

# SETUP GUIDE

# **TOPCON APOLLO CONTROL MODULE**

FAST SHUTOFF - SINGLE LIQUID - SINGLE SWATH

| DOCUMENT NO.  | MAN0033    |
|---------------|------------|
| REVISION      | С          |
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# **Overview**

This document provides instructions for setting up a Fast Close Control Valve equipped Liquid Systems (SA) Rate Control Module with Topcon Apollo CM-40 ECU (pictured below) using Topcon X25, X35, XD and XD+ Console. CM-40 ECU can control up to 4 application channels. This scenario covers setup of a single liquid system without section control. A second liquid channel can be setup by following the same instructions again.

This document should be read in conjunction with the relevant Topcon Apollo Seeder Control Operator's Manual.



## **Configuration Prerequisites**

Before the liquid system can be configured in the Console the following steps need to be completed.

- Physical installation of Liquid Systems (SA) Rate Control Module including tank plumbing.
- Physical installation of a Stacker distribution system on the tool bar or planter.
- Installation and connection of Apollo CM-40 ECU to Topcon Console using appropriate wiring harnesses.
- Product tanks filled with enough water to conduct testing.

# Physical Connection to Liquid Systems module

Connect Liquid Systems (SA) module to the Apollo CM-40 ECU with wiring looms supplied.

Liquid Systems (SA) looms available for single liquid setup without section control are:

| Part No.              | Name                                   | Description   |
|-----------------------|--|---|
| TC-1013026-01         | Apollo CM-40 Adapter<br>Loom           | Adapter that connects to CM-40 ECU.   |
| LL07072               | Generic Module Loom<br>(5m)            | Connects to individual<br>device connectors on<br>LQS pump module.<br>Connects to TC-<br>1013026-01 Adapter<br>Loom via 23 pin circular<br>connector. |
| LL07015<br>(optional) | Generic Module Loom<br>Extension (6m)  | Extensions of Generic<br>Module Loom for when<br>additional length is<br>required from LQS<br>pump module to CM-40<br>ECU.                            |
| LL07020<br>(optional) | Generic Module Loom<br>Extension (12m) |   |



- 1. Plug Apollo CM-40 Adapter Loom (TC-1013026-01) into CM-40 ECU. Ensure it is connected to the correct channel for liquid tank. e.g., if tank **3** is to be set up for liquid product, then plug connector into channel **3**.
- 2. Connect the other end of Apollo CM-40 Adapter Loom to Generic Module Loom (LL07072). Connect & route Extension Looms (LL07015 or LL07020) in between if additional length is required to reach Liquid Systems (SA) module.



3. Connect Generic Module Loom to device connector on Liquid Systems (SA) module, ensuring connector is clipped in securely





UID SUSTEMS (SR) V V V

### Apollo CM-40 ECU Setup

Before the module can be setup a new implement profile with a liquid tank must be created.

Select Setup icon (bottom left corner) on the run screen to enter main setup screen.



Select Implement, New then Custom icon. Then select the appropriate configuration.



The implement should be configured with:

IMPLEMENT CONTROL: Rate Control Only ECU TYPE: Apollo IMPLEMENT FUNCTION: Seeder ECUS: CM40- Ensure no other ECU is connected to the CAN BUS. SEEDER MANUFACTURER: Other

At least 1 liquid tank needs to be created.



| New Impleme | New Implement Setup   | Close | New Implemer |   | New Implement Setup      |                      | Close |
|-------------|---|-------|--------------|---|--------------------------|----------------------|-------|
|             | Step 3: Implement Function  |       | Ste          | ep 8: ECU                               |                          |                      |       |
|             | Step 3: Implement Function<br>Select the function performed by the implement:<br>IMFLEMENT FUNCTION<br>Seeder |       | The          | ne Apollo system configuration summary: |                          |                      |       |
|             | IMPLEMENT FUNCTION Seeder   |       | Во           | oom Name                                | Туре                     | Function             |       |
|             |   |       |              | 1 Apollo CM-40 1                        | Apollo CM-40             | Rate Control Only    |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   | •                        |                      |       |
|             | Cancel =>   |       |              | 32%                                     | <b>R</b>                 | Cancel $\rightarrow$ |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   |                          |                      |       |
|             |   |       |              |   |                          |                      |       |
|             | <u>.</u>  |       |              |   |                          |                      |       |
|             | Custom Factory  |       |              | c                                       | astom Factory            |                      |       |
|             | 16 116 💂  |       |              |   | % #4 <b>.</b>            |                      |       |
|             | New Active Apollo Seador  |       |              | Ň                                       | New Active Apollo Seeder |                      |       |
|             |   |       |              | 2                                       |                          |                      |       |
|             | User System Vehicle Implement Product   |       |              | User Sy                                 | stem Vehicle Implement   | Product              |       |

Liquid Systems 📾

Select **Implement, Seeder, Liquid** & **Tank** icons from the setup menu to edit tank setup. All liquid tanks set up will be accessible. Select the numbered tab corresponding to tank that needs editing e.g., Tank **1**.

| Tank | c Setup - SETUP 1 - | Empty  |             |                          |                         |                    |        | [ | Close |
|------|---------------------|--------|-------------|--------------------------|-------------------------|--------------------|--------|---|-------|
| 9{J  | Tank 1              |        |             |                          |                         |                    |        |   |       |
| 1    | CAPACITY 5000.00 L  |        |             |                          |                         |                    |        |   |       |
|      | PUMP SPEED<br>None  |        |             |                          |                         |                    |        |   |       |
|      |                     |        |             |                          |                         |                    |        |   |       |
|      | NOZZLE MONITORIN    | 5      |             |                          |                         |                    |        |   |       |
|      |                     |        |             |                          |                         |                    |        |   |       |
|      |                     | Tank   | Flow Co     | ontrol Valve F           | Solution Pressure Agita | tion               |        |   |       |
|      |                     | Liquid | کی۔<br>Fan  | Pumps Dri                | ill Control Access      | ories Speed        | Audio  |   |       |
|      |                     | ECU    | ا<br>Geomet | 국무구구<br>TY Section Contr | rol Seeder              | Operator Inputs Al | arms 🖉 |   |       |
|      |                     |        |             | 》<br>New                 | 洲<br>Active Seed        | er                 |        |   |       |
|      |                     |        | User        | System N                 | Vehicle Imple           | nent Product       |        |   |       |

Select **Flow** icon to edit Flow setup. Press **Calibration Factor** icon and enter appropriate calibration factor for the type of flow meter from the table below.

| Flow Setup - SETUP 1 -      | Empty  | Close |
|-----------------------------|--|-------|
| CALIBRATION FACTOR          | $\supset$  |       |
| FLOW CONFIRMATION SENSOR    |  |       |
| BALANCED VALVES<br>Disabled |  |       |
|                             |  |       |
|                             |  |       |
|                             |  |       |
|                             |  |       |
| L                           | Tank Flow Control Valve Pressure Agitation                 |       |
|                             | Liquid Fan Pumps Drill Control Accessories Speed Audio     |       |
| -                           | 🔊 🖃 📅 🚑 🕾 🛷  |       |
|                             | ELU Geometry section control Seeder Operator inputs Alarms |       |
|                             | New Active Apollo Seeder                                   |       |
|                             | User System Vehicle Implement Product                      |       |

| Flowmeter   | Flowmeter Type                              | Pulses/Litre | Pulses/Ga (US) | Pulses/Ga (Imp) |
|-------------|---|--------------|----------------|-----------------|
| Calibration | TeeJet 801                                  | 82           | 310            | 373             |
| Factor      | ARAG Orion2 0.5-10 L/min<br>0.13-2.6 US GPM | 6,000        | 22,710         | 27,277          |
|             | ARAG Orion2 1-20 L/min<br>0.3-5.0 US GPM    | 3000         | 11,355         | 13,638          |
|             | ARAG Orion2 2.5-50 L/min<br>0.6-13.0 US GPM | 1,200        | 4,542          | 5,455           |

LQS Modules are built with 3 different Fast-Shutoff Valves, the images below show the difference between the 2 KZ Valves and Teejet Valve.







KZ Valve- L03085





Select **Control Valve** icon to edit control valve setup.

| <b>Control Valve Setup</b>         | - SETUP 1 - I | Empty             |   |               |                   |                       | Clos |
|------------------------------------|---------------|-------------------|---|---------------|-------------------|-----------------------|------|
| CONTROLLER TYPE<br>Regulator Valve |               | MINIMU<br>2 ms    | M ON TIME   |               | ų                 | DUMP VALVE<br>Enabled |      |
| FLOW METER SAMPLING Standard       |               | (1.0 s            | IM ON TIME  |               |                   |                       |      |
| CLOSE VALVE WHEN OFF               |               | GAIN SE<br>2 ms/% | TTING   |               |                   |                       |      |
| REVERSE VALVE     Disabled         |               | %‡ PWM SE         | TTING   |               |                   |                       |      |
| CONTROLLER MODE<br>Standard        |               | PRESSUI<br>2.0 s  | RE BOOST  |               |                   |                       |      |
|                                    |               |                   |   |               |                   |                       |      |
|                                    | Tank          | Elow Control      |   | Agitation     |                   |                       |      |
|                                    | Liquid        | Fan Pum           | ps Drill Control  | Accessories   | <b>O</b><br>Speed | Audio                 |      |
|                                    | ECU           | Geometry          | TTTT<br>Section Control Se                                      | eder Operator | Inputs Ala        | rms                   |      |
|                                    |               | S.                |   |               |                   |                       |      |
|                                    |               | , Nev             | P /// </td <td>Apollo Seeder</td> <td></td> <td></td> <td></td> | Apollo Seeder |                   |                       |      |

Enter the following values into each setting.

| Setting              | L03067   | L03085          | Teejet   |  |  |  |  |
|----------------------|----------|-----------------|----------|--|--|--|--|
| CONTROLLER TYPE      |          | Regulator Valve |          |  |  |  |  |
| FLOW METER SAMPLING  | Standard |                 |          |  |  |  |  |
| CLOSE VALVE WHEN OFF |          | Enabled         |          |  |  |  |  |
| REVERSE VALVE        |          | Disabled        |          |  |  |  |  |
| DUMP VALVE           |          | Enabled         |          |  |  |  |  |
| CONTROLLER MODE      | Dicke    | y John          | Standard |  |  |  |  |
| MINIMUM ON TIME      | 2 ms     | 2 ms            | 2 ms     |  |  |  |  |
| MAXIMUM ON TIME      | 48 s     | 48 s            | 4 s      |  |  |  |  |
| GAIN SETTING         | 3.4 ms/% | 0.8 ms/%        | 2 ms/%   |  |  |  |  |
| PWM SETTING          | 45%      | 60%             | 60 %     |  |  |  |  |
| PRESSURE BOOST       | 1.5 s    | 1.0 s           | 2.0 S    |  |  |  |  |

Note: Minimum & Maximum on Time, Gain, PWM & Pressure Boost settings can be adjusted later to improve control if required.

# Liquid Systems 📾

Select **Pressure** icon to edit pressure sensor setup.

| Pressure Sensor Setur                | - SETUP | 1 - Empty   |                  |                |               |       | Close |
|--------------------------------------|---------|-------------|------------------|----------------|---------------|-------|-------|
| SENSOR<br>Voltage                    |         |             |                  |                |               |       |       |
| SENSOR MAXIMUM PRESSURE<br>10.34 bar |         |             |                  |                |               |       |       |
| SENSOR MINIMUM VOLTAGE               |         |             |                  |                |               |       |       |
| SENSOR MAXIMUM VOLTAGE               |         |             |                  |                |               |       |       |
|                                      |         |             |                  |                |               |       |       |
|                                      |         |             |                  |                |               |       |       |
|                                      | - 10    |             |                  |                |               |       |       |
|                                      | Tank    | Flow Contro | Valve Pressure   | Agitation      |               |       |       |
|                                      | Liquid  | Fan Pur     | nps Drill Contro | Accessories    | Speed A       | Audio |       |
|                                      | ECU     | Geometry    | TTTT             | eeder Operator | Inputs Alarms | 1     |       |
|                                      | -       | Z           | 4 <i>1</i> 16    |                |               |       |       |
|                                      |         |             | em Vehicle       | Implement      | Product       |       |       |

Enter the following values into each setting.

| SENSOR           | Voltage   |
|------------------|-----------|
| MAXIMUM PRESSURE | 10.34 bar |
| MINIMUM VOLTAGE  | 0.00 V    |
| MAXIMUM VOLTAGE  | 5.00 V    |

Select **Implement** then **Geometry** and set the measurements according to the implement being used.





### Setup On Screen Pump RPM Display

Go to Encoders Setup Page. Configure a Pump source with appropriate ECU Connection. Select matching drive number for the tank. If unsure, drive number assignment for the liquid tank can be checked on ECU Setup screen.

If no Pump source is available, configure Auxiliary RPM

Changing ECU Connection requires DEALER User access level.



| Click | ESH ECU SETTINGS<br>to retrieve current setting | gs from ECU | CLEAR EC           | CU ERRORS<br>clear ECU errors         |                                   | ADD TA      | NKS<br>add tanks to the active implement | ++ |
|-------|---|-------------|--------------------|---------------------------------------|-----------------------------------|-------------|--|----|
| Tank  | Name  | τ           | уре                |                                       | ECU Name                          |             | Firmware Version                         |    |
| 1     | Tank 1  | Lie         | quid               |                                       | Apollo CM-401 - Driv              | re 1        | 3.3.6                                    |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   |             |                    |                                       |                                   |             |  |    |
|       |   | 3           | 0.0                | 2                                     | <b>?</b>                          |             |  |    |
|       |   | Setup       | Manage             | Upgrade Cr                            | M-40 Setup                        |             |  |    |
|       |   | Setup       | Manage             | रूर<br>Upgrade cr<br>नेनेने           | M-40 Setup                        | R           |  |    |
|       |   | Setup       | Manage<br>Geometry | Upgrade cr<br>TTT<br>Section Control  | M-40 Setup<br>Seeder Operator Inj | outs Alarms | 1  |    |
|       |   | Setup       | Manage<br>Geometry | Upgrade cr<br>Titi<br>Section Control | M-40 Setup<br>Seeder Operator Inj | outs Alarms | I  |    |

Select **Implement, Seeder, Liquid** & **Tank** icons from the main setup menu to edit tank setup. Assign Pump source to PUMP SPEED setting.

| Tank | Setup - SETUP 1 -              | Empty       |             |               |                     |               |                   |       | Close |
|------|--------------------------------|-------------|-------------|---------------|---------------------|---------------|-------------------|-------|-------|
| ə{]  | Tank 1                         |             |             |               |                     | NOZZLE        | MONITORING        |       |       |
| 1    | CAPACITY<br>5000.00 L          |             |             |               |                     |               |                   |       |       |
|      | TANK EMPTY SENSOR<br>0V Signal |             |             |               |                     |               |                   |       |       |
|      | PUMP SPEED<br>Pump 1           |             |             |               |                     |               |                   |       |       |
|      |                                |             |             |               |                     |               |                   |       |       |
| l    |                                |             |             |               |                     |               |                   |       |       |
|      |                                | <b>Tank</b> | ()<br>Flow  | Control Valve | Pressure            | Agitation     |                   |       |       |
|      |                                | Liquid      | Gal.<br>Fan | Pumps         | Jo<br>Drill Control | Accessories   | <b>O</b><br>Speed | Audio |       |
|      |                                | ECU         | Geome       | etry Section  | T<br>Control Se     | eder Operator | Inputs Alar       | ms    |       |
|      |                                |             |             | 》<br>New      | 洲石<br>Active        | Apollo Seeder |                   |       |       |
|      |                                |             | User        | System        | Vehicle             | Implement     | Product           |       |       |

Go to **Pumps** setup page to enter pump RPM calibration.

#### **PUMP SPEED:** Enabled **PULSES/REVOLUTION:** 36 (30 for LQS20 module)





Return to run screen to configure the screen to display Pump speed. Press data display area to open a window with a list of available parameters.

|             | 1: WATE    | R              |                     | Configuration                 |   |          |        |   |       |    |     | 1                |
|-------------|------------|----------------|---------------------|-------------------------------|---|----------|--------|---|-------|----|-----|------------------|
| TOPCON      | 截          | 0.00<br>L/ha   | WATER               | MANUAL<br>SPEED               |   |          |        |   |       |    |     | 100              |
|             | Ŷ          | 0.07           |                     | MANUAL                        |   |          |        |   |       |    |     | E.               |
| <b>Sec.</b> | Reques     | ted Rate       | 5000L               | 0.0 km/h                      |   |          |        |   |       |    |     | 12               |
| ~           | 4          | 0.0 L/ha       | 5000 L              | Calibration<br>82.00 pulses/L |   |          |        |   |       |    |     |                  |
|             | -          | +              | 務 0.00 L/ha         |                               |   |          |        |   |       |    |     | -                |
|             | 200        | 40.0           | 💱 0.07 bar          |                               |   |          |        |   |       |    |     |                  |
|             | ****       | L/na           | 5000.0 L            |                               |   |          |        |   |       |    |     |                  |
|             | 12         | L/ha           | **** 0.0 L/min      |                               |   |          |        |   |       |    |     |                  |
| 8-11-8      | A          | Auto           | 🐠 0 rpm             |                               |   |          |        |   |       |    |     |                  |
|             |            |                |                     |                               |   |          |        |   |       |    |     |                  |
|             |            |                |                     |                               |   |          |        |   |       |    |     |                  |
|             | (1 of 1) ! | Section State: | Boom 1 (Full Width) |                               |   |          |        |   |       |    |     |                  |
|             |            |                |                     |                               |   |          |        |   |       |    |     |                  |
| ТАР         | 0000       |                |                     |                               | <mark>, , , , , , , , , , , , , , , , , , , </mark> |          |        |   |       |    |     | n <del>ere</del> |
|             |            |                |                     |                               |   |          |        |   |       |    |     |                  |
|             |            |                |                     | 1                             | 0.00 🐠  | 11:35    | 1      | 0 | 001   |    |     | -                |
| 2           |            |                |                     | ூ 0.<br>₩ 0.                  | 07 bar  | 6<br>Dec | No GPS | 6 | 0.0 - | cm | 0.0 | 0 0              |

Select **Pump speed** from the list and press Green Tick arrow.

Note - maximum of 5 parameters can be displayed on the run screen.





| -        | 1: WATE           | R                   |                     | Configuration                 |         |          |        |       |      |    |      | 4     |
|----------|-------------------|---------------------|---------------------|-------------------------------|---------|----------|--------|-------|------|----|------|-------|
| TOPCON   | <b>R</b>          | 0.00                | WATER               |                               |         |          |        |       |      |    |      | 1     |
|          | Ŷ                 | 0.07                | 50001               |                               |         |          |        |       |      |    |      | No.   |
| 8        | Reques            | ted Rate            | SUUUL               | 10.0 km/h                     |         |          |        |       |      |    |      | 12    |
| ~        | 4                 | 0.0 L/ha            | 5000 L              | Calibration<br>82.00 pulses/L |         |          |        |       |      |    |      |       |
|          | -                 | +                   | 00:00 hrs           |                               |         |          |        |       |      |    |      |       |
|          |                   | <b>40.0</b><br>L/ha | 5000.0 L            |                               |         |          |        |       |      |    |      |       |
| <b>H</b> | 19 <mark>1</mark> | <b>60.0</b><br>L/ha | 0.0 L/min           |                               |         |          |        |       |      |    |      |       |
| R        | A                 | Auto                | 🔊 0 rpm             |                               |         |          |        |       |      |    |      |       |
|          |                   |                     | _                   |                               |         |          |        |       |      |    |      |       |
|          |                   |                     |                     |                               |         |          |        |       |      |    |      |       |
|          | (1 of 1) s        | Section State:      | Boom 1 (Full Width) |                               |         |          |        |       |      |    |      |       |
|          |                   |                     |                     |                               |         |          |        |       |      |    |      |       |
| ТАР      | 0000              |                     |                     |                               |         |          |        | 00000 |      |    |      |       |
|          |                   |                     |                     |                               |         |          |        |       |      |    |      |       |
|          |                   |                     |                     | <b>6</b> 1                    | 0.00    | 11:36    | 0      | 0     | Endi |    |      |       |
| S.       |                   |                     |                     |                               | .07 bar | 6<br>Dec | No GPS |       | km/h | cm | 0.00 | (III) |

Pump speed should now be displayed on the run screen.

### **AUXILIARY RPM Setup**

If no "Pump" Encoder Source is available setup an Auxiliary RPM Encoder with the following steps. Map Auxiliary RPM Source to Drive connected to liquid tank.





Enable Auxiliary RPM on General Inputs page and enter calibration factor: **PULSES/REVOLUTION:** 36 (30 for LQS20 module)

| General Input Setup - SETUP 1                                      | Close |
|--|-------|
| USING LADDER DOWN ALARM Disabled                                   |       |
| AUXILIARY RPM<br>Enabled   |       |
| M AUXILIARY RPM PULSES/REVOLUTION                                  |       |
|  |       |
|  |       |
|  |       |
| * * *  |       |
| Blocked Head General Inputs Encoders General Outputs Brake Control |       |
| Liquid Fan Pumps Drill Control Accessories Speed Audio             |       |
| 문CU Geometry Section Control Seeder Operator Inputs Alarms         |       |
| Ho Mi par  |       |
| New Active Apollo Seder<br>User System Vehicle Implement Product   |       |

Touch Dashboard to customise and enable Fan Speed display.

| 4           | 1: WATER         |                            | Configuration   |                     | Customice Dashboard |                      |    |  |  |
|-------------|------------------|----------------------------|---|---------------------|---------------------|----------------------|----|--|--|
| TOPCON      | 📸 0.0            | )O<br>Na WATER             |   |                     | Customise Dashboar  |                      |    |  |  |
|             | 😜 0.0            | )7                         | MANUAL  |                     | Fan Speed           |                      | ×, |  |  |
| <b>Se</b> . | Requested Rat    | 5000L                      | 0.0 km/h  |                     | 1: WATER            |                      | 12 |  |  |
| ~~~         | 40.0 L/ł         | a 5000 L                   | Calibration<br>82.00 pulses/L   |                     | Implement Speed     |                      |    |  |  |
|             |                  | 0.00 L/ha                  |   |                     | Clock               |                      |    |  |  |
|             | 40<br>1 40       | .0 💱 0.07 bar              |   |                     | Signal Strengths    |                      |    |  |  |
|             | 724 60           | 10 5000.0 L                |   |                     | GPS                 |                      |    |  |  |
|             |                  | na 0.0 L/min               |   |                     | Speed               |                      |    |  |  |
|             | A AU             | to 🖉 0 rpm                 |   |                     | Heading             |                      |    |  |  |
|             |                  |                            |   |                     | Cross Track Error   |                      |    |  |  |
|             | (1 of 1) Section | State: Boom 1 (Full Width) |   |                     | Cancel OK           |                      |    |  |  |
|             |                  |                            |   |                     |                     | _                    |    |  |  |
| ТАР         |                  |                            | <u> </u>  |                     |                     |                      |    |  |  |
|             |                  |                            | Choose panels f   | rom the list above. | s to display        |                      |    |  |  |
| U           |                  |                            |   |                     |                     |                      |    |  |  |
| لک          | DA               | SHBOARD                    | 0         0 |                     |                     | .0 <sup>-</sup> 0.00 |    |  |  |
|             |                  |                            | C.O L/min   | Dec                 | ite di b            | na                   |    |  |  |



Touch Fan Speed section of Dashboard to bring up Select Data menu.

| 4      | 1: WATER   |              |                          | Configuration   |                           |          | Customia         | - Daabhaand |   |            | 1   |
|--------|--|--------------|--------------------------|---|---------------------------|----------|------------------|-------------|---|------------|-----|
| TOPCON | <b>R</b>   | 0.00<br>L/ha | WATER                    |   |                           |          | Customis         | e Dashboard |   |            |     |
|        | Q  | 0.07         |                          | MANUAL  |                           |          | Fan Speed        |             |   |            | ES. |
|        | Requested Rate   |              | 5000L                    | SPEED<br>0.0 km/h   |                           |          | 1: WATER         |             |   |            | 12  |
| ~      | 40.0 L/ha  |              | 5000 L                   | Calibration   |                           |          | Implement        | Speed       |   |            |     |
|        | _  | T.           | 00:00 hrs                |   |                           |          | Clock            |             |   |            |     |
|        | 40,0   | 40.0         | 🐔 0.00 L/ha 🕤 😳 0.07 bar |   |                           |          | Signal Stren     | gths        |   |            |     |
|        | 1  | L/ha         | 5000.0 L                 |   |                           |          | GPS              |             |   |            |     |
| XX     | 19 <mark>2</mark>  | 60.0<br>L/ha | 0.0 L/min                |   |                           |          | Speed            |             |   |            |     |
| R      |  | Auto         | 🐠 0 rpm                  |   |                           |          | Heading          |             |   |            |     |
|        |  |              |                          |   |                           |          | incounty         |             |   |            |     |
|        |  |              |                          |   |                           |          | Cross Track      | Error       |   |            |     |
|        | (1 of 1) Se  | ction State: | Boom 1 (Full Width)      |   |                           |          | Cancel           | ок          |   |            |     |
|        |  |              |                          |   |                           |          |                  |             | · |            |     |
| ТАР    | 00000  |              |                          | Chaos   | e e e e e e e e e e e e e |          |                  |             |   |            |     |
|        | Choose panels from the list above.<br>Click on a panel below to choose the data fields to display. |              |                          |   |                           |          |                  |             |   |            |     |
|        |  |              |                          | <b>O</b>  | 0.00                      | 11:36    | 1 X              | 0 .00       |   |            |     |
| Ş      |  |              |                          | O 10.     O | .07 bar<br>0 L/min        | 6<br>Dec | D A −−<br>No GPS | km/h        |   | 0.00<br>ha |     |

Choose Auxiliary RPM Speed. Click Green Ticks to save settings. Auxiliary RPM will then show on Dashboard. (Fans can be shown as well if required.)





## System Setup Verification Tests

Start the pump and perform a test to verify system setup. Select **Manual Speed** option and enter a typical speed. Select a pre-defined application rate. Press **Virtual Master Switch** to start the test. Vary speed and application rate to ensure control system is performing correctly across the entire setup range. Press **Virtual Master Switch** to terminate the test.



If rate control is erratic, go to **Control Valve** setup screen and adjust control valve parameters. DECREASE GAIN or PWM setting for smoother control, INCREASE for faster response. Refer to X Series Console Apollo Seeder Control Operator's Manual for more information.

