

Operator's Manual

Version 2

Airseeder **VRC**

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1.0 SYSTEM OVERVIEW

The canlink 3000 is a flexible new instrument designed to fulfil a variety of monitoring and control operations linked with global positioning equipment.

The canlink VRC cab module is setup to run variable rate control of the airseeder through a processor (POD) mounted on the airseeder that manages up to 4 bin metering units and monitors essential airseeder functions.

When calibrating the bins, seed and fertiliser calibration factors can be stored for up to 24 product names, saving considerable time in the field when changing from one crop to another. Product names can be edited to reflect specific seed varieties or fertiliser names.

Trip names can be edited to reflect true paddock names or numbers. Records of actual product areas and weights are automatically maintained for each trip as well as overall totals of each product applied.

Product rates set for each bin, can be pre-programmed for up to 24 Trips (paddocks) then simply recalled by the operator when required. Bins can be individually switched 'OFF' or 'ON' from the cab and application rates can be manually increased or decreased in predefined steps.

Selected rates are automatically governed by ground speed and machine operation can be stopped at any time by pressing the "RUN/HOLD" key or by lifting the implement, if the optional ram position sensor is fitted.

The canlink 3000 provides monitoring of fan speed, air pressure, bin levels and product metering shafts with selectable alarm points on critical functions and a control lockout if fan RPM is too slow.

After initial installation of tractor components, refer to the airseeder manufacturers instructions for correct configuration of bin controls, sensors, machine parameters and recommended alarm points. See Sections 4.1 to 4.5 of this manual for procedures. Follow the procedure for 'RATE' calibration in section 4.5 **after** initial setup is completed.

All system configuration and calibration factors including product and trip names are permanently stored in the canlink 3000 for reuse at any time. It is recommended to recheck calibration factors before each sowing season to account for variations in product densities.

With DGPS connected to the canlink 3000, the data card slot allows application rates to be mapped, for comparison with yield maps. Also with DGPS and application maps stored on a data card, the canlink 3000 can automatically control to and apply the rates assigned in the map by reading data directly off the card.

Future product developments can be uploaded via the data card slot or your PC. Airseeder calibration data and system configuration can be saved to the card as a backup when switching the canlink 3000 module to other infield applications.

We look forward to receiving your owner details soon as a means of keeping you updated on new developments as they occur.

2.0 INSTALLATION

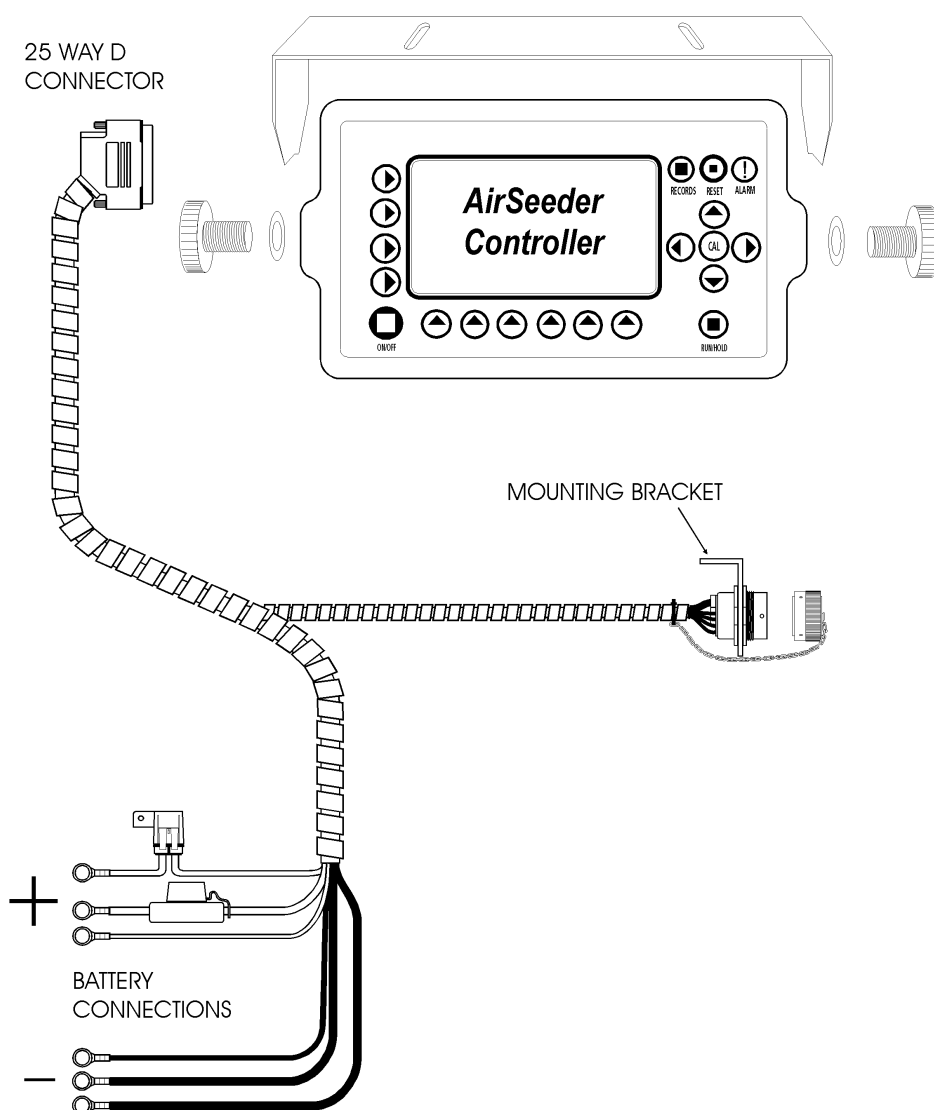
2.1 TRACTOR KIT

The tractor kit may be installed by the dealer or end user and comprises the canlink 3000 cab module, tractor wiring loom, and any ancillary switching equipment provided by the airseeder manufacturer.

It is most important that the **battery power** connections and general installation points are followed to ensure trouble free operation.

PLEASE CHECK THAT THE INSTALLATION POINTS HAVE BEEN FOLLOWED.

TRACTOR LOOM INSTALLATION



Cab Module and Wiring Loom.

1. Mount canlink 3000 in an enclosed cab using hardware supplied, easily accessible to the operator, away from direct sunlight and heat.
2. Keep canlink 3000 separated from other cab electronics, especially radio transceivers and mobile phones.
3. Plug 25-way connector into socket marked "LOOM CONNECTION" at rear of canlink 3000 and firmly tighten securing screws.
4. Run tractor wiring loom to rear of tractor separated from antenna cables, solenoid or clutch cables and engine kill switches.
5. Mount breakaway connector securely at rear of tractor on bracket supplied away from risk of contamination from hydraulic lines.

ENSURE DUST CAP IS FITTED WHEN AIR SEEDER DISCONNECTED.

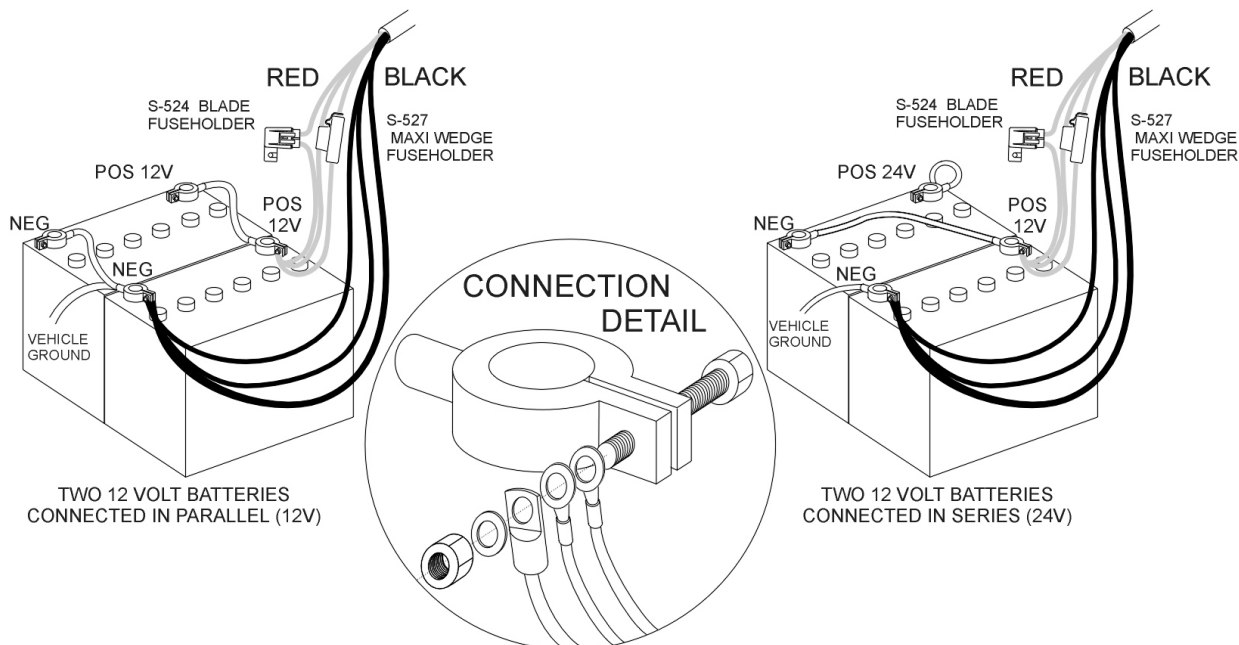
Implement Loom

For tow behind air seeders, install "IMPLEMENT EXTENSION LOOM" securely cable tied to implement frame. Allow slack at drawbar for enough turning.

2.2 Power Connection

IMPORTANT: Cab power outlet points are not adequate for VRC equipment.
Do not connect power until all other installation is finished.

TYPICAL BATTERY HOOK-UPS USING THE 3000 CAB LOOM



All the power cables in the harness must be connected **direct** to 12 volt DC battery terminals, to ensure the availability of sufficient current.

Ensure all fuse holders are readily accessible should the fuses need replacing.

Replacing a blown fuse with anything other than a fuse of the same rating can cause serious damage to the canlink 3000, POD or the wiring harness.

canlink 3000 fuse blade	Fuse rating	30A
POD	Maxi Wedge Fuse rating	60A

Do not connect the power cables to starter motor, alternator etc, as this may cause interference or damage to the canlink 3000.

Do not connect power cable's negative direct to the chassis of the machine – it must be connected **direct** to the battery's negative terminal.

Do not power other instruments off the monitor power cable. Such as a two way radio.

Use cable ties to secure the power cables safely away from hot or moving parts.

Connection to battery terminal bolts must be kept clean and tight.

2.3 GPS Connection

To connect the GPS unit to the canlink 3000, connect the serial nine pin connector from the GPS into the nine pin port labelled “RS232 GPS INPUT” located at the back of the monitor.

2.4 canlink 3000 Pin Assignments

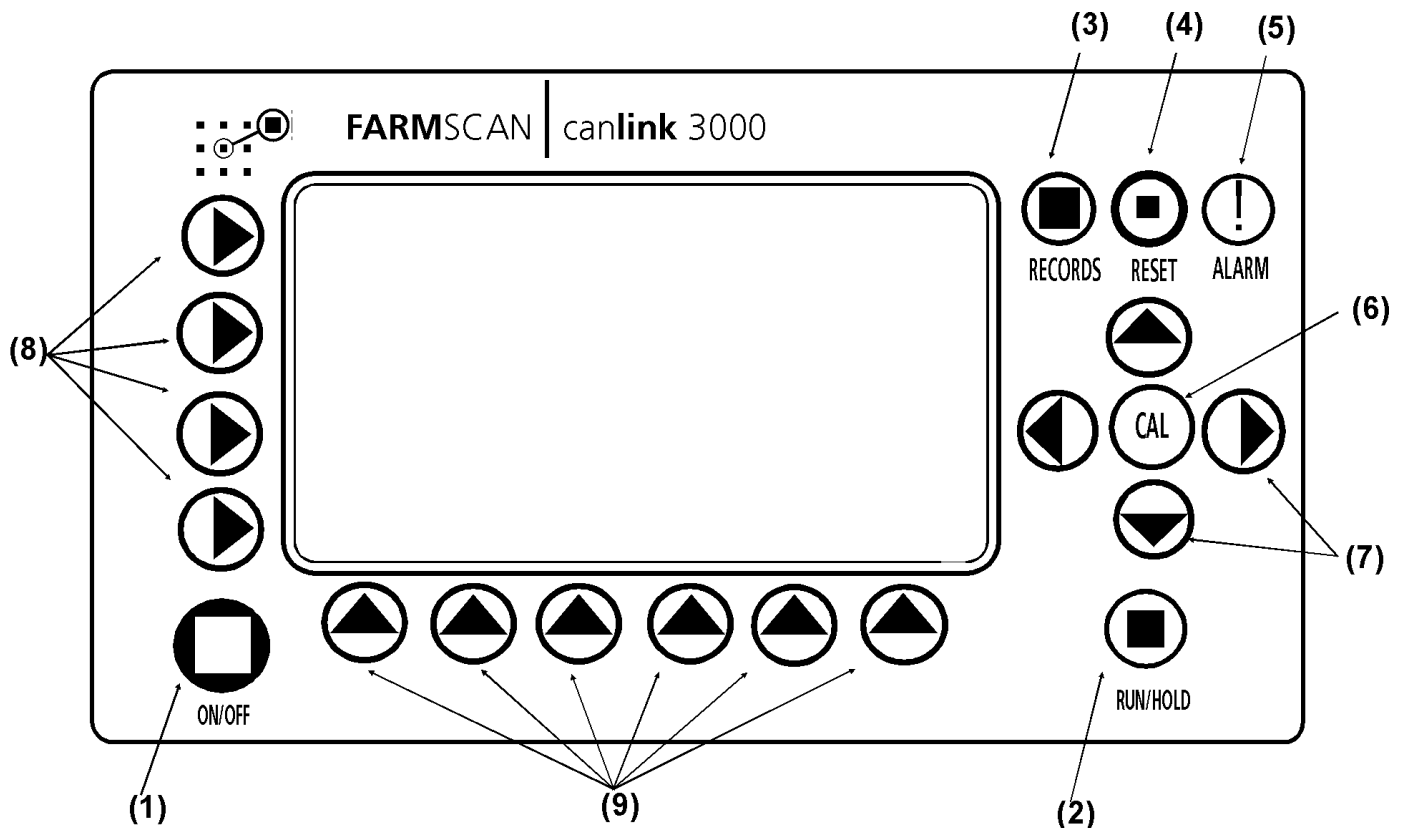
Pin assignment for the male DB9 connector labelled “RS232 GPS INPUT”.

Pin Number	Description
1	
2	RX GPS Received Data
3	TX GPS Transmitted Data
4	
5	GND
6	
7	
8	
9	

Pin assignment for male DB25 connector labelled “LOOM CONNECTION”.

Pin Number	Description
1	+12 Volts IN (RED)
2	+12 Volts IN (RED)
3	N/C (Spare Output)
4	+12 Volts OUT (Switched)
5	GND
6	Spare Output
7	GND
8	RX
9	TX
10	+12 Volts OUT (Switched)
11	GND
12	Future +5 Volts OUT
13	+12 Volts OUT
14	INPUT
15	GND IN (BLACK)
16	GND IN (BLACK)
17	External Buzzer
18	Wheel Input (WHITE)
19	Implement Height (A to D)
20	Run/Hold Input
21	Spare Input ANALOG
22	GND (BLACK)
23	+ Differential Comms RS485 (BLUE)
24	- Differential Comms RS485 (Green/Yellow)
25	+12 Volts OUT (Switched) (BROWN)

3.0 OPERATION



3.1 FRONT PANEL LAYOUT

- | | |
|-------------------------------|--|
| (1) ON/OFF | Switches power "ON" or "OFF", Press key twice to confirm power "OFF". |
| (2) RUN/HOLD | Starts or stops product metering, alarms and records. |
| (3) RECORDS | Selects active "TRIP" number and displays weight and area for each product and overall totals. |
| (4) RESET | Used to zero records or various calibration factors. |
| (5) ALARM | Cancels low priority warnings and scrolls through alarm messages. |
| (6) CAL | Provides access to calibration and set up menus. |
| (7) Navigation | Used to move the cursor across the screen and to change numbers up and down. ◀ and ▶ keys adjust the screen contrast in the main screen. |
| (8) LHS Soft Keys | Allow selection of left hand side screen functions. |
| (9) Bottom Soft Keys | Allow selection of bottom screen functions. |

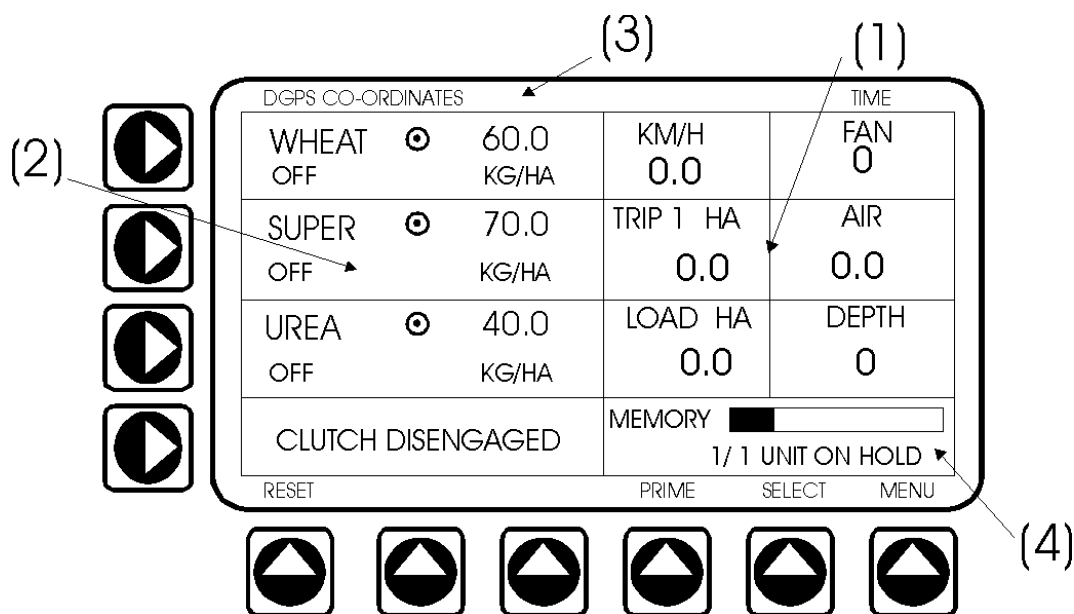
3.2 MAIN SCREEN FUNCTIONS

The main operating screen is displayed when the canlink 3000 is switched "ON".

Adjust screen contrast using ◀ ▶ navigation keys on RHS of screen.

The screen is divided into four main areas:

1. Airseeder Monitoring right half of screen
2. Metering Control left half of screen
3. GPS/Time Information top of screen
4. Message/Memory Display bottom right side



3.3 Message Display

The message section of the display provides alarm information whenever an alarm condition is activated. If a data card is used, the memory bar indicates the available memory space.

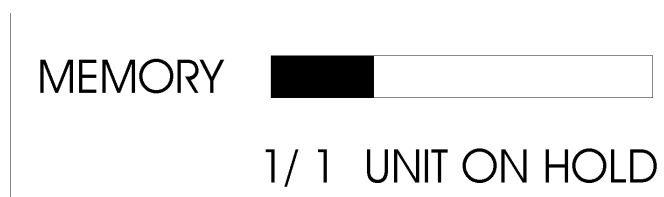
At startup, the message 'PLEASE WAIT.....' is displayed while the canlink 3000 establishes communication with the airseeder POD, followed by the 'UNIT ON HOLD' message to indicate that rate control, machine monitoring and records are on hold.

The 'RUN/HOLD' key or an external clutch switch can be used to switch from 'HOLD' to 'RUN'.

When in the 'HOLD' state, an audible *beep* is activated every 30 seconds as a reminder.

When in the 'RUN' state, the message window is blank whilst the airseeder is operating within normal limits.

When any monitored or controlled function of the airseeder is not operating correctly, a message is displayed with an audible *beep* repeated at 5 second intervals.



If two or more messages are activated at the same time, the display will cycle the messages, indicating the total number of messages in the queue.

eg: 1/3.....'FAN SLOW' 2/3.....'UNIT ON HOLD' 3/3 'BIN 1 LOW'

Pressing the 'ALARM' key allows the operator to step through the active messages.

"NON-CRITICAL" audible alarms such as 'BIN 1 LOW' may be silenced by pressing the 'ALARM' key as acknowledgment when the message is displayed. The alarm message will remain in the queue to be displayed until that alarm condition has been rectified.

'CRITICAL' alarm messages related to the seeding operation, such as 'BIN 1 RATE LOW' or 'DRIVE 2 STOPPED' can not be silenced and **must** be rectified to cancel the alarm.

Refer to the list of alarm messages below.

MESSAGES

Message	Status Critical/NON	Explanation
"PLEASE WAIT...."	N/A	3000 establishing communication with POD.
"NO COMMS"	C	3000 failed to establish communication with POD.
"UNIT ON HOLD"	C	System in hold state due to: a) 'RUN/HOLD' or clutch switch operation b) Fan too slow and/or depth hold activated.
"SLOW TO ENGAGE"	C	Ground speed above 14 km/h, too fast to engage.
"FAN SLOW"	C	Fan RPM below low alarm point.
"FAN FAST"	N	Fan RPM above high alarm point.
"FAN STOPPED"	C	Fan not working at all!
"AIR PRESS LOW"	N	Air pressure below low alarm point.
"AIR PRESS HIGH"	N	Air pressure above high alarm point.
"DEPTH HOLD"	C	Implement raised above hold point calibration.
"BIN (1-4) LOW"	N	Indicated bin product level low.
"DRIVE (1-4) SLOW"	N	Indicates drive ratio too low or stopped (slipping, wrong gear or broken chain).
"DRIVE (1-4) FAST"	N	Indicates drive ratio too high (wrong gear).
"BIN (1-4) RATE HI"	N	Indicates rate is >5% over target
"BIN (1-4) RATE LO"	N	Indicates rate is >5% under target.
"BIN(1-4) RATE ZERO"	C	Indicates rate is at zero!
"FEEDBACK 1-4"	C	Indicates no feedback signal being received.
"GPS FAILED"	N	GPS enabled and not received.
"NO DIFFERENTIAL"	N	No DGPS co-ordinates being received
"LOST GPS LOCK"	N	GPS device lost position lock.
"GPS DISABLED"	N	GPS disabled in "GPS/CLOCK" screen accessed from calibration menu
"CARD REMOVED"	N	Data card enabled and not in slot.
"MEM CARD FULL"	N	Data card full.
"MC READ ERROR"	N	Unit can not read data card.
"MC WRITE ERROR"	N	Unit can not write to data card.
"MC WRITE PROT"	N	Data card switched to 'write protect'
"CHECK CALS"	C	A calibration value is corrupted.
"EEPROM FAILED"	C	Unit will not program. Return for service.
"RESET LOAD ?"	N	Indicates bins refilled-reset load area meter.
"BIN (1-4) LIMIT"	N	Indicates gate control at maximum height.

3.4 GPS/Time

The top line of the screen displays time of day and your GPS or DGPS position (if connected).

The correct time of day can be set in the 'GPS/TIME' selection of the main calibration menu.

When positional data is received from a differential GPS receiver, the letter 'D' will precede the GPS coordinates, indicating differential GPS.

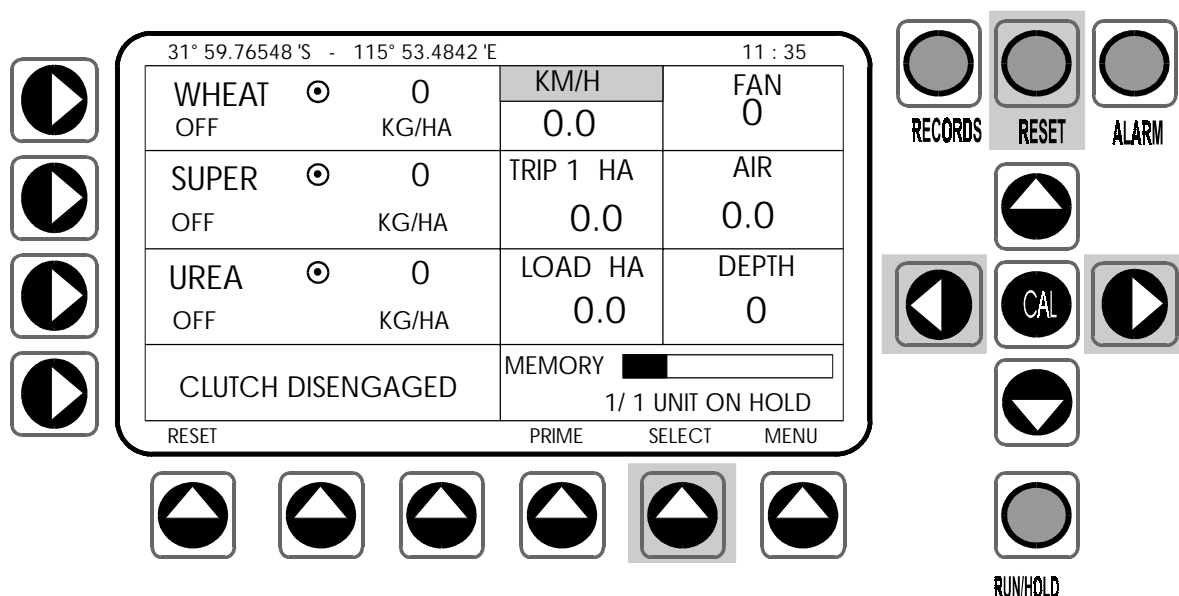
The DGPS position is used in conjunction with the data card to map application rates when altered manually by the operator and to control application rates read directly from rate maps on the data card. See Section 3.15 and 4.7 for more information.

3.5 Speed/Distance/Work Rate

Displays ground speed, distance travelled and work rate (hectares / hour)

SELECT Speed/Distance/Work Rate Functions

1. Press ▲ 'SELECT' key at the bottom of the screen to toggle between KM/H, KM and HA/H.
2. Press 'RESET' key to clear distance total when selected.



3.6 Trip Hectares

Displays the accumulated area for the current active trip number or paddock name/number.

SELECTING Trip Area Function

1. To select new trip number or reset current trip area, press 'RECORDS' key. See Section 3.12.
2. To edit trip names. See Section 3.13.

3.7 Load Hectares

Displays area covered since last bin fill and must be *reset* after refilling any bin.

A reminder message 'RESET LOAD AREA?' is automatically triggered after a low bin level alarm is activated and the bin is subsequently refilled.

RESETTING Load Hectares

1. Press 'RESET' key to instantly clear 'LOAD HA' total whenever the message is displayed.
or
2. Press 'RESET' key to zero 'LOAD HA'.

3.8 Fan RPM

The 'FAN' display indicates the airseeder fan rpm.

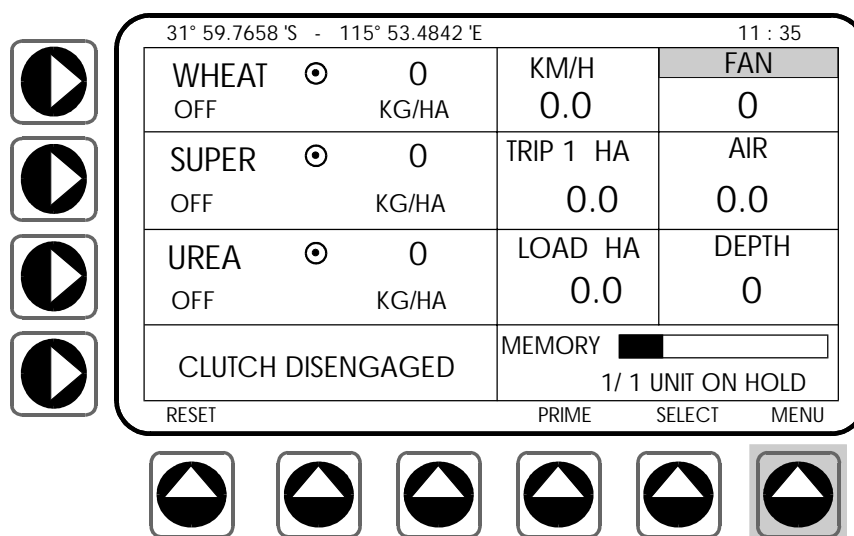
When the 'FAN RPM' is operating outside the hi/lo alarm points, an audible alarm and message 'FAN SLOW', 'FAN FAST' or 'FAN STOPPED' will be displayed.

When the fan is *slow*, product metering automatically stops, to avoid hose blockages.

Fan alarms can not be cancelled with the 'ALARM' key.

SETTING Fan Alarm Points

1. Press ▲ 'MENU' key at the bottom of the screen to shortcut into the 'ALARMS MENU'.
2. Use the ► 'FAN' key to select between 'HI'/'LO' alarm points and use navigation keys to set desired points. See Section 4.3 for more detail on setting alarm points.



3.9 AIR Pressure

The 'AIR' display indicates the primary airseeder operating pressure.

The primary air pressure is influenced by many factors and can be used as an indication of changed operating circumstances that may point to a problem.

When the airseeder is operating outside the set Hi/Lo alarm points, an audible alarm and message 'AIR HIGH' or 'AIR LOW' will be displayed.

SETTING Air Pressure Alarm Points

1. Press ▲ MENU key at the bottom of the screen to shortcut to the 'ALARMS MENU'.
2. Use the ► 'AIR' key to select between Hi/Lo Alarm points and use RHS keys to set desired points. See Section 4.3 for more detail on setting alarm points.

3.10 DEPTH Indicator

Displays the hydraulic ram position of the implement height control as a numerical value between 0 to 99. A "DEPTH HOLD" point can be set to automatically place the 'UNIT ON HOLD', when the implement is raised above a set point.

SETTING Depth Hold Point

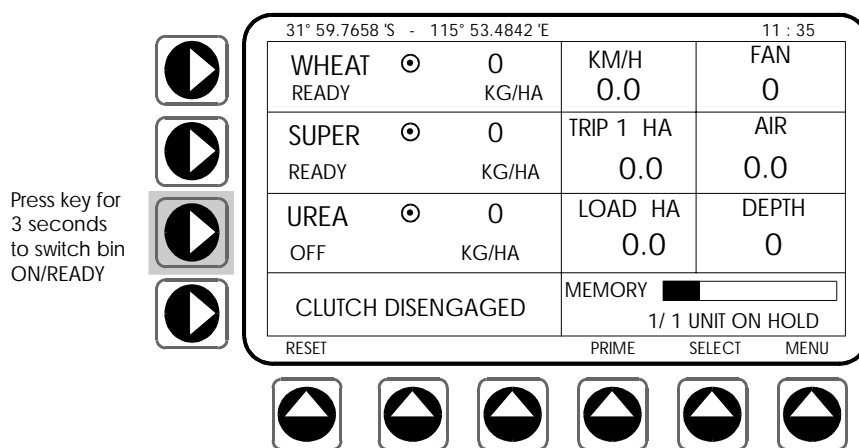
1. Press ▲ 'MENU' key at the bottom of the screen to shortcut to the 'ALARMS MENU'.
2. Press the ► 'DEPTH' key to select 'DEPTH HOLD' and use RHS keys to set desired hold point. See Section 4.3 for more detail on setting.

3.11 Bin Controls 1-4

The left half of the main screen displays products and application rates for *bins 1 to 4* from top to bottom.

The current status of each bin is indicated below each *product name*:

- 'OFF' Indicates bin is temporarily switched off.
- 'READY' Indicates bin is switched on and has a valid product calibration selected.
- 'NO CAL' Indicates bin is switched on, but product calibration is at zero (not calibrated) **or** control type setup not completed.
- 'PRIME' Indicates bin is active and metering is running for the time set in "OPTIONS".
- 'RUN' Indicates bin is active and controlling the rate, now displayed 'live'.



SWITCHING a Bin OFF/READY

Pressing the LHS ► key adjacent to any product name for 3 seconds will switch the bin 'OFF' or 'ON' at any time.

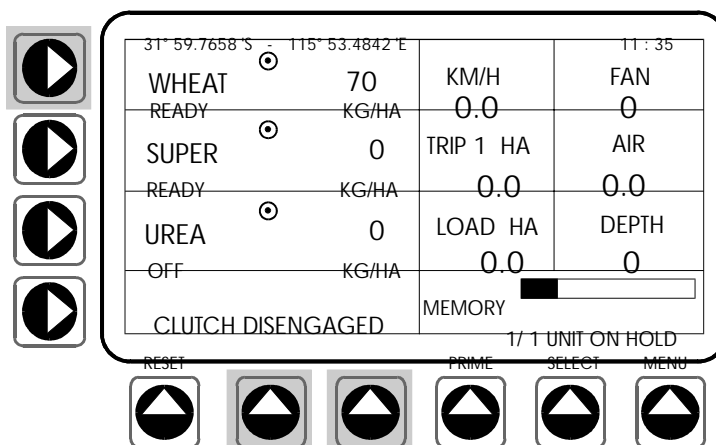
To DISPLAY Current Target Rate

Pressing the LHS ► key adjacent to any product name allows instant selection of the bin and refreshes the current target rate on the display.

Eg: WHEAT 70 Kg/Ha

After a few seconds, the display will revert to the current 'live' rate.

Eg: WHEAT 0.0Kg/Ha



INCREASING/DECREASING the Target Application Rate

1. Press the LHS ► key adjacent to the product name, the current target rate will be displayed for up to 5 seconds.
2. Use the ▲ up or ▼ down navigation keys on the RHS of the screen to increase or decrease the application rate on display in pre-defined *steps*.
3. Each press of the up or down keys will increase or decrease the application rate by a set amount. See section 4.5 to calibrate bin *step* size.
4. An arrow will appear alongside the product name to indicate which way the rate has been adjusted.

Eg ▲ indicates the rate is now above original target.

 ▼ indicates the rate is now below original target.

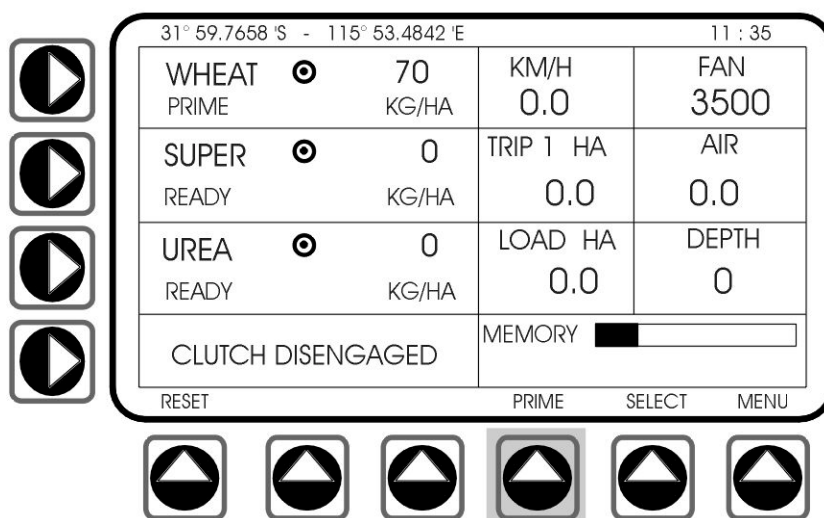
 ⊙ indicates the rate is on target.

5. To return to the original target rate instantly, press the ▲ 'RESET' key at the bottom of the display.

Note: A 'scrolling icon' on each bin display indicates the metering mechanism is active (turning)!

To Begin Air Seeding

1. Ensure all product *bins* are 'READY' and target rates are correct.
2. Activate air seeder fan and ensure fan RPM is above 'LOW ALARM' point.
3. Press 'RUN/HOLD' key to clear 'UNIT ON HOLD' message or engage clutch.
4. If using 'DEPTH HOLD' function, lower implement past the 'HOLD' point.
5. Press ▲ 'PRIME' key to pre-start product metering (optional)
6. Accelerate to working speed, system will automatically assume control.



ACTIVATING the 'PRIME' function

The 'PRIME' function is only applicable to DC or hydraulic drive airseeder bins and allows the operator to pre-start the product metering unit to avoid missed gaps at start off or to test product delivery to the sowing boots when stationary. To set the 'PRIME' time see section 4.2 "OPTIONS".

1. Ensure *bins* are 'READY'.
2. Press the ▲ 'PRIME' key at the bottom of the screen.
3. The canlink 3000 will immediately start product metering to the equivalent of 8km/h working speed and automatic control will take over when ground speed is detected.
4. If no ground speed is detected within the prime time (5-60 seconds), product metering will stop.

Note: The 'PRIME' function can be activated using the POD buttons when stationary. Press **green** for 2 seconds to **start**. Press **red** to **stop**.

3.12 RECORDS

The 'RECORDS' key provides access to accumulated product areas and weights for up to 24 separate trips (paddocks) plus overall totals of product areas and tonnages for the season.

Before changing products or paddocks, operators must select a new trip number (1-24), thereby starting a new record and retaining current records. Alternatively, the current trip record can be reset to allow selection of new products.

If the same products are used in different paddocks, the current products can be copied into a new trip record to save reprogramming each bin. See page 14.

Each of the 24 trip record locations can be pre-programmed with products and rates planned for each paddock, allowing a precalibrated sowing program to be selected whilst in the field.

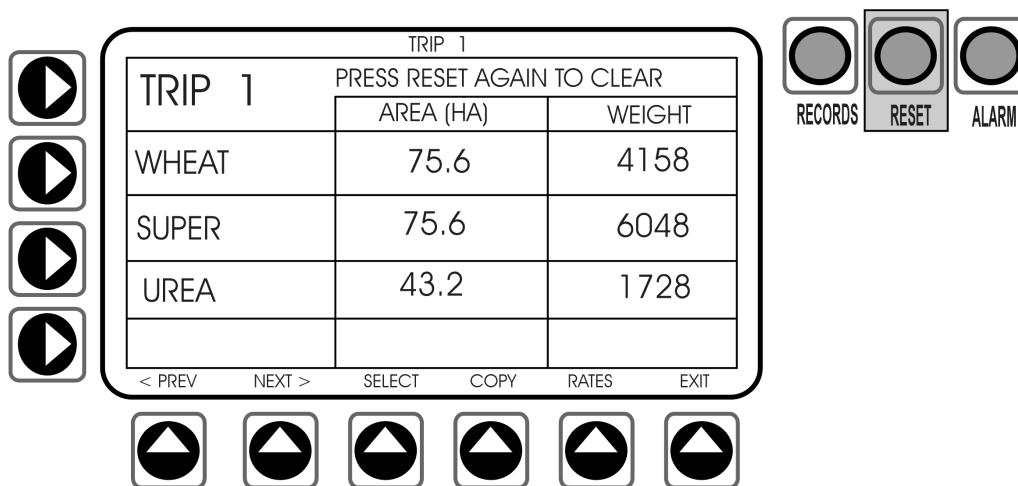
The 24 trip names can be edited through the 'TRIPS' option in the main calibration screen to provide true paddock names or numbers. See section "3.13 Editing Trip Names".

VIEWING Trip Records

1. Press the 'RECORDS' key to toggle the display from 'TRIP' records to 'PRODUCT TOTALS' records.
2. Use '<PREV' and 'NEXT>' keys at bottom of screen to view different trip records.

RESETTING Trip Records

1. Select trip screen using 'RECORDS' key.
2. Use '<PREV' and 'NEXT>' keys to display record to be cleared.
3. Press 'RESET' key and a confirmation message will appear.
4. Press 'RESET' key again **or** to cancel reset process, press any other key.



VIEWING Product Totals Records

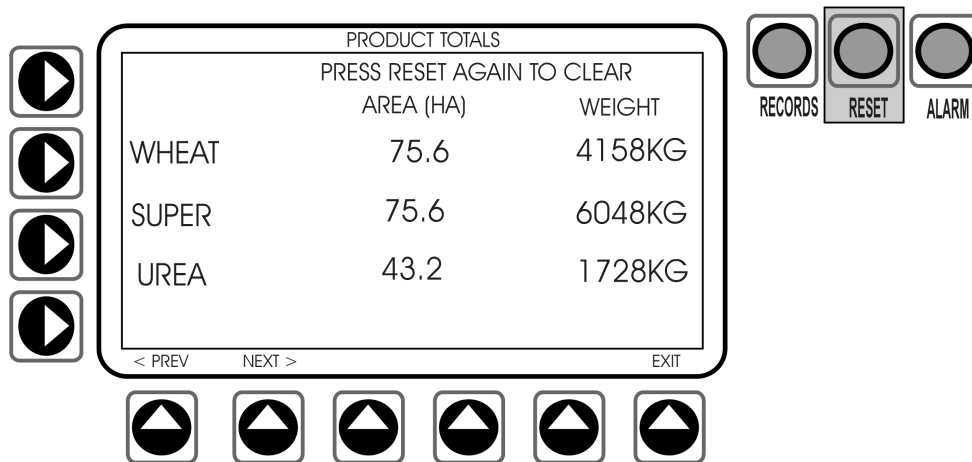
1. Press the 'RECORDS' key to toggle the display from 'TRIP' records to 'PRODUCT TOTALS' records.
2. Use '<PREV' and 'NEXT>' keys at bottom of screen to view different product records.

RESETTING Product Total Records

1. Select 'PRODUCT TOTALS' screen using 'RECORDS' key.
2. Use '<PREV NEXT>' keys to display product record to be cleared.
3. Press 'RESET' key and a confirmation message will appear.
4. Press 'RESET' key again to confirm reset **or** to cancel reset process, press any other key.
5. Press 'RESET' key a **3rd** time a message asking confirmation to reset **all trips** and *product total records* will appear.
6. Press 'RESET' key a **4th** time to reset **all trips** and *product total records*.

TIPS:

1. 'PRODUCT TOTALS' will only be displayed for products with accumulated weight or area records.



To SELECT a New or Pre-Programmed TRIP Memory

1. Press the 'RECORDS' key to display the current 'TRIP RECORD'.
2. Use '<PREV' and 'NEXT>' keys at bottom of screen to display the required 'TRIP' memory location.
3. Press ▲ 'SELECT' key at bottom of screen to engage the new trip memory.
4. Press ▲ 'EXIT' key to return to main screen.

TIP:

1. Make sure the selected trip name appears in the 'TRIP HA' section of the main screen.

To COPY Products to a New TRIP Memory

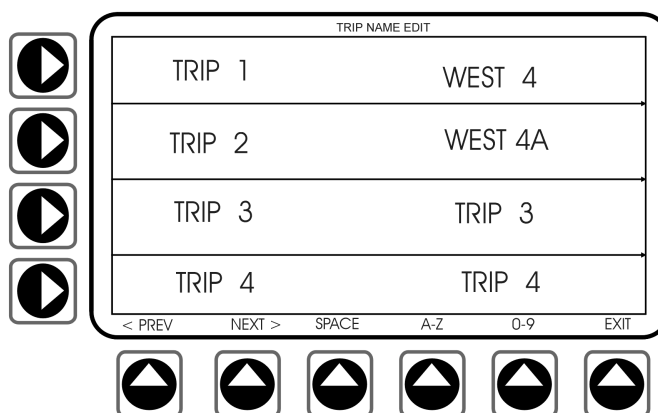
1. Press 'RECORDS' key to display current Trip records.
2. Use '<PREV' 'NEXT>' keys to display trip products you wish to copy.
3. Press ▲ 'COPY' key to capture bin product selections, key will change to read 'PASTE'.
4. Use '<PREV' and 'NEXT>' keys to display a clear (unused) trip memory location.
5. Press ▲ 'PASTE' key to transfer bin products into new memory location.
6. Press ▲ 'SELECT' key to engage new trip if using immediately, otherwise previously engaged trip will still be current.

TIPS:

1. Use the 'COPY / PASTE' key to quickly set up existing bin setups into a new trip record.

3.13 TRIP Name EDITING

To make record keeping and operation more logical to the operator, existing trip numbers 1-24 can be edited to reflect true paddock names or numbers within a limit of 6 characters.



EDITING Trip Names

1. Select 'TRIP' option from the main calibration menu and press 'CAL' key to bring up the 'TRIP NAME EDIT' menu.
2. Use '<PREV' and 'NEXT>' keys at bottom of screen to display trip names 1-24.
3. Use LHS ► keys to select a trip name for editing, the left column of trip numbers is for reference only and can not be changed.
4. Use RHS ◀ ► navigation keys to position cursor over character to be changed.
5. Select one of the three character types 'SPACE', '0-9' or 'A-Z' on the bottom of display
6. Use the RHS ▲ or ▼ arrows to change the character as required.
7. Repeat 4 – 6 to continue editing.
8. Press the ▲ 'EXIT' key at the bottom of the screen to return to the main menu.

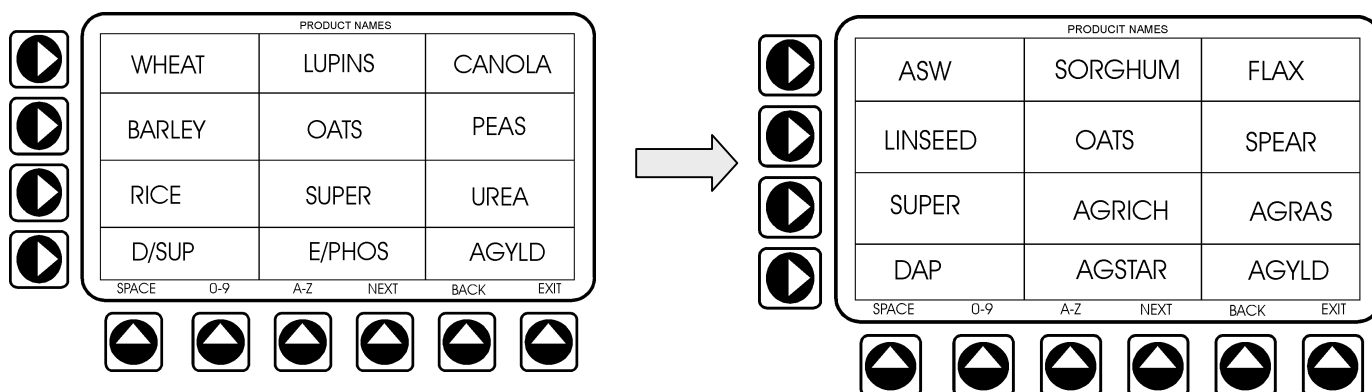
TIPS:

1. Holding down either the ▲ or ▼ arrow keys for one second will cause the highlighted character to scroll through the available letters or numbers.

3.14 PRODUCT Name EDITING

Up to 24 seed and fertiliser product names can be created for selection when calibrating bins using 6 characters for each name/number.

There are 12 existing common product names, which can also be edited as you please.



To Edit or Create Product Names

1. Select 'PRODUCT' option from the main calibration menu and press 'CAL' key to bring up 'PRODUCT NAME' edit menu.
2. Use 'NEXT' key at bottom of screen to toggle between first and second page of product name locations.
3. Use LHS ► keys to step across to required name location for editing or select a blank space to create new product names.
4. Use RHS ◀ ► navigation keys to position cursor over character to be changed.
5. Select one of the three character types 'SPACE', '0-9' or 'A-Z' on the bottom of display.
6. Use the RHS ▲ or ▼ arrows to change each character as required.
7. Repeat 4 – 6 to continue editing.
8. Press the ▲ 'EXIT' key at the bottom of the screen to return to the main menu.

TIP:

1. *Holding down either the ▲ or ▼ arrow keys for one second will cause the highlighted character to scroll through the available letters or numbers.*

3.15 VRC Application Maps

The canlink 3000 with software versions VRC 1.80 and higher can automatically control the application of product to rates pre-assigned in an application map.

Application maps are generated on your PC from a yield map or a field boundary map used as a template. These maps (templates) can be created with Farmscan 'Soil Sampling And Mapping' or 'Yield Monitoring' software loaded onto a canlink 3000.

Application rates are assigned to areas on the field map using Farmscan Data Manager or other PC software packages. Finished application maps are saved onto a data card using a Data Transfer Station (DTS) or a PCMCIA data card slot in your computer.

AUTO CONTROL to an Application Map

Setting Up

- Create an application map and save it onto a 'S'RAM data card (see Farmscan Data Manager instructions).
- Connect and enable the GPS see section 4.7 of manual. Make sure the canlink is receiving GPS position data. If GPS drops out auto-control will revert to the last rate prior to GPS drop out.

Note:

The **GPS must output the RMC string** for the canlink to autocontrol to a map.

- Fill bins with the correct products as specified in the application map and calibrate the canlink 3000 bins with the same products.

To AUTO CONTROL

1. Insert the data card with the application map on it into the canlink 3000.
2. Press 'CAL' key to display calibration menu, select 'DATA CARD' item and press the 'CAL' key.
3. Press softkey adjacent to 'DATA CARD', use left & right navigation keys to display 'AUTO'. The canlink 3000 will search for application maps on the card. Use the up and down navigation keys to select the desired map.

Note:

If no map name is displayed, then press the 'BACK' softkey to leave the "DATA CARD MENU" screen then press "CAL" to re-enter and the map name will be displayed.

Two maps can be loaded from the data card into the canlink.

To select the map press the horizontal softkey adjacent to 'LOG INT ...' until the map name is highlighted. Press the 'UP' key to toggle between the two maps.

4. With the desired map name displayed press the 'EXIT' key to return to the main screen.
5. Enter the field and press the ▲ 'RESET' softkey at the bottom left of the screen. The unit will then start automatically applying product according to the position of the tractor in the field and the pre-assigned rate. If GPS signal drops out auto-control will revert to the last rate prior to GPS drop out.

Note:

- When the "RESET" softkey is pressed 'AUTO' will be displayed under the product being applied and its automatic rate will be shown. The map name will appear next to the memory indicator bar.
- Changing autocontrol from one map to another must be done through the 'DATA CARD MENU'.

To Override AUTO CONTROL

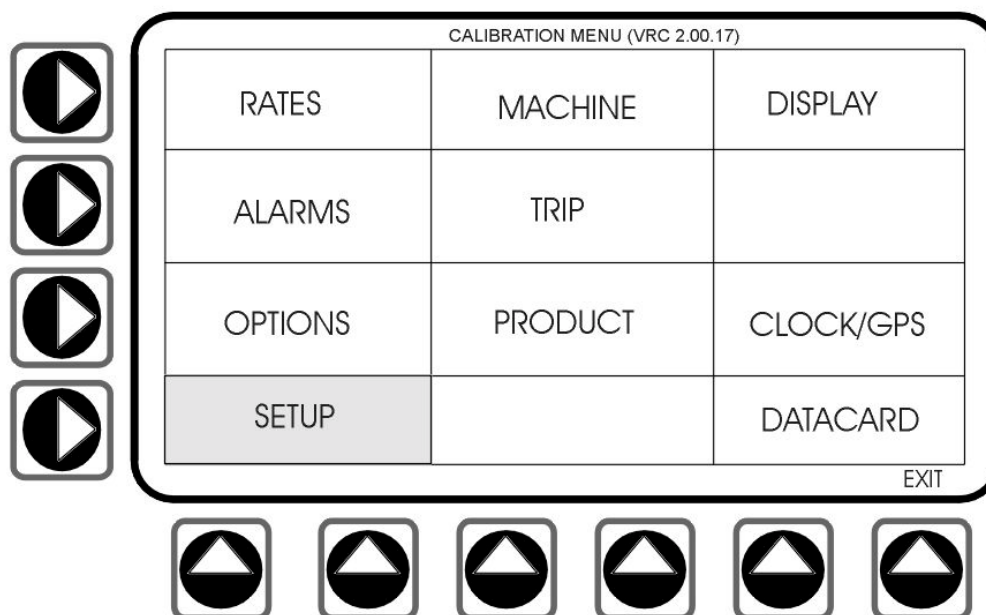
1. Select (highlight) *bin* to override using the LHS arrow softkeys.
2. Press "RESET" softkey at bottom left of screen to disable the auto control for that bin.
3. Press "RESET" softkey again to resume auto control.

4.0 CALIBRATION

The canlink VRC 3000 system is configured and calibrated through the calibration menu screen. Each of these menu items allow access to calibration and configuration settings.

To SELECT from the 'CALIBRATION MENU':

1. Press the 'CAL' key to display the calibration menu screen.
2. Use the RHS navigation keys and/or the LHS softkeys to highlight the required calibration menu item.
3. Press 'CAL' key to open the required calibration sub-menu.



NOTE :

1. The canlink 3000 software version number is indicated at the top of the screen eg. 'CALIBRATION MENU (V2.00)'
2. If the canlink is upgraded at anytime the software version number will change.

4.1 SETUP

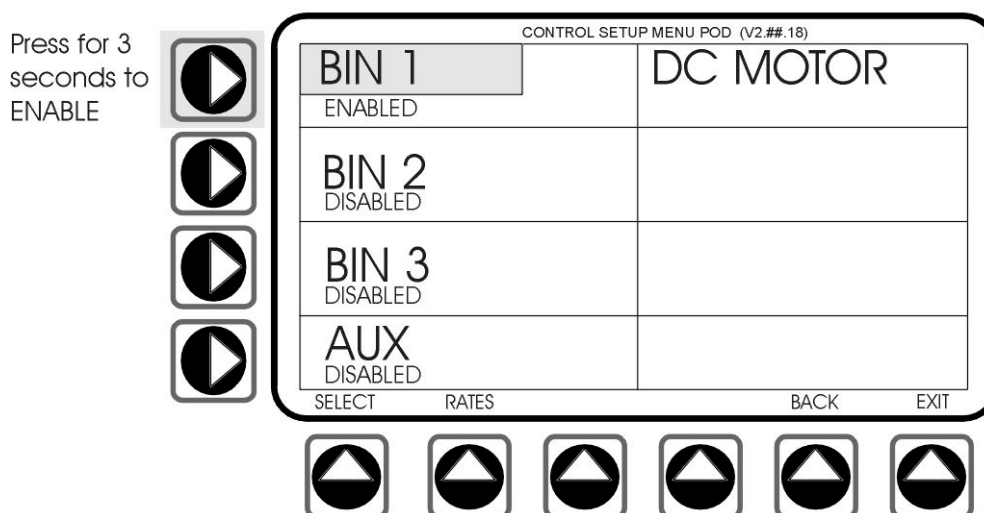
The canlink VRC will control up to 3 airseeder metering units and/or a 4th *auxillary* metering unit or electric clutch.

The control type must be configured for each bin through the 'SETUP' menu before any other calibration.

Refer to the airseeder manufacturer's guide to check the required *setup*.

SETUP Procedure

1. Fully connect airseeder to ensure canlink 3000 cab module and airseeder POD are linked.
2. Switch canlink 3000 power 'ON' and wait.... for establishment of communication with POD on airseeder. Message 'UNIT ON HOLD' will be displayed when connection is established.
3. Press 'CAL' key to display 'CALIBRATION MENU'.
4. Choose 'SETUP' option from calibration menu and press 'CAL' to enter 'SETUP' screen.
5. Press LHS softkeys alongside each ► 'BIN' function for 3 seconds to 'ENABLE' required bin controls then use ▲ and ▼ navigation keys on RHS to display the correct control type for each bin.



NOTE:

The POD software version number is displayed at the top of the control setup screen eg (V2.00). The version number will change if the POD software is upgraded.

CONTROL TYPE Options

For bins 1 –3:

DC MOTOR	12 Volt DC Motor
GATE ACT	Linear Actuator over Belt (ground drive)
GEAR BOX	Linear Actuator over Gearbox (ground drive)
HYD PROP/XPRO	Hydraulic Valve (Signal Control)
HYD PROPO 2	Hydraulic Valve (Proportional Valve)
HYD MFC	Motorised Flow Control Valve (See next page to setup)

Additional items for bin 4 only:

CLUTCH SOL	Solenoid Activated Clutch on 'RUN/HOLD'
CLUTCH LIN	Linear Actuated Clutch on 'RUN/HOLD'

6. Press ▲ 'SELECT' key at the bottom of the screen to choose the correct control type.
7. Follow any further instructions on screen to complete control type configuration, then press ▲ 'BACK' key. Selected control type should display 'SET UP OK' when properly configured.
8. Repeat steps 5 – 7 for each bin then press ▲ 'BACK' key at bottom of screen to return to main calibration menu.

TIPS:

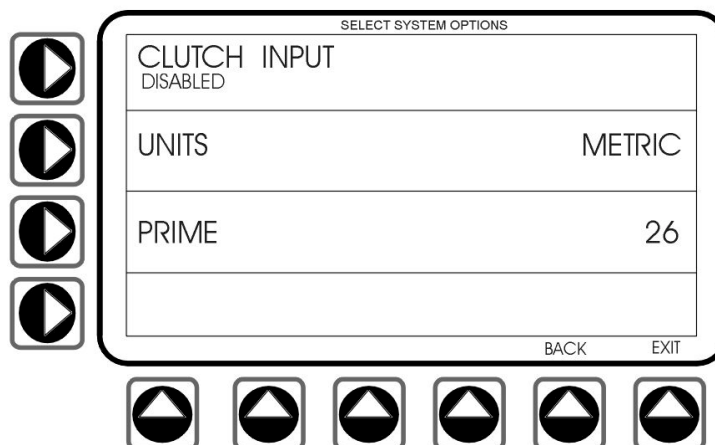
1. DC drive should indicate between 2500 and 3000 max RPM Factor 3.
2. Gearbox and clutch selections do not have any special setup requirements.
3. To 'DISABLE' a bin, press ► 'BIN/AUX' key for 3 seconds.

4.2 OPTIONS

The 'OPTIONS' menu allows selection and setting of options related to overall operation.

To DISPLAY Options Menu

1. Select 'OPTIONS' from calibration menu and press 'CAL' to enter the system 'OPTIONS' screen.



CLUTCH Input

The canlink 3000 master operation can be controlled using the front panel 'RUN/HOLD' key or by connection to an external clutch switch that will activate the "RUN/HOLD" function when the switch is operated.

The clutch input option must be 'ENABLED' to use the remote clutch switch or 'DISABLED' to use the front panel 'RUN/HOLD' key.

Refer to airseeder manufacturer's guide for recommended *clutch* setting.

To ENABLE Remote Clutch Input

1. Press the ► 'CLUTCH' input key for 3 seconds until unit *beeps* and 'CLUTCH' input displays 'ENABLED'.
2. Press ▲ 'BACK' key to return to main calibration screen

NOTE:

Enabling the clutch input will **disable** the 'RUN/HOLD' key on the canlink 3000.

UNITS

Quantities can be displayed and the canlink 3000 calibrated in either metric or US imperial units.

! IMPORTANT

Make sure to select the units before calibrating. If units are changed the canlink 3000 must be re-calibrated using the new units. Changing units while calibrating does not automatically convert quantities according to the new units. Quantities must be changed manually.

PRIME

The time in seconds the canlink 3000 will prime the drive when "PRIME" pressed in main screen or when **green** button on POD is pressed.

4.3 ALARMS

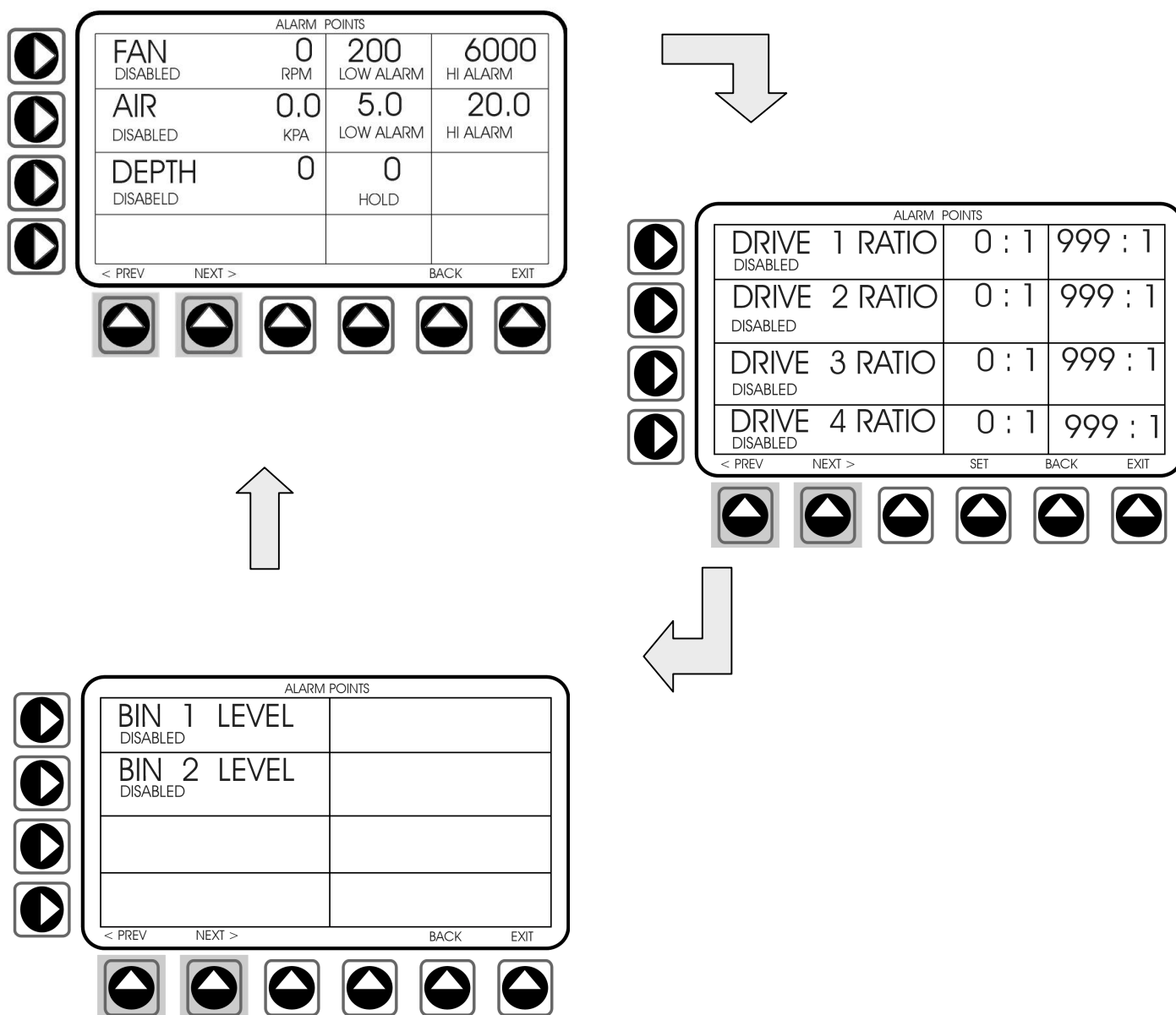
The canlink 3000 will monitor a range of essential airseeder functions through sensors attached to the machine. These sensor functions must be **enabled** before the alarm points can be set. Refer to the airseeder manufacturer's guide to see which **alarms** should be enabled.

To DISPLAY Alarm Screens

1. Choose ► 'ALARMS' from calibration menu and press 'CAL' to select.
2. Use '<PREV' and 'NEXT>' keys to view alarm screens.

TIPS:

1. ▲ 'MENU' key on main screen provides a shortcut to alarm settings.



FAN

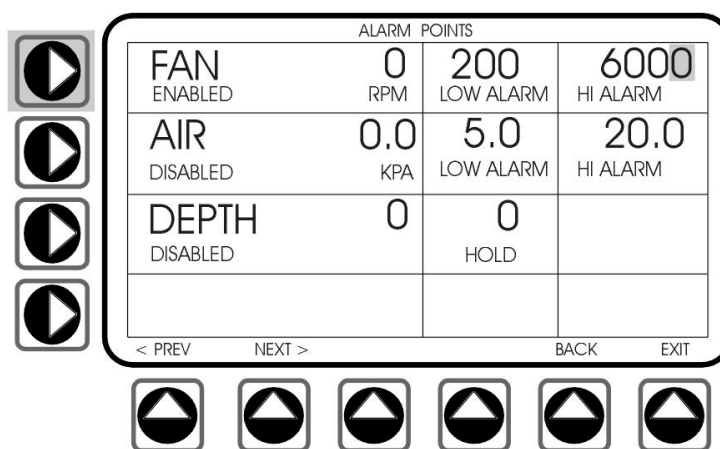
The 'FAN' speed function provides a visual readout of fan RPM on the **main screen**.

High and low alarm points may be set to warn the operator if the fan is running outside the recommended RPM operating range.

To avoid blocking the airseeder, DC electric and hydraulic drives will not start if the fan RPM is operating below the 'LOW ALARM' point. As warning message 'FAN STOPPED' or 'FAN SLOW' will alert the operator.

To ENABLE Fan RPM Sensor

1. Select "ALARMS" from calibration menu, use '<PREV' and 'NEXT' keys to display 'FAN'.
2. Press ► 'FAN' key for 3 seconds until unit *beeps* and 'FAN ENABLED' is displayed.



To SET Fan RPM Points

When the fan is operating, the 'live' Fan RPM is displayed in the alarms screen as a reference for alarm point settings.

Refer to the airseeder manufacturer's guide for recommended FAN alarm points.

1. Press ► 'FAN' key to toggle curser between low and high alarm points.
2. Use RHS navigation keys to set alarm points.

NOTE:

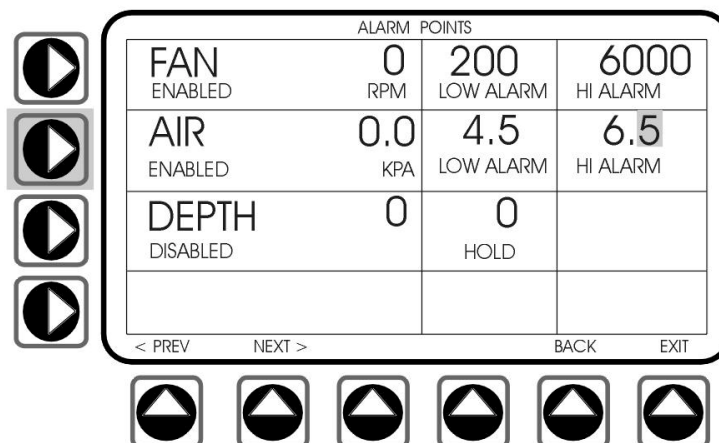
For DC electric or hydraulic drives, product metering will stop automatically when the fan RPM falls below the 'LOW' alarm point.

TIPS:

1. Use 'MENU' key on main screen as a shortcut to alarm point setting.
2. Low Alarm can be used to remind the operator to engage the fan before seeding.
3. To avoid the low fan RPM metering cutout, set low alarm point to zero.
4. High point must be set above zero to allow low point to be set at zero.
5. To cancel warnings altogether, set low alarm points to zero then high alarm point to zero or 'DISABLE' fan function altogether by pressing ► 'FAN' key for 3 seconds.

AIR PRESSURE

The air pressure function provides a visual indication of primary hose air pressure and can be set with low and high air pressure alarm points to give an audible warning of variation in air pressure.



To ENABLE Air Pressure Sensor

1. Select 'ALARMS' from calibration menu, use '<PREV' and 'NEXT>' keys to display 'AIR'.
2. Press ► 'AIR' key for 3 seconds until unit 'beeps' and 'AIR ENABLED' is displayed.

To SET Air Pressure Alarm Points

When the fan is operating, the 'live' KPA reading is used as a reference when setting alarm points. Actual operating air pressure is dependent on many factors including fan RPM, hose sizes and material delivery rate into airstream. The airseeder must be operating, and bins pressurised to achieve a valid reference point.

1. Press ► 'AIR' key to toggle between low and high alarm points.
2. Use RHS navigation keys to set high and low alarm points.
3. Press ▲ 'BACK' or 'EXIT' key to escape.

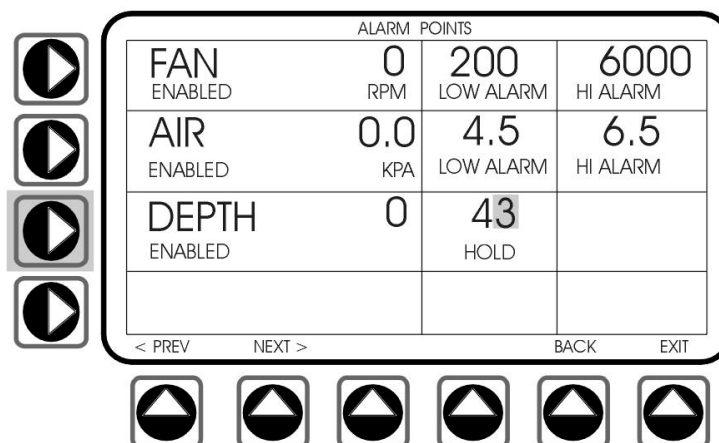
TIPS:

1. Use ▲ 'MENU' key as shortcut to air alarms from main screen.
2. To cancel the low or high air pressure warnings, set low or high air pressure alarm point to zero.
3. To disable 'AIR' function, press ► 'AIR' key for 3 seconds.

DEPTH (Optional)

The 'DEPTH' function provides a visual readout of implement ram position on a scale of 0-99 from 0 at full ram extension to 99 at maximum depth.

The 'DEPTH' function can be set with a 'DEPTH HOLD' point to automatically put the 'UNIT ON HOLD' when raising the implement above the hold set point.



To ENABLE Depth Sensor

1. Select 'ALARMS' from calibration menu, use '<PREV' and 'NEXT>' to display 'DEPTH'.
2. Press ► 'DEPTH' key as shown above for 3 seconds to 'ENABLE' depth sensor.

To SET Depth Hold Point

When adjusting the implement height, the live reading provides a reference point for setting the required hold point. Test the readout by raising and lowering the implement to ensure the depth sensor is adjusted to provide a sufficient range of operation.

1. Select ► 'DEPTH HOLD' setting point.
2. Using live the reading as a guide, adjust the implement height to display the required 'HOLD' point.
3. Use RHS keys to set the 'DEPTH HOLD' point to match the displayed hold value.
4. Press ▲ 'BACK' or ▲ 'EXIT' key to escape.

TIP:

1. To **disable** feature, press ► 'DEPTH' key for 3 seconds.

DRIVE RATIO Alarms

The drive ratio alarms 1 to 4 are to warn the operator of failure, slippage or incorrect sprockets between the controlled drive and the final metering mechanism of airseeder bins 1 to 4. Drive ratios are continuously monitored and will alarm if the 'live' ratio exceeds $\pm 10\%$ of the set ratio.

Example:

If Drive 4 ratio set to 19:1, then drive ratio alarm will work as follows:

- If running at 30:1 then "DRIVE 4 SLOW" will be displayed.
- If running at 8:1 Then "DRIVE 4 FAST" will be displayed.

If drive ratios are already known, the alarm points may be manually set, or if ratios are unknown, ratios may be displayed 'live' and set whilst operating.

Refer to the aireeder manufacturer's guide for "DRIVE RATIO" settings.

To ENABLE Drive Ratio Sensors

1. Select 'ALARMS' from calibration menu, use '<PREV' and 'NEXT>' keys to display 'DRIVE RATIO' alarms screen.
2. Press each ► 'DRIVE RATIO' key for 3 second until unit *beeps* and 'DRIVE RATIO ENABLED' is displayed.

To SET Drive Ratio Alarm

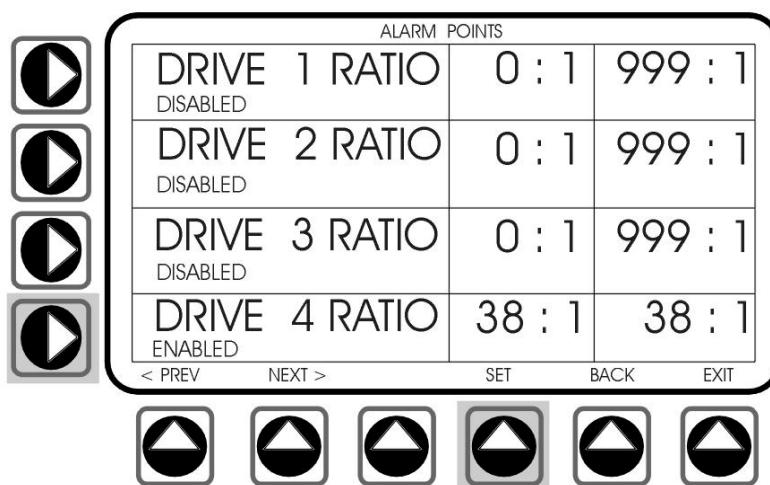
1. Ensure correct drive gears are fitted.
2. Select drive ratio (1-4) to be set.
3. Use RHS keys to set recommended drive ratio.
4. Press 'BACK' or 'EXIT' to escape.

To DETERMINE Drive Ratio

Drive Ratios are displayed live within the alarms screen when the metering system is active. The first calculation may take up to 60 seconds before the display ratio is updated. Wait for at least two updates before setting the alarm point.

Procedure

1. Ensure correct drive gears are fitted and correct product calibration factor is entered.
2. Whilst air seeder is operating, press ▲ 'MENU' key and use '<PREV' and 'NEXT>' keys to display drive ratios alarm screen.
3. Select ► 'DRIVE RATIO' (1 – 4) to be set.
4. Press RESET key to clear ratio set-point to 999:1.
5. Watch until live ratio display updates at least twice, then press ▲ 'SET' key at bottom of screen to capture and set the 'live' ratio.
6. Repeat 3-5 for each active drive.
7. Press ▲ 'EXIT' to return to main screen.



TIP:

1. To **disable** drive ratio alarms, press relevant ► 'DRIVE RATIO' key for 3 seconds.

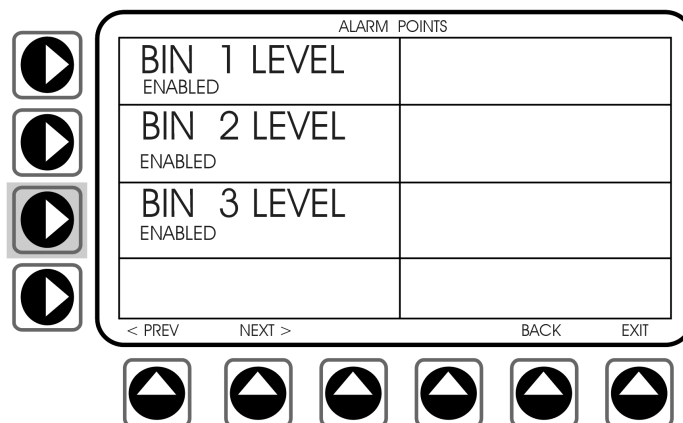
BIN Level Alarms

Bin level sensor functions are provided for all four *bins*. Bins do not have to be enabled or be metering at variable rates controlled by the canlink to receive bin level alarms.

Bin level sensors are fitted at a low point in the bin to be activated when the sensor is uncovered. The operator is notified with an audible warning and message to indicate which bin is low.

To ENABLE Bin Level Sensors

1. Select 'ALARMS' from calibration menu, use '<PREV' 'NEXT>' keys to display *bins*.
2. Press each ▶ 'BIN LEVEL' key for 3 seconds until unit *beeps* and displays 'BIN ENABLED'.
3. Press ▲ 'BACK' key to step back to calibration screen.



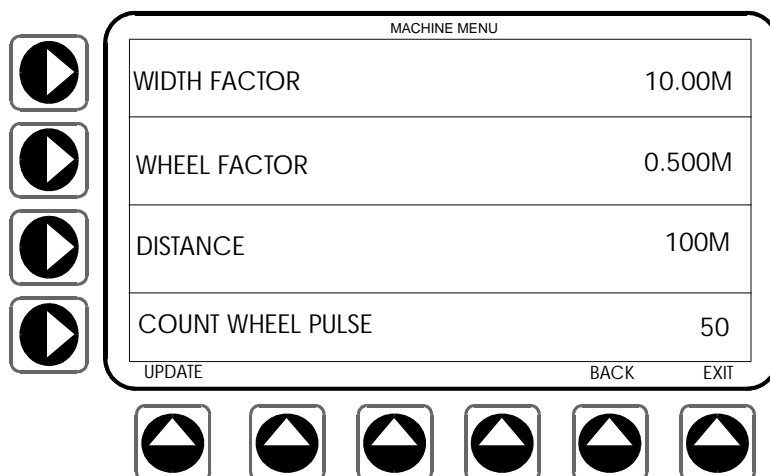
TIPS:

1. Bin alarms are temporarily disabled if a bin is switched 'off' from the main screen.
2. To permanently disable a bin level sensor, press ▶ 'BIN' key for 3 seconds.

4.4 MACHINE

The 'MACHINE' selection from the calibration menu allows setting of factors related to specific machine size.

Refer to the airseeder manufacturer's guide for recommended 'MACHINE' settings.



WIDTH Factor

The 'WIDTH' factor is the effective width of the airseeder cultivator bar measured from tyne to tyne.

To ENTER Width Factor

1. Press ► 'WIDTH FACTOR' key.
2. Use RHS arrow keys to set correct width factor.

WHEEL Factor

The 'WHEEL' factor is the distance of forward travel per pulse from the wheel sensor, used to calculate forward speed and area covered.

The manufacturer may suggest an average wheel factor depending on tyre size, however, this factor should be checked using the procedure below.

To ENTER Wheel factor

1. Press ► 'WHEEL FACTOR' key to select factor.
2. Use RHS navigation keys to enter correct 'WHEEL FACTOR'.

To DETERMINE Wheel factor

Perform calibration in working conditions, not on tarmac (recheck measurement when moving from hard to soft conditions).

1. Press ► 'COUNT WHEEL PULSE' key.
2. Press 'RESET' key to bring the 'COUNT WHEEL PULSE' reading back to zero.
3. Peg ground at bottom centre of any wheel as a starting reference point for measurement.
4. Drive forward for approximately 30 metres or at least 50 pulses and stop exactly on a pulse count.

Example:

COUNT WHEEL PULSE	67
-------------------	----

5. Measure the distance travelled from the starting peg to the centre of the same tyre.
6. Press the ► 'DISTANCE' key and use the RHS navigation keys to enter the distance measurement into the 'DISTANCE' item.
7. Press the 'UPDATE' key for the unit to calculate the wheel factor.

Example:

Distance driven	= 30.65 metres
Wheel pulses	= 67 pulses
$30.65\text{m} \div 67$	= 0.457m wheel factor

4.5 RATES

The 'RATES' screen allows selection and calibration of product names, setting of product rates, and setting of rate 'STEPS', used to increase or decrease rates in the field.

Once established product calibration factors can be and recalled by product name for each bin.

Identical products can be selected for two or more bins, but each bin must be calibrated separately to establish a specific bin calibration factor.

Products and rates are selected for each bin on a paddock by paddock basis.

Before changing products in any bin, a clear Trip (1-24) memory location must be selected through the 'RECORDS' screen to allow accumulated product weight and area data to be saved specific to a trip (paddock).

Alternatively, the current trip record can be 'RESET' to clear accumulated weight and area data before selecting a new product.

Trip numbers can be edited to reflect true paddock names and numbers.

The 24 Trip memory locations can be used to pre-program products and rates for each bin according to cropping plans in each paddock, so operators can simply select a specific trip number or paddock name and the pre-calibrated sowing program is displayed ready to start.

To ENTER the Rates Screen

1. Select 'RATES' from calibration menu and press 'CAL'.

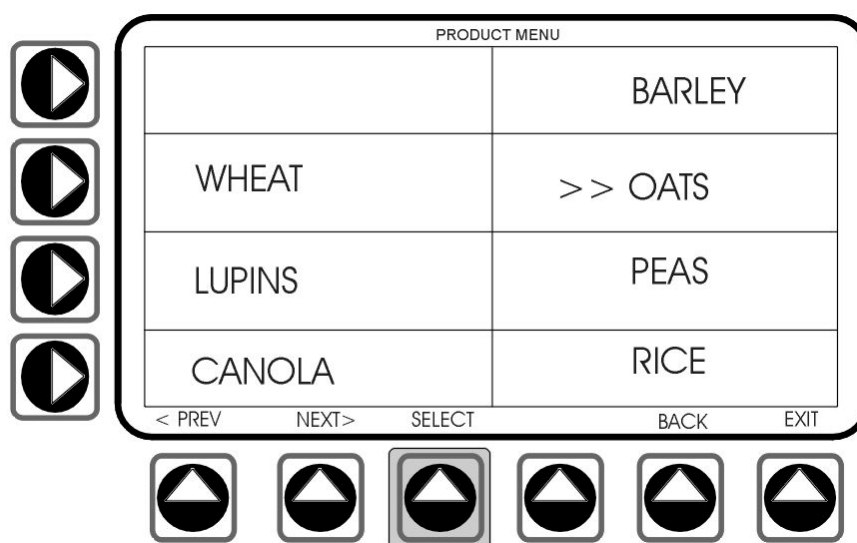
TRIP 1 RATES	
BIN DC MOTOR	1 WHEAT 0.00 PULSE/KG
RATE 50	STEPS 10
SELECT PROD	
CALIB PROD	
SETUP	BACK EXIT

To SELECT a Bin 1-4

1. Press the ► 'BIN' softkey and use the RHS ▲ & ▼ keys to select the required Bin number for programming.

To SELECT a Product

1. **Before** selecting new products for any bin, press 'RECORDS' key and select a clear trip memory location using '<PREV' 'NEXT>' keys or reset weight and area data accumulated against current products. Press 'RATES' at bottom of 'RECORDS' screen to shortcut back to rates calibration screen.
2. Press ► 'SELECT PROD' key to access the Products menu.
3. Use the '<PREV' and 'NEXT>' keys at the bottom of the screen to scroll through the products menu (see section 3.14 to edit product names).
4. Press the LHS ► keys adjacent to the row on which the required product name is located to toggle the pointer across to the desired product.
5. Press the ▲ 'SELECT' key at the bottom of the screen to choose the product.



6. If the chosen product pulse/kg calibration factor is displayed as 0.0 pulse/kg, proceed **"To ESTABLISH Product Calibration Factor"** on the next page.
7. If the pulse/kg factor is correct, proceed **To SET Product RATE and STEPS**.

To SET the Product Rate

The target rate (rate) is the normal application rate in kilograms per hectare (kg/Ha) for the selected product.

1. Press the ► 'BIN' key and use the RHS navigation keys to select the required bin number.
2. Check that the displayed product pulse/kg calibration factor is correct.
3. Press the ► 'RATE' key to select the product target rate.
4. Use the RHS navigation keys to enter the application rate.
5. Repeat steps 1 – 4 for each bin.

To SET STEP Size

The application rate can be increased or decreased on-the-go by pressing the ▲ or ▼ navigation keys on the RHS of the screen for a selected bin.

The amount of change is determined by the step size.

eg: 0.5kg, 2kg, 5kg, 10kg, or 50kg steps.

1. Press the ► 'BIN' key and use the RHS navigation keys to select required bin number.
2. Press the ► 'RATE' key twice to select 'STEP' Size.
3. Enter the 'STEP' size required using the RHS navigation keys.

NOTE:

- a. If target rate is more than 10 kg/Ha, step sizes will be in whole numbers only.

Eg: target rate 20 kg/Ha step sizes 1, 2, 10

- b. If Target Rate is less than 10 kg/Ha, step sizes can be in decimals.

Eg: target rate 3.5 kg/Ha step sizes 0.1, 0.5, 1.0, 5.0

TIPS:

1. To increase or decrease target rate by 50% in one step, set step size to 50% of target rate.
2. To edit product name, see Section 3.14.

To ENTER or CHANGE a Product Calibration Factor

1. Press ► 'BIN' key and use RHS navigation keys to choose required bin number
2. Press ► 'CALIB PROD' key to enter the 'PRODUCT CALIBRATION' screen.
3. Press ► 'PRODUCT' key (eg wheat) to select the pulse/kg factor.
4. Use the RHS navigation keys to set the known pulse/kg factor.
5. Press 'BACK' or 'EXIT' to escape from calibration screen.

To ESTABLISH Product Calibration Factor

Follow the procedure below according to control type.

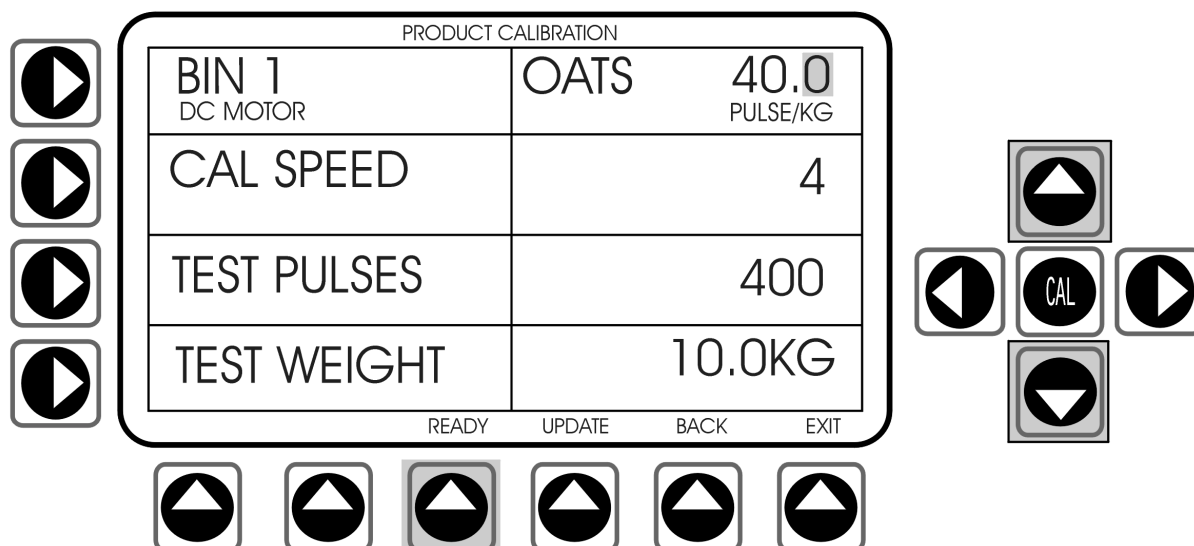
DC Drive, Hydraulic Drive or MFC Hydraulic Drive**Product Calibration**

1. Select 'RATES' from calibration menu and press 'CAL'.
2. Press ► 'BIN' key and use RHS navigation keys to choose required bin number.
3. Ensure correct product name is selected. See **To Select a Product** (previous page).
4. Press ► 'CALIB PROD' key to enter the 'PRODUCT CALIBRATION' screen.
5. Press the ► 'CAL SPEED' key and set airseeder manufacturer's recommended metering speed for specific product using the RHS ▲ ▼ arrow keys.

1	=	10%	Slowest Speed
5	=	50%	Half Speed (Use if unknown)
10	=	100%	Maximum Speed

6. Press ► 'TEST PULSES' key and enter the recommended number of pulses required from the metering system to obtain a sizeable quantity of product for weighing, using the RHS navigation keys.

eg **TEST PULSES 400**



7. Press the ▲ 'READY' key at the bottom of the screen.
8. Get ready at the airseeder metering unit to catch material.
9. Press **green** calibration control button on the POD to prime metering system, then press **red** button to stop metering, then empty and replace catch tray.
10. Press the **green** button to start product calibration run (**red** control may be used to stop and reset the batch in case of a false start).
11. The metering unit will stop after completing the test pulse quantity. If the original batch is too small, repeat step 8 after completion of the first batch to double the quantity.
12. Accurately weigh the product and return to the cab, the actual number of test pulses will be displayed.
13. Press ▶ 'TEST WEIGHT' key and enter total weight of product using the RHS arrow keys.
14. Press ▲ 'UPDATE' key at the bottom of the screen and the monitor will automatically calculate the 'PULSE/KG' factor for that product that completes the calibration.
15. Return to the 'RATES' menu by pressing the ▲ 'BACK' key at the bottom of the screen.

NOTE:

Display may show 'TEST PULSES' slightly in excess of the original set amount. This is to take account of the normal motor overrun after reaching the test pulse quantity.

TIP:

1. To trim the 'PULSE/KG' factor after the first load, use the following formula:

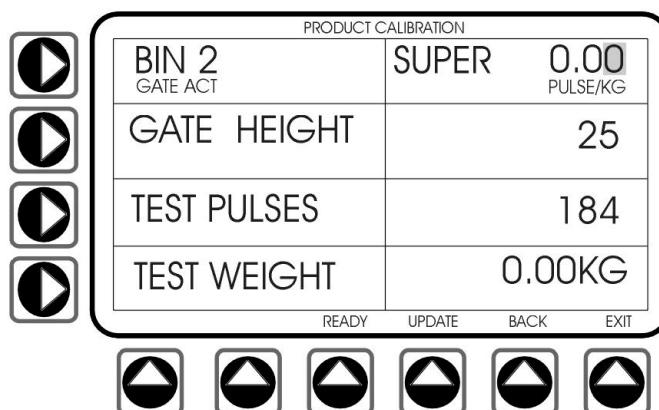
$$\text{New Pulse/kg} = \text{Weight Displayed by Monitor} \times \text{Old Pulse/kg} \div \text{Actual Weight}$$
 Record this factor for future reference!
- To **increase** product delivery, **increase** pulse/kg factor.
 - To **decrease** product delivery, **decrease** pulse/kg factor.
 - If bin runs out too fast, **decrease** pulse/kg factor.

Gate Actuator

When calibrating a gate, it is important to select the correct gate height for the target rate.

Product Calibration:

1. Select 'RATES' from calibration menu and press 'CAL'.
2. Press ► 'BIN' key and use RHS navigation keys to choose required bin number for calibration.
(**Note:** If operating dual gates over one belt, the other gate must closed).
3. Ensure correct product name is selected. See **To Select a Product**.
4. Press ► 'CALIB PROD' key to enter the 'PRODUCT CALIBRATION' screen.



5. Press the ► 'GATE HEIGHT' key and set the gate height % opening size as recommended by the airseeder manufacturer for the product application rate using the RHS arrow keys.
eg: Maximum rate with gate fully open for 'bin 2' 100kg/Ha
 Required application rate 33kg/Ha
 Set 'GATE HEIGHT' to 25%
6. Press the ► 'TEST PULSES' key and enter the number of wheel pulses required to travel 1/10th of a hectare....See formula below.

TEST PULSE FORMULA (see charts supplied by air seeder manufacturer)

1. Determine distance for 1Ha according to your implement width.
2. Divide distance by the wheel factor for your tyre size.
3. Divide the result by 10.

$$\begin{array}{rclcl}
 \text{eg: Distance for 1Ha} & = & 813\text{m} \\
 \text{Wheel Factor} & = & 0.442\text{m} \\
 813 \div 0.442 & = & 1839 \\
 1839 \div 10 & = & 183.9 \text{ (round to 184)}
 \end{array}$$

7. Use the RHS arrow keys to enter 'TEST PULSES' as calculated. eg: 184.
8. Press ▲ 'READY' key at the bottom of the screen
9. Fit rate plate and catcher box to airseeder metering system.
10. Prime conveyer belt with crank handle then clear out catcher box.
11. Turn the crank handle the required number of turns for 1/10th of a hectare as recommended by the airseeder manufacturer. Accurately weigh the product.
12. Press the ► 'TEST WEIGHT' key and enter the weight using the RHS arrow keys.
13. Press the ▲ 'UPDATE' key at the bottom of the screen and the monitor will automatically calculate and enter the correct 'PULSE/KG' factor for that product.
14. Return to the RATES menu by pressing the ▲ 'BACK' key at the bottom of the screen.

TIPS:

1. To trim the 'PULSE/KG' factor after the first load, use the following formula:

$$\text{New 'pulse/kg'} = \frac{\text{Weight Displayed by Monitor after 1st load} \times \text{Old Pulse/kg}}{\text{Actual Weight}}$$
 Record this factor for future reference
- To **increase** product delivery, **increase** pulse/kg factor.
- To **decrease** product delivery, **decrease** pulse/kg factor.
- If bin runs out too fast, **decrease** pulse/kg factor.

Linear Actuator over Variable Gearbox.**Product Calibration**

1. Select 'RATES' from calibration menu and press 'CAL'.
2. Press ► 'BIN' key and use RHS navigation keys to choose required bin number.
3. Ensure correct product name is selected. See **To Select a Product**.
4. Press ► 'CALIB PROD' key to enter the 'PRODUCT CALIBRATION' screen.

PRODUCT CALIBRATION		
BIN 3 GEAR BOX	SUPER	0.00 PULSE/KG
GATE HEIGHT		25
TEST PULSES		184
TEST WEIGHT		0.00KG
<div>READY UPDATE BACK EXIT</div>		

5. Press ▲ 'READY' key at bottom of screen and go down to airseeder POD.
6. Press the **green** calibration control on the airseeder POD to move the gearbox actuator in one direction. Release and press the **green** button again to move the gearbox actuator in the opposite direction.
7. Adjust the gearbox actuator to an approximate normal working position on the calibration dial for the intended rate as suggested by the airseeder manufacturer.
8. Get ready to catch the product test batch from the metering system.
9. Disengage clutch. Turn the metering system manually to deliver a sizeable calibration sample as recommended by the airseeder manufacturer. Accurately weigh the product.
10. Press the ► 'TEST WEIGHT' key and enter the weighed amount using the RHS arrow keys.
11. Press the ▲ 'UPDATE' key at the bottom of the screen and the monitor will automatically calculate and enter the correct 'PULSE/KG' factor for that product.
12. Return to the 'RATES' menu by pressing the ► 'BACK' key at the bottom of the screen.

TIP:

1. To trim the 'PULSE/KG' factor after the first load, use the following formula:

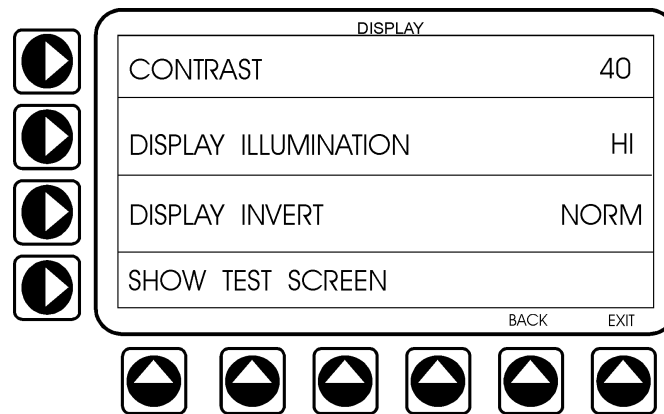
$$\text{new pulse/kg} = (\text{trip weight displayed in 'RECORDS'}) \times (\text{old pulse/kg} \div \text{actual weight})$$
 - To **increase** product delivery, **increase** 'pulse/kg' factor.
 - To **decrease** product delivery, **decrease** 'pulse/kg' factor.
 - If bin runs out too fast, **decrease** 'pulse/kg' factor.

4.6 DISPLAY

The 'DISPLAY' selection in the calibration menu provides the operator with control over display contrast and brightness.

To SELECT Display Menu

1. Use RHS navigation keys to highlight 'DISPLAY' from the calibration menu and press 'CAL' to select.



CONTRAST

The canlink 3000 automatically adjusts the screen contrast with variations in temperature. The screen contrast however, can be adjusted by increasing or decreasing the three-digit 'CONTRAST' setting number.

To ADJUST Contrast

1. Press the ► 'CONTRAST' soft key.
2. Use the RHS ▲ ▼ keys to increase or decrease the contrast setting.

TIP: When operating the airseeder, use the RHS ◀ ▶ arrow keys to adjust contrast.

NOTE:

1. The canlink 3000 display may not be suitable for viewing with polaroid sunglasses.
2. The screen may appear black if switching the unit on after a significant change in temperature eg night to day. Use the ◀ ▶ keys to select the correct contrast.

DISPLAY ILLUMINATION

Display Illumination refers to the brightness of the LCD screen backlighting. This can be changed between two settings; 'HI' and 'OFF'.

To ADJUST Display Illumination

1. Press the ► 'DISPLAY ILLUMINATION' key.
2. Use the RHS ▲ ▼ arrow keys to toggle between 'HI' and 'OFF'.

DISPLAY INVERT

The screen display can be inverted for bright day operation or reversed for night operation to reduce glare.

To INVERT Display

1. Press the ► 'DISPLAY INVERT' key to toggle the display between dark background / light lettering and light background / dark lettering.
2. Press ▲ 'EXIT' key at bottom of screen to escape to main screen.

TEST SCREEN

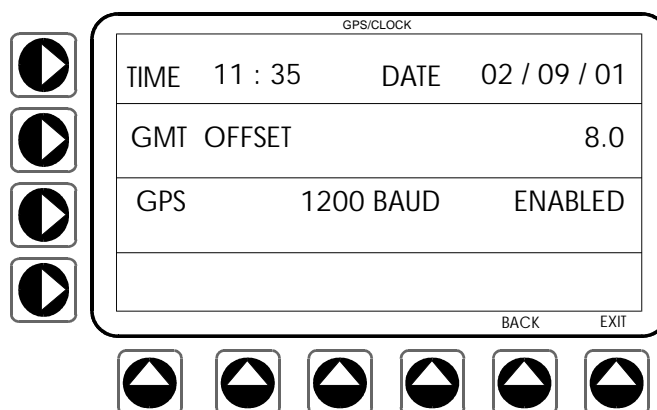
The 'TEST SCREEN' provides sensor and control diagnostics not required for machine operation.

4.7 CLOCK/GPS

The canlink 3000 can accept a Differential GPS (DGPS) derived from satellite, beacon receivers or raw GPS with NMEA standard data output for application rate mapping and automatic rate control. GPS/DGPS positional data is displayed at the top line of the main screen along with the time of day. When DGPS/GPS is connected, the time of day is automatically derived from Greenwich (GMT) and you will need to set the GMT offset hours in order to display local time. Eg +8 hours. When GPS/DGPS is not connected, local time of day can be set manually. Before using GPS/DGPS, the GPS function must be 'ENABLED' and the correct speed of communication (BAUD RATE) must also be set.

To SELECT Clock/GPS Function

1. Select 'CLOCK/GPS' from the calibration menu and press 'CAL'.



To SET Time and Date

1. Press the ► 'TIME' key to highlight the time.
2. Use the RHS navigation keys to set the local time.
1. Press the ► 'TIME' key **twice** to highlight the date.
2. Use the RHS navigation keys to set the date.

NOTE:

Set 'TIME' in 24-hour mode.

To SET GMT Offset

1. Press the ► 'GMT OFFSET' key.
2. Use the RHS arrow keys to enter the hours difference from GMT.

To SET GPS Baud Rate

Selectable between 1200, 2400, 4800 and 9600 baud rate.

1. Press the ► 'GPS' key to highlight baud rate.
2. Use the RHS ▲ ▼ arrow keys to select the correct baud rate.

To ENABLE/DISABLE GPS

1. Press ► 'GPS' key to select GPS function.
2. Use RHS ▲ ▼ arrow keys to toggle from 'DISABLED' to 'ENABLED'.

TIP:

1. *When DGPS is enabled and working correctly, the main screen will display the letter "D" followed by the latitude and longitude coordinates.*

5.0 DATA CARD OPERATION

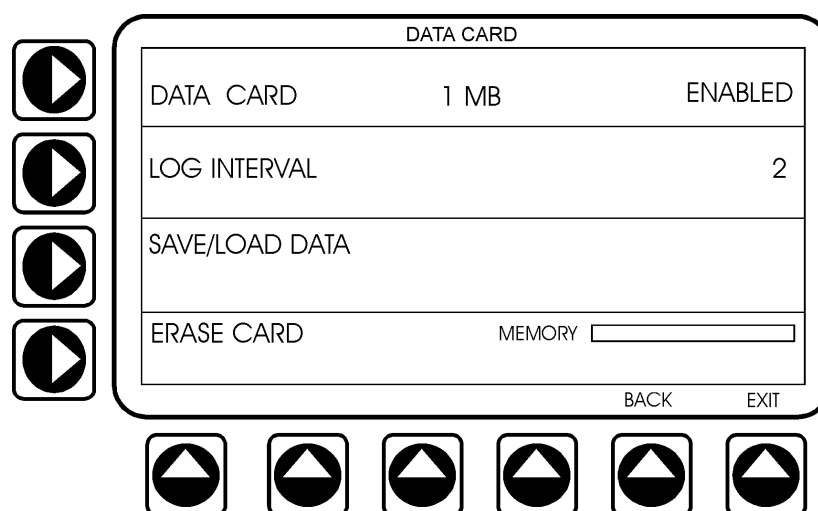
The data card (also called a PCMCIA card) is an electronic storage media similar to computer floppy disk. Data cards must be 'Sram type' not ATA data cards.

Data cards allow new or upgraded product features to be transported and uploaded into the canlink 3000. Existing calibration setups can be saved onto the data card as a backup before uploading new features. Data cards must be formatted by the canlink 3000 the first time see section 5.3.

When GPS/DGPS is connected, a blank data card can be used to log application rates allowing "as applied" rate maps to be created on a PC for comparison with yield maps.

The data card also allows automatic rate control using VRC application maps generated using Farmscan Data Manager PC software or other PC software programs capable of generating the canlink control format.

Selecting the 'DATA CARD' item from the calibration menu brings up the data card screen shown below.



To ENABLE/DISABLE Data Card

1. Select 'DATA CARD' from calibration menu and press 'CAL'.
2. Press ► 'DATA CARD' key twice to select 'DATA CARD ENABLED/DISABLED'.
3. Use the RHS ▲ and ▼ arrow keys to toggle between 'ENABLED' and 'DISABLED'.

NOTE: Data card should be **disabled** if not using a data card.

To SET Data Card Capacity

The monitor operates using 1 Mega byte or 2 Mega byte 'S' RAM type PCMCIA data cards. The data card size being used (1MB or 2 MB) must be selected to correctly scale the memory bar.

1. Press the ► 'DATA CARD' key to select data card capacity.
2. Use the RHS ▲ and ▼ arrow keys to toggle from 1MB or 2MB data card size.

To Set LOG INTERVAL

Log Interval determines how often data is written to the card, eg 1 second to 10 second intervals. Selecting a longer time interval will enable the operator to store information over a wider area on the one card.

1. Press the ► 'LOG INTERVAL' key to select interval time.
2. Use the RHS ▲ & ▼ arrow keys to select an interval between 1 seconds and 10 seconds.

NOTE: 2 second logging intervals are recommended for rate mapping. Setting 0 seconds as the log interval disables continuous data logging while keeping the data card enabled for saving cals etc.

To Insert the Data Card

1. Arrows on the data card indicate direction of entry of the card into the data card slot at the rear of the canlink 3000.
2. Insert the data card also ensuring arrows on the card are facing to the rear of the canlink 3000.
3. Push the card in all the way until the **card eject** button is fully extended.

To Remove the Data Card

1. Press the **card eject** button in all the way.

To Erase Data Card (NOT WHILE AIRSEEDING!)

The data card can be re-used after downloading data by erasing the contents of the card. The 'MEMORY' indicator bar shows the amount of available memory on the data card. **Do not erase card while airseeding as control rates will go to zero during erase process!**

1. Press the ► 'ERASE CARD' key, the message 'HIT RESET' will appear.
2. Press the 'RESET' key to initiate the erasing process.
3. Display will ask 'SURE?' and the message 'HIT RESET' will appear.
4. Press the 'RESET' key again to erase the card **OR**
5. Press any other key to abort.

NOTE:

If the message 'SURE?' is not displayed press the reset key again. The reset key must be pressed twice to erase the contents of a data card.

TIP:

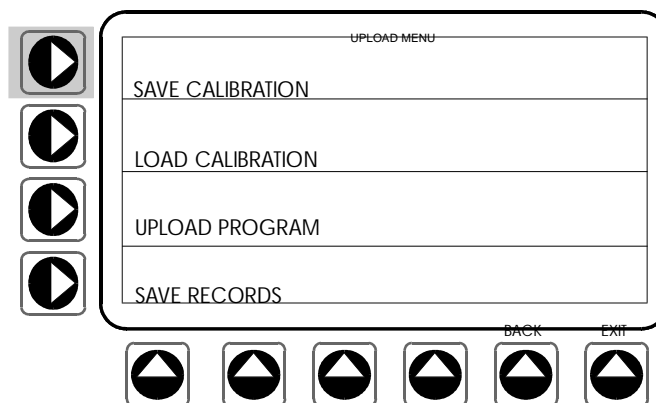
1. The 'MEMORY' bar indicator will flash during card erase.
2. To ensure that the erase operation has been successfully completed check that the 'MEMORY' bar indicator is clear.
3. Make sure you have downloaded the stored data before erasing the card for use again.

5.1 SAVE/LOAD Data

All VRC setups, product/trip names and calibration data is permanently stored in the canlink 3000.

Before uploading new or enhanced features into the canlink 3000, the existing calibration data **may be saved** to the data card, then reloaded after the program is updated.

Existing VRC data can be saved onto the same data card that holds the new program.



To SAVE Calibration

1. Make sure data card is 'ENABLED'.
2. Press the 'SAVE/LOAD DATA' key in the data card menu to access the 'UPLOAD MENU'.
3. Insert the data card into the data card slot at the rear of the canlink 3000
4. Press the ► 'SAVE CALIBRATION' key.

TIPS:

1. *If the save calibration process has been successful, a confirmation beep will be heard and the message 'CALS SAVED' will be displayed.*
2. *If a card has not been inserted pressing the 'SAVE CALIBRATION' key will display 'NO CARD'.*
3. *A backup copy of this data can be valuable in the event of a breakdown that requires switching to a spare unit.*
4. *Clearly label the data card with setup information.*

To LOAD Calibration

1. Insert a data card with previously saved calibrations on it into the data card slot.
2. Press the ► 'LOAD CALIBRATION' key.
3. A message 'PRESS AGAIN ALL RECORDS WILL RESET' will appear. Press the ► 'LOAD CALIBRATION' key again to load data.

! IMPORTANT

Calibration data saved with versions of VRC software **lower** than VRC 1.80 are not compatible with version 1.80 and will not load.

To SAVE RECORDS

All 24 trip records can be saved onto a data card. The saved data can be viewed using a PC with a PCMCIA card reader. Trip area and weight for up to 4 products are saved as well product total records.

1. Insert a data card into the data card slot.
2. Press the ► 'SAVE RECORDS' key.
3. If successfully saved a confirmation beep will sound and the message "RECORDS SAVED" will appear.

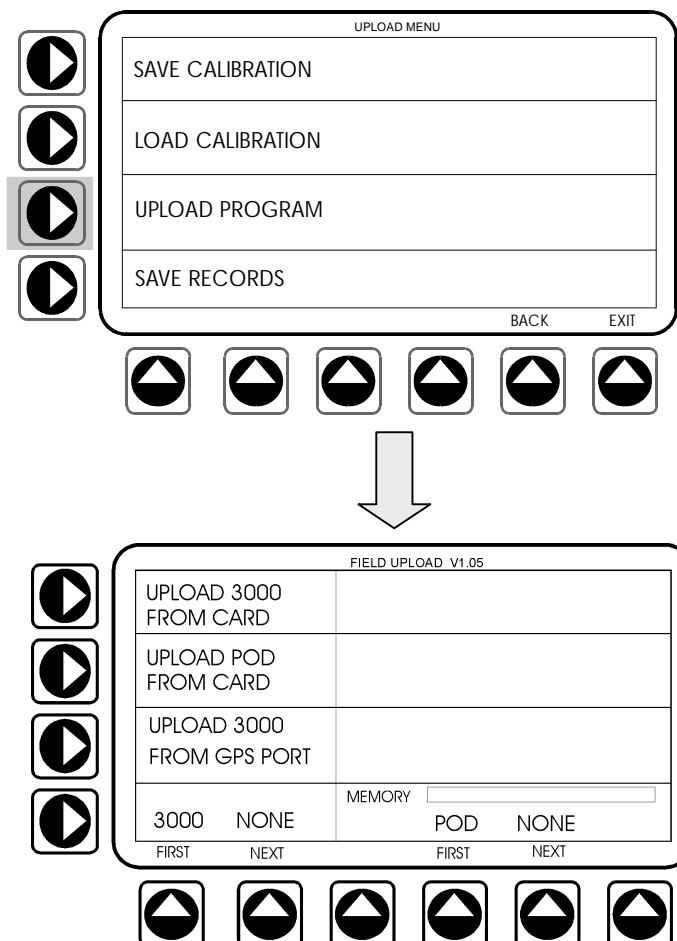
TIPS:

1. *If the load calibration process has been successful, a confirmation beep will be heard and the messages 'CALS LOADED', 'TRIPS LOADED' and 'PRODS LOADED' will be displayed in succession.*
2. *Loading calibration data will **reset all trip and product total records.***
3. *If a card has not been inserted or the inserted card is blank, pressing the 'LOAD CALIBRATION' key will display 'NO RECORDS'.*
4. *If updating programs and saving calibrations from multiple machines using one card, consult Computronics for special instructions.*

5.2 UPLOAD PROGRAM

New or updated product features can be uploaded into the canlink 3000 and POD from the Data Card or from a computer connected to the GPS/Serial port at the rear of the unit.

Press the ► 'UPLOAD PROGRAM' key in the upload menu to display the 'FIELD UPLOAD MENU'. The screen will momentarily turn black before displaying the field upload menu.



NOTE:

1. All processes will delete existing calibration and configuration settings. Save current calibration and configuration settings before proceeding. See Section 5.1.
2. To abort the 'UPLOAD' procedure, switch monitor off and then back on.
3. If power to the canlink 3000 is disconnected during 'UPLOAD', hold 'EXIT' key (right most horizontal softkey) and press 'ON/OFF' key. The canlink 3000 will switch on momentarily and switch off. Release 'EXIT' key and switch monitor 'ON' as per normal.
4. If there is no display, wait a few seconds and use RHS ◀ & ▶ arrow keys to adjust contrast.

To UPLOAD 3000 Program from Card

1. Insert the data card with the new software into the data card slot.
2. The contents of the data card showing the software file name for the canlink 3000 will be displayed on the bottom left hand side of the screen.
3. Select the software file to be uploaded by using the 'FIRST' and 'NEXT' keys under the word 3000 at the bottom of the screen to scroll through the contents.
4. Press the ► 'UPLOAD 3000 FROM CARD' key.
5. After programming has completed, press the 'EXIT' softkey to activate the new software.

To UPLOAD POD Program from Card

1. Insert the data card with the new software into the data card slot.
2. The contents of the data card showing the software file name for the POD will be displayed on the bottom right hand side of the screen
3. Select the software file to be uploaded by using the 'FIRST' and 'NEXT' keys under the words POD at the bottom of the screen to scroll through the contents. Eg V1.80
4. Press the ► 'UPLOAD POD FROM CARD' key.
5. After programming has completed, press the 'EXIT' key to activate the new software.

To Upload 3000/POD from GPS/Serial Port

1. Software available from Farmscan will allow the canlink 3000 to be uploaded with new or upgraded features using a computer connected to the 3000 serial port.
2. Press the ► 'UPLOAD 3000 FROM GPS PORT' key and follow the instructions supplied with the software for your PC.
3. After programming has completed, turn the canlink 3000 'OFF' and 'ON' to activate the new program.

5.3 Data Card Formatting Information

Type of Data Card Used

- Data cards must be 'S' RAM type 1MB or 2MB only.

Data Card Formatting

- New 'S' RAM data cards supplied by Computronics are fully charged and pre formatted under DOS.
- If using a Farmscan data transfer station (DTS) connected through the serial port of your PC, formatting is performed automatically.
- Data cards formatted under "WINDOWS" can not be read by the canlink 3000.

Data Card Reformatting

- If using a PC with a PCMCIA card reader for data transfer, the data card must not be re-formatted under "WINDOWS".
- If data cards require reformatting, it can be done by fully erasing the contents of the card using the canlink 3000, see previous section. Data cards erased by the canlink 3000 will be correctly formatted.

NOTE:

When a card is erased the time and date and the name of the active trip will be saved onto the card and will appear as the file name when viewing card content with a PC.

PC Operations and canlink Data

- Canlink data read directly by a PCMCIA data card reader is stored as a single 1mb or 2mb FARMSCAN.dat file block.
- Canlink programs or calibration data contained in a FARMSCAN.dat file may be stored on a PC as a backup and copied back to a formatted data card for uploading into the canlink 3000 at any time.
- To open files stored in a FARMSCAN.dat file block, your PC will require "WINDOWS 95" or higher and Farmscan "DATA MANAGER" software.

5.4 Data Card Operations with a DTS

Setting Up

- Connect the DTS to a serial **COM** port on your PC. Remember which COM port the DTS is connected to and switch on the DTS.
- While sending or receiving data make sure the com port settings is set to the com port the DTS is connected to and the communication rate to the DTS is set to **38400** bps.

Retrieving Data from a Data Card

- Insert a data card into the DTS.
- Open the Farmscan DM software package. Right click on a farm to import data to. Then click "Import 3000 data".
- Click on "Data Transfer Station". Make sure all the settings are correct and click the "Receive" button.

Sending Data from your PC to a Data Card Using the DTS

Data can be sent to a card in two ways: immediately after creating a VRC map where Farmscan Data Manager will take you through the steps; or through the "Card Layout Editor".

Through "Card Layout Editor":

- Insert a data card into the DTS.
- Open the Farmscan DM software package. Click on the "Utilities" menu and click "Card Management". Then click "Card Layout Editor".
- Click the "Add" button then locate the VRC file with extension .vrc. Finally click "Open".
- Once returned to the "Card Layout Editor" screen click "Add" to add another file or press "Transfer" to send the file to the card.

6.0 TROUBLESHOOTING

PROBLEM		CAUSE	REMEDY
1.	CANLINK 3000 DOES NOT TURN ON.	Canlink 3000 not connected correctly.	<ul style="list-style-type: none"> Connect black from loom directly to –ve side and red to +ve side of battery. Check there is 12V across the red and black power cables. See section 2.2.
		Interference	<ul style="list-style-type: none"> Make sure no other electrical device is connected to the canlink 3000 power cable. Do not share power with other devices.
		Poor battery connections.	<ul style="list-style-type: none"> Ensure battery terminals are clean & tight. Check in-line fuse holder (if fitted) for blown fuse or corrosion.
		Not enough power to the canlink 3000.	<ul style="list-style-type: none"> Run power cable directly to battery. Do not share power with other devices.
2.	CANLINK 3000 TURNS ON BUT NO DISPLAY ON SCREEN.	Contrast set too light.	<ul style="list-style-type: none"> Use RHS ▲ & ▼ arrow keys to adjust contrast. If no response, switch unit 'OFF' & 'ON', press ► arrow for 5 – 10 seconds.
3.	CANLINK 3000 TURNS ON AND DISPLAYS “ NO COMMS ” AND NOTHING ELSE WORKS.	Indicates break in communication from cab to POD.	<ul style="list-style-type: none"> Make sure wiring insulation has not worn through and been caught in moving parts.
		Dirty or faulty plugs.	<ul style="list-style-type: none"> Check the 25-pin connector at the rear of the canlink 3000 is firmly inserted and screws are tight. Check the tractor breakaway plug and socket for possible ingress of moisture during hose down. Check contact quality of all pins. Damaged or dirty pins may not give correct signal.
4.	CANLINK 3000 LOSING CALIBRATION VALUES. MESSAGE “CHECK CALS” APPEARS.	Poor battery connections	<ul style="list-style-type: none"> Ensure battery terminals are clean & tight. Check in-line fuse holder (if fitted) for blown fuse or corrosion.
		Interference	<ul style="list-style-type: none"> Ensure 2-Way and other electrical equipment positioned 1m away from canlink 3000. Message “EEPROM FAILED” indicates memory problem. Return for service.
5.	RELAYS IN POD KEEP CLICKING.	Low power to canlink 3000.	<ul style="list-style-type: none"> Ensure POD battery terminals are clean & tight. Ensure batteries are charged and in good condition. Ensure alternator is charging batteries.
6.	UNIT WILL NOT RECORD HECTARES.	Ensure at least one Bin is 'ON'.	<ul style="list-style-type: none"> See Section 3.11 Bin Control to turn bins 'ON'.
		Ensure canlink 3000 is not 'ON HOLD'.	<ul style="list-style-type: none"> See Troubleshooting 7 below.

PROBLEM		CAUSE	REMEDY
7.	UNIT WILL NOT COME OFF HOLD. "CLUTCH DISENGAGED"	Check fan RPM is above 'LOW ALARM' point.	<ul style="list-style-type: none"> See Section 4.3 to set or check fan RPM alarm points.
		Does the alarms window on the main screen display 'DEPTH HOLD'?	<ul style="list-style-type: none"> Make sure the ram position is above the 'HOLD' point. Reset 'HOLD' point if necessary. See Section 4.3. If 'DEPTH HOLD' is not used, disable feature. See Section 3.10.
		If not using an external clutch switch, make sure the 'CLUTCH INPUT' is disabled.	<ul style="list-style-type: none"> See "Section 4.2 CLUTCH to 'DISABLE' Clutch Input.
		Is ground speed less than 15 km/h?	<ul style="list-style-type: none"> Clutch will not engage if ground speed is above than 15 km/h.
8.	CANLINK 3000 DISPLAYS FAN SLOW OR FAN STOPPED AND WILL NOT COME OFF HOLD.	Check fan for correct operation.	<ul style="list-style-type: none"> Rectify as required.
		If display showing FAN SLOW: Fan speed correct but canlink 3000 reading incorrectly.	<ul style="list-style-type: none"> Check fan RPM 'LOW ALARM' point. Ensure gap between sensor and magnet is 10 – 15mm. Move sensor away from magnet until reading is stable. To continue operation set fan 'LOW ALARM' to 0. See Section 4.3.
		If display shows FAN STOPPED: Fan magnet is missing or incorrect distance from sensor.	<ul style="list-style-type: none"> Ensure gap between sensor and magnet is 10 – 15mm. Move sensor away from magnet until reading is stable. To continue operation set fan LOW ALARM to 0. See Section 4.3.
		Break in wiring loom.	<ul style="list-style-type: none"> Make sure wiring insulation has not worn through and been caught in moving parts. Check blue/white wire on pin J in 23-pin connector (right hand plug) to POD.
		Faulty sensor.	<ul style="list-style-type: none"> Unplug sensor from harness. Using a multimeter on resistance setting, check resistance across pins on sensor. Replace sensor if reading is more than 80 Ohms.
9.	CAN'T SET FAN LO OR AIR LO ALARM POINT	Air/Fan ' HI ' alarm point must be greater than ' LO ' point	Set HI alarm point above maximum operating point.
10.	CANLINK 3000 DISPLAYS FAN FAST ALARM.	fan RPM reading is double the actual speed.	<ul style="list-style-type: none"> Sensor is too close to the magnet. Move sensor away from magnet to a gap of 10 – 15mm or until reading is stable.

PROBLEM		CAUSE	REMEDY
11.	CANLINK 3000 DISPLAYS DEPTH HOLD AND WILL NOT COME OFF HOLD.	Incorrect 'DEPTH HOLD' setting. Optional function should be 'DISABLED' if not used.	<ul style="list-style-type: none"> Check 'DEPTH HOLD' setting. See Section 4.3.
		Faulty wiring.	<ul style="list-style-type: none"> Ensure inline power regulator to sensor is used. Check condition of wires to sensor. Check breakaway connectors in wiring loom. Check black/white wire on pin M in 23-pin connector (right hand plug) to POD. To Test Wiring <ul style="list-style-type: none"> Disconnect sensor from harness. Short black and black/white wires together. Display should show a 'DEPTH' position of 99. If reading does not go to 99, check for breaks in loom.
		Faulty sensor.	<ul style="list-style-type: none"> Use alarms menu to view live readings from the height sensor. Operate the hydraulic ram and make sure the readings change gradually. If no change in live readings, test sensor as follows: To Test Sensor <ul style="list-style-type: none"> Disconnect sensor from harness. If canlink 3000 displays a 'DEPTH' position of approximately 60, replace sensor. To continue operation, 'DISABLE' depth hold function and proceed working.
12.	CANLINK 3000 DISPLAYS AIR PRESS LOW OR AIR PRESS HIGH .	Incorrect air pressure alarm settings.	<ul style="list-style-type: none"> Check air pressure alarm setting. See Section 4.3.
		Faulty wiring.	<ul style="list-style-type: none"> Check condition of wires from sensor. Check breakaway connectors in wiring loom. Check violet wire on pin K in 23-pin connector (right hand plug) to POD. To Test Wiring <ul style="list-style-type: none"> Unplug sensor from harness and short violet and black wires together. Display should read 0 kPa pressure. If reading does not go to 0kPa, check for breaks in loom.
		Faulty sensor.	<ul style="list-style-type: none"> Use alarms menu to view live readings from the air pressure sensor. Operate the fan and make sure the readings change gradually. If no change in live readings, test sensor as follows: To Test Sensor <ul style="list-style-type: none"> Disconnect sensor from harness. If canlink 3000 displays an air pressure of 20 kPa, replace sensor. To continue operation, 'DISABLE' air pressure function and proceed working

PROBLEM		CAUSE	REMEDY
13.	UNSTABLE OR NO SPEED READOUT. (Can be checked by setting canlink 3000 to Distance and driving known distance)	Incorrect gap of sensor from magnet or target..	Proximity Sensor (3 wires) Ensure gap between sensor and targets is no more than 3mm. Reed Sensor (2 Wires) Ensure gap is 10 – 15mm from magnet.
		'WHEEL FACTOR' incorrect or zero.	See Section 4.4.
		Faulty sensor.	To Test Sensor (Proximity Type) -3 wires <ul style="list-style-type: none"> Check that the light on the sensor lights up every time the pick-up wheel is within 3mm of the sensor. If no response, use a multimeter to check for 12 Volts between red and black wires. If no 12 Volts is present, look for wiring fault. If 12 Volts is present, replace sensor.
			To Test Sensor (Reed Type) -2 Wires <ul style="list-style-type: none"> Check that sensor is within 10-15mm of magnets. Disconnect sensor and use a multimeter on Ohms range across sensor pins to check for continuity. Sensor reading should be open circuit. (no reading) Magnet in front of sensor should read closed circuit (full reading). If response incorrect, replace sensor.
14.	INCORRECT AREA. (Note: Records do not update whilst UNIT ON HOLD is displayed on the screen.)	Inconsistent speed.	<ul style="list-style-type: none"> Drive at consistent speed and check that readout is fairly stable. If speed readout unstable see troubleshooting 12. above.
		'WHEEL FACTOR' incorrect.	See Section 4.4 in manual and ensure wheel factor is calculated correctly.
		'WIDTH FACTOR' incorrect.	<ul style="list-style-type: none"> Is machine not overlapping or under lapping. Se section 4.4 "WIDTH FACTOR" and enter a realistic width.
		'DEPTH HOLD' setting (if used) is incorrect.	<ul style="list-style-type: none"> Check to see if the 'DEPTH HOLD' setting is correct ie unit not going on hold too soon. See Section 4.3 to set 'DEPTH HOLD'.
15.	NO READING FROM ANY SENSORS.	No connection between sensors and POD.	<ul style="list-style-type: none"> If none of the sensors are working, check for a break in the common Earth wire pin 'S' of right hand side 23 pin POD connector. Check condition of pins in the breakaway connectors in the wiring harness.
16.	PRODUCT SHOWS " NO CAL " WHEN BIN IS ACTIVATED.	No product calibration exists for the bin or 'DRIVE NOT SETUP'.	<ul style="list-style-type: none"> Perform product calibration as described in Section 4.5. Check 'SETUP' section 4.1.

PROBLEM		CAUSE	REMEDY
17.	CANLINK 3000 DISPLAYS "RATE 0 ALARM".	Ensure bins are switched to 'READY' in the main screen.	<ul style="list-style-type: none"> See Section 3.11 Bin Control to get Bins ready for seeding. Check pulse/kg factor is correct.
		Check target rate is not set to zero.	<ul style="list-style-type: none"> Enter appropriate application rate. See Section 4.5.
		HYDRAULIC MOTOR hydraulic motor operates at maximum speed but rate still remains zero.	<ul style="list-style-type: none"> Check gap between proximity sensor and feedback target disc to be < 3mm. Adjust if necessary. Rotate target disc manually and check that the light on the sensor lights up every time target passes the sensor. If no response, use a multimeter to check for 12 Volts between red and black wires. If no 12 Volts is present, look for wiring fault. If 12 Volts is present, replace sensor.
		GEARBOX ACTUATOR Linear actuator on gearbox moves to maximum rate but kg/Ha still remains zero.	<ul style="list-style-type: none"> Check gap between feedback proximity sensor and disc target to be 3 – 4 mm. Adjust if necessary. Rotate target manually and check that the light on the sensor lights up every time the pick-up disc is within 3mm of the sensor. Replace sensor if light fails to operate
		DC MOTOR Motor stops after a while. Thermal fuses controlling theseed meter motor keep tripping out .	<ul style="list-style-type: none"> Motor is under excessive load. CAUTION: DISCONNECT MOTOR Check for obstructions in metering unit and reset thermal fuses in POD by switching canlink 3000 off and then on.
		Motor stops immediately when activated. Thermal fuses controlling seed meter motor trip out immediately.	<ul style="list-style-type: none"> Check fuse in heavy power line at battery is not blown. CAUTION: DISCONNECT MOTOR Check for solid obstruction in metering unit. Causing thermal fuse to trip out instantly. Switch canlink 3000 OFF and ON to reset POD thermal fuses. To test motor disconnect motor from POD and test by connecting red and black motor wires direct to 12 volt DC battery. If motor ok look for a dead short across the motor power wires back to the POD.
		Gate actuator Gate actuator stops moving.	<ul style="list-style-type: none"> Gate may be jammed shut. Incorrect 'pulse/kg' factor. Check to see if actuator has stopped at full open or full closed position. Check 'pulses/kg' calibration factor is correct, see Section 4.5 "Gate Actuator". Check the operation of the actuator by following the Setup procedure as described in Section 4.1.
		Gate limits in 'SETUP' are set incorrectly.	<ul style="list-style-type: none"> If 'pulse/kg' factor is correct and target rate is realistic, check gate limits are set correctly. See Section 4.1.

PROBLEM		CAUSE	REMEDY
18.	CANLINK 3000 DISPLAYS "RATE LOW ALARM".	DC MOTOR or HYDRAULIC MOTOR Indicates that motor has reached maximum RPM and can not deliver required rate.	<ul style="list-style-type: none"> Operate at a slower speed or lower rate. Increase product delivery from rollers or change gearing of metering system and recalibrate metering system.
		GATE ACTUATOR Indicates gate may already be fully open or gate actuator is jammed.	<ul style="list-style-type: none"> When 'RATE LOW' message is displayed, stop machine and check if gate is physically at limit. If gate not at limit, gate may have jammed causing thermal fuses to trip out. Switch canlink 3000 'OFF' and 'ON' to restore operation. If gate at fully open position, maybe incorrect PULSE/KG factor or set rate is unachievable. Check 'pulses/kg' calibration factor is correct, see Section "Gate Actuator". Check the operation of the actuator by following the Setup procedure as described in Section 4.1.
		Gate limits set incorrectly.	<ul style="list-style-type: none"> If 'pulse/kg' factor is correct and target rate is realistic, check gate limits are set correctly. See Section 4.1.
		HYDRAULIC DRIVE Can not achieve the target rate.	<ul style="list-style-type: none"> Check 'pulse/kg' factor is correct. If operating at very low rates, close down metering system to operate at higher RPM ...Recalibrate.
		GEARBOX Cannot achieve the target rate.	<ul style="list-style-type: none"> Check that fittings on linear actuator controlling the gearbox are secure. If operating at very low rates, reduce delivery by closing down metering system or change gearing and RECALIBRATE.
19.	CANLINK 3000 DISPLAYS ERRATIC RATE OR RATE HIGH ALARM.	DC MOTOR or HYDRAULIC DRIVE. Indicates ground speed too slow or drive hunting.	<ul style="list-style-type: none"> Check calibrations are correct. If operating at very low rates, reduce product delivery to metering unit or change gearing then recalibrate. Maybe tight spot in metering unit causing erratic control. If 'HYDRAULIC DRIVE', check metering feedback sensor connections are good and adjustment of sensor is within 3mm of target and light on sensor flashes on every target. If 'DC DRIVE', check connections in 3 pin plug to motor and all wires back to POD. Fault could be motor RPM feedback inside motor, send motor for exchange/repair.
		GATE ACTUATOR Gate may be jammed.	<ul style="list-style-type: none"> See Troubleshooting 17 above.
20.	CANLINK 3000 SHOWS BIN (1-4) LIMIT .	Indicates Gate Actuator is fully open.	<ul style="list-style-type: none"> Check product calibrations. Redetermine 'pulse/kg' factor. See Section 4.5. Change target application rate.

PROBLEM		CAUSE	REMEDY
21.	BIN LEVEL SENSOR READS LOW.	Sensor uncovered.	<ul style="list-style-type: none"> Check bin to determine if sensor is getting uncovered prematurely. Reposition sensor.
		Sensor may be faulty.	<ul style="list-style-type: none"> Check to see if red LED is glowing at the cable entry side of sensor. If LED is on, covering sensor with your hand should cause the LED to extinguish. Replace sensor if LED fails to extinguish. Disable bin level sensor to continue working.
		Bin in air seeder is not being used.	Press 'BIN' key (3 seconds) to switch unused bin 'OFF' or Disable bin number to cancel bin Low warning.
22.	BIN SENSOR DOES NOT REGISTER WHEN EMPTY.	Sensor unplugged from harness.	<ul style="list-style-type: none"> Check wiring connections to bin sensor. Check the following pins and wires in the right hand connector (23 pin) to the POD for their corresponding bin level sensors: BIN 1 LEVEL SENSOR Blue wire Pin A BIN 2 LEVEL SENSOR Brown wire Pin B BIN 3 LEVEL SENSOR Green/Yellow wire Pin C BIN 4 LEVEL SENSOR Green wire. Pin D
		Sensor covered with material.	<ul style="list-style-type: none"> Clean unwanted material off sensor end. Make sure nothing is touching the sensor. Red LED at the cable entry side of sensor should glow with sensor uncovered.
		Sensor mounted too close to bin wall.	The bin sensor must be installed at least 100mm away from any adjacent sidewalls.
		Sensor may be faulty.	<ul style="list-style-type: none"> Check to see if red LED is glowing at the cable entry side of sensor. If LED is off, covering sensor or removing sensor from the bin should cause the LED to come on. Replace sensor if LED fails to come on. Disable bin level sensor to continue working.
23.	CANLINK 3000 DISPLAYS "RESET LOAD AREA".	Bin sensors are uncovered in unused Bins.	To cancel warning press 'RESET' key or disable unused bin number. See Section 4.3.
24.	CANLINK 3000 DISPLAYS "DRIVE (1-4) SLOW ALARM".	Indicates final metering drive is either slipping, has failed or drive ratio is incorrectly set.	<ul style="list-style-type: none"> Check correct gears, chains and sprockets and fitted and operating correctly. Check magnet on final shaft is not slipping or misaligned with drive ratio sensor. To Test Sensor (Reed Type) -2 Wires <ul style="list-style-type: none"> Check that sensor is within 10-15mm of magnets. Disconnect sensor and use a multimeter on OHMS range across sensor pins to check for continuity. Sensor reading should be open circuit. (no reading) Magnet in front of sensor should read closed circuit (Full reading) If response incorrect, replace sensor.
		Belt is slipping.	Check belt and tensioners for correct adjustments.
		Clutch not engaging	Check clutch is not slipping or failed.

PROBLEM		CAUSE	REMEDY
25.	CANLINK 3000 DISPLAYS “DRIVE FAST ALARM”.	canlink 3000 calibrated with incorrect ratio alarm point or wrong gear/sprocket selected.	<ul style="list-style-type: none"> Set correct ratio. See section 4.3. Make sure correct gear/ drive sprocket fitted, recalibrate ‘pulse/kg’ factor.
26.	TOO MUCH OR TOO LITTLE PRODUCT USED	Incorrect ‘WHEEL FACTOR’.	See troubleshooting 12 above.
		Incorrect ‘AREA’ recorded.	See troubleshooting 13 above
		Incorrect ‘PULSE/KG CALIBRATION FACTOR’	See Section 4.5 in manual.
		Incorrect gate limits set.	Reset the gate limits. See Section 4.1.
		Gate operating at significantly different height to calibration height.	Recalculate new ‘pulse/kg’ factor for new target. See Section 4.5 in manual.
27.	BIN IS SWITCHED OFF BUT PRODUCT IS STILL BEING METERED.	HYDRAULIC DRIVE controlling valve not shutting off.	<ul style="list-style-type: none"> Check for ingress of dirt in controlling valve. Check hydraulic fluid levels.
28.	CANLINK 3000 DISPLAYS GPS FAILED .	No GPS signal.	Check all connections to GPS receiver and antennae.
29.	CANLINK 3000 WILL NOT SWITCH ON AFTER POWER WAS DISCONNECTED DURING UPLOAD.	All memory from canlink 3000 has been erased and new data upload was interrupted.	<ul style="list-style-type: none"> If power to the canlink 3000 is disconnected during upload, hold ‘EXIT’ key (right most horizontal key at the bottom of the screen) and press ‘ON/OFF’ key Canlink 3000 will switch on momentarily and switch off. Release ‘EXIT’ softkey and switch canlink 3000 On as per normal Use ◀ & ▶ arrow keys to adjust contrast.
30.	CANLINK 3000 DURING POD UPLOAD DISPLAYS “TIMED OUT NO RESPONSE”	No comms between pod and canlink 3000. Due to power being disconnected from pod.	<ul style="list-style-type: none"> Disconnect power to pod. Hold down red button on pod while reconnecting power to pod. Repeat upload to pod procedure and message “WAITING ERASING” will be displayed Upload to pod will then commence