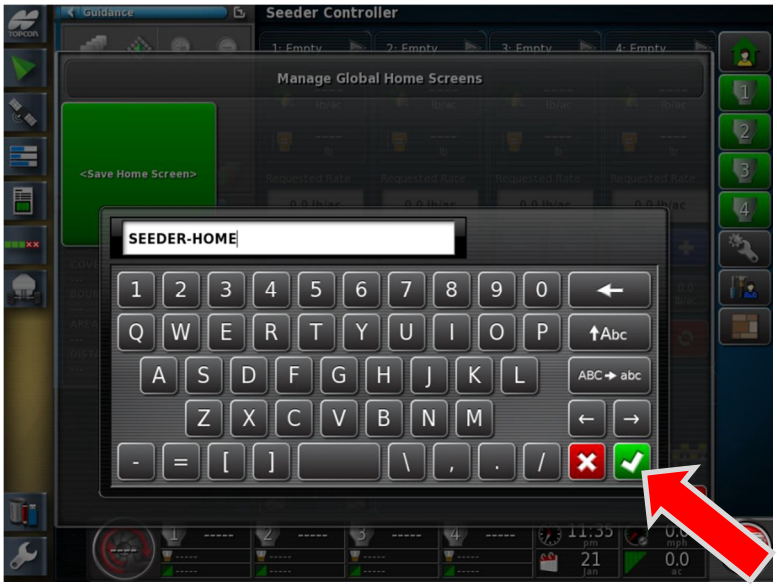
16. Toggle the **Fan Icon ON.**

SEEDER-HOME

17. Notice how the Dashboard now has the updated layout. Ensure your screen parameters match this layout.

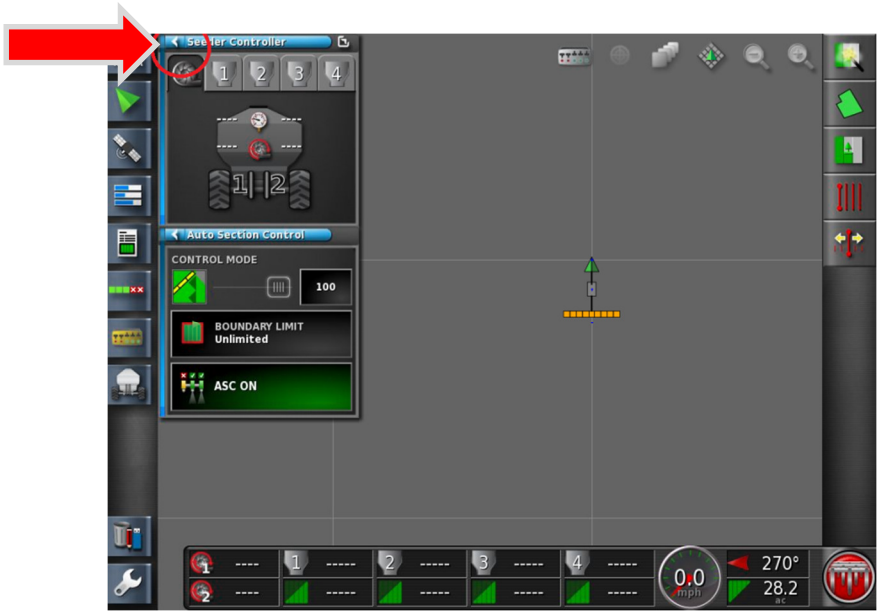
18. We will now lock the screen settings by saving a **Global Home Screen**. Simply press and **HOLD** the **Yellow Topcon Logo FIRMLY for 5 seconds**. If you have a **White Topcon logo**. Simply press and **HOLD** on the touch screen directly above the logo.

19. The **<Save Home Screen>** window will appear, Tap within the window.



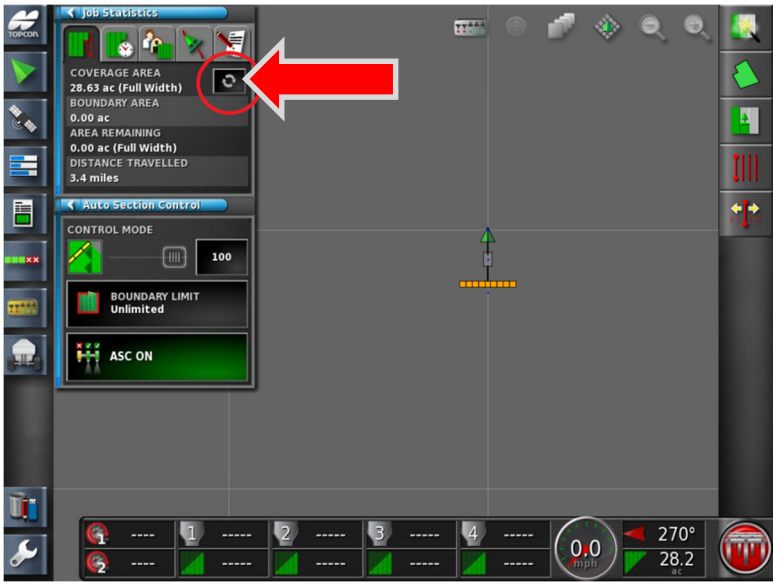
20. Name the layout: **SEEDER-HOME**
    Apply the changes with the **Green Check mark**.
    NOTE: (use – instead of spaces)

21. You will be brought back to the **SEEDER-HOME** screen, **Expand the Guidance window** into the main view.

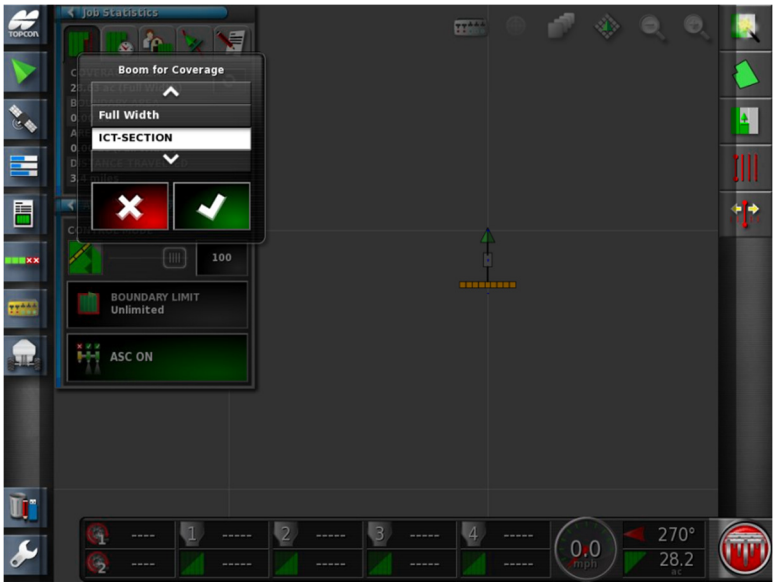


22. Press on the Hide this window **Seeder Controller** tab.

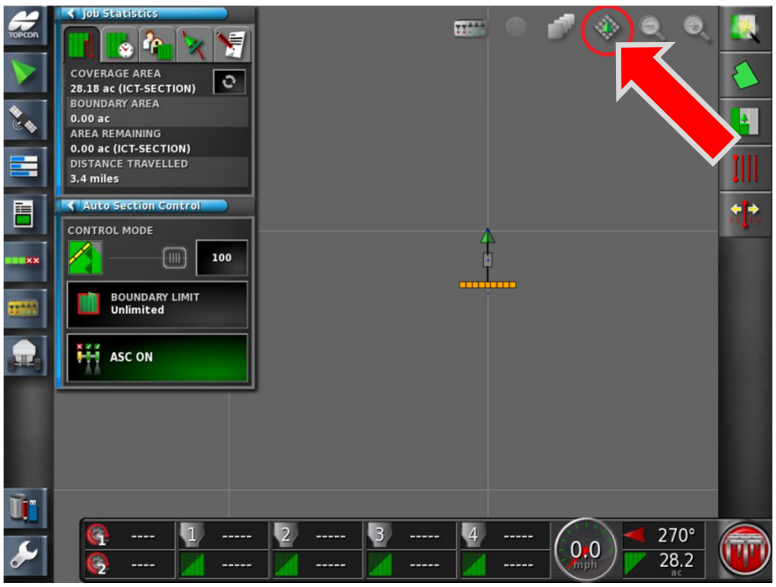
23. Press the **Job Information** Icon.



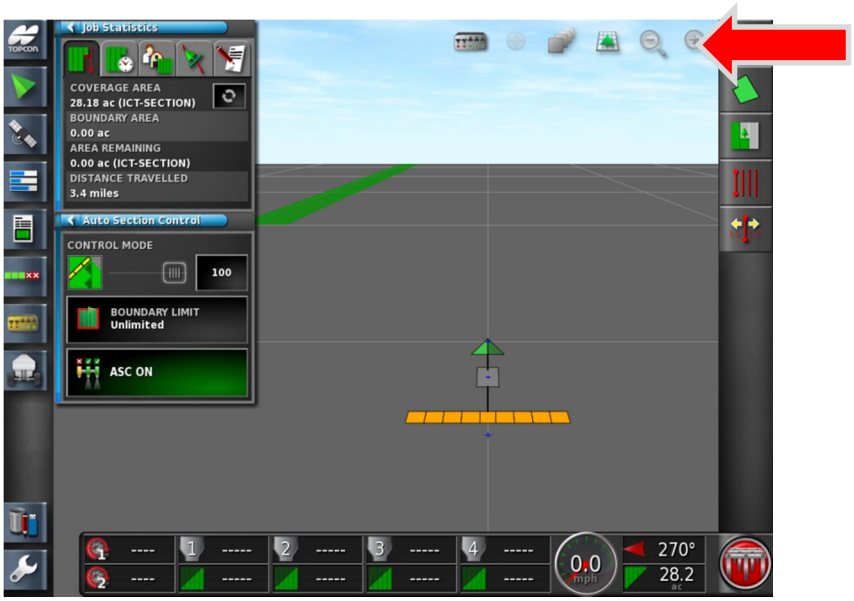
24. Press on the **Change Boom for Coverage icon.**



25. Highlight **ICT-SECTION;** apply with the green Check Mark**.**



26. Toggle the Map View Mode to the **Perspective View**.



27. Zoom in or out using the **+** or **–** icons.

28. Customize the **Dash Board** by simply tapping on the bottom row of icons. Adjust the **Select Data** to include**: Application Rate** and **Motor Load.** Apply your changes with the Green checkmark.

29. Match the parameters in the **Tank 2, 3, 4 Zones**.

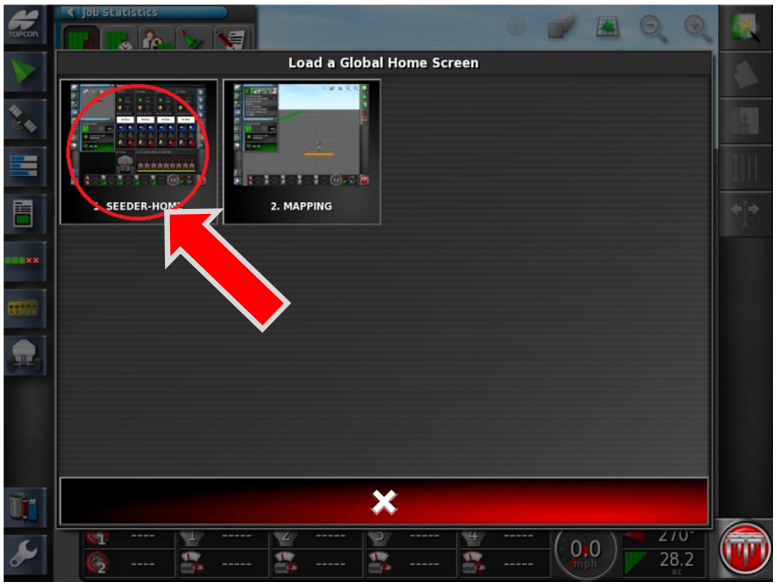
30. Ensure your screen matches this layout. **Save a new Global Home Screen** by holding the **Yellow Topcon Logo** for 5 seconds.

31. Tap the new **<Save Home Screen>** window.

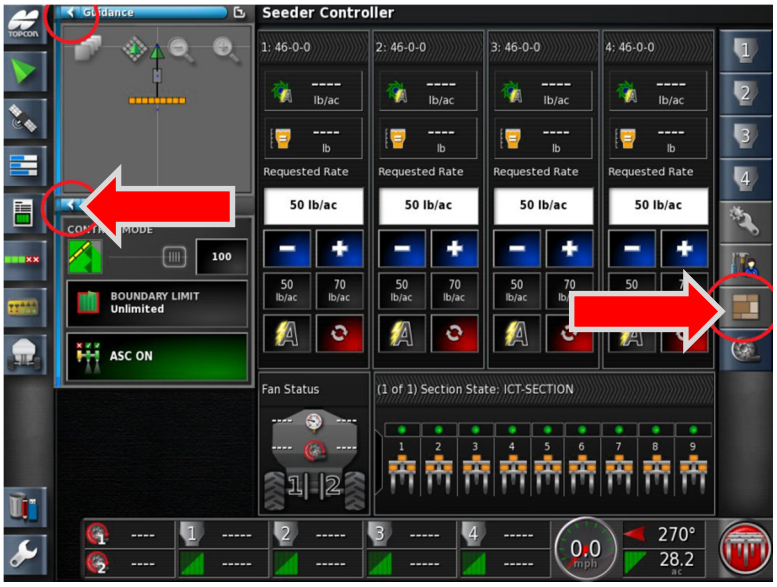
32. Name this layout: **MAPPING**

33. You will now return to the Mapping screen.

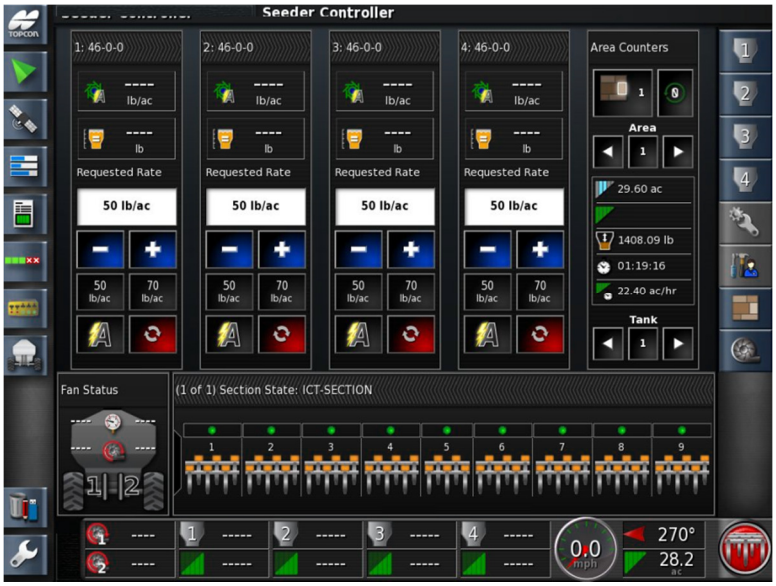
34. Now **Tap** the **Topcon button for one second**, this will bring up the **LOAD a GLOBAL HOME SCREEN** menu.



35. Select **SEEDER-HOME**



36. You will be brought back to the **SEEDER-HOME** screen. Hide the **Guidance** and **ASC** mini view windows. **Enable** the **Area Counter** Icon.



37. Ensure your screen parameters match this layout.

38. **Holding** the Topcon logo for 5 seconds, Tap the new **<Save Home Screen>** window.

39. Save this home screen as **AREA-COUNTERS.**

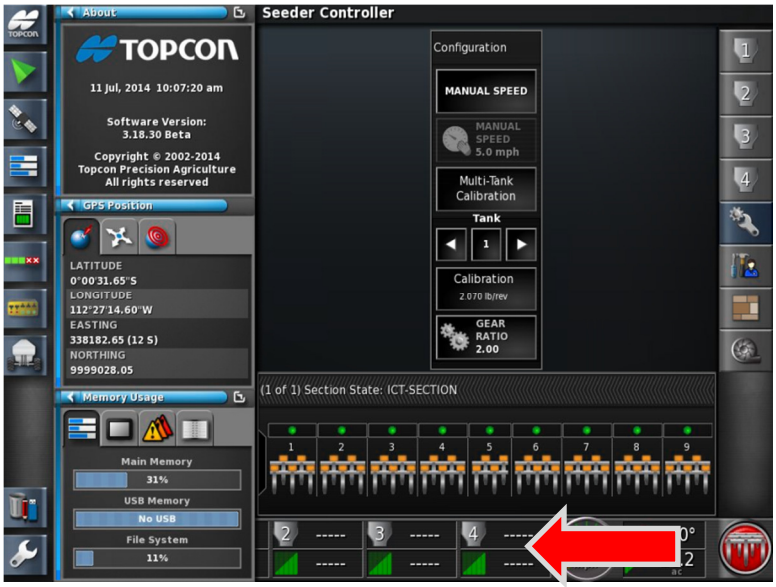
40. You will return to the **Area Counters** Home screen, Adjust the following;

- **Turn OFF VISIBILTY TANK 1, 2, 3, and 4**
- **Turn OFF AREA COUNTERS**
- **Turn OFF FAN**
- **Turn ON** the **Configuration Wrench**.

41. Turn **ON Version Information.**

42. Turn **ON**;

- **Version Information**
- **GPS Information**
- **System Diagnostics**.

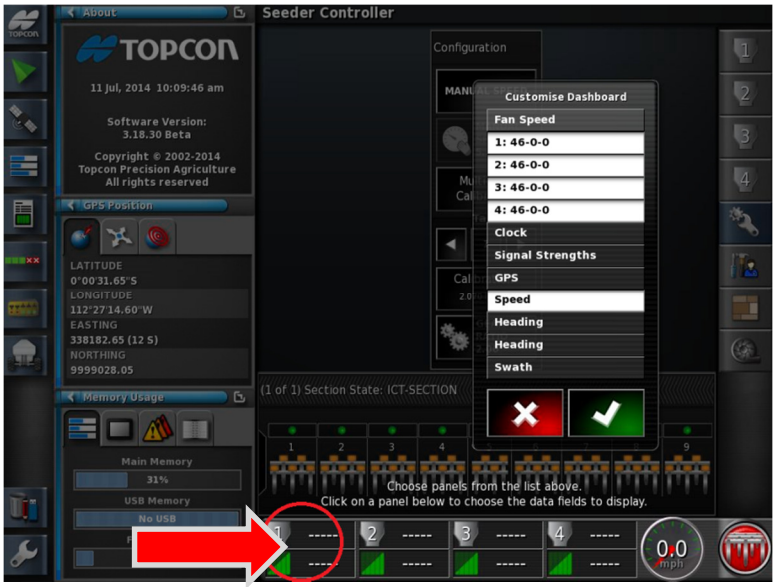


43. Customize the Dash Board by simply tapping on the bottom row of icons.

44. **DISABLE THE FOLLOWING:**

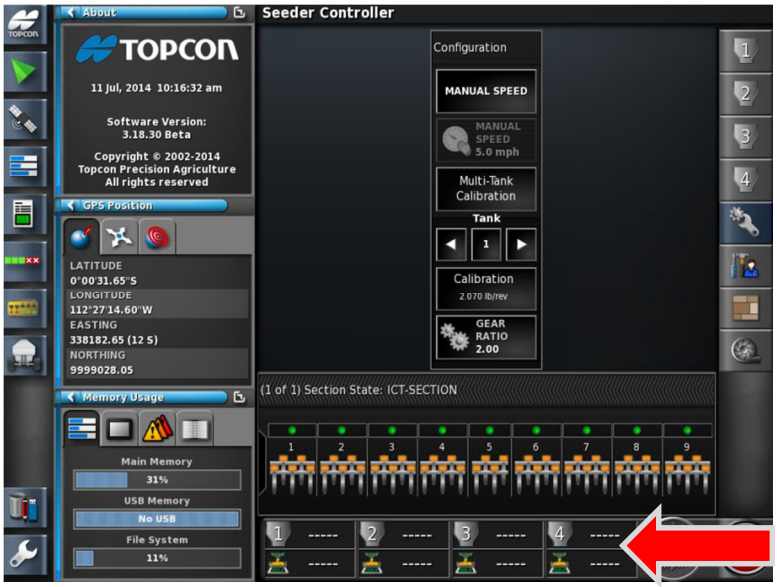
    Fan

    Heading /Area Covered

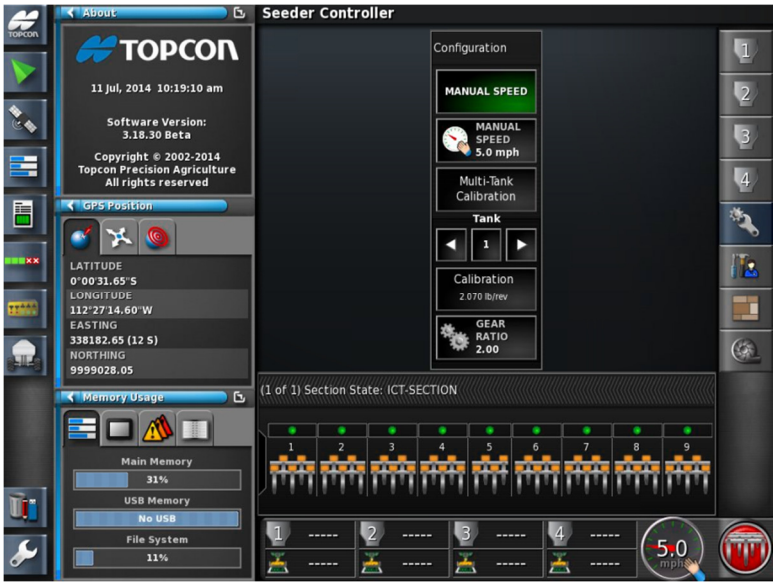


45. While the **Customize Dashboard** option is open, by tapping the Dashboard again within the **Tank 1 Zone** will allow for further customization.

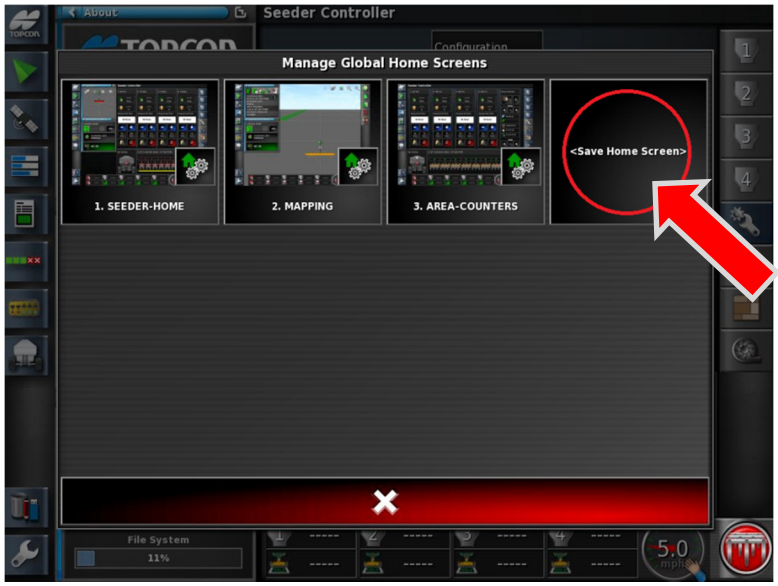
46. Highlight only **Calibration Factor** and **Motor Load**. Apply with the Green checkmark.



47. Continue adding **Calibration Factor** and **Motor Load** the remaining **Tanks Zones.** Apply with the Green Checkmark.



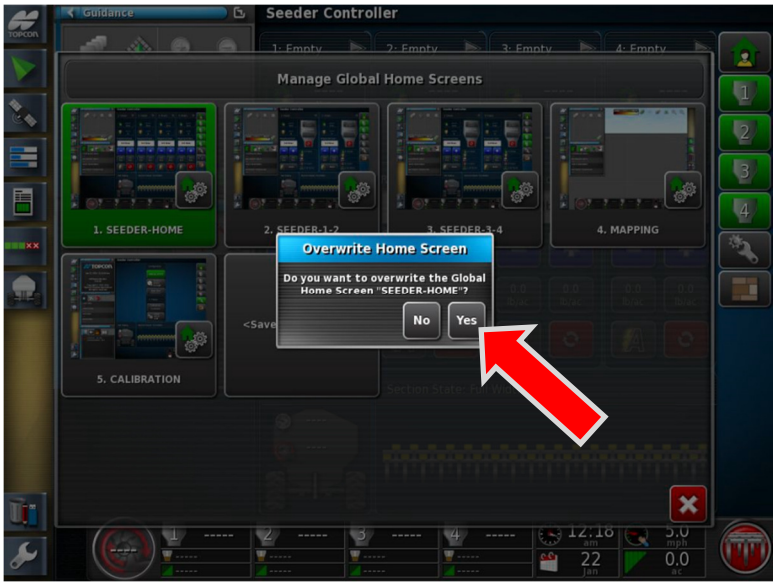
48. **Save a new Global Home Screen** by holding the **Yellow Topcon Logo** for 5 seconds.



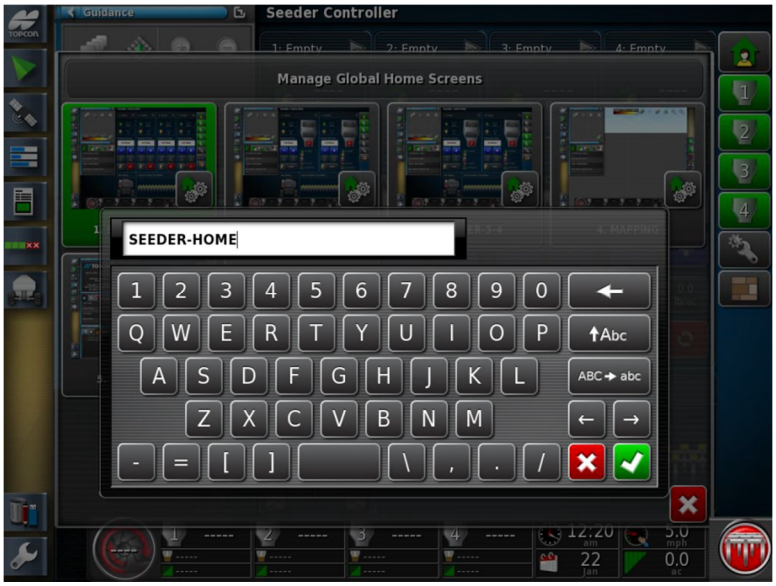
Tap the new **<Save Home Screen>** window.

49. Name this Layout: **CALIBRATION.** Apply the settings by pressing the **Green Check mark**.

50. By "**tapping**" the Topcon logo you can now quickly choose between the Global Home Screens that you have saved. Return by pressing the **Seeder-Home** icon.



51. If you ever need to make adjustments to the screen templates, example (Adjusting Map layers) the screens layouts must be **resaved** after any changes have been made. To save the changes just hold the **Topcon logo for 5 seconds** and select the icon of the screen you modified. Tap **yes** to use **the Overwrite Home Screen** feature.



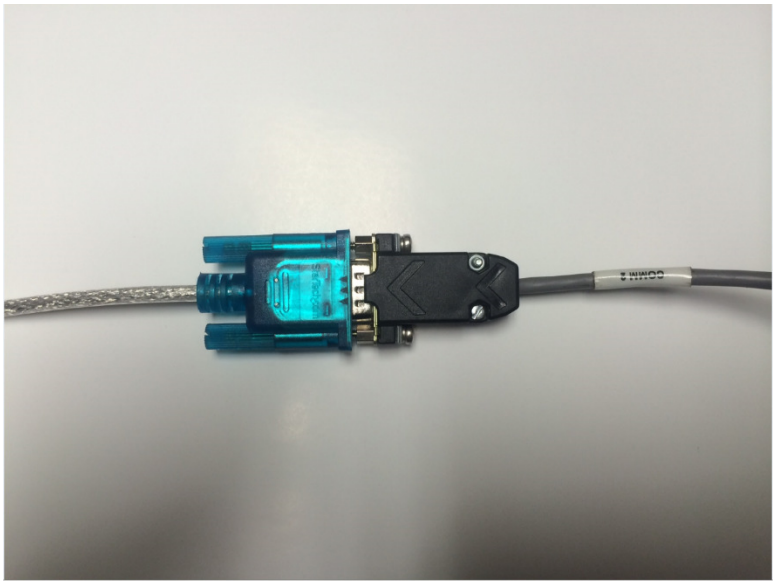
52. You will be prompted to rename the home screen (**DO NOT rename**), simply apply the settings with the Green checkmark.

53. The screen layouts are now locked into the monitor's memory.

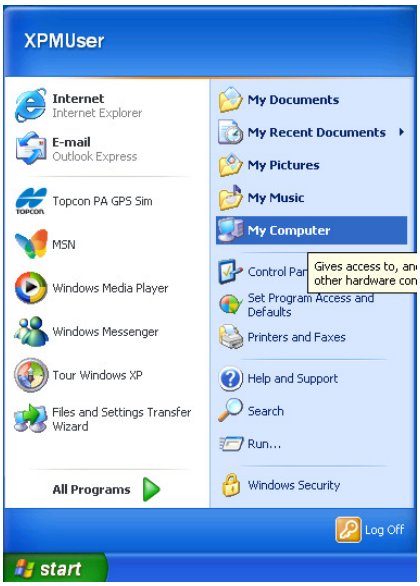
Notes:

LAPTOP GPS SIMULATOR

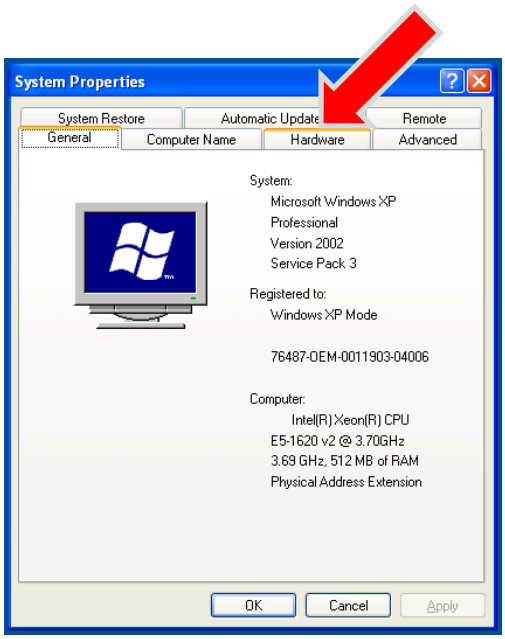
1. Turn on Laptop Ensure the USB to Serial adapter is plugged into the Rear USB port. It may take several minutes for the Prolific Device drivers to self-install.



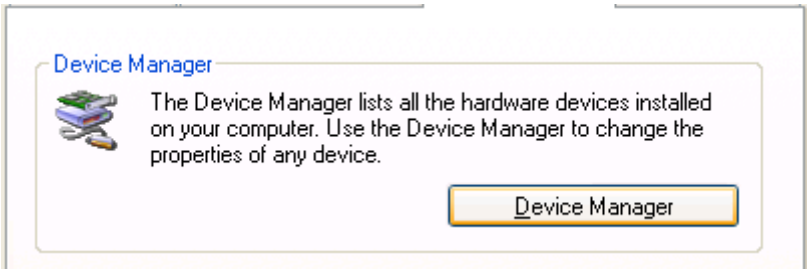
2. Connect the USB 9 pin to the COMM 2 Input on the AGA5072 Harness.



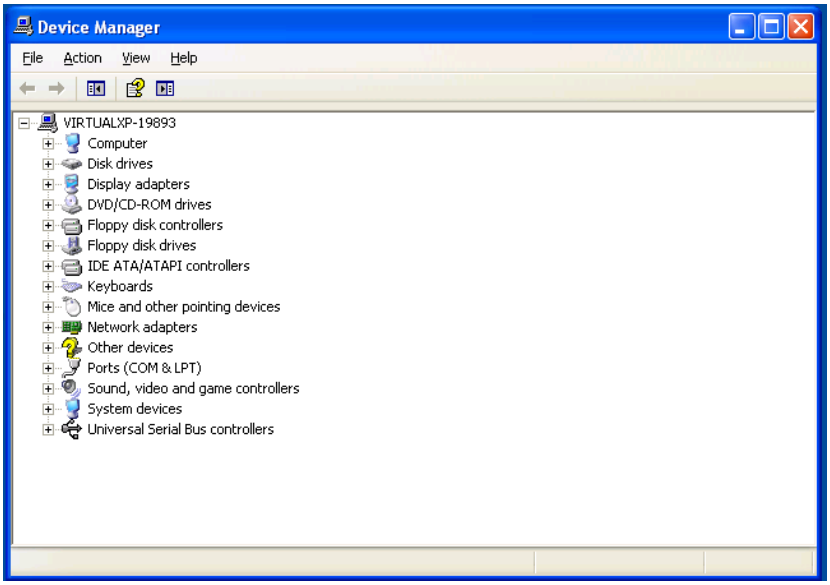
3. Go to **Start** – and then (**Right click** on) **My Computer**, Select **Properties**.



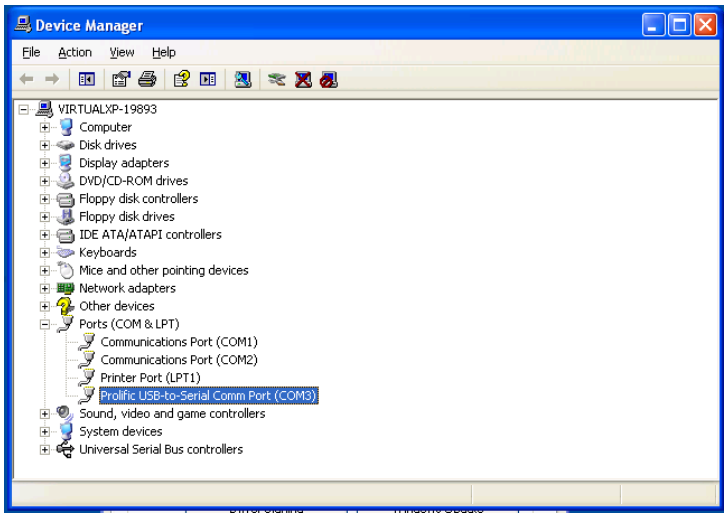
4. Choose **Hardware**.



5. Click on **Device Manager**.

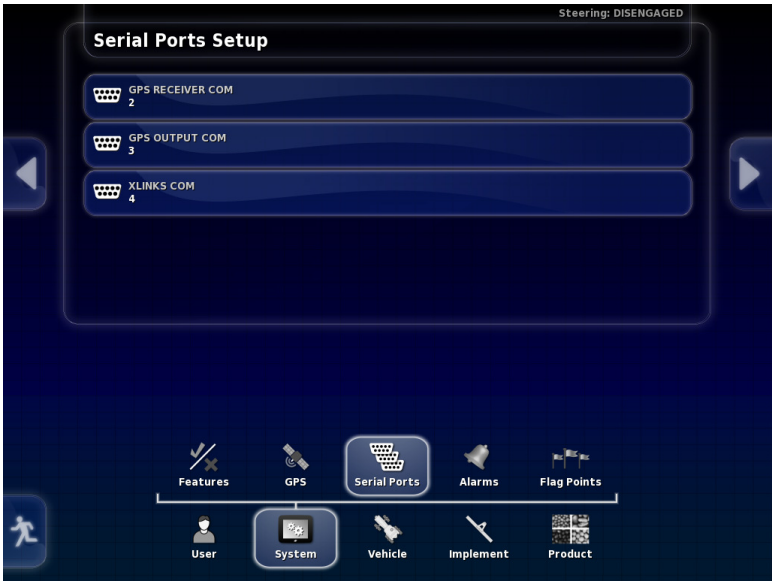


6. Expand Ports (COM & LPT) by pressing on the **+** symbol.



7. You will now see which Comm Port your Prolific USB-to-Serial has been assigned to. Print a label or write down the Information. Example (COM3)

   You many now Close Device manager, and System Properties windows.

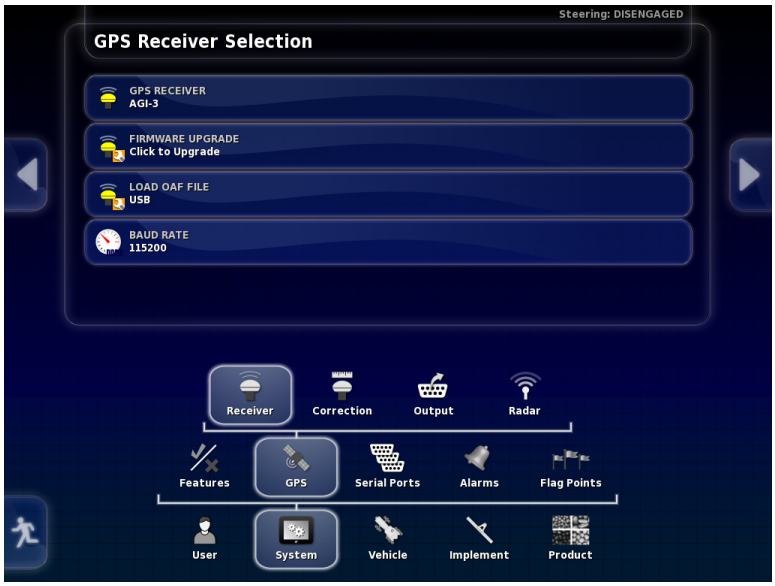


8. On the X30 change the Serial Com port settings.

   GPS receiver COM 2

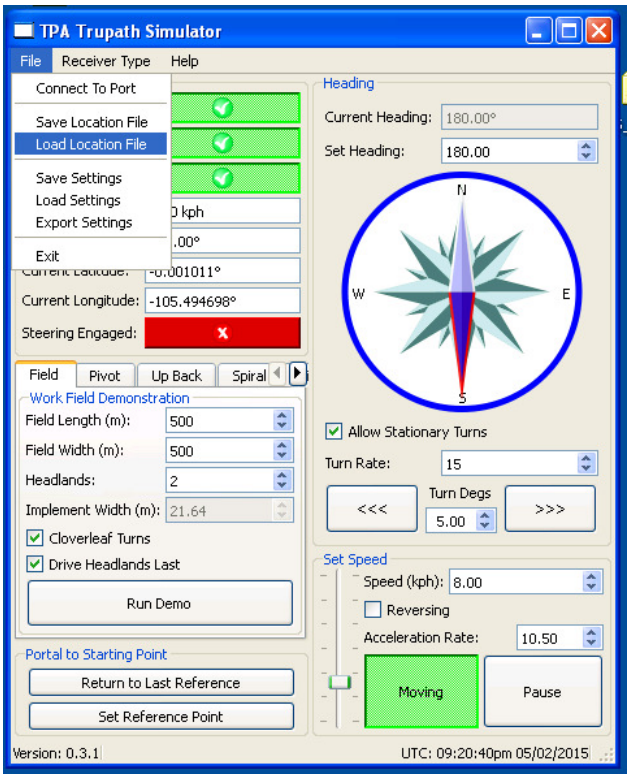
   GPS OUT PUT COM 3

   Xlinks COM 4

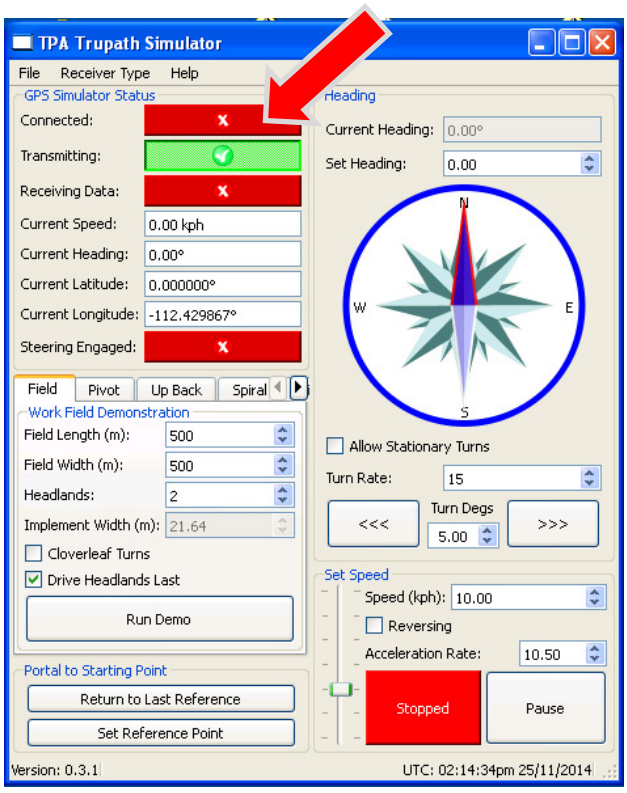


9. Change the Receiver type to AGI-3, with Baud Rate of 115200.

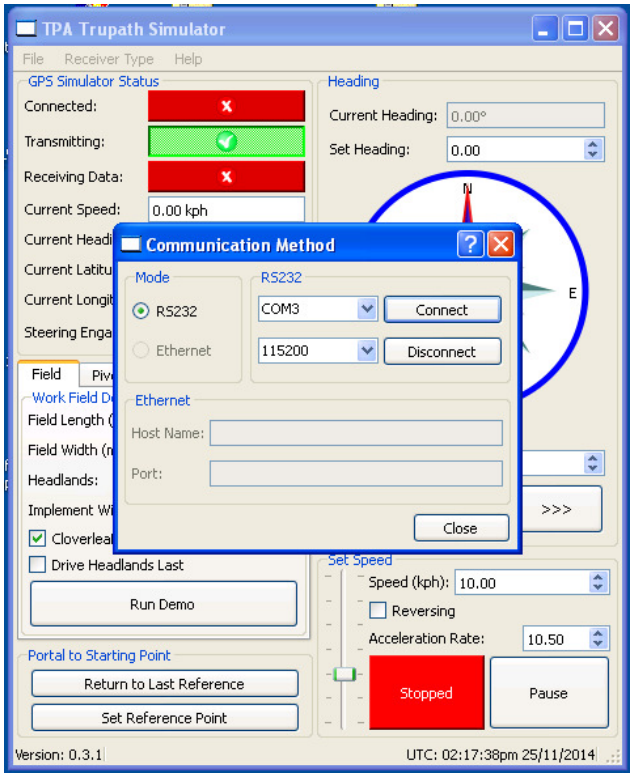
10. Open the Topcon PA GPS sim icon.



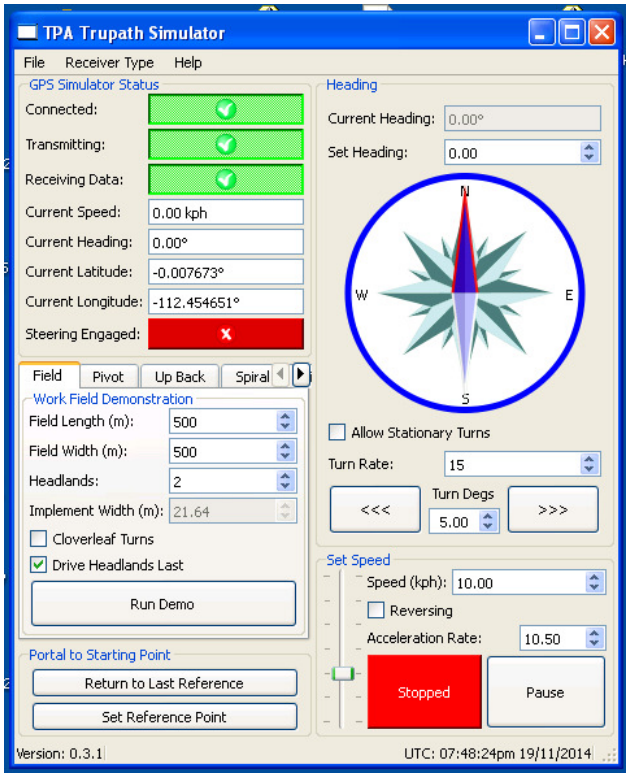
11. Load location .shp file.



12. Press on the **Connected** tab.

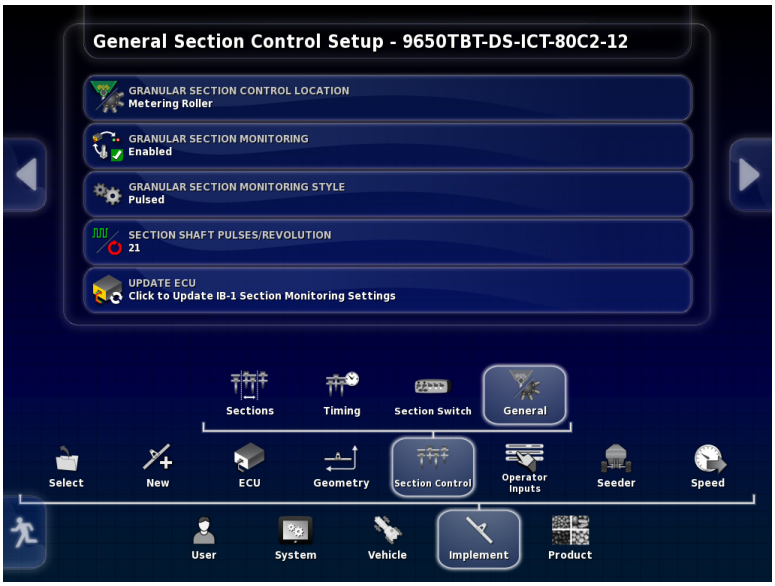


13. Select your Com port from the Drop down window. Example: COM3**.** Use the **115200** Baud rate. Press **Connect**.



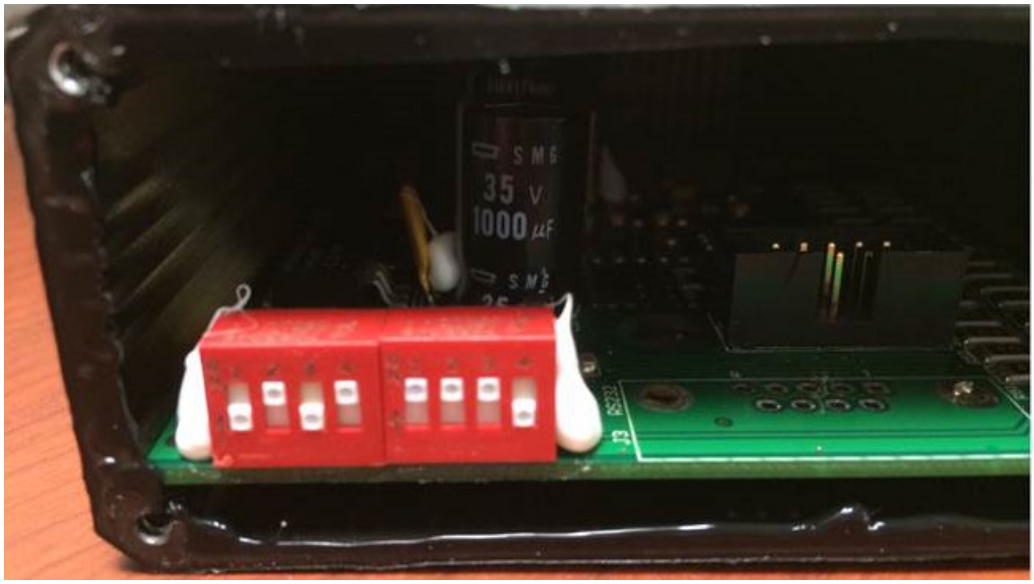
14. The status tabs will now change to the color green.

15. Speed should be set below 10kmh.



1. Enter the set up menu and navigate from **Implement - Section Control - General**. Press the **UPDATE ECU** Tab to update the IB-1 section monitoring settings.

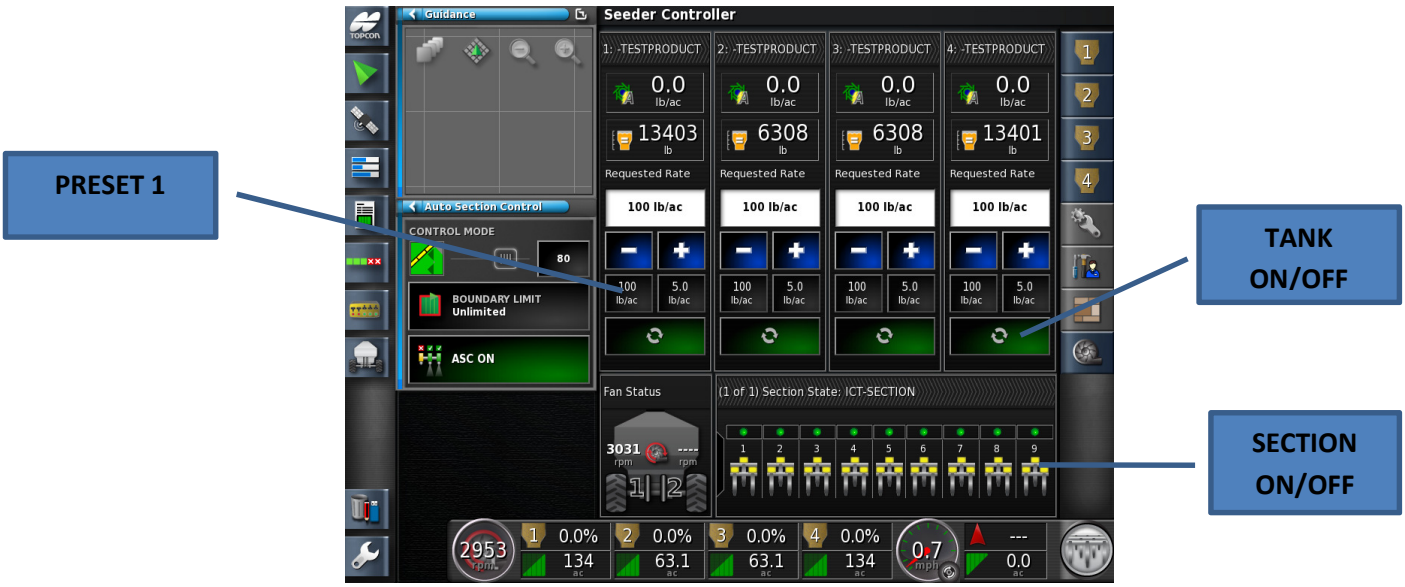
2. Press the Running man to exit.



3. Monitor ECU – check to ensure the Dip switches are set correctly. Note: the location of the capacitor for reference.

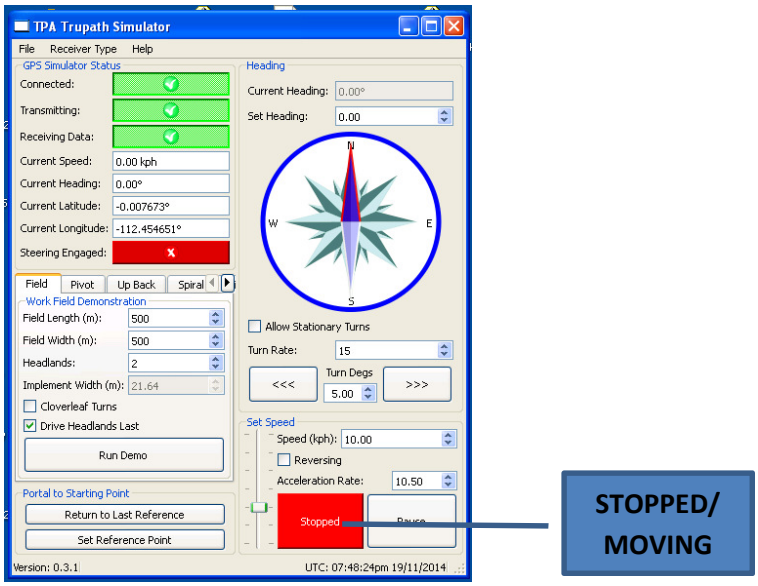
4. Morris switchbox is connected and all sections are **OFF**.

5. Turn ON and engage the hydraulic flow on the power pack. Return to the test bench.



6. Press the following:

   - Rate Preset 1 icon on each tank; we want each requested rate to show 100lb/ac.
   - Turn ON each tank (Green)
   - Turn ON each section (Yellow)



7. On the laptop press the Stopped icon, it will change green and show moving. The Speed will be displayed on the X30 monitor.

8. Engage the Master Switch.

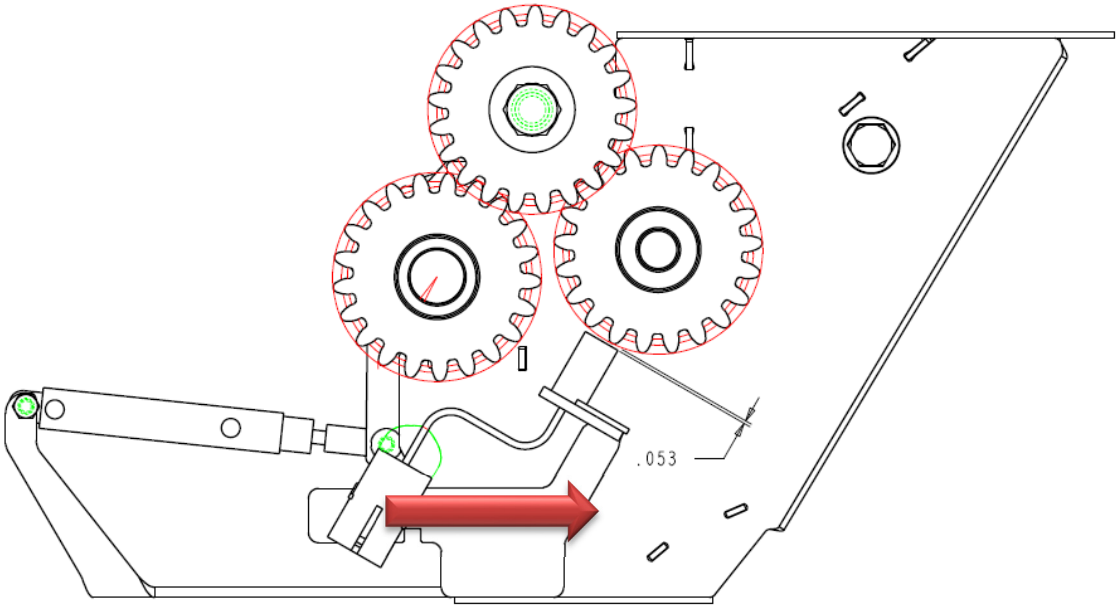
9. The metering system will engage, Check that all shafts are rotating counter clock wise.

10. Check aircart again for any hydraulic oil leaks. STOP IMMEDATELY if any leaks are found.

TANK 3 SECTION 7 - SHOULD BE ON

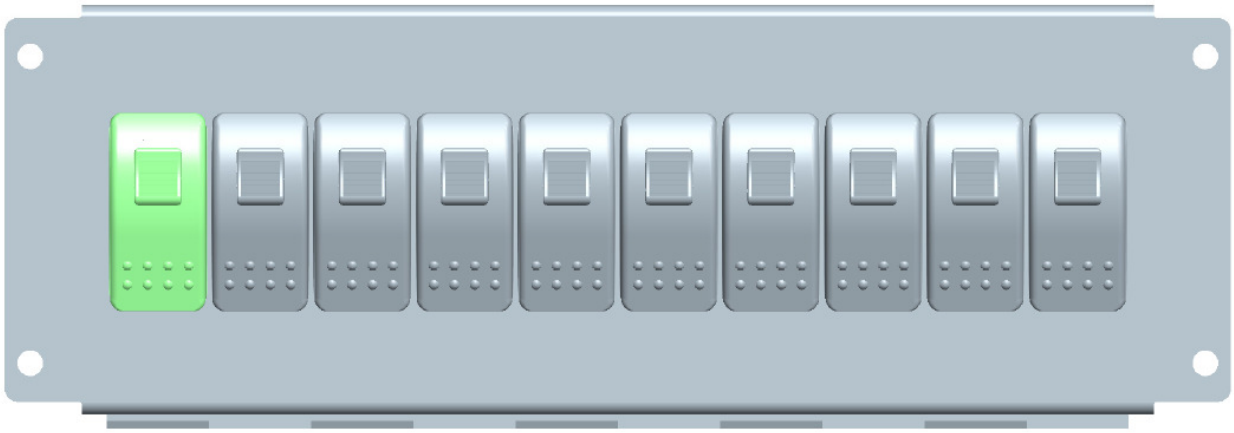
11. Let system run for several minutes. Write down any Tank-Section alarm codes.

12. Turn Master switch OFF, Disengage hydraulic flow and turn off the power pack.



13. Review the error codes and adjust the required section sensors which are located in-between the metering bodies. Adjust the Gap to .031” - .064”

14. Run the system again, repeat procedure until no errors codes are present.



TANK 1 SECTION 1 - SHOULD BE ON

15. With system running, engage **Section 1** on the Morris Switch box. You should now see several error codes pop up on the screen, this is because the Tanks 1-2-3-4 section 1 has been overridden and is now physically disengaged. However the monitor still thinks the section should be on. The following errors should be presented. Tank 1-- Section 1, Tank 2 - Section 1, Tank 3 - Section 1, Tank 4 – Section 1, Should be on. This is a good way of checking to ensure the section monitoring is functioning correctly. Test each section with the Morris switch box.

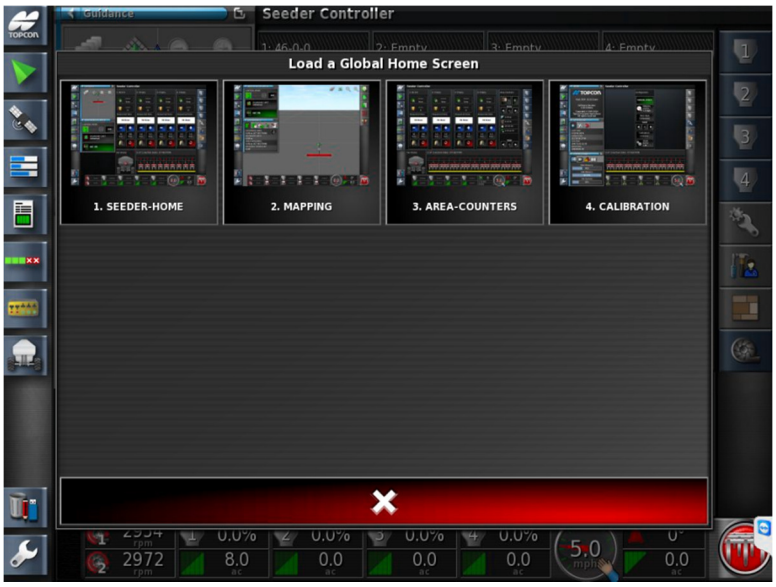
16. Turn Master switch OFF, disengage hydraulic flow and turn OFF the power pack.

17. Disconnect Morris Switch Box, reconnect factory granular section harness in the proper order.

18. Turn on and engage the hydraulic flow on the power pack. Return to the test bench test Sections by using the section keypad on X30.

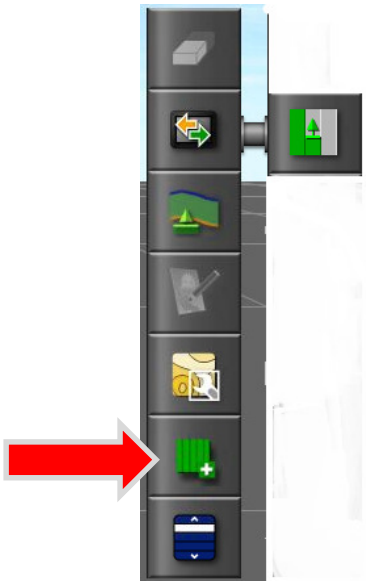
This chapter will allow you to measure and set the section timing feature according to your type of drill.

1. Press the **Topcon logo for one second** to load the Global Home screen menu.



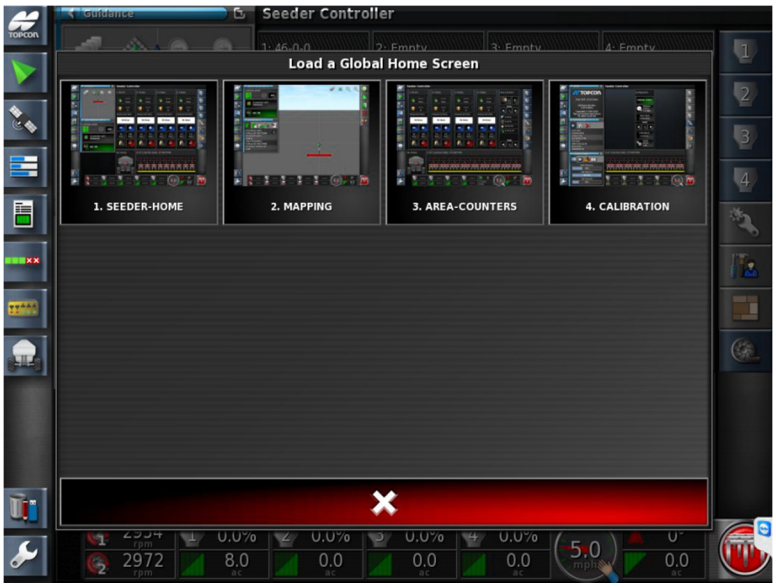
2. Navigate to the **Mapping screen.**

3. Expand the **Job Menu** icon.

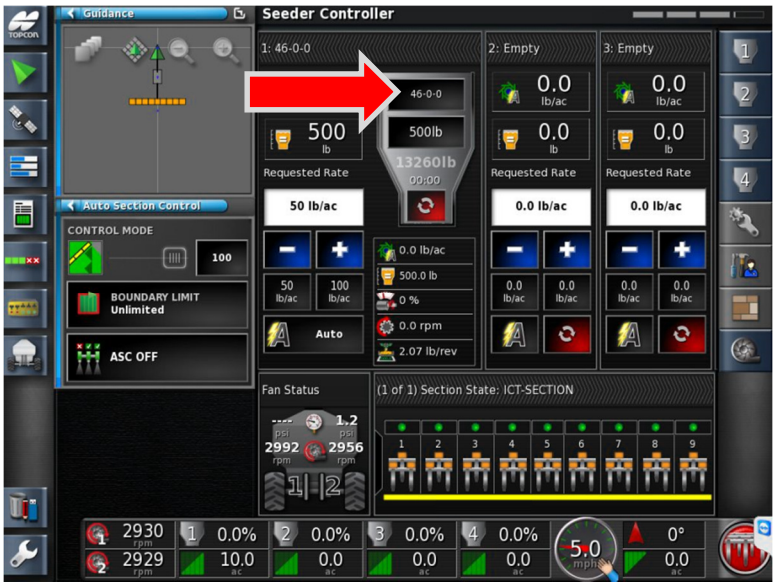


4. While expanded; **Create New Job**

5. Rename the job; **SECTION-TEST**



6. Return to the Global Home screen menu and select **SEEDER-HOME**.

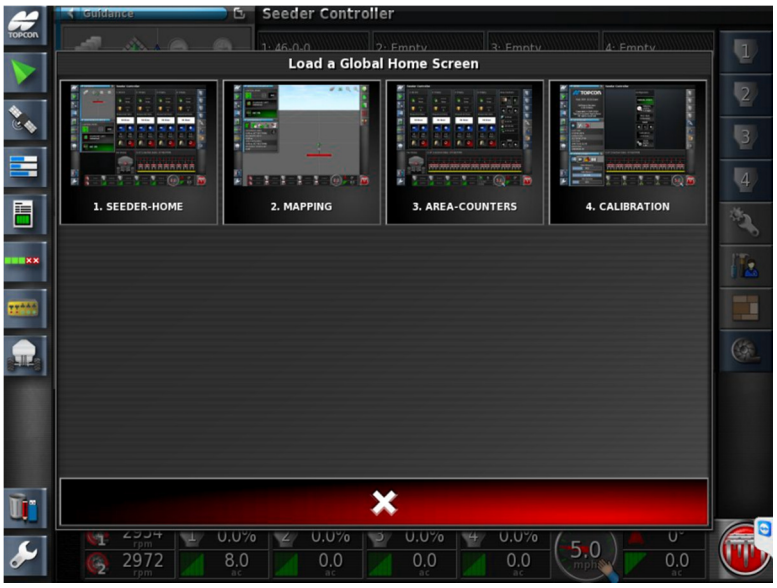


7. For the following exercise we need to choose which tank is furthest away from the drill.

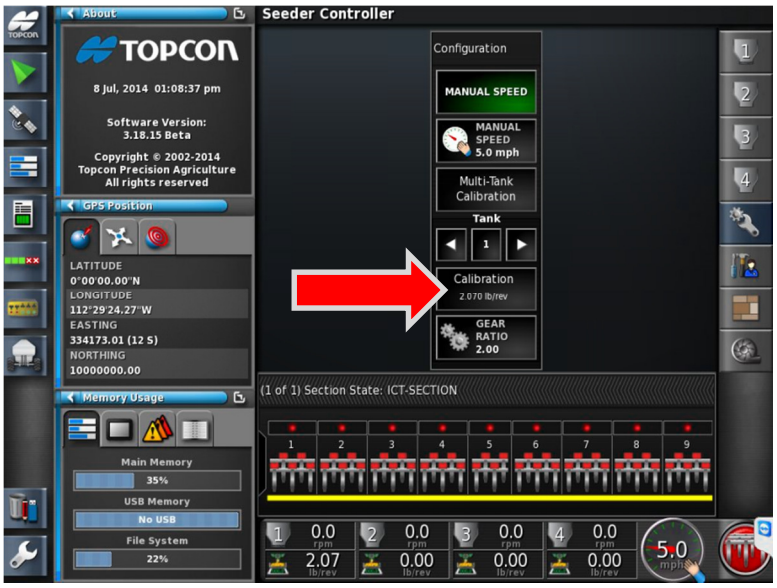
   Tow between - Select Tank 1

   Tow behind – Select Tank 4

   Expand the correct tank and add a highly visible product we recommend using **46-0-0**.



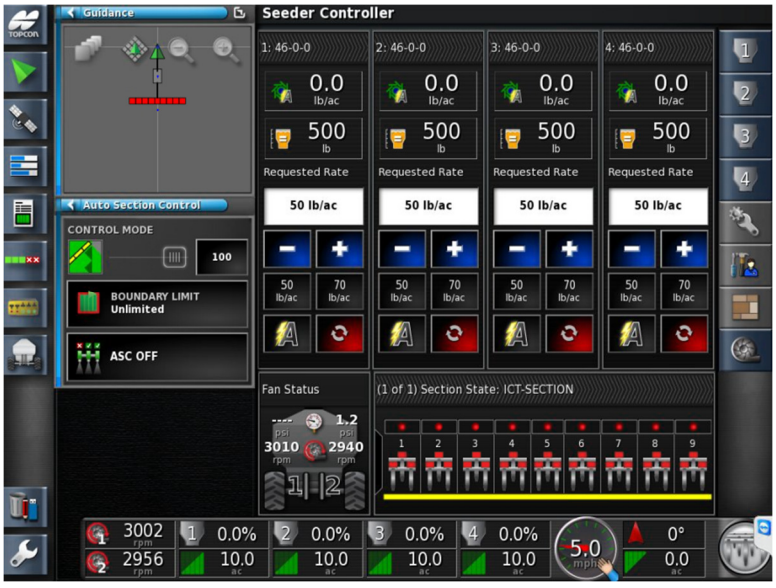
8. Navigate to the **Calibration** page.



9. Preform a Calibration of the test product on each of the Tanks. Refer: to the Calibration procedure outlined in the X30 User Guide if required.

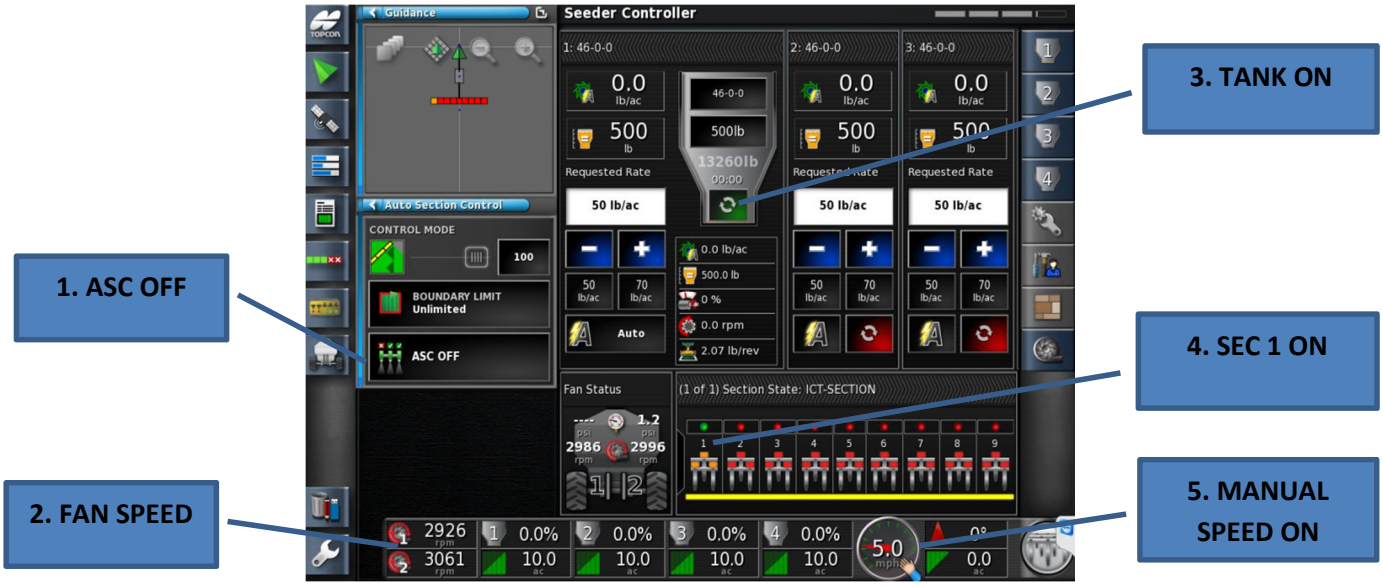
    - MANUAL SPEED ON
    - CALIBRATION
    - AUTOMATIC CALIBRATION

10. Once the Calibrations are completed. DIVERT THE OIL FLOW BACK TO THE FAN!!! CLOSE THE LIDS AND RESUME THE AIRCART FOR NORMAL SEEDING OPERATION (PRODUCT DIVERTERS).



11. Return to the **SEEDER-HOME** screen.

12. Ensure the **ASC Mode** is **OFF**



13. Verify the following Steps are performed.

ASC - OFF

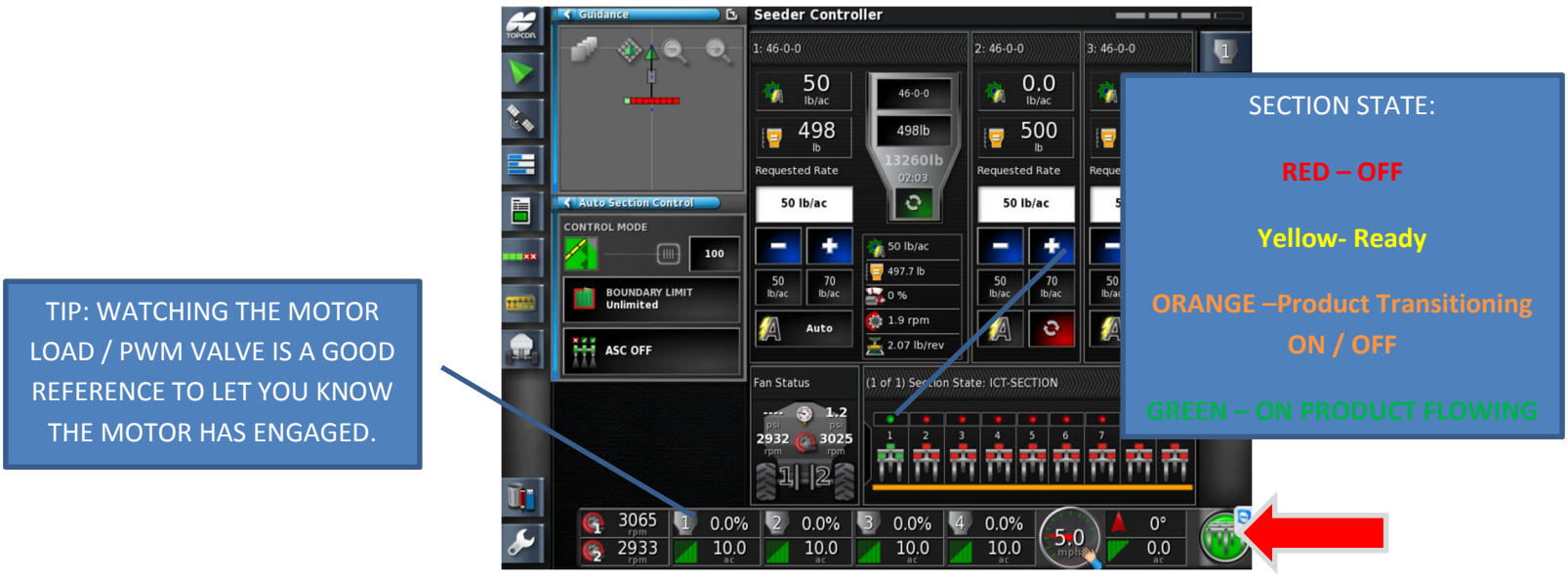
FAN SPEED – Adjust Hydraulic flow remotes for optimal fan speed.

TANK 1 or 4 - ON

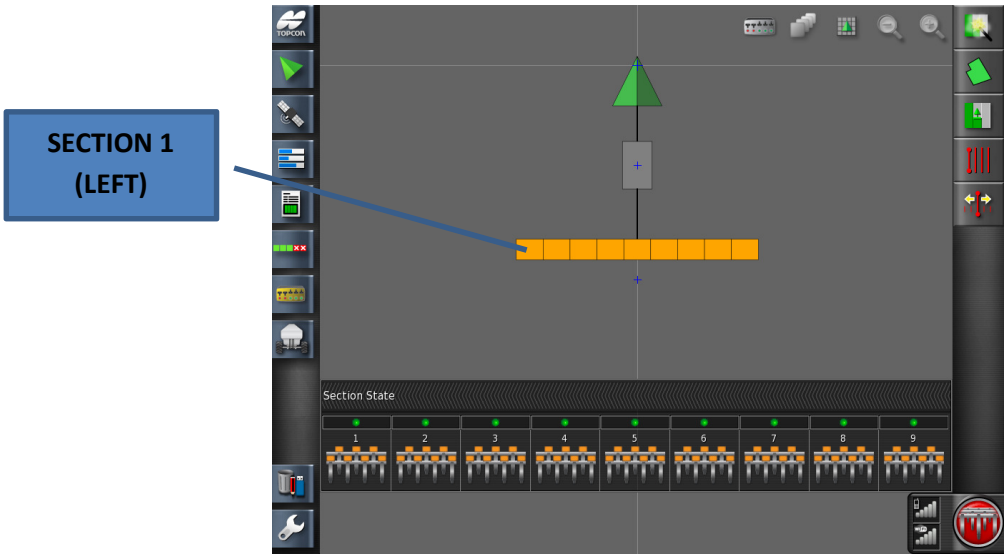
SECTION 1 - ON

MANUAL SPEED – Present

14. Have a stop watch ready; time how long it takes for the product to travel from the metering body to the openers. Document your times. (SEE TIME TABLE SHEETS AT BACK OF MANUAL)



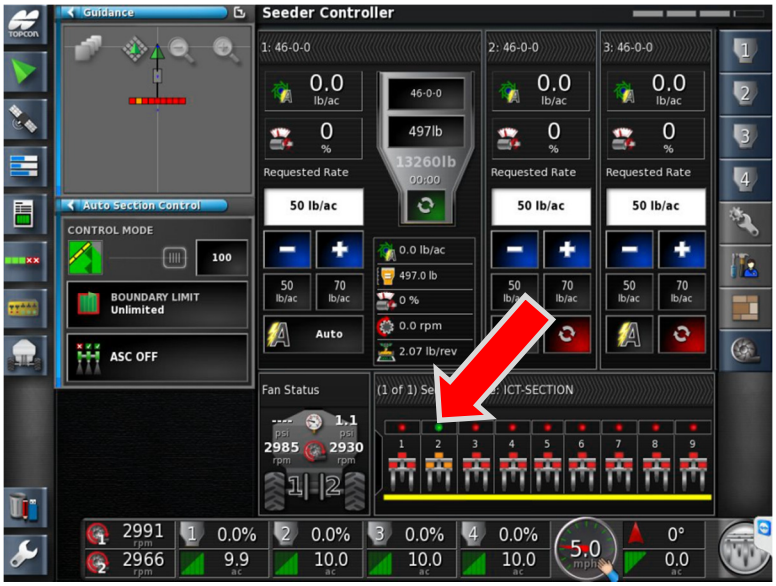
15. Engage the Master Switch, start stop watch timer.



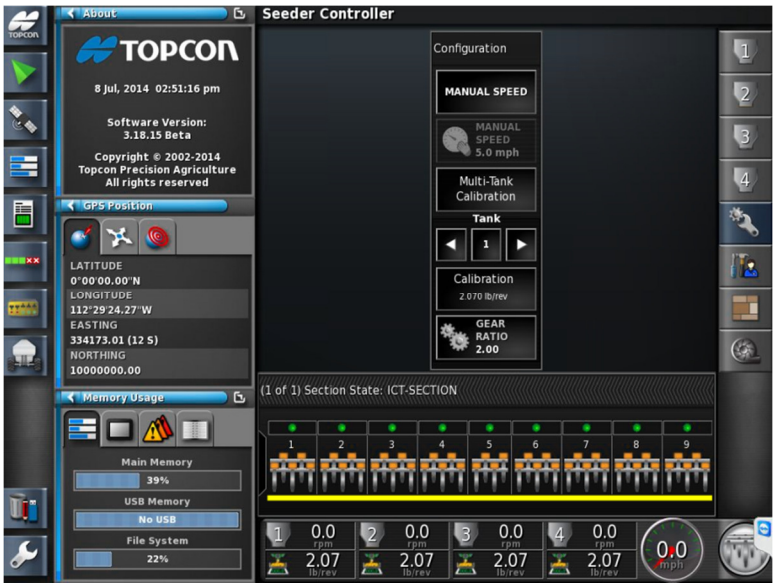
16. SECTION 1 is ALWAYS the outer LEFT WING (DIAGRAM IS FOR REFERENCE ONLY).

17. Stop the timer on the stop watch once product is flowing from the openers. Verify that the product matches the Sections on the drill and monitor.

18. Measure the ON time and the OFF times of each section. It is recommended to test each section a minimum of 3 times or until a consistent time is achieved.

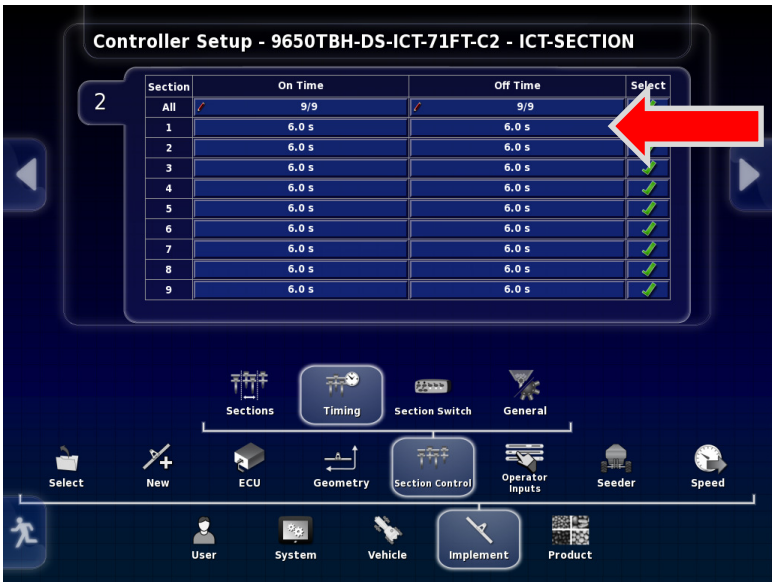


19. **Turn OFF Section #1**, **Turn ON Section #2**. Repeat the above procedure on the remaining sections.



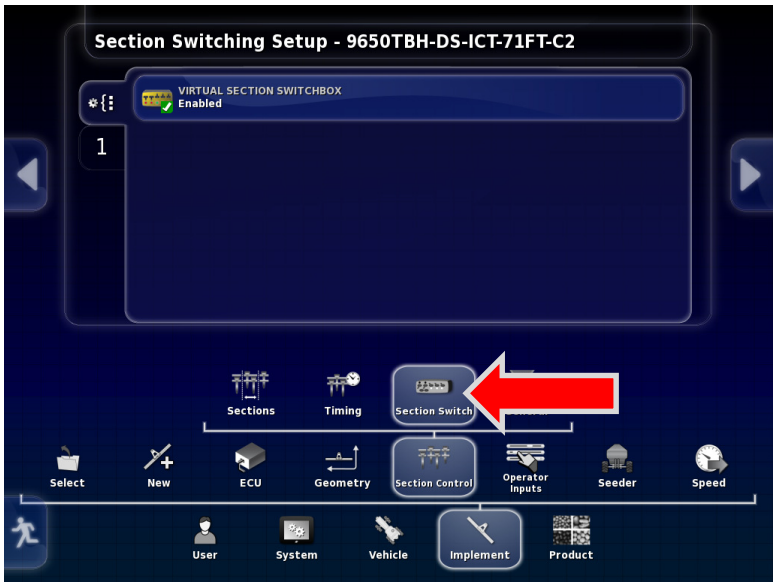
20. When testing is completed return to the **Calibration** screen and **Turn Manual Speed OFF**.

21. Enter the Set up wrench.



22. Navigate to **– Implement - Section control – Timing.** Adjust the Section ON / OFF Times based on your collected data.

    Note: The outer section times should appear to be higher than the center section, this is because the product has to travel a further distance through the primary hoses.



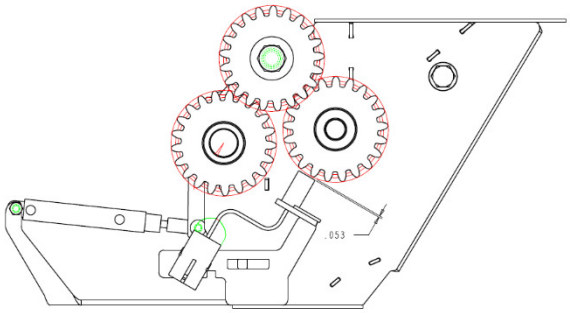
23. Navigate to **– Implement - Section control – Section Switch**

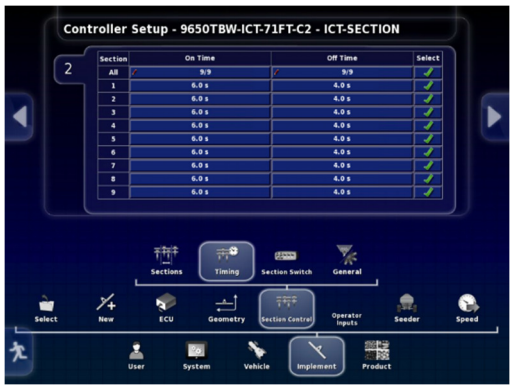
24. We may now **Disable the Virtual Section Switch box**. The section switch box should only be used during the set up procedure. The Switchbox can cause sections to be turned off accidently by careless operator error.

25. Exit to Home screen.

26. TIME TABLE

Section	1	2	3	4	5	6	7	8	9
ON/OFF 1									
ON/OFF 2									
ON/OFF 3									
ON/OFF 4									
ON/OFF 5									
ON/OFF 6									
ON/OFF 7									
ON/OFF 8									





1. The monitor Section Timing will automatically turn the metering system ON several seconds ahead to compensate for the lag time it take to product to travel through the airstream to the openers.

   During our last exercise we noticed an approximate 6 seconds of transition time for the product to travel through the air stream.

   In this lesson we will adjusting the timing correctly, this will allow for reduced overlap as your implement crosses over the Headland into the unseeded portion of the field.

2. Drive your tractor and implement into an open field. You will need a fairly large open area as we will be making several large passes in each direction to “Dial-in” our Section ON/OFF times.

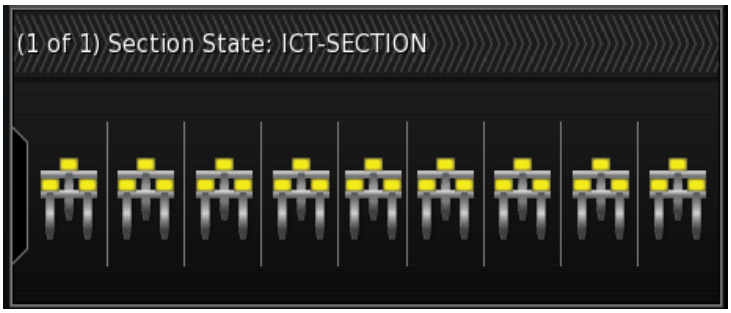
3. Turn **ON** the Tank which is the furthest away from the drill.

   Tow between - Select Tank 1

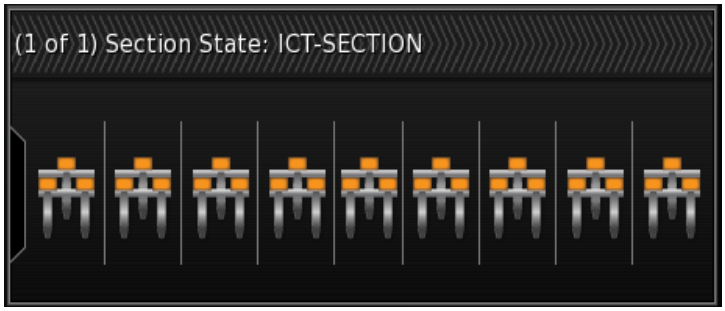
   Tow behind - Select Tank 4

4. Ensure **ASC is ON.**

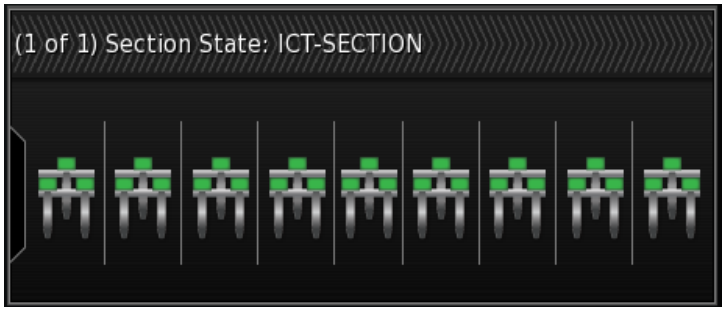
SECTION STATES



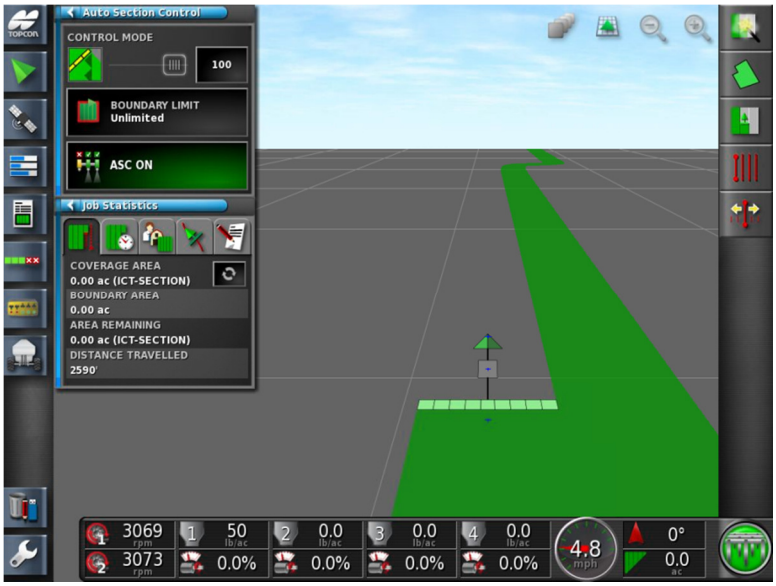
5. **Yellow = Ready**



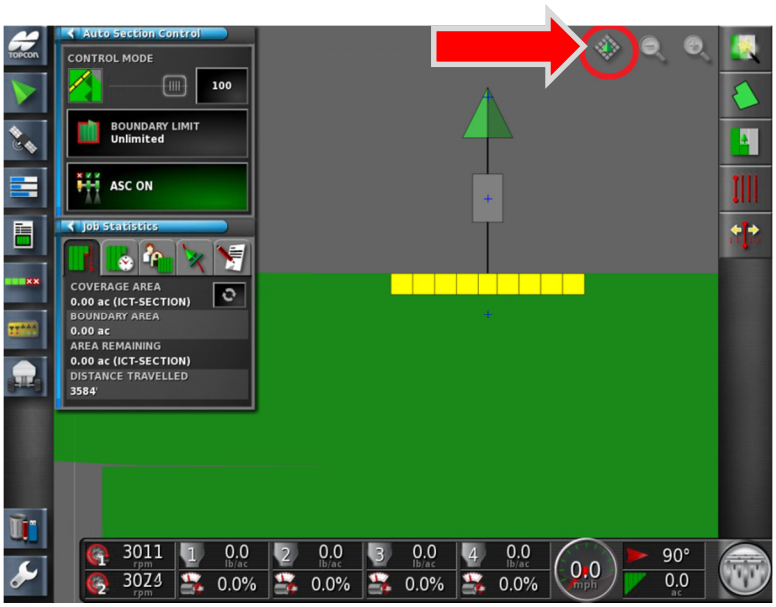
6. **Orange = Product is transitioning On/OFF between Metering and Openers.**



7. **Green= Sections are ON Product is Flowing out of Openers.**



8. First make two back to back passes covering roughly 300m in each direction. This will create two swath widths of coverage area. It is recommended to set an A-B line on your guidance system to avoid any gaps. It is recommended to only “scratch” the surface of the soil during these first two passes.

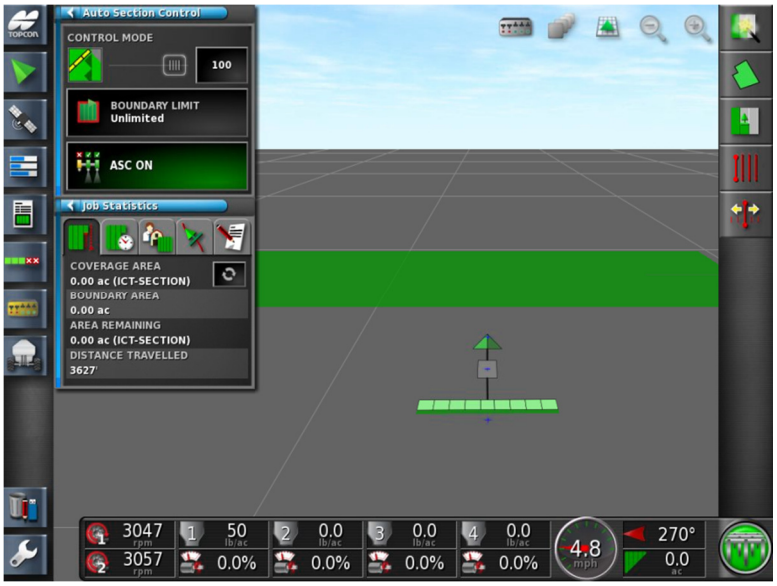


CHECK TO ENSURE THE MOST FORWARD OPENER ON THE ACCTUAL DRILL IS NEAR THE VERY EDGE OF THE LAST PASS.

9. **GEOMETRY CHECK**

- After the two passes are completed. Turn **OFF** the Master Switch
- Toggle your Map view mode to **North View Up (Use the Zoom +)**
- Drive your implement through the covered area slowly and align the most forward opener to the very edge of the previous pass.
- The Implement on the map must match the Real implement on the soil. Contact your dealership and/or the Morris 360 help line if your dealership is unable to respond if the Drill does not match correctly.

10. Drive forward 100 yards and then make a U-turn and head into the covered area at normal operating speed.



11. Toggle the Map view back to Perspective view.

    - Engage the Master switch.
    - Place the openers all the way into the ground.
    - Drive into covered area applying product at normal operating speed.

TIP: WATCHING THE MOTOR LOAD GAUGE WILL ALLOW YOU TO KNOW WHEN THE METERING HAS ENGAGED / DISENGAGED

12. Continue driving completely through the covered area, Stop after the implement has completed pass through the covered area by 20'.

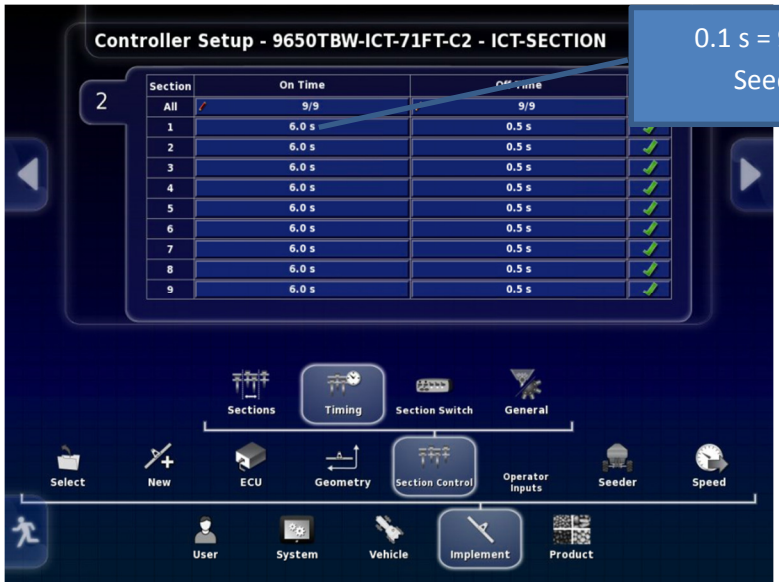
    - The **ASC** will have turned metering system OFF automatically.
    - The **ASC** will have resumed by turning the Metering system ON several seconds early to allow for the lag time of the product to flow through the air stream.
    - Have a helper run along the side of the machine to listen and verify product on /off times.

VERIFY PRODUCT HAS BEEN APPLIED SLIGHTLY BEFORE EXISITING COVERAGE

VERIFY PRODUCT HAS ENDED SLIGHTLY AFTER EXISITING COVERAGE

13. Notice how there is a slight amount of overlap.

14. Examine the furrow by digging up soil to verify where the actual product placement begins / Ends.



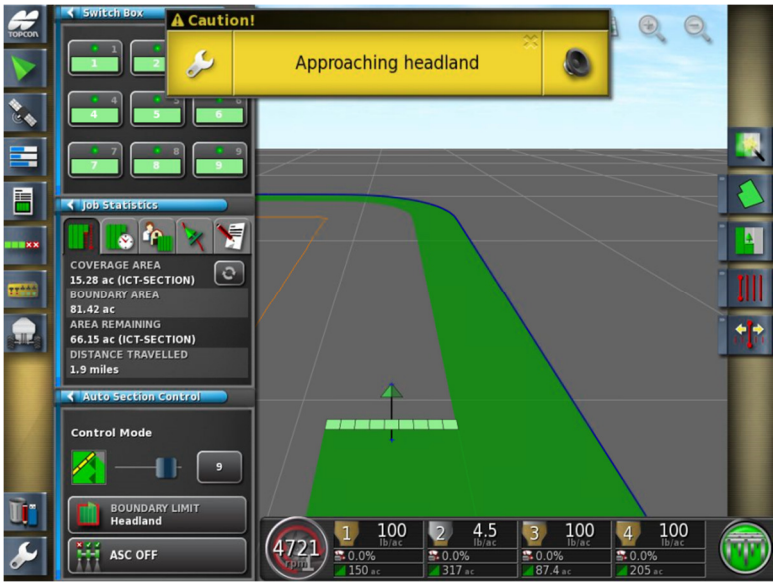
15. Adjust the Section timing to a safe level of overlap.

    Remember that the base ON time is required for the product to transition from the metering to the opener. Simply adjust the time in small increments to increase or reduce overlap.

    - < On Time = More overlap (The Greater the ON time the more overlap)
    - > Off Time = More overlap (The Lower the OFF time the more overlap)

      Small adjustment of the ON/OFF timing is all that is required, when traveling at 5.0mph the drill is covering nearly 90” per second!

16. With the timing dialed in experiment with the ICT system. You can now seeding on a 45°angle. Experiment with the Overlap Control to which best suit your conditions.



17. When needed toggle **ASC OFF** to seed in previously covered areas. Or to finish up the inside the Headlands.

www.morris-industries.com

Corporate Head Office
and Training Centre:

2131 Airport Drive
Saskatoon, Saskatchewan
S7L 7E1 Canada
Phone: 306-933-8585
Fax: 306-933-8626

It is the policy of Morris Industries Ltd. to improve its products whenever it is possible to do so. Morris Industries reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

Printed in Canada

February 2015