

Press-Out Ink Dispensing System



VALE-TECH LIMITED

Unit 12, Depot Road, Newmarket, Suffolk, CB8 0AL, UK

Tel: +44 (0) 1638 668583/668593

Fax: +44 (0) 1638 676720

E-mail: sales@vale-tech.co.uk

Introduction

This manual provides the user with a comprehensive guide to the Pressout Dispenser. It covers various machine configurations, with regard to the number and type of ink stations, and dispense vessels used.

The Pressout Dispenser comprises up to 40 ink containers housed within the machine frame, each with a capacity of 20-100 litres.

Bulk dispensing from 200kg drums can be incorporated using pressout drum dispensing systems sited alongside the main Pressout Dispenser. These may be linked to high or low pressure expansion containers mounted in frames alongside the machine.

The Pressout Dispenser can dispense formulations from 100g up to a weight of 50kg dependant upon specification. The dispense operation is controlled by the PC using Vale Tech's Ink Manager Software. The configurations incorporating all container and dispense valve options are described in this manual.

The manual identifies the requirements for the initial installation of the machine and continues to provide information for the effective operation of the machine on a day-to-day basis including maintenance which ensures a high standard of ink dispensing can be consistently achieved.

The Service section of the manual enables the user to identify spare parts that may need to be ordered for the machine. This product has been manufactured to the highest standards; however, should any difficulties arise, before requesting technical support, a speedier resolution may be reached by referring to the troubleshooting guide. A full set of drawings is also provided to assist in fault finding in the unlikely event of the product developing a fault.

A guide to the Ink Manager software is provided. This describes how it controls machine functions, dispensing ink and the creation and saving of formulations, and provides the user with various levels of stock control options.

The service log at the back of the manual provides contact information. Should assistance be required please refer to the details supplied within this section. Forms available in this section allow the service history of the machine to be recorded for reference.

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Declaration of Conformity & Quality

Vale-Tech Limited Hereby Declares That

Machine:

Project:

Is in conformity with the provisions of the machinery directives as listed below: -

The Machinery Directive, 98/37/EC – “Machinery is described in the Directive as "an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, etc., joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material". The manufacturer is responsible for verifying whether a particular product falls within the scope of the Machinery Directive.”

The Pressure Equipment Directive, 97/23/EC – “ The directive provides control over equipment subject to pressure” Pressure equipment being vessels, piping, safety accessories and pressure accessories. A pressure assembly being several pieces of pressure equipment assembled to form an integrated functional whole.

The EMC Directive, 89/336/EEC – “The Directive applies to most electrical and electronic apparatus, that is, finished products and systems that include electrical and electronic equipment.”

The Low Voltage Directive, 73/23/EEC – “Broadly the Regulations apply to most consumer, commercial and industrial electrical equipment designed for use within the voltage ranges 50 V ac to 1,000 V ac and 75 V dc to 1,500 V dc.”

Remarks & restrictions for this declaration

This declaration is no longer valid if any changes are made to the machine, which is not corresponding to the abovementioned standards.

Place and date:

Newmarket

G Adlem:

Mechanical Engineering

C Stapleton:

Electrical Engineering

M Hughes:

Director

N Scott:

Director

Representing:

Vale-Tech Ltd
12 Depot Road
Newmarket
Suffolk CB8 0AL
United Kingdom



USER MANUAL

1 Installation

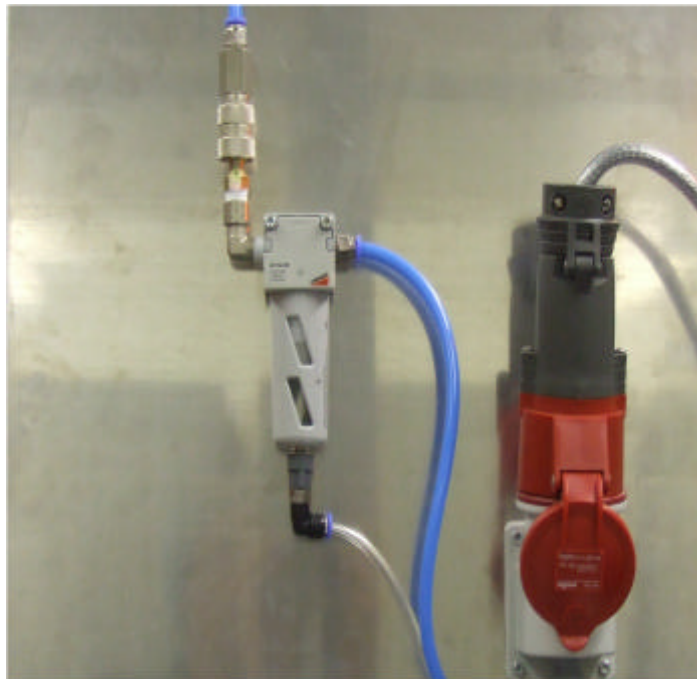
1.1 Connection Requirements

1.1.1 Electrical Supply

The mains power supply, 3phase, 415volts, 6amp neutral and earth, enters the machine at the end panel above the services cabinets, alongside the incoming air supply. This is connected to the mains power control box located inside the top services cabinet, and feeds a 240volt single phase supply to the internal electrical requirements of the Pressout Dispenser and 3 phase supply to the hydraulic pump.

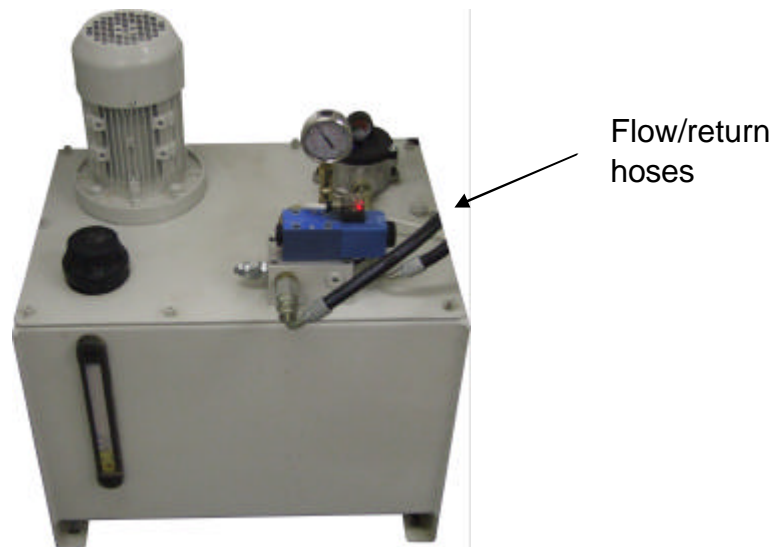
1.1.2 Air Supply

The air supply into the machine must be from a filtered, clean, dry regulated air supply to the air input connector. This is located on the air manifold assembly at the upper left end of the machine. The air is connected via the quick-fit air coupling and requires 8mm hard walled hose for the push fitting. Alternatively, the air supply can also be fitted using soft wall hose and a Jubilee Clip (Use Imp ½" bore or Met 12.70mm, Imp ¾" or Met 19/20mm o/d air hose).

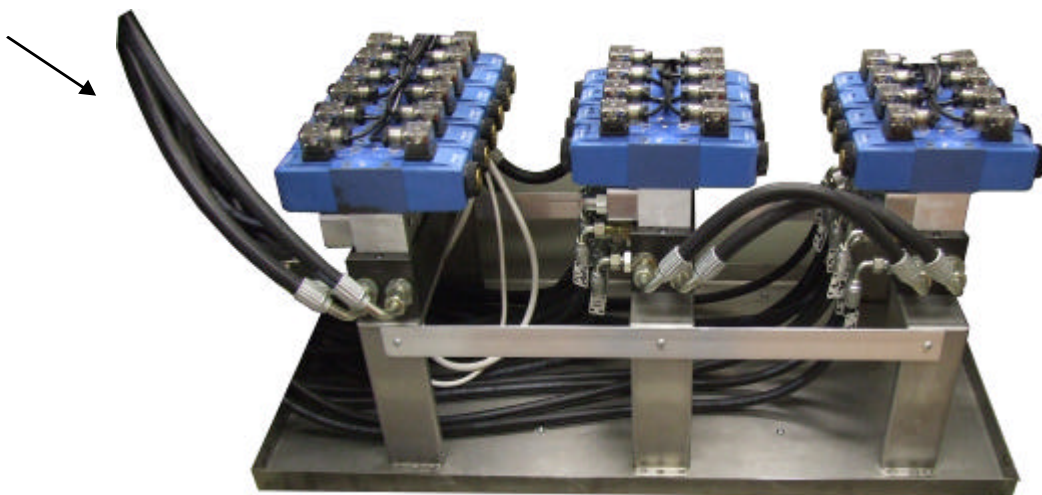


1.1.3 Hydraulic pump and manifold

The hydraulic system which operates the pistons for the ink press out system is fed from the hydraulic pump which is located beside the machine. The main hydraulic supply/return feeds are located at the end of the hydraulic manifold.



Flow/return hoses



1.1.4 PC, keyboard and monitor

The PC is located on the left side in the upper services cabinet, with the monitor and keyboard positioned on the top surface of this cabinet. The PC is preloaded with Vale Tech's Ink Manager software, which provides the operating system for the machine.

2 Start-Up Procedure

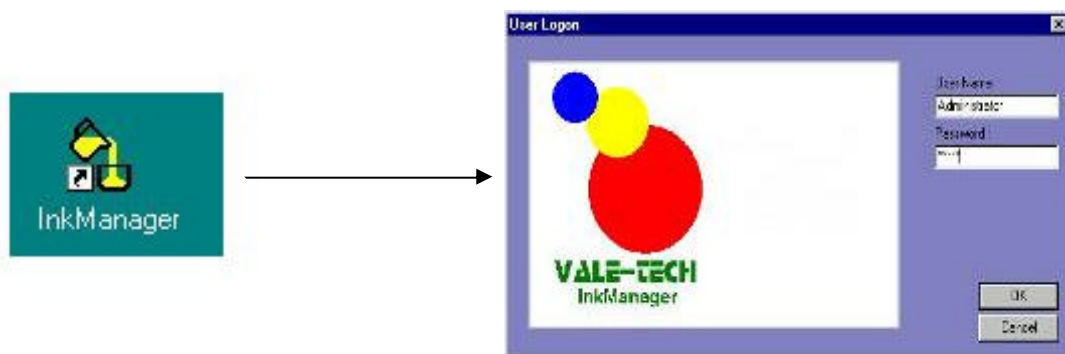
2.1 Switching On System

Switch on the dispenser mains power by turning the mains ON/OFF isolator switch on the lower right side of the lower services cabinet **CLOCKWISE** to the ON position.

Now turn on the PC and the monitor. The PC is located At this point, the red light on the beacon will be illuminated and the alarm will be sounding.

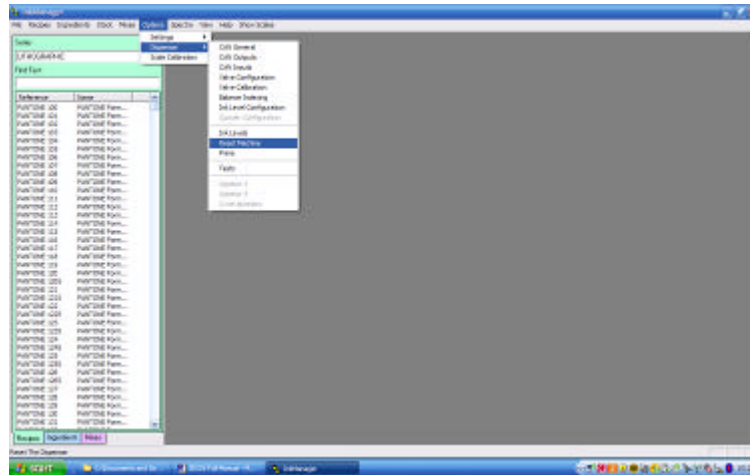
2.2 Log-on and Dispenser Initialisation

Once the PC has powered up, launch the Ink Manager Software program and logon. If there are no user accounts, create these by logging on as Administrator (password supplied separately).



2.2 Log-on and Dispenser Initialisation (cont)

When Ink Manager opens, a formulation list will appear on screen. The machine requires a reset to be carried out as follows. Highlight 'Options', 'Dispenser', 'Reset'.



After completing the reset process the sounder should stop and the beacon will change from red to combined green and amber. The balance will move to the home position at the left of the machine and the secondary air supply regulator will switch on. Power to the hydraulic pump will be initialised.

If the dispenser does not reset, check that the emergency stop buttons are released and there is no obstruction causing the carriage or scale assembly to jam.

Note: If an emergency-stop button is depressed, release it by turning the button clockwise and allowing it to spring out. Ensure that the button is not depressed further whilst turning it or the button will not release.

2.3 IDS Beacon Warning Indicator

RED: Indicates emergency stop switch activated or machine in initial power ON state.

GREEN AND AMBER: Indicates machine in RESET condition or ready to dispense.



AMBER: Indicates the balance is moving.

GREEN: Indicates machine is in the process of dispensing ink.

3 Ink Set-Up

3.1 Setting Ink Names

The reference (or description) for each ink to be used must be allocated to each of the supply containers to be filled, or to each dispense location to be used. The corresponding ink will be put into the container and located in the correct dispense station later. Complete the Ink Reference names in the spaces provided below.

Some machines may have a pre-determined list setting out which ink should be placed in each dispense location. In this case, the information will be supplied in conjunction with this manual.

Container No.	Ink Reference	Container No.	Ink Reference
1		26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

4 Ink containers

The machine may support various types of container from which ink will be dispensed. Within the main body of the machine, ink is dispensed from stainless steel ink containers by means of a dispense valve mounted on the side above the base.

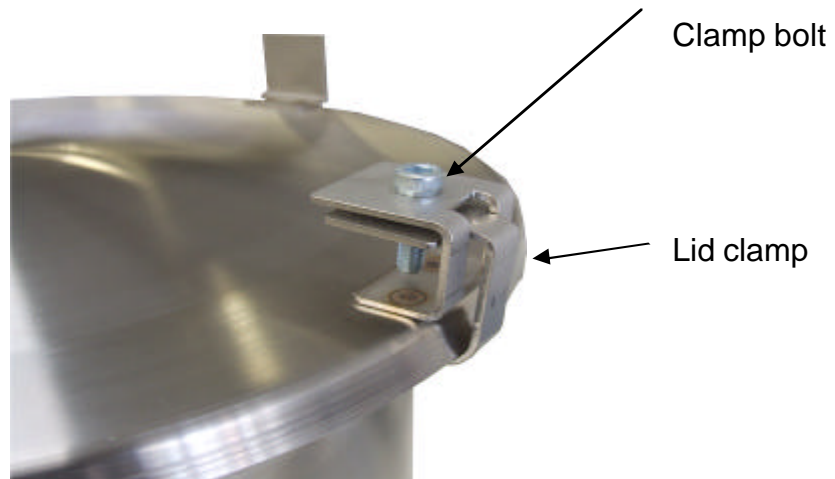
Additional vessels of liquid or free flowing additives can be housed in 25litre low pressure containers alongside the machine in container frames. Bulk dispensed inks can be supplied by 200litre drums, usually into a high pressure 25litre header tank which then feeds the dispense valve, by a pumped drum dispensing system.

4.1 Press out ink containers

The press out ink container is used where the dispensing of high viscosity low flow rate paste inks is required. The containers are usually filled by the ink company, and are supplied to the user with a sealed lid, and have a sealing cap in place over the dispense outlet, which may differ slightly from the one shown. The ink is dispensed by means of a hydraulically operated piston creating pressure within the container, allowing the ink to pass through the dispense valve.



Press out ink containers (cont)

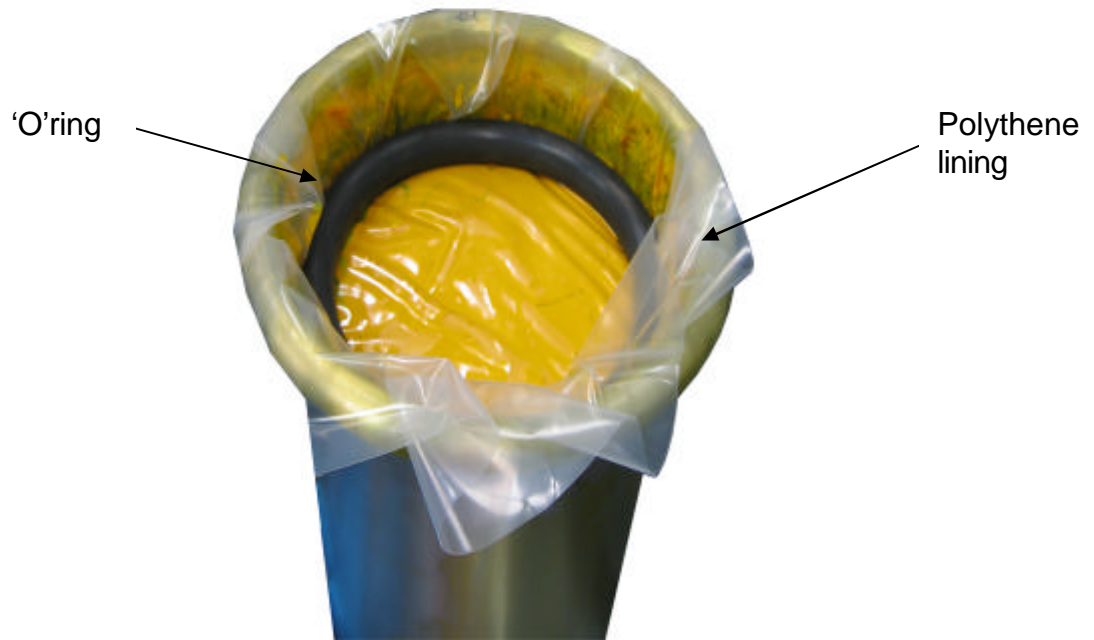


To remove the lid prior to placing the container in the dispenser, slacken off the retaining bolt on each clamp and lift the lid off.

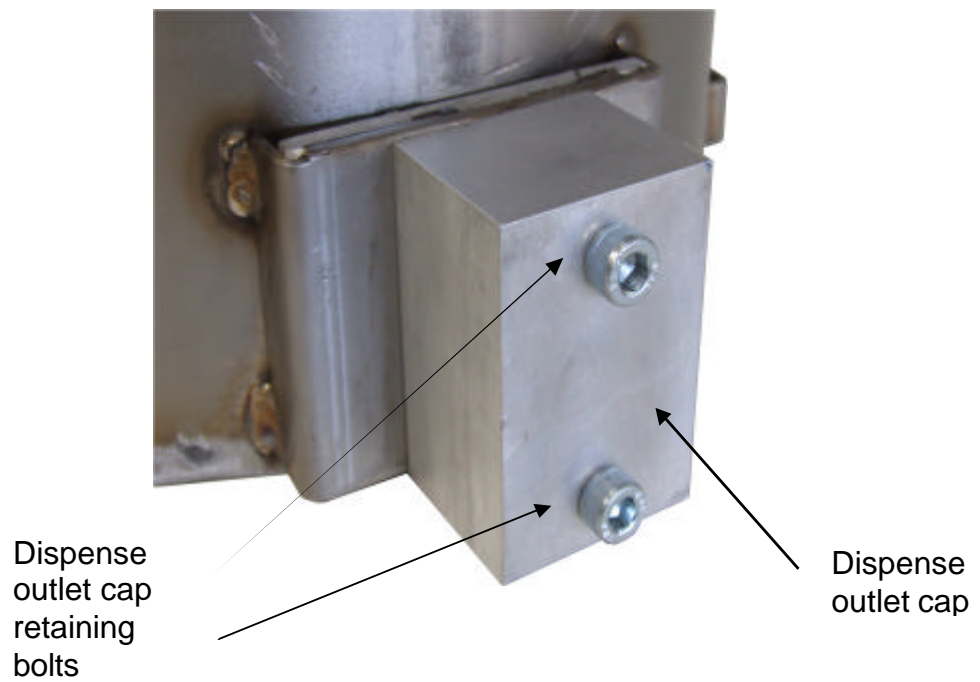
To create an airtight seal and to keep the piston pressure plate clean and free of ink, lay a sheet of polythene lining over the ink. On top of this, place the sealing 'o' ring. This creates the seal to allow the ink to be pressed out through the ink dispense valve, and not to leak above the pressure plate. The profile of the underside of the pressure plate sits inside the centre of the 'o' ring and forces it outwards onto the sidewall of the ink container.

When the container is empty, and has been removed from the machine, pick out the 'o' ring which can now be reused and discard the polythene lining.

Press out ink containers (cont)



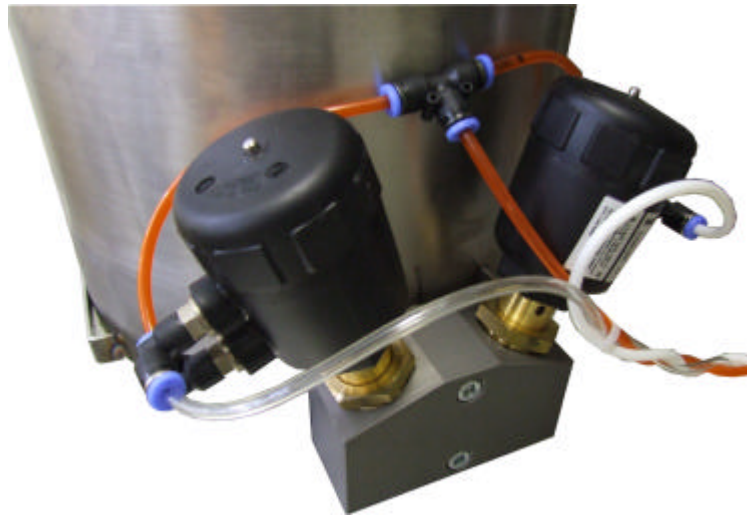
4.1.1 Dispense outlet cap



4.1.2 Fitting the ink valve

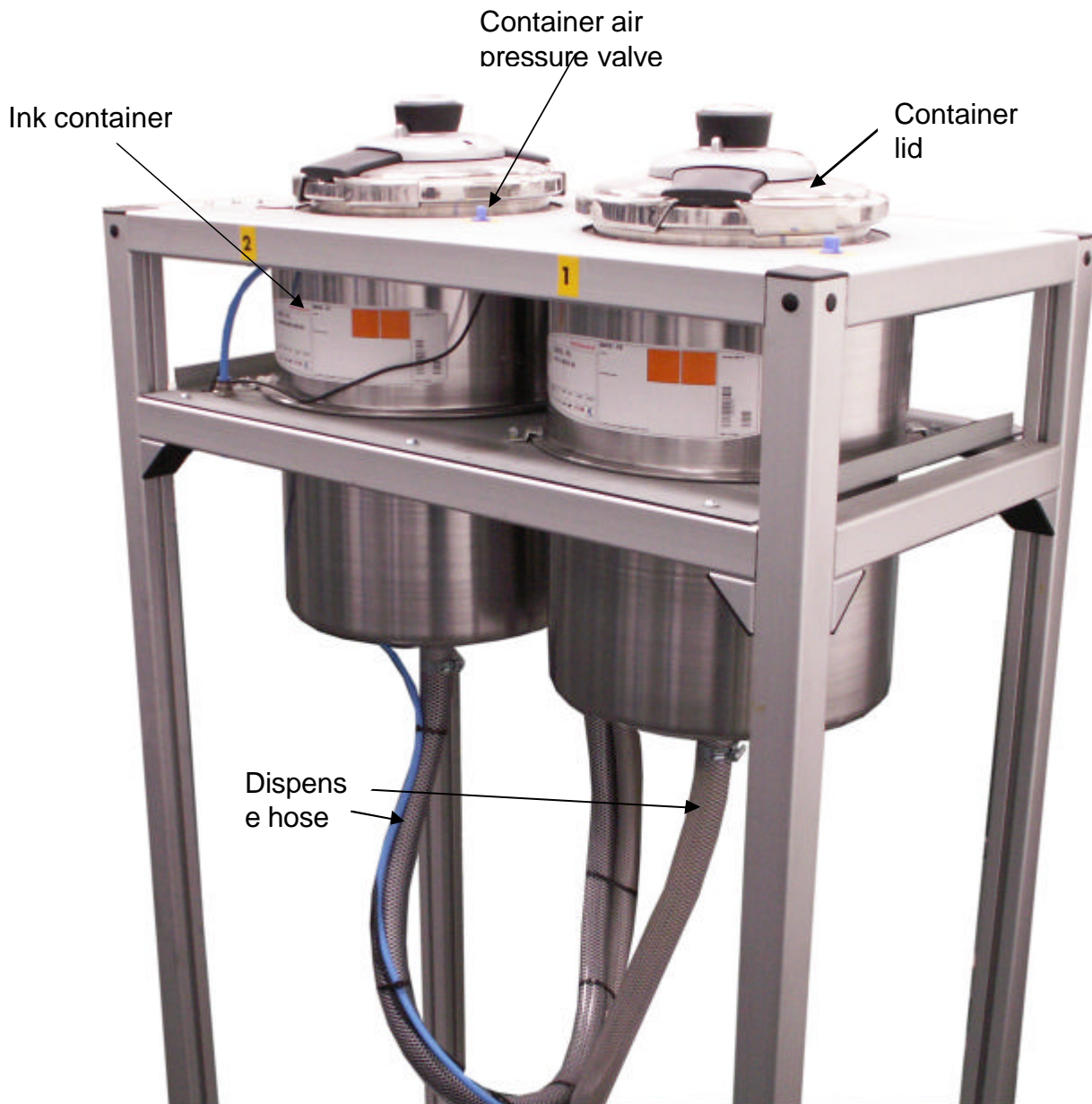
The sealing cap should be removed when the container is placed on the support platform of the dispensing machine. To remove the dispense outlet cap, take out the two retaining bolts and slip the block off the outlet nozzle, being careful not to allow ink to seep out. With the cap removed, replace it with the dispense valve and secure with the two socket head bolts.

The air supply pipes to the actuators will not need to be removed to change over the dispense valve assembly.



4.2 Low pressure containers

The low pressure ink container is used for low viscosity, high flowrate products. These vessels are located in container frames alongside the press out dispenser, and hold a maximum of 25 litres of product. The container is pressurised to 1bar and product is supplied to the ink dispense valve located within the press out dispenser by means of a flexible hose.



Low pressure containers (cont)

Before loading ink for the first time it is advisable to clean out the empty containers with an alcohol/isopropranol solution, taking care not to move or damage the level sensor probes attached to the side of the container. Each ink container has been pressure tested using water prior to shipment and so any residual moisture should be fully removed before each container is filled with ink.



Figure x

4.2.1 Low pressure container lids

The supply container lid provides a pressure seal for the container via the gasket. To remove a lid, turn the blue air valve beside the container which is to be opened to the OFF position. This allows the container to fully vent (de-pressurise). When the hissing sound of escaping air ceases fully, press the button on the side of the centre handle of the lid to release the side clamps, allowing the lid to be lifted clear of the top of the ink supply container.



Ink Supply
Container lid.

Ink Supply Container lid.
Underside with gasket
removed



Low pressure container lids (cont)



Ink Supply Container lid.
Underside with gasket
fitted

To replace the lid, ensure the gasket is clean and securely seated in position. Place the lid on top of the ink container and press down the centre button to close the clamps. Switch the air valve to the ON position and as it pressurises, check for air leakage.

Press top
button to
close lid
clamps.

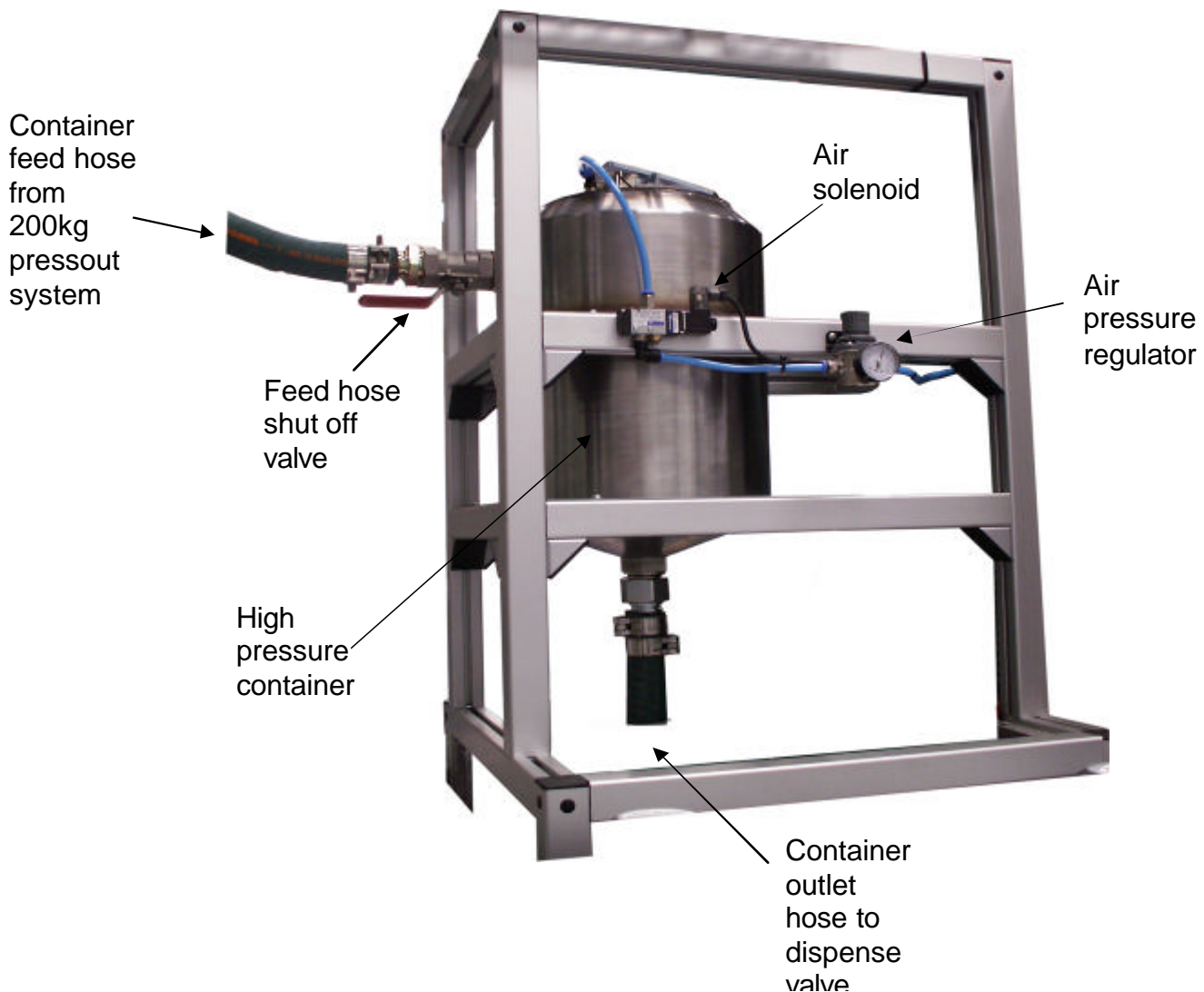
Push side
button to
open lid
clamps.



4.2 High pressure containers

The high pressure ink container is used for high viscosity, low flowrate products. These vessels are located in container frames, (figure x), alongside the press out dispenser, and hold a maximum of 25litres of product. The container is pressurised to 6bar and product is supplied to the ink dispense valve located within the press out dispenser by means of a flexible hose. This type of ink container may be used as a header tank in conjunction with a 200kg drum pressout system, (section 4.4).

Ink level sensing is achieved by the method described in section 5.2



4.3 High pressure container lids

The supply container lid provides a pressure seal for the container via the gasket.



Ink Supply
Container lid. Top



Ink Supply Container lid with
gasket removed

High pressure container lids (cont)

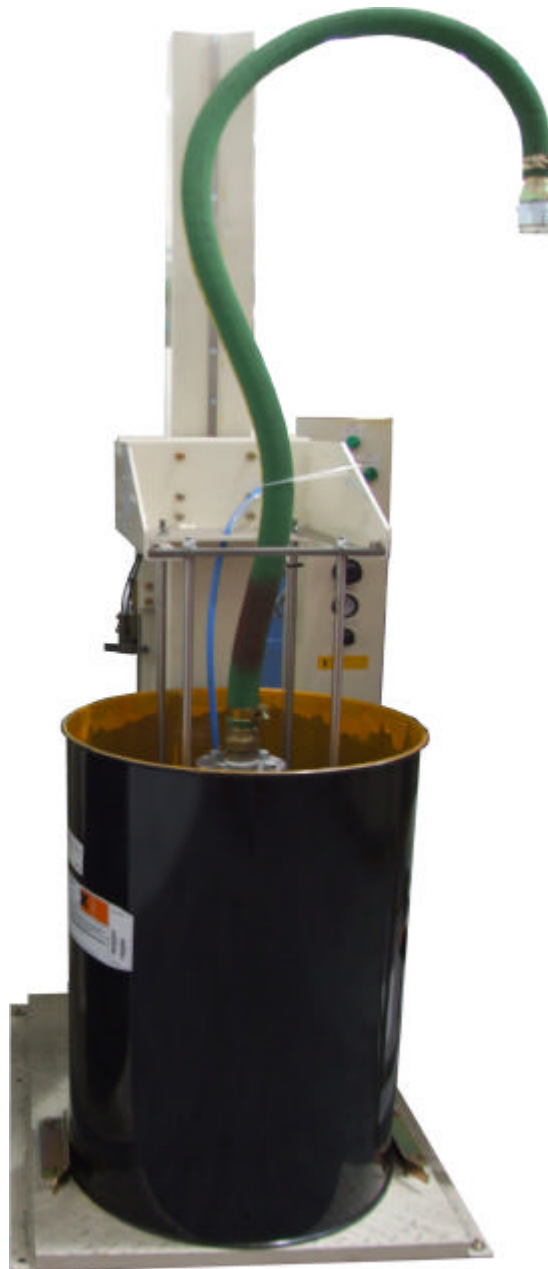
To remove a lid, turn the air regulator for the container which is to be opened to the OFF position. This allows the container to fully vent (de-pressurise). When the pressure has reduced to enable the lid to be removed, lift the lid handle, allow the lid to drop slightly from its location, tip and turn 90 degrees then lift to remove from the ink supply container.



To replace the lid, ensure the gasket is clean and securely seated in position. Reverse the removal process to place the lid in position. Switch the air valve to the ON position and as it pressurises, check for correct seating of lid and for air leakage.

4.4 Press out drum dispensing

For dispensing products where larger volumes are required, the press out drum dispenser will be used. This has the capability to contain drums of 210litres capacity, and will be located alongside the machine. The ink may be fed directly to the dispense valve, or into an expansion tank mounted on a stand beside the dispenser, which in turn feeds the dispense valve. The drum dispenser has a pressure plate/pump platform resting on top of the ink. The ink is pumped via the pneumatic pump to the ink dispense valve located within the Press Out Dispenser by means of a flexible reinforced hose.



5 Configuration settings

5.1 Level Sensors

The settings will vary depending on which type of containers; press out, low pressure or drum dispensing, are being used for each of the products. Section 4 described the container types and their attributes. This section describes the methods for configuring Ink Manager software to the type of ink container being used.

To set the configuration information for each ink being used, select 'Options' 'Dispenser' 'Valve Configuration' from the drop down menu in Ink Manager. The following screen will appear.

Valve Configuration

Supply Container 1 | Supply Container 2 | Supply Container 3 | **Supply Container 4** | Supply Container 5 | Supply Container 6 | Supply C

Name: Ink 2

Valve Calibration

	Active			Targets		
	Coarse	Pulsed	Target Flow	Initial 'On' Period	Completion	
Stage1	<input type="checkbox"/>	<input type="checkbox"/>				
Stage2	<input type="checkbox"/>	<input type="checkbox"/>				
Stage3	<input type="checkbox"/>	<input type="checkbox"/>				
Stage4	<input type="checkbox"/>	<input type="checkbox"/>				
Stage5	<input type="checkbox"/>	<input type="checkbox"/>				
Stage6	<input type="checkbox"/>	<input type="checkbox"/>				

Container Type

Pressurised
 Pressout
 Switched Pump

Level Sensor

Disable Level
 Capacitive
 Switch
 Calibrate Main Tank Levels

Board ID **Input**

Cylinder Up (switch) 0 0
 Cylinder Down (switch) 0 0
 Level Input 0 0

Board ID **Output**

Cylinder Up (relay) 0 0
 Cylinder Down (relay) 0 0
 Dispense Valve 0 0
 Vent Valve 0 0
 Recirc./Agitate Valve 0 0
 Pump Control 0 0
 Drip Wipe Index 0

Header Tank

Enabled Calibrate Header Tank Levels
 Controller ID 0 Level Sensor I/F 0
 Channel 0 Air O/F 0

OK Cancel Apply

5.1.1 Press out containers

On the first tab in the Valve Configuration screen, (figure x), enter the ink reference for the first product from the 'Setting Ink Names' list in section 3.1. For this example, the 'Container Type' has been set to 'Pressout', so tick the 'Disable Level' box.

The 'Board ID Input/Board ID Output' settings will have been preset at the factory and do not require adjustment.

The 'Valve Calibration' settings are described in Section 5.4

Do not tick the 'Header Tank' Enable box.

The press out containers do not display the level remaining, but are set to alert the machine operator when they become empty and require changing. If the machine has been configured with more than one container with the same colour, it will switch to the new full container once the empty point of the first has been reached.

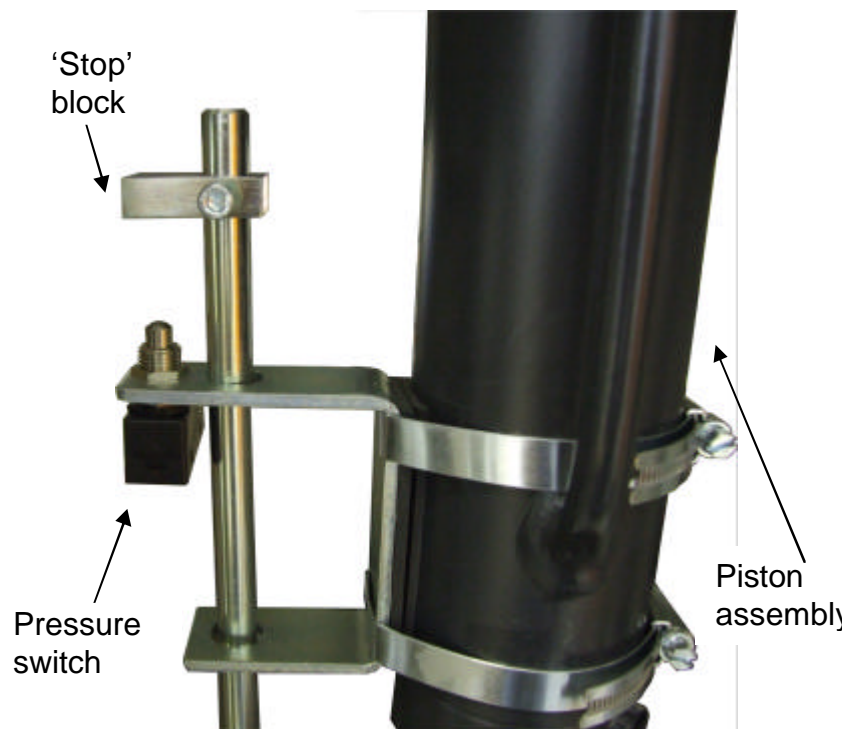
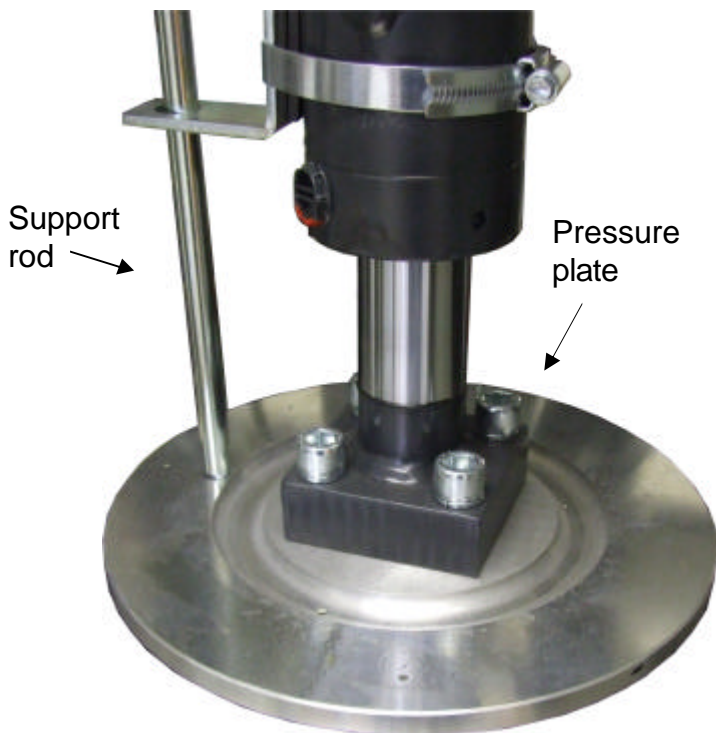
The low level indication is achieved by means of a pressure switch located on the side of the piston assembly and an adjustable 'stop' block which is attached to the pressure plate by means of a support rod.

From the Ink Manager menu, select 'Options' 'Dispenser' 'Prime'. This allows the pressout pistons to be operated manually. The empty position is set by lowering the piston (with no container present) using the 'Lower' piston button mounted to the top right side of the station which is being set up.



Pressout containers (cont)

Slacken the retaining bolt of the 'stop' block, and lower the piston. With the gap between the piston pressure plate and the container support surface at 5mm; slide the 'stop' block down onto the pressure switch plunger until it is felt to 'click'. Tighten the retaining bolt and check the pressure plate is stopping and leaving a 5mm gap using the 'Raise' and 'Lower' piston buttons.

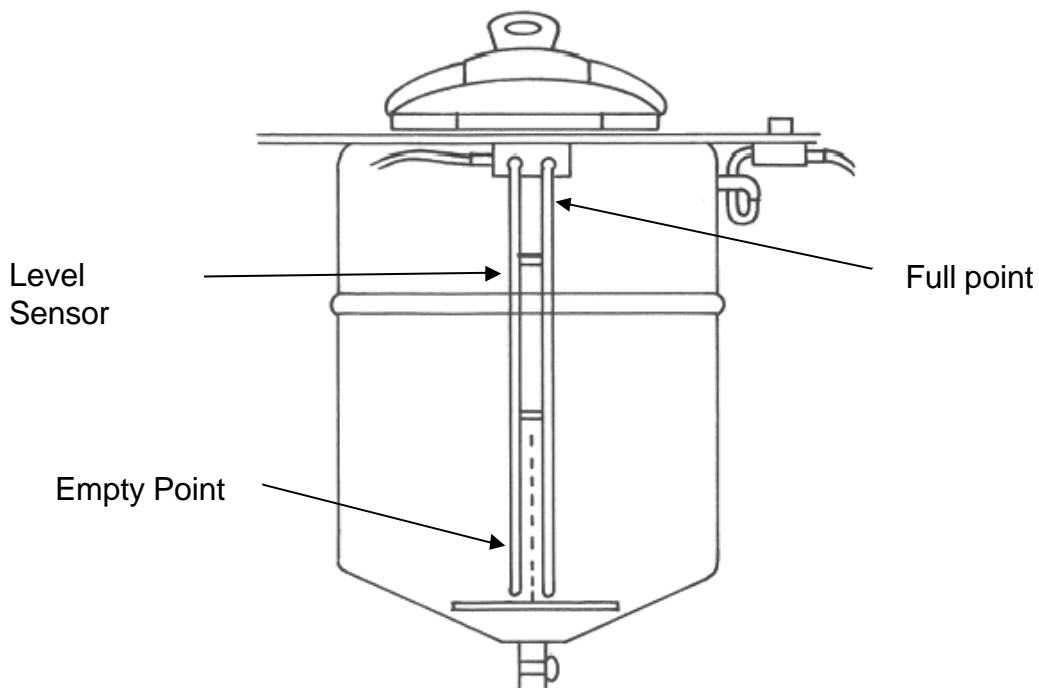


5.2 Setting ink levels – high/low pressure containers

Ink level sensing in the high and low pressure containers is achieved by monitoring the ink level using a probe mounted on the inside of each container. The probe comprises 2 insulated steel rods spaced 20mm apart. One side is electrically isolated from the container.

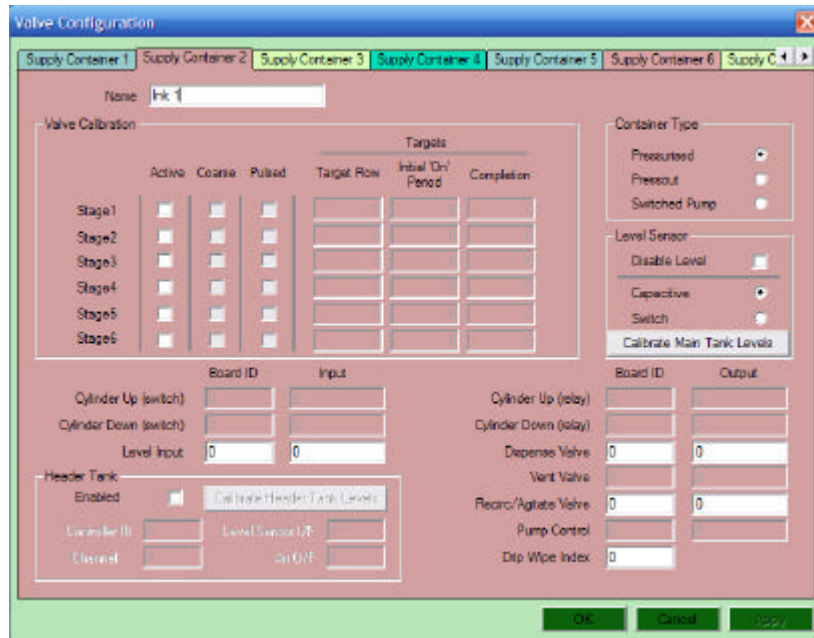
The probe is mounted vertically inside the container, with the end of the probe as close to the bottom of the container as possible. The way in which the low level value is set ensures that the 'container empty' point registers prior to the container actually becoming empty. This eliminates air being drawn through to the dispense valve, and ink spitting from the valve, which may happen if the container was to actually become completely empty. The high level value is set with the ink below the top of the level sensor probe; keeping the ink away from the lid and its sealing gasket, and well below the container air pressure inlet.

The diagram below shows of the ink level probe and ink level indication points within the ink container.



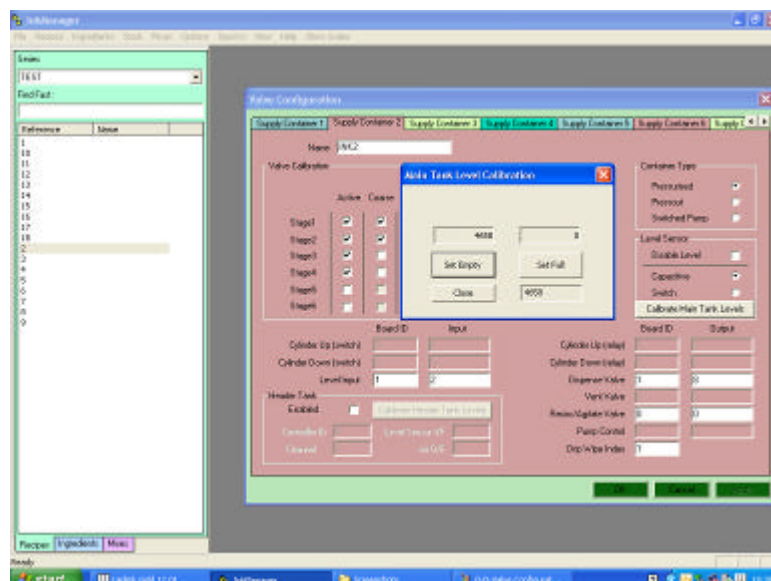
Setting Ink Levels – high/low pressure containers (cont)

To begin setting the ink level, from the Ink Manager menu, select 'Options' 'Dispenser' 'Valve Configuration', and ensure the correct tab corresponding to the ink station is highlighted. Set the 'Container Type' to 'Pressurised' and highlight the 'Capacitive' button in the Level Sensor box.



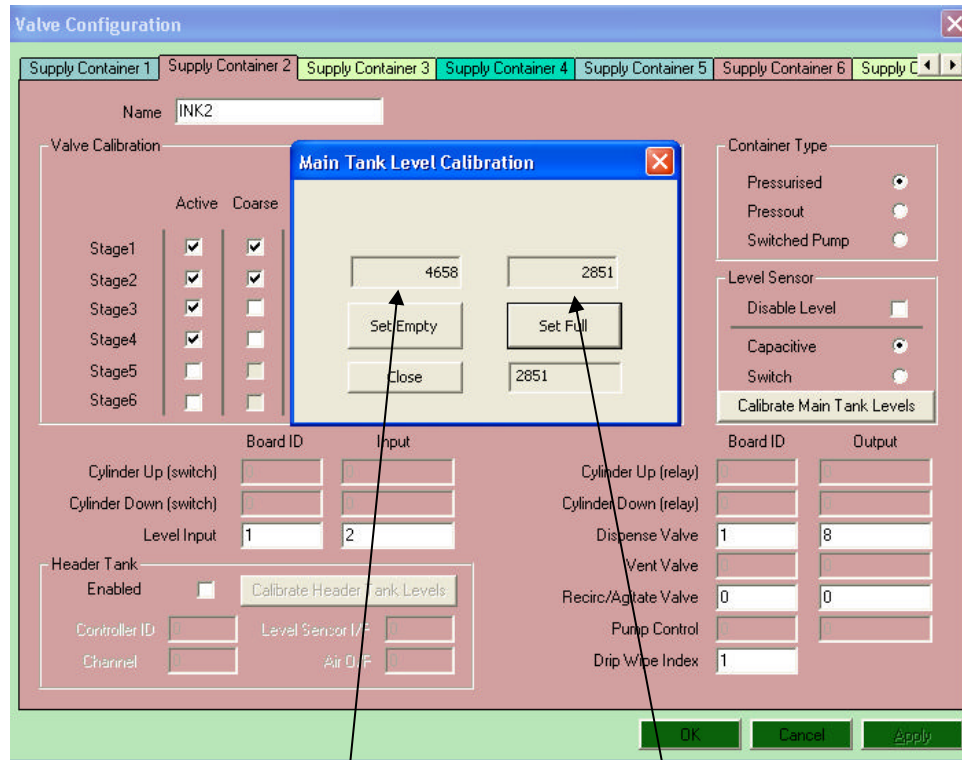
From the 'Setting Ink Names' list in section 3.1, enter the relevant information into the 'Name' box.

Click on the 'Calibrate Main tank Levels' in the Level sensor box. Pour in enough ink to cover approx 1inch, (25mm) above the bottom of the level sensor probe in the container. Select 'Set Empty' button to set the empty level for this colour. The numerical value for this will be recorded in the box above 'Set Empty' button. This ensures that the container will show the empty point **BEFORE** the ink reaches the bottom, as previously explained.



Setting Ink Levels – high/low pressure containers (cont)

Continue to fill the container to a maximum level of 1/2 Inch (12mm) below the bend at top of the probe. When this is done, click the ‘Set Full’ button. The numerical value for this will be recorded in the box above the ‘Set Full’ button. The value shown in the box for the full level should be smaller than the value of the empty point level.



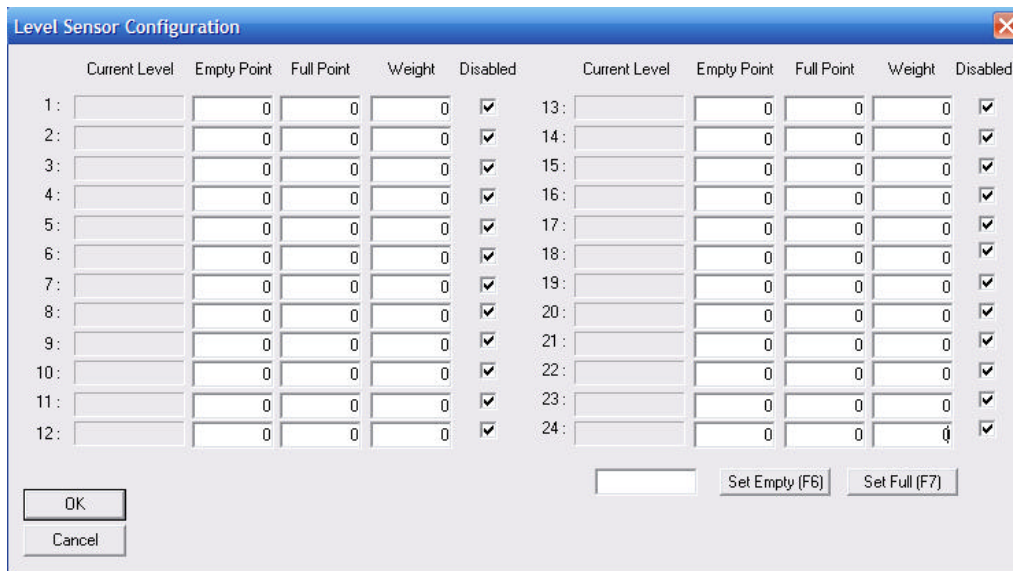
Set Empty Indication

Set Full Indication

Note: The live value in the boxes ‘Set Empty Indication’ and ‘Set Full Indication’ will be recorded into the selected container number (into either the full or empty points depending on which button is ‘clicked’). Therefore, it is important to go through the filling of the ink containers and the setting of the low and high level procedure in the correct sequence. If the ‘Set Full’ button is clicked before the container is filled, the value indicated will be stored as the full value. If the ‘Set Empty’ button is clicked when the ink container is full, the machine will not dispense even though the container is full. This is due to the software interpreting the signal sent from the Level Sensor Probe indicating that the container requires re-filling.

Setting Ink Levels – high/low pressure containers (cont)

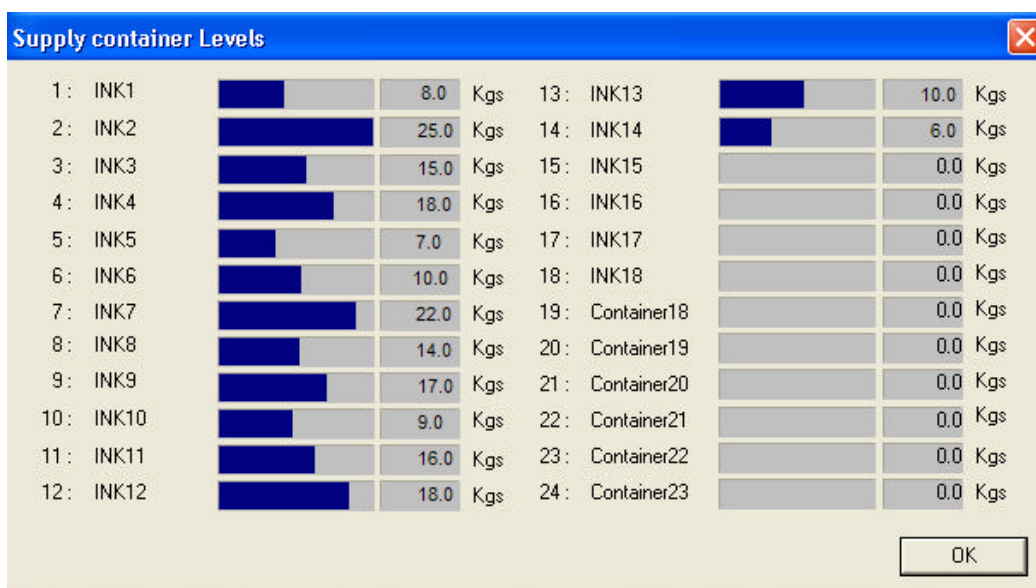
The 'Weight' field is optional. This will allow a check of approximately how much ink by weight is in a particular container at any time. To set this feature, select 'Options' 'Dispenser' 'Ink Level Configuration' and enter the quantity of ink by weight which was used to fill the container between the empty and full points into the weight box of the appropriate ink container.



The 'Level Sensor Configuration' dialog box contains a table with 24 rows. Each row has five columns: 'Current Level', 'Empty Point', 'Full Point', 'Weight', and 'Disabled'. The 'Current Level' column contains empty text boxes. The 'Empty Point', 'Full Point', and 'Weight' columns contain text boxes with the value '0'. The 'Disabled' column contains a checked checkbox for each row. At the bottom of the dialog, there are 'OK' and 'Cancel' buttons, and two buttons labeled 'Set Empty (F6)' and 'Set Full (F7)' next to an empty text box.

	Current Level	Empty Point	Full Point	Weight	Disabled
1:		0	0	0	<input checked="" type="checkbox"/>
2:		0	0	0	<input checked="" type="checkbox"/>
3:		0	0	0	<input checked="" type="checkbox"/>
4:		0	0	0	<input checked="" type="checkbox"/>
5:		0	0	0	<input checked="" type="checkbox"/>
6:		0	0	0	<input checked="" type="checkbox"/>
7:		0	0	0	<input checked="" type="checkbox"/>
8:		0	0	0	<input checked="" type="checkbox"/>
9:		0	0	0	<input checked="" type="checkbox"/>
10:		0	0	0	<input checked="" type="checkbox"/>
11:		0	0	0	<input checked="" type="checkbox"/>
12:		0	0	0	<input checked="" type="checkbox"/>
13:		0	0	0	<input checked="" type="checkbox"/>
14:		0	0	0	<input checked="" type="checkbox"/>
15:		0	0	0	<input checked="" type="checkbox"/>
16:		0	0	0	<input checked="" type="checkbox"/>
17:		0	0	0	<input checked="" type="checkbox"/>
18:		0	0	0	<input checked="" type="checkbox"/>
19:		0	0	0	<input checked="" type="checkbox"/>
20:		0	0	0	<input checked="" type="checkbox"/>
21:		0	0	0	<input checked="" type="checkbox"/>
22:		0	0	0	<input checked="" type="checkbox"/>
23:		0	0	0	<input checked="" type="checkbox"/>
24:		0	0	0	<input checked="" type="checkbox"/>

To view the levels of each of the inks within the supply containers, select 'Options', 'Dispenser', 'Ink Levels'.



5.3 Setting ink levels – press out drum dispenser

The press out drum dispenser does not have the facility to display the ink level remaining in the drum, but uses a mechanical switch to indicate the empty point when the follower plate reaches the bottom of the drum.

To set this feature, ensure there is no drum on the pressout stand below the follower plate. Slacken the retaining clamp bolt on the pressure switch, and lower the pressure plate by means of the 'lift switch'. Lower it until there is a 10mm gap between the lower face of the pressure plate and the drum base. At this point, adjust the pressure switch so it is in its activated state.

Raise the pressure plate using the 'lift switch' until it is at a height at which a drum can be loaded onto the drum base.

Load the drum onto the base using a suitable drum trolley, and secure the drum clamps.

**NEVER TRY TO MOVE FULL DRUMS OF PRODUCT WITHOUT USING THE
CORRECT LIFTING EQUIPMENT.**

5.4 Priming pressout drum dispenser

To prime the system ready for use, have a drum of ink in place on the drum base. Move the lever on the air evacuation pipe to the open position. This will allow trapped air between the lowering pressure plate and the ink to escape and avoid ink starvation to the pump due to an airlock.

Using the 'lift switch', lower the pressure plate slowly into the top of the open drum until it comes to a rest on top of the ink. As soon as this happens, shut off the air evacuation pipe to avoid ink blocking the outlet.

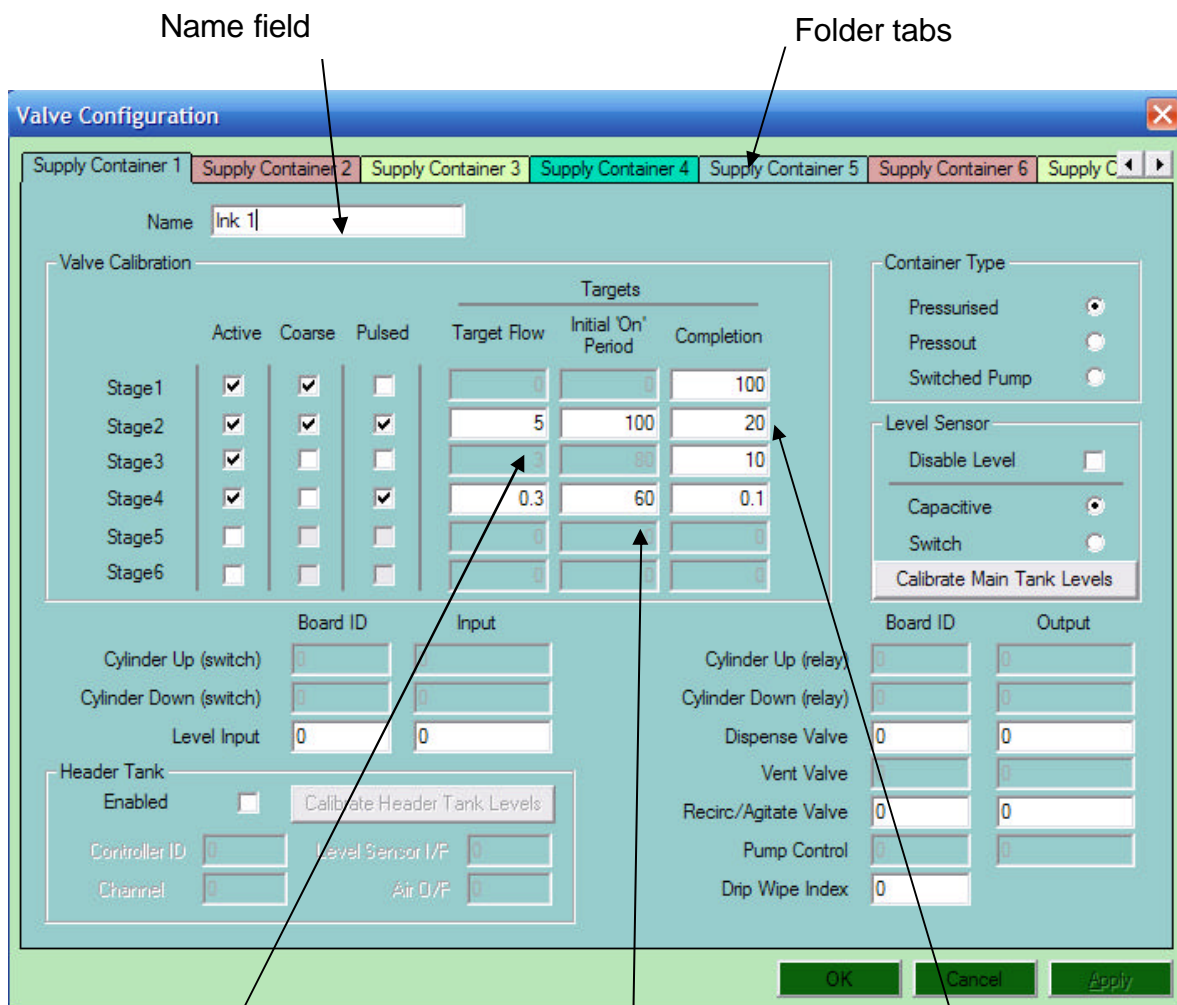
The system is now ready to operate.

5.5 Valve Configuration

Select 'Options' 'Dispenser 'Valve Configuration' from the drop down menu in Ink Manager. Each container has its own 'Folder tab' and has been allocated the correct colour reference, and been denoted as either a 'Pressurised', 'Pressout' or a 'Switched Pump' container in the previous section of this manual.

Before starting to dispense ink, the flow rate for each ink valve needs to be set in order to provide swift but controlled dispensing. It is necessary to understand that the viscosity and flow attributes of the ink or additive will affect its actual dispense rate.

There is a facility to split the dispense process into stages, for ease of control. These are 'coarse' feed for the bulk of the dispense down to approximately 100g before completion, 'coarse pulsed' feed giving coarse feed control down to approximately 20g before completion, 'fine continuous' feed down to approximately 10g before completion and finally, 'fine pulsed' feed down to completion of the dispense. There can be up to 6 separate stages of dispense, although they do not all have to be used. For the purpose of this example, 200g of ink is to be dispensed, utilising only 4 of the stages.



The required speed of dispense when the valve is pulsing, in gms/second.

The length of time (measured in milliseconds) that the valve is open when it begins to pulse.

The weight remaining to be dispensed at which this stage ends.

5.5 How does the Ink Valve function during a dispense?

The ink valve is controlled by the Ink Manager Software to open allowing the flow of ink through the large outlet (coarse feed) and small outlet (fine feed). Both coarse and fine feeds can be set to complete the end of their dispense operations by pulsing the flow to reach the desired quantity.

The feed profiles are activated by setting parameters in the Ink Manager software, (Figure x), causing the valve to achieve it's pre-determined operation.

Coarse constant feed

Fine constant feed

Stage	Active	Coarse	Pulsed	Target Flow	Initial 'On' Period	Completion
Stage1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	0	100
Stage2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	100	20
Stage3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3	80	10
Stage4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.3	60	0.1
Stage5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0
Stage6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0

Coarse pulsed feed

Fine pulsed feed

Figure x

By ticking:

'Active' – this opens a dispense stage. If the 'Coarse' or 'Pulsed' options are not selected, the ink valve will only dispense from the fine feed outlet.

'Active' 'Coarse' – this opens the valve to dispense to the 'Completion' preset value of that stage from the coarse feed outlet.

'Active' 'Coarse' 'Pulsed' – this 'Pulses' the coarse feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.

'Active' and 'Pulsed' – this 'Pulses' the fine feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.

How does the Ink Valve function during a dispense? (cont)

The dispense example, uses 4 stages to complete the process; the break down of each dispense stage is as follows and for the example, the dispense ink quantity is 200g:

Stage 1.

Is Active (or enabled)

Coarse feed valve continuous dispense

From 200g down to the Completion Weight of 100g

(Total of 100g of ink dispensed into the supply container)

Stage 2.

Is Active (or enabled)

Coarse feed valve will pulse (open for 100 milliseconds before closing) and dispense at a target flow rate of 5grams/second The target flow rate should be adjusted in increments of 10 if the target rate is difficult to achieve; if the dispense time is taking too long for example.

Now down to the new Completion Weight of 20g

(Total of 180g of Ink dispensed into the container)

Stage 3.

Is Active (or enabled)

Fine feed valve continuous dispense

Now down to the new Completion Weight of 10g

(Total of 190g of Ink dispensed into the container)

Stage 4.

Is Active (or enabled)

Fine feed valve will pulse (open for 60 milliseconds before closing) and dispense at a target flow rate of 0.3grams/second

Now down to the new Completion Rate of 0.3g (This allows for the ink tail which may form at the outlet of the dispensing valve to be included. For thicker inks this can be increased and for thin inks this can be zero, 0g)

(Total of 200g of Ink dispensed into the container)

WARNING: IF STAGE 1 IS DISABLED THEN THE MACHINE WILL NOT DISPENSE ANY OTHER STAGES!

5.6 What happens if the same ink is used in more than one of the ink supply containers?

The press out dispenser is designed to allow the operator to fill more than one of the supply containers with the same ink. This is more commonly used for colours that are most frequently consumed.

In this case the same ink reference has to be given to both of the Folder Tabs when setting the Flow Rates.

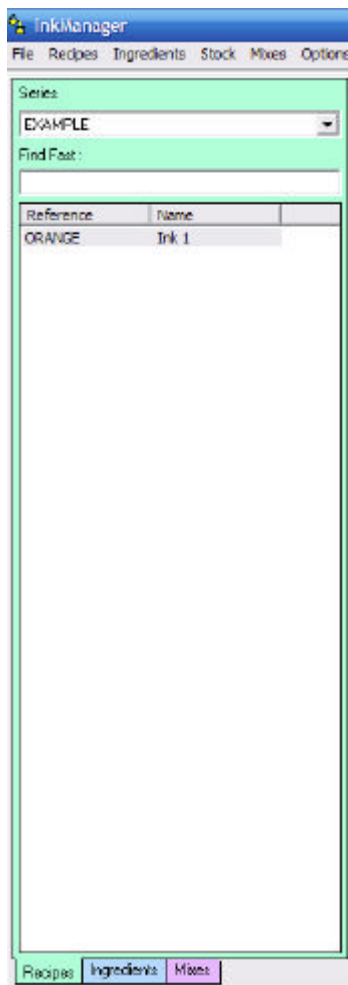
(See section '*Valve Configuration*').

The press out dispenser will dispense from the one of the containers until the empty point is reached, if this was to happen in the middle of a dispense sequence, the machine will automatically divert to the second ink container and continue to complete the mix. A warning message in Ink Manager will inform the operator that the first container is empty; it will now continue to use the second container until it is empty. When the second container reaches the empty level, the dispensing will automatically switch back to the first container. (By this time the first container requires re-filling).

(See Section '*Loading Ink*').

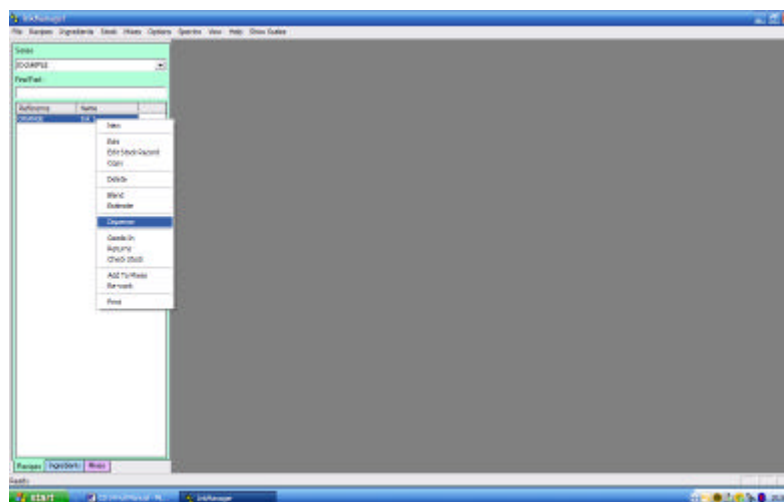
5.7 Dispensing ink

For instruction on entering recipes, see Ink Manager Training section.



Select the 'Ink Series' to be used from the drop down menu and select the recipes tab at the bottom left of the screen.

In the recipes window, locate and select the recipe to be dispensed, place the cursor over, and highlight it using the right mouse button.



From the drop down list, highlight 'dispense' and select it using the left mouse button.

Dispensing ink (cont)

Enter the dispense quantity and click 'ok'.

Enter Dispense Quantity

Please Enter Required Quantity :

5 Kgs

OK

Cancel

Enter Job Number

Enter Job Number :

OK

Enter the 'job number' if required and click 'ok'. If the ink is not to be allocated to a job, click 'ok'.

The dispense screen shows details of the ink formulation to be dispensed. Select 'dispense' and the machine operation will commence.

Dispense: EXAMPLE ORANGE

Series: EXAMPLE
Reference: ORANGE
Name: EXAMPLE 1
Quantity: 2.500

Series	Reference	Quantity	Unit
EXAMPLE	YELLOW	2.250	Kg
EXAMPLE	RED	1.750	Kg
EXAMPLE	TRITRIMEDILUM	1.800	Kg
			Kg
			Kg
			Kg
			Kg

2.250

Dispense Cancel

As each component part of the formulation is dispensed, the software will control the ink valve as described in 3.6. When the dispense is complete, the dispense screen will clear* and the container of blended ink can be removed from the scale unit.

*If the software has been configured to allocate the ink to stock, a box will appear and the allocation can be confirmed.

6 Hardware Settings

Ink Manager requires setting up to work with a particular machine and its requirements. From the drop down menu select 'Options', 'Settings', General and the following screen will appear. To configure the various fields, refer to the Hardware Set Up in the Ink Manager Training Section.

The screenshot shows the 'Settings' dialog box with the 'Hardware' tab selected. The dialog has a title bar with a close button (X) and a tabbed interface with the following tabs: Hardware (selected), Database, Users, Weights and Measures, Defaults, Reports Config, and Visual Preferences. The main content area is divided into several sections, each with a label and a set of controls:

- System Hardware :** Dispenser Type : CAN
- Manual Blending Hardware :** Manual Balance Port : COM1, Manual Balance Type : Vale - MkII V1.11 and above
- Dispensing Hardware :** Balance Port : COM1, Balance Type : Vale - MkII V1.11 and above, Dispenser Port : COM2
- Queuer Hardware :** Queuer Port : COM3
- Bar-code Hardware :** Default Label Printer : Not installed, Second Label Printer : Not installed, Label Scanner Port : COM4, and a 'Scan For Network Printers' button.

At the bottom of the dialog are three buttons: OK, Cancel, and Apply.

To configure the ports which the various items of hardware are connected into and which type of balance is being used, please refer to the Hardware Configuration information in the Service section of this manual for settings.

Note: Hardware settings should only be changed by authorised personnel/ engineers.

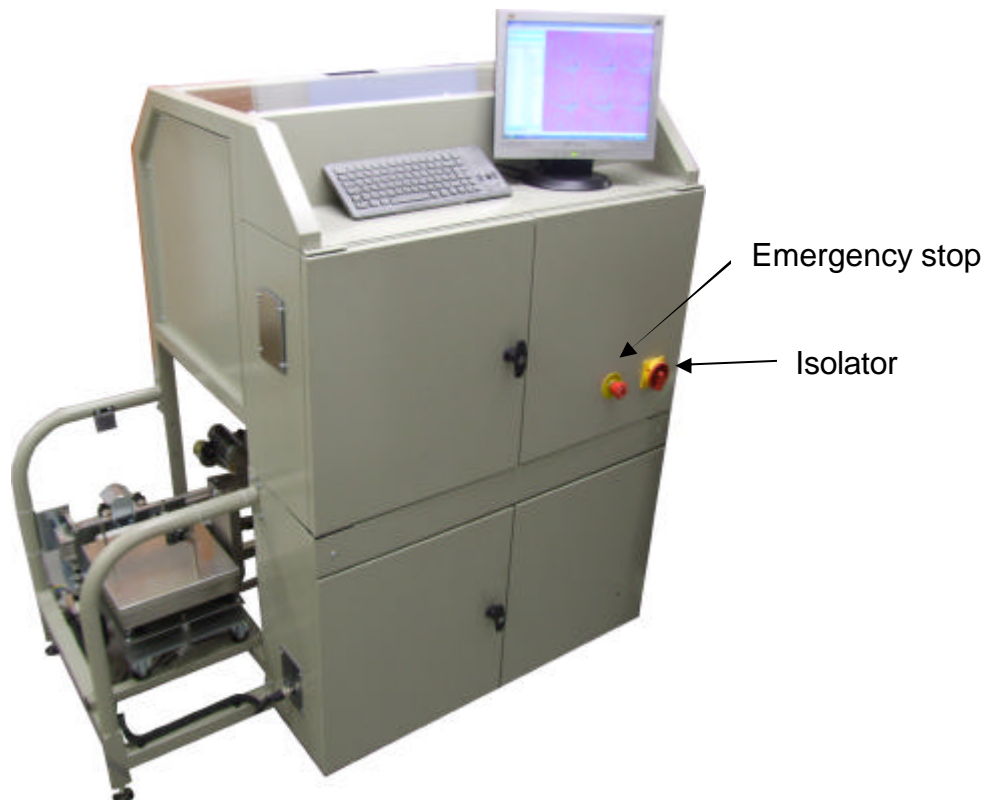
7 Safety Features

The Press Out Dispenser machine incorporates safety features which work to prevent any potential injury or harm to the user or to the machine. The safety features must not be tampered with.

When handling ink and lacquer products for use in conjunction with the machine, suitable protective equipment must be used. Use latex (or similar) gloves, eye protection, suitable safety shoes and overalls to protect from splashes and spills.

7.1 Isolator Switch

The main power isolator switch is located on the right door of the control cabinet. When maintenance is being carried out, the power must be isolated and the switch locked with a padlock.



Isolator switch
padlocked

7.2 Emergency Stop Switch

Pressing the red button labelled 'Emergency Stop' located on the control cabinet of the machine and above the container access doors will activate the emergency stop circuit within the electronics of the machine. The machine will require resetting as detailed in Section 2.2 before any operations can be carried out, and to stop the alarm sounding.



If the Emergency Stop button is depressed during a dispense operation, this will be aborted.

To release the Emergency Stop, the button must be turned anti-clockwise ensuring that it is not depressed further, preventing the button from releasing. Door Switch

Each of the access doors of the machine has a safety system which requires the door to be closed before a dispense operation can be started. If the door is opened as a dispense is about to start or while the machine is in operation, it will stop. The operation will resume once the door is closed.

7.3 Door switches

The press out dispenser features magnetic interlocks on all of the ink container access doors. These are located at the top right side of each door. If the door is open, the hydraulic press out cylinders will not be operable

Magnetic interlock to disable hydraulic cylinder if door opened

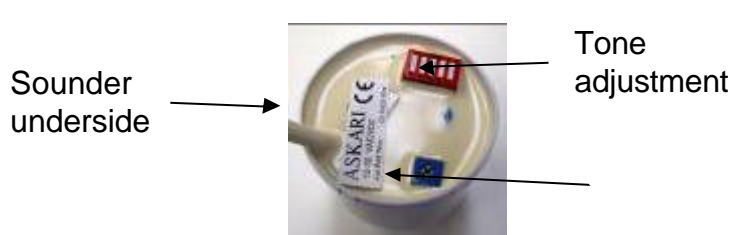


Warning notice

7.4. Alarm Sounder

The sounder is an alarm which alerts the user to any problems that occur with the machine. (It is located to the left of the Airbox assembly). The alarm volume and tone can be adjusted via settings within the sounder.

For volume adjustment, a screw can be found on the underside, and by turning this either way the volume can be decreased or increased accordingly. For tone adjustment, a series of switches which can be placed in various position combinations alter the tone. Note: It is important that before any adjustment is made, the user is reminded that the sounder is a safety feature that must be audible above the ambient noise of the workplace.

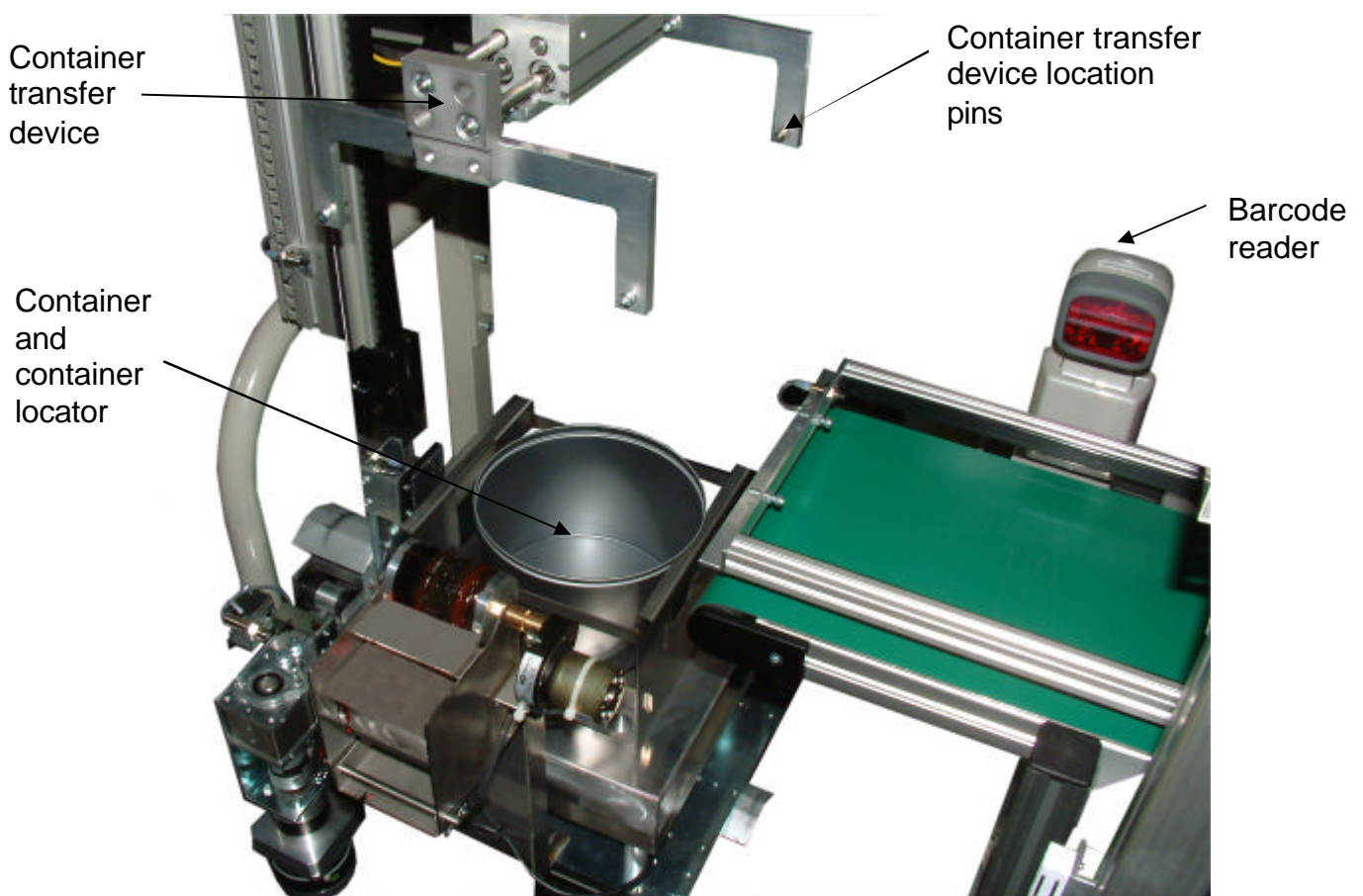


8 Additional features

The Pressout Dispenser may be equipped with systems to enable semi automation of the complete dispensing process.

8.1 Infeed and outfeed queuing system (Pick and place)

This system uses infeed and outfeed conveyors in conjunction with a barcode scanner, label printer, container transfer device and container locators. The containers to be filled are placed on the queuing conveyor of the Pressout dispenser where they are picked up in turn by the pneumatic transfer mechanism and placed onto the scale unit ready for the dispense to proceed.



Infeed and outfeed queuing system (Pick and place) (cont)

When a recipe in Ink Manager is selected to dispense, a barcode label, specific to that recipe, is generated which must be applied to the container. The container is then placed in its locator, which must be positioned as shown, and with the label orientated towards the barcode scanner.

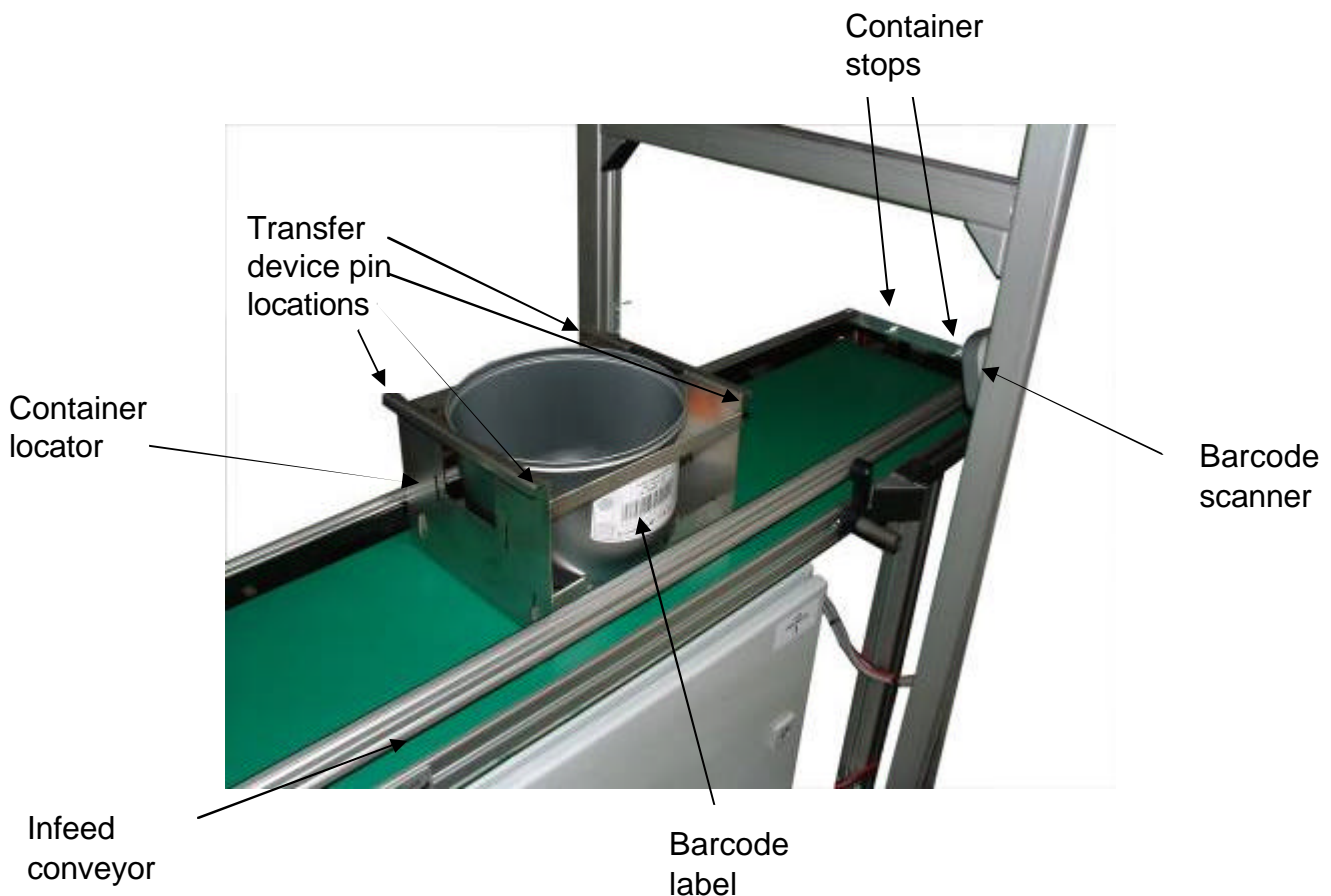
When a dispense is activated, or when the queue of containers on the conveyor is started in Ink Manager, the machine will go through its 'homing' routine. This ensures the carriage assembly and the container transfer mechanism are in position, and that the scale unit does not have a container present. Following this, the machine is ready to commence the dispense.

The conveyor will move the container past the barcode reader. If the container is placed with the barcode label out of the sight of the barcode reader, it will attempt to read three times and if unsuccessful, will cause the machine to stall.

When the barcode has been read successfully, the container continues to the stops at the end of the conveyor which are set to pause the container in the correct position ready for the container transfer device to pick it up.

The container transfer device will now move to a position above the container locator and the grips will close, locking it in place. The container transfer device will then lift the container onto the scale unit, the grips will undo, the container transfer device will lift away and the dispense will commence.

If the container locator is placed in the incorrect orientation on the conveyor, the location pins of the container transfer device will not lock in the correct position and the operation will stall until it is removed and reset in the correct position.



Infeed and outfeed queuing system (Pick and place) (cont)

When the dispense is complete, the carriage moves the container location device, with its container of dispensed ink to the 'dispense complete' position of the machine. This is the opposite end to the 'home' position. The second container transfer device will pick up the container and location device, and place them on the outfeed conveyor.



The carriage will then return to the home position and further dispense operations which have been queued up will commence.

9 Balance and carriage assembly

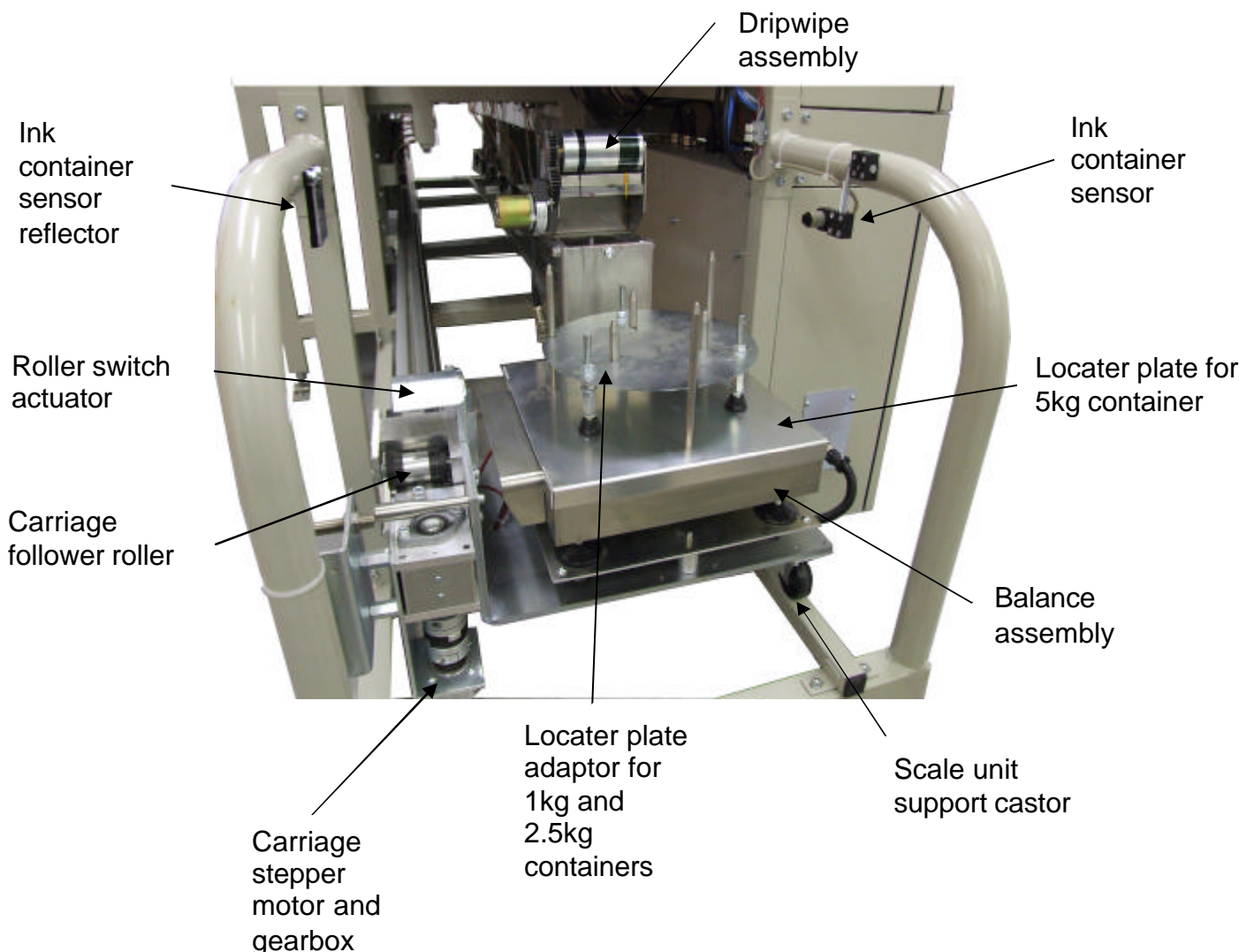
Balance assembly is used to indicate by means of Ink Manager software, the weight of ink as a recipe is dispensed, and can be used as a manual scale if required by selecting 'Show Scales' in the Ink Manager menu bar.

Place the correct locator plate on the balance for the ink container to be used. The locator plate is required to ensure the container is positioned in the centre of the balance and secured firmly before the dispense process begins. The balance and the locator plates are manufactured to suit customer specific container dimensions and weight requirements. The locator assemblies are 'keyed' to only fit firmly in one position. Ensure the locator plate is the correct size for the blend container to be used. Adjustments can be made by re-positioning the pins in the drilled slots in the upper locator plate. All three must be positioned to keep the container central to the locator plate.

WARNING: DO NOT USE THE DISPENSER WITHOUT THE CORRECT SIZE LOCATOR PLATE FOR THE CONTAINER

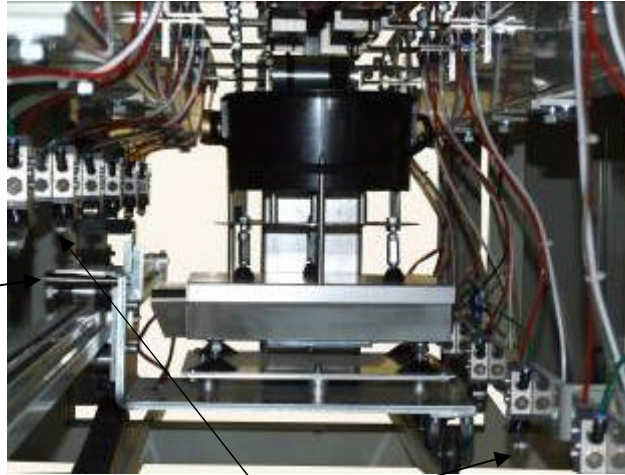
Contact your supplier, or Vale-Tech Ltd direct, if you do not have the correct size locator plate for the machine.

Position the container to be used onto the locator plate.



Balance and carriage assembly (cont)

Balance and carriage in operation during a dispense



Roller
Switch
Actuator

Pneumatic roller switches

9.1 Overweigh Protection

A photoelectric sensor is mounted in a position to scan across and through the locator plate and detect the following:

- That a container is present.
- The size of the container.

Batch size limits can be programmed into Ink Manager. This ensures a batch cannot be dispensed if it is of greater size than the capacity of the container which has been detected on the balance.

Note. The Pressout Dispenser will not perform a dispense operation if no container is detected on the locator plate

If the Pressout Dispenser is required to dispense a quantity greater than the capacity of the container on the locator plate, a warning will be shown on the screen giving the operator the following choice:

- a) Please reduce the batch size.
- b) Please increase the container size.

9.2 Scale Calibration

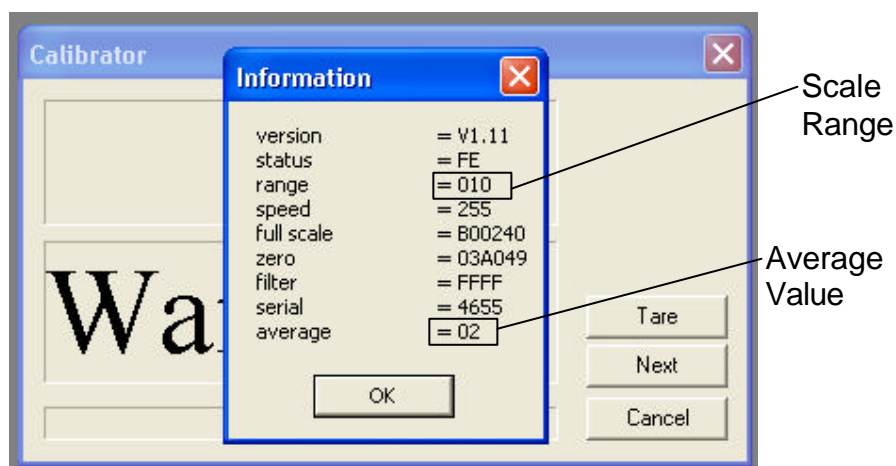
For the purpose of this example of the procedure, a 10kg scale is to be calibrated using 9kg of test weights. All Vale-Tech scale systems calibrate at zero and then 90% of the full scale capacity. For larger capacities using this principle, a 30kg scale calibrates at zero and then 27kg, and an 80kg scale calibrates at zero and then 72Kg.

Always check the scale accuracy by selecting 'Show Scales' from the drop down menu in Ink Manager, and checking accuracy with a known weight, before running the 'Scale Calibration' option. Always allow the scale to stabilise for 30mins before checking the calibration.

Select 'Show Scales' and allow the scale to tare. If a small amount of fluctuation is seen, this can be reset by clicking on 'Tare Scales' If the scale value continues to climb or fall, check for touch down of the scale and start again. If there is no touch down and the scale will not stabilise, contact Vale Tech for further advice.

Place known weights on to the scale weigh pan, (conformance weights supplied with the machine), and verify the scale is within the allowed tolerance. If it is, calibration is not required. If it is not, follow the calibration procedure.

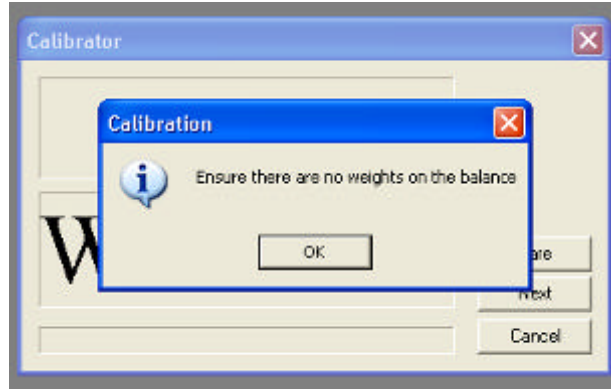
If it is determined that the scale requires re-calibration, log on to Ink Manger and ensure the scale calibration privileges are available by selecting 'Options' Scale Calibration from the drop down menu. If this option is not available, see your system manager log in details. The following screen will be displayed:



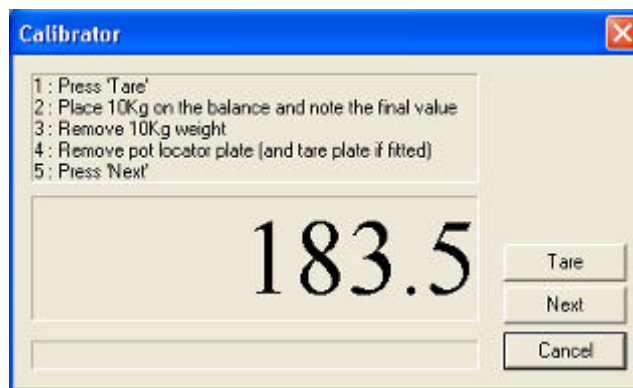
This is the basic scale programming information stored on the scale board that Vale-Tech Service may ask for if there are problems calibrating the scale. Check the scale 'range' is correct. The example above shows a 10Kg range Scale Board. The 'average' setting should be 02 on all scales.

Scale Calibration (cont)

Click OK and the following screen is displayed:



Click OK and the following screen is displayed:



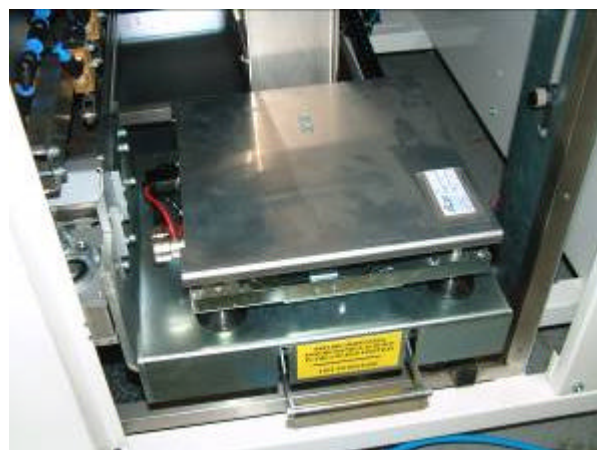
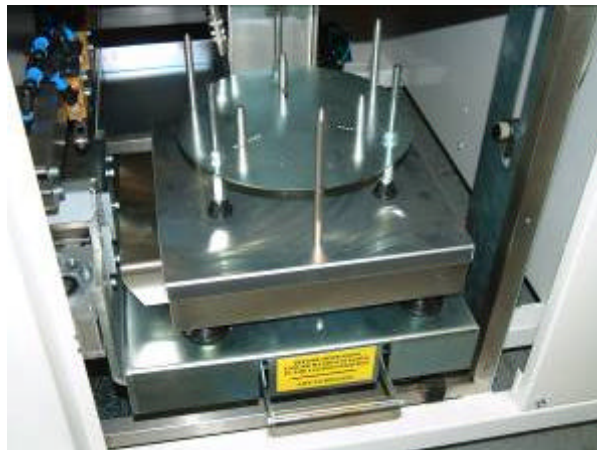
Above is the 'Calibrator' screen showing current weight and instructions on creating pre-calibration figures which will be required for the purpose of completing a calibration certificate. If it has been established that the scale is not out of calibration, then recalibration is not required, and cancellation of the procedure can be achieved at this point. If calibration is required, clicking on 'Next' will start the calibration procedure which is irreversible.

Ensure the required conformance or calibration weights are available, along with the 'Light Weigh Pan' as shown.

Scale Calibration (cont)



If the calibration is to take place now, before clicking on 'Next', remove the Universal Container Locator, the 5kg Container Locator and the Weigh Pan as shown.

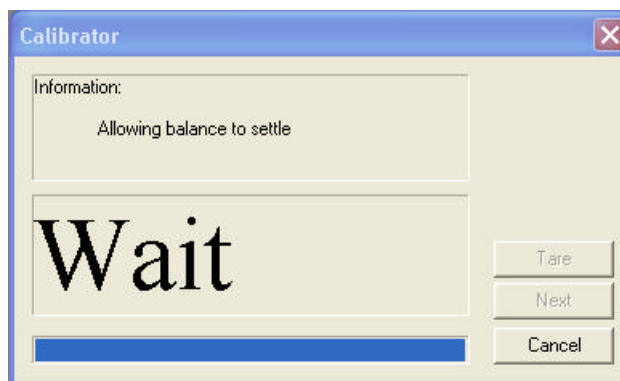


Place the Light Weigh Pan squarely on the Internal Weigh Pan with the balance locked in the home position as shown.

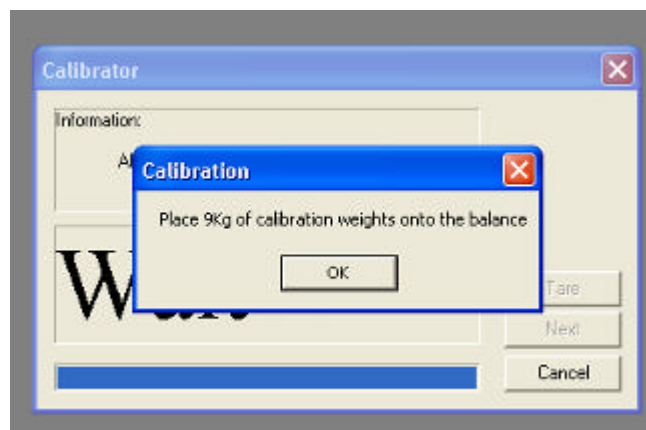
Scale Calibration (cont)



Click 'Next' and the calibration procedure begins. The procedure allows the scale to settle before the reading is taken. Avoid vibrations, draughts and touching the scale during this time. The blue progress bar indicates the stage of the procedure.



When the scale has finished recording the Zero value, the following screen is displayed:

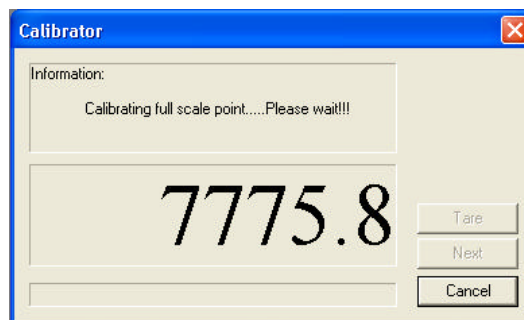


Scale Calibration (cont)

Place 9kg of conformance or calibration weights centrally on the scale with the balance locked in the home position as shown.



Click OK. The scale will then allow time for the readings to settle, before values are displayed, and counting up to the calibration weight value. This will overshoot up to three times reducing less each time as the calibration point is reached.

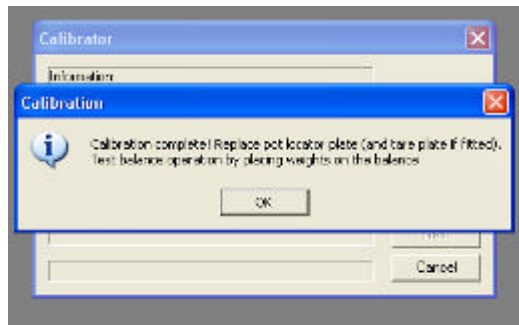


The final value, in this example 9kg, will be displayed as the value is stored. During this stage it is again important that the scale is not exposed to vibrations, draughts, or being touched.



After the full scale point is stored, the following message will be displayed.

Scale Calibration (cont)



Click OK to return to the calibration window. The final weight will be displayed.



The scale calibration can be tested using this window. To do this remove all the weights from the scale, replace the weigh pan and 5kg Container Locator then click on Tare.



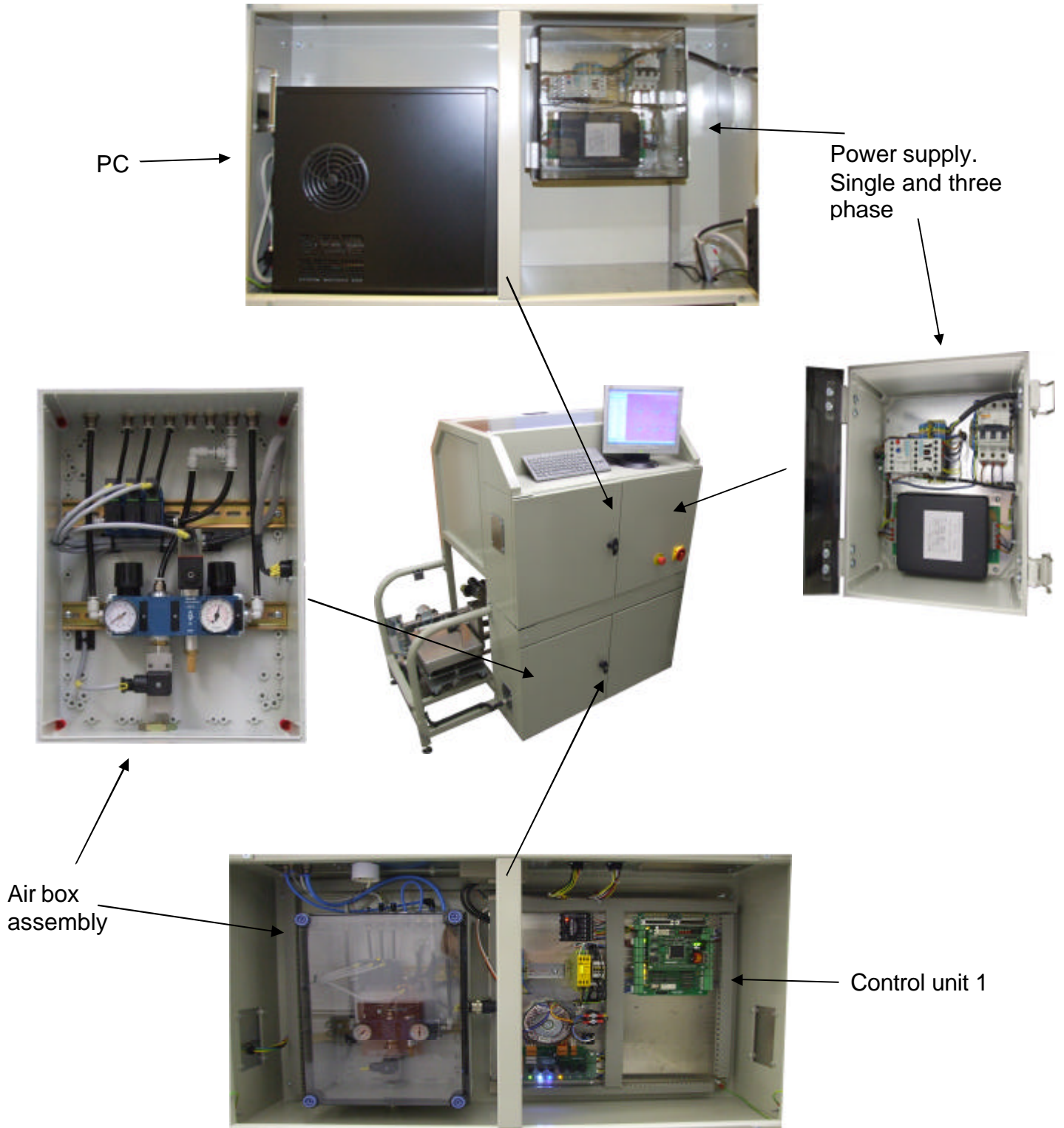
Place the calibration weights on the scale in 1kg increments and record the value displayed at each point, again with the balance locked in the home position as shown:

Scale Calibration (cont)



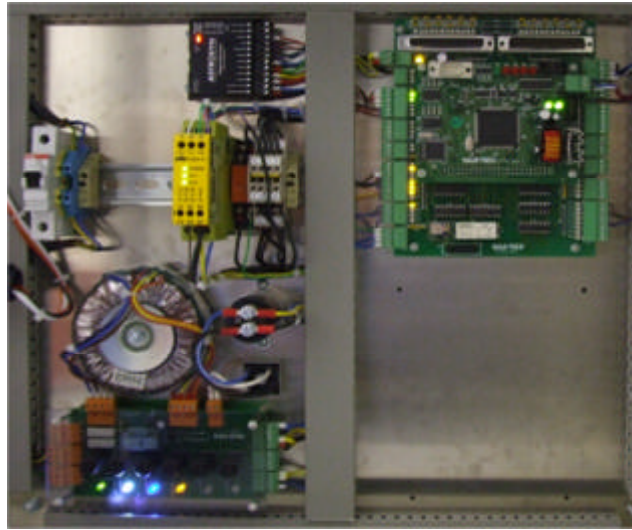
If the scale is within specification at each of the calibration points, click 'Done'. Calibration is complete.
If calibrator screen indicates the weight incorrectly, click 'Done' to close the current window and repeat the calibration procedure.
If repeating the procedure does not achieve the desired results, please contact Vale-Tech Technical Support.

10 Services cabinets



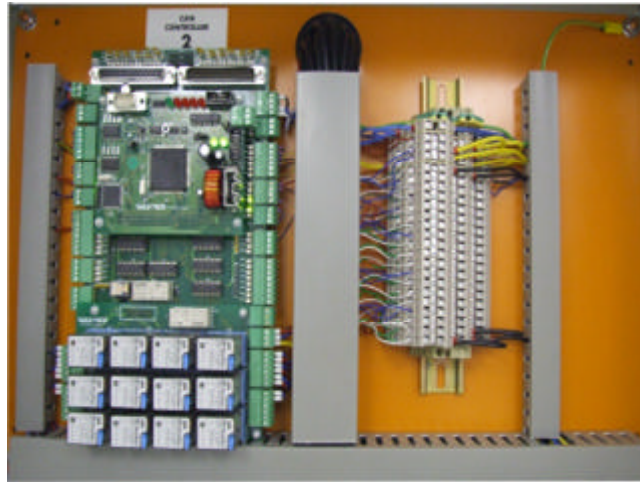
Services cabinets (cont)

Control cabinet 1



CAN controller 1

Control cabinet 2



CAN controller 2

Control cabinet 3



CAN controller 3 and 4

Services cabinets (cont)



Control cabinets 3 and 4 are located at the opposite end of the machine to that of the scale unit home position.

11 Dispenser mechanical operation during the dispense process

When the machine is required to perform a dispense operation, the following happens.

A container of the appropriate volume is placed on the container locator device on the scale unit, and its presence is detected by the ink container sensor(s) located at the side frame of the carriage assembly.

The recipe to be dispensed is selected in Ink Manager, and the 'Dispense' tab is selected to start the operation. (Section 5.7).

The stepper motor and belt drive attached to the carriage, incorporating the scale assembly and the container, moves from the 'home' position until it reaches the point below the first ink dispense valve from which the first colour will be dispensed. The stop position is preset in the Ink Manager hardware configuration. The roller switch actuator on the side of the carriage will activate the pneumatic roller switch, enabling the air supply to the ink valve actuators in the valve from which the ink is to be dispensed. (Figure x)

The ink valve will operate to the parameters set in 'Valve Configuration', (section 5.4), and dispense the required quantity of ink.

The carriage will move off from its position to allow the drip wipe motor to remove any trailing 'strings' of ink from the underside of the dispense valve. The carriage will move to the next ingredient to be dispensed and the process, as above, will be repeated.

This will continue until all of the component parts of the recipe have been dispensed.

When the dispense operation is complete, the carriage will move towards the 'home' position, and stop when the proximity switch on the side frame is activated.

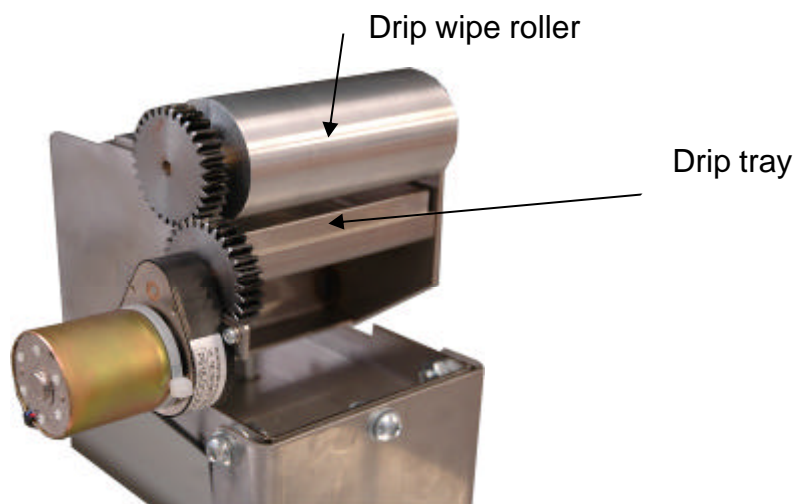
The container can be removed.

12 Cleaning & Maintenance

12.1 Drip wipe assembly

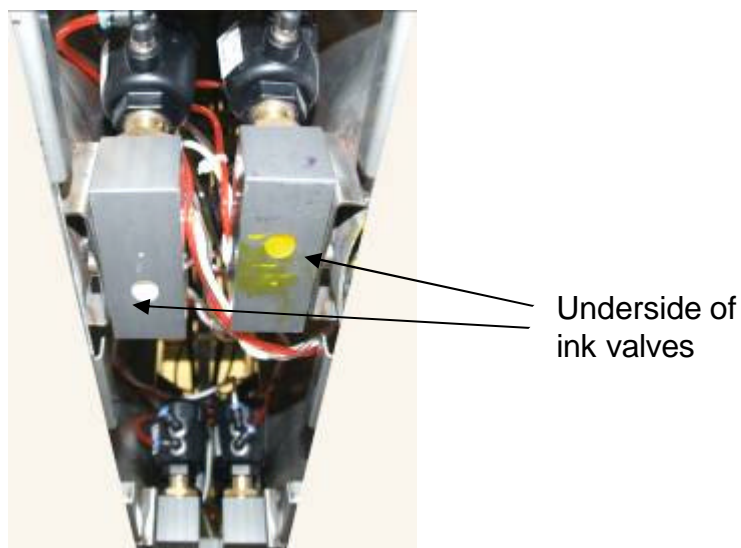
To keep the Pressout Dispenser in good working order, any spills and residual ink on any part of the machine must be removed immediately.

The drip wipe assembly will remove ink 'tails' from the valves following a dispense operation. The drip tray will require emptying at regular intervals, dependant upon machine usage. With the scale unit in the 'home' position, slide out the drip tray and remove any ink contained within it. The roller can be lifted out of its cradle and ink removed from it with a general wash chemical suitable for the ink type being used.



12.2 Ink valves

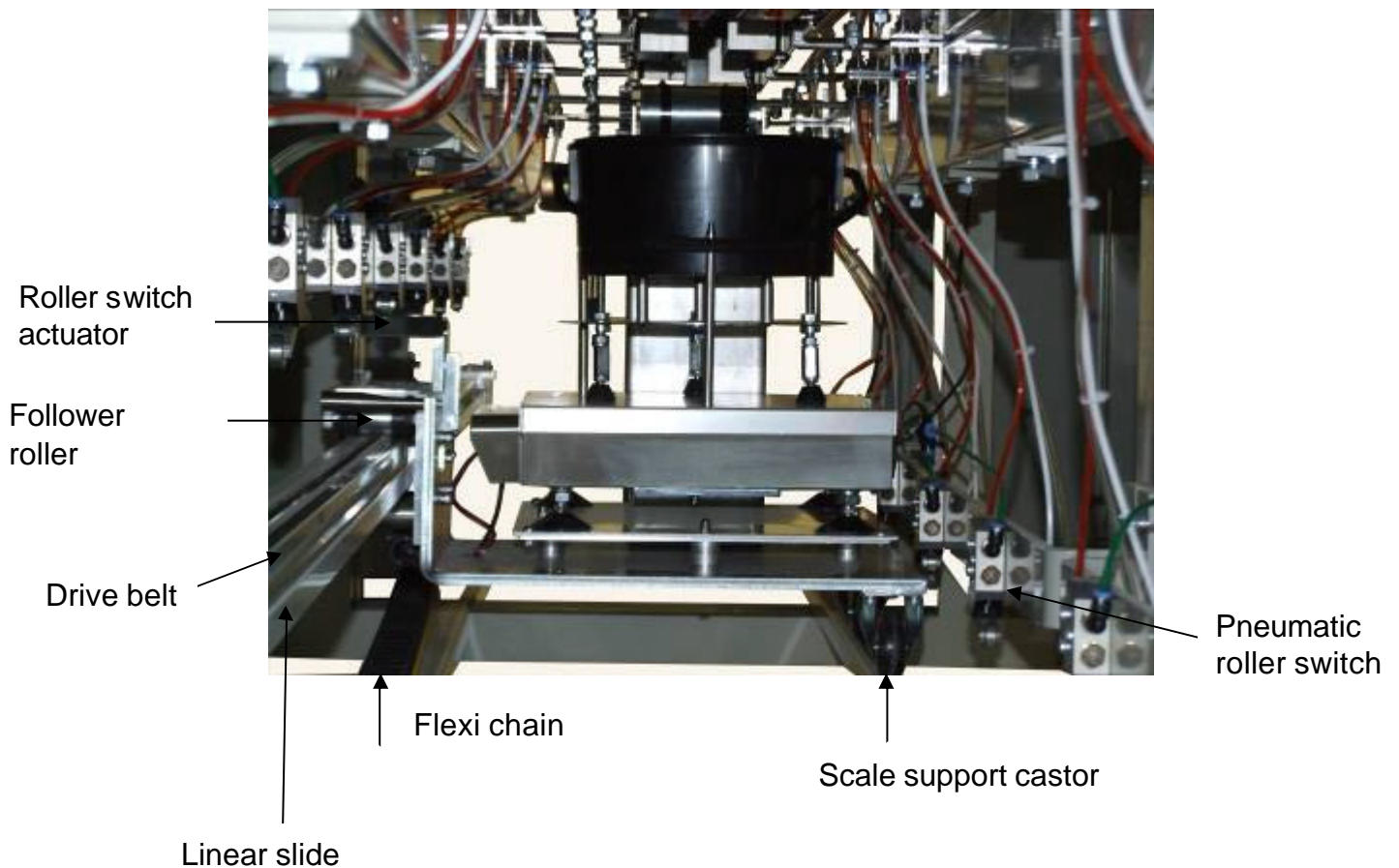
The ink valves may have traces of ink on their lower faces, and these will require cleaning, again with suitable general wash chemical. These can be cleaned when an ink container is removed for replacement, or the container may be slid out of the machine from its operating position, inclined backward slightly and the underside of the valve wiped over.



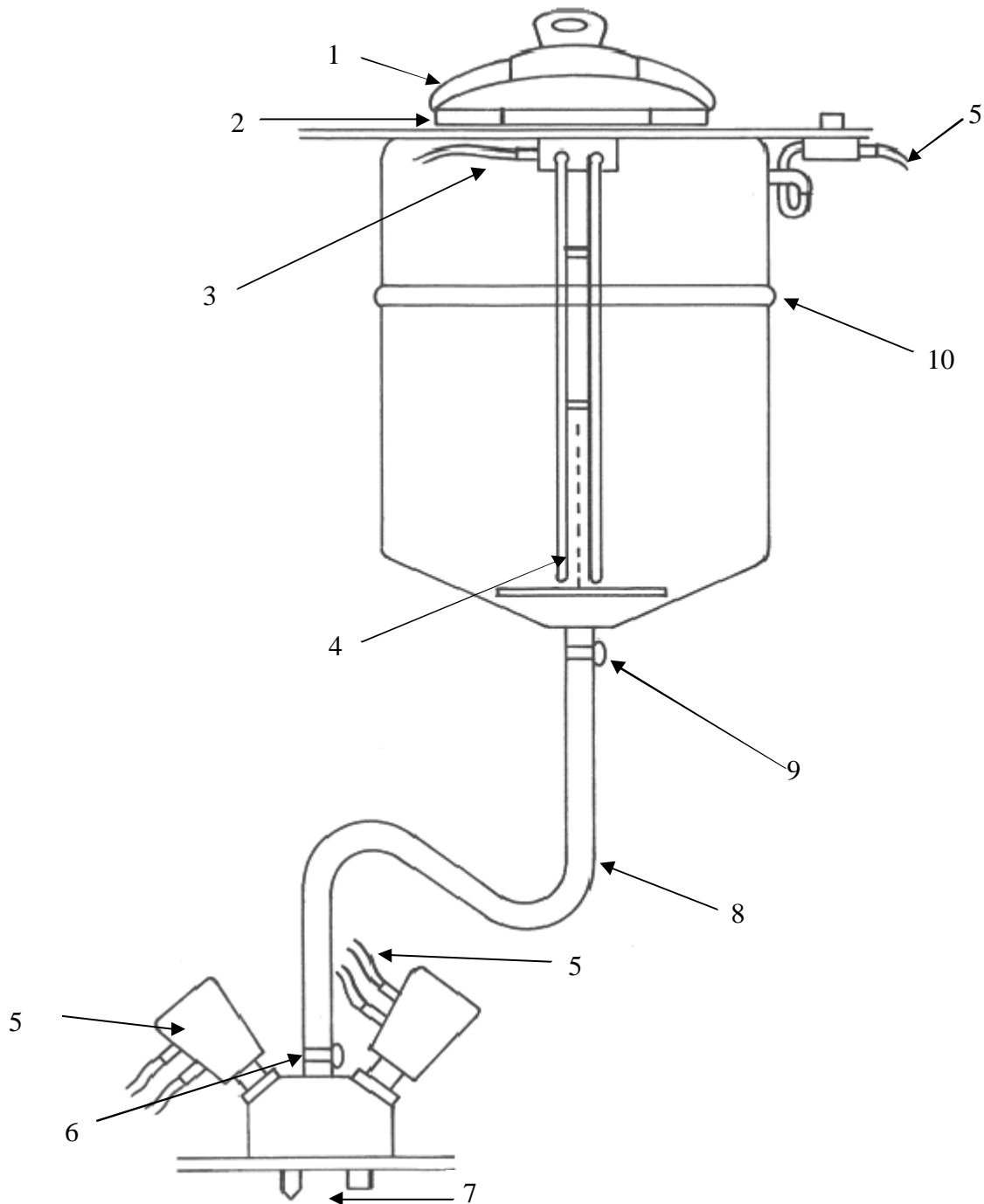
Cleaning and maintenance (cont)

12.3 Carriage assembly

The carriage assembly, including the drive belt, follower rollers, flexi chain, linear slide, pneumatic roller switches, roller switch actuator and scale support castors must be kept clean and free of any traces of ink and dust to ensure its smooth operation. The complete assembly is accessible by removing the side panels of the machine to gain access. The mains power must be switched and locked off before this operation is undertaken, and a non aggressive cleaner must be used so as not to damage the drive belt and flexi chain.

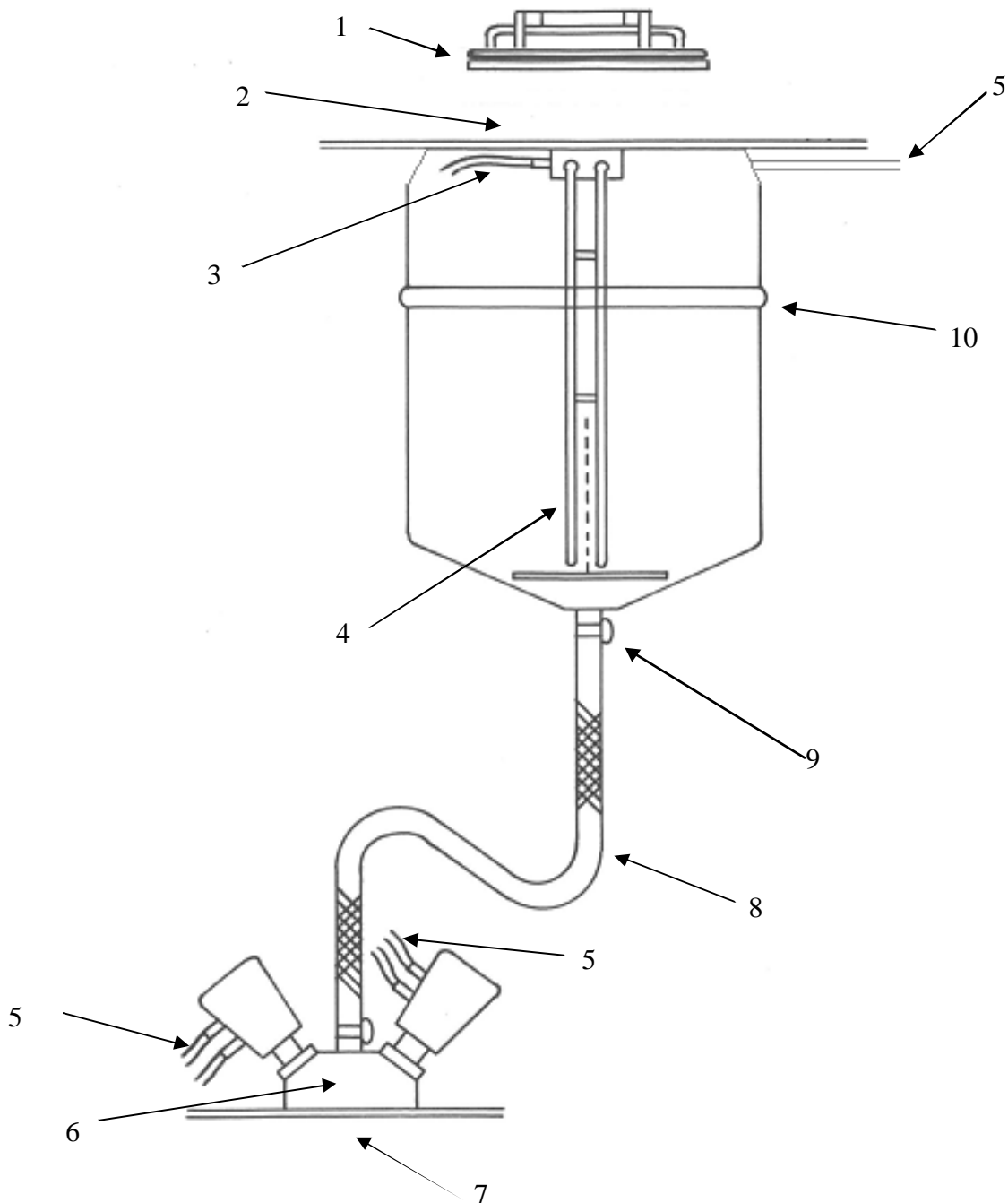


12.4 Low pressure ink supply container & valve



- 1 Ensure container lid inside rim, and gasket are clean and free from ink and contamination
- 2 Check for air leaks around lid
- 3 Check sensor connector cable
- 4 Check level probe is not damaged
- 5 Check air lines for leaks
- 6 Check dispense valve is clean and leak free
- 7 Check that coarse and fine dispense nozzles are clean
- 8 Check hose is clean and leak free
- 9 Ensure pipe clamp is secure
- 10 Check container seam is leak free

12.5 High pressure ink supply container & valve



- 1 Ensure container lid and gasket are clean and free from ink and contamination
- 2 Check for air leaks around lid
- 3 Check sensor connector cable
- 4 Check level probe is not damaged
- 5 Check air lines for leaks
- 6 Check dispense valve is clean and leak free
- 7 Check that coarse and fine dispense nozzles are clean
- 8 Check hose is clean and leak free
- 9 Ensure pipe clamp is secure
- 10 Check container seam is leak free

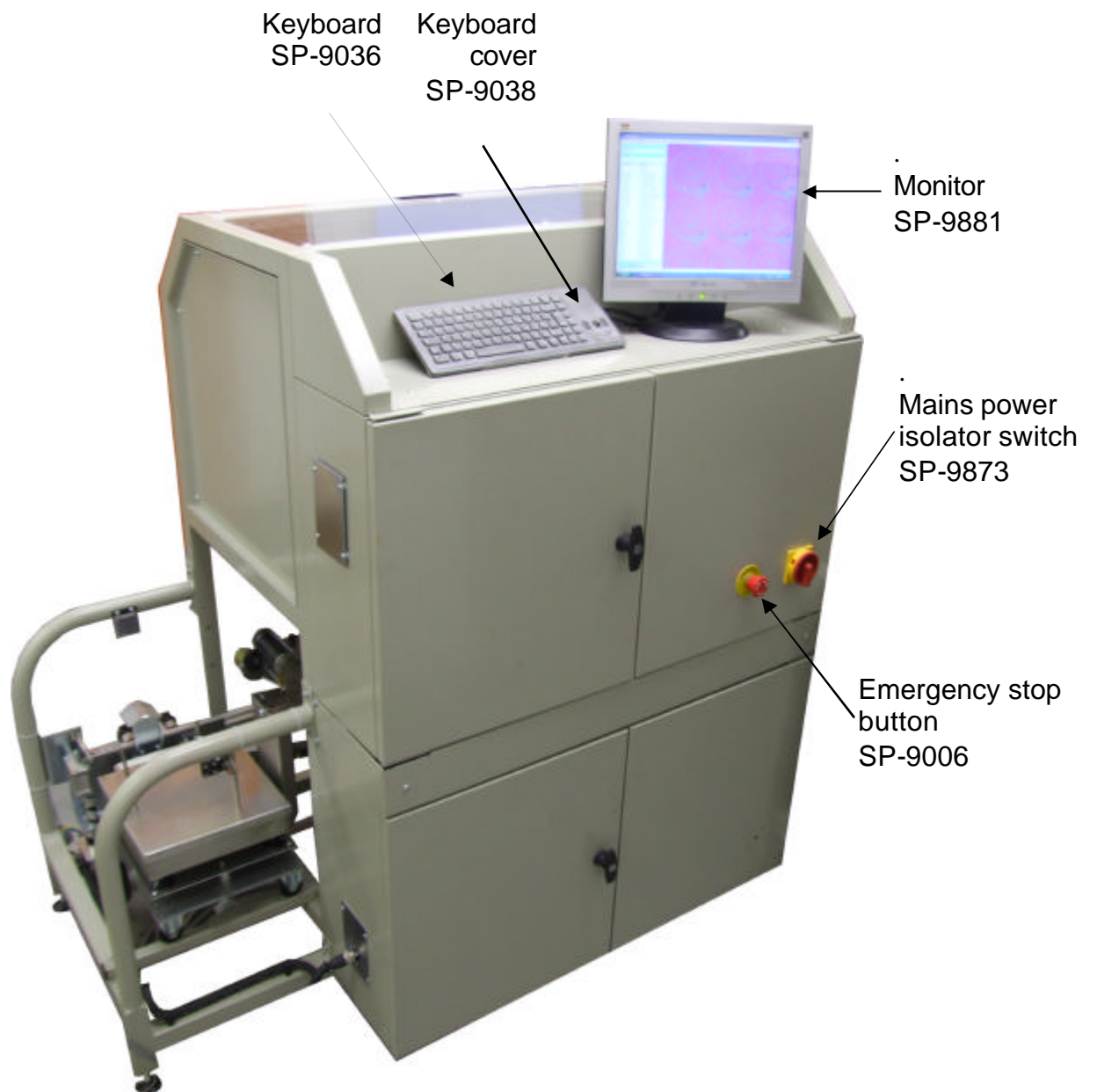
12.6 200kg press out dispenser

13 Spare parts

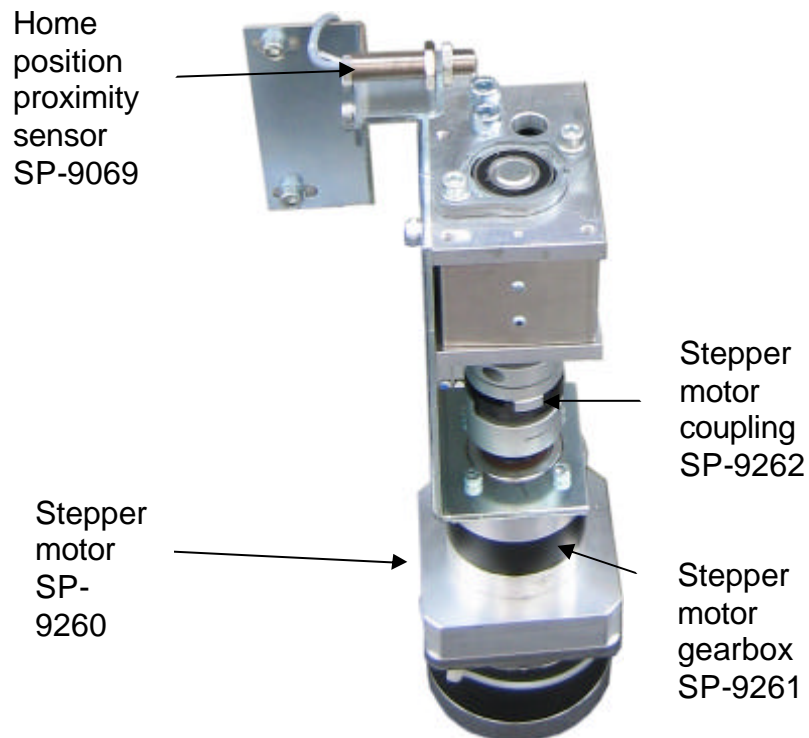
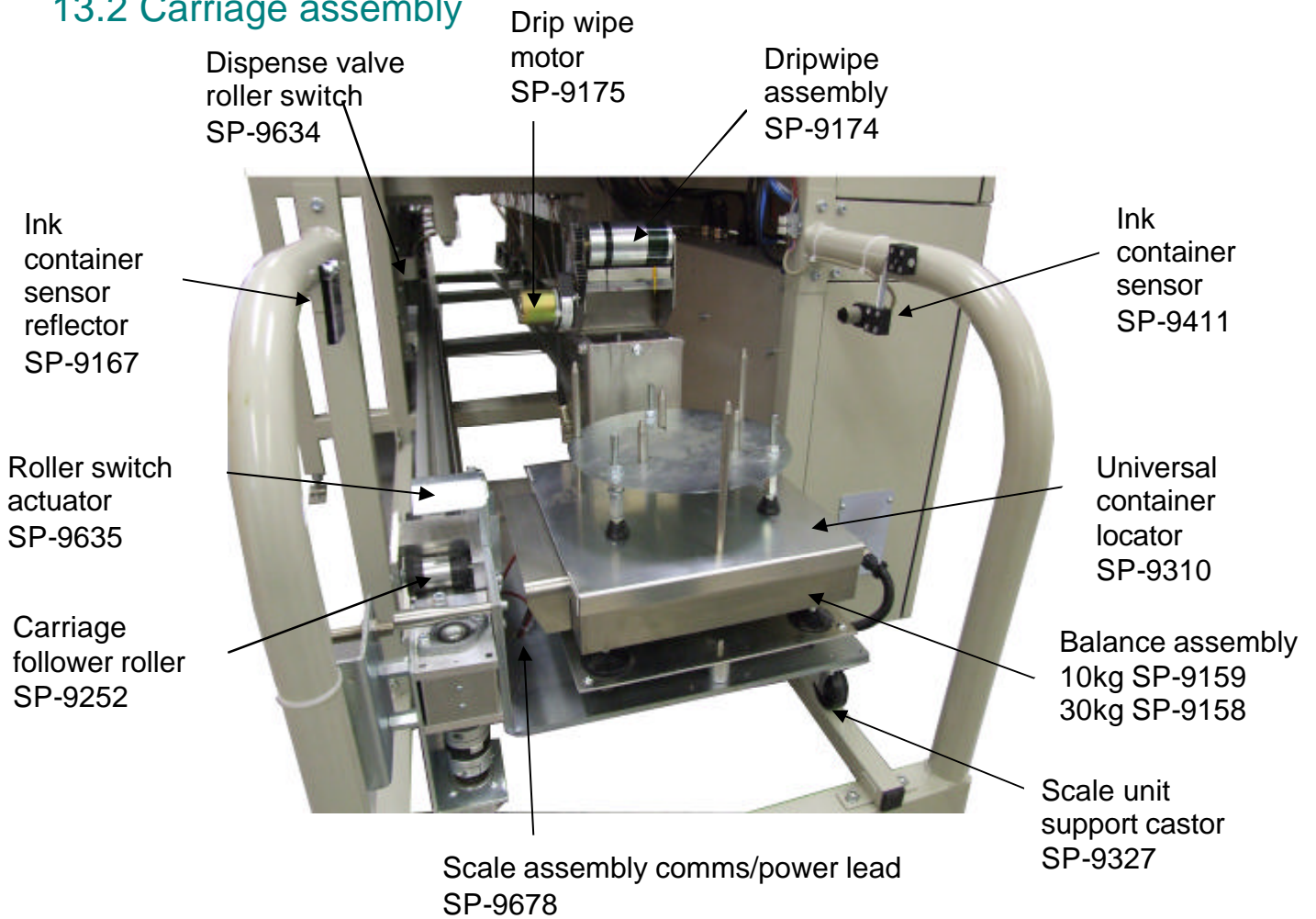
13.1 External parts



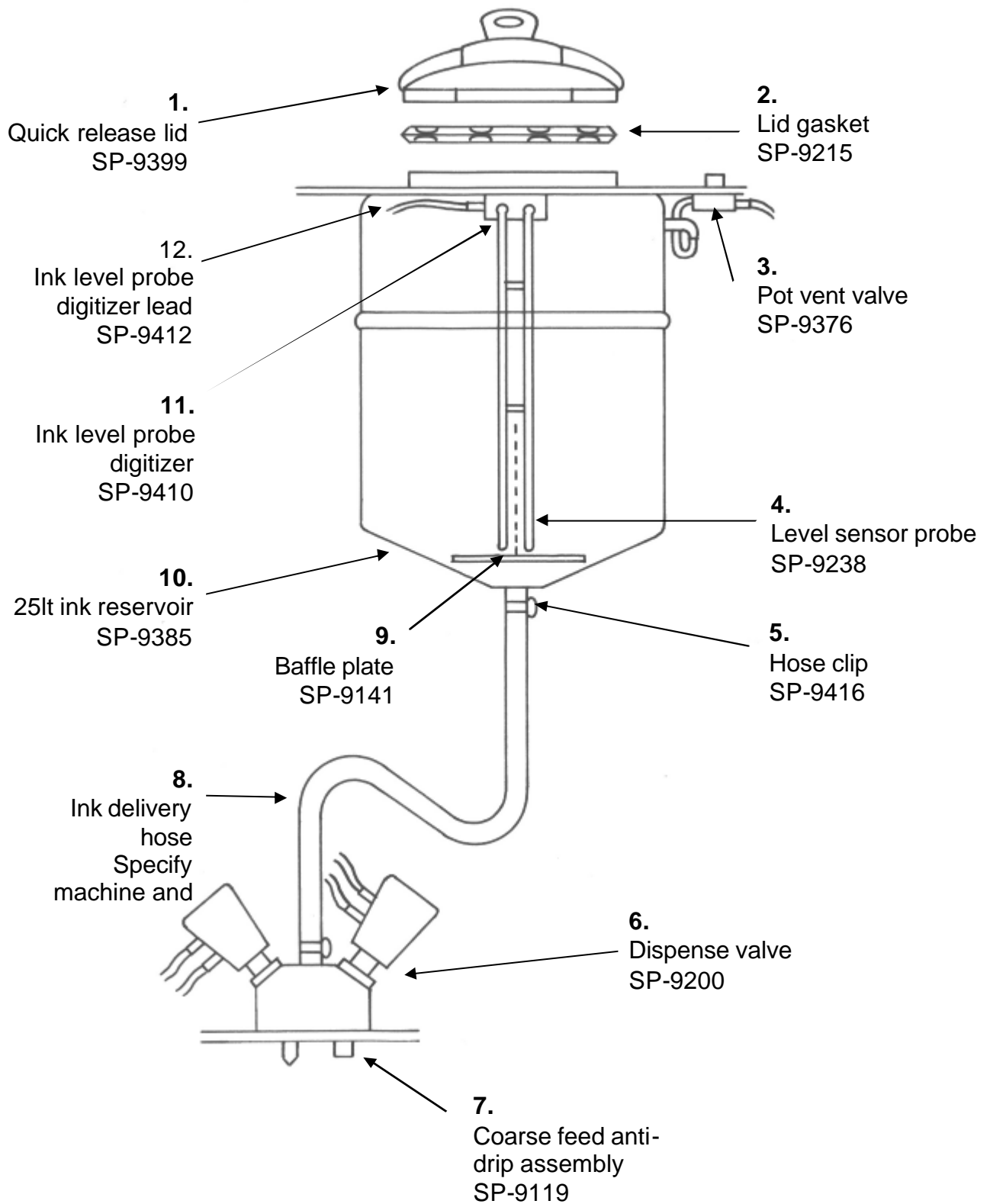
External Parts (cont)



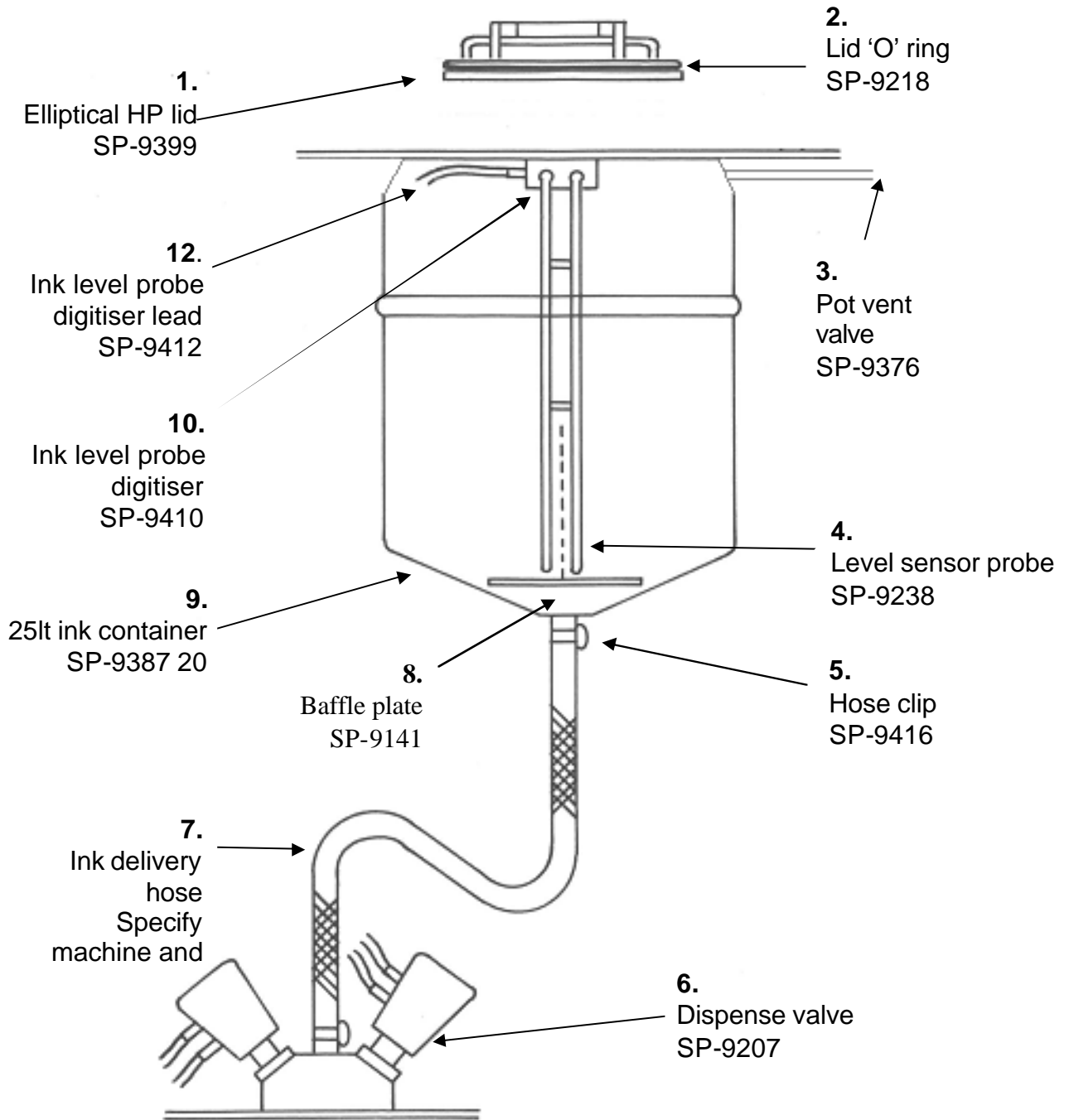
13.2 Carriage assembly



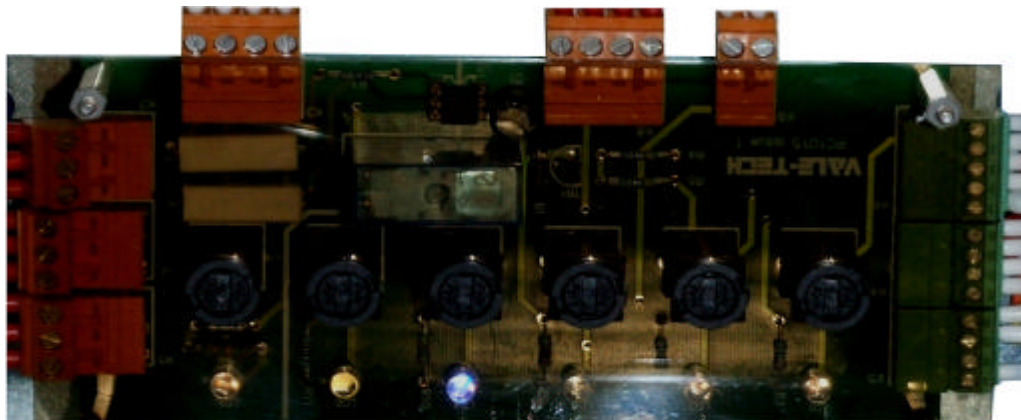
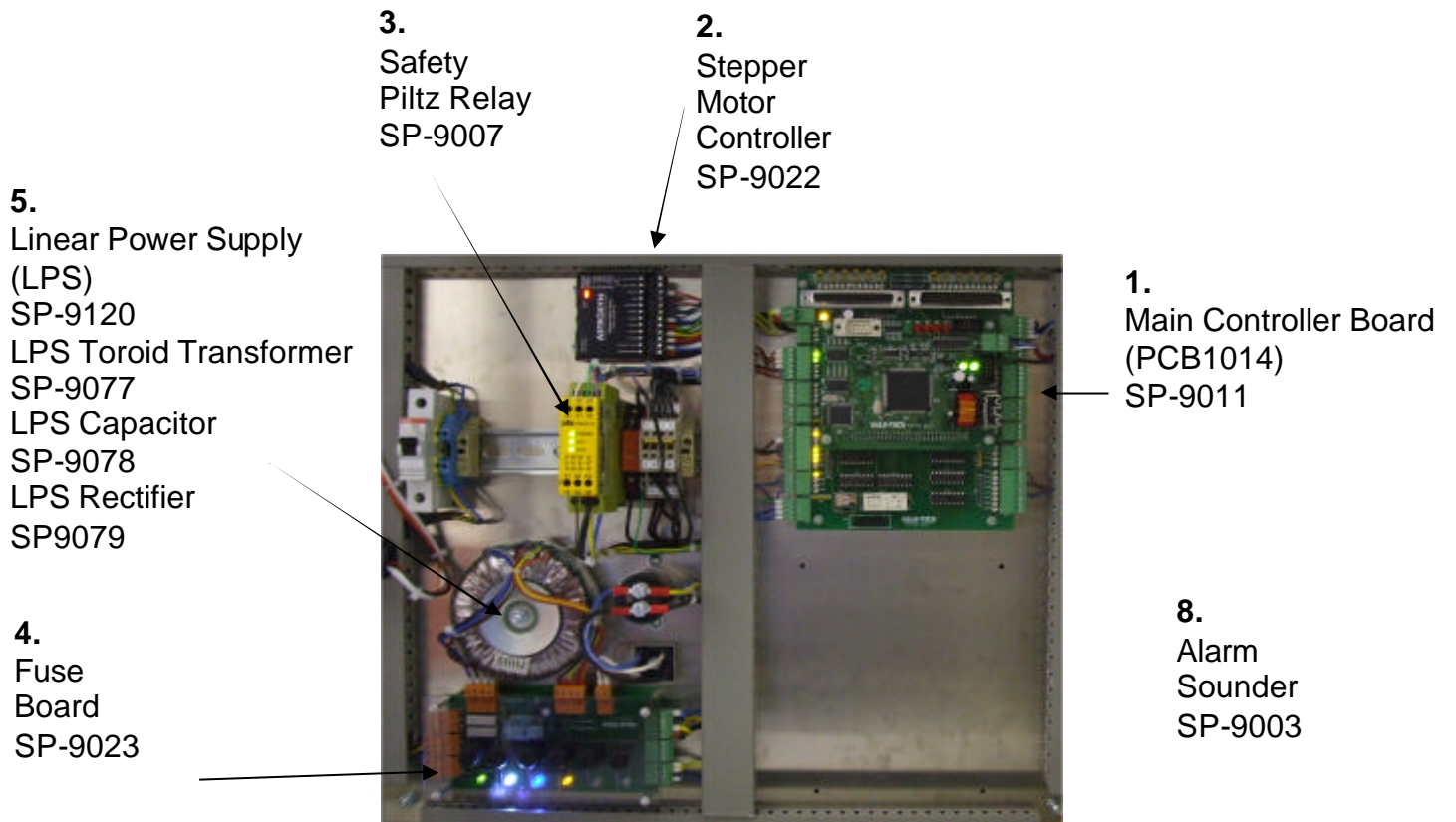
13.3 Low pressure ink supply container and valve



13.4 High pressure ink supply container and valve



13.5 Pneumatics and Electronics



6.
8amp 20mm
Fuse
SP-9125

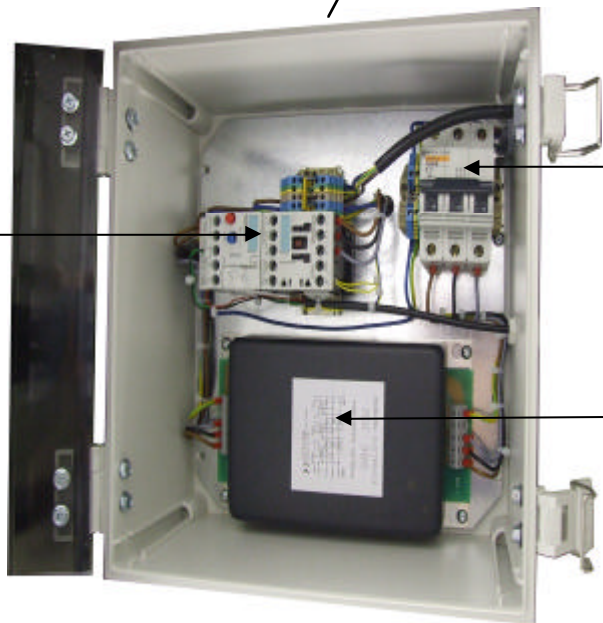
7.
5amp 20mm
Fuse
SP9124

Pneumatics and Electronics (cont)

1.
PC
SP-
9891



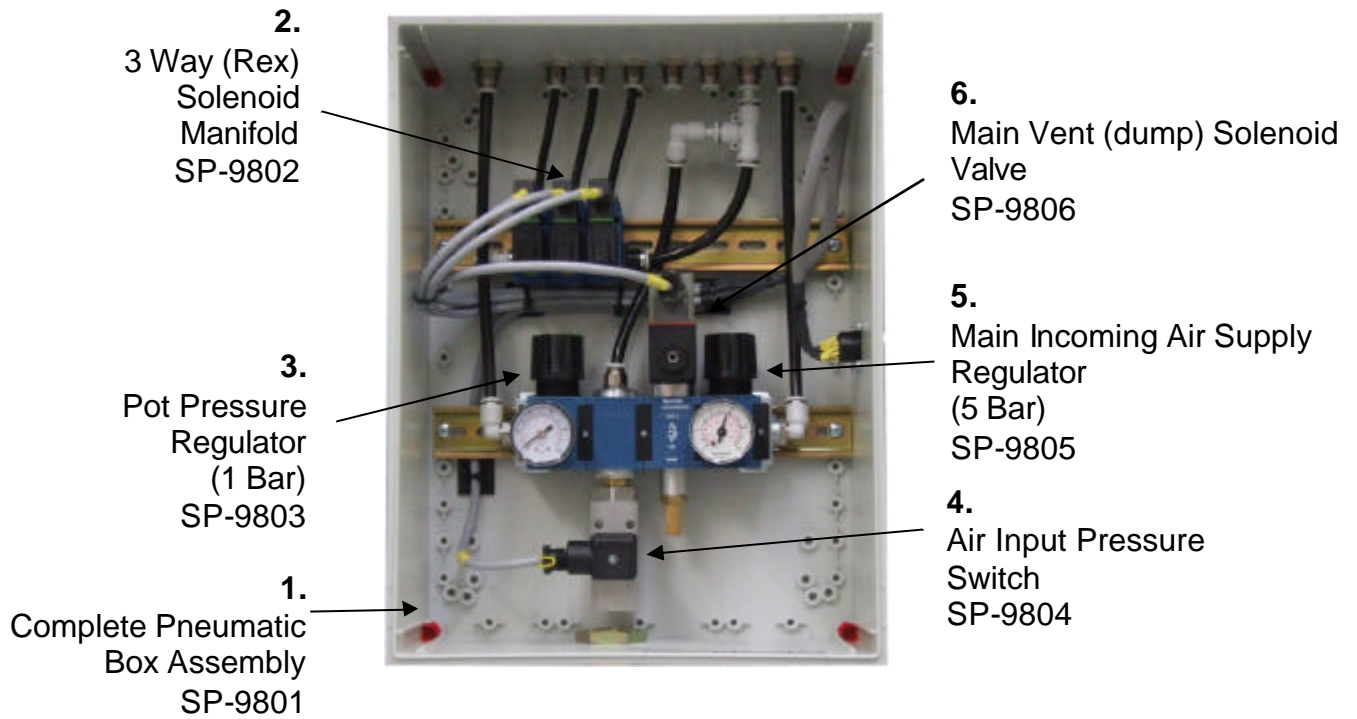
2.
Hydraulic
pump
motor
contactor
and over
current
protection.
SP-9715



3.
3 Phase - 6
amp MCB.
SP-9716

4.
3 Phase
filter.
SP-9717

Pneumatics and Electronics (cont)

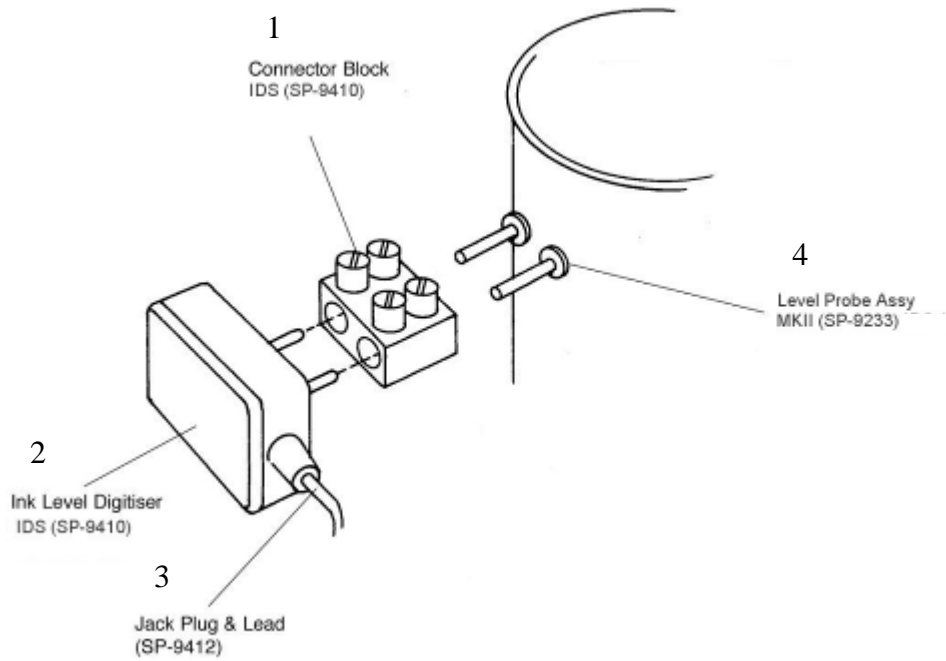


13.6 No. 1 Dispense Valve

13.7 No. 2 Dispense Valve

13.8 No. 3 Dispense Valve

13.9 Low and high pressure ink container level sensor



13.10 Parts List

Pressout - Machine User Parts List

Page-	Item	Description	SP Code
1	1	Air Filter	SP-9714
1	4	Red/Amber/Green Colour Beacon	SP-9004
1	5	Beacon Bulb	SP-9005
1	9	Door Isolating Switch- Reed & Magnet	SP-9110
1	11	Levelling Foot	SP-9861
2	1	Keyboard with Tracker ball (PS2)	SP-9036
2	2	Keyboard Cover	SP-9038
2	3	Monitor - 15" TFT	SP-9881
2	4	Mains power Isolator Switch	SP-9873
2	5	Emergency Stop Button	SP-9006
2	6	Sounder	SP-9003
2	1	Quick Release Lid - 1 Bar	SP-9399
2	2	Lid Gasket	SP-9215
2	3	Pot Vent Valve - 8 mm	SP-9376
2	4	Level Sensor Probe	SP-9238
2	5	Hose Clip	SP-9416
2	6	Dispense Valve - 12-3DA-BKT-1B-1"Htail	SP-9200
2	7	Coarse Feed anti drip assembly	SP-9119
2	8	Ink Delivery Hose- (Specify Pot Number)	SP-9421-42
2	9	Baffle Plate	SP-9141
2	10	25 Litre Ink Reservoir- Ex Lid	SP-9385
2	11	Ink Level Probe Digitiser	SP-9410
2	12	Ink Level Probe Digitiser Lead	SP-9412
3	1	Dispense Valve Roller Switch	SP-9634
3	2	Drip Wipe assembly	SP-9174
3	3	Ink Container Sensor	SP-9411
3	4	Universal Pot Locater	SP-9310
3	5	Scale assembly 10kg 280mm	SP-9159
3	5	Scale assembly 30kg 310mm	SP-9158
3	5	Scale assembly 50kg 400mm	SP-9155
3	6	Scale Unit Support Castor	SP-9327
3	7	Scale Assembly Comms/Power Lead	SP-9678
3	8	Carriage Follower Roller	SP-9252
3	9	Roller Switch Actuator	SP-9635
3	10	Ink sensor reflector	SP-9167
3	11	Home Position Proximity Switch	SP-9069
3	12	Stepper Motor	SP-9260
3	13	Motor Drive Coupling	SP-9262
3	14	Motor Drive Gearbox	SP-9261
3	15	Stepper/Gearbox Assembly Complete	SP-9681

4	1	Low Pressure Lid	SP-9399
4	2	Gasket	SP-9215
4	3	Vent Valve	SP-9376
4	4	Level Sensor Probe	SP-9238
4	5	Hose Clip	SP-9416
4	6	Dispense Valve	SP-9200
4	7	Coarse Feed Anti Drip Assembly	SP-9119
4	8	Hose – machine specific	
4	9	Baffle Plate	SP-9141
4	10	25lt Ink Container	SP-9385
4	11	Digitiser	SP-9410
4	12	Digitiser Lead	SP-9412
5	1	High Pressure Lid	SP-
5	2	Lid 'O' Ring	SP-9218
5	3	Vent Valve	SP-9376
5	4	Level Sensor Probe	SP-9328
5	5	Hose Clip	SP-9416
5	6	Dispense Valve	SP-9207
5	7	Hose – machine specific	
5	8	Baffle Plate	SP-9141
5	9	25lt Ink Container	SP-9387-20
5	10	Digitiser	SP-9410
5	11	Digitiser Lead	SP-9412
6	1	Main Controller Board - PCB 1014	SP-9011
6	2	Stepper Motor Controller- Async	SP-9022
6	3	Safety Piltz Relay	SP-9007
6	4	Fuse Board 110/240 Switch - 1015	SP-9023
6	5	Linear Power Supply (LPS)	SP-9120
6	5	LPS Toroid Transformer	SP-9077
6	5	LPS Capacitor	SP-9078
6	5	LPS Rectifier	SP-9079
6	6	Fuse 20mm 8 Amp	SP-9125
6	7	Fuse 20mm 5 Amp	SP-9124
6	8	Alarm Sounder	SP-9003
7	1	PC inc Windows XP. Exc Ink Manager/Keyboard/Mouse	SP-9891
7	2	Hydraulic Pump Motor contactor and over current protection	SP-9715
7	3	3 Phase 6 Amp MCB	SP-9716
7	4	3 Phase Filter	SP-9717
8	1	Air Control Box Complete	SP-9801
8	2	3 Way Solenoid Manifold	SP-9802
8	3	Pot Pressure Regulator & 1Bar Gauge	SP-9803
8	4	Air Input Pressure Switch	SP-9804
8	5	Incoming Air Regulator & 5 Bar Gauge	SP-9805
8	6	Incoming Air Vent Valve Solenoid	SP-9806

9	1	No. 1 Dispense Valve Complete	SP-
9	2	Actuator	SP-
9	3	Bellows	SP-
10	1	No.2 Dispense Valve Complete	SP-
10	2	Actuator	SP-
10	3	Bellows	SP-
11	1	No. 3Dispense Valve Complete	SP-
11	2	Actuator	SP-
11	3	Bellows	SP-
12	1	Connecter Block	SP-9410
12	2	Ink Level Digitiser	SP-9410
12	3	Jack Plug and Lead	SP-9412
12	4	Level Probe Assembly	SP-9233

14 Preventative Maintenance Programme

Scale unit	<p>Check:</p> <p>Comms and power lead are securely connected Scale feet are located correctly and balance is level Balance calibration WEEKLY Locator plates are clean & undamaged Excessive ink on scale and scale support Container sensor and reflector are clean and functioning AS NECESSARY</p>
Carriage	<p>Check:</p> <p>Drive belt, carriage follower rollers and scale unit support castors are free from ink and dust contamination Check linear drive belt for alignment for wear and tear Carriage runs smoothly to its full extent at even speed Linear slide and scale unit support rail are free from ink and dust contamination Roller switch actuator shows no sign of damage and activates all of the roller switches WEEKLY</p>
Dispense valves	<p>Check:</p> <p>Base of valves are clean Ink leakage from actuator fittings Check air lines to actuators are secure and not leaking EACH TIME CONTAINERS ARE CHANGED OR WEEKLY Flow rate configuration WEEKLY</p>
Air system	<p>Clean:</p> <p>Filter and ensure air pressure is set to minimum 82psi (6 bar) WEEKLY</p>
Ink containers	<p>Check:</p> <p>Air settings to ink valve actuators and adjust as required Ink supply container vent valves for damage or air leaks WEEKLY</p>
General	<p>Check machine for cleanliness and for mechanical integrity WEEKLY</p>
General	<p>Clean drip wipe roller and doctor blade, and empty drip wipe tray AS NECESSARY</p>
General	<p>Check main air pipes and fittings, and electrical cables and fittings for signs of wear WEEKLY</p>
General are	<p>Check safety switches on each ink station door and emergency stop buttons functioning correctly DAILY</p>
General	<p>Check and report any mechanical damage or signs of misuse AS NECESSARY</p>

**IF IN ANY DOUBT, DO NOT USE THE MACHINE UNTIL A VALE-TECH OR AN
AUTHORISED SERVICE AGENT HAS CLARED THE MACHINE FOR USE.**

15 Trouble-shooting Guide

PC		
IDS power is on but no light on at front of PC.	No Power.	<p>Press 'on' button at front of PC.</p> <p>If LED still not on, check that Power Supply Switch at back of PC is on, then press PC 'on button'.</p> <p>Check Power cable is secure, press PC 'on' button</p>
PC LED is on but no display.	<p>No Display LED.</p> <p>Display LED is on.</p> <p>Display LED is amber or red.</p>	<p>Check monitor is switched on, press button on front of display.</p> <p>Check Monitor cable at back of PC is secure/plugged in, turn monitor off then on again.</p> <p>Display is stuck in power save mode, turn monitor off then on again.</p>
PC not getting into windows.	<p>Reports Keyboard error.</p> <p>Error message: Hard Disk or Boot device.</p> <p>Registry device/files error message.</p> <p>Hangs loading Windows, no error message displayed.</p> <p>PC still not getting into Windows.</p>	<p>Ensure keyboard is secure/plugged in then re-boot.</p> <p>Hard disk fault; call Vale Tech Technical Support.</p> <p>Call Vale Tech Technical Support.</p> <p>Re-boot with 'Ctrl+Alt+Del' keys or switch PC off, then on again.</p> <p>Call Vale Tech Technical Support.</p>
Monitor screen has turned dark but PC is switched on.	Monitor appears to be broken or switched off	<p>Check monitor power is switched on.</p> <p>Check monitor is not in power-save mode by pressing a mouse button or keyboard space bar.</p>
Machine does not work at all.	No power to PC or machine. Machine appears to be dead.	<p>Check mains power to machine.</p> <p>Check Isolator switch is in 'ON' position.</p> <p>Check PC is switched ON.</p>

Pressout Dispenser		
Slow dispense	Valve configuration	If only one colour in a dispense is a problem, check flow rate settings
	Dispense valve	Check ink has not solidified in container or valve body
	Actuator	Check ink has not dried in dispense valve outlet Check integrity of actuator operation
	Hydraulic pump	Check actuator bellows for damage Check pump is operating, and if so, to correct pressure as dispense is started Check for correct hydraulic oil level in pump sight glass Check for leaks in hydraulic lines from pump to manifold Check for leaks at hydraulic manifold Check for leaks in hydraulic lines from manifold to cylinder
High and low pressure containers	Low/no air pressure.	Check air pressure regulators with containers, (if used), turned off. Valve actuator = 6+bar, and if used, high pressure container = 6bar, low pressure container = 1bar. If low check air supply is good at source first, then adjust gauges to specified pressures. Check for air leaks.
	Air leaks at supply container.	Check and clean gaskets and lids of high and low pressure containers if used. All sealing surfaces must be clear of ink or contaminants. Check lids are securely closed.
	Air leaks from lid fittings.	Check 'air in' lines are secure, push firmly into container vent finger valves. Require engineer adjustment or replacement.
	No air pressure in container.	Check lid is closed and air is turned on.

<p>High and low pressure containers (cont)</p>	<p>Containers not pressurising fast enough</p> <p>No apparent air leaks.</p>	<p>Turn all containers off, and then turn each container on individually allowing each container to pressurise before next is turned on.</p> <p>Check flow rates set in 'Valve Configuration' settings set up have not been set too low</p>
<p>Machine will not reset.</p>	<p>Beacon light flashes from green to red.</p> <p>Emergency Stop activated.</p> <p>All doors are closed.</p>	<p>Close any doors with sensor switches.</p> <p>Release Emergency Stop switch.</p> <p>Faulty switch, call Support.</p> <p>Call Vale Tech Technical Support.</p>
<p>Ink level indicators are incorrect</p> <p>(High and low pressure containers)</p>	<p>High level of residual ink in pressout ink containers</p> <p>Empty pressout ink containers not registering empty</p> <p>The ink level sensors are not reading or are reading incorrectly.</p> <p>Ink level sensors appear to be reading incorrect full or empty levels</p>	<p>Check mechanical stops are set correctly</p> <p>As above</p> <p>Ensure digitisers on containers are fully plugged in and working properly.</p> <p>Check min & max levels have been set correctly in Ink Manager</p>
<p>Balance errors.</p>	<p>There is no weight output or the weight shown is incorrect.</p>	<p>Check the calibration of the scale unit and if necessary, recalibrate</p> <p>Check cables are plugged in securely and that they are not trapped between the scale top plate and the load cell</p> <p>Check settings in ink manager are the same as settings in the Hardware Configuration section of this manual.</p>
<p>Linear carriage will not move.</p>	<p>Machine resets ok but linear carriage will not move.</p>	<p>Check all doors are all securely closed.</p> <p>Check 20mm Stepper Motor Driver Board protection fuse located on electrical chassis</p> <p>Check linear carriage, scale support castors, carriage follower rollers and linear carriage belt for traces of contamination</p>

Green Mains power indicator bulb is no longer lit on the front panel	Green Mains power is no longer lit on the front panel of the machine.	Service personnel to check the mains power supply bulb has not blown, fit a replacement if necessary.
One or more of the beacon Red/Amber/Green bulbs are not operating	Not lit during the normal operating cycle of the machine.	Check each of the beacon bulbs have not blown, fit replacements if necessary.
Warning message 'Feed rate too slow' appears during a dispense.	Machine will not dispense ink from valves.	Check main air supply is switched on. Check the lid of the ink container is correctly fitted and the air tap is turned to the 'ON' position. Service personnel to check air regulator settings are correct inside electrical chassis.

My machine problem is not listed here, what do I do now...?	A Comprehensive list of Technical Bulletin Guides Have been produced to help you to resolve the problem. These are available from Vale-Tech	Contact your Authorised local Service Agent or contact Vale-Tech Ltd direct on: Tel: +44 (0) 1638 668593 Fax: +44 (0) 1638 676720 Email: technical.support@vale-tech.co.uk
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16 PC Hardware Configuration

The following information is recorded during the final quality control checks and reflects the PC configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.

17 Ink Manager Hardware Configuration

The following information is recorded during the final quality control checks and reflects the Ink Manager Hardware configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.

18 Drawings

The following drawings are provided for use by plant engineers/authorised service engineers to assist in the servicing of the IDS and for diagnostic purposes.

Electrical

Main Circuit Diagram

Lead 1

Lead 2

Lead 3

Lead 4

Lead 5

Pneumatic

Circuit Diagram 1

Circuit Diagram 2

Circuit Diagram 3 (Dependant upon machine specification)

Hydraulic

Circuit Diagram 1

19 Ink Manager Software

The Ink Manager Software Training Manual that follows will provide you with the information you need to use all the advanced functions and features, along with basic instructions necessary for simple operation of the software. It can also act as a complete package for structured on-site training.

20 SERVICE LOG

This Service Log serves to provide contact information; should additional assistance be required please refer to the contact details supplied below. Forms available at the end of this section allow space for the service history of the machine to be recorded for future reference.

20.1 Contact Information

If you require any additional assistance or have any queries, please contact

Vale-Tech

Telephone: +44 (0) 1638 668593

Fax: +44 (0) 1638 676720

Email: technical.support@vale-tech.co.uk

Website: www.vale-tech.co.uk

Address:

VALE-TECH LIMITED

Unit 12
Depot Road
Newmarket
Suffolk
CB7 0AL
UK

