

Electro-Magnetic Compatibility (EMC)

This product complies with Council Directive 89/336/EEC when installed and used in accordance with the relevant instructions.

Service and Technical Support

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Our policy is one of continuous improvement and the information in this document is subject to change without notice. Check that the software reference matches that displayed by the instrument.

Document number

S/DC/500-10-216 : Issue 1 : 7/4/99

\\UK216-1.DTP

User Guide

CASE DIAMOND

Sprayer Controller

Calibration and Operation

Software Ref: UDM 361-2



Overview

The *CASE DIAMOND Spray Control* incorporates 4 boom section switches, automatic or manual rate control and a 4-digit LCD, 4-channel display module.

The application flow rate is controlled via a butterfly control valve returning excess liquid to the sprayer tank. The instrument functions on both balanced return and non-return sprayer systems.

When selected, automatic rate control maintains the application rate as close as possible to a programmable target rate. With either manual or automatic control, the display flashes a 'HI' or 'LO' warning as appropriate, if the actual application rate differs by more than $\pm 20\%$ of the target rate set.

Initial instrument settings are made in 'Calibration Mode'.

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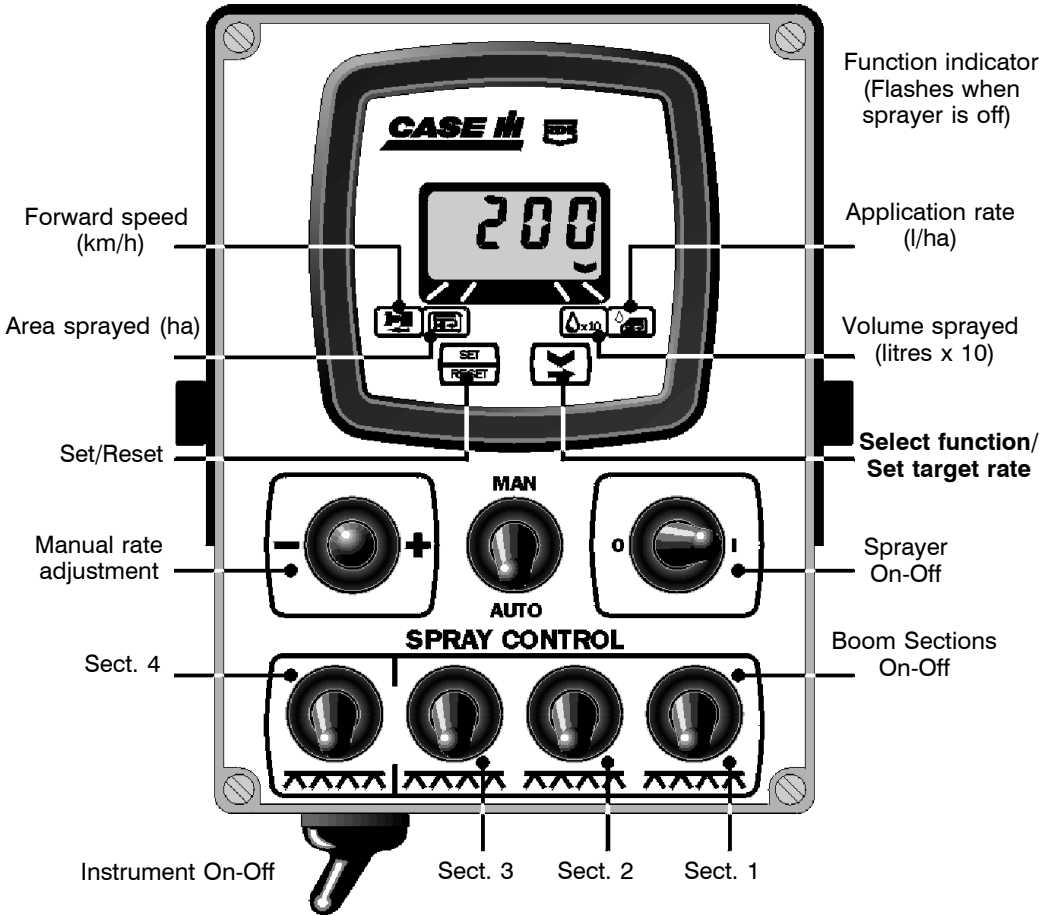
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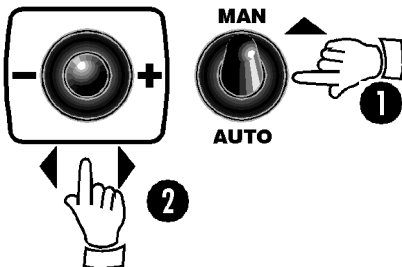
Calibration



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Manual rate control



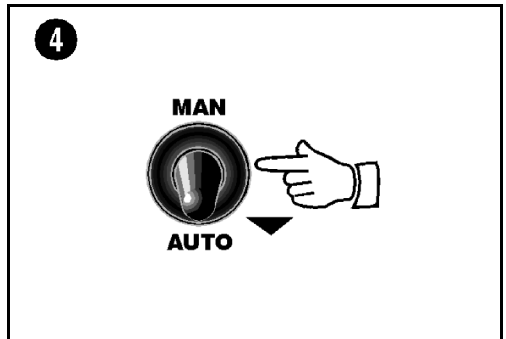
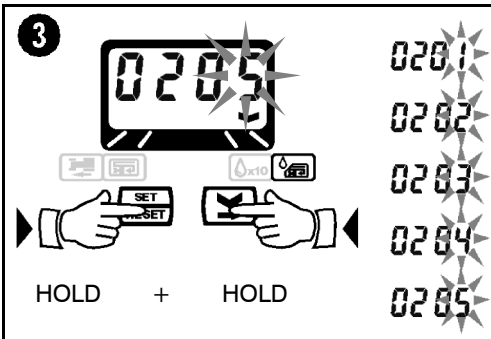
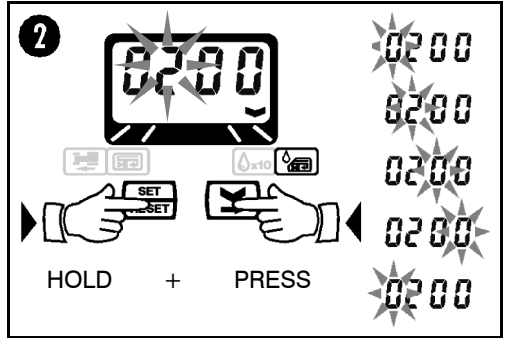
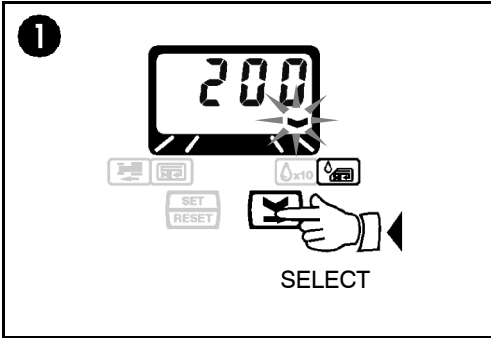
The application rate displayed is dependent on forward speed. If it varies more than $\pm 20\%$ of the target rate, the display defaults to  and flashes 'HI' or 'LO' accordingly. 


Use the **-/+** switch to manually adjust the rate.

Switching to **AUTO** mode reverts the application rate back to the preset target rate.

Operation

Automatic rate control - setting the target rate (litres/Ha)



The application rate is maintained at the target rate (within limits). If the rate cannot be maintained within $\pm 20\%$ of the target rate, the display defaults to  and flashes 'HI' or 'LO' accordingly.

Whilst spraying, the application rate can be altered to suit localised crop conditions by switching to MANUAL mode.

Reset area/volume total



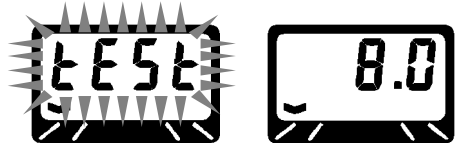
Select  or 



Hold for 5 seconds.


Set simulated speed


To do a calibration check of the spray nozzles while stationary in the yard, the instrument can be set to simulate a forward speed (8km/h). The application rate displayed can then be compared with the results of the nozzle test.





Switch off instrument or move vehicle to stop speed simulation.

Enter CAL mode/change settings

To enter CAL mode, press and hold  and switch on instrument.

Excepting the SPEED SENSOR FACTOR, to change settings, first press  to select channel.

PRESS  to SELECT a digit or decimal point - 0.200, 0.200,

HOLD  to CHANGE value or decimal place - 0.201, 0.202, 0.203, 0.204

The following calibration settings normally need be set only on installation, unless the instrument memory is subsequently corrupted for any reason.

Nozzle spacing

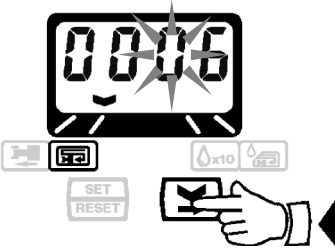


Set individual nozzle spacing in metres.
Default = 0.5m



Calibration

Nozzles per boom section

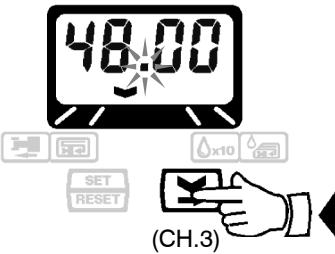


Programme each boom section by switching on individually and enter the corresponding number of nozzles.

If none or more than one section is switched on, the display will show '**1.SEC**'.

Default = 6

Flow sensor cal factor



The factor (pulses per litre) differs according to the flow sensor fitted and is based on clean water.

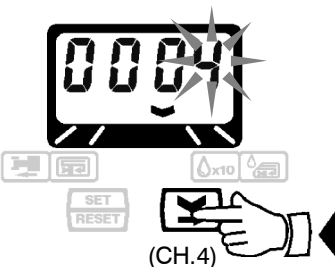
1" Delta Flow	48.00	
1/2"		3700
3/4"		1786
1"		650.0 = <i>Default</i>
1-1/2"		165.0
2"		100.0

Re-calibration may be required if the S.G. is significantly greater than 1.000 or if there is a consistent discrepancy between the volume total on the instrument and the actual volume discharged. To re-calculate the factor,

$$\text{New factor} = \frac{\text{Old factor} \times \text{Indicated volume}}{\text{Actual volume}^*}$$

*Measurements from the sprayer sight gauge alone may not be sufficiently accurate.

Minimum pulse length



This relates to automatic control performance. The pulse driving the flow control valve becomes shorter as the application rate nears the target rate. If the pulse is too short, the flow rate may not change sufficiently.

Default = 4

(This will normally ensure good performance but may be increased)

System response



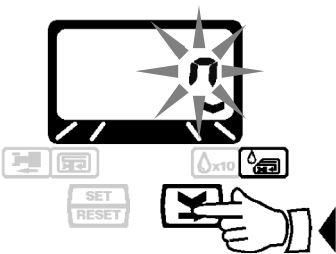
This number relates to incremental movement of the control valve - the smaller the number, the smaller the increment.

Small movements will make the system sluggish - increasing the time taken for the application rate to match the target rate.

Large movements will make the system unstable - the application rate will vary about the target rate.

May be set from 0-9999. *Default = 200*

Shut-off valve type




If each boom section valve simply shuts off the flow, set to 'n' for a non-recirculating system.

If each boom section valve when closed, diverts the flow back to the tank, set to 'r' for a recirculating 'balanced return' system.

Default = **n**

Speed sensor factor









This can be calculated and entered manually through it is recommended to AUTO-CALIBRATE. By either method, first select the  channel in operating mode. Default value = **2.000** (metres)

Manual calibration

If a two-magnet wheel sensor is fitted, drive in field conditions for exactly **10** turns of the sensed wheel.

$$\text{Factor} = \frac{\text{Distance travelled}}{\text{Effective tyre circumference}}$$



If a propshaft sensor is fitted, drive in field conditions for exactly **20** turns of the propshaft.     **10**    

$$\text{Factor} = \frac{\text{Distance travelled}}{\text{Effective tyre circumference}}$$

Calibration

Auto-calibration of speed sensor

It is recommended to do this in field conditions to account for wheel slip. The instrument must be in operating mode.

1 Place two markers 100 metres apart. Position the vehicle opposite a marker.

2  Hold for 5 seconds



3 Drive the test distance.

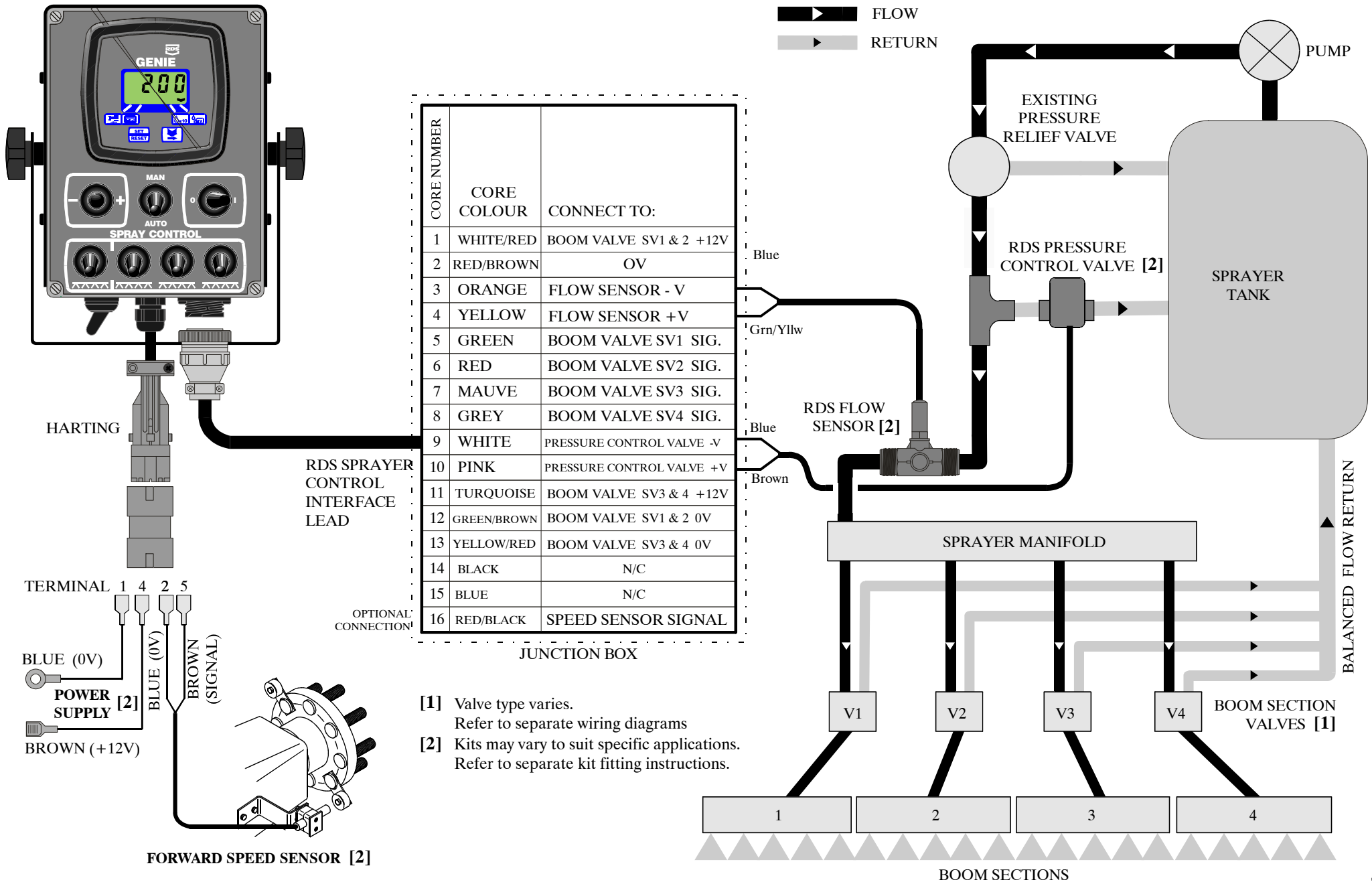
The sensor pulses are counted.

4 Stop with the same point on the vehicle opposite the second marker. Do not reverse if you overrun - repeat the procedure.

5 

The Speed Factor is calculated and displayed.

Your local distributor is:



COPY SEPERATELY AND TRIM BACK TO LINE. INSERT AND FOLD AT REAR OF BOOK.

Appendix 1 - Parts list

Kit Ref.	Key No.	RDS Part No.	Qty	Description
P/RDS/GENIE				Comprising:
	#	S/HU/267-1-001	1	Head Unit
	#	S/BK/262-016	1	Mounting bracket
	#	S/CB/262-1-020	1	Sprayer Interface cable
	#	S/CB/500-1-020	1	6A Power Supply lead
	#	S/DC/500-10-155	1	Instruction book
	#	S/DC/500-10-014	1	Warranty card (Ag)
	#	S/DC/500-10-015	1	Warranty card (Ind)
	#	S/DC/500-10-021	1	Windscreen sticker
	#	S/DC/500-10-005	1	Harting sticker
	#	S/FIXING/015	1	Harting Connector
K/WL/SNR				1 Wheel Sensor kit
K/FLOW/SNR				1 Flow Sensor Pickup kit
K/CNTRL/VLV-1				1 1" Control Valve kit

Note: '#' indicates a non-illustrated component