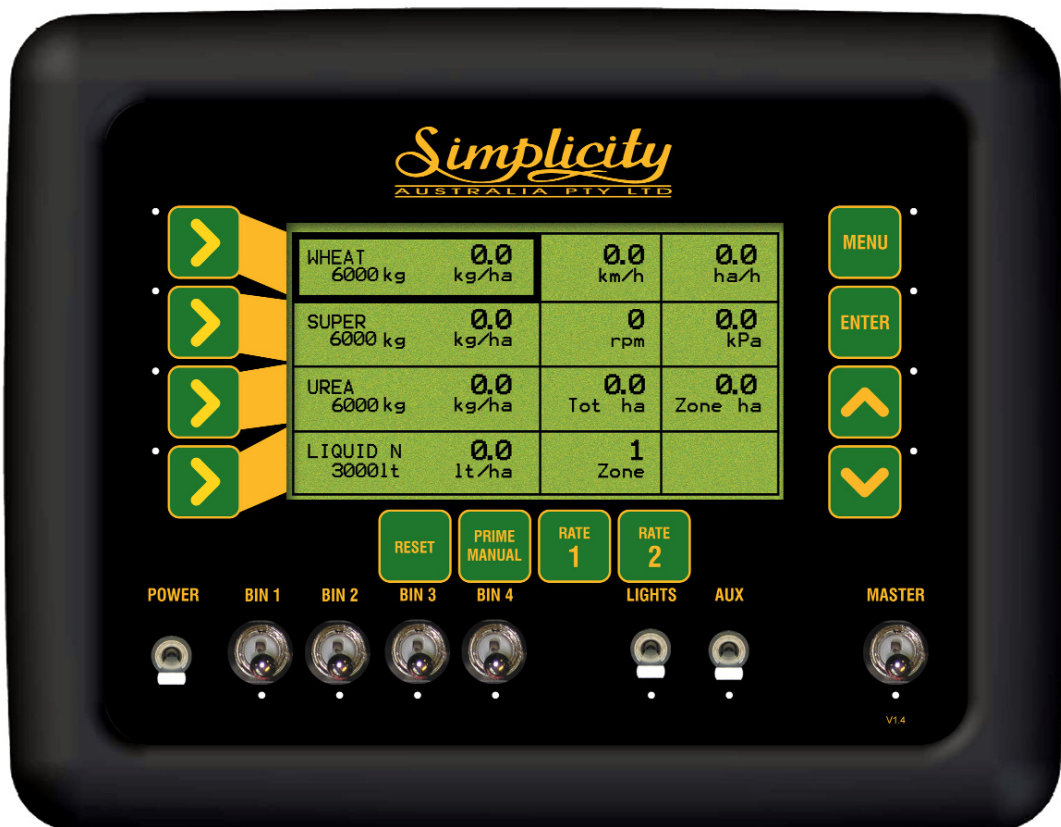


# Simplicity

## Operators Manual

### E15 Seeder Console Air Seeder Monitor A600 R1.3 V2.0.18



Simplicity

As with any software operated equipment, software and/or hardware is in many cases changed and upgraded over the life of the equipment.

The Simplicity Console is constantly being worked on, with software enhancements which will provide you with many additional benefits and features in the future.

The EAGLE System will keep on evolving! ...to ultimately improve your 'bottom line'!

KEE Technologies personnel have records of all changes implemented to your system with the subsequent serial number.

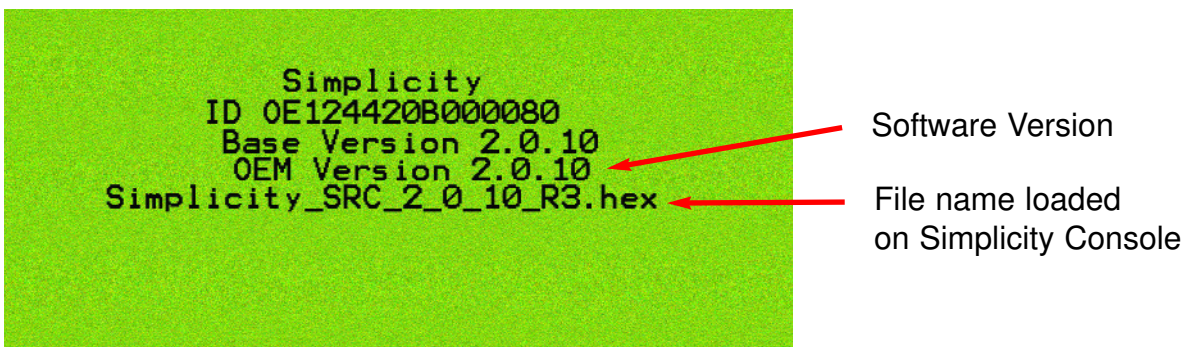
When talking to Simplicity Support staff, always have this manual with you, as we may ask you what version manual you are currently looking at to ensure we all talk the same language. For this purpose all pages are on the top right hand side display the manual version number and date manual was upgraded. Ie V2.0 03/06. Which means the manual is version 2.0 and the manual was upgraded in March 2006.

Below is space provided to keep records of any software and hardware upgrades you may have received.

### Important information

This manual only applies to Simplicity Eagle Monitors with software version 2.0.18 or later. Use Simplicity Air Seeder Monitor manual V2.0.18 R1.3

If your Simplicity Eagle Monitor has software version 1.0 to 1.4 then use operators manual 'Simplicity Air Seeder Monitor' manual V1.1



The above screen is displayed for 60 seconds each time the Simplicity Console is switched using the 'POWER', button.

The software version is displayed on the 4th line 'OEM Version 2.0.10' with the '2.0.10' being the software version.

The software version 2.0.0 or later, requires 'Simplicity Air Seeder manual V2.0'

The fifth line 'Simplicity\_SRC\_2\_0\_10\_R3.hex' displays the file name loaded onto the console. The 'R3' represents the Hardware revision being used on the Simplicity Console, software version 2.0.0 or later requires 'R3' hardware to run.

Type of upgrade (software or hardware)	Version	Date	Manual upgraded
Simplicity MONITOR REV 3 Board	2.0.18	11/06	02/07



<b>1. Overview</b>	Page 7
1.0.1 Optional Extras	Page 8
<b>2. Configuration</b>	Page 9
2.1 Air Seeder Overview	Page 9
2.2 System Components	Page 10
2.3 Menu Manipulation	Page 11
2.4 Simplicity Console Overview	Page 12
2.4.1 The Working Screen	Page 12
2.5 Working Screen Navigation Functions	Page 14
2.6 Setup Menu	Page 17
<b>3. Seeder Setup Menu</b>	Page 18
3.1 Bins Setup Menu	Page 19
3.1.1 Set the Number of Bins on the Machine	Page 20
3.1.2 Set the Bin Volume	Page 20
3.1.3 Enable Bin Clutches for each Bin	Page 20
3.2 Wheel Calibration Factor	Page 21
3.2.1 Set the Wheel Factor	Page 22
3.2.2 Wheel Factor Calibration	Page 22
3.2.3 Manual Entry	Page 22
3.2.4 Speed Source	Page 22
3.2.5 Connecting a GPS Receiver (Optional)	Page 23
3.3 Width Speed and Prime Duration Setup	Page 24
3.3.1 Set the Seeding width of the Machine	Page 25
3.3.2 Set the Manual Speed	Page 25
3.4 Operating History	Page 26
3.4.1 Totals History	Page 27
3.4.2 Shafts History	Page 28
3.4.3 Fan History	Page 29
3.5 Config. Setup	Page 30
3.5.1 To Change the External Master Setting (Optional)	Page 31
3.5.2 Enable Blocked Sensor (Optional)	Page 32
3.6 Fan Sensor Gain Factor	Page 31
3.6.1 Setting the Fan Sensor Gain Factor	Page 31
<b>4. Product Setup and Selection</b>	Page 33
4.0.1 Product Selection Screen	Page 33
4.1 Product Setup	Page 34
4.1.1 Enter a Product Name	Page 35
4.1.2 Enter a Product Bin Number	Page 36
4.1.3 Enter Number of Encoder Teeth	Page 36
4.1.4 Enter the Density of the Product	Page 36
4.2 Enter the Cal Factor for the Product	Page 37
4.2.1 Product Calibration	Page 38
4.2.2 Manual Entry of Cal Factor	Page 38
<b>5. Zones Setup Menu</b>	Page 39
5.1 Change the Working Zone	Page 40
5.2 Presetting of Zones	Page 40

<b>6. Alarm Setup Menu</b>	Page 41
<b>6.1 Fan Alarms</b>	Page 42
6.1.1 Fan Speed Alarm Overview	Page 42
6.1.2 Fan Pressure Overview	Page 43
6.1.3 Setting the Fan Pressure Low Alarm	Page 44
6.1.4 Adjust the Fan Pressure Low Alarm Point	Page 44
6.1.5 Setting the Fan Pressure High Alarm	Page 44
6.1.6 Adjust the Fan Pressure High ALarm Point	Page 44
6.1.7 Setting the Fan Speed Low Alarm	Page 45
6.1.8 Adjust the Fan Speed Low Alarm Point	Page 45
6.1.9 Setting the Fan Speed High Alarm	Page 45
6.1.10 Adjust the Fan Speed High Alarm Point	Page 45
<b>6.2 Shaft Alarms</b>	Page 46
6.2.1 Shaft Alarm Overview	Page 46
6.2.2 Setting the Shaft Stopped Alarm	Page 47
<b>6.3 Bin Alarms</b>	Page 48
6.3.1 Bin Low Overview	Page 49
6.3.2 Bin Empty Overview	Page 49
6.3.3 Setting the Bin Low (Sensor) Alarm	Page 50
6.3.4 Setting the Bin Empty (Contents) Alarm	Page 50
<b>7. Air Seeder Operations</b>	Page 51
7.1 Fill a Bin	Page 52
7.2 Add Volume to a Bin	Page 52
7.3 Reset the Zone Area	Page 52
7.4 Reset the Total Area	Page 53
7.5 Change the Working Zone	Page 53
7.6 Use the Manual Speed	Page 53
7.7 Adjust the Brightness of the Console Screen	Page 53
7.8 Begin Seeding	Page 53
<b>8. Configuration Options</b>	Page 54
<b>8.1 Key Configuration</b>	Page 55
8.1.1 Switch the Key Beeper ON/OFF	Page 56
8.2.2 Change the Key Beeper Time	Page 56
8.3.3 Switch the Key Repeat Enabled	Page 56
8.4.4 Adjust the Key Repeat Duration	Page 56
<b>8.2 Alarm Configuration</b>	Page 57
8.2.1 Alarm Beeper Overview	Page 58
8.2.2 Set the Alarm Cycle Time	Page 59
8.2.3 Set the Alarm Duty Cycle	Page 59
8.2.4 Set the Number of Alarm Cycles	Page 59
8.2.5 Switch the Alarm Beeper ON/OFF	Page 59
<b>8.3 General Configuration</b>	Page 60
8.3.1 Changing Between Air seeder Monitor & Seed Rate Controller	Page 61
8.3.2 Interface to an MDECU: (Seedrate Controller Only)	Page 61
8.3.5 Toggle Display Polling	Page 61
8.3.6 Enter Diagnostics Mode	Page 61
8.3.7 Restore to Factory Settings	Page 61

<b>9. Diagnostics Mode</b>	Page 62
<b>9.1 Led Test</b>	Page 63
<b>9.2 Switch Test</b>	Page 64
<b>9.3 Keys Test</b>	Page 65
<b>9.4 Sensors Test</b>	Page 66
9.4.1 Checking Loom Voltages, for 3 Pin Sensors	Page 67
9.4.2 Pressure Sensor Test	Page 68
<b>9.5 Relay Test</b>	Page 69
<b>9.6 Bin Levels Test</b>	Page 70
10.6.1 Bin Level Sensor Adjustment	Page 71
10.6.2 Checking Loom Voltages, for Bin Sensor	Page 72
<b>9.7 Memory Test</b>	Page 73
<b>9.8 Display Test</b>	Page 73
<b>10. Alarm Messages</b>	Page 74
<b>10.1 Alarm Messages Overview</b>	Page 74
<b>10.2 Fan Alarms</b>	Page 75
<b>10.3 Metering Shaft Alarms</b>	Page 75
<b>10.4 Bin Low (Sensor) Alarms</b>	Page 75
<b>10.5 Bin Empty (Contents) Alarms</b>	Page 76
<b>10.6 Other Alarms</b>	Page 76
<b>11. Specifications</b>	Page 77
<b>12. System Components</b>	Page 78
12.1 System Components Part List	Page 79
<b>13. Wiring Diagrams</b>	Page 81-84

## 1.0 OVERVIEW

The Simplicity monitor platform combines the functions of an Air seeder Monitor and Controller. If the unit was purchased as a Monitor it will already be preset to function as a monitor. The Simplicity console can be upgraded to control either Electric Drive, Actuator and Hydraulic systems

### The Simplicity Monitor will do the following:

Display Ground Speed from either Wheel Sensor or GPS Speed (optional), Area covered (with 9 selectable sub areas) Area per Hour, Fan Speed, Fan Pressure and application rate. *Note: The monitor will only display the application rate not control the 'rate'.*

Bin Levels, Fan speed high and low, Fan pressure high and low, Shaft stopped, and Bin empty (calculated) all have Alarms that can be switched ON or OFF with an adjustable delay time on each. When an alarm is active the alarm type is shown in the 'Alarm Window', at the bottom right window of the screen.

Products and their calibration factors can be allocated to up to 10 Zones to enable fast setup between products and fields.

To achieve accurate rate monitoring the monitor requires the following Facts:

**Wheel Calibration factor:** to deliver accurate ground speed.

**Width:** actual working width of machine.

**Product CAL factor:** Represents the actual weight of material that is metered by 1 revolution of the metering shaft.

**Encoder value:** This is the number of pulses the controller receives for each metering shaft revolution. The Simplicity Encoder wheel has '8' magnets, therefore the encoder value is set at '8'.

## 1.0.1 Optional Extras

Below is a list of optional extras that can be added to and enhance your Simplicity Monitor Console. Most options can be added when purchasing your new air seeder or can be added to your air seeder at a later date.

### **GPS Speed kit**

When this kit (part number A3023 or A1677) is fitted this allows the Console to use GPS Speed as a speed input.

This option is mainly used when a front or rear mounted bin is fitted to the tractor and no ground wheel can be used as a speed source. In this case the GPS Speed option would be fitted from the factory.

### **External Master Switch kit**

An External Master switch kit (part number A2935), can be fitted in the tractor cabin. This External Master switch can either be fitted on the cabin floor or within easy reach of the operator. This overrides the Master switch on the Simplicity Console.

### **Blocked Head Sensor kit**

A Blocked Head Sensor (part number A3105) can be fitted to the air seeder the sensors will detect 'No Flow' or 'Blockages' of product in the air seeder system. The Console will display and sound a Blocked Head' warning in the Alarm window of the console; the offending sensor will display a red LED light. The kit contains 5 sensors, additional sensors can be added, up to 18 sensors can be connected to the Simplicity Console.

### **Eagle Seeder XLINK kit**

The Eagle Seeder XLINK kit (part number A2953) allows the Simplicity Console to be connected to X10, X15 or X20 Console via a serial cable. The X20 Console will display all the tank information on the X20 Console. The X20 Console can be used for Variable Rate Control (VRC), Visual Guidance, Steer Assist; therefore all the information is displayed on the one screen.

The Simplicity Console still controls the air seeder and seeding rates but the information is displayed on the X20 Console.

### **Working Lights**

Additional Lights can be added to the Tank Harness (See Section 13.4 for layout of harness) the lights can be connected to the LIGHT and AUX connectors. on the Tank Harness. Note a maximum of 50 watts continuous for each switch is allowed when connecting to the LIGHTS and AUX connections.

When the LIGHTS or AUX are switch ON on the console and a multi-meter is put across the 2 pins, the voltage will be 12 VDC.



## 2. CONFIGURATION

### 2.1 Air Seeder Overview

The basic system consists of a monitor console mounted in the cabin of the tractor, 2 harness assemblies, one for the tractor and one for the seeder, and various sensors for monitoring up to 4 bins; fan speed, fan pressure, bin levels and ground speed.

The console contains all of the data for the operation of the system, such as metering roller calibration, alarm points, bin volumes, and other fixed data such as the seeder width and wheel circumference. The console also records area covered, operating time. The console holds all data whether the console is turned OFF, or disconnected from the battery.

A shaft speed sensor and an encoder wheel are mounted on each metering shaft for each bin, to monitor the application rate.

A bin level sensor mounted on each bin so that when the product drops below the bin level sensor it will alert the operator.

A sensor is mounted on the fan assembly and a magnet is usually fixed on the hub of the fan, to give a continuous readout of the fan speed on the console, when selected. A fan pressure kit uses a special sensor and connects to the fan plenum via a rubber tube to monitor the air pressure used in the seeder.

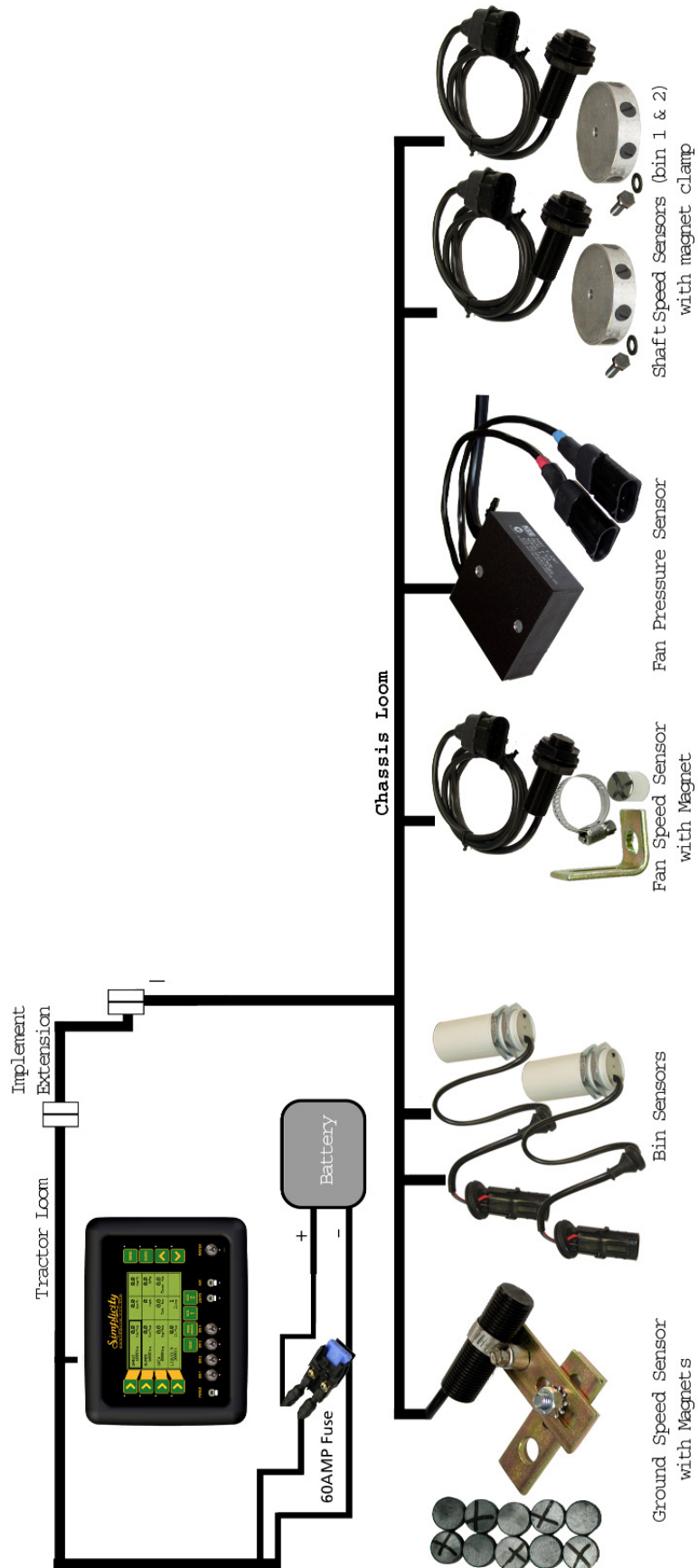
The ground speed sensor may be mounted on the air seeder cart or in the tractor. There are 2 harness connections for the Ground speed input, one on the Tank harness, the other on the tractor harness (the input on the tractor harness can be used for GPS Speed; this is an optional extra).

The Monitor system also has a clutch drive circuit to activate the metering drive system and mechanically connect this to the driving wheel. The clutch requires power to be applied to keep it engaged. This clutch is activated by turning on the MASTER switch, on the console.

The system has been designed to operate 4 separate bins, all of which can be calibrated independently for the purpose of monitoring the rates of each product being applied. The calibration process used for the monitor to produce the Cal Factor for each product is to be used as an indication only. The air seeder still has to be calibrated as outlined in Simplicity's Air Seeders Operators Manual which was supplied with the air seeder.

## 2.2 SYSTEM COMPONENTS

### For a Typical 2 Bin Air Seeder



## 2.3 MENU MANIPULATION

### 2.3.1 TO MOVE THE FOCUS AROUND THE SCREEN

- The buttons (LINE 1,2 ,3 and 4) along the left hand side of the screen are aligned with a row on the screen.
- Pressing a LINE (1,2,3 OR 4) button will take you to the first focus square on that row.
- If there is no text on a row you will not be able to set the focus to that row.
- If a value is uneditable (ie a title or display value) you may not be able to set the focus to that window.
- To move between windows on a single row, press the corresponding left hand LINE (1,2,3 or 4) button repeatedly. The focus will scroll between available fields on the row.

### 2.3.2 TO ENTER THE MENU FROM THE WORKING SCREEN

- Ensure the MASTER switch is in the OFF (hold) position
- Press the MENU button
- You will be taken to the Main Menu screen

### 2.3.3 TO RETURN TO THE WORKING SCREEN

- Ensure that you are not editing a value (if you are editing a value an asterisk (\*) will be shown in the box the focus is set to)
- Press the DEC button
- You will be returned to the previous Menu screen
- To return to the WORKING screen the DEC button may have to be pressed several times

### 2.3.4 TO ENTER A MENU SCREEN

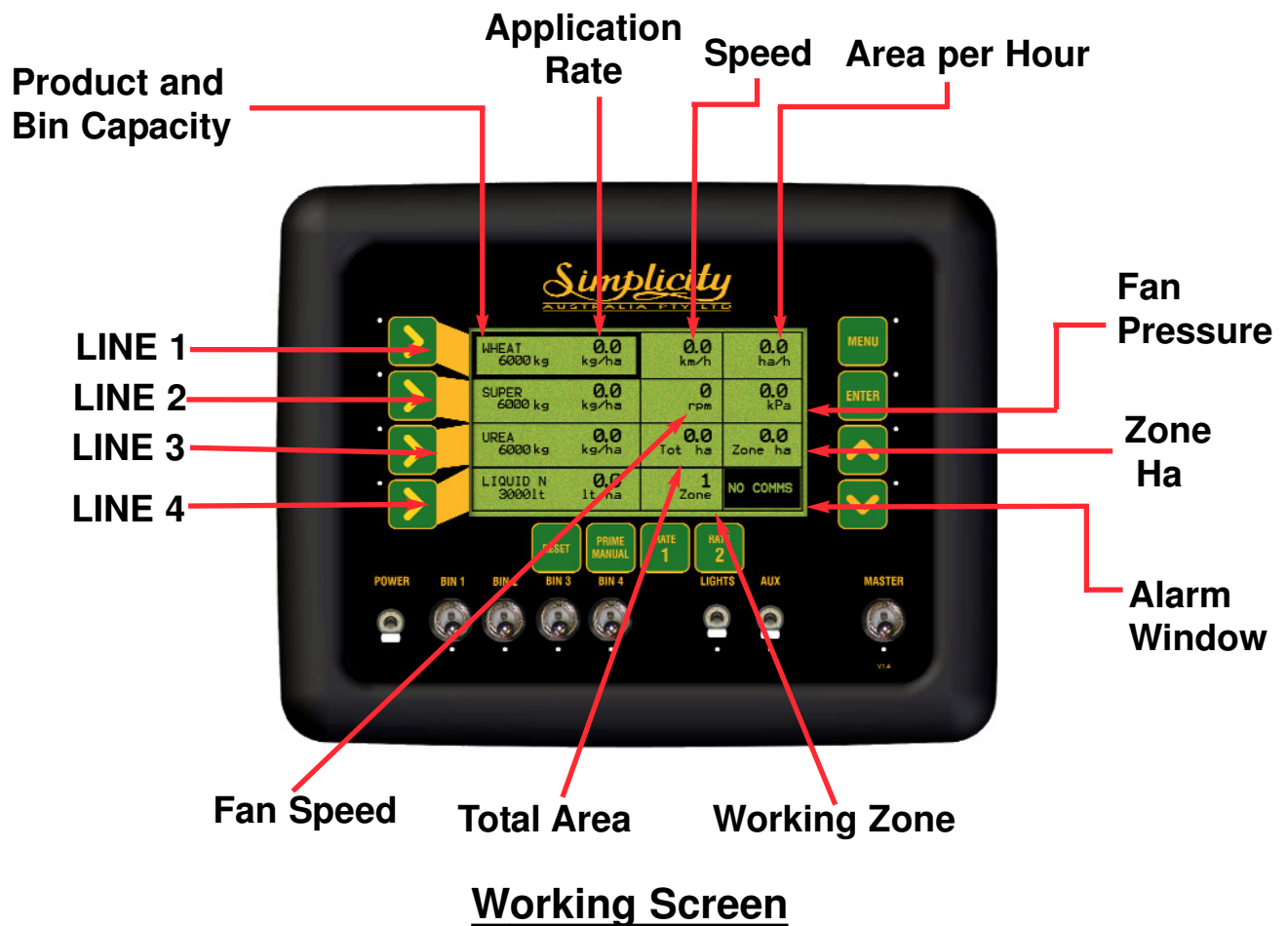
- Highlight the field displaying the menu you wish to enter
- Press the ENTER button
- You will advance to the next screen.

### 2.3.5 TO EDIT A VALUE

- Highlight the field displaying the value to be edited.
- Press the ENTER key. An asterisk (\*) will appear in the field being edited
- Use the Inc or Dec buttons to adjust the value  
*Note: When using the INC/DEC buttons to change a value, the operator may press the INC/DEC button repeatedly to change the value OR the operator may press and hold the INC or DEC button and the value will change while the button is depressed; the longer the button is depressed the faster the values will change.*
- Press the ENTER button to accept and save the changed value. The asterisk (\*) will disappear.

## 2.4 THE SIMPLICITY CONSOLE OVERVIEW

### 2.4.1 THE WORKING SCREEN



**PRODUCT AND BIN CAPACITY-** Shows the four bins down the left hand side of the console, starting with Bin 1 at the top through to Bin 4 down the bottom. If only two bins are selected from the SEEDER SETUP MENU then LINE 3 AND LINE 4 rows will be blank.

The window displays:

- The Product Name
- Capacity of BIN after refill, then
- Contents of BIN left as product is metered out

LINE 1 displays the Product that is being monitored from BIN 1

LINE 2 displays the Product that is being monitored from BIN 2

LINE 3 displays the Product that is being monitored from BIN 3

LINE 4 displays the Product that is being monitored from BIN 4

**APPLICATION RATE-** The Application rate is displayed in the same window as the Bin Contents and Capacity but to the right. The Bin Output rate displays the sowing rate being applied by the air seeder.

**SPEED-** Displays the speed of the air seeder in km/h from a wheel sensor mounted on the air seeder or other external sources such as a GPS (optional). When a MANUAL button is pressed, then 'MANUAL' appears under the speed readout. A Manual speed will be displayed until a speed is detected from the wheel sensor or GPS receiver.

When a GPS receiver is connected to the console and functioning, then 'GPS' will be displayed, in the Speed readout.

**AREA PER HOUR-** Displays the work rate of the air seeder in ha/h.

**FAN PRESSURE-** Displays the static air pressure as picked up from the Fan Pressure sensor mounted on the manifold near the fan. The Fan Pressure is displayed in kPa.

**ZONE HA-** Shows the hectares (ha) the air seeder has accumulated for the selected Working Zone as displayed in the Working Zone window.

**WORKING ZONE-** Displays a number between 1 and 10, the number represents what zone is being applied at the moment. The Working Zone associates Bins, Products and areas.

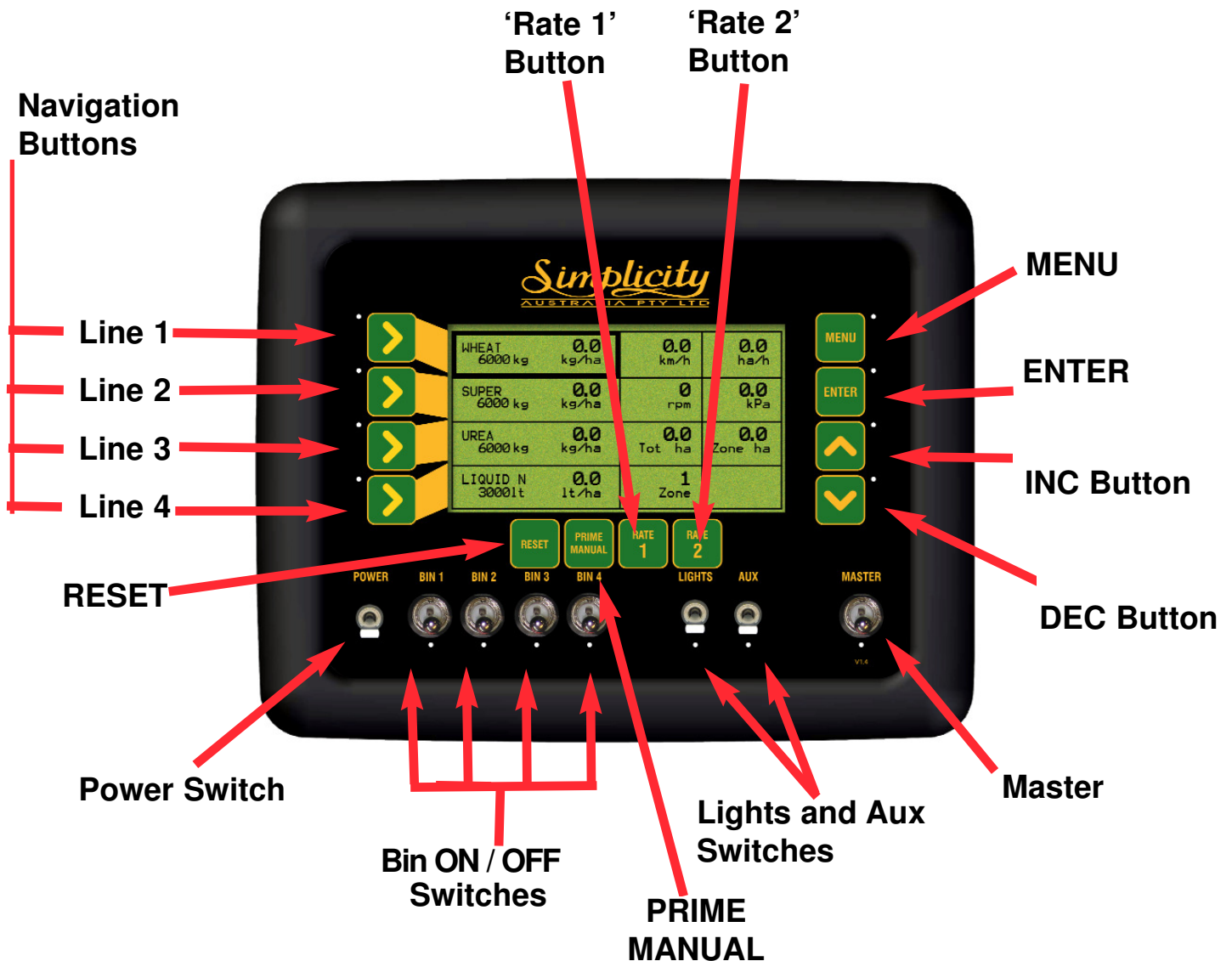
**TOTAL AREA-** The Total Area window displays the total hectares (ha) the air seeder has applied since being reset. ie. The seeder might only be reset at the beginning of a season then the value would represent the total hectares covered since the beginning of the season.

**FAN SPEED-** The Fan Speed window displays the actual fan speed rpm.

**ALARMS-** The alarms window displays all the current warning messages. If there is more than one warning then the warnings will cycle through each warning at about once a second.

*See Section 10 for list of Alarms displayed in the Alarm Window and an explanation of the alarms.*

## 2.5 WORKING SCREEN NAVIGATION FUNCTIONS



**RESET** - The RESET button allows the bins to be refilled in the console when the bins are empty. (See Section 7.1 for details).  
The RESET button allows the TOTAL AREA and ZONE AREAS to be reset. (See Section 7.3 and 7.4 for details).

**PRIME/MANUAL**- When the PRIME/MANUAL button is pressed, 'MANUAL' is displayed in the 'Speed Window', along with the value ( km/h) set for the Manual Speed.

*Note: The Prime function does not operate when the Simplicity Console is set up as a Monitor.*

**POWER-** The Simplicity console is turned ON and OFF by this switch on the front panel.

*Note: When the Power switch is switched ON, a screen displaying details regarding the console's software and hardware versions are displayed for 60 seconds; then the 'Working Screen' is displayed. To advance to the 'Working Screen' immediately select any button on the Simplicity Console.*

## NAVIGATION BUTTONS

**1) Setup menu-**LINE 1, LINE 2, LINE 3 AND LINE 4 buttons allow the operator to navigate in the SETUP MENU.

LINE 1 selects line 1 of the display; LINE 2 selects line 2 of the display and so on for LINE 3 and LINE 4. If the operator selects LINE 3 then the window on LINE 3 will be highlighted. If the operator presses LINE 3 again then the column 2 will be highlighted; if permitted. When LINE 3 is pressed again, column 3 will be highlighted. If LINE 3 is pressed a third time the first column will be highlighted.

### 2) Working Screen

LINE 1 button highlights the Product that is being monitored from BIN 1

LINE 2 button highlights the Product that is being monitored from BIN 2

LINE 3 button highlights the Product that is being monitored from BIN 3

LINE 4 button highlights the Product that is being monitored from BIN 4

LINE 3 button Pressed twice highlights the TOTAL HA window.

LINE 3 button Pressed three times highlights the ZONE HA window.

LINE 4 button Pressed twice highlights the WORKING ZONE window

## BIN SWITCHES ON/OFF-

The Bin Switches will activate a clutch ON or OFF if a clutch kit is fitted to each bin. This is optional. This allows individual bins to be switched ON or OFF from the cab. See Section 3.1.3, to Enable or Disable the Clutch.

If NO clutches are fitted, then the BIN switches don't perform any function.

**MASTER-** The MASTER switch turns the MAIN clutch ON or OFF

**LIGHTS and AUX SWITCHES-** These 2 switches, switch any WORKLIGHTS fitted on the air seeder ON or OFF. The Worklights can be fitted to the connectors marked AUX and LIGHTS on the Tank Harness.

**ENTER-** When the ENTER button is pressed, the value within the highlighted window, has an asterisk (\*) appear next to the value. The value can be increased or decreased using the INC/DEC buttons. Press the ENTER button again to lock-in and save the value.

**MENU-** When the MASTER switch is in the OFF position, the MENU button, when pressed, is the gateway into the SETUP MENU's for the Console.

## **INC/DEC Buttons-**

### **Using the Menu System**

The INC/DEC buttons when in the SETUP MENU allow the operator to increase and decrease factors (when a asterisk (\*) appears next to the value), in the SETUP MENU. DEC button also returns to the Working Screen from any menu, (the button may have to be pressed several times to return to the WORKING SCREEN). Press the DEC button once to return to the previous menu.

### **Working Screen**

The INC/DEC buttons when on the Working Screen allow the operator to:

- 1- Increase or Decrease the application rates of the selected Bin.
- 2- Set a Bin weight for the selected Bin.
- 3- Select a Zone

**RATE 1-** This button does not operate when the Simplicity console is used as a Monitor

**RATE 2-** This button does not operate when the Simplicity console is used as a Monitor

**LED-**The LED's under the LIGHTS, AUX and MASTER switches indicate the status of the switches.

The LED's under the BIN switches (1 to 4) indicate the status of the switches; when the BIN Clutches are fitted and Enabled.



## 2.6 SETUP MENU

The *SETUP MENU* allows the operator to setup all the parameters required to monitor the *Simplicity Air Seeder*. Work through the manual to ensure all values and alarms are set correctly

- Press MENU. To enter *SETUP MENU* screen, from the *Working Screen*. Ensure the *MASTER* switch is in the *OFF* position.

*Note: all procedures assume the operator is starting from the "Working Screen"*

- To advance to the *SEEDER SETUP MENU* see Section 3.0
- To advance to the *PRODUCTS SETUP MENU* see Section 4.0
- To advance to the *ZONES SETUP MENU* see Section 5.0
- To advance to the *ALARMS SETUP MENU* see Section 6.0



Setup Screen

## 3.0 SEEDER SETUP MENU

- Press MENU
- Press ENTER to advance to the SEEDER SETUP screen



Seeder Setup Screen

## 3.2 BIN SETUP

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 1 to highlight BIN SETUP
- Press ENTER to advance to BIN SETUP



Bin Setup Screen

## 3.1 BINS SETUP MENU

### 3.1.1 SET THE NUMBER OF BINS ON THE AIR SEEDER

*This option sets the number of bins the console is monitoring. The number of bins selected will be reflected on the Bin Setup screen and the 'Working Screen'. This also disables alarms for the bins not selected.*

- Press MENU
- Press ENTER to advance to the SEEDER SETUP screen
- Press ENTER to advance to the BINS SETUP screen
- Press ENTER to edit NO OF BINS. *An asterisk (\*) appears.*
- Use Inc/Dec buttons, to set the number of Bins
- Press ENTER to accept the changes

### 3.1.2 SET THE BIN VOLUME

*This option allows the input of the bin volume for each bin, in litres (l). The 'Bin Volume' and the 'Product Density' (see Section 4.1.4) will determine the 'Bin Weight' in kilograms (kg) for each product selected.*

- Press MENU
- Press ENTER to advance to the SEEDER SETUP screen
- Press ENTER to advance to the BINS SETUP screen
- Press LINE 2 to highlight BIN VOLUMES
- Press LINE 2 repeatedly, to cycle through to the bin to be edited
- Press ENTER to edit the Volume of the BIN. *An asterisk (\*) appears.*
- Use Inc/Dec buttons to set the bin capacity.

*Note: Capacity changes in 10 litre increments; by holding the Inc or Dec buttons down the value will change more quickly.*

- Press ENTER to accept changes

### 3.1.3 ENABLE BIN CLUTCH FOR EACH BIN (Optional)

*By default the CLUTCH for each bin is set to OFF. To select the CLUTCH to ON; the Tank harness has to have plugs marked 'Bin \* Clutch' to connect to each of the Bin Clutches, and also the Bin Clutches have to be fitted to each bin metering roller, on the Air seeder tank. Bin Clutches can be selected for some bins or all bins. Select CLUTCH 'ON' for each Bin No. that has a Bin Clutch connected to it.*

- Press MENU
- Press ENTER to advance to the SEEDER SETUP screen
- Press ENTER to advance to the BINS SETUP screen
- Press LINE 3 to highlight CLUTCH
- Press LINE 3 repeatedly, to cycle through to the bin to be edited.
- Press ENTER to edit the CLUTCH. *An asterisk (\*) appears.*
- Use Inc/Dec buttons to set the Bin Clutch to ON or OFF..
- Press ENTER to accept changes

## 3.2 WHEEL CALIBRATION FACTOR

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 2 to highlight WHEEL FACTOR
- Press ENTER to advance to Wheel Factor Screen

The Wheel Sensor is normally connected to the plug marked 'Ground Speed' on the 'Tank Harness, on the air seeder; see section 13.4 for wiring diagram.

An optional GPS may be fitted (part number A3023 or A1677), this enables the console to use GPS speed. If a GPS receiver is connected to the console then no setup or settings are required to be entered.



Wheel Factor Screen

### **3.2.1 SET THE WHEEL FACTOR**

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 2 to highlight WHEEL FACTOR
- Press ENTER to advance to Wheel Factor Screen

### **3.2.2 AUTOMATIC WHEEL FACTOR CALIBRATION**

- Press ENTER to begin wheel factor calibration
- Drive forward a measured distance, say 100m. *The PULSES count will accumulate as you travel forwards. The DISTANCE value and ESTIMATED value will accumulate in metres as you travel forwards. These values will accumulate reflecting the current WHEEL FACTOR value; if the value is close then the ESTIMATED and DISTANCE value will also be close to the actual distance travelled.*  
*The DISTANCE value is the value to be edited and the ESTIMATED value is a display value only.*
- Once the known distance is reached, press ENTER. *The focus will automatically jump to DISTANCE line of the screen*
- Use Inc/Dec buttons to change the DISTANCE value to reflect the actual distance travelled
- Press ENTER to accept the value. *Wheel factor will be automatically calculated and displayed, on the WHEEL FACTOR line.*

### **3.2.3 MANUAL ENTRY OF WHEEL FACTOR**

The current 'Wheel Factor' is displayed. This allows the manual entry of the 'Wheel Factor'.

- Press LINE 3 to highlight the WHEEL FACTOR window
  - Press ENTER to edit the value
- Note: To calculate the WHEEL FACTOR*
- Calculate the actual tyre circumference of the air seeder tyre. (Refer to Page 20 of the Simplicity Operators Manual- PM 004A).
  - Divide the ACTUAL tyre circumference by '9'. ( 9 is the number of pulses the wheel sensor receives for one revolution of the air seeder tyre.)

$$\frac{\text{---Actual Air Seeder Wheel Circumference}}{9} = \text{WHEEL FACTOR}$$

- Use INC/DEC buttons to manually change the WHEEL FACTOR.  
*Note: WHEEL FACTOR values can be edited, by holding the Inc or Dec buttons down, the value will change more quickly.*
- Press ENTER to accept the value

### **3.2.4 SPEED SOURCE**

*Note: The SPEED SOURCE is set on and displays EXTERNAL, and can not be changed when the Simplicity Console is setup as a Monitor.*

### **3.2.5 Connecting a GPS Receiver (optional)**

A GPS Receiver can be connected to the Simplicity Console as an alternate to using a wheel sensor on the air seeder, as a speed source.

When the GPS Receiver is connected to the Simplicity Console and working correctly then the Speed readout will display the actual GPS speed in km/h and 'GPS' will be displayed in the Speed readout window.

#### **Items required:**

1. Either a A1677 (1Hz), A3023 (5Hz) or A2272 (5Hz) GPS Receiver can be used with the Simplicity Console.
2. A1507 Null modem cable
3. A3017 Power adaptor

#### **The GPS Receiver has to be configured to output:**

1. Baud Rate: 9600bps
2. Outputting GPGGA and GPVTG NMEA data strings.
3. Either 1Hz or 5Hz update rates can be used.

#### **Connecting the GPS Receiver**

1. Mount the GPS receiver on top of the tractor cab with a clear view of the sky and not obstructed by any objects. Mount the GPS receiver at least 1 metre away from other antenna's.
2. Connect the A3017 Power adaptor to the 2 pin weather pack on the GPS Receiver's harness.
3. Connect the 3 pin plug of the A3017 Power adaptor to the plug marked 'Ground Speed' on the Tractor Harness (See Section 13.2). This connector uses pins B and C to provide power to the GPS Receiver.
4. Connect the A1507 9 pin DB9 Null modem cable to the DB9 9 pin connector on the GPS Receiver harness.
5. Connect the other end of the A1507 null modem harness to the connector marked 'COMMS' on the back of the Simplicity Console.

#### **Setting Up**

No settings are required to be entered into the Simplicity Console when a GPS Receiver is used for GPS Speed. The Simplicity Console will automatically override the speed source. If the GPS 'drops out' then the Console will use the wheel sensor speed source.

'GPS' will be displayed in the Speed readout window along with the actual GPS speed in km/h. 'GPS' will be displayed whenever the GPS speed is detected.

*Note: If using an XLink to connect the Simplicity Console to an X20 or X15 Console. Then the GPS Receiver will be connected directly to the X20 or X15 Console's COM Port and the Xlink DB9 serial cable will be connected to the connector marked COMMS on the Simplicity console and a COM Port on the X20/X15 Console. Also part numbers A3017 and A1507 will not be required when using an XLink connection.*

*Then select the 'GPS Speed' option in the Xlink setup.*

### 3.3 WIDTH AND SPEED SETUP

- Press MENU
- Press ENTER to advance to the SEEDER SETUP screen
- Press LINE 3 to highlight WIDTH AND SPEED screen
- Press ENTER to advance to WIDTH AND SPEED screen.



Width and Speed Screen



### **3.3.1 SET THE SEEDING WIDTH OF THE MACHINE**

*Note: This is the effective seeding or operating width of the Air Seeder*

- Press MENU
- Press ENTER to select SEEDER SETUP
- Press LINE 3 to highlight, WIDTH SPEED AND PRIME DURATION
- Press ENTER to advance to the WIDTH, MANUAL SPEED AND PRIME DURATION screen
- Press ENTER to edit the WIDTH. *An asterisk (\*) will appear.*
- Use Inc/Dec buttons to set the width of the Air Seeder bar.  
*Width changes in 1cm increments*
- Press ENTER to accept the value

### **3.3.2 SET THE MANUAL SPEED**

*The Manual Speed can be used to operate the system if the speed sensor fails.*

*This value is normally set to the speed used for normal seeding operations, ie, 7 to 10 km/h.*

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 3 to highlight, WIDTH SPEED AND PRIME DURATION
- Press ENTER to advance to the WIDTH, MANUAL SPEED AND PRIME DURATION screen
- Press LINE 2 to highlight MANUAL SPEED
- Press ENTER to edit Manual Speed. *An asterisk (\*) will appear.*
- Use Inc/Dec buttons to set the manual speed
- Press ENTER to accept the value

### 3.4 OPERATING HISTORY

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 4 to highlight OPERATING HISTORY
- Press ENTER to advance to the OPERATING HISTORY screen
- Press LINE 1, 2 or 3 to highlight the type of history values you wish to view.
- Press ENTER to advance to the history page highlighted

*Note: None of these values are editable by the customer*



Operating History Screen

### 3.4.1 TOTALS HISTORY

*These values are a record of the air seeder operation over its life.*

*These values are not editable by the user*



Totals History Screen

### 3.4.2 SHAFTS HISTORY

*These values are a record of the air seeder operation over its life.*

*These values are not editable by the user*



Shaft History Screen

### 3.4.3 FAN HISTORY

*These values are a record of the air seeder operation over its life.  
These values are not editable by the user*



Fan History Screen

## 3.5 CONFIG. SETUP

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 1 TWICE to highlight CONFIG. SETUP
- Press ENTER to advance to CONFIG. SETUP screen



CONFIG. SETUP

### **3.5.1 EXTERNAL MASTER (OPTIONAL)**

To use the External Master option, an External Master Switch kit will be required  
The A2935 External Master Kit consists off:

1. A2864 9 pin to 9 pin adaptor.
2. A601 External master switch.

#### **Installing the External Master switch kit**

- Connect the A2864 with connector marked CON 3 to the Simplicity Console. Leave the cap on the other end.
- Mount the A601 External Master switch in a convenient location. A Remote Master Switch can be floored mounted to allow for easily accessible remote switching.
- Connect the A601 3 pin connector to the A2864 3 pin connector.
- The CABIN switch overrides the MASTER switch on the Simplicity console.

When the External Master Switch is fitted the EXTERNAL MASTER setting must be set to ON.

### **TO CHANGE THE EXTERNAL MASTER SETTING**

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 1 TWICE to highlight the CONFIG. SETUP
- Press ENTER to advance to CONFIG. SETUP screen
- Press LINE 1 to highlight the EXTERNAL MASTER
- Press ENTER to edit EXTERNAL MASTER. An asterisk (\*) will appear.
- Press Inc/Dec buttons to select between ON and OFF. Select ON if External Master Switch is fitted OR OFF if not fitted. Default is OFF.
- Press ENTER to accept changes

### **3.5.2 ENABLE BLOCKED HEAD SENSOR (OPTIONAL)**

A Blocked Sensor kit can be installed with the new air seeder or added to later.  
The Blocked Sensor kit requires a Simplicity Console with Revision 3 board or later and for the option to be Enabled.

The standard Blocked Sensor kit consists of 5 Blocked Head sensors. Up to 18 blocked head sensors can be fitted to the Simplicity Console. Therefore up to 18 heads can be monitored

For further information please contact your local Simplicity dealer.

For operation and wiring diagrams of the Blocked Head Sensor, refer to the manual that came with the Blocked Head kit.

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 1 TWICE to highlight the CONFIG. SETUP
- Press ENTER to advance to CONFIG. SETUP screen
- Press LINE 2 to highlight the BLOCKED HEAD SENSOR
- Press ENTER to edit BLOCKED HEAD SENSOR. An asterisk (\*) will appear.
- Press Inc/Dec buttons to select between ON and OFF. Select ON if a BLOCKED HEAD SENSOR is fitted OR OFF if not fitted. Default is OFF.
- Press ENTER to accept changes.

## 3.6 Fan Sensor Gain Factor

### 3.6.1 Setting the Fan Sensor Gain Factor

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 2 twice to highlight FAN PRESS SENSOR
- Press ENTER to advance to FAN PRESSURE GAIN screen
- Press ENTER to edit PRESSURE GAIN.

*An asterisk (\*) will appear.*

- Press Inc/Dec buttons to select between x1 or x2.

*Note: 'x2' Fan Pressure Gain is the default setting for Simplicity Monitor Consoles with software version 2.0.0 or later.*

*x1 Pressure Gain should only be selected if directed by a KEE Service Representative depending on the Monitor console hardware fitted to your air seeder .*

- Press ENTER to accept changes.



Fan Pressure Gain Screen



## 4.0 PRODUCT SETUP AND SELECTION

### 4.0.1 PRODUCT SELECTION SCREEN

- Press MENU
- Press LINE 2 to highlight PRODUCT SETUP
- Press ENTER to advance to PRODUCTS SELECTION screen. *The PRODUCTS SELECTION screen allows the operator to see what products are stored and what Bins the products are setup for.*
- Select which product is to be edited by using the LINE 1, 2,3 or 4 buttons. Repeated pressing moves the focus across the screen.
- Once the PRODUCT is highlighted,
- Press ENTER, to advance to the PRODUCT SETUP screen, where the details of each product can be viewed and edited. See Section 4.1

*Up to 16 products can be entered and calibrated in the PRODUCT SETUP MENU, ready for seeding. Below is the PRODUCTS SELECTION screen showing the default screen with a list of products. These products can be changed and edited to reflect the products used with your farming operation.*



Product Selection Screen

## 4.1 PRODUCT SETUP

For each product that is going to be sown it is necessary to enter the following:

- 1- Product Name
- 2- Bin Number
- 3- Number of Encoder Teeth
- 4- Density of Product
- 5- Calibration Factor

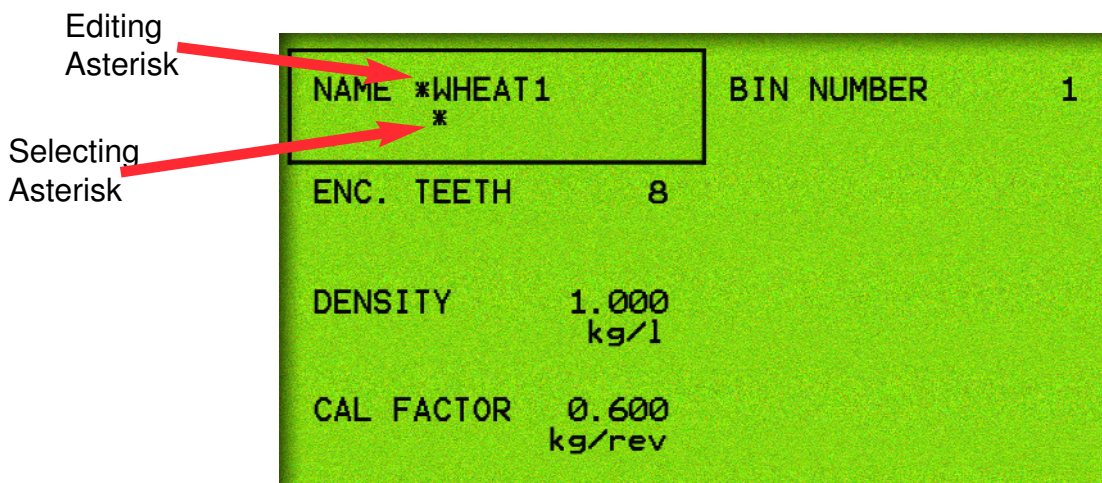


Product Setup Screen

### 4.1.1 ENTER A PRODUCT NAME

- Press MENU
- Press LINE 2 to highlight PRODUCTS SETUP
- Press ENTER to advance PRODUCTS SELECTION screen
- Use the LINE 1, 2, 3 or 4 buttons to select the product you wish to edit. Repeated pressing of LINE buttons moves the focus across the screen
- Press ENTER to select the PRODUCT to be edited and advance to the Product Setup screen
- Press ENTER to edit the PRODUCT NAME. *An asterisk (\*) (Selecting) will appear under the first character of the name.*

- Press MENU button. Another asterisk (\*) (Editing) will appear to the left of the PRODUCT NAME. This means the character with the asterisk (\*) under it can now be edited. *See Screen below.*
- Press Inc/Dec buttons to change the character. *The Inc/Dec buttons can be pressed once and will move one letter at a time, or the Inc/Dec buttons can be held down to scroll through the values quicker. The Inc button scrolls forward through the alphabet and numerals, the Dec scrolls backwards through the alphabet and numerals. The values are available in this order: A to Z (letters in Upper case), a to z (letters in Lower case), space ( ), comma (,), minus ( - ), full stop ( . ), forward slash ( / ), numerals 0 -9.*
- Press MENU button. The 'Editing' asterisk (\*) disappears, the value is now locked in.
- Press the INC button to move the 'Selecting' asterisk (\*) to the next character to the right. Repeat the above procedure until the product has been edited, to create the desired 8 character name
- Press ENTER to accept the changes to the Product Name.



#### Product Name in Edit Mode

*The above screen shows an asterisk (\*) below the 'W' character and an asterisk (\*) to the left of the Product Name. Using the Inc/Dec buttons the 'W' character can be edited.*

### **4.1.2 ENTER A PRODUCT BIN NUMBER**

- Press MENU
- Press LINE 2 to highlight PRODUCTS SETUP
- Press ENTER to advance PRODUCTS SELECTION screen
- Use the LINE 1, 2, 3 or 4 buttons to select the product you wish to edit.  
Repeated pressing of LINE buttons moves the focus across the screen
- Press ENTER to select the product
- Press LINE 1 to highlight the BIN NUMBER
- Press ENTER to edit the Bin Number for the product.  
*An asterisk (\*) appears*
- Press Inc/Dec buttons to set the Bin Number for the product
- Press ENTER to accept the changes

### **4.1.3 ENTER NUMBER OF ENCODER TEETH**

*Note: The ENC. TEETH value is the number of pulses the shaft sensor for the BIN, receives for one revolution of the metering shaft. The number of Encoder Teeth is set at '8' and can not be changed.*

### **4.1.4 ENTER THE DENSITY OF THE PRODUCT**

*Note: The DENSITY of the product will determine the "actual" product weight of each bin.*

- Press MENU
- Press LINE 2 to highlight PRODUCTS SETUP
- Press ENTER to advance PRODUCTS SELECTION screen
- Use the LINE 1, 2, 3 or 4 buttons to select the product you wish to edit.  
Repeated pressing of LINE buttons moves the focus across the screen
- Press ENTER to select the product
- Press LINE 3 to highlight DENSITY
- Press ENTER to edit the DENSITY. *An asterisk (\*) will appear.*
- Press Inc/Dec buttons to set the DENSITY of the product.  
*Density changes in 1 gram increments*
- Press ENTER to accept the changes

## 4.2 ENTER THE CAL FACTOR FOR THE PRODUCT

- Press MENU
- Press LINE 2 to highlight PRODUCTS SETUP
- Press ENTER to advance PRODUCTS SELECTION screen
- Use the LINE 1, 2, 3 or 4 buttons to select the product you wish to edit.  
Repeated pressing of LINE buttons moves the focus across the screen
- Press ENTER to select the PRODUCT to be edited and advance to the Product Setup screen
- Press LINE 4 to highlight the CAL FACTOR
- Press ENTER to advance to the CAL FACTOR screen.



CAL FACTOR SCREEN

### **4.2.1 PRODUCT CALIBRATION**

- Press ENTER to begin Calibration. *An asterisk (\*) should appear in the REVS window.*
- Manually turn over the metering shaft, of the particular bin being calibrated( if the calibration screen says Bin 2, then Bin 2 metering shaft should be turned), with the crank handle provided with the Air Seeder until a decent sample is dispersed (minimum of 5 full revolutions of the metering shaft.) *The pulse count will begin accumulating as the crank handle turns the metering shaft.*
- Once a sufficient sample is achieved (5-10kg), press ENTER. A Focus will automatically jump to weight section of the screen. An asterisk (\*) will appear near WEIGHT
- Use INC/DEC (Up and down arrows) to change the value to reflect the weight dispersed
- Press ENTER to accept the value. *Cal factor will be automatically calculated and displayed.*

*Each product should be calibrated for each bin. 16 different products can be calibrated and stored within the console. Eg. If Urea is going to be used in Bins 1 and 2 on the air seeder; then the urea is going to have to be calibrated separately for each bin. The console would store a cal factor and density for UREA BIN 1 and another set of values for UREA BIN 2. When seeding with UREA in bin 1 then the operator would select UREA BIN 1 and all the factors stored with UREA BIN 1 would be retrieved.*

*All the different products being used in each different bin can be calibrated and stored in the console before the operator starts seeding.*

*The calibration factor will vary with product, but for most general products, a factor between 0.4 and 0.8 is realistic.*

*The calibration process used for the monitor to produce the Cal Factor for each product is to be used as an indication only. The air seeder still has to be calibrated as outlined in Simplicity's Operators Manual.*

### **4.2.2 MANUAL ENTRY OF CAL FACTOR**

- Press LINE 3 to choose line 3 of the display
- Press ENTER to edit the value
- Use INC/DEC (Up and down arrows) to change the Cal Factor. *Cal factor changes in 1gram/rev increments*
- Press ENTER to accept the value

## 5.0 ZONES SETUP MENU

- Press MENU
- Press LINE 3 to highlight ZONES SETUP
- Press ENTER to advance to the ZONES SETUP screen



Zone Setup Screen

## **5.1 CHANGE THE WORKING ZONE**

- Press MENU
- Press LINE 3 to highlight ZONES SETUP
- Press ENTER to advance to the ZONES SETUP screen
- Press ENTER to change the zone number. *An asterisk (\*) will be shown next to the zone number*
- Use INC/DEC buttons to change the zone number. There are 10 Zones to select from (1-10). As the operator scrolls through the different Working Zones using the INC/DEC buttons; the operator will see the different products selected for each bin.
- Press ENTER to accept the value. Once the Working Zone has been selected the operator will now go to Section 5.2 to select the products for each bin, for the selected Working Zone.

## **5.2 PRESETTING OF ZONES**

- Press MENU
- Press LINE 3 to highlight ZONES SETUP
- Press ENTER to advance to the ZONES SETUP
- Press LINE 2 to select the Bin that needs to be edited
- Scroll through the bins by repeated pressing of the LINE 2 button until focus is set to the Bin to be edited.
- Press ENTER to edit the product for the Bin Number. *An asterisk (\*) will be shown next to the bin number*
- Use INC/DEC buttons to scroll through the products that have been calibrated for that bin  
*The operator can only select products that have been calibrated for that bin.*
- Press ENTER to accept the product for that bin
- Press LINE 2 to highlight the next Bin to be edited.
- Press ENTER to edit the product for the Bin Number. *An asterisk (\*) will be shown next to the bin number*
- Use INC/DEC buttons to scroll through the products that have been calibrated for that bin
- Press ENTER to accept the product for that Bin
- Repeat the above procedure until a product has been selected for each bin. The first Zone is now set up.

*To setup another Working Zone go to Section 5.1 (Change the Working Zone) and select another Working Zone number. Then proceed to Section 5.2 (Presetting of Zones) to select a product for each bin; for that Working Zone. Repeat the above procedure until all Working Zones, that are required have been setup,  
Then see Section 7.5 (Change Working Zone) to select a Working Zone from the Working Screen*



## 6.0 ALARM SETUP MENU

- Press MENU
- Press LINE 4 to highlight ALARMS SETUP
- Press ENTER to advance to the ALARMS SETUP screen .



Alarm Setup Screen

## 6.1 FAN ALARMS

### 6.1.1 FAN SPEED ALARM OVERVIEW

A sensor is mounted on the fan to determine the speed of the fan rpm. When the FAN SPEED LOW ALARM is turned ON and the FAN SPEED LOW ALARM POINT rpm is set to ON; if the fan speed rpm drops below that threshold point a LOW FAN SPEED alarm will appear in the alarm window. The FAN SPEED LOW ALARM POINT is usually set at 20% below the normal operating speed of the fan.

When the FAN SPEED HIGH ALARM is turned ON and the FAN SPEED HIGH ALARM POINT rpm is set; if the fan speed rpm goes over that threshold point, a HIGH FAN SPEED alarm will appear in the alarm window. The FAN SPEED HIGH ALARM POINT is usually set at 20% above the normal operating speed of the fan.

When the FAN SPEED LOW and FAN SPEED HIGH are turned OFF; the ALARM POINTS for each disappear.



Fan Alarm Screen

## **6.1.2 FAN PRESSURE OVERVIEW**

A pressure transducer sensor is mounted on the air seeder chassis near the fan to determine the pressure of the system in kPa. The operating pressure of any system is affected by fan speed, tube blockages, product density, application rates, air density and even the prevailing wind. This alarm, if set too close to the operating pressure, will trigger if any of the above conditions change. When set correctly, the pressure alarm can indicate a fault or failure in the system.

When the FAN PRESS LOW alarm is turned ON and the FAN PRESS LOW ALARM POINT is set in kPa; if the pressure of the system drops below that threshold point a LOW FAN PRESS alarm will appear in the alarm window on the console. The FAN SPEED LOW ALARM POINT value is usually set 1.5 to 2 kPa below the operating pressure.

When the FAN PRESS HIGH alarm is turned ON and the FAN PRESS HIGH ALARM POINT is set in kPa; if the pressure of the system goes over that threshold point, a HIGH FAN PRESS alarm will appear in the alarm window. The FAN PRESS HIGH ALARM POINT is usually set 1.5 to 2 kPa above the operating pressure.

When the FAN PRESS LOW and FAN PRESS HIGH are turned OFF, the ALARM POINTS for each disappear.

### **6.1.3 SETTING THE FAN PRESSURE LOW ALARM**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press ENTER to edit the FAN PRESS LOW alarm.  
*An asterisk (\*) will be displayed*
- Use INC/DEC buttons to switch the alarm ON or OFF
- Press ENTER to accept the changes

### **6.1.4 ADJUST THE FAN PRESSURE LOW ALARM POINT**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen

*Note: If the alarm is OFF, turn the alarm ON as explained in Section 6.1.3*

- Press LINE 1 to highlight the ALARM POINT
- Press ENTER to edit the value. *An asterisk (\*) will be displayed*
- Use INC/DEC buttons to adjust the alarm point
- Press ENTER to accept the changes

### **6.1.5 SETTING THE FAN PRESSURE HIGH ALARM**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 2 to choose the FAN PRESS HIGH line
- Press ENTER to edit the value. *An asterisk(\*) will be displayed*
- Use INC/DEC buttons to switch the alarm ON or OFF
- Press ENTER to accept the changes

### **6.1.6 ADJUST THE FAN PRESSURE HIGH ALARM POINT**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 2 to highlight the FAN PRESS HIGH line

*Note: If the alarm is off, turn the alarm on as explained in Section 6.1.5*

- Press LINE 2 to highlight the alarm point
- Press ENTER to edit the value. *An asterisk (\*) will be displayed*
- Use INC/DEC buttons to adjust the ALARM POINT
- Press ENTER to accept the changes

### **6.1.7 SETTING THE FAN SPEED LOW ALARM**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 3 to highlight FAN SPEED LOW
- Press ENTER to edit the FAN SPEED LOW alarm.  
*An asterisk (\*) will be displayed*
- Use INC/DEC buttons to switch the alarm ON or OFF
- Press ENTER to accept the changes

### **6.1.8 ADJUST THE FAN SPEED LOW ALARM POINT**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 3 to highlight the FAN SPEED LOW line

*Note: If the alarm is OFF, turn the alarm On as explained in Section 6.1.7*

- Press LINE 3 to highlight the alarm point
- Press ENTER to edit the value. *An asterisk (\*) will be displayed*
- Use INC/DEC buttons to adjust the ALARM POINT
- Press ENTER to accept the changes

### **6.1.9 SETTING THE FAN SPEED HIGH ALARM**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 4 to highlight the FAN SPEED HIGH line
- Press ENTER to edit the FAN SPEED HIGH alarm.  
*An asterisk (\*) will be displayed*
- Use INC/DEC buttons to switch the alarm ON or OFF
- Press ENTER to accept the changes

### **6.1.10 ADJUST THE FAN SPEED HIGH ALARM POINT**

- Press MENU
- Press LINE 4 to highlight the ALARM SETUP
- Press ENTER to advance to ALARMS SETUP screen
- Press ENTER to advance to the FAN ALARMS screen
- Press LINE 4 to highlight the FAN SPEED HIGH line

*Note: If the alarm is OFF, turn the alarm ON as explained in Section 6.1.7*

- Press LINE 4 to highlight the alarm point
- Press ENTER to edit the value. *An asterisk (\*) will be displayed*
- Use INC/DEC buttons to adjust the ALARM POINT
- Press ENTER to accept the changes

## 6.2 SHAFT ALARMS

### 6.2.1 SHAFT ALARM OVERVIEW

A shaft sensor and Encoder are mounted on each of the metering shafts. These are the same shaft sensors and Encoders which give feedback for determining application rate. Therefore if there are 3 bins on the air seeder, there will be 3 shaft sensors and Encoders.

A shaft alarm occurs because there is no signal as expected from the metering shaft sensor.

If a drive chain or gear was to break, then a SHAFT # STOPPED (# represents bin number) will appear in the alarm window on the console. The alarm will persist until the problem is rectified. Another common cause for a shaft alarm is that the sensor may have shifted. The sensors should be mounted, so that the magnet passes the sensor with a clearance of approximately 2 to 3 mm.

The SHAFT ALARM can be turned OFF or ON for each bin. The default setting is ON.



Shaft Alarm Screen

## **6.2.2 SETTING THE SHAFT STOPPED ALARM**

- Press MENU
- Press LINE 4 to highlight ALARM SETUP
- Press ENTER to advance to the ALARMS SETUP screen
- Press LINE 2 to highlight SHAFT ALARMS
- Press ENTER to advance to the SHAFT ALARMS screen
- Press LINE 1 to highlight SHAFT 1
- OR Press LINE 2 to highlight SHAFT 2
- OR Press LINE 3 to highlight SHAFT 3
- OR Press LINE 4 to highlight SHAFT 4
- Press ENTER to edit the SHAFT STOPPED alarm.  
*An asterisk (\*) will be displayed*
- Use INC/DEC buttons to switch the alarm ON or OFF
- Press ENTER to accept the changes

*Note: Repeat the above procedure to switch the SHAFT STOPPED alarms ON or OFF for the remaining bins.*

## 6.3 BIN ALARMS

- Press MENU
- Press LINE 4 to highlight ALARM SETUP
- Press ENTER advance to the ALARM SETUP screen
- Press LINE 3 to highlight BIN ALARMS
- Press ENTER to advance to the BIN ALARMS screen



Bin Alarm Screen



### **6.3.1 BIN LOW OVERVIEW**

In each bin there is a sensor that sets an alarm once the product level falls below the sensor. When product in the bin covers the bin sensor the light on the back of the sensor will be off and there will be no alarms.

When the product level falls below the sensor a BIN # LOW alarm will appear in the alarm window. The alarm will keep cycling in the alarm window, until the bin is refilled, with product.

The LOW BIN alarm can be turned ON or OFF, by default it is turned ON. The LOW BIN alarm maybe turned off if using canola or similar seed, it is possible that the amount put in the bin does not cover the bin level sensor.

The sensor is normally calibrated when new with Urea, (lightest density product in general use) on 12 volts and will suit most applications and products. Adjustment of these sensors may be required due to different operating voltages of the system, or different product densities.

### **6.3.2 BIN EMPTY OVERVIEW**

The BIN EMPTY ALARM is generated from the console. During seeding, the signal from the metering shaft sensor is used to decrease the bin weight based on the calibration factor.

If set correctly, this alarm will indicate the last grain of seed going through the metering rollers, and cause the BIN # EMPTY (# represents bin number) alarm to cycle in the alarm window on the console. The console can electronically reset the counter, after the bins have been physically filled, see Section 7.1.

The BIN EMPTY can be switched ON, therefore the alarm will flash and beep when the last grain is calculated to pass over the metering rollers

The BIN EMPTY can be switched OFF, to turn the alarm select OFF.

### **6.3.3 SETTING THE BIN LOW (SENSOR) ALARM**

- Press CAL
  - Press LINE 4 to highlight ALARM SETUP
  - Press ENTER to advance to the ALARM SETUP screen
  - Press LINE 3 to highlight BIN ALARMS
  - Press ENTER to advance to the BIN ALARMS screen
  - Press ENTER to edit the BIN 1 SENSOR. *An asterisk (\*) will be displayed*
  - Use INC/DEC buttons to switch the alarm ON or OFF
  - Press ENTER to accept the changes
- THEN Press LINE 2 to highlight BIN 2 SENSOR  
OR Press LINE 3 to highlight BIN 3 SENSOR  
OR Press LINE 4 to highlight BIN 4 SENSOR
- Press ENTER to edit the BIN # : SENSOR. *An asterisk (\*) will be displayed*
  - Use INC/DEC buttons to switch the alarm ON or OFF
  - Press ENTER to accept the changes

### **6.3.4 SETTING THE BIN EMPTY (CONTENTS) ALARM**

- Press CAL
  - Press LINE 4 to highlight ALARM SETUP
  - Press ENTER advance to the ALARM SETUP screen
  - Press LINE 3 to highlight BIN ALARMS
  - Press ENTER to advance to the BIN ALARMS screen
  - Press LINE 1 to highlight BIN 1 CONTENTS
- OR Press LINE 2 twice to highlight BIN 2 CONTENTS  
OR Press LINE 3 twice to highlight BIN 3 CONTENTS  
OR Press LINE 4 twice to highlight BIN 4 CONTENTS
- Press ENTER to edit the BIN EMPTY alarm.  
*An asterisk (\*) will be displayed*
  - Use INC/DEC buttons to select ON or OFF  
*If ON is selected then the BIN # EMPTY alarm will come on when the air seeder has calculated the last of the product has been metered.*  
*If OFF is selected the alarm is disabled*
  - Press ENTER to accept changes

## 7.0 AIR SEEDER OPERATIONS



Working Screen

## **7.1 FILL A BIN**

*Note: When the Bins are physically filled with product, each Bin must be electronically FILLED.*

- MASTER switch in the OFF position
- Press LINE 1 to highlight Bin 1
- OR • Press LINE 2 to highlight Bin 2
- OR • Press LINE 3 to highlight Bin 3
- OR • Press LINE 4 to highlight Bin 4
- Press ENTER once a Bin has been highlighted.  
*An asterisk (\*) will be displayed next to the remaining bin weight, in the Product and Capacity Window*
- Press RESET. The bin weight returns to full.
- Press ENTER to accept the change.

## **7.2 SET A BIN WEIGHT**

*This allows setting a Bin Weight when not filling the Bin to full. I.E. Half filling the bin with product. This allows to put the actual weight of product in the bin.*

- MASTER switch in the OFF position
- Press LINE 1 to highlight Bin 1
- OR • Press LINE 2 to highlight Bin 2
- OR • Press LINE 3 to highlight Bin 3
- OR • Press LINE 4 to highlight Bin 4
- Press ENTER once a Bin has been highlighted.  
*An Asterisk (\*) will be displayed next to the bin weight*
- Press INC/DEC buttons to adjust the volume.  
*The Inc or Dec buttons can be held down to speed up the changes.*  
*Volume changes in 10kg increments*
- Press ENTER to accept the change

## **7.3 RESET THE ZONE AREA**

*The resetting of Zone Area, resets the area accumulated by the air seeder for the current Working Zone displayed in the Working Zone window.*

*To reset the Zone Area for another Working Zone, select another Working Zone as set out in Section 7.5. Then repeat the procedure.*

- MASTER switch in the OFF position
- Press LINE 3 several times, to highlight the ZONE HA window
- Press ENTER to RESET the ZONE AREA.  
*An asterisk (\*) will be displayed next to Zone*
- Press RESET. "Reset?" Will be displayed in the window
- Press ENTER to RESET the ZONE HA for Working Zone selected
- OR • Press Dec button to cancel and NOT reset the Zone HA
- Press ENTER to accept the change.

## **7.4 RESET THE TOTAL AREA**

*This resets the Total Ha accumulated by the air seeder.*

- MASTER switch in the OFF position
  - Press LINE 3 twice to highlight the TOTAL AREA window
  - Press ENTER to RESET the TOTAL AREA.  
*An asterisk (\*) will be displayed next to ha, in the TOTAL HA window*
  - Press RESET button. "Reset?" Will be displayed in the window
  - Press ENTER to RESET the TOTAL HA value to zero.
- OR
- Press the Dec button to cancel
  - Press ENTER to accept the change

## **7.5 CHANGE THE WORKING ZONE**

- Press LINE 4 twice to move to WORKING ZONE window
- Press ENTER to select the area. *An asterisk (\*) will be displayed next to Zone*
- Press INC/DEC buttons to set the Working Zone number.
  - 1) *The Working Zone number will be displayed in the Working Zone window.*
  - 2) *The area accumulation for the Working Zone will be displayed in the Zone Ha window.*
  - 3) *The products assigned to the Bins for the selected Working Zone will be displayed in the Product and Bin Capacity windows*
- Press ENTER to accept the change

## **7.6 USE THE MANUAL SPEED**

- Press the PRIME/MANUAL button
- MANUAL will be displayed in the 'Speed Window' and the manual speed set in Section 3.3.2, will be displayed.
- To switch MANUAL SPEED OFF, press the PRIME/MANUAL button once
- The current ground speed will be displayed

## **7.7 ADJUST BRIGHTNESS OF THE CONSOLE SCREEN**

*At the back left-hand side of the Console is a metal adjusting knob, turn the knob clockwise or anti-clockwise to adjust brightness of the screen to suit. See Section 13.1 for position of Contrast Knob.*

## **7.8 BEGIN SEEDING**

- Select a Working Zone, this displays the products for each bin.
- Electronically REFILL any BINS
- Engage the FAN (on the tractor)
- Switch the BIN switches ON that are required. (Only if Bin Clutches have been fitted, and enabled in the software; see section 3.1.3)
- Switch the MASTER switch to the ON position
- Drive OFF

## 8.0 CONFIGURATION OPTIONS

*To access the extra console related configuration options, hold down the RESET button while the unit is first starting up.*



Configuration Menu

## 8.1 KEY CONFIGURATION

- Press LINE 2 to highlight KEY CONFIG.
- Press ENTER to advance KEY CONFIGURATION screen



Key Configuration Screen

### **8.1.1 SWITCH THE KEY BEEPER ON/OFF**

- Press LINE 2 to highlight KEY CONFIG.
- Press ENTER to advance KEY CONFIGURATION screen
- Press ENTER to edit the KEY BEEPER. *An asterisk (\*) will be displayed*
- Press INC/DEC buttons to switch the beeper state ON or OFF
- Press ENTER to accept changes

*The KEY BEEPER when switched ON will mean every time the key buttons on the console are pressed a beep will sound. When switched OFF, there is no beep when the key is pressed.*

### **8.1.2 CHANGE THE KEY BEEPER TIME**

- Press LINE 2 to highlight KEY CONFIG.
- Press ENTER to advance KEY CONFIGURATION screen
- Press LINE 2 to highlight KEY BEEPER TIME
- Press ENTER to edit KEY BEEPER TIME. *An asterisk (\*) will be displayed*
- Press INC/DEC buttons to edit the beeper time
- Press ENTER to accept changes

*When the KEY BEEPER is toggled ON, then the KEY BEEPER TIMER determines how long the beep sound lasts for. The default is 300mS which is a third of a second.*

### **8.1.3 SWITCH THE KEY REPEAT ENABLED**

- Press LINE 2 to highlight KEY CONFIG.
- Press ENTER to advance KEY CONFIGURATION screen
- Press LINE 3 to highlight KEY REPEAT ENABLE
- Press ENTER to edit KEY REPEAT ENABLE. *An asterisk (\*) will be displayed*
- Press INC/DEC buttons to switch the key beeper, ON or OFF.
- Press ENTER to accept changes

*The KEY REPEAT ENABLED when selected ON allows the operator when using the INC/DEC buttons to change values on the console during setup; by holding the Inc or Dec button down the value will change without having to continually press the button to change the value. When switched OFF the operator will have to repeatedly press the Inc or Dec buttons to change the value.*

### **8.1.4 ADJUST THE KEY REPEAT DURATION**

- Press LINE 2 to highlight KEY CONFIG.
- Press ENTER to advance KEY CONFIGURATION screen
- Press LINE 4 to highlight the KEY REPEAT DURATION
- Press ENTER to edit the KEY REPEAT DURATION *An asterisk(\*) will be displayed*
- Press INC/DEC buttons to set the KEY REPEAT DURATION
- Press ENTER to accept changes

*When the KEY BEEPER ENABLED is toggled ON, the KEY REPEAT DURATION determines how long when the Inc or Dec button is held down how quickly the value changes. The default is 300mS.*



## 8.2 ALARM CONFIGURATION

- Press LINE 3 to highlight ALARM CONFIG.
- Press ENTER to advance to the ALARM CONFIGURATION screen



Alarm Configuration Screen

### **8.2.1 Alarm Beeper Overview-**

- This screen allows to change the settings on how the alarm will beep when an alarm appears in the ALARM WINDOW on the Working Screen.
- The ALARM CYCLE TIME sets how long in milliseconds(mS) the alarm stays in the ALARM WINDOW.
- The ALARM CYCLES is how many times the alarm will cycle (beep and flash, in the 'Alarm Window'
- The ALARM DUTY CYCLE is the percentage of time the beeper will beep, when the alarm is flashing in the 'Alarm Window'. I.e. When the ALARM DUTY CYCLE is set at 50% the beep will sound for half the time (50%), the alarm flashes in the 'Alarm Window.' The ALARM BEEPER needs to be switched ON.
- The ALARM BEEPER can be switched ON or OFF. When the beeper is turned ON, the console will beep as well as display what the alarm is. When the beeper is turned OFF, the alarm will be displayed on the screen but without the beep
- I.E. The default settings are displayed on the screen on Page 53.
- The alarm will appear in the ALARM WINDOW.
- The alarm will flash for 1 second.
- The alarm will beep for 1/2 a second (50% of the alarm cycle time), and the alarm will cycle (flash and beep) 5 times.
- After the 5 cycles the beep will stop and if the alarm is still present, then the alarm will cycle through in the ALARM WINDOW with no beep.

## **8.2.2 SET THE ALARM CYCLE TIME**

- Press LINE 3 to highlight ALARM CONFIG.
- Press ENTER to advance to the ALARM CONFIGURATION screen
- Press ENTER to edit the ALARM CYCLE TIME.  
*An asterisk (\*) will be displayed*
- Press INC/DEC button to set the ALARM CYCLE TIME
- Press ENTER to accept changes

## **8.2.3 SET THE ALARM DUTY CYCLE**

- Press LINE 3 to highlight ALARM CONFIG.
- Press ENTER to advance to the ALARM CONFIGURATION screen
- Press LINE 2 to highlight ALARM DUTY CYCLE
- Press ENTER to edit the ALARM DUTY CYCLE.  
*An asterisk (\*) will be displayed*
- Press INC/DEC buttons to set the ALARM DUTY CYCLE
- Press ENTER to accept changes

## **8.2.4 SET THE NUMBER OF ALARM CYCLES**

- Press LINE 3 to highlight ALARM CONFIG.
- Press ENTER to advance to the ALARM CONFIGURATION screen
- Press LINE 3 to highlight ALARM CYCLES
- Press ENTER to edit the ALARM CYCLES.  
*An asterisk (\*) will be displayed*
- Press INC/DEC buttons to set the number of ALARM CYCLES
- Press ENTER to accept changes

## **8.2.5 SWITCH THE ALARM BEEPER ON/OFF**

- Press LINE 3 to highlight ALARM CONFIG.
- Press ENTER to advance to the ALARM CONFIGURATION screen
- Press LINE 4 to highlight ALARM BEEPER
- Press ENTER to edit the ALARM BEEPER. *An asterisk (\*) will be displayed*
- Press INC/DEC to toggle alarm beeper ON or OFF
- Press ENTER to accept changes

## 8.3 GENERAL CONFIGURATION

- Press LINE 1 to select GENERAL CONFIG.
- Press ENTER to select GENERAL CONFIG.
- See the following page for details on the General Configuration screen



General Configuration Screen

### **8.3.1 CHANGING BETWEEN AIR SEEDER MONITOR AND SEED RATE CONTROLLER**

- Press ENTER to select GENERAL CONFIG.
- Press ENTER to change UNIT TYPE. *An asterisk (\*) will be displayed*
- Press INC/DEC buttons to switch between SRC (Seedrate control) and ASM (Area, shaft monitor).  
**ASM MUST BE SELECTED FOR AIR SEEDERS SETUP AS A MONITOR**
- Press ENTER to accept the changes

### **8.3.2 INTERFACE TO AN MDECU: (SEEDRATE CONTROLLER ONLY)**

*Note: When the UNIT TYPE is selected as ASM, then the MDECU INTERFACE displays N/A.*

*This display is not editable while ASM is selected, as the UNIT TYPE.*

### **8.3.3 TOGGLE DISPLAY POLLING**

- Press ENTER to advance to the GENERAL CONFIG. screen
- Press LINE 3 twice to highlight DISPLAY POLLING
- Press ENTER to edit DISPLAY POLLING. *An asterisk (\*) will be displayed*
- Press INC or DEC buttons to switch between ON and OFF  
**OFF MUST BE SELECTED FOR ALL OPERATIONS.**  
**MUST ONLY BE SWITCHED ON WHEN DIRECTED BY A KEE SERVICE REPRESENTATIVE**
- Press ENTER to accept changes

### **8.3.4 DIAGNOSTICS MODE**

- Press ENTER to advance to the GENERAL CONFIG. screen
- Press LINE 3 to highlight DIAGNOSTICS MODE
- Press ENTER to advance to the DIAGNOSTICS MODE screen  
*Go to Section 9 Page 59 for further details.*

### **8.3.5 RESTORE TO FACTORY SETTINGS**

- Press ENTER to advance to the GENERAL CONFIG. screen
- Press LINE 4 to highlight COLD RESET (RESTORE DEFAULTS)
- Press ENTER to advance to COLD RESET screen
- Press MENU to go back to the GENERAL CONFIGURATION SCREEN

OR

- Press the RESET button on the console. *This will restore ALL settings and values in the Simplicity Console back to the original settings set in the factory.*
- *Once the RESET button has been pressed, the console will revert back to the original factory settings and the Console will automatically AUTO POWER DOWN.*
- *The Console will then automatically POWER ON and start up at the Working Screen.*

## 9.0 DIAGNOSTICS MODE

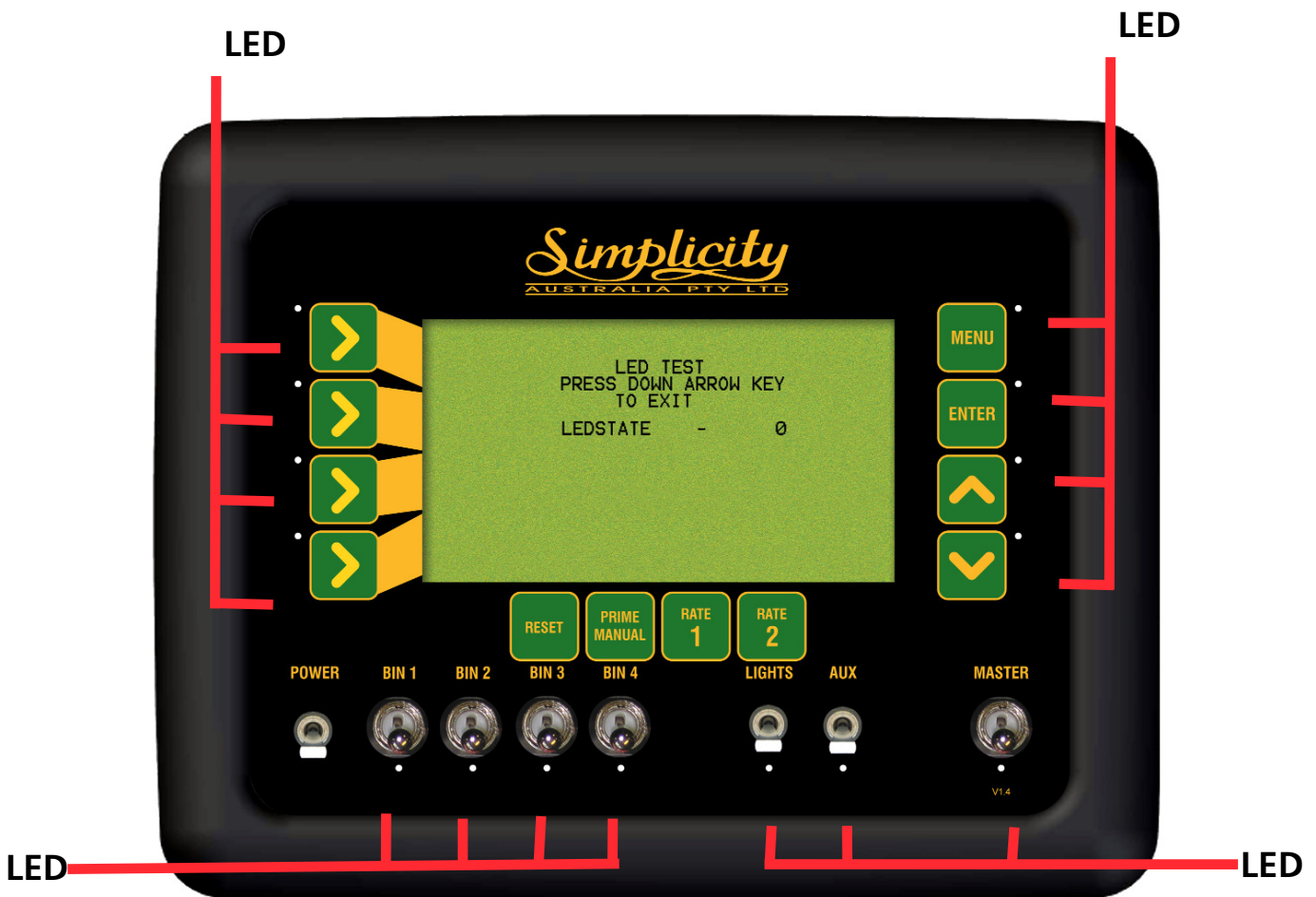
- Hold the RESET button down (for about 5 seconds) while switching the POWER button ON.
- Press ENTER to advance to the GENERAL CONFIG. screen
- Press LINE 3 to highlight DIAGNOSTICS MODE
- Press ENTER to advance to the DIAGNOSTICS MODE screen
- Press LINE 1, 2, 3 or 4 to move around the screen, till the TEST that is required is highlighted
- Press ENTER to advance to the selected test screen
- Press the DEC button to exit from any of the test screens



Diagnostics Screen

## 9.1 LED TEST

- Select this to check the operation of the Light Emitting Device (LED)'s on the front panel. Diagram below shows the positions of the LED's
- If operating correctly the LED's will cycle consecutively around the front panel, starting from the:
  - 1)- Right hand side of console from top to bottom,
  - 2)- Bottom side of console from left to right
- then once one cycle has been completed, all the LED's will flash together.
- Press the DEC button to exit



LED Test Screen

## 9.2 SWITCH TEST

- Select this to check the operation of the switches

*If operating correctly:*

- The MASTER switch when in the OFF position;  
"MASTER SWITCH = OFF will be displayed on the console screen
- The MASTER switch when in the ON position;  
"MASTER SWITCH = ON will be displayed on the console screen.

*Note: If an EXTERNAL MASTER is fitted, then the MASTER switch on the console will not function. Instead the EXTERNAL MASTER switch state will displayed the state of the EEXTERNAL MASTER whether ON or OFF.*

*Note: The Bin Switches (BIN 1 to BIN 4) for a Simplicity console when setup as a Monitor, do not perform any purpose. Unless CLUTCHES have been enabled in Section 3.1.3.*

- SW1 to SW4 correspond to the BIN 1 to BIN 4 switches (ie. BIN 1 = SW1). When the switches are in the ON position the value next to the corresponding SW1 to SW4 will be '253'. If the switches are in the OFF position, the value next to the SW1 to SW4 will be '2'
- When the LIGHTS is in the ON position; SW6 will read '253'
- When the LIGHTS is in the OFF position; SW6 will read '2'
- When the AUX is in the ON position; SW7 will read '253'
- When the AUX is in the OFF position; SW7 will read '2'
- Press the DEC button to exit.



Switch Test Screen



## 9.3 KEYS TEST

- Select this to check the operation of the buttons on the front panel
- If operating correctly by pressing any button, the button that is pressed will be displayed on the screen
- Press the DEC button to exit



Keys Test Screen

## 9.4 SENSORS TEST

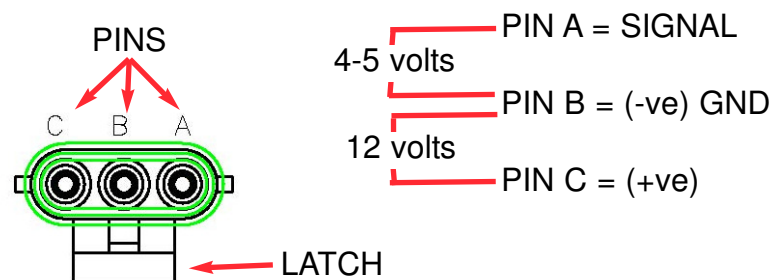
- Select this test to check the operation of the sensor circuitry
- The current period (time between pulse, is measured in mS) for each sensor will be displayed on the screen.
- During operation the period between the pulses should be constant, if this figure isn't constant then this suggests there is a magnet missing or a sensor distance isn't set properly.
- The Pulse count keeps accumulating as each magnet goes past the sensor.
- 'Gnd Shaft' tests the wheel sensor on the air seeder.
- Fan Shaft tests the speed sensor mounted on the fan.
- The Enc. Shaft (1 to 4) tests the shaft sensors and Encoders mounted on each of the metering shafts for each bin, (eg. Enc. Shaft1 tests the sensor mounted on the metering shaft on BIN 1)
- Press the DEC button to exit



Sensor Test Screen

### **9.4.1 CHECKING HARNESS VOLTAGES, FOR 3 PIN SENSORS**

- This test should be carried out if the sensor (ground speed sensor, metering shaft sensors, fan shaft sensor) that appears to be faulty has been checked using the Diagnostic Test in Section 9.4., and no 'pulse count', or no 'period' can be observed or the period is erratic.
- This test will check the sensor is receiving the correct voltages, from the tank harness.
- To carry out this test a multimeter is required which can measure DC voltage between 1 and 24 volts. A ruler to measure distance between sensor and magnet.
- This test procedure can be carried out on ground speed sensors, metering shaft sensors and the fan speed sensor all which have a 3 pin weather-pak connector, which connects the sensor to the chassis harness. Each connector has A, B and C marked on the connector. If the A,B and C are covered by shrink-wrap, then use diagram below to determine A,B and C pins position
- Check the the distance between the magnet and sensor. The distance should be 2 to3 millimeters. Rectify if distance is incorrect.
- If checking ground speed sensor check to make sure no magnets are missing and they evenly spaced apart.
- Check for obvious signs of damage(breakage, corrosion etc) to the sensor, plug and wiring. Rectify any damage.



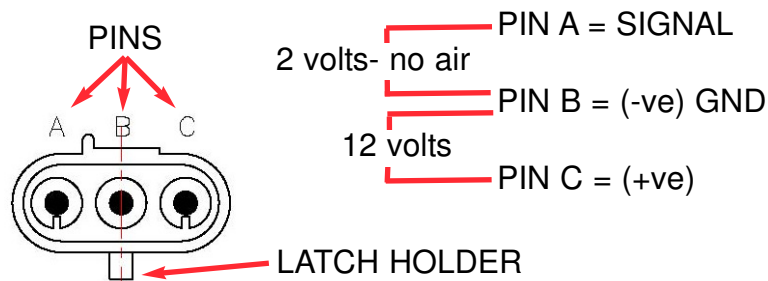
**'HARNESS' 3PIN Weather-Pak Plug**

- From the sensor trace back the wiring to the 3 pin weather-pak plug, unplug the sensor plug from the tank harness plug.
- Switch Console POWER switch ON.
- The 'Latch' on the plug is what holds the 2 plugs together. With the 'Latch' facing down (as shown in diagram), the Pins starting from the left are: C, B and A.
- Using multi-meter, the voltage between PIN C and PIN B should be 12 volts.
- Using multi-meter, the voltage between PIN A and PIN B should be 4-5 volts.
- If the voltages are correct as above then this would suggest a faulty sensor.
- If one or both voltages are incorrect then write down the actual voltages and contact your local Simplicity Dealer.

### 9.4.2 PRESSURE SENSOR TEST

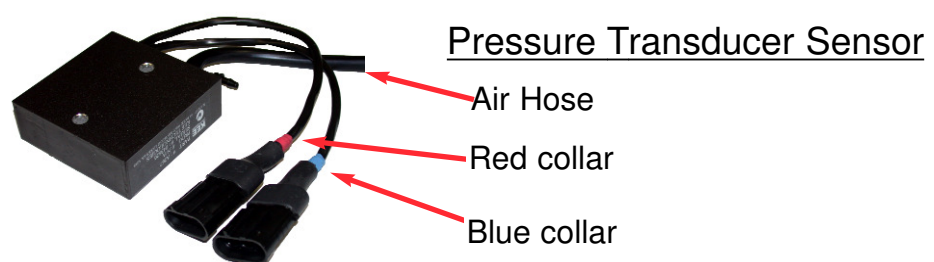
This is a simple test procedure that determines whether the pressure transducer sensor is functioning properly. A multi-meter is required which can measure DC voltage between 1 and 24 volts.

- The pressure transducer sensor is mounted on the air seeder chassis near the fan.
- The sensor has 2 weather-pak plugs (one with a red collar and one with a blue collar) and a spigot with a rubber hose which goes to the fan.  
*See diagram of Pressure Transducer Sensor at bottom of page, showing red collar plug, blue collar plug and air hose*
- For correct operations the weather-pak plug with the **red collar** should be connected to the tank harness; if the red collar plug is not connected then do so now and check console for a pressure reading; the blue collar plug is used for testing.
- To test the sensor unplug red collar plug from tank harness.
- Connect the blue collar plug to the tank harness.



#### Red collar 3PIN Weather-Pak Plug

- Switch Console POWER switch ON.
- The 'Latch Holder' on the plug is what holds the 2 plugs together. With the 'Latch Holder' facing down (as shown in diagram), the Pins starting from the left are: A, B and C.
- Using a multi-meter, the voltage between PIN C and PIN B should be 12 volts.
- Using multi-meter, the voltage between PIN A and PIN B should be 2 volts.
- Unplug the rubber hose from where it is attached to the fan.
- With the multi meter still across PIN A and PIN B, blow hard into the hose, the voltage should read approximately 3 volts.
- Once testing is finished ensure the weather-pak plug with the 'red collar' is connected to the chassis harness and then connect the rubber hose back to the spigot on the fan.
- If one or both voltages are incorrect then write down the actual voltages and contact your Simplicity Dealer.



## 9.5 RELAY TEST

- Select this to check the operation of the all relay circuitry
- This test, cycles through each relay within the console; and each of the three states of each relay
- The "Light" and or "Wing Cut-off" kit is connected to the AUX 1 and LIGHTS plugs on the harness.
- During the RELAY TEST regardless of the position of the Console switches
  - 1) Any LIGHT KIT connected to the AUX 1 plug will switch ON then OFF
  - 2) Any AUX kit (Wing Cut-off or another LIGHT kit) connected to the AUX 2 plug of the harness will switch ON then OFF.
- This test isolates whether it is a relay problem in the console or an actual console switch.
- Press the DEC button to exit



Relay Test Screen

## 9.6 BIN LEVELS TEST

- Select this to check the operation of the bin level sensors
- If operating correctly when the product fully covers the bin sensor the particular bin should say FULL.
- If the product doesn't fully cover the bin level sensor the particular bin will say EMPTY.
- Press DEC button to exit



Bin Levels Test Screen

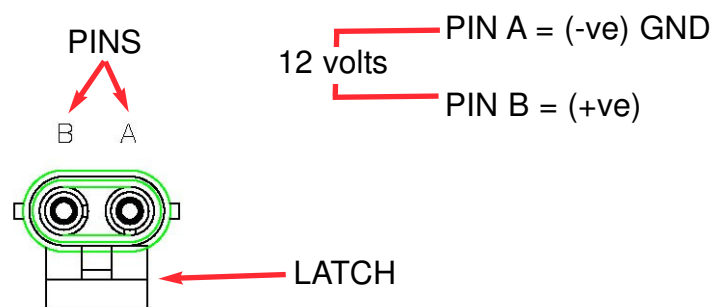
### **9.6.1 BIN LEVEL SENSOR ADJUSTMENT**

*The Bin Level Sensors should be adjusted when fitted to a system and at the start of each season, They are sensitive to voltage changes and may operate differently on a different tractor. They are also sensitive to different products, and while they will work with grain such as wheat, re-adjustment may be required to detect Urea. Once set to work with Urea, they will work on all other products provided voltage supplies remain the same.*

- The unit should be mounted so that there is nothing within 2 inches of the front of the sensor, bin struts, side walls, product etc.
- Turn the Simplicity console ON, with sensor in free space or in an empty bin.
- Check the sensor light. If OFF, turn the adjusting screw counterclockwise until the light comes on.
- If the light is on, turn the screw clockwise until it goes off then turn back again until it just comes on.
- Place a hand near the sensor cap, or place the sensor in the product that will be in the bin. The light should go off.
- Remove the product or hand, the light should come on when the cap has a clearance of 1.5 to 2 cms from the product or hand. If using a hand to set the sensor, check the operation with the product as this is only a rough guide to simplify testing.
- Adjust the screw if necessary to achieve this result.
- Repeat the procedure for each Bin
- If set with Urea, the sensor light should go off when the end is in the product approximately 1 cm, with wheat etc, the light should go off just as the sensor face touches the product, and come back on again at approximately 2 cm clearance.

### **9.6.2 CHECKING HARNESS VOLTAGES, FOR BIN SENSOR**

- This test should be carried out if the bin level sensor appears to be faulty and has been checked using the Diagnostic Test in Section 10.6. This test will check the sensor is receiving the correct voltages.
- To carry out this test a multimeter is required which can measure DC voltage between 1 and 24 volts.
- Each bin level sensor has a 2 pin weather-pak connector and has A and B marked on the connector.
- Check for obvious signs of damage (breakage, corrosion etc) to the sensor, plug and wiring. Rectify any damage.
- From the sensor trace back the wiring to the 2 pin weather-pak plug, unplug the sensor plug from the chassis harness plug.
- Switch Console POWER switch ON.



#### **'HARNESS' 2 PIN Weather-Pak Plug**

- The 'Latch' on the plug is what holds the 2 plugs together. With the 'Latch' facing down (as shown in diagram), the Pins starting from the left are: B and A.
- Using a multi-meter, the voltage between PIN A and PIN B on the Tank Harness should be 12 volts.
- If the voltage is incorrect then write down the actual voltage and contact your KEE Dealer.

### **9.6.3 CHECKING LOOM VOLTAGES, CLUTCH**

*This checks the plug marked 'CLUTCH' on the Tank Harness see section 13.4. The CLUTCH is switched ON or OFF using the MASTER switch on the console.*

- Switch the Console POWER switch ON



## 9.7 MEMORY TEST

- Select this to check the operation of the read/write to memory chip.
- When on the memory test page, the lines should keep scrolling. If it stops on a particular line, there is a problem, and the information is not being saved properly to the chip.
- Press the DEC button to exit



Memory Test Screen

## 9.8 DISPLAY TEST

- Select this to check the operation of the pixels on the display screen
- When on the Display Test page the screen will start blackening from the left to right. This test will show whether all pixels are working on the screen.
- Press the DEC button to exit.

## 10.0 ALARM MESSAGES

### 10.1 Alarm Messages Overview

All alarms to alert the operator will flash in the 'Alarm Window'.

The frequency and whether an alarm sounds when an alarm is displayed in the 'Alarm Window' is set in the ALARM CONFIGURATION see Section 9.2.

The alarm will keep flashing in the 'Alarm Window' till the problem is rectified.

If there is more than one alarm present then the alarms will scroll through in the 'Alarm Window' one alarm at a time, the first alarm will flash a number of times, then the next alarm will flash and so forth, until all alarms have been displayed.

The 'Alarm Window' will then start again with the first alarm.

A list of all the alarms and an explanation for each alarm are listed on the following pages.



Working Screen

## 10.2 Fan Alarms

- **Fan Pressure Low-** if the fan pressure goes below the programmed Alarm Point, the message “FAN PRESS LOW” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Fan Pressure High-** if the fan pressure goes above the programmed Alarm Point, the message “FAN PRESS HIGH” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Fan Speed Low-** if the fan speed goes below the programmed Alarm Point, the message “FAN SPEED LOW” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Fan Speed High-** if the fan speed goes above the programmed Alarm Point, the message “FAN PRESS HIGH” flashes in the ‘Alarm Window’ and the alarm sounds.

## 10.3 Metering Shaft Alarms

- **Shaft 1 Stopped-** if bin metering Shaft 1 stops rotating, the message “SHAFT 1 STOPPED” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Shaft 2 Stopped-** if bin metering Shaft 2 stops rotating, the message “SHAFT 2 STOPPED” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Shaft 3 Stopped-** if bin metering Shaft 3 stops rotating, the message “SHAFT 3 STOPPED” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Shaft 4 Stopped-** if bin metering Shaft 4 stops rotating, the message “SHAFT 4 STOPPED” flashes in the ‘Alarm Window’ and the alarm sounds.

## 10.4 Bin Low (Sensor) Alarms

- **Bin 1 Low Alarm-** when the product level in BIN 1 falls below the sensor, the message “BIN 1 LOW” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 2 Low Alarm-** when the product level in BIN 2 falls below the sensor, the message “BIN 2 LOW” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 3 Low Alarm-** when the product level in BIN 3 falls below the sensor, the message “BIN 3 LOW” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 4 Low Alarm-** when the product level in BIN 4 falls below the sensor, the message “BIN 4 LOW” flashes in the ‘Alarm Window’ and the alarm sounds.

## 10.5 Bin Empty (Contents) Alarms

- **Bin 1 Empty Alarm-** will alarm when the air seeder has calculated the last of the product has been metered, through BIN 1, “BIN 1 EMPTY” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 2 Empty Alarm-** will alarm when the air seeder has calculated the last of the product has been metered, through BIN 2, “BIN 2 EMPTY” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 3 Empty Alarm-** will alarm when the air seeder has calculated the last of the product has been metered, through BIN 3, “BIN 3 EMPTY” flashes in the ‘Alarm Window’ and the alarm sounds.
- **Bin 4 Empty Alarm-** will alarm when the air seeder has calculated the last of the product has been metered, through the BIN 4, “BIN 4 EMPTY” flashes in the ‘Alarm Window’ and the alarm sounds.

## 10.6 Other Alarms

- **No Ground Speed-** when no signal is detected from the wheel sensor on the air seeder, and MASTER is in the ON position. This will occur any time the air seeder stops and is intended as a warning only.

If the “NO GROUND SPEED” message flashes in the ‘Alarm Window’ and the alarm sounds and the air seeder is moving, the wheel sensor (on air seeder), should be checked immediately.

- **TURN MASTER OFF-** when the MASTER switch is in the ON position and the operator tries to PRESS a button that requires the MASTER switch to be in the OFF position (i.e. go to the sub menu's) then the TURN MASTER OFF alarm flashes in the ‘Alarm Window.’
- **BLOCKED HEAD-** when the MASTER switch is in the ON position, and the BLOCKED HEAD alarm appears in the ‘Alarm Window’ and the alarm sounds; this indicates one of the sensors is ‘blocked’ or no product is flowing pass the sensor.  
Switch the MASTER switch OFF, this will ‘latch’ onto the offending sensor. Inspect the sensor (the red LED on the sensor will be illuminated), fix the problem.  
Switching the MASTER ON will reset the Blocked Head Sensors.

## 11.0 SPECIFICATIONS

### 11.1 Console

- **Supply Voltage** 13 - 16 volts Negative earth system.

The Console's power leads must be connected directly to the tractors battery terminals.

No attempt should be made to connect the system to positive earth vehicle. Damage will result and Warranty will become void.

- **Supply Current Console** 0.9 amps approximately.
- **LIGHTS and AUX switches** **Maximum 50 Watts continuous for each switch**  
12 VDC across the LIGHTS and AUX connectors on the Tank Harness when switched ON at the console.

### 11.2 Ground Speed, Fan Speed, Metering Shaft Sensors

**Ground Speed Sensor, Fan Speed Sensor and Shaft Sensors:** Hall effect type sensors  
3 pin weather-pak plug (Pin A, B and C)

**Sensor to Magnet Distance** 2-3 millimeters (mm)

**Supply Voltage** Supply 12 volts from Simplicity Console

**Signal Voltage:** 4 -5- volts sensor inactive  
< 1 volt sensor activated by magnet

### 11.3 Fan Pressure Sensors

**Fan Pressure Sensor:** Solid state aircraft altimeter type. Max. error 1%

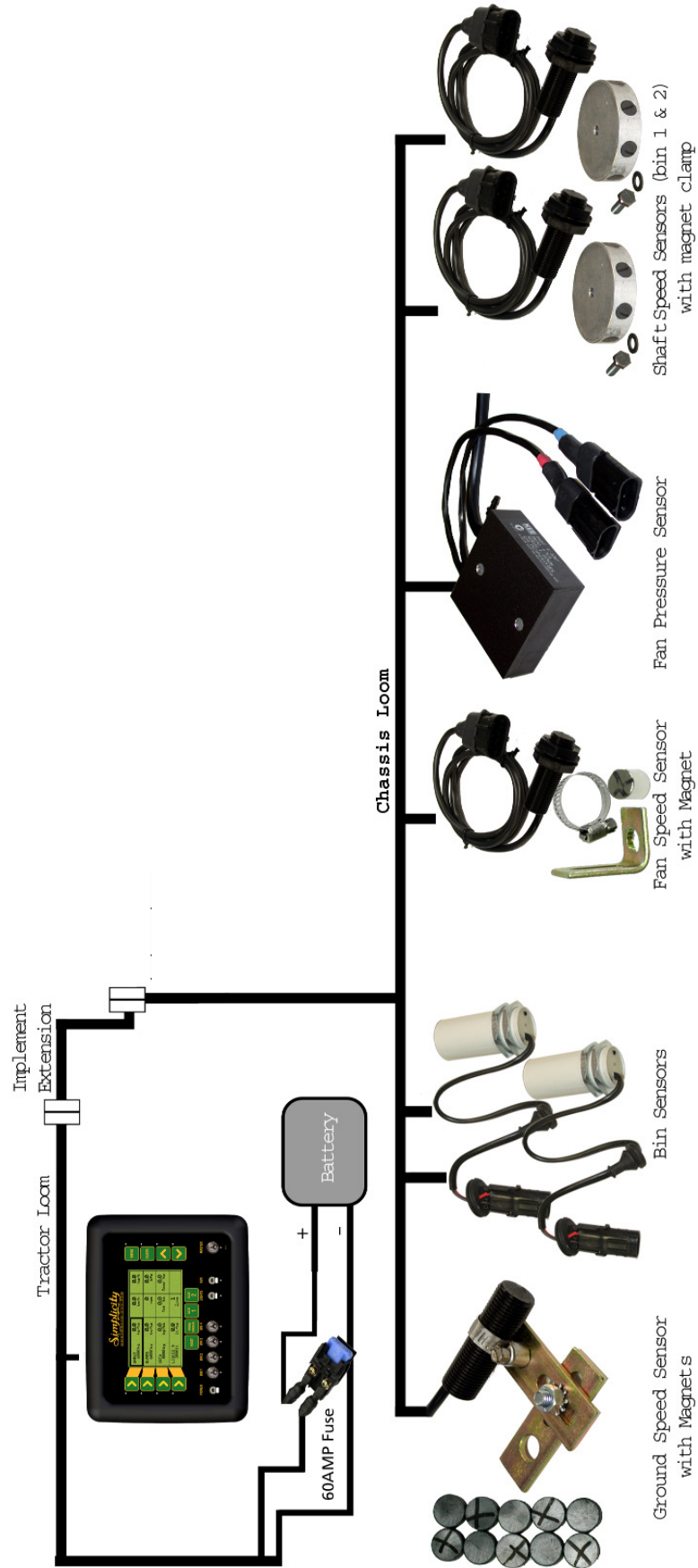
### 11.4 Bin Level Sensors

**Bin Level Sensor:** Solid state capacitive type.  
2 Pin weather-pak plug (Pin A and B)  
Triggered on flat end  
Sensitivity adjustable for light material eg. Urea

**Supply Voltage** Supply 12 volts from Simplicity Console

# 12.0 SYSTEM COMPONENTS

## For a Typical 2 Bin Air Seeder



## 12.1. SYSTEM COMPONENTS- PARTS LIST

For a Typical 2 Bin Simplicity Air Seeder Monitor

<u>Item</u>	<u>Part Number</u>	<u>QTY</u>
• <b>Simplicity Monitor Console-</b>	A1755	1
• <b>Harnesss</b>		
Tractor Harness	A1780	1
Implement Extension Harness (13M)	A1124L	1
OR Implement Extension Harness (17M)	A2177	1
OR Implement Extension Harness (7.5M)	A1839	1
OR Implement Extension Harness (2M)	A1844	1
Tank Harness	A1113L	1
• <b>Ground Speed Sensor</b>	<b>A1200</b>	<b>1</b>
"L" Angle Speed Sensor Bracket	A006	1
or Slotted Speed Sensor Bracket	A007	1
10 Magnet Wheel Kit	A369	1
• <b>Fan Speed Sensor</b>	<b>A1200</b>	<b>1</b>
Fan Magnet	A368	1
• <b>Bin Level Sensor</b>		
Bin Level Sensor only	A667	2
or Bin Level Sensor with Bracket	A1201	2
• <b>Fan Pressure Sensor Kit</b>	<b>A267</b>	<b>1</b>
• <b>Shaft Speed Sensor</b>	<b>A1200</b>	<b>2</b>
8 Magnet Encoder wheel		
"L" Angle Speed Sensor Bracket	A006	2
or Slotted Speed Sensor Bracket	A007	2
Block Magnet and Clamp	A402	2
• <b>Spares</b>		
<b>16 Pin Locking Ring Kit (pack of 3)</b>	<b>A1478</b>	
<b>Fuse 10 Amp 3AG</b>	<b>Y846</b>	
<b>Manual (Simplicity Monitor)</b>	<b>A600</b>	
• <b>External Master Switch Kit (Optional)</b>	<b>A2935</b>	<b>1</b>
9 Pin to 9 Pin Adaptor	A2864	1
External Master switch and harness	A601	1

## 12.1. SYSTEM COMPONENTS- PARTS LIST

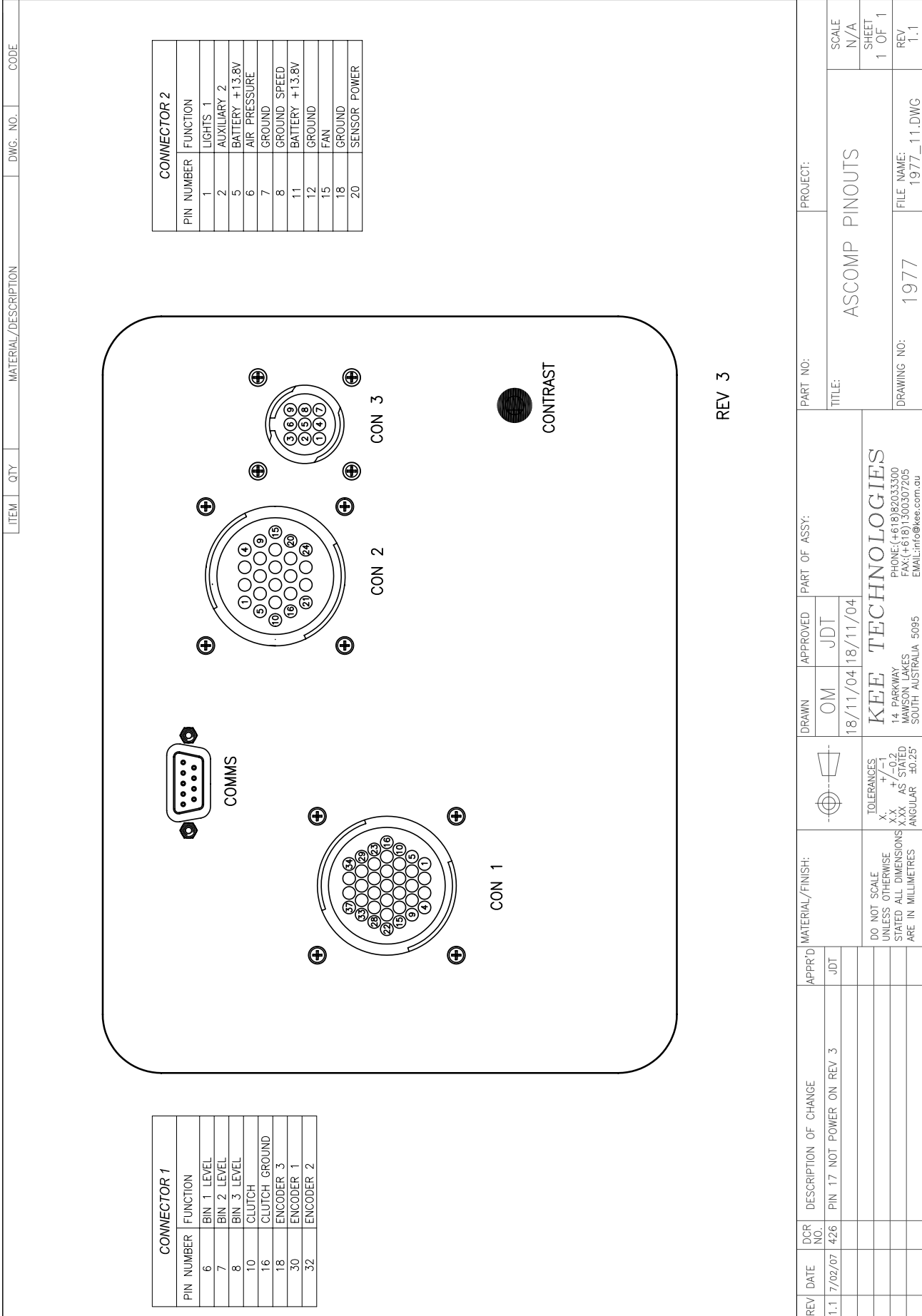
For a Typical 2 Bin Simplicity Air Seeder Monitor

<u>Item</u>	<u>Part Number</u>	<u>QTY</u>
<b>• GPS Speed Kit (Optional)</b>		
5Hz GPS Receiver	A3023	1
OR 1Hz GPS Receiver	A1677	1
DB9 Null Modem Cable	A1507	1
Power Adaptor Harness	A3017	1
<b>• Eagle Seeder to X20 XLink(Optional)</b>	<b>A2953</b>	<b>1</b>
<i>Note: Requires an X10, X15 or X20 Console</i>		
<b>• Simplicity Monitor Blocked Head Sensor kit</b>	<b>A3105</b>	<b>1</b>
<i>The A3105 kit Includes 5 x A022 Blocked Sensors</i>		
Blocked Head Adaptor Harness	A2667	1
3 Wire Adaptor extension harness 5m (16ft)	A768	1
3 Wire Adaptor extension harness 9m (29.5ft)	A2018	1
extra sensors if required Sensor 32mm	A022	1
<i>Note: up to 18 Sensors can be connected to a Simplicity Console</i>		

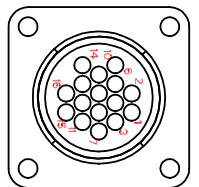
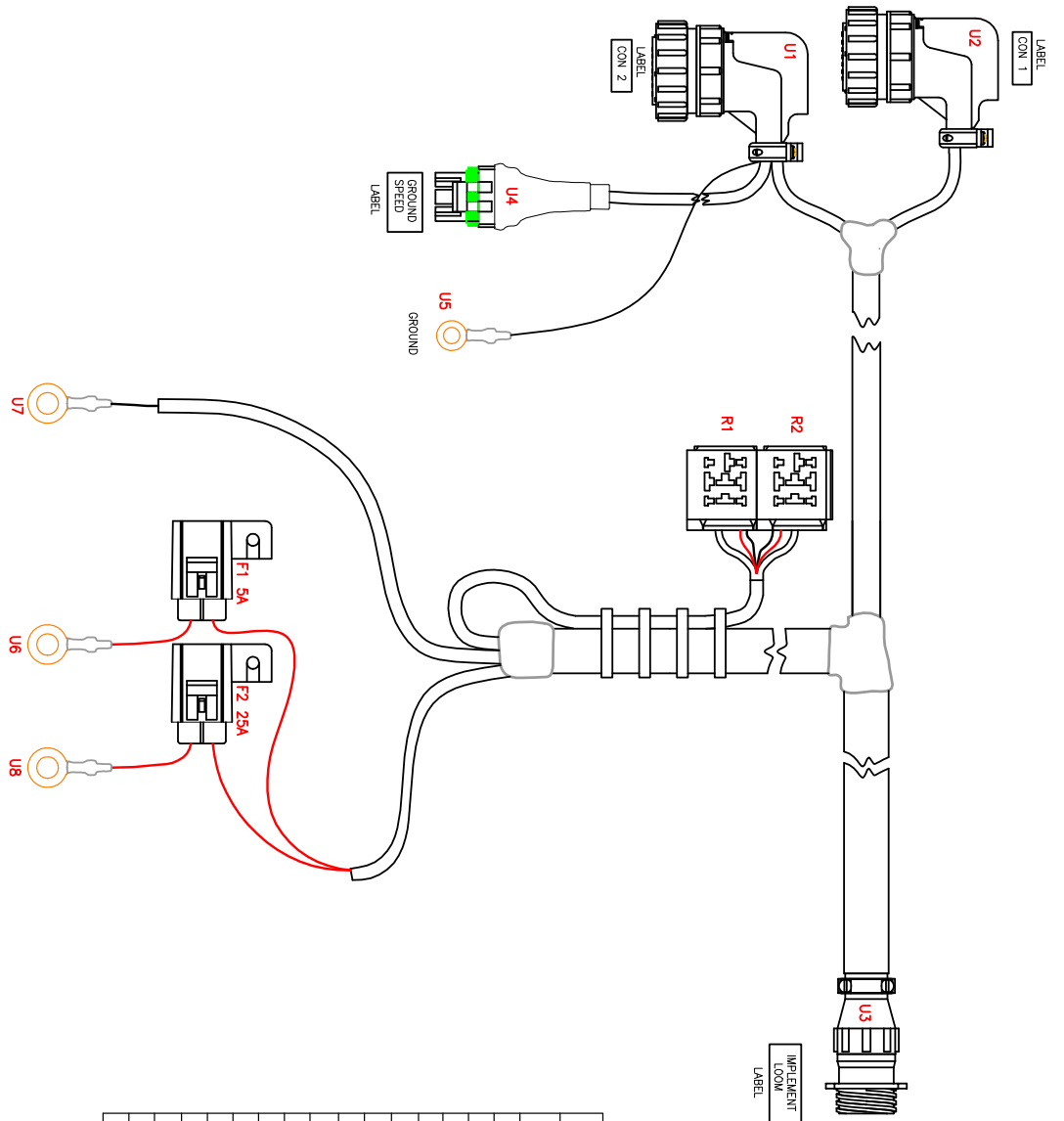


# 13.0 WIRING DIAGRAMS

## 13.1 Console Pin outs



### 13.2 Tractor Harness Layout



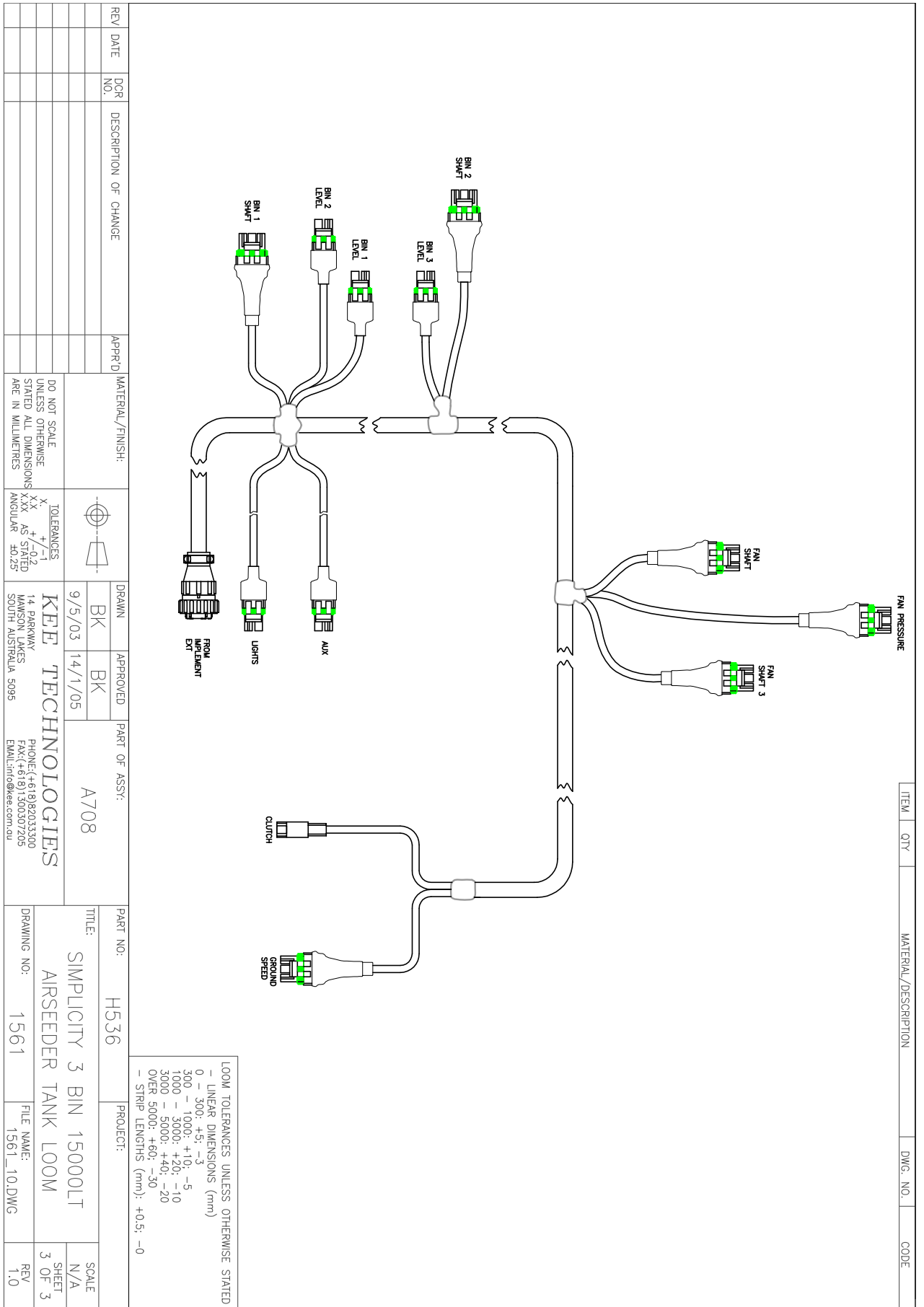
CONNECTOR U3	
PIN NUMBER	FUNCTION
1	LIGHT SWITCHED
2	AUX/LIGHT EARTH
3	SHAFT 3
4	BIN LEVEL 3
5	BIN LEVEL 1
6	BIN LEVEL 2
7	+VE SENSORS
8	-VE SENSORS
9	SPEED SENSOR
10	FAN SHAFT
11	SHAFT 1
12	SHAFT 2
13	CLUTCH EARTH
14	CLUTCH
15	FAN PRESSURE
16	AUX SWITCHED

DATE	DCR NO.	DESCRIPTION OF CHANGE	APPR'D	MATERIAL/FINISH:	DO NOT SCALE UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES	TOLERANCES X.XX AS STATED ANGULAR ±0.25	DRAWN OM	APPROVED MS	PART OF ASSY: A1780	PART NO: H773	PROJECT: 1007
										TITLE: EAGLE ASCOMP TRACTOR LOOM	
										DRAWING NO: 1881	FILE NAME: 1881_15.DWG

**KEE TECHNOLOGIES**  
 14 PARKWAY  
 MAWSON LAKES  
 SOUTH AUSTRALIA 5095  
 PHONE: (+618)82033300  
 FAX: (+618)1300307205  
 EMAIL: info@kee.com.au



# 13.4 Tank Harness Layout



REV	DATE	DCR NO.	DESCRIPTION OF CHANGE	APPR'D	MATERIAL/FINISH:	DRAWN	APPROVED	PART OF ASSY:	PART NO.:	PROJECT:	SCALE
						BK	BK	A708	H536		N/A
					DO NOT SCALE UNLESS OTHERWISE STATED. ALL DIMENSIONS ARE IN MILLIMETRES.	TOLERANCES: X ±0.2 XX ±0.1 XXX AS STATED ANGLE AS SHOWN		14 PARKWAY MAWSON LAKES SOUTH AUSTRALIA 5095 PHONE: (+618) 82033300 FAX: (+618) 300307205 EMAIL: info@kee.com.au		TITLE: SIMPLICITY 3 BIN 15000LT AIRSEEDER TANK LOOM	
						9/5/03 14/1/05					SHEET 3 OF 3
											REV 1.0

LOOM TOLERANCES UNLESS OTHERWISE STATED  
 - LINEAR DIMENSIONS (mm)  
 0 - 300: +5; -3  
 300 - 1000: +10; -5  
 1000 - 3000: +20; -10  
 3000 - 5000: +40; -20  
 OVER 5000: +60; -30  
 - STRIP LENGTHS (mm): +0.5; -0

ITEM	QTY	MATERIAL/DESCRIPTION	DWG. NO.	CODE

Blank lined area for notes, consisting of horizontal dotted lines.



**HEAD OFFICE**

18 Loudoun Rd  
Dalby  
Queensland 4405

Office: +61 7 4662 2977  
Fax: +61 7 4662 1743

Email: [sales@simplicityaus.com.au](mailto:sales@simplicityaus.com.au)  
website: [www.simplicityaus.com.au](http://www.simplicityaus.com.au)

The logo for 'Simplicity' is written in a yellow, cursive script font. It is centered within a dark green rectangular box that has a subtle drop shadow effect.