

Maxquip Settings & Troubleshooting Guide

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Raven 440/450/4400



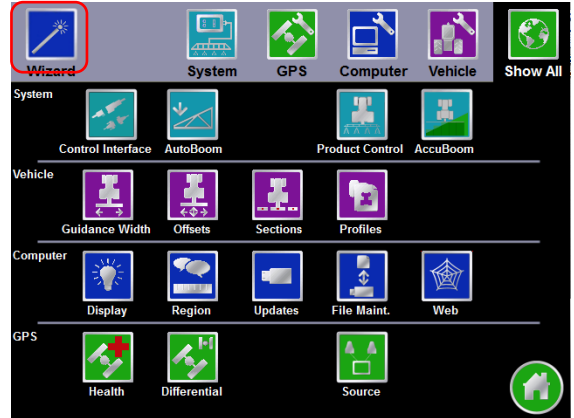
Initial Start up (CAL mode)

- Units – US Gallons
- Radar – SP2(GPS or Radar)
- Control Valve – C-SD(Standard Valve)
 - C-FC(Fast Close Valve)
 - C-PC(PWM Valve)
- * Use the CE button to change setting and the ENTER button to accept
- * For below settings press ENTER put number in then press ENTER again
- NON-Sectional Booms – Use boom 1 enter in footage as inches eg. 40ft enter in 480
 - Zero out remaining booms ENTER 0 ENTER, on initial start up you have to do this
 - For sectional, enter the footage into each boom and zero out the rest
- Speed Cal – Enter in 585 drive the tractor forward to see if the speed matches
 - if it doesn't calculate it out eg. $\text{Actual} / X * 585 / \text{Monitor Speed} = \text{New Speed Cal}$
- Meter Cal – Enter in the Pulses/10 Lbs found on the Flowmeter Tag
- Valve Cal – Enter in 2123 for Standard, 743 for Fast and 43 for PWM Valve
- Rate 1 – Enter in amount of Actual N/Acre
- Rate 2 – Enter in second rate of Actual N/Acre
 - * Initially you need to set this up to have the monitor come out of CAL mode
- Volume Tank – Enter in actual Lbs if you want to know what is left in tank
 - Enter in 0 if you do not want the monitor to track tank volume
- To change Units, Radar, and Control Valve after initial start up hold the Self-Test button down. it will flip through the three options for about 30 seconds when it stops you can now change these setting

Raven Envizio Pro



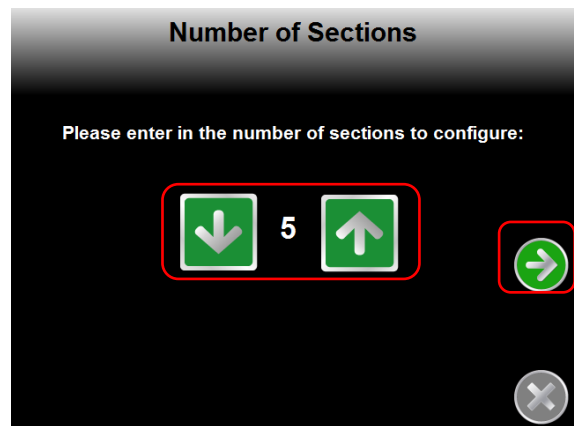
- Press Settings Tab



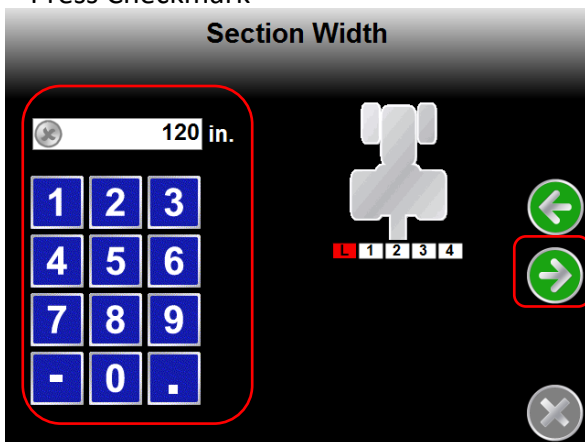
- Press Wizard Icon



- Press Section Setup Wizard
- Press Checkmark



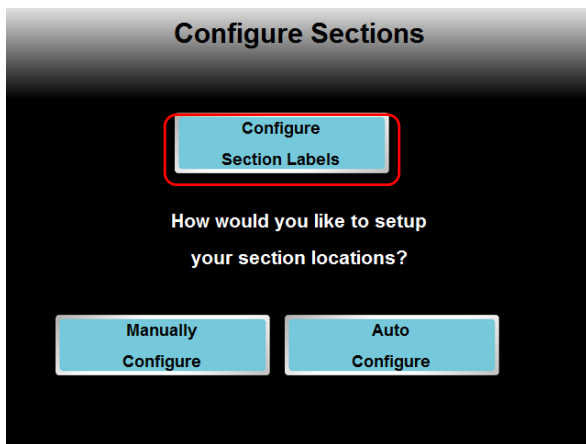
- Press Arrow Up/Down to select # of Sections
- Press Next



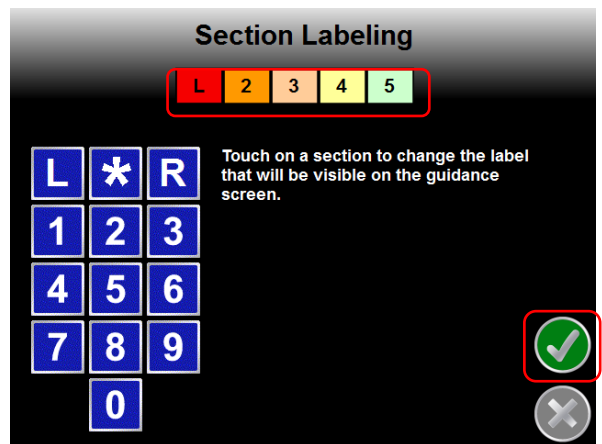
- Enter in Section widths in Inches
- Press Next in between each section



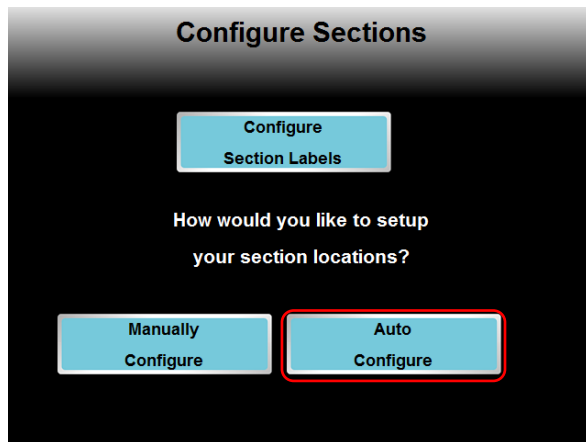
- If this Warning pops up Press the checkmark



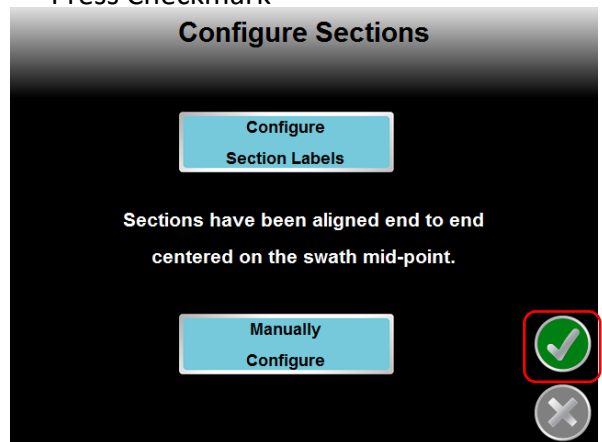
- Press Configure Section Labels



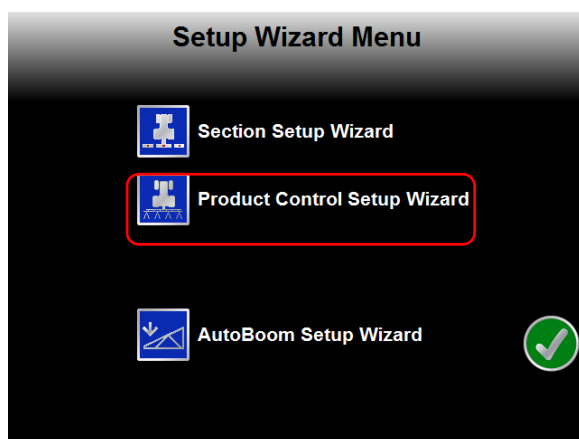
- Press how you want the Sections to read
- L1234, L2345, L123R, L234R, 12345
- Press Checkmark



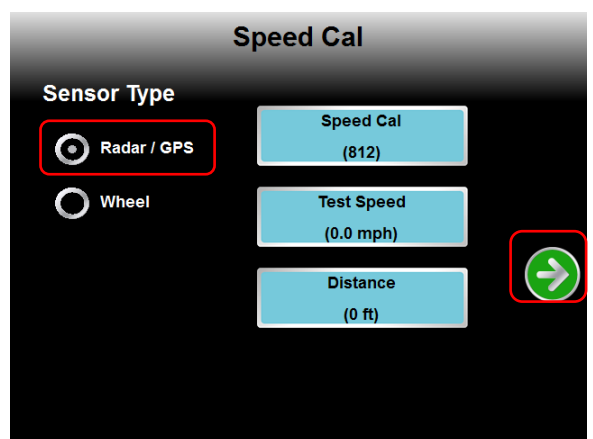
- Press Auto Configure



- Press Checkmark



- Press Product Control Setup Wizard



- Press Radar/GPS for Speed Source Cal
Number will auto populate
- Press Next

Application Type

☒ Liquid

☐ Granular 1 (Single Bed, Single Encoder)

☐ Granular 2 (Dual Bed, Single Encoder)

☐ Granular 3 (Dual Bed, Dual Encoder)

☐ Spinner

PROD 1

←

→

- Select Liquid
- Press Next

Valve Calibration

☐ Standard

☐ Fast

☒ Fast Close

☐ PWM

☐ PWM Close

Valve Cal

(743)

Valve Cal 2

(0)

Advance

(0)

Reset

Valve Cal

PROD 1

←

→

- Select Valve Type, Valve Cal will auto populate
- Standard 2123, Fast Close 743, PWM Close 43
- Press Next

Meter Cal

1

2

3

4

5

6

7

8

9

-

0

.

700.0

←

→

- Enter in Meter Calibration number off of the flowmeter tag use Pulses/ 10 Lbs N

Rate Cal

1

2

3

4

5

6

7

8

9

-

0

.

15.0

←

→

- Enter in Rate in Lbs/N/AC

Section Assignments

1

2

3

4

5

✓

✓

✓

✓

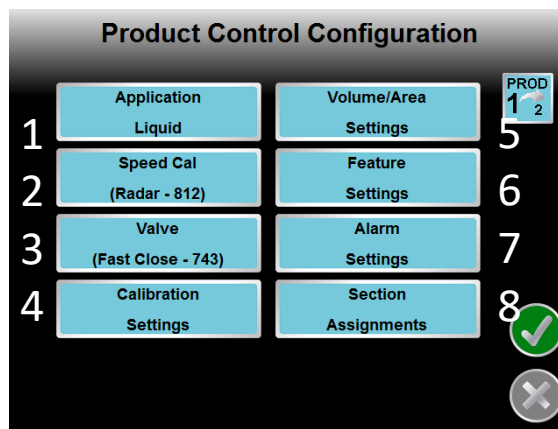
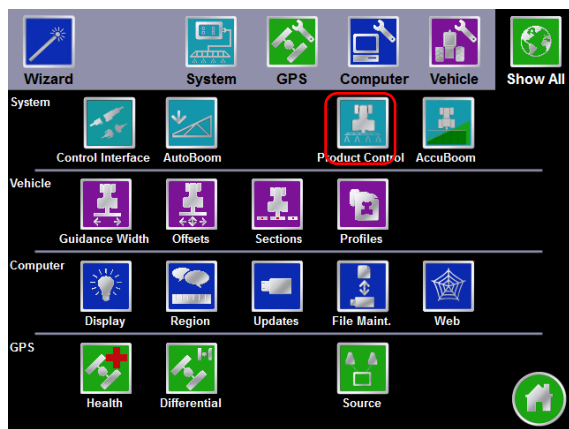
✗

PROD 1

←

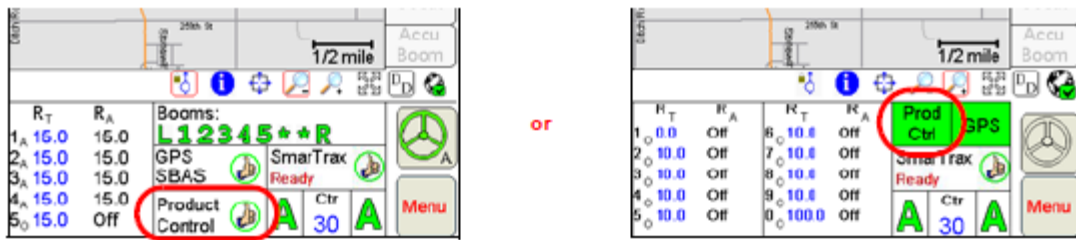
→

- Press to turn on all sections, all sections should have a green checkmark
- Press Next



#	Configuration	Settings Under Tab
1	Application	- Product Control Type - Eg. Liquid, Granular
2	Speed Cal	- Speed Calibration number - Test Speed - Distance
3	Valve	- Valve Type - Valve Calibration number
4	Calibration Settings	Not needed for NH3 use
5	Volume/Area Settings	- Volume Totals - Acre Totals - Distance Totals
6	Feature Settings	- Decimal Shift - Display Smoothing - Zero Speed Shutoff
7	Alarm Settings	- Low Tank - Low Limit - Current Alarms - Off Rate %
8	Section Assignments	Used only when two products are being controlled

Viper Pro



From Viper Pro Main Screen press on Product Control button at the bottom of the screen.

CAN Controller Status			
Boom Cals		Miscellaneous	
L 5	5 180	Speed Sensor	Wheel
1 180	* 0	Speed Cal	1000
2 300	* 0	Self Test	0.00
3 120	R 5	Pump RPM	0
4 300		Speed	10.2
		Units	US
Product 1			
Flow %	30	Flow/Shaft Alarm	Off
Off Rate %	30	Vac/Bin Alarm	Off
Low Tank	0.0	Decimal Shift	Off
Low Limit	0.0	Zero Shutoff	On
Tank Vol	632.0	Spreader	0
Area/Hour	0.0	Valve Cal	2123
Vol/Min	0.0	Valve Cal 20	
Rate Cal	15.0	Valve Adv	3
Rate +/-	2.0	Pump Cal	0
Meter Cal	700.0	Min Pwr	0
		Max Pwr	255
Pressure 1	71	Application Liquid	
Pressure 2	61	Standard Valve	
Tally Registers		OK	

Touch the screen on any of the blue highlighted areas to change the values below

- Select Product number that is associated with NH3.
- Viper Pro only will be Product 1.
- Seedhawk Viper Pro will be Product 4.
- SeedMaster Viper Pro will be Product 3 or 4.
- Application is Liquid
- Control Valve – Standard Valve, Fast Close Valve, PWM Close Valve
 - The Calibration numbers will auto populate.
- Meter Cal – Enter in the Pulses/10 Lbs found on the Flowmeter Tag.
- Customers will have to do the rest of the settings.

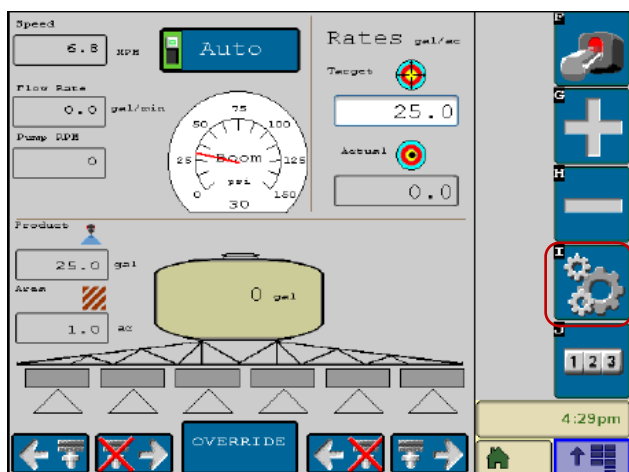
Raven Legacy ISOBUS

Monitors that can be used

RVN Viper 4/Viper 4+/CR-7/CR-9
JD2600 - for non-sectional only
JD 2630 – sectional approved
CNH Pro 700 – sectional approved
Trimble 1000 ISO
Topcon X25/X35

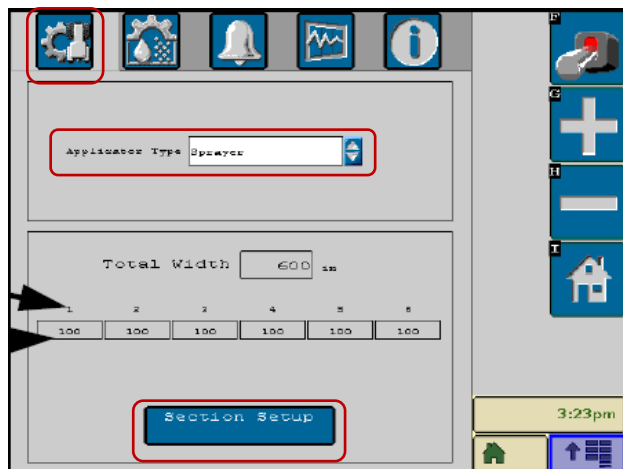
JD 2630 – sectional approved
JD 4600/4640** – sectional approved
**Software needs to be updated
CNH Intelliview 4
Trimble PRX2050
Topcon X30 Apollo

1. Start-up the VT display. Allow the display to power up and initiate the ISOBUS system
2. Once the product control node is detected, the product control icon will be displayed in the VT.
3. Press the Icon

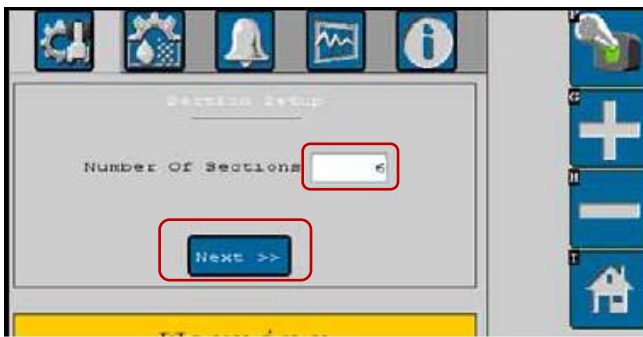


Your main screen will now appear on your Virtual Terminal Display.

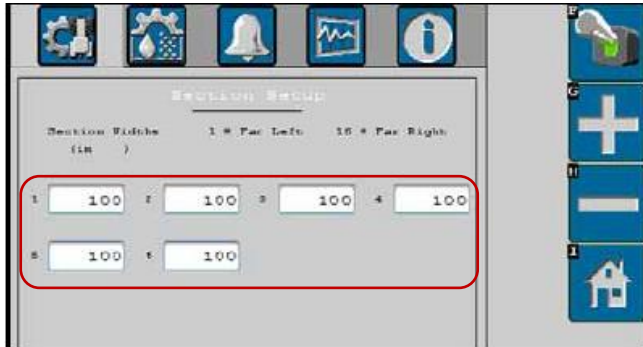
- Press the gears Icon on main screen.



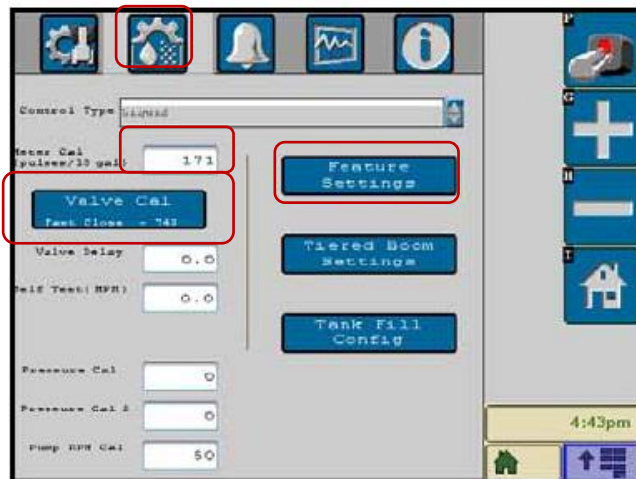
- Press the Gear with the tractor Icon
- Application Type – NH3 Applicator
- When NH3 Applicator is selected HP Boost and HP Plus comes on screen. Do not select either of these options.
- Press Section Setup



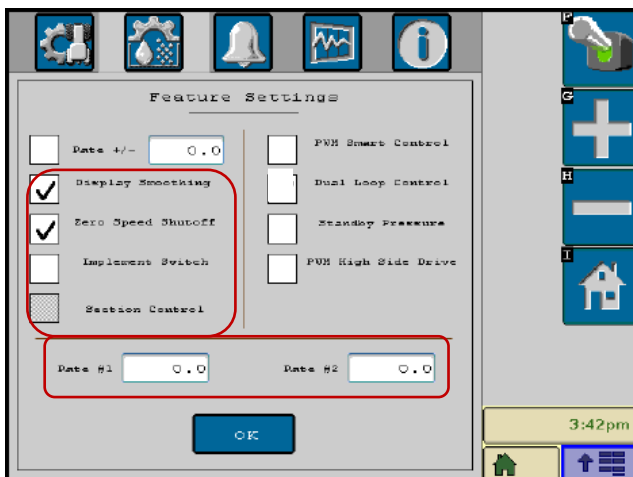
- Enter number of sections
- Press Next



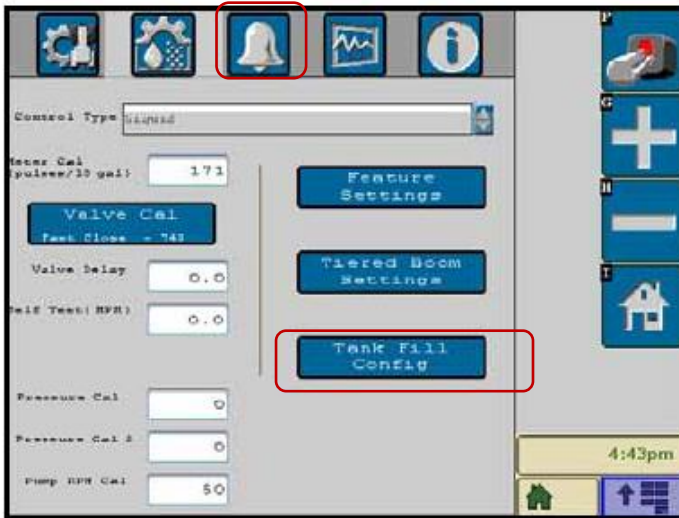
- Enter in the size of each of the sections.
- Press OK at the bottom of the screen.



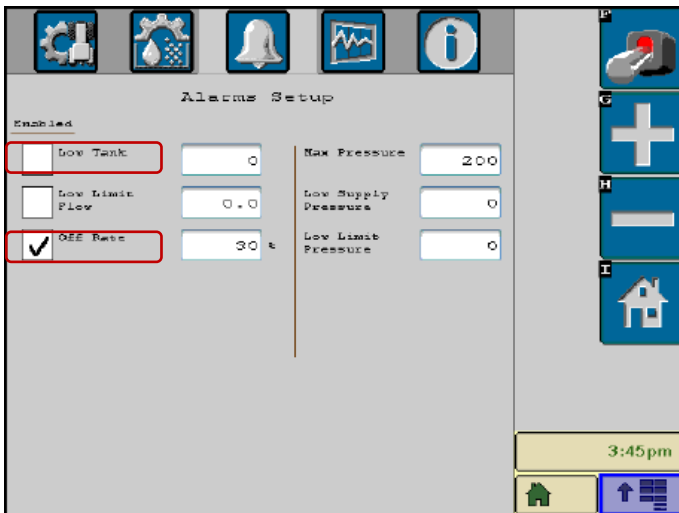
- Press the Gear with a Drop.
- Enter in Meter Cal off of the Flowmeter tag in Pulses/10Lbs N
- Press Valve Cal highlighted in Blue.
 - Select Valve Type - Standard, Fast Close, PWM Close
 - Valve Cal Number will auto populate
- Press OK
- Press Feature Settings that is Highlighted in Blue



- Checkmark Display Smoothing
- Checkmark Zero Speed Shutoff
- Section control will be greyed out if ISOBUS monitor is unlocked for Sectional Control
- Optional – Checkmark Implement Switch if one is hooked to the unit. PN 117-0171-298
- Optional – You can enter in two rates
- Press OK



- Press Tank Fill Config
 - Enter in Full tank capacity in Lbs
- Calculation - $\text{Total USWG} * .85 * 4.22 = \text{Total Lbs}$
 - Eg. $4000 * .85 * 4.22 = 14,348 \text{ Lbs}$
- Press OK
 - Press Alarms Icon (bell)



- Checkmark Low Tank and enter in 30% of the above Lbs Calculation
- Checkmark Off Rate and enter in 30%

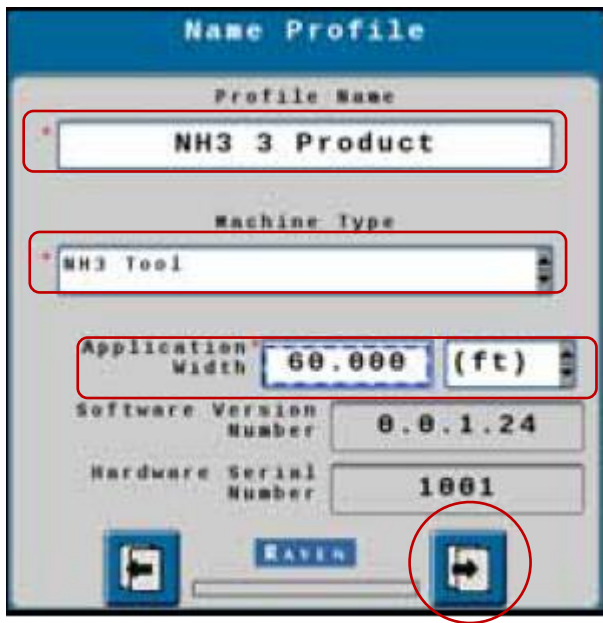
Raven RCM ISO/RC2000

Monitors that can be used

RVN Viper 4/Viper 4+/CR-7/CR-9
JD 2630 – sectional approved
CNH Pro 700 – sectional approved
Trimble 1000 ISO
Topcon X25/X35

JD 2630 – sectional approved
JD 4600/4640 – sectional approved
CNH Intelliview 4
Trimble PRX2050
Topcon X30 Apollo

Open up ISOBUS in the Virtual Terminal and select Setup Wizard



- Press Profile Name and Enter in a Profile Name
- Press Machine Type and select NH3 Tool
- Press Application Width and enter in width, and also enter in ft or inches.
- Press next red circle



- Press on Product 1
- Select product - NH3
- Press Next

Setup Section Groups

Number of Section Groups

Next

- Press Section Groups – Enter 1
- Press Next

Setup Section Harnessing

Section Group	Starting Section Number	Number of Sections	Equal Section Widths
1	1	6	☒

Next

- Press Starting Section Number enter in as 1
- Press Number of Sections enter in amount of sections you need.
- Press Equal Section Widths, Checkmark only if sections are equal
- Press Next

Setup Section Width

Enter the width of the sections

1	10.000	7	20.000
2	10.000	8	20.000
3	10.000	9	20.000
4	10.000		
5	10.000		
6	10.000		

Next

- Press on each Section and Enter in Corresponding Section Footage

OR

- If equal Sections were Check marked above verify that the Section numbers are correct here

Section Summary

60.000 (ft)

Product 1

10	10	10	10	10	10
1	2	3	4	5	6
1	2	3	4	5	6

Product 2

20	20	20
7	8	9
7	8	9

Product 3

10	10	10	10	10	10
1	2	3	4	5	6
1	2	3	4	5	6

Liquid Section Width: []

Granular Section Width: []

Wired Signal Driver: []

Section Number: []

RAYEN

- Verify Section Summary
- Press Next

Setup Pressure Sensors

Pressure Sensor 1: 0-250psi (1-5V)

Pressure Sensor 2: 0-250psi (1-5V)

Pressure Sensor 3: None

Pressure Sensor 4: None

RAYEN

- Press Pressure Sensor 1 and select 0-250PSI if Pressure sensor is installed
- Or if no pressure sensors are installed all should say none.
- Press Next

Setup Pressure Alarms

	Min	Max	Alarm?
Pressure 1 (PSI)	25	75	☒
Pressure 2 (PSI)	25	75	☒
Pressure 3 (PSI)	0	0	☐
Pressure 4 (PSI)	0	0	☐

RAYEN

- Only to be setup if Pressure Sensor is Installed
- Press and Enter in Min/Max for Sensor
 - Press and Checkmark Alarm if you want alarm to show on monitor
 - Press Next

Setup Control Valve

Product 1 NH3

Control Valve Type: AccuFlow Single Valve

Valve Response Rate (1-100): 50

Control Deadband (%): 2

Control Effort (%): 3

Setup Rate Sensor

Product 1 NH3

Flowmeter Calibration: 168

Flowmeter calibration units are (Pulses/10lbs of Actual N) for NH3 applications.

Setup Tank/Bin

Product 1 NH3

Tank Capacity (lb N): 20000

Current Tank Level (%): 95

Low Tank Level (%): 15

Alarm? ☒

- Press on Control Valve Type
- Select Accuflow Dual Valve for Standard Valve
Use Default Settings
- Select Accuflow Single Valve for Fast Close Valve
Use Default Settings for Cooler
Use Below Settings for Maxflow
Valve Response Time – Enter 70
Control Deadband – Enter 20
Control Effort – Enter 3
- Select PWM for PWM Close
Valve Response Time – Enter
Control Deadband – Enter 20
Control Effort – Enter 3
- Press Next
- Press on Flowmeter Calibration and enter the number on the flowmeter in Pulses/10 Lbs N.
- Press Next
- Press on Tank Capacity and Enter in Lbs of N
- Press on Current Level and Enter in 85
- Press on Low Tank Level and Enter in 30
- Press on Alarm to Checkmark the alarm.
- Press Next

Setup Rates

Product 1 NH3

	Rate 1	Rate 2	Rate 3
Preset Rate Values (lbs N/Ac)	80	115	150
Rate Bump (lbs N/Ac)	0		
Rate Selection	Predefined or Rx		
Rate Smoothing	☒		

Navigation buttons: Back, RAYEN, Next

- Press on Rate - 1,2,3 to set predefined rates in Lbs/acre
- Press on Rate Bump if wanting a plus or minus bump in Lbs/acre
- Press on Rate Selection
 - If RX will be used at anytime Enter what is seen in the field.
- Press on Rate Smoothing to Checkmark
 - If JD2000 Branded Enter in a number between 12-15%
- Press Next

Setup Alarms

Product 1 NH3

	Alarm?
Off Rate Alarm (% off target rate)	20 ☒
Section Valve Status Feedback Alarm	☐

Navigation buttons: Back, RAYEN, Next

- Press on Off Rate Alarm Enter in 20
- Press on Alarm to Checkmark
- Press on Section Valve Status to Checkmark
- Press Next

You will now be on the main settings page

System Settings

Control Valve Setup	Pressure Sensor Setup
Rate Sensor Setup	Auxiliary Functions Setup
Tank Fill Settings	Tiered Boom Setup
Display Setup Menu	

Navigation buttons: Back, RAYEN, Next

See Chart on next page

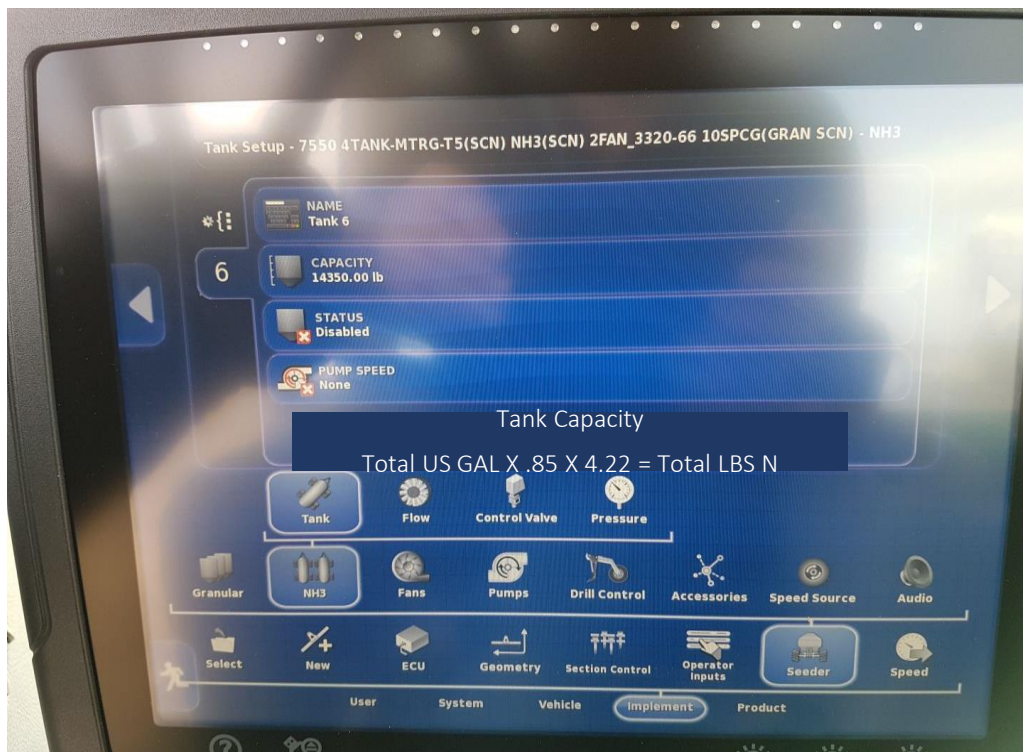
Number in Screen Shot Above	Button	Features
1	Control Valve Setup	• Valve Response Rate • Control Deadband • Valve Delay • Valve Advance • Control Effort • PWM Setup (Coil Frequency, High Limit, Low Limit, PWM Standby) • Boost Pump Setup (Coil Frequency, High Limit, Low Limit, Valve Response Rate)
2	Rate Sensor Setup	• Flowmeter Calibration • Flowmeter Pulse/Units • Tank Fill Flowmeter Calibration • Tank Fill Flowmeter Pulse/Units • Catch Test Calibration • Applied Product Calibration
3	Tank Fill Settings	• Tank Capacity • Current Level • Low Tank Level • Low Tank Level Alarm
4	Display Setup Menu	• Actual Rate Per Area • Target Rate Per Area • Area Per Hour • Area Remaining on Current Tank Level • Traveling Speed • Pressure Sensor • Volume Remaining • Volume Per Time (Flow Rate) • Area • Volume Applied
5	Pressure Sensor Setup	• Pressure Sensor 1-6 • Calibrate Pressure Sensor • Pressure Assignment Setup
6	Auxiliary Features Setup	• RPM Calibration Pulse/Rev • RPM Low Limit • RPM Low Limit Alarm • RPM High Limit • RPM Low Limit Alarm • RPM Sensor Assignment • Enable Agitator • Agitator Duty Cycle
7	Tiered Boom Setup Button	Sprayers Only

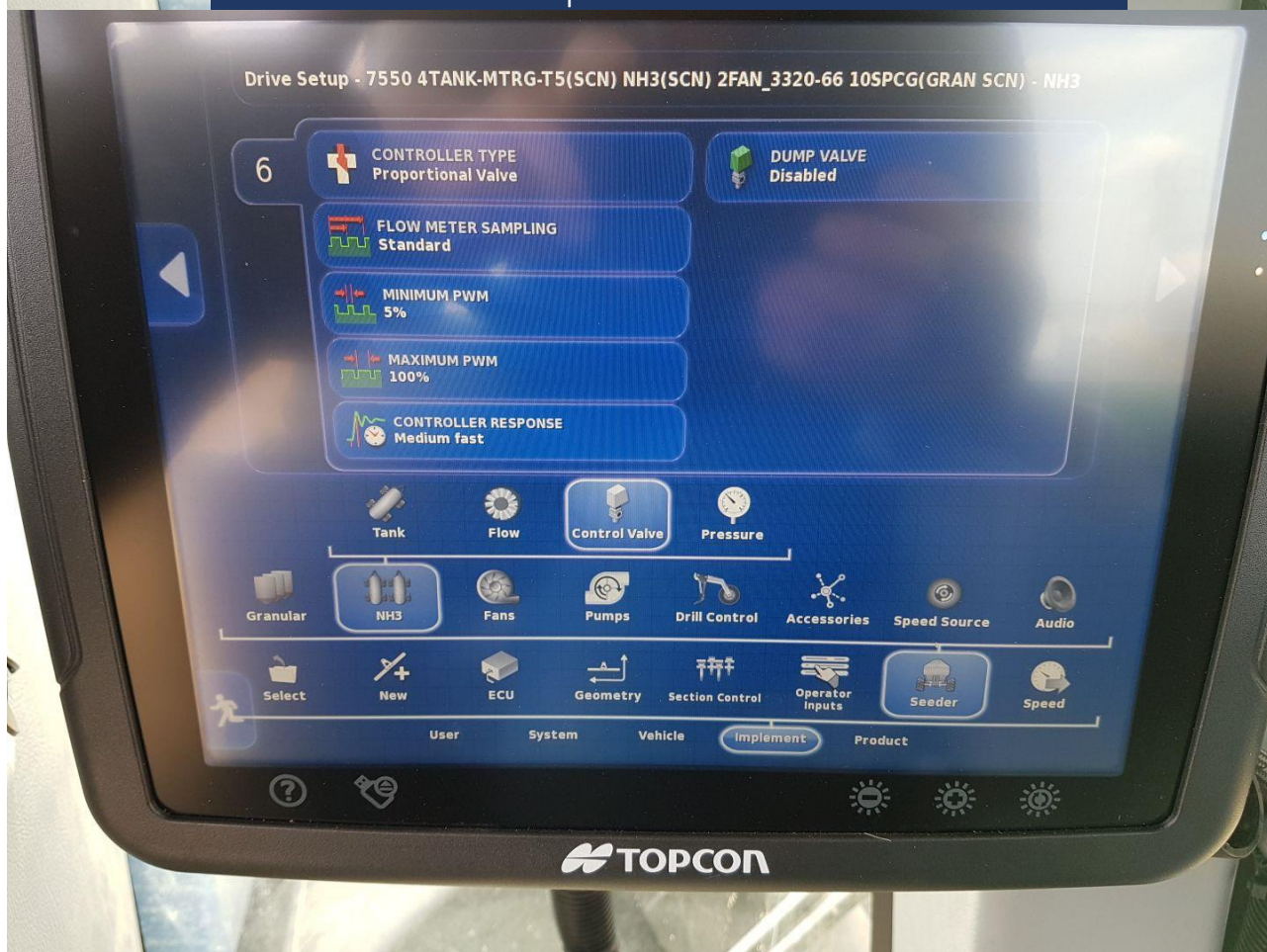
New Valve Response Chart



Setting	Information	Standard	Fast Close	Fast	PWM	PWM Close
Valve Response Rate (1-100)	Enter value for aggressiveness of rate controller as it approaches target rate. A value too high may lead to oscillation. A value too low may take a long time to reach target rate.	50	50	50	50	50
Control Deadband (%)	Enter percentage of rate tolerance for control valve. For example, if 2% is entered, the rate controller attempts to adjust the flow rate until the actual rate is within 2% of the target rate.	3	3	3	2	2
Valve Delay (sec)	Enter the amount of time in seconds between when the first section is turned on and the rate controller begins to control flow rate.	0.0		0.0	0.0	
Valve Advance (sec)	Enter the amount of time in seconds the rate controller commands the control valve to open after all sections are turned off. This may be used in conjunction with valve delay for low rate applications to build up pressure when the master switch is turned on.	0.0		0.0		
Control Effort (%)	Enter the minimum percentage power needed for the control valve to change position.	35	3	3		

Topcon Apollo/Topcon Bridge





JD Monitor/GS1 & GS2	
Flowmeter	- 10gal Check marked - Use 10gal off the tag
Control Valve	Fast Close Valve - 743/543 coolers - 293/493 Maxflow VRC II
Under "Rates Tab"	
Actual N	- Checkmark 82%
Rate Smoothing	- 12%

On the GS1/GS2 you can use the following tests to see if there is functionality on the valves.

- Energize Test will open the on/off's and the fast valve.
- Bleed Test will open the on/off's only.

FM, FMX Trimble w/Field IQ	
Flowmeter	- Raven Check Marked - Select lbs N, off of tag enter in full number 1XX, 3XX
Control Valve – Fast Valve	- Pump Servo for Fast Valve for Cooler and Maxflow VRC II - Proportional Gain 6, Integral Gain 0 - Breakout 14 - Dead Band 3
Control Valve- PWM	- PWM for Maxflow VRC II - Integral Gain 3, Proportional Gain 0 - Breakout 14 - Dead Band 3
Snap	- Enabled

CNH Pro700/Intelliview 4 with Field IQ

	Cooler	Maxflow VRC II
Flow Meter	7X.X, 3XX.X, 8XX.X	Same
Fast Valve	Proportional Gain 6	Same
PWM	N/A	Integral Gain 3



Flowmeter

Symptom	Correction
Inaccurate Rates	- Check flow meter tag and make sure the number is programmed properly (X/10gal, X/10lbs N) - Clean the strainer before the flow meter - Verify that the speed input is correct. - Verify speed with a distance calibration. - Verify on coolers that the vapor dump tube hose barb is not plugged and verify vapor product is coming out of the drop tubes - Verify product flow corresponds to the direction of the arrow on the flow meter. - Check cables to make sure there are no breaks or bare wires. - Check voltages on the flow cables (see following page on procedures). - If cables check out replace flow meter sensor For old style 1-063-0171-666 use part# 1-063-0171-669. For new style 1-063-0173-867 use part# 1-063-0172-004. - If issue is not corrected replace flow meter Part# 1-063-0173-867
Rate reads "0000" Only SCS Consoles	- Verify that you have a speed input in the monitor - Check voltages on the flow cables (see below)
Rate does not change in either manual or automatic mode	- Refer to Control valve trouble shooting.

Flowmeter Troubleshooting

Keyway in 12 o'clock position

3 Pin Connector
2 o'clock Ground
6 o'clock Signal
10 o'clock Constant 5V(12V Topcon and ICON)

2 to 10 - 5V Constant
2 to 6 - 5V Signal

On 16 Pin Harness
Pin 11 Ground
Pin 12 Constant
Pin 13 Signal

11 to 12 - 5V Constant
11 to 13 - 5V Signal

On 37 Pin Harness
Pin 21 Ground
Pin 25 Constant
Pin 28 Signal

21 to 25 - 5V Constant
21 to 28 - 5V Signal

PROCEDURE TO CHECK SIGNAL CABLE:

- 1) Enter a METER CAL number of one
- 2) Depress key labelled
- 3) Place BOOM switches to ON.
- 4) With small jumper wire (or paper clip), short between the 2 o'clock and 6 o'clock
Sockets with a "short-no short" motion. Each time a contact is made, the TOTAL VOLUME should increase by increments of 1 or more counts.
- 5) If TOTAL VOLUME does not increase, remove the section of cable and repeat test at connector next closest to Console. Replace defective cable as required.

NOTE: After testing is complete, re-enter correct METER CAL numbers before application

Fast Valve Control Valve

Symptom	Correction
Control valve to slow or too fast	- Verify the setting in the monitor should be 743 for Raven Controllers. - Increase or decrease the first digit between 1-9. 1 being the fastest and 9 being the slowest.
Control valve always over shooting or under shooting intended rate	- Verify the setting in the monitor should be 743 for Raven Controllers - Increase or Decrease the second digit between 1-9. 1 being fastest and 9 being the slowest. Explanation of the 2nd digit on the valve calibration % away from target before the valve slows down 1=10%, 2=20% 3=30% and so on.
Control Valve not responding to rate changes	- Verify the setting in the monitor should be 743 for Raven Controllers. - Increase or Decrease the third digit between 1-9. 1 being the fastest and 9 being the slowest. Explanation of the 3rd digit on the valve calibration. % of deviation allowed before the valve responds 1=1% 2=2% 3=3% and so on
Rate does not change in either manual or automatic mode	- Check cables for breaks or bare wires - Verify voltage on the Flow Cables and Extensions - If cables are good replace Motor drive on Fast Valve. Part # 1-063-0172-982 (Motor Only)

Fast Valve Troubleshooting

Keyway 12 o'clock

2 o'clock ground
10 o'clock constant 12 volts
4 o'clock increase
8 o'clock decrease

2 to 10 -12 volts
2 to 8 master off 12 volts
2 to 4 master on 12 volts

On 16 Pin Harness

Pin 1 ground
Pin 14 constant 12 volts
Pin 3 increase
Pin 4 decrease

1 to 3 - 12V Master on
1 to 4 - 12V Master off

On 37 Pin Harness

Pin 1 Ground
Pin 3 Constant 12 volts
Pin 15 decrease
Pin 16 increase

1 to 15 - 12V Master off
1 to 16 - 12V Master on

Rate controller Specific Issues

Topcon Apollo

- Reverse Valve Direction is enabled and Fast valve cap is on the harness

JD GS1/GS2 Rate Controller

- Fast Close Valve checked
- 493 cal number – Maxflow VRC II
- Fluctuations in rate change 743 to 543 – Coolers

Trimble Field IQ

- Pump servo is selected
- Inc/Dec Proportional gain and/or Breakout to smoothen out the rate jumping

On/Off Valves

Symptom	Correction
Valve will not open Valve will not close	- Verify voltage to the signal wire - Verify voltage to the constant 12V wire (red or orange light should be on) - Replace valve head
Valve rotates more than 90 degrees	- Adjust limit switch collar (See below picture) - Suggest crazy gluing after done as notches will slide easier as they are worn. Or replace with new limit switch collar from KZ
Valve goes from red to green but nothing happens	- Adjust limit switch collar (See below picture) - Suggest crazy gluing after done as notches will slide easier as they are worn. Or replace with new limit switch collar from KZ

On/Off Valve Troubleshooting

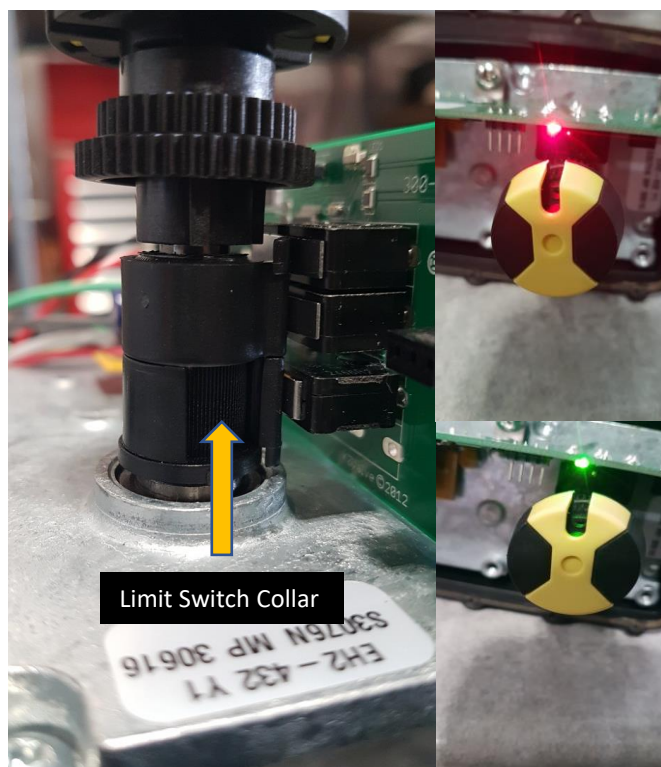
Keyway 12 o'clock position

10 o'clock Ground
2 o'clock Constant 12V
8 o'clock Signal 12V

10 to 2 - 12V
10 to 8 - 12V Boom On
10 to 8 - 12V Boom Off

16 pin Harness
Pin 1 - Ground
Boom 1 - Pin 6
Boom 2 - Pin 2
Boom 3 - Pin 5
Boom 4 - Pin 7
Boom 5 - Pin 8
Boom 6 - Pin 9

37 pin Harness
Pin 1 - Ground
Boom 1 - Pin 4
Boom 2 - Pin 5
Boom 3 - Pin 6
Boom 4 - Pin 7
Boom 5 - Pin 8
Boom 6 - Pin 9
Boom 7 - Pin 10
Boom 8 - Pin 11
Boom 9 - Pin 12



PWM Control Valve

Symptom	Correction
Control valve to slow or too fast	- Verify the setting in the monitor should be 43 for Raven Controllers.
PWM valve always over shooting or under shooting intended rate	- Verify the setting in the monitor should be 43 for Raven Controllers - Increase or Decrease the first digit between 1-9. 1 being fastest and 9 being the slowest. Explanation of the 1st digit on the valve calibration % away from target before the valve slows down 1=10%, 2=20% 3=30% and so on.
Control Valve not responding to rate changes	- Verify the setting in the monitor should be 43 for Raven Controllers. - Increase or Decrease the second digit between 1-9. 1 being the fastest and 9 being the slowest. Explanation of the 2nd digit on the valve calibration. % of deviation allowed before the valve responds 1=1% 2=2% 3=3% and so on
Rate does not change in either manual or automatic mode	- Check cables for breaks or bare wires - Verify voltage on the Flow Cables and Extensions - Refer to Maxflow VRC II Corrections

PWM Troubleshooting(Pump Only)

Keyway 12 o'clock

4 o'clock - 12V Power
8 o'clock - Ground

4 to 8 - 0 V Master Off
4 to 8 - 12V Master On

On 16 Pin Harness

Pin 3 - 12V Power
Pin 4 - Ground

3 to 4 - 12V Master on
3 to 4 - 0 V Master off

On 37 Pin Harness

Pin 15 - Ground
Pin 16 - 12V Power

15 to 16 - 0 V Master off
15 to 16 - 12V Master on

Rate controller Specific Issues

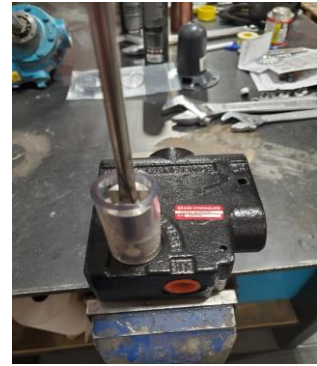
Topcon Apollo

- Controller Response must be Medium Fast
- 2 Wire Loop cap must be installed on cable

Maxflow VRC II Hydraulics

Symptom	Correction
Pump Turns for 4 seconds and then doesn't move	- Hydraulic lines reversed flow direction. Flip hydraulic lines in the remotes. Do Not just try in reverse detent as some tractors have remote issues running backwards. - There is a hydraulic back check in the system to prevent the pump from running backwards of flow direction.
Pump does not turn at all	- Make sure remotes are plugged in and flow is being delivered to the hydraulic block - Check couplers between the front and the back of the applicator to make sure flow is being delivered to the hydraulic block. - Always use pin style couplers instead of ball style couplers. - Refer to Fast Valve or PWM Troubleshooting - If Fast Valve or PWM are good bypass Electronics (see Page 27)
Hydraulic oil seeping out of the Blackmer coupler	- Remove Eaton hydraulic motor from coupler ¾" wrench - Is there hydraulic oil inside the coupler? If yes reseal the Eaton hydraulic motor with Part# HYP 60540-000
Pump runs for 20 to 60 seconds and then stops	- Make sure remote on the tractor is in continuous flow like when attached to an air cart.
Pump does not turn, Fast Valve works, Hydraulic oil being diverted through block.	- Unbolt Eaton Hydraulic motor from the white coupler. Verify the motor is turning and there are no leaks. If Eaton hydraulic motor turns go to next step. - Verify the keyway is still in orbit motor if so go to next step. - Unbolt the shaft guard on opposite side. With a small pipe wrench see if Blackmer pump turns. If it does not go to next step - Blackmer pump doesn't turn with a larger pipe wrench see if you can break the pump free - If pump will not break free rebuild or replace pump. See operators manual for pump rebuilding. If pump is under warranty do not touch it and call Maxquip Saskatoon and a trained Blackmer Tech will let you know what to do. (If pump is not under warranty you may do whatever you like to it.)
Rates bouncing issues	- Verify enough hydraulic oil is being supplied to the pump - Verify above to make sure you have a constant oil supply and pressure, if there is an issue in the hydraulics, for they will make rate jump around. - Verify we are not over supplying oil to the assembly, if over supplying oil every time the valve makes minor changes to much could be being sent. - CNH Tractors 25-30% flow, JD Tractors 3-3.5 on dial.

How to Bypass Electronics for Hydraulic System



- Remove electric motor from hydraulic block.
- 7/16" wrench
- Use large screwdriver to turn stem clockwise
- Pump should turn if not reverse the hydraulic lines, if not replace pioneer couplers



- Remove acorn nut on the solenoid side. 7/16" wrench
- Use small screwdriver to turn stem clockwise in. If you bottom out screw go to next step
- Pump should turn if not reverse the hydraulic lines, if not replace pioneer couplers
- When pump spins, slowly turn the screw out until the pump stops turning.
- Tighten the lock nut to the solenoid and replace the acorn nut.

Priming Issues on Maxflow VRC II

Symptom	Correction
Constant priming issue	- Verify proper plumbing on the nurse tank. - If a twin wagon, verify that one of the excess flows has not popped - Verify the intake strainer is not plugged and causing vapor to form. - Verify the needle valve or Electric valve is open to allow bypass to run. - If assembly has electric valve on bypass unplug to see if it is causing issue. - Diaphragm can be weak(pillowed) or have a pin hole in it. If assembly is older than 4 years replace the diaphragm. - Verify Diaphragm plates are not slightly bent from impacting the housing if the diaphragm was weak. - Verify we accept the rate controller on the kit. So far only the JD RC2000 has been blacklisted
Electric Valve Kit	- Verify the valve is open when manifold on/off's are closed. - Refer to Page 24 for on/off troubleshooting, but remember this valve is plugged into the "Master" so signal wire comes back from all the manifold on/off's. One of them must be opened to have this on/off to open.

MXQ Flowmeters

Symptom	Correction
NO Rate	- Smash the flowmeter with a hammer in the center opposite side of the sensor - Follow all other Steps on Page 22
1.5" Flow Meters	- Cal numbers will be 7XX for 10 LBS - Cal numbers will be 3XXX for 10 GAL
1" Flow Meters	- Cal numbers will be 2XXX for 10 LBS - Cal numbers will be 8XXX for 10 GAL