Quick Start Guide

Infinity Self-Propelled Crop Sprayer Sands Agricultural Machinery

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This document is intended as a reminder document for a fully trained operator to use certain functions of the machine. Always ensure that you are carrying out the procedures in a safe manner and when in doubt, either refer to the Operator Manual for a more thorough explanation or seek assistance.

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1.0 Service Guide

Note that to retain SAM, Deutz & Bosch Rexroth warranties, original replacement parts must aways be used.

Table 1: Service Guide

Daily for the first 5 working days check:	Wheel Nuts Torque Setting: - BR Wheel Motor & Planetary Gearbox M22 x 1.5	695Nm (513lbs. Ft)				
	Axle Bolts	450Nm (332lbs. Ft)				
	Track Rod Bolts					
	Boom Alignment (Including Boom Rests)					
	Lock Nuts on Main Folding Actuators					
Weekly Checks:	Grease All Grease Points	Grease All Grease Points				
,	Boom Alignment (Including Boom Rests)					
After 50 Hours:	Perform First Oil Change of Planetary Gearbox 10895					
	Sands Agricultural Machinery will carry out the first					
	oil change prior to Delivery					
Every 250 Hours						
Replace:	Suction Filter	10200				
	Return Filter	10201				
	Cab Filter	10545				
	O Ring (x2)	10305				
	O Ring Kit x2	10748				
Check:	Check Axle Bolts 450Nm (332lbs. Ft)					
	Boom Alignment (Including Boom Rests)					
After 500 Hours:	Perform Second Oil Change of Planetary 10895					
	Gearbox					
Every 500 Hours or Annually	Engine Oil Filter Stage V	1183574				
(whichever is first)	Engine Oil	10536				
Replace:	Diesel Pre-Filter	4504438				
	Secondary Fuel Filter (x2)	10641				
	Cab Internal Pre Filter	1182672				
	Air Circulation Filter	10641				
Every 1000 Hours or Annually	Perform Oil Change of Planetary Gearbox	10895				
(whichever is first)	Engine Oil Filter Stage V	1183574				
Replace:	Engine Oil	10536				
	Fuel Filter x 2	1182672				
	Diesel Pre-Filter	4504438				
	Engine Air Filter: -					
	Inner Safety Cartridge	10326				
	Outer Main Cartridge	10325				
	V Ribbed Water Pump / Alternator Drive Belt	01183382				
	Air Dryer Filter	10379				

Annually					
Replace:	Air Conditioning Belt	01180468			
Check:	Axle Bolts				
	Boom Rests				
	Boom Locks				
	Boom Alignment				
Every 2000 Hours or 2 Years	Deutz Engine Service – Valve Clearance	01183382			
(whichever is first) Replace:	V Ribbed Water Pump / Alternator Drive Belt	10533			
	Hydraulic Oil 200L	10583			
	Engine Coolant				
	Deutz Cooling System Conditioner	10583			
Every 3000 Hours Replace:	DPF Element Must Be Removed & Cleaned				
	Element 180Kw	2938194			

2.0 Armrest

The Armrest Panel possesses most of the regularly used machine controls and is used to dictate settings such as the machine speed, the transmission mode, the steering mode and the boom folding.



Figure 1: Armrest Assembly

2.1 Joystick

The Joystick's primary function is to dictate the machine's direction and speed, with the buttons and switches being used to control various functions of the machine depending on which transmission mode is selected. The joystick position is directly proportional to the machine velocity.



Figure 2: Joystick Button Layout

2.1.1 Road Mode

When the machine is in Road Mode, the joystick is capable of controlling the following functions on the allocated buttons. These are standard functions and cannot be configured;

Table 2: Joystick Button Allocation - Road Mode

Joy Stick Road mode only			
Buttons Function			
1	None		
2	None		
3	None		
4	Indicator LH		
5	Indicator RH		
6	None		
7	Main Beam On/Off		
8	None		
9	Camera		
10	None		

Note that when activated through the joystick, the indicators are not self-cancelling.

2.1.2 Field Mode

When the machine is in Field Mode and Manual Section Control is engaged, the joystick buttons control the designated functions as configured below. These configurations are set as per the machine specification and cannot be customised. There is also a corresponding status illumination on the Armrest Panel to indicate which sections are active (as located in Figure 1).

Joy Stick Manual Sections in Field mode only					
	Manual Sections Functions				
Buttons	3	4	5	6	7
1	Section 1 on/off	Section 2 on/off	Section 2 on/off	Section 3 on/off	Section 3 on/off
2	Section 2 on/off	None	Section 3 on/off	None	Section 4 on/off
3	Section 3 on/off	Section 3 on/off	Section 4 on/off	Section 4 on/off	Section 5 on/off
4	Contour LH	Contour LH	Contour LH	Section 1 on/off	Section 1 on/off
5	Contour RH	Contour RH	Contour RH	Section 6 on/off	Section 7 on/off
6	Boom Up	Boom Up	Boom Up	Boom Up	Boom Up
7	Boom Down	Boom Down	Boom Down	Boom Down	Boom Down
8	None	Section 1 on/off	Section 1 on/off	Section 2 on/off	Section 2 on/off
9	Spray on/off	Spray on/off	Spray on/off	Spray on/off	Spray on/off
10	None	Section 4 on/off	Section 5 on/off	Section 5 on/off	Section 6 on/off

Table 3: Joystick Button Allocations - Field Mode

2.2 Thumb Wheels

The thumbwheels can only be used when the machine is in Field Mode and should only be used when the booms are fully unfolded.

2.2.1 Boom Contour

On all machines, the contour actuator can be controlled by the associated armrest thumbwheel (Thumb Wheel #3 in Figure 3) or through the joystick (see Section 2.1 Joystick).

2.2.2 Boom Incline

On any machine fitted with Variable Geometry Inclines, the incline actuators can be manually controlled by two of the armrest thumbwheels; Thumb Wheel #1 (see Figure 3) controls the left hand incline actuator and Thumb Wheel #2 (see Figure 3) controls the right hand incline actuator. If a boom height



Figure 3: Thumb Wheels

control system is fitted, then this will automatically control both actuators when it is engaged.

2.3 Finger Switches

The operation of the Finger Switches will differ depending on the specification and requested functionality of the machine. Finger Switches without a designated function are not fitted. When they are moved to the left (towards the operator) the associated boom section will fold in. When moved to the right (away from the operator) the associated boom section will fold out.

Finger Switch Without Independent Boom Fold Boom Fold		With Independent Boom Fold (<30m)	With Independent Boom Fold (≥30m)	
Finger Switch #1	Main Section (12m)	Main Section (12m)	Main Section (12m)	
Finger Switch #2	Mid-Section (24m)	Mid-Section (24m)	Mid-Section (24m)	
Finger Switch #3	End Section (30/32/36m)	Mid-Section LH (24m)	End Section (30m)	
Finger Switch #4	Hydraulic Flip-Over (Optional)	Mid-Section RH (24m)	End Section LH (30m)	
Finger Switch #5	N/A	N/A	End Section RH (30m)	

Table 4: Finger Switch Operation Configuration

It should be noted that these finger switches are only functional when the transmission is in Field Mode and are isolated when the machine is in Road Mode.



Figure 4: Finger Switches

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2.4 Armrest Panel

The Armrest Panel contains a number of momentary push buttons that activate a range of machine functions including the transmission mode, the 4WS method and the spray line selection. The allocation number is to assist with verbal descriptions. For each button's location, see Figure 1.

Table 5: Momentary Button Functions

Allocation	Button	Function	Info
1		Park Brake	The Park Brake and Cab Access Ladder activation - requires a 2-second press to activate. When the ignition is turned off, the handbrake will engage and the ladder will lower. Park Brake On = Ladder Down Park Brake Off = Ladder Raised
2		Front Spray Line	The machine will spray using only the front sprayline.
3		Dual Spray Lines	The machine will spray using both the front and the rear spraylines.
4		Rear Spray Line	The machine will spray using only the rear sprayline.
5		Pump Speed 1	The main spray pump will operate at Set Speed #1. This button is non-functional and only serves to indicate the current system selection.
6		Pump Speed 2	The main spray pump will operate at Set Speed #2. This button is non-functional and only serves to indicate the current system selection.

7		Road Mode	Pressing this button will apply a set of preset parameters to the suspension, transmission, lights and joystick functions.
8		Field Mode	Pressing this button will apply a set of preset parameters to the suspension, transmission, lights and joystick functions.
9	ECO	Eco Mode	Pressing this button will allow the engine management system to vary the engine revs depending on the power required. When turned off, the operator has manual control of the engine speed.
10	A	Spare A	This is a spare button (depending on machine spec).
11	В	Spare B	This is a spare button (depending on machine spec).
12	C	Spare C	This is a spare button (depending on machine spec).
13		Engine Revs Increase	Increases the engine speed. In Eco Mode, this will increase the minimum engine speed.
14		Engine Revs Decrease	Decreases the engine speed. In Eco Mode, this will decrease the minimum engine speed.

15		Cruise Control	Engages the Cruise Control function (see Section 4.0 Cruise Control)
16	SET+	Increase Set Speed	Increases the Cruise Control Set Speed by 0.5kph.
17	SET-	Decrease Set Speed	Decreases the Cruise Control Set Speed by 0.5kph.
18	IM	4WS Maximum	Engages the 4WS Maximum mode.
19		4WS Speed Related	Activates the 4WS Speed Related engagement mode.
20	Ĩ;<<	4WS True Track	Engages the 4WS TrueTrack mode.
21	Ţ	4WS With Spray On/Off	Activates the 4WS With Spray On/Off engagement mode.
22	L	4WS Permanent	Engages the 4WS Permanent mode.

23		Main Tank	Shows that the pump is drawing from the main tank. This button is non-functional and only serves to indicate the current system selection.
24		Clean Tank	Shows that the pump is drawing from the clean water tank. This button is non-functional and only serves to indicate the current system selection.
25		Tank Wash	Shows that the machine is currently using the tank wash function. This button is non-functional and only serves to indicate the current system selection.
26	θ	Boom Lock	Engages the boom lock, preventing the boom from rolling. The Boom Lock is automatically controlled in conjunction with the boom fold functions.
27		Boom Unlock	Disengages the boom lock, allowing the boom to roll. The Boom Lock is automatically controlled in conjunction with the boom fold functions.
28		Headland Nozzle LH	Activates the LH Headland Nozzle (optional).
29		Headland Nozzle RH	Activates the LH Headland Nozzle (optional).
30		Headland Lift	Activates the Headland Lift Function (depending on machine spec).

31	ردوايه	Sprayline Blowdown	Engages/disengages the "Sprayline Blowdown" function (optional).
32		Smart Drive Locked	Engages the "SmartDrive" function (optional).
33		Smart Drive Unlocked	Disengages the "SmartDrive" function (optional).
34		Smart Drive Locked Spray On	Engages the "SmartDrive" function whenever the "Spray On" function is activated (optional).
35	D	Spare D	This is a spare button (depending on machine spec).
36	E	Spare E	This is a spare button (depending on machine spec).

2.5 Engine Speed Indicator Bar

These illuminated panels are a quick visual indicator of the engine rpm. Consisting of 6 individual panels, they illuminate proportionally in relation to the engine speed. A single illumination indicates low engine rpm with adjacent panels illuminating as the rpms increase.



Figure 5: Engine Speed Indicator Bar

2.6 Spray Section Indication

There are LED lights built into the armrest panel that indicate the status of each spray section in the spraylines. These are only available when manual sections are engaged. When the auto-section control is active, all the LEDs are illuminated.



Figure 6: Armrest Panel - Spraying Status LED Assignment

The number and sequence of spraying status lights will differ depending on the manual section configuration. The relationship between status lights and selection of manual sections is shown in Table 3.

Table 6: Armrest Spraying LED Illumination Logic

	Armrest LED Illuminations				
LED	3 Sections	4 Sections	5 Sections	6 Sections	7 Sections
#1	Off	Off	Off	On	On
#2	Off	On	On	On	On
#3	On	On	On	On	On
#4	On	Off	On	Off	On
#5	On	On	On	On	On
#6	Off	On	On	On	On
#7	Off	Off	Off	On	On
#8	Master	Master	Master	Master	Master
	On/Off	On/Off	On/Off	On/Off	On/Off

3.0 Four Wheel Steer

Whenever four wheel steer (4WS) is active and functioning correctly, a blue icon will be displayed on the overhead screen and an audible warning will sound. If there is an error with the 4WS system then this icon will be displayed in red. These icons are displayed in Figure 7.



3.1 Types of 4WS

Figure 7: Four Wheel Steer Icon

One of the following modes will have to be selected at all times and will be retained in the memory, irrespective of the engagement control option.

3.1.1 Maximum Steer

This type of 4WS is selected by pressing the associated button on the armrest panel (see Figure 8).

This method will result in the rear steering angle being equal to the front steering angle whenever possible. Due to the rear steering cylinder shorter stroke length, when it reaches its maximum stroke, it will then hold this position whilst the front steering cylinder can continue up to its maximum steering angle. When the front steer cylinder reduces past the rear steer cylinder's maximum stroke point, the rear steering cylinder will activate, once again mirroring the front steering angle.

3.1.2 TrueTrack

This type of 4WS is selected by pressing the associated button on the armrest panel (see Figure 8).

The main intent of this system is to ensure that the rear wheels follow the path of the front wheels as closely as possible in all turning circumstances, reducing tail swing and minimising crop damage.

Using SAM's True Track Algorithm, the rear wheels will track the path followed by the front wheels. In scenarios of tight turning, there may be a slight discrepancy due to the front axle steering cylinder having a longer stroke than the rear axle steering cylinder. In this scenario, the rear cylinder will hold its maximum stroke until the front steer cylinder reduces past this point again.

It is recommended that operators avoid reversing whilst TrueTrack is active as the steering delay of the rear wheels can be disconcerting and result in the machine being difficult to manoeuvre accurately.

3.2 Methods of 4WS Engagement

Please note that the 4WS system will only engage if the following safety criteria are satisfied:

- The machine speed is below the acceptable value.
- The front axle is in the straight-ahead position.

The 4WS system will only disengage when the rear axle passes through the straight-ahead position.

3.2.1 Foot Switch

Available in Road Mode (below 10kph) or Field Mode.

When the foot switch is depressed, the 4WS will engage as the front wheels pass through the straight-ahead position. Once the foot switch is released, the 4WS will remain engaged until the rear wheels pass through the straight-ahead position.

3.2.2 Speed Related

Only available in Field Mode. See Figure 8 for button visual.

Whenever the machine's forward speed drops below 12kph, the selected 4WS mode will engage.

If the machine is asked to accelerate past 12kph whilst the rear wheels are not in the straight-ahead position, the software will limit the speed of the machine to 12kph and bring the rear wheels back to the straight-ahead position. Once this has been completed, the machine will be allowed to accelerate further.

3.2.3 With Spray On/Off

Only available in Field Mode. See Figure 8 for button visual.

The engagement of the 4WS mode is linked to the Spray On/Off signal; when machine is spraying, the machine will be in 2WS and when it is off, the selected 4WS mode will be engaged. The 4WS will only engage/disengage when the rear axle passes through the straight-ahead position. The 4WS is not subject to a speed restriction.

3.2.4 Permanent

Only available in Field Mode. See Figure 8 for button visual.

When this button is selected and illuminated, the 4WS mode is permanently engaged with no speed restriction.

3.3 Transmission Modes

The selected driving mode will have an effect on the behaviour of the machine's 4WS mode.

3.3.1 Road Mode

TrueTrack is the only type of 4WS available when the machine is in Road Mode and must be engaged using the foot switch. Regardless of which settings are activated, if Road Mode is selected then the machine will turn off all other engagement modes and default to TrueTrack with Foot Switch activation.

When in Road mode, if the machine is asked to accelerate past 12kph whilst the rear wheels are not in the straight-ahead position, the software will limit the speed of the machine to 12kph and bring the rear wheels back to the straight-ahead position. Once this has been completed, the machine will be allowed to accelerate further.

3.3.2 Field Mode

As Field Mode limits the top speed to 20kph, all 4WS functions are permitted.



Figure 8: Four-Wheel Steer Buttons

4.0 Cruise Control

Cruise control is only available in field mode. The machine must be stationary for cruise control to activate. If the machine mode is changed whilst cruise control is active, then cruise control is deactivated. The speed set point is retained in the memory, regardless of mode changes or ignition cycles. Cruise Control can be de-selected whilst moving but will not be disabled until the machine has come to a stop.

Cruise Control can be used in either Manual or Eco mode.

4.1 Eco Mode

- Ensure the machine is stationary.
- Press the 'Cruise Control On/Off' button (see Figure 9 for visual) to activate the cruise control.
- Push joystick fully forward (if this is the first-time cruise control has been used, the machine will try to achieve the maximum field speed).
- Press 'Set -' to reduce the speed set point in 0.5kph increments (see Figure 9 for visual).
- Press 'Set +' to increase the speed set point in 0.5kph increments (see Figure 9 for visual).
- The set point can be adjusted whenever the cruise control is active; the machine does not have to be travelling.
- Pulling back on the Joystick will reduce the speed but only once the joystick has moved back beyond the set speed point.
- Pushing the joystick fully forward will resume the set speed.
- Press the 'Cruise Control On/Off' button (see Figure 9 for visual) to deactivate the cruise control.
- When re-activated, the previous set speed will resume.

4.2 Manual Mode

When in Manual mode, the machine will reach the requested set speed as long as the engine speed allows it. Note that a low engine speed can limit the machine's performance.

- Ensure the machine is stationary.
- Press the 'Cruise Control On/Off' button (see Figure 9 for visual) to activate the cruise control.
- Set the RPM as required.
- Push joystick fully forward (if this is the first-time cruise control has been used, the machine will try to achieve the maximum field speed).
- Press 'Set -' to reduce the speed set point in 0.5kph increments (see Figure 9 for visual).
- Press 'Set +' to increase the speed set point in 0.5kph increments (see Figure 9 for visual).
- The set point can be adjusted whenever the cruise control is active; the machine does not have to be travelling.
- Pulling back on the Joystick will reduce the speed but only once the joystick has moved back beyond the set speed point.
- Pushing the joystick fully forward will resume the set speed.
- Press the 'Cruise Control On/Off' button (see Figure 9 for visual) to deactivate the cruise control.
- When re-activated, the previous set speed will resume.



Figure 9: Cruise Control Buttons

5.0 Hydraulic Axle Width Change

The Hydraulic Axle is an optional extra and therefore is not available on all machines. Before starting a hydraulic axle adjustment, ensure you are in an area that's free of obstacles with enough room to drive forwards in a straight line.

5.1 Quick Fire - From the Main Page

- Ensure the machine is stationary and in Field mode.
- Enter the axle adjustment screen on the D14 overhead screen.
- Select one of the pre-set tracking widths or adjust the "Target Tracking" to the desired tracking width.
- Accept the tracking width.
- Drive forward, keeping the machine speed within the acceptable band.
- Once the machine indicates that it has reached the desired tracking width, bring the machine to a halt.

5.2 Brief Explanation

Once you have ensured the machine is stationary and in Field mode, navigate from the "Home" screen to the "Hydraulic Axle Adjust" screen - using the button highlighted in Figure 10.



Figure 10: Home Screen - Hydraulic Axle Adjustment

To adjust the tracking width of the hydraulic axles, enter the axle adjustment screen on the D14 overhead screen (see Figure 11).

Next, select one of the pre-set tracking widths or input the desired tracking width. There are four metric (1900mm, 2000mm, 2100mm, 2200mm) and five imperial (72", 76", 80", 84", 88") pre-saved tracking widths which can be toggled between using the "Imperial/Metric" button and selected using the corresponding button on the left-hand side.



Figure 11: Hydraulic Adjustment Screen

If the desired tracking width is different to the pre-saved tracking widths, use the rotating dial to change the "Target Tracking" metric until it reads the desired custom tracking width. Pressing the "Save Custom Width" button will commit this value to the machine's memory. Pressing the "Recall Custom Width" button will then recall this saved value regardless of mode changes or ignition cycles, until a new value overwrites it.

Once the desired tracking width is displayed in the "Target Tracking" box, press the "Accept Target Width" tick button then drive forwards, keeping the machine speed in the acceptable window - this is displayed in the "Adjustment Speed Window" with the bar turning green when the machine speed is acceptable and turning red if the speed is too high or too low. When the machine speed is within the tolerance window, the "Current Tracking" value will move towards the "Target Tracking" value. Once they are the same, both metrics will turn green. Note that there might be a discrepancy of up to 2.5mm between the target and tracking values due to the tolerance window. At this point, the machine can be brought to a halt and then continue its operations as usual.

6.0 Filling Station

The Filling Station is the area where the machine can be filled through various hose connections, instructed to pump out at the rear of the machine and where chemical can be added via the induction hopper.



Figure 12: Filling Station

Each of these functions are;

Boom Up/Down - activates the tele-ram to raise and lower the booms whilst the machine is in field-mode.

Hopper Up/Down - these buttons activate the hydraulics that raise and lower the induction hopper when the machine is in field-mode.

E-Taps Screen - used to control various functions of the sprayer by manipulating the electronic taps and the spray pump. These functions include filling, pumping out and agitating the main tank, hopper flow and fluid recirculation.

Hopper Light - toggles the light on and off to illuminate the filling station area.

Clean Power On/Off - toggles the clean water power fill pump on and off.

Prime Pump - cap can be removed so that water can be poured in to prime the 3" Fast Fill pump.

Clean Water Power Fill 2" - The connection point and isolating tap for the 2" Clean Water Power Fill function.

Clean Water 1" - The connection point and isolating tap for the 1" Clean Water function.

Fast Fill 3" - The connection point and isolating tap for the 3" Fast Fill function.

Self-Fill 3" - The connection point and isolating tap for the 3" Self-Fill function.

Power Fill 3" - The connection point and isolating tap for the 3" Power Fill function.

Induction Hopper - The induction hopper is the receptacle for chemicals that need to be added and incorporated into the main tank. Features of the hydraulically mounted 40-litre hopper include a ring rinse, two can wash nozzles, a hand lance and a regulation valve.

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7.0 E-Taps

7.1 Quick Start

Whilst a function is being performed, it is not possible to press Back or Escape to return to the home screen.

Stop the function to return to the home screen to choose another function.

If the valves need to change position or the pump speed is changed the function will stop temporarily before resuming.

7.1.1 Filling

Filling can take place from either the overhead display or the filling station display using either Self Fill or Fast Fill (if fitted).

- If using the front display enter the eTaps menu by pressing the eTaps button on the dashboard.
- Press either Self Fill or Fast Fill.
- The target volume is automatically set for a full tank. Press the up and down arrows to change the target volume. Holding the arrow key will increase the speed of change.
- When the target volume has been set press the ► button (for Self Fill) to start the function.
- The default pump speed is 1 but if required, press the pump speed button to cycle between pump speed 1 and pump speed 2.
- 50L below the target volume the pump speed will change to speed 1. There will be a small delay when this happens.
- To stop the function at any time before the target volume has been reached, press the **b**utton.

7.1.2 Using the Mixing Hopper

The mixing hopper can only be used from the filling station display and is accessed through the Self Fill function. It is possible to use the Induction Hopper function during Self Fill or independently.

- From the dashboard of the rear display press Self Fill.
- Press the ► button (for Induct Hopper) to start the function.
- Stop the Induct Hopper function at any time by pressing the **■** button.
- If Self Fill is already running when the Induction Hopper function is started then the pump will switch off, the valves will turn and after a small delay, the pump will start again. Self Fill will continue while Induct Hopper is being used. When the Induct Hopper function is stopped, Self Fill will continue as normal.

7.1.3 Agitation & Spraying

Agitation can be used from the overhead display or the filling station display. Spray can only be controlled from the overhead display.

- If using the front display enter the eTaps menu by pressing the eTaps button on the dashboard.
- Press Agitation.
- Press the ► button to start the function.
- If required, press the pump speed button to cycle between pump speed 1 and pump speed 2.
- Ensure the sections and master spray on/off are turned on at which point the automatic rate control will take over.
- A spray symbol will be shown on the front display.
- If the master spray on/off is turned off, then the Agitation function will continue to run.
- When finished, press the button to stop Agitation.

7.1.4 Showing the Dashboard & Rear Camera When Spraying

- While either running the Agitation function or spraying, press the homescreen button to return to the main dashboard.
- From the main dashboard press the Camera button to show the rear camera.
- To return to the eTaps display from the main dashboard, press the eTaps button.

7.1.5 Pumping Out

Pump Out can only be used from the filling station screen.

- Press Pump Out.
- Ensure that the end cap is removed and press the ► button to start the function.
- Change the pump speed if required by pressing the pump speed button.
- The Pump Out function will continue until the main tank is empty, at which point it will turn off automatically.
- Stop the Pump Out function by pressing the **■** button at any time.

7.1.6 Flush the Booms

Boom Flush can only be used from the overhead display.

- Enter the eTaps menu by pressing the eTaps button on the dashboard.
- Press Boom Flush.
- Ensure the manual sections and the master spray on/off are all on.
- Select manual control on the rate controller.
- Press the **>** button to start the function.
- Adjust the pressure via the rate controller.
- If required, change the pump speed by pressing the pump speed button.
- The Boom Flush function will continue until the clean water tank is empty, at which point it will turn off.
- Stop the Boom Flush function by pressing the **■** button at any time.

7.1.7 Transferring the Clean Water Tank into the Main Tank

Clean Water Transfer can only be used from the overhead display.

- Enter the eTaps menu by pressing the eTaps button on the dashboard.
- Press Full Wash.
- Press the **>** button (for Clean Water Transfer) to start the function.
- The Clean Water Transfer function will continue until the clean water tank is empty, at which point it will turn off automatically.
- Stop the Clean Water Transfer function by pressing the **■** button at any time.

7.1.8 Performing a Full Wash

Full Wash can only be used from the overhead display.

- Enter the eTaps menu by pressing the eTaps button on the dashboard.
- Press Full Wash.
- Select manual on the rate controller
- Press the ► button (for Full Wash) to start the function.
- Adjust the pressure via the rate controller to the appropriate spray pressure to ensure that the main tank is fully washed.
- Continue until a suitable wash has been achieved.
- Stop the Full Wash function by pressing the **u** button at any time else it will turn off when the tank is empty.

7.2 Trouble Shooting

Before continuing with any of the instructions below, a SAM service engineer must be called.

7.2.1 Isolating the Spray Tank

The primary method of isolating the spray tank is to turn the isolation tap that is located on top of the tank (see Figure 13) to the closed position.

Should this not function as intended, the spray tank can also be isolated by manipulating the e-taps;

- Using the rear display press the Self Fill button.
- Press ► on Self Fill.
- Press ► on Induction Hopper.
- This will turn the valves into a position that prevents the tank syphoning out via the 3" filter on the left-hand side.
- Close the tap above the pump on the right-hand side to isolate the spray tank from syphoning via the pressure filter and booms.



Figure 13: Main Tank Isolating Tap

7.2.2 Forcing a Tank Overfill

When the tank contents reach 100% of the tank volume all filling methods will stop. It is possible to force the machine to continue filling up to the calculated absolute maximum tank volume. Software must be at version V7F or later.

- Using the rear display press the Self Fill button.
- Press and hold button 3 (unlabelled) to force the machine to continue filling.
- Continue holding button 3 until all required filling has completed.
- During forced fill the target volume changes to show the calculated absolute maximum tank volume.
- Force fill is only possible in speed 1.

7.2.3 Manually Turning the Electric Valves

If an electric valve is at fault the machine will not function.

- Disconnect the communication cable from the electric valve that is at fault.
- Using a 5mm hex key remove the collar and pull the motor from the valve assembly.
- Using a 12mm hex key rotate the ball until it is facing in the correct orientation. Use the details on the next page to determine the direction required.
- Fit the motor to the valve assembly and tighten the collar.

7.2.4 Bypassing Errors

If an electric value is at fault the machine will not function. By bypassing errors any values which have not failed will function as normal.

- Ensure that the valve has been turned into the correct position using the previous instructions.
- On the rear display enter the settings page by press the OK and ESC buttons. Any valves shown in red have failed.
- Press all four main buttons on the rear display to allow a function to run. The display will change to say "Function Error Override".
- This will allow a single function to be performed. If a second function is required then these steps must be repeated.

7.2.5 Valve Positioning

The default position (0°) for each value is shown below in Figure 14 (note that in the illustration the motor is closest to the camera and the decal has been moved for better visibility).



Figure 14: Electric Valve Default Positions

For each function the valves should be turned to the positions stated in Table 7.

Table 7: Valve Positions per Function

Function	EV1 (deg)	EV2 (deg)	EV3 (deg)	EV4 (deg)
Self Fill	N/A	0°	90° CW	0°
Induction Hopper (during Self Fill)	N/A	0°	0°	0°
Induction Hopper (independent)	0°	90° CW	0°	0°
Fast Fill	N/A	N/A	N/A	N/A
Boom Flush	90° CW	90° CW	90° CW	0°
Tank Transfer	90° CW	90° CW	90° CW	0°
Full Wash	0°	90° CW	90° CW	0°
Agitate	0°	90° CW	90° CW	0°
Pump Out	0°	90° CW	N/A	90° CW

8.0 Overhead Screen

In the Cab, the overhead screen controls many functions including the axle width, cab lighting and diagnostics information. The buttons are referred to as depicted in Figure 15. Table 8 Expands on this with their full name and a description of each button's permanent or commonly designated function.



Figure 15: DI4 Button Layout

Table 8: DI4 Button Descriptions

Reference	Name	Function
L1	Left Hand Button 1	Rear View Camera
L2	Left Hand Button 2	Usually front work lights (but varies depending on the current screen)
L3	Left Hand Button 3	Usually rear work lights (but varies depending on the current screen)
L4	Left Hand Button 4	Usually flashing beacon lights (but varies depending on the current screen)
L5	Left Hand Button 5	Usually boom lights (but varies depending on the current screen)
L6	Left Hand Button 6	Usually side cab lights (but varies depending on the current screen)
R1	Right Hand Button 1	Varies depending on the current screen
R2	Right Hand Button 2	Varies depending on the current screen
R3	Right Hand Button 3	Varies depending on the current screen
R4	Right Hand Button 4	Varies depending on the current screen
R5	Right Hand Button 5	Varies depending on the current screen
R6	Right Hand Button 6	Diagnostics
R7	Home	Returns to the home screen
R8	Escape/Back	Goes back to the previous screen
R9	Rotary Push Button	Scrolls through options when rotated and selects them when pushed

9.0 Calibrations

9.1 Ride Height / Suspension Sensors

These four sensors (SAM Part No: H1532-00) are the ones that control the ride height of the machine. If one or more of them fails then an error message will appear on the DI4 Overhead Screen and you may notice the machine behaving differently as it is unable to adjust the hydraulic suspension struts.

- Ensure the machine is turned off.
- Remove the failed sensor and replace it with the new one.
- Start the machine as usual and allow it to go through it's boot up sequence.
- Enter the calibrations page and choose the "Ride Height Calibration".
- Press and hold the down button until all four values settle at or near to zero.
- Press the "Calibrate" button all four values should turn green for 3 seconds before turning white again.
- Press and hold the "Ride Height" button until all four values turn green.
- Return to the homepage and continue operations as normal.

9.2 Hydraulic Axle Width Sensors

These four sensors (SAM Part No: H1532-00) are the ones that control the sliding axle and therefore the tracking width of the machine. If one or more of them fails then an error message will appear on the DI4 Overhead Screen and you may notice the machine behaving differently as it is unable to adjust the hydraulic axle.

- Ensure the machine is turned off.
- Remove the failed sensor and replace it with the new one.
- Start the machine as usual and allow it to go through it's boot up sequence.
- Enter the calibrations page and choose the "Hydraulic Axle Calibration".
- Slowly drive forward, holding the "Retract All" button until the values turn green.
- Bring the machine to a stop and press the "Calibrate" button all four values should turn green for 3 seconds before turning white again.
- Return to the homepage and continue operations as normal.

10.0 Fuses & Relays

The fuses and relays have been selected to protect their relevant circuits from excessive power surges that could otherwise damage the electronic components. As such it is imperative that a replacement fuse the same grade as the original. Any deviation from the designated fuse rating could result in damage to the electrics or the machine that won't be covered by the warranty.

Always ensure the machine is switched off and isolated before touching any electrical components.

10.1 Cab

The cab fuses can be found on the right-hand side of the cab floor and are most easily accessed from outside the machine, through the opened right-hand cab door. The majority of the machine's fuses are located here.

10.2 Cab Roof

There are a number of fuses located within the cab roof that protect the cab electronics such as the radio, work lights, internal cab lights, fridge unit and overhead screen. These can be accessed by removing the overhead panel from inside the cab.

10.3 Battery Compartment

There are two fuses within the battery compartment; one is the permanent fuse, the other is the ignition fuse.

10.4 Spraypack ECU Box

There are a number of fuses located within the ECU box to protect the relevant circuits.

10.5 Backframe ECU Box

There are a number of fuses located within the backframe box which protect the backframe functions such as the boom hydraulic solenoids, the boom height sensors and the backframe lights.