



Document Details	
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Approvals		
Department & Name	Signature	Date
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List of abbreviations:

- ST = Spread-Tec.
- AS = Agri-Spread.
- TBC = To be confirmed.
- N/A = Not applicable.
- MS = Mild steel.
- ZP = Zinc plated.
- SS = Stainless steel.
- Kph = Kilometres per hour.
- Mph = Miles per hour.
- mT = Metric tonnes.
- BOM = Bill of materials.
- ASA = Automatic slack adjuster.
- SA = Slack adjuster.
- Kg = Kilogram.
- Lb = Pounds.
- Hp = Horsepower
- HMI = Human Machine Interface (Control System Screen)
- ECU = Electronic Control Unit

Verbal forms:

- Shall = Indicates a mandatory requirement to be followed for fulfilment or compliance with the present standard. Deviations are not permitted unless formally and rigorously justified and accepted by all relevant contracting parties.
- Should = Indicates a recommendation that a certain course of action is preferred or particularly suitable. Alternative courses of action are allowable under the standard where agreed between contracting parties but shall be justified and documented.
- May = Indicates a permission, or an option, which is permitted as part of conformance with the standard.
- Operator = Person in charge of the safe operation of the product and its working environment.
- Machine = Binder spreader unit.
- Spreader = Binder spreader unit.
- Tractor = Vehicle used to draw a trailed spreader.
- Vehicle = Self-propelled vehicle used in conjunction with a mounted spreader.

Document References:

- ASD-00108_Binder Spreader, Mounted, MBM Range, Operator-User Manual
- ASD-00109_Binder Spreader, Trailled, TBM Range, Operator-User Manual

1 Introduction.

This guide is intended to illustrate the workings of the software and control system of the machine. It should illustrate the different functions of the machines control system, and the steps required to utilize each feature of the control system.

Spread-Tec reserves the right to modify the machinery, and the technical data contained within this manual without prior notice.

While every effort has been made in the production of this manual to ensure that the information contained herein is full and correct, Spread-Tec assumes no responsibility for errors or omissions.

Further to this, Spread-Tec assumes no liability for any damages that may result from the use of the information contained within this manual.



WARNING!

Before using this product, please read this manual with care. It has been purposely drawn up to necessary information for proper use, in compliance with basic safety requirements.

Note: This is a supplementary document to operator manuals ASD-000108 and ASD-000109. These documents contain important safety, operation and maintenance instructions which shall be read and fully understood, before using this document.

2 General Spread Instructions.

TBD from Operator Manual

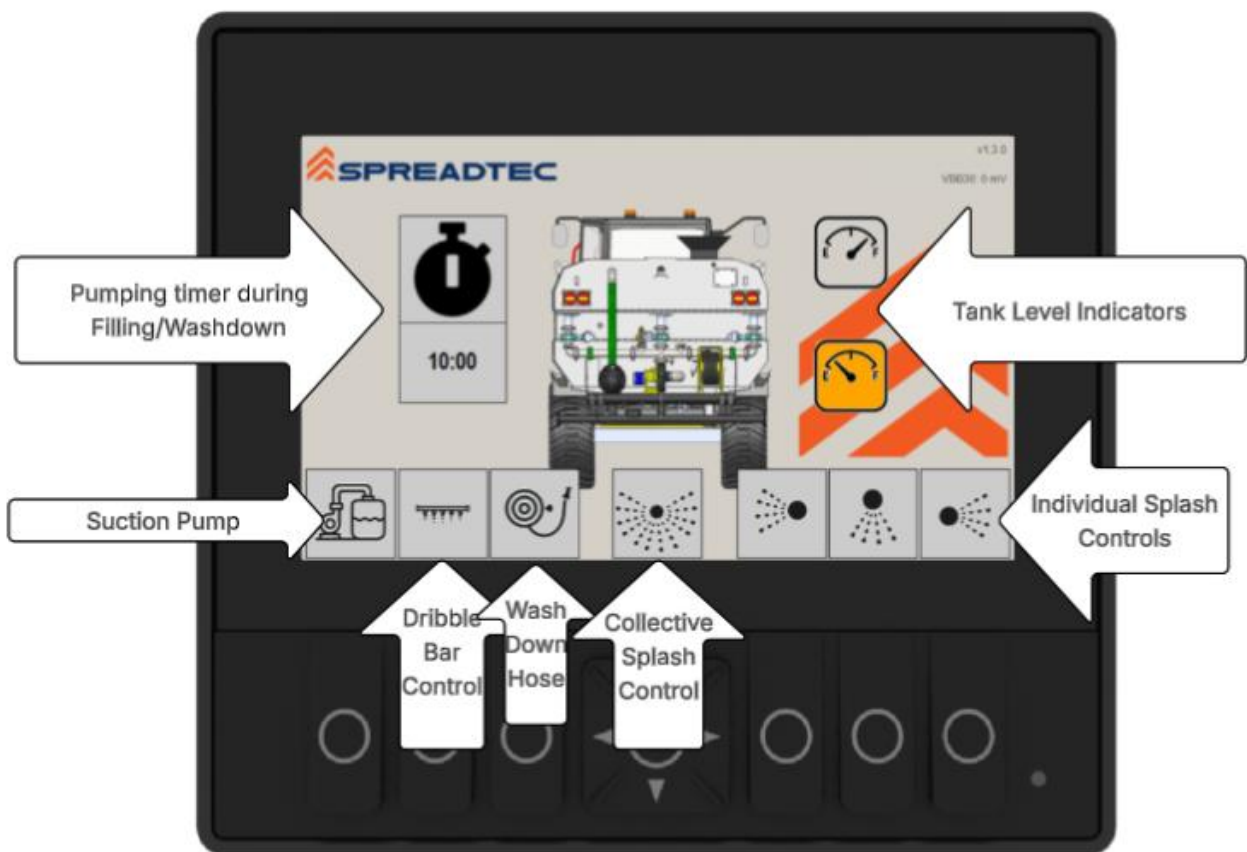
3 Powering Up the Control Screen.

The HMI (touchscreen) is powered up automatically when the main power switch in the cab is turned on.



The Main working page is shown once the system boots up. The system always starts in an OFF state. The system will not spread unless a function has been called by the operator.

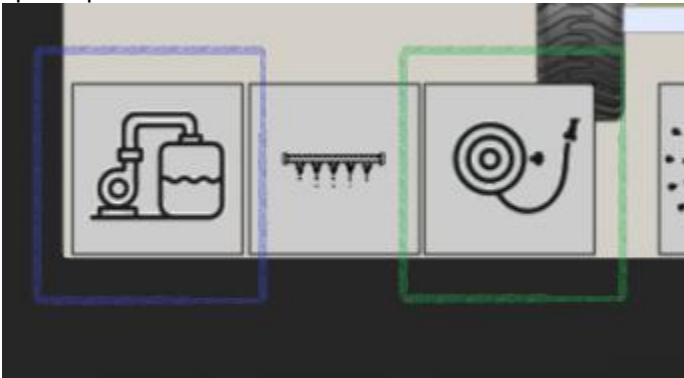
4 Main Working Screen.



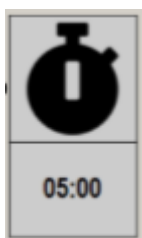
The Screen is simple and contains all the main functions of the machine.

Each of the splash controls can be controlled individually or also from the collective splash control button. The dribble bar has a dedicated button to control its operation.

The Fill Pump (Blue) and Hose Pump (Green) are controlled by dedicated buttons for each function. The splash plates need to be off for these functions to be activated.



The corresponding physical button below the icon will toggle the pump to ON/OFF. When on the highlighted pump function will change to green.



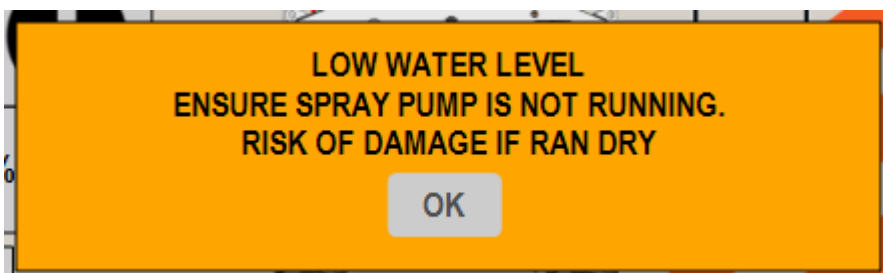
To change the time: Pressing and holding the Fill Pump button at the same time as toggling the UP/DOWN keys will adjust the time up or down accordingly.

When the pump is activated the timer will highlight to green and start to count down. The pump will stop when either the timer runs out, or when the empty or full level sensors are triggered. Any gate valves that are open will also close.

Note: The pumps can be activated again and valves opened after the sensor has been triggered. This should be used with caution when emptying the tank to ensure the pump is not ran dry!

Note: the selected pump can also be ran by the operation of the tipper control joystick in the cab. This overrides any of the water tankers control system so the operator needs to exercise caution when using the system this way!

When the Low level sensor is triggered, an audible alarm and warning are displayed.



This warning can be cleared by highlighting the OK button (pressing the down key will navigate to the button and pressing the ok key (the centre of the keypad). The operator can then restart the pump or splashplates after this warning is cleared.

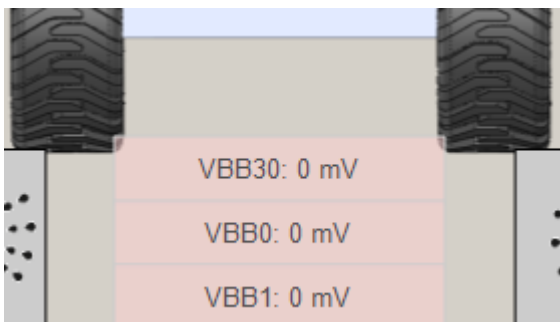


The level of water in the tank is highlighted by the low- and high-level indicators on the screen. The low-level indicator will be highlighted in amber when low. The high-level indicator will highlight green when full. The pump can be controlled via a remote push button at the rear of the machine. This can prove useful when filling is underway, and when using the spray hose at the rear of the machine. When this button is pressed the screen will show the following banner:



When this button is pressed the valves will also all default to the closed position.

Note: This button is not an emergency stop and should not be treated as one! The system will restart when this button is released!



The system will pop up diagnostic readbacks when it senses the voltage has dropped below an acceptable threshold. This could highlight a fault in the charging system of the machine or that the supply voltage is not as required. These readbacks should not be visible during normal operation.

Note: If the Rear Stop button is depressed, the feedback will show the voltage is ~0V on VBB0/VBB1!

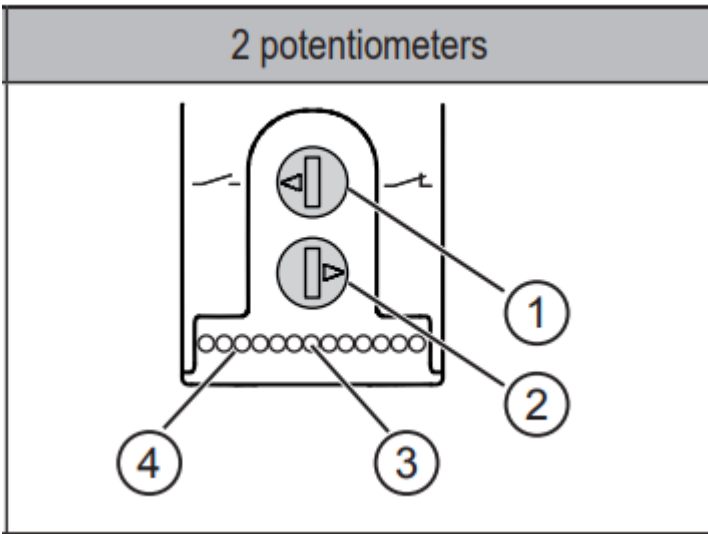
If the rear ECU for whatever reason becomes unresponsive, the HMI will display the following warning:



The system will default to an OFF state in this case.

5 Adjusting the sensor sensitivity.

The sensitivity of the sensors can be adjusted by a screwturn on the side of the sensor housing.



- 1: Potentiometer (switching function)
- 2: Potentiometer (sensing range)
- 3: LED yellow (switching status indication)
- 4: LEDs green (signal indication)

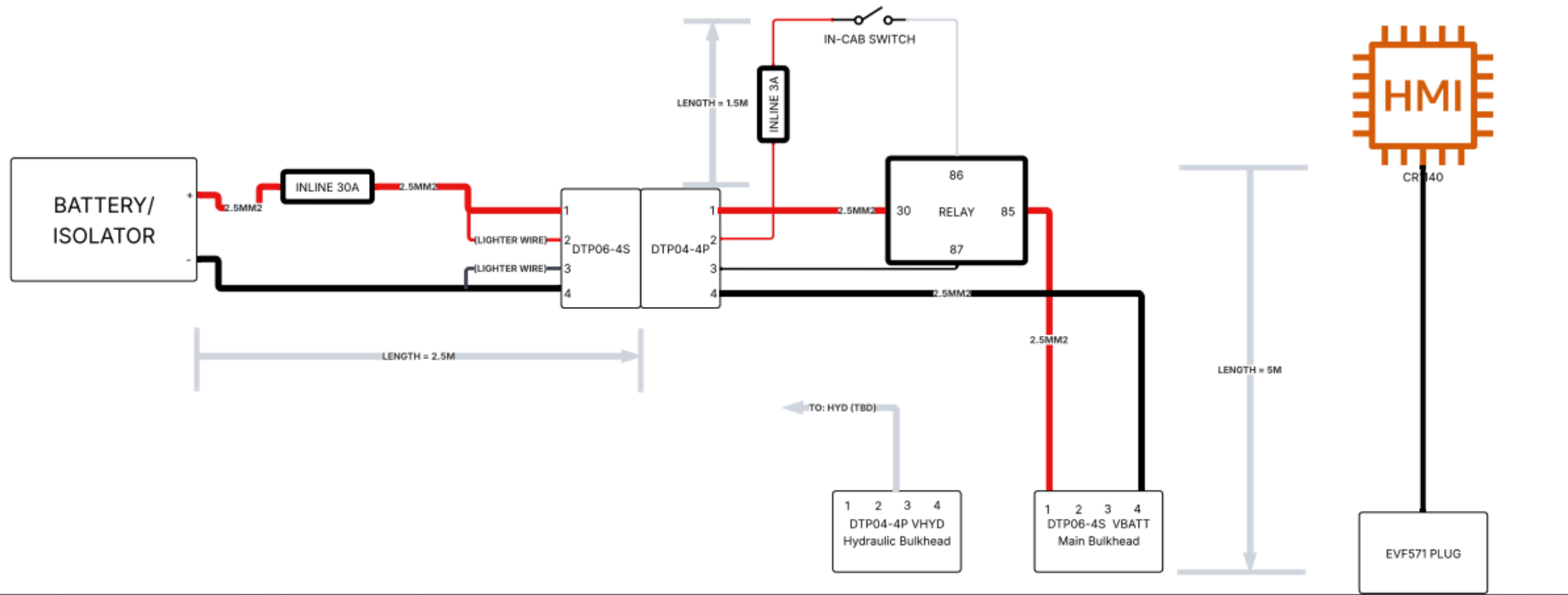
Use the potentiometer to set the sensing range: → 6 Operating and display elements (2)	
increase the sensing range	reduce the sensing range

LED yellow (3): switching status indication (centre)
LEDs green (4): indicate the distance to the switch point.

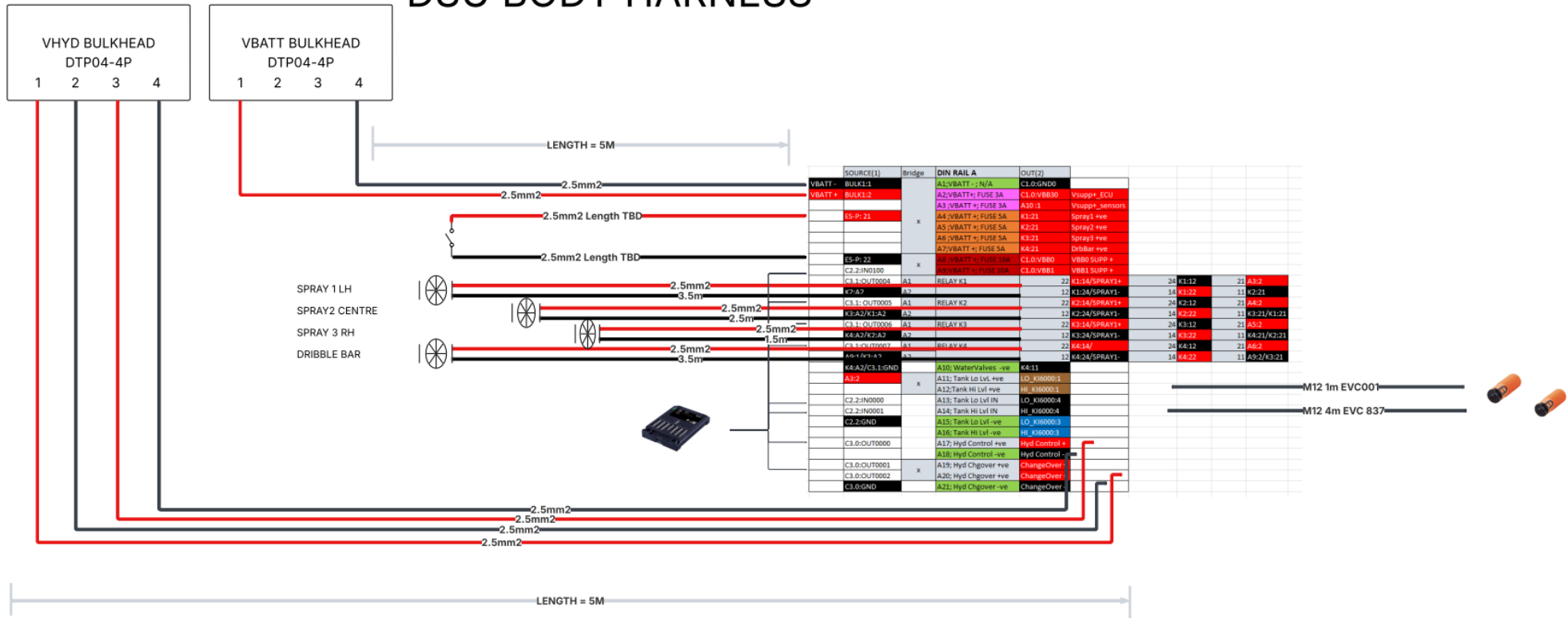
Optimum adjustment of the switch point:

6 Control System Layout.

WACKER NEUSON DV90 CHASSIS/CAB HARNESS



DSU BODY HARNESS





CR403S															
PLUG C1.1															
PLC Side		Receiver													
VBB30		CR1140 (CAN:2)	VBB30												
GND1		CR1140 (CAN:3)	GND												
CAN1_H		CR1140 (CAN:4)	CAN0_H												
CAN1_L		CR1140 (CAN:5)	CAN0_L												
PLUG C2.2		PLUG C2.1		PLUG C2.0		PLUG C1.0		PLUG C3.0		PLUG C3.1		PLUG C3.2			
PLC Side	Receiver	PLC Side	Receiver	PLC Side	Receiver	PLC Side	Receiver	PLC Side	Receiver	PLC Side	Receiver	PLC Side	Receiver		
VBB30		VBB30		VBB30		VBB30	A2:2	OUT0000	A17:1	OUT0004	K1:A1	OUT0100			
IN0000	A13:1	IN0200		IN0400		VBB0	A8:2	GND		GND		GND			
IN0001	A14:1	IN0201		IN0401		VBB1	A9:2	OUT0001	A19:1	OUT0005	K2:A1	OUT0101			
GND	A15:1	GND		GND		GND0	A1:1	GND	A21:1	GND	A10:1	GND			
GND		GND		GND		CAN0_H	CAN0_DT02:1	OUT0002	A20:1	OUT0006	K3:A1	OUT0102			
IN0100	A9:1 (Rear Stop Sense)	IN0300		IN0500		CAN0_L	CAN0_DT02:2	GND		GND		GND			
IN0101		IN0301		IN0501				OUT0003	Buzzer +	OUT0007	K4:A1	OUT0103			
VBB30		VBB30		VBB30				GND	Buzzer -	GND		GND			

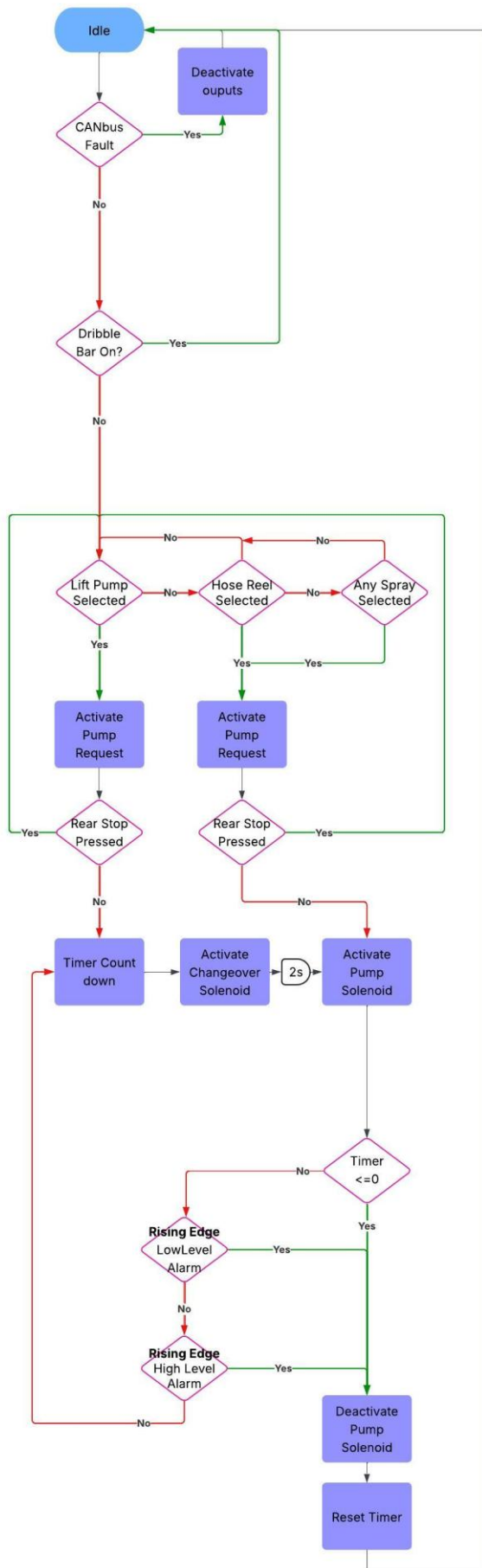


	SOURCE(1)	Bridge	DIN RAIL A	OUT(2)					
VBATT -	BULK1:1		A1;VBATT - ; N/A	C1.0:GND0					
VBATT +	BULK1:2	x	A2;VBATT+; FUSE 3A	C1.0:VBB30				Vsupp+_ECU	
			A3 ;VBATT +; FUSE 3A	A10 :1				Vsupp+_sensors	
	ES-P: 21		A4 ;VBATT +; FUSE 5A	K1:21				Spray1 +ve	
		x	A5 ;VBATT +; FUSE 5A	K2:21				Spray2 +ve	
		x	A6 ;VBATT +; FUSE 5A	K3:21				Spray3 +ve	
			A7;VBATT +; FUSE 5A	K4:21				DrbBar +ve	
	ES-P: 22		A8 ;VBATT +; FUSE 10A	C1.0:VBB0				VBB0 SUPP +	
	C2.2:IN0100	x	A9;VBATT +; FUSE 10A	C1.0:VBB1				VBB1 SUPP +	
	C3.1:OUT0004	A1	RELAY K1	22				K1:14/SPRAY1+	
	K2:A2	A2	RELAY K1	12	24	K1:12	21	A3:2	
	C3.1: OUT0005	A1	RELAY K2	22	14	K2:14/SPRAY1+	11	K2:21	
	K3:A2/K1:A2	A2	RELAY K2	12	24	K2:24/SPRAY1-	21	A4:2	
	C3.1: OUT0006	A1	RELAY K3	22	14	K3:14/SPRAY1+	11	K3:21/K1:21	
	K4:A2/K2:A2	A2	RELAY K3	12	24	K3:24/SPRAY1-	21	A5:2	
	C3.1:OUT0007	A1	RELAY K4	22	14	K4:14/	11	K4:21/K2:21	
	A9:1/K3:A2	A2	RELAY K4	12	24	K4:24/SPRAY1-	21	A6:2	
	K4:A2/C3.1:GND		A10; WaterValves -ve	K4:11	14	K4:22	11	A9:2/K3:21	
	A3:2	x	A11; Tank Lo Lvl +ve	LO_KI6000:1					
			A12;Tank Hi Lvl +ve	HI_KI6000:1					
	C2.2:IN0000	x	A13; Tank Lo Lvl IN	LO_KI6000:4					
	C2.2:IN0001		A14; Tank Hi Lvl IN	HI_KI6000:4					
	C2.2:GND		A15; Tank Lo Lvl -ve	LO_KI6000:3					
			A16; Tank Hi Lvl -ve	HI_KI6000:3					
	C3.0:OUT0000		A17; Hyd Control +ve	Hyd Control +					
			A18; Hyd Control -ve	Hyd Control -					
	C3.0:OUT0001	x	A19; Hyd Chgover +ve	ChangeOver +					
	C3.0:OUT0002	x	A20; Hyd Chgover +ve	ChangeOver +					
	C3.0:GND		A21; Hyd Chgover -ve	ChangeOver -					

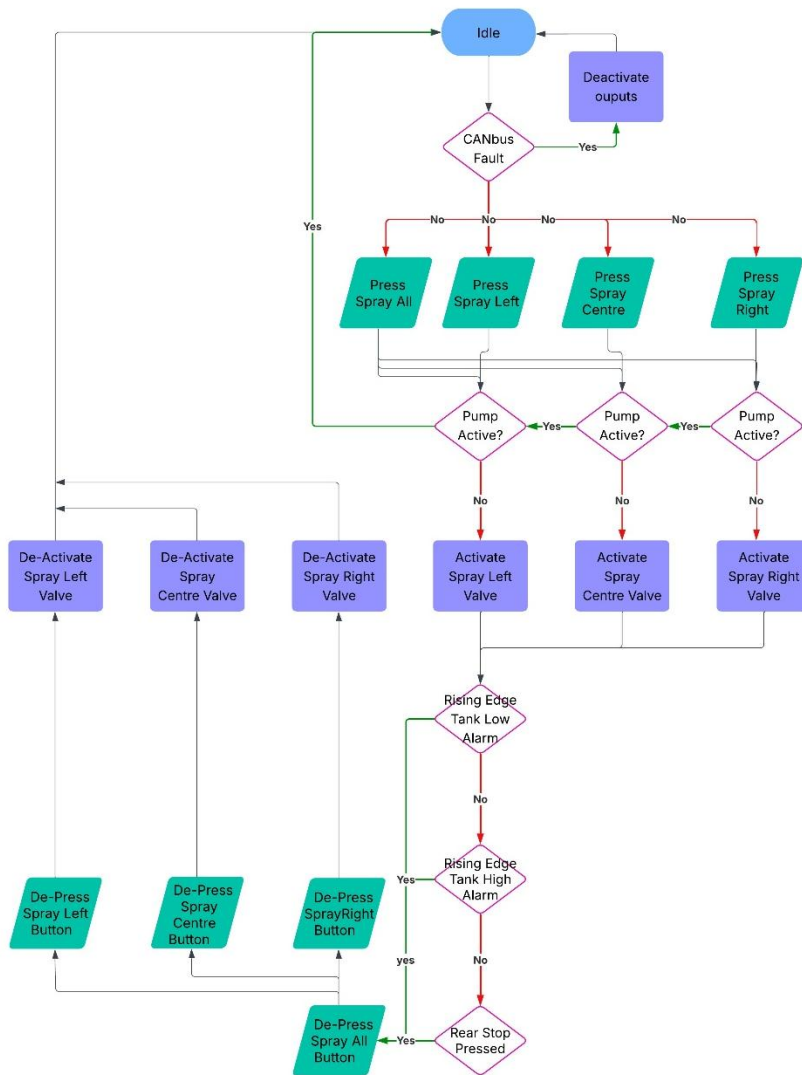
7 Control System Logical Flow Diagram.

Hydraulic Control Flow Diagram:

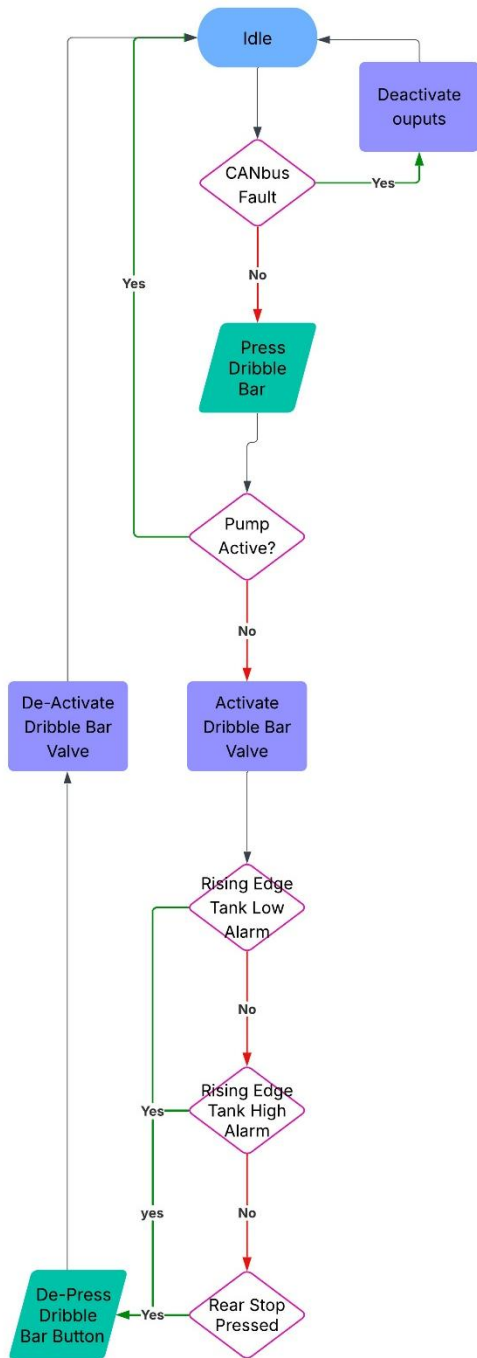
Hydraulic Valve Control



Valve Control Flow Diagram:



Dribble Bar Control Flow Diagram:





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