



## Operators Manual

# E15 Seeder Console Air Seeder Monitor V1.3







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# 1. OVERVIEW

The Eagle 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 Eagle console can be upgraded to control either Electric Drive or Actuator systems.

## The Eagle Monitor will do the following:

Display Ground Speed from either Tractor Radar or Wheel Sensor, 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 it.*

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 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 electrical pulses the controller receives for each metering shaft revolution.

## 2. CONFIGURATION

### 2.1 Air Seeder Overview

The basic system consists of a monitor console mounted in the cabin of the tractor, 2 loom assemblies, one for the tractor and one for the seeder, and various sensors for monitoring up to 4 bins for application rate, 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 magnet is usually fixed into 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.

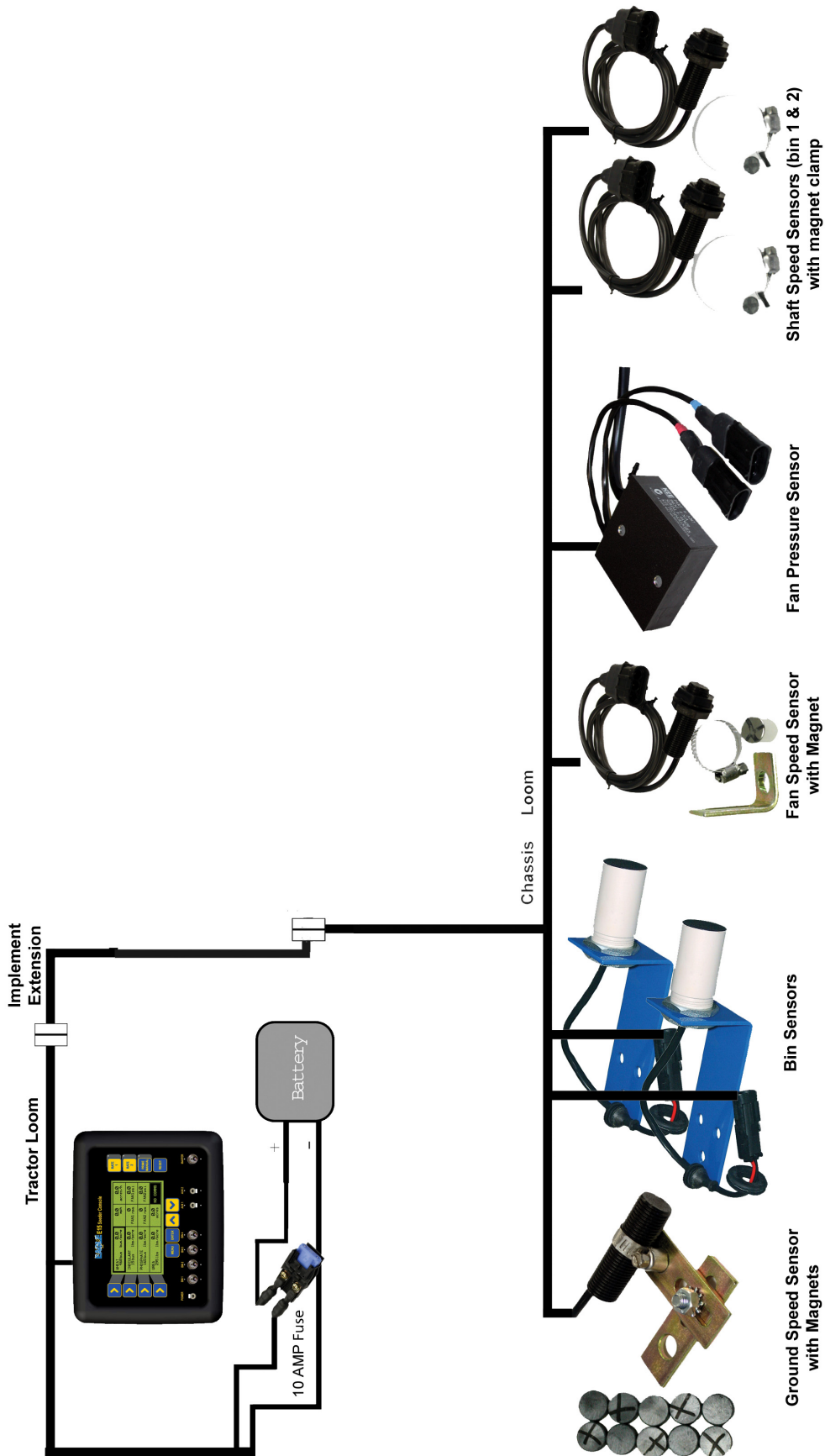
The ground speed sensor may be mounted on the air seeder cart or in the tractor. There are 2 loom connections for the Ground speed input, one on the seeder loom, the other on the tractor loom(the input on the tractor loom can be used for tractor radar, this is an optional extra), only one of which can be used at one time.

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 the 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 MENU button
- You will be returned to the previous menu screen
- To return to the WORKING screen the MENU button may have to be pressed several times

### 2.3.4 TO ENTER A MENU SCREEN

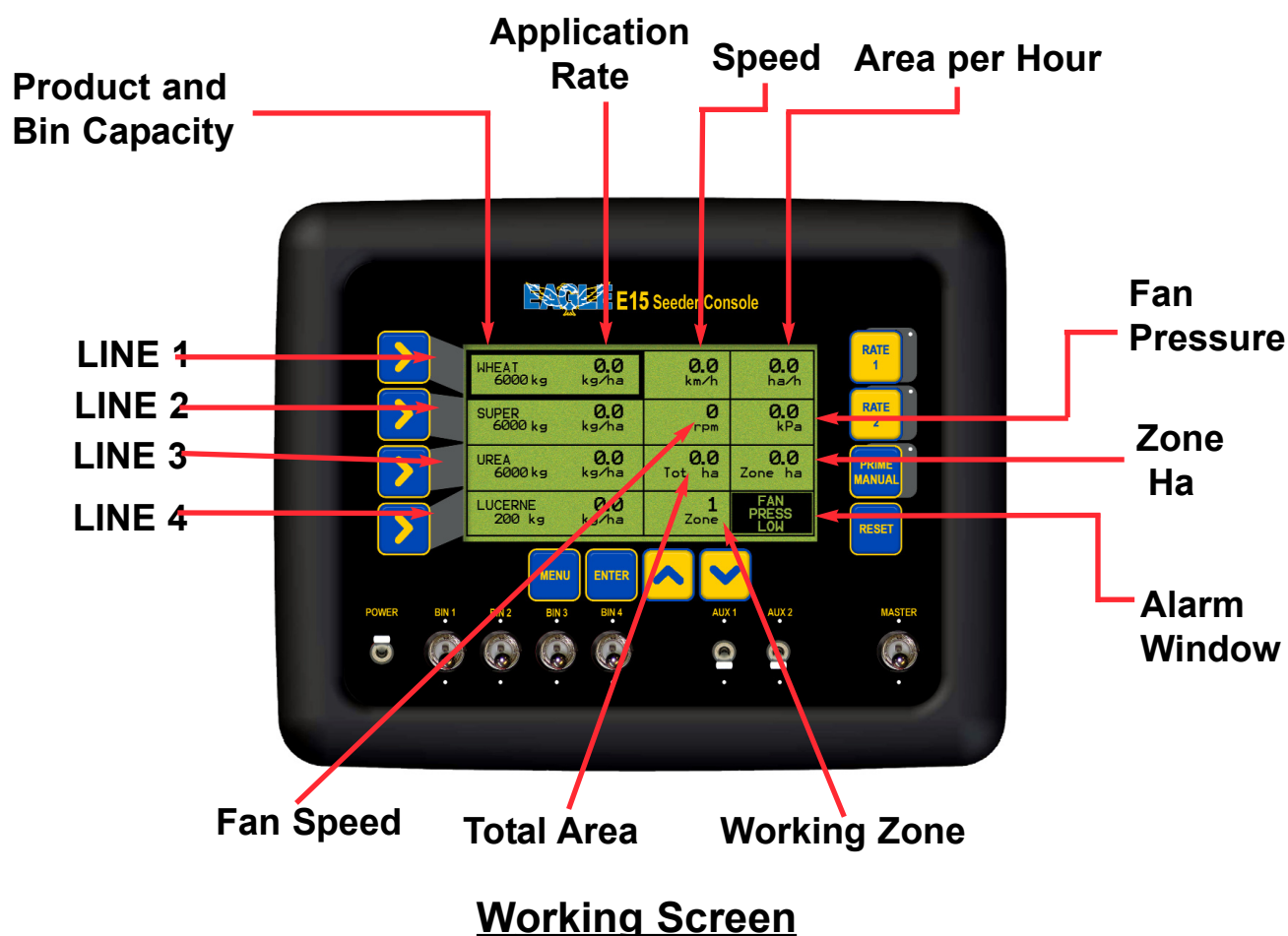
- Highlight the field displaying the menu you wish to enter
- Press the ENTER button
- You will advance to the next screen.

### 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
- Press the ENTER button to accept and save the changed value. The asterisk (\*) will disappear.

## 2.4 THE EAGLE 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 tractor radar. When a manual speed is displayed then 'MANUAL' appears under the speed; if MANUAL is not displayed then the speed is from the air seeder or tractor radar.

**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 0 and 9, the number represents what zone is being applied at the moment. The Working Zone associates Bins, Products and areas.

**TOTAL AREA-** The Total Area windows display the total hectares(ha) the air seeder has seeder since being last 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.

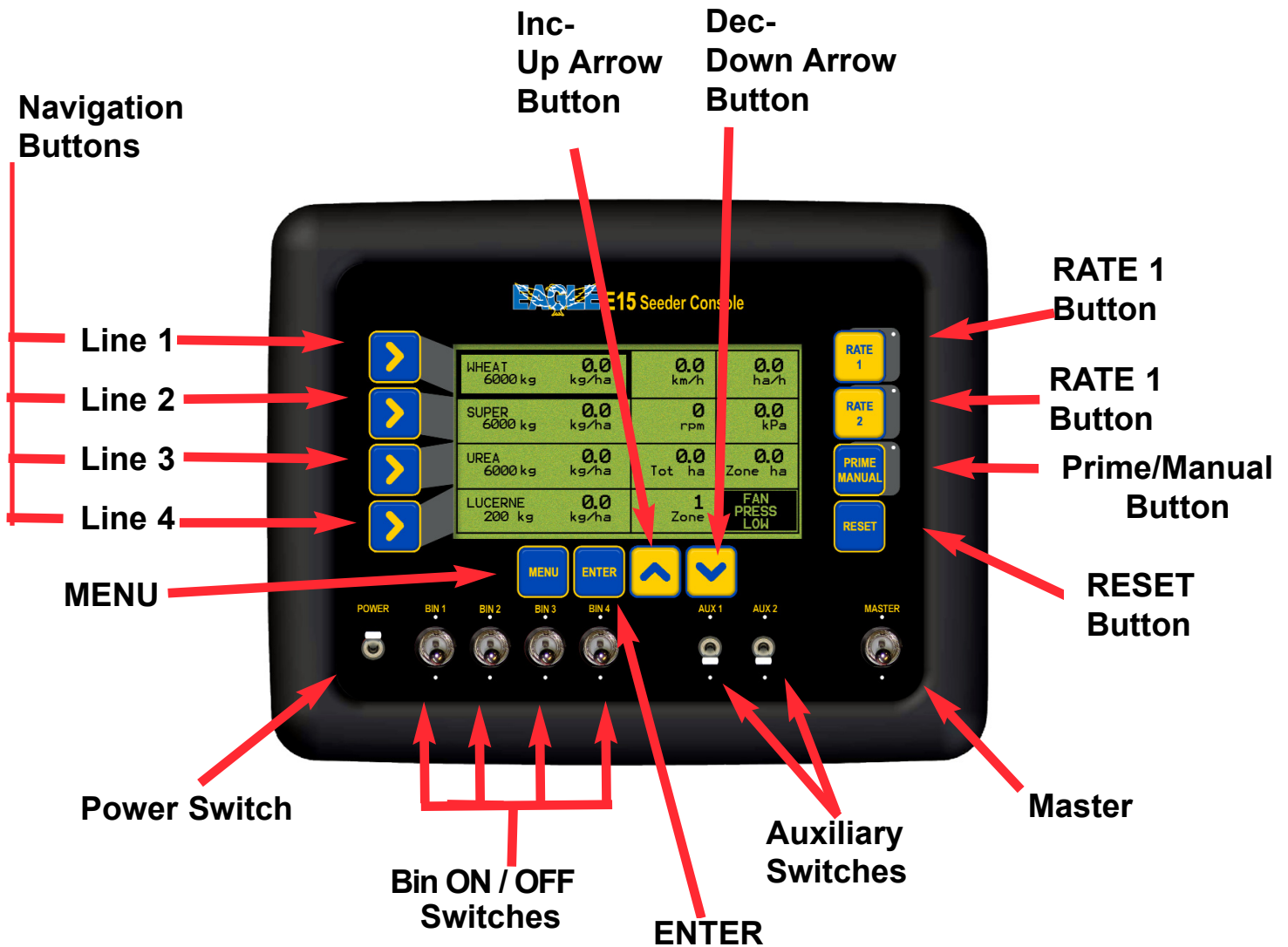
**FAN SPEED-** The Fan Speed window displays the actual fan speed in rpm.

**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 also returns the current application rate(kg/ha) to the original application rate, when the focus window is on the selected bin. (See Section 8.7 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.

The Prime function does not operate when the Eagle is a Monitor.

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

## 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) Navigating the 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 are not required when the Eagle console is setup as a Monitor.

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

**AUX 1 and AUX 2 SWITCHES-** These 2 switches, switch any WORKLIGHTS or WING CUT-OFF clutches fitted on the air seeder ON or OFF.

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

The LED near the PRIME/MANUAL button indicates whether the MANUAL function is being used.

**INC/DEC Buttons-**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. When using the INC/DEC buttons to change a value, the operator may press the INC/DEC button repeatedly to changed 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.

**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. MENU 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 MENU once to return to the previous menu.

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

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

## 2.6 SETUP MENU

- Press MENU. To enter *SETUP MENU* screen  
Ensure *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. SEEDER SETUP MENU

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



Seeder Setup Screen

## 3.1 BINS SETUP MENU

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

- 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

- 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



Bins Setup Screen

## 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



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 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 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. *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

- Press LINE 3 to highlight the WHEEL FACTOR window
- Press ENTER to edit the value
- 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



### 3.3 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

- 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

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

### 3.3.2 SET THE MANUAL SPEED

- 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

*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.*

## 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 EXTERNAL MASTER (OPTIONAL)

An External Master Switch may be purchased as an option. If a Master Switch is fitted then the option has to be enabled in this section. A Remote Master Switch can be floor mounted to allow for easily accessible remote switching. When the External Master Switch is fitted the EXTERNAL MASTER setting must be set to ON.

- Near the back of the Eagle console where the tractor loom connects into the console will be 2 three pin weather-pak plugs one marked 'RADAR' the other marked 'MASTER', connect the External Master Switch plug, to the plug marked 'MASTER'. See Section 13 for Wiring Diagrams
- Then mount the switch in an convenient position.
- The CABIN switch overrides the MASTER switch on the Eagle console.
- A Cabin Switch can be floor mounted in the tractor cabin, to allow easy accessible remote switching, to turn the MASTER, ON or OFF.

### 3.5.1 TO CHANGE THE EXTERNAL MASTER SETTING

- Press MENU
- Press ENTER to advance to SEEDER SETUP screen
- Press LINE 1 to highlight the MASTER SWITCH
- Press ENTER to advance to MASTER SWITCH screen
- 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



External Master Switch Screen

## 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 1X or 2X.

*Note: 1X Pressure Gain is the default setting and is used for all KEE supplied Pressure Sensor Transducers.*

*2X Pressure Gain should only be selected if directed by a KEE Service Representative for specialist applications.*

- Press ENTER to accept changes



Fan Pressure Gain Screen



## 4. 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. A asterisk (\*) will appear under the first character of the name.

- Press MENU button. Another asterisk (\*) 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 asterisk (\*) disappears, the value is now locked in.
- Press the Inc button to move the 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.

|              |            |                 |
|--------------|------------|-----------------|
| NAME *WHEAT1 | BIN NUMBER | 1               |
| *            |            |                 |
| ENC. TEETH   |            | 8               |
| DENSITY      |            | 1.000<br>kg/l   |
| CAL FACTOR   |            | 0.600<br>kg/rev |

Product Name in Edit Mode

The 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

*The ENC. TEETH value is the number of pulses the shaft sensor for the BIN, receives for one revolution of the metering shaft.*

- 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 2 to highlight the ENC. TEETH
- Press ENTER to edit the number of Encoder teeth, on the disk or sprocket which is mounted on the metering shaft of the BIN selected.  
*An asterisk (\*) appears*
- Press Inc/Dec buttons to set the number ENC. TEETH on the metering shaft for the BIN. *A value between 8 and 100 can be selected.*
- Press ENTER to accept the changes

### 4.1.4 ENTER THE DENSITY OF 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
- 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

*Note: The relative DENSITY of the product will determine the "actual" tonnage capacity of each bin (which is quoted in litres)*

## 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 an sufficient sample is achieved (5-10kg), press ENTER. 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 the product is going to be used, 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 the Air Seeders 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. 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 edit.
- 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. That has setup the first Zone.

*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. 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 in rpm. When the FAN SPEED LOW ALARM is turned ON and the FAN SPEED LOW ALARM POINT rpm is set; when 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; when 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; when 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; when 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 is mounted on each of the metering shafts. Therefore if there are 3 bins on the air seeder, there will be 3 shaft sensors.

A shaft alarm occurs because there is no signal as expected from the metering shaft sensor and is used to check the gear ratio entered into the console.

If a drive chain or gear was to break, the 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. They 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 be electronically reset the counter after the bins are 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 OFF.

### 6.3.3 SETTING THE BIN LOW (SENSOR) 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 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. AIR SEEDER OPERATIONS



Working Screen

## 7.1 FILL A 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 remaining bin weight, in the Product and Capacity Window*
- Press RESET. The bin weight returns to full.
- Press ENTER to accept the change.

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

## 7.2 ADD VOLUME TO A 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

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

## 7.3 RESET THE ZONE AREA

- 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.

*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 above procedure.*

## 7.4 RESET THE TOTAL AREA

- MASTER switch in the OFF position
- Press LINE 3 twice to highlight the TOTAL AREA window
- Press ENTER to RESET the TOTAL AREA.  
*A star (\*) 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

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

## 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 twice button
- MANUAL will be displayed in the 'Speed Window' and the manual speed set, will be displayed. The LED near the PRIME/MANUAL button will illuminate while the air seeder is using the MANUAL SPEED.
- To switch MANUAL SPEED OFF, press the PRIME/MANUAL button once and the LED will turn off.
- The current groundspeed 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 Page 76 for position of Contrast Knob.*

## 7.8 BEGIN SEEDING

- Select a Working Zone
- Electronically REFILL any BINS
- Engage the FAN (on the tractor)
- Switch the MASTER switch to the ON position
- Drive OFF

## 8. 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 toggled ON allows the operator when using the Inc/Dec buttons to change values on the console during setup; to hold the Inc or Dec button down and the value will change without having to continually pressing 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'. Ie. 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
- Ie. 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 Eagle 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. DIAGNOSTICS MODE

- Hold the RESET button down(for about 5 seconds) while turning 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 required.is highlighted
- Press ENTER to advance the selected test.screen
- Press MENU 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 MENU to exit



## 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: The Bin Switches (BIN 1 to BIN 4) for an Eagle when setup as a Monitor, do not perform any purpose.*

- 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 SW 1 to SW4 will be '2'
- When the AUX 1 is in the ON position; SW6 will read '253'
- When the AUX 1 is in the OFF position; SW6 will read '2'
- When the AUX 2 is in the ON position; SW7 will read '253'
- When the AUX 2 is in the OFF position; SW7 will read '2'
- Press MENU 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 MENU button to exit



Keys Test Screen

## 9.4 SENSORS TEST

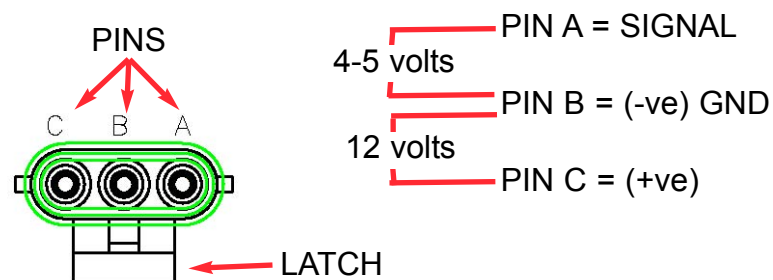
- Select this test to check the operation of the sensor circuitry
- The current period (time between pulse, is measured in mS) for each sensor will be displayed on the screen.
- During operation the period between the pulses should be constant, if this figure isn't constant then this suggests there is 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.
- Flow Pulse tests the pressure sensor transducer, mounted on the air seeder chassis near the fan.
- The Enc. Shaft (1 to 4) tests the metering shaft sensors 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 MENU to exit



Sensor Test Screen

## 9.4.1 CHECKING LOOM 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 chassis loom.
- 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 loom. 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.



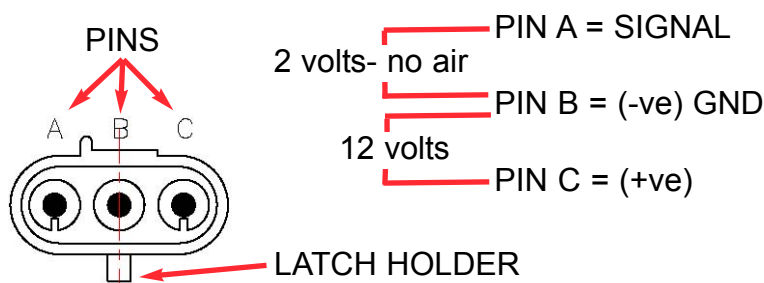
### 'LOOM' 3PIN Weather-Pak Plug

- From the sensor trace back the wiring to the 3 pin weather-pak plug, unplug the sensor plug from the chassis loom 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 KEE Dealer.

## 9.4.2 PRESSURE SENSOR TEST

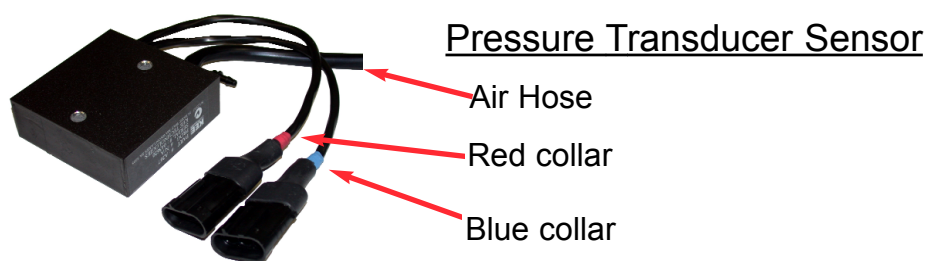
This is a simple test procedure that determines whether the pressure transducer sensor is functioning properly. A multi-meter is required which can measure DC voltage between 1 and 24 volts.

- 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 chassis loom; if the red collar plug isn't 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 chassis loom.
- Connect the blue collar plug to the chassis loom.



### 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 loom and connected 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 KEE 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
- If operating correctly and a "Light" and or a "Wing Cut-off" kit is installed using the AUX 1 and AUX 2 plugs on the loom. (see page ??)
- 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 loom will switch ON then OFF.
- This test isolates whether it is a relay problem in the console or an actual switch problem in the console
- Press MENU 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 MENU to exit



Bin Levels Test Screen

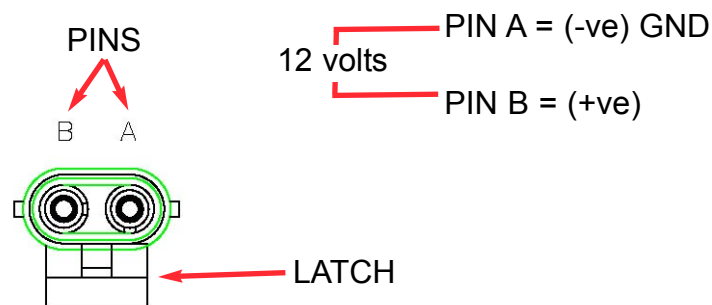
## **9.6.1 BIN LEVEL SENSOR ADJUSTMENT**

*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 Eagle 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 LOOM VOLTAGES, FOR BIN SENSOR

- This test should be carried out if the bin level sensor appears to be faulty 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 loom plug.
- Switch Console POWER switch ON.



### 'LOOM' 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 chassis loom should be 12 volts.
- If the voltage is incorrect then write down the actual voltage and contact your KEE Dealer.

## 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 MENU 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 MENU to exit.

## 10. 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 (ie go to the sub menu's) then the TURN MASTER OFF alarm flashes in the ‘Alarm Window.’



## 11. 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 approxlmately.

**Maximum Motor supply current** 20 amps each motor (80 amps total, if 4 motors fitted)

### 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 MDECU

**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%

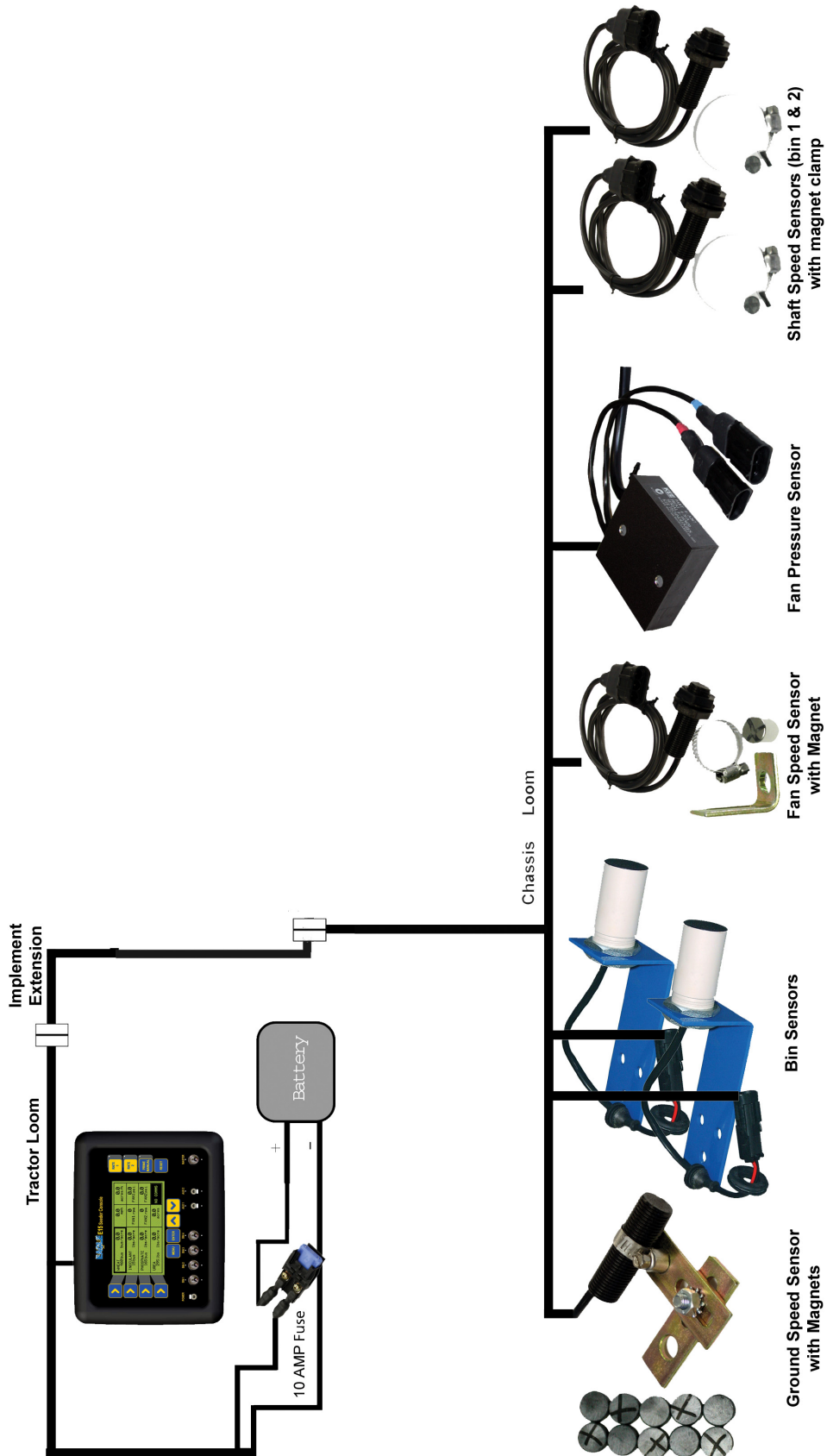
### 11.4 Bin Level Sensors

**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 MDECU

# 12. SYSTEM COMPONENTS

For a Typical 2 Bin Air Seeder



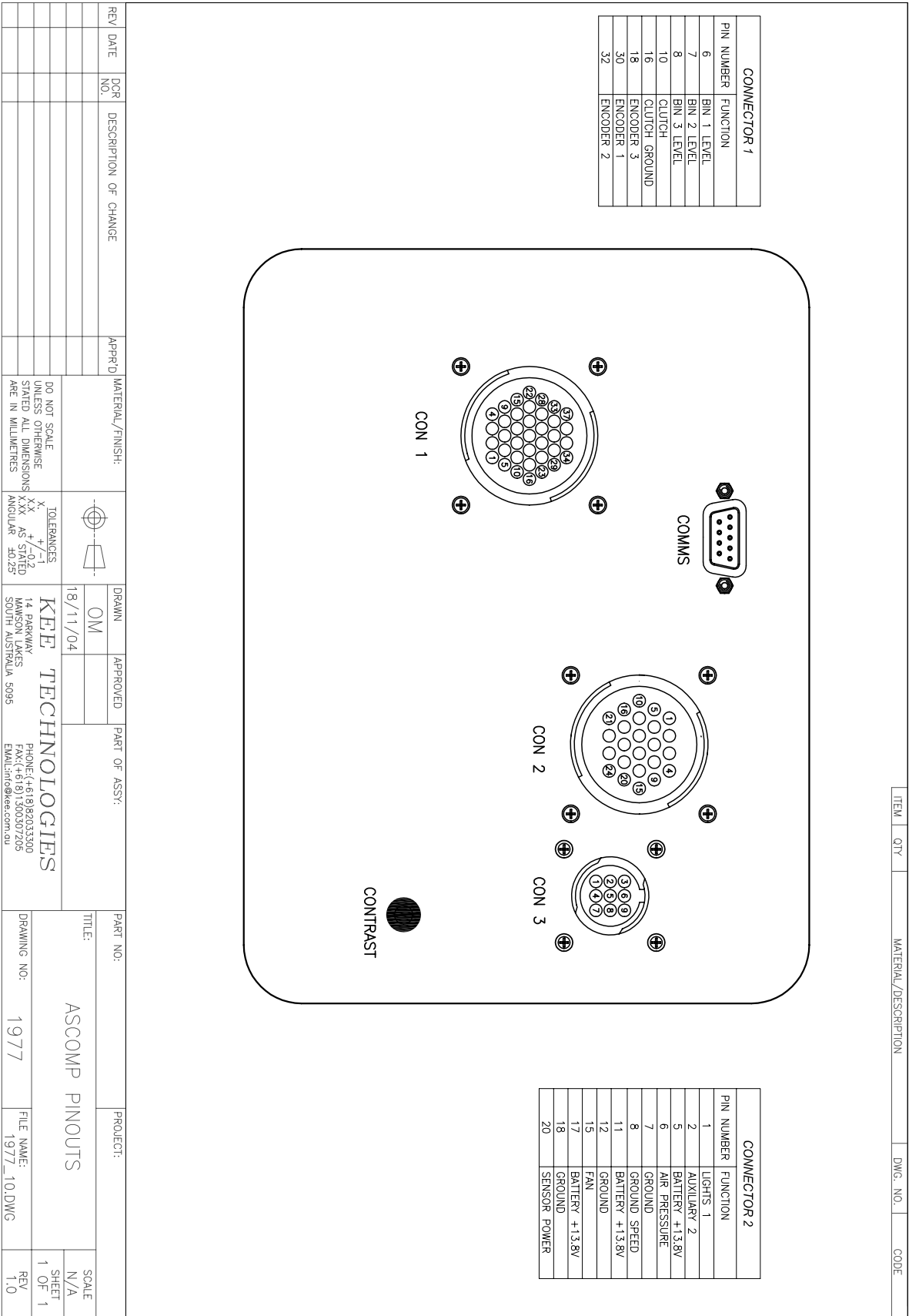
## 12.1. SYSTEM COMPONENTS- PARTS LIST

For a Typical 2 Bin Eagle Air Seeder Monitor

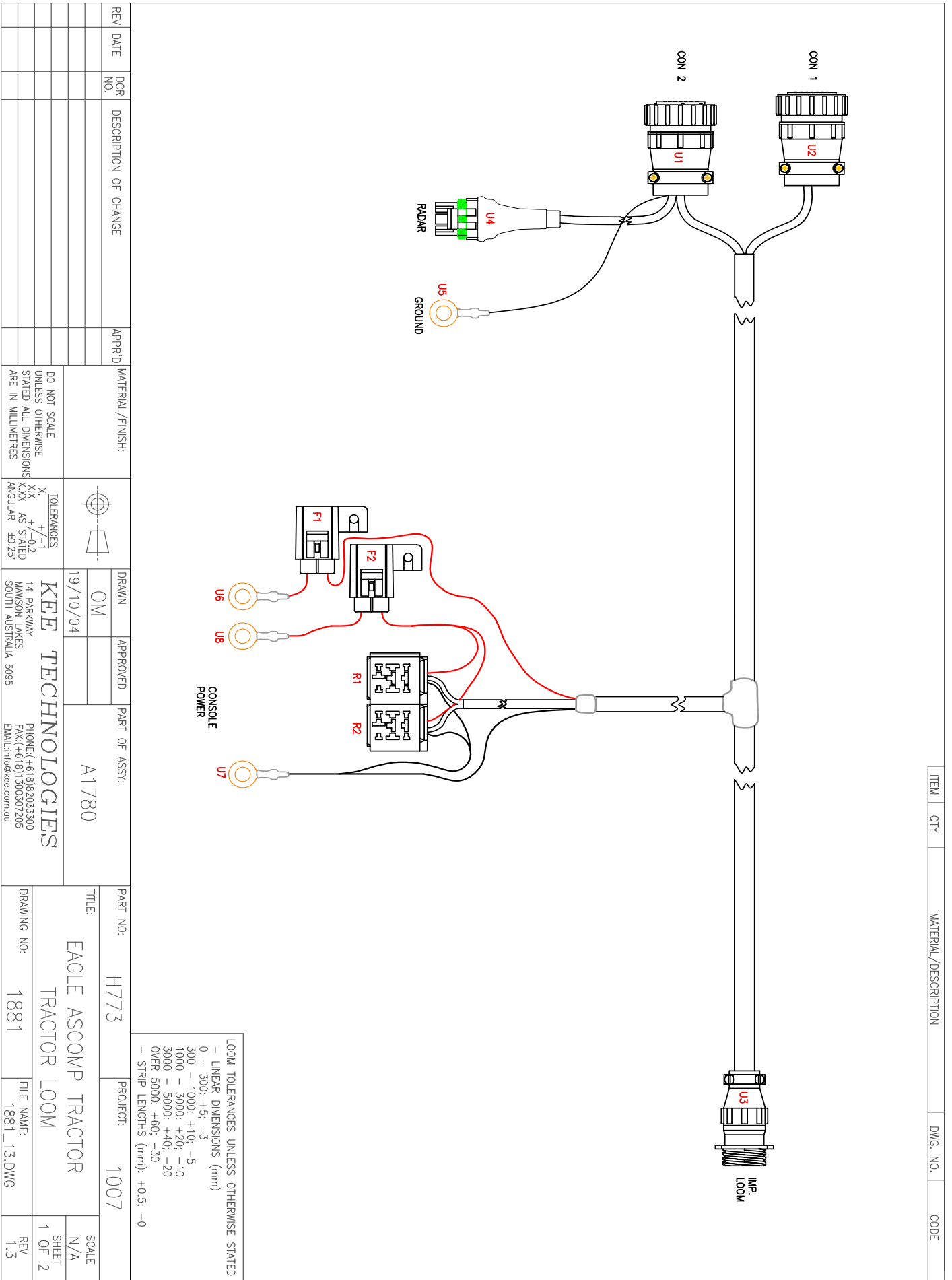
| <u>Item</u>                              | <u>Part Number</u> | <u>QTY</u> |
|--|--------------------|------------|
| • <b>KEE Eagle Monitor Console-</b>      | A1669              | 1          |
| • <b>Looms</b>                           |                    |            |
| Tractor Loom                             | A1780              | 1          |
| Implement Extension Loom                 | A1124L             | 1          |
| Chassis Loom                             | A1113L             | 1          |
| • <b>Ground Speed Sensor</b>             | <b>A1200</b>       | <b>1</b>   |
| "L" Angle Speed Sensor Bracket           | A006               | 1          |
| <b>or</b> 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          |
| <b>or</b> 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>   |
| "L" Angle Speed Sensor Bracket           | A006               | 2          |
| <b>or</b> Slotted Speed Sensor Bracket   | A007               | 2          |
| Block Magnet and Clamp                   | A402               | 2          |
| • <b>Remote Master Switch (Optional)</b> | <b>A601</b>        | <b>1</b>   |
| • <b>Spares</b>                          |                    |            |
| 16 Pin Locking Ring Kit (pack of 3)      | <b>A1478</b>       |            |
| Fuse 10 Amp 3AG                          | <b>Y846</b>        |            |
| Manual (KEE Eagle Monitor)               |                    |            |

# 13. WIRING DIAGRAMS

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| ITEM | QTY | MATERIAL/DESCRIPTION | DWG. NO. | CODE |
|------|-----|----------------------|----------|------|
|------|-----|----------------------|----------|------|

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

| REV | DATE | DCR NO. | DESCRIPTION OF CHANGE | APPR'D | MATERIAL/FINISH: | TOLERANCES                           | DO NOT SCALE UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES | DRAWN | APPROVED | PART OF ASSY: | PART NO: | PROJECT: | SCALE   |
|-----|------|---------|-----------------------|--------|------------------|--------------------------------------|--|-------|----------|---------------|----------|----------|---------|
|     |      |         |                       |        |                  | X<br>XX<br>XXX<br>ANGULAR            | UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES              | OM    |          | A1780         | H773     | 1007     | N/A     |
|     |      |         |                       |        |                  | +/−1<br>+/−0.2<br>AS STATED<br>40.25 |  |       |          |               |          |          | 1 OF 2  |
|     |      |         |                       |        |                  |                                      |  |       |          |               |          |          | REV 1.3 |

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TITLE: EAGLE ASCOMP TRACTOR TRACTOR LOOM  
 DRAWING NO: 1881  
 FILE NAME: 1881\_13.DWG













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**A tradition of developing hi-tech electronic products for harsh environments.**

