



**DAVID LABEL APPLICATOR
G4**



DAVID LABEL APPLICATOR **INDEX**

Chapter 1 Machine Overview

- 1.1 Overview
- 1.2 Specifications
- 1.3 Sequence of Events

Chapter 2 How to Set Up the Machine

- 2.1 Label Head Wind
- 2.2 Label Head Thread Pattern
- 2.3 Component Description and Operation
- 2.4 Label Head Button Operations

Chapter 3 Electrical/Pneumatic Diagrams

- 3.1 AC Wiring
- 3.2 Servo Wiring

Chapter 4 Parts

- 5.1 Machine Parts list and Suppliers List
- 5.2 Recommended Spares List

Chapter 5 Standards

- 5.1 List of Australian Standards Applicable to the Machine

Chapter 6 Maintenance

- 7.1 Maintenance Schedule
- 7.2 Trouble Shooting Guide

Chapter 7 Risk Assessments

- 7.1 Conveyor Risk Assessment
- 7.2 Label Head Risk assessment
- 7.3 Orientation Unit Risk Assessment
- 7.4 Electrical Cabinet Risk Assessment
- 7.5 Turn Table Risk Assessment

DAVID LABEL APPLICATOR

CHAPTER 1 MACHINE OVERVIEW

1.1 OVERVIEW

The David Label Applicator applies self-adhesive labels to flat-sided parallel products that require a flat-sided or round application. The David machine may consist of the following:

- 1 Right-Hand servo-driven Label Head – To apply labels from the right-hand side of the machine.
- Main Conveyor – To transport the product.
- Orientation Drive roller - To rotate and apply labels to round products with up to 100% wrap of the label.
- Capture Unit – To capture the product for labelling.
- Turn Table – To collect the product (Optional)

1.2 SPECIFICATIONS

Power Supply – 10Amp 240Vac

Air supply – 6 Bar

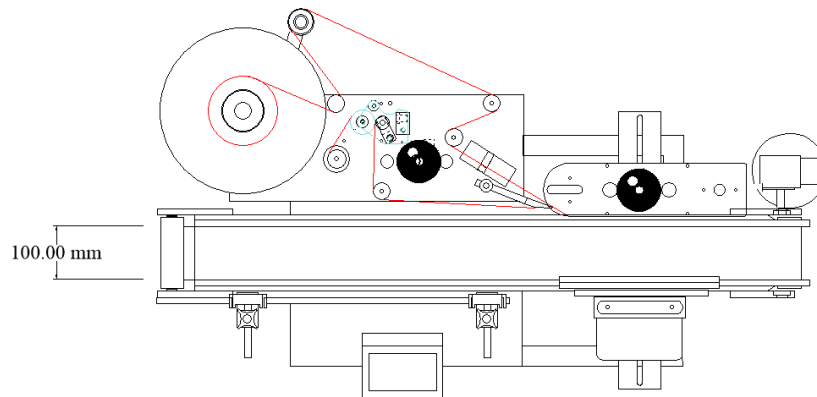
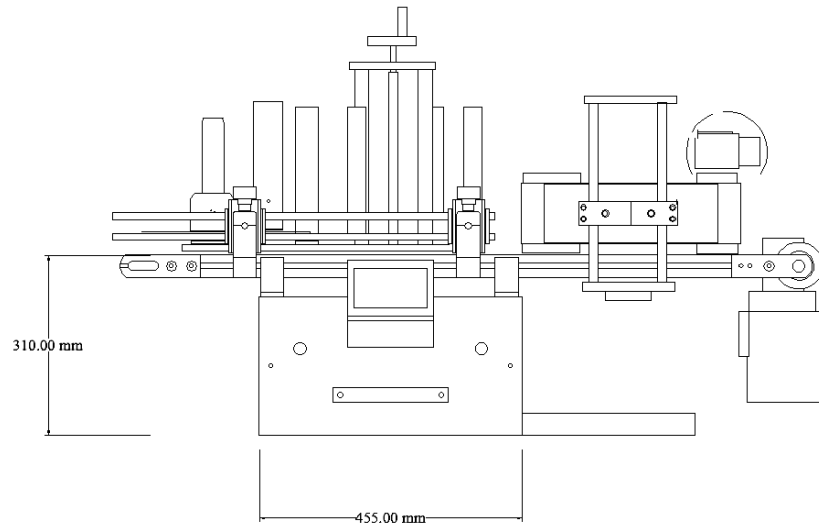


Fig 1

1.3 SEQUENCE OF EVENTS

The sequence of events for David Labelling Application:

1. Product to be labelled enters the machine on the in-feed section of the main conveyor.
2. Product travels along the conveyor triggering the product sensor.
3. The product sensor sends a signal to start the sequence of events. The capture cylinder is activated at the completion of the start delay, turning on the capture solenoid and extending the capture cylinder. This in turn captures the product to be labelled.
4. After the piston extend delay times out, the orientation sensor is activated.
5. The bottle rotates until a signal is received from the orientation sensor.
6. After the signal is received, the Label 1 delay times out, this timer determines the placement of the label.
7. The label head dispenses a label onto the product.
8. The label gap sensor detects that the label has been ejected and stops the labels from feeding out.
9. After the retract delay has timed out, the capture solenoid is turned off and the product is released.
10. The product continues the conveyor to be collected.
11. The sequence may now start again.

CHAPTER 2 HOW TO SET UP THE MACHINE

2.1 COMPONENT DESCRIPTION AND OPERATION LABEL HEAD WIND

Up/Down Wind – By winding the Up/Down wind handle, the label head can be raised and lowered to set the correct position of the peel plate to the surface that is being labelled. Rotating the Up/Down handle Clockwise to raise the label head up higher on the product and rotate the Up/Down handle Counterclockwise to lower the label head lower on the product.

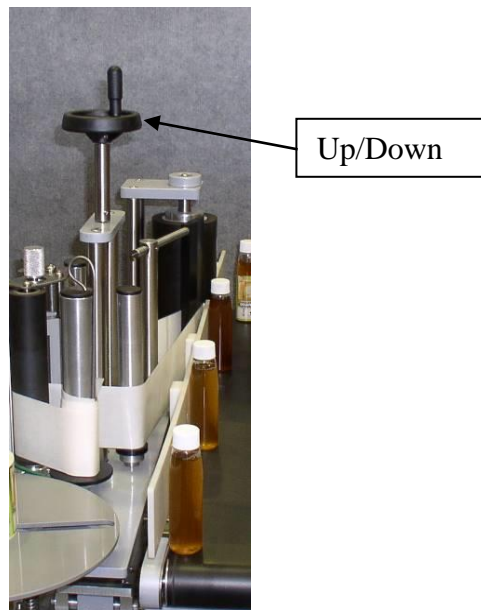


Fig 2

2.2 LABEL HEAD THREAD PATTERNS

The label web threading pattern of the label roll is most important to ensure the correct label tension on the label web as it feeds through the machine. Some label head thread patterns may vary, but the FIGURES below are the standard David Labelling Machine. The label head thread pattern may be seen on the HMI screen by pressing the AZTRO logo.

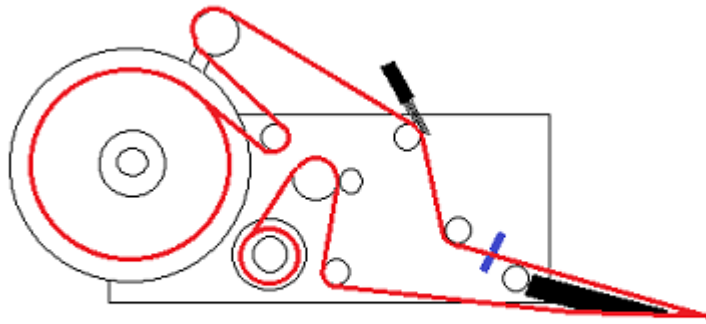


Fig 3

2.3 LABELLER COMPONENTS

LABEL HEAD

The label head function is to dispense labels on to the products. The components of a standard label head are shown below:

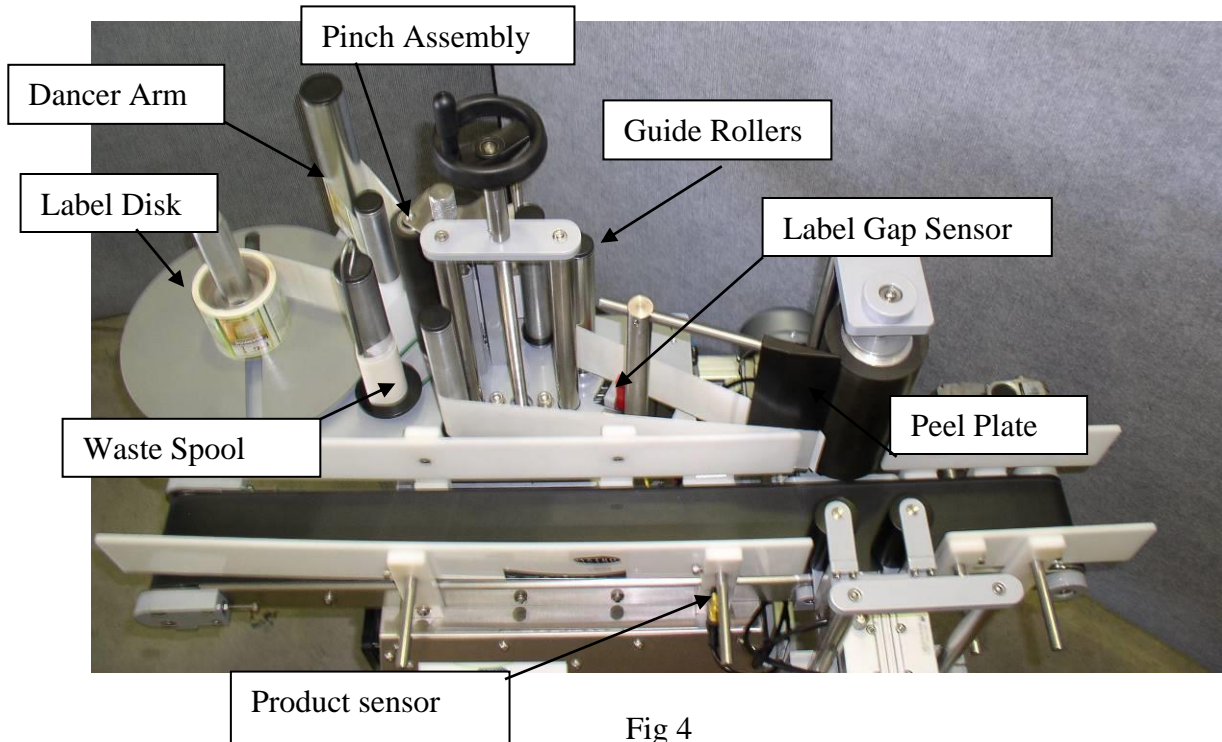


Fig 4

Label Disk – The label disk assembly holds the roll of labels that are being used on the labelling machine. Label rolls are pressed onto the label reel core to be held firmly into position by the reel core blade. This stainless-steel blade can be bent to suit the cardboard core of the labels to hold the core from slipping around the label reel core. The blade needs to be engaging the label core with enough pressure to hold the core from slipping while still allowing for easy core removal.

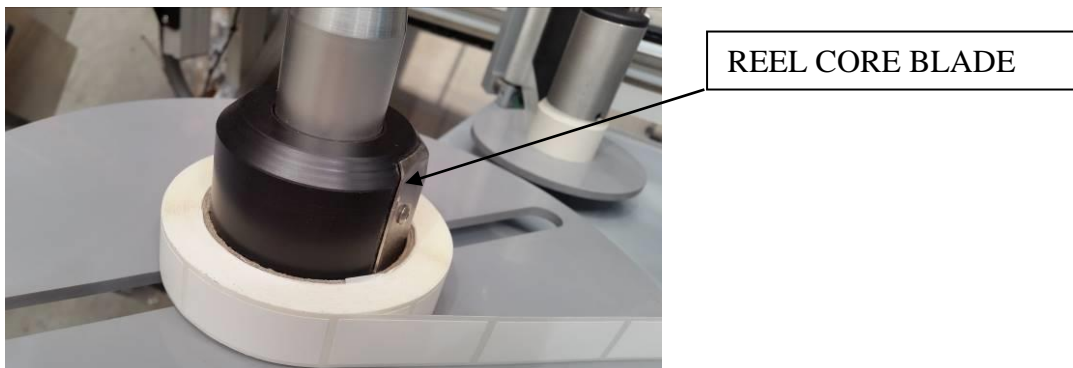


Fig 5

Dancer Arm – The Dancer Arm has the role of tensioning the labels and braking the label disk to prevent the label roll from over running. The Dancer Assembly is a double roller system to take some load of the label head motor when the labeler is operating at higher speeds.

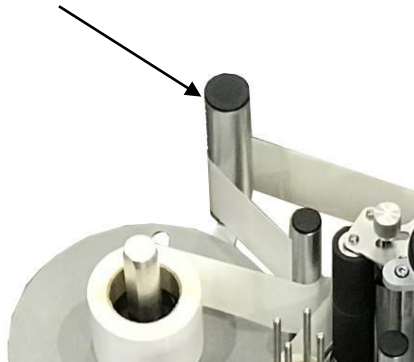


Fig 6

Brake O-ring - On the base of the label disk is a brake O-ring, this O-ring acts as friction device for the dancer arm to engage. This O-ring needs regular checking for wear and needs to be replaced if the rubber is cracked or worn to flat.



Fig 7

Dancer arm tension - To tension the dancer, arm a tensioning knob is provided. There are two locking grub screws on the dancer arm knob located 90 degrees to each other. If these grub screws are loosened with an allen key the spring will uncoil slightly releasing the tension. By twisting the knurled knob with your hand in the direction the spring is coiled, the tension can be set. Hold the knob in the desired position whilst the grub screws are tightened, locking the knob into position.



DANCER ARM
TENSION KNOB

Fig 8

Guide Rollers – The guide rollers direct the path of the label movement around the label head, it is very important that the correct path is threaded around the guide rollers to gain the correct operation of the labeller. Label rings are fitted to the guide rollers to aid in the tracking of the label head to give the operator a path to thread the label back at the correct height. The label rings can be adjusted by sliding the up or down the roller.

Label Gap Sensor – The Label Gap Sensor's purpose is to end a labelling cycle. The Label Gap Sensor is a fork sensor that has a beam of light that shines from an emitter to a collector across the sensor. This beam of light is adjustable to control the sensitivity. The sensitivity must be set to allow the sensor to only trigger when the label backing paper is in the sensor's eye. The sensor must not trigger on any part of the label. When the sensor is triggered it sends a signal to the PLC (Programmable Logic Controller) to say stop ejecting the label.

Refer to the supplier instruction manual for set-up explanation.

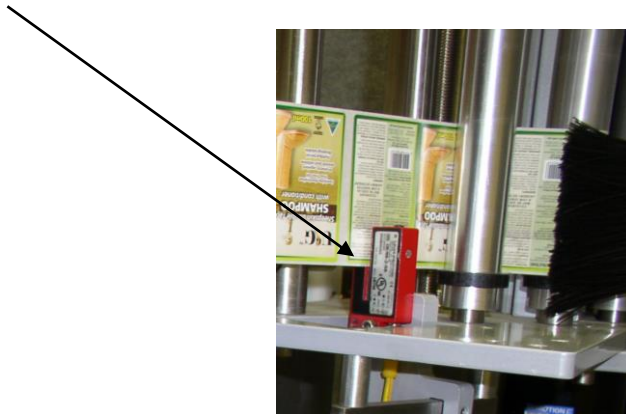


Fig 9

Label tension brush – The Label Tension Brush Assembly applies pressure to the label surface to create some drag on the label to increase label web tension.

Peel Plate – The Peel Plate gives the labels a sharp edge to peel off the backing paper for label application. The peel plate angle is adjustable. This is to get the label web tracking correctly and it is important to achieve this before even applying a label to a product. If the label web is tracking up, the peel plate must be tilted down to level out the label web. If the label web is tracking down the peel plate must be tilted up. To adjust the peel plate angle, follow the steps below.

- At the top of the mounting post for the peel plate bars there is a 6mm grub screw. There is also one at the bottom of the post. (DO NOT TOUCH THIS ONE)
- To change the angle of the peel plate, loosen the top grub screw.
- By sliding the peel plate bar left or right, the peel plate angle will change. Once the desired position is obtained, re-tighten the grub screw to hold the peel plate bar into position.

If the label web is tracking correctly when just running labels out not onto a product and there is a problem after application. The fault is not the label tracking. The likely causes are passably the incorrect label ejection speed or that the product is not running square and straight in the capture assembly.

Pinch Assembly – The Pinch Assembly is the most important part of the whole label head assembly. This assembly controls the label movement and application. The pinch assembly works by holding the label backing paper between a rubber drive roller and a knurled aluminum pinch roller, as the rubber roller is turned by the servo motor, the backing paper is pulled which in turn causes the label to be released from the backing paper as the backing paper pulls around the peel plate.

The tension of the pinch roller can be adjusted by twisting the spring block towards the rubber roller increasing the spring tension. There is no requirement to over-tension the pinch assembly, use only the tension required to create an even pull on the backing paper. The rubber drive roller must be always kept clean to achieve the maximum grip available. Turpentine is often the best cleaning agent for the rubber roller.

When threading or removing the backing paper from the pinch assembly, a handle is provided to pull open the pinch roller to release the backing paper or make an opening to thread the backing paper.

When threading the labels backing paper through the pinch assembly, it is often easier to have the label head turned off, the rest of the backing paper in the pinch are and then simply turn the rubber roller with your hand. The backing paper will be pulled through the pinch assembly. Once the backing paper can be grabbed from the opposite side it was threaded, grasp the backing paper with one hand and open the pinch roller with the other. The labels backing paper can now be pulled freely through the pinch assembly to the waste spool.

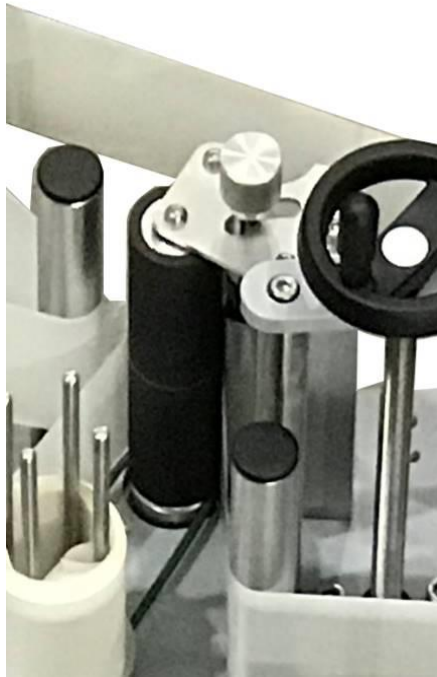


Fig 10

2.3.1 LABEL HEAD TILT VERNIER

Label Head Tilt Assembly

The label head has the possibility of adjusting its tilt left and right. This is used to straighten labels on the product. If a label is adhering on an angle every time a label is applied, this adjustment is used to have the label apply straight. On one end of the tilt assembly is two locking plates. These plates lock the tilt mechanism into position after an adjustment has been made.

To make an adjustment, loosen the locking bolts on the locking plate. Underneath the tilt plate is a threaded bolt. This bolt acts as an adjustment tool for the tilt mechanism. By adjusting this bolt up or down a different angle of label application is achieved. Make an adjustment to the bolt as needed and on completion, tighten the locking bolts on the locking plates to secure the tilt into position.

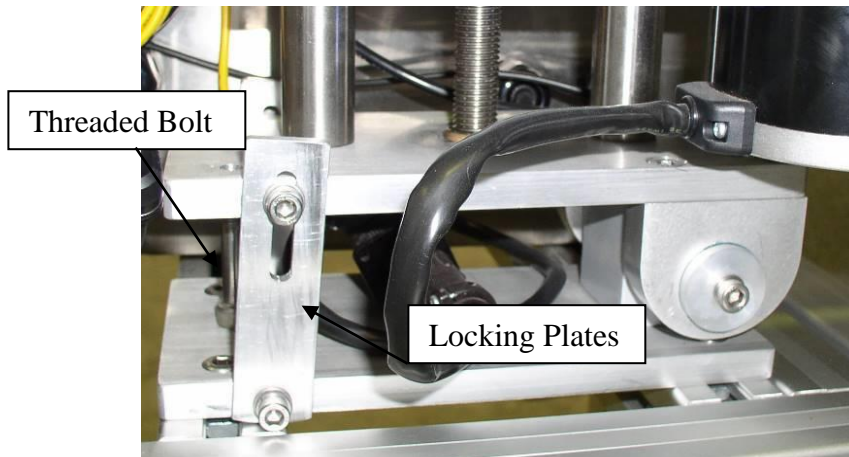


Fig 11

Please note that if the label is skewing in both directions in the run, tilting the label head will achieve nothing. This is an indication of a faulty product. Only make tilt adjustments if the label is skewing in the same direction every time.

ROUND CONTAINER WRAP ADJUSTMENT

Set Up

The Wrap Module (if supplied) is designed for labelling round containers with a single label up to 80% label wrap around the product.

This wrap application is achieved, by using a motorised drive belt to rotate the round containers.

As the round container product is transported on the product conveyor it will be detected by the product sensor. The label delay can be adjusted to allow the label to start dispensing onto the side of the round container prior to entering the wrap station and commencing its rotation to wipe down the complete label.

The belt is factory set to run at twice the speed of the product conveyor. This is set to prevent the product spacing from closing during label application. A minimum of one container diameter product spacing is necessary between the round containers for labelling.

The label peel plate must be set square to the container for labelling. The peel plate is positioned approximately 3.0mm from the container side wall as the container is transported on the product conveyor through the labelling station.

When setting up the wrap module to the product, it is important the wrap belt and the backing pad angles are both set square to the container for labelling.

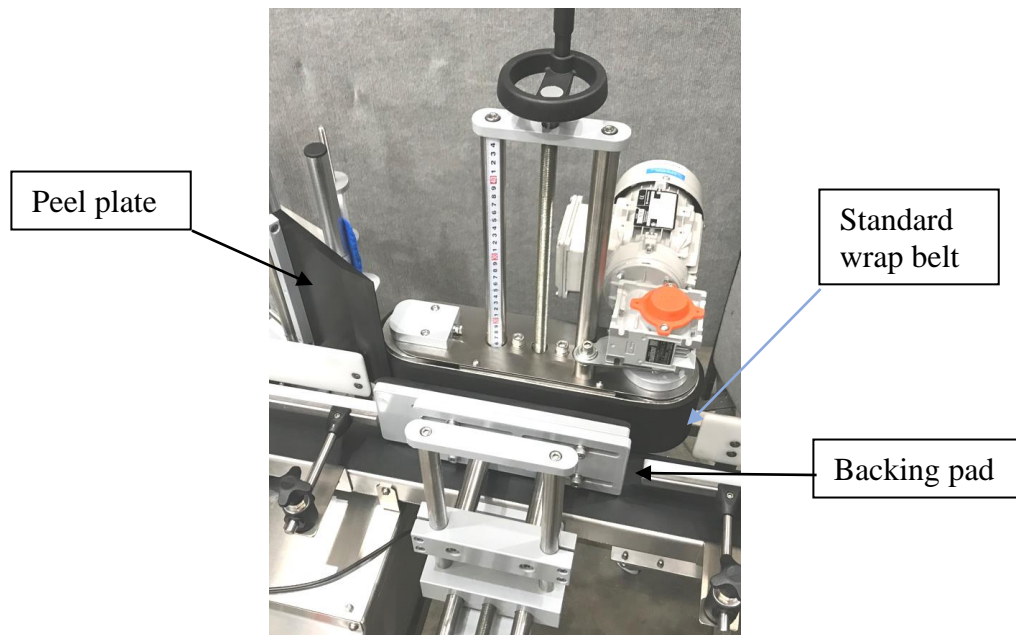


Fig 12

The Wrap belt height will be adjusted by turning the hand wheel on the wrap mounting bracket. Turn clockwise to raise the belt and counterclockwise to lower the belt.

The backing pad is fully adjustable in/out to set for the width of the product. The backing pad must be set with just enough pressure to rotate the product. Set the correct position of the backing pad with a round container in place between the backing pad and wrap belt.

Too much pressure applied from the pad will distort the product.

Once set, retighten up all adjustment screw mechanisms.

Note: the correct set-up is correct when the product rotates evenly without leaning or lifting off the product conveyor.

Backing Sponge (Fig 14)

When setting up the wrap, the backing sponge is wound in just enough to spin the product evenly. If the backing sponge pad is set too tight on the product, the product may crush and distort, and the label will be applied unevenly.

The backing sponge pad can be adjusted up and down and in and out to suit the labeling application. To adjust the sponge, pad up and down, the four M5 cap screws that clamp the sponge pad mounting block to the slide bars need to be loosened, this will allow the sponge pad mounting block to be raised or lowered on the 20mm slide bars. Once the correct height is set, tighten the four M5 cap screws to lock the sponge into position.

To adjust the sponge in and out to set for the diameter of the product to be labelled, there is a hand wheel provided. To move the sponge pad in for a narrow product, wind the handle in a counterclockwise direction. To move the sponge, pad out for a wider product, wind the handle in a clockwise direction.

Fig 13

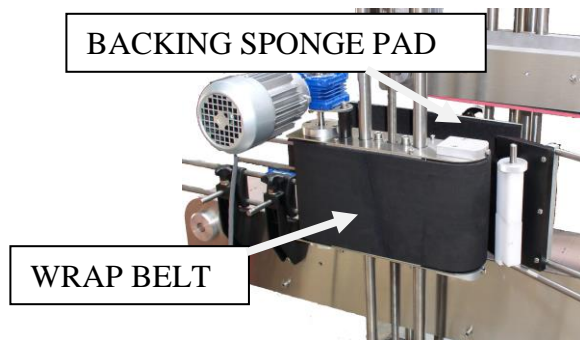
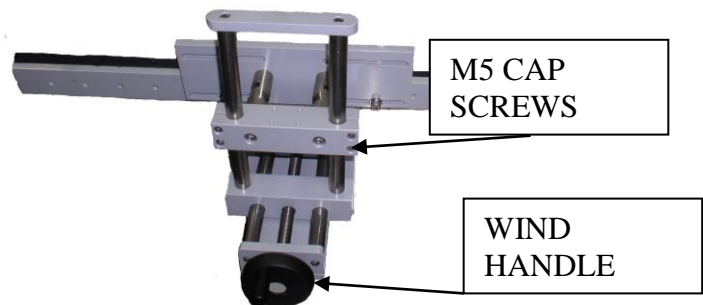


Fig 14



TURN TABLE (Not fitted)

Some David labellers may be fitted with turn tables. There are no adjustments on the turn table. To operate the turn table, turn on the rocker switch shown in figure 4.



Fig 15

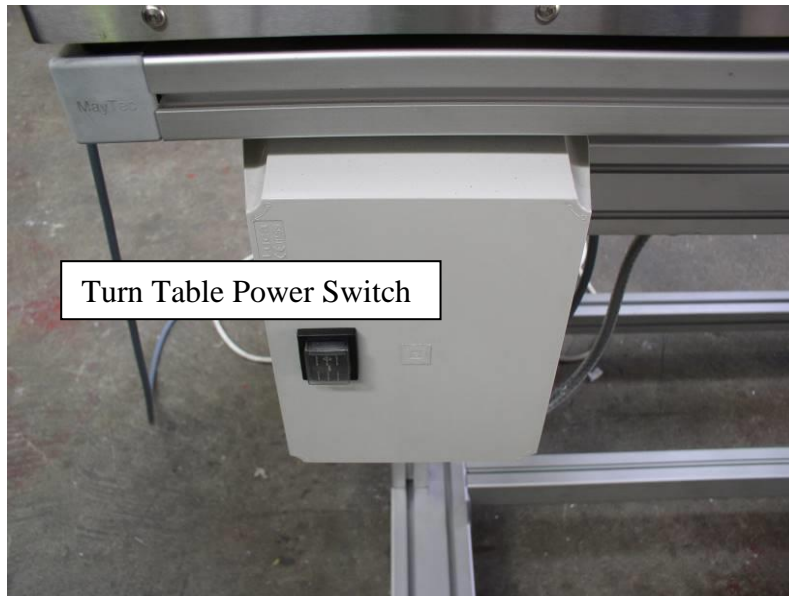


Fig 16

GUIDE RAILS

One side of the conveyor has fixed guide rails, this is the datum edge. The other side of the conveyor has moveable guide rails. The rail must be adjusted for the width of the product.

To adjust the rail, loosen the star knobs as shown in figure 9.

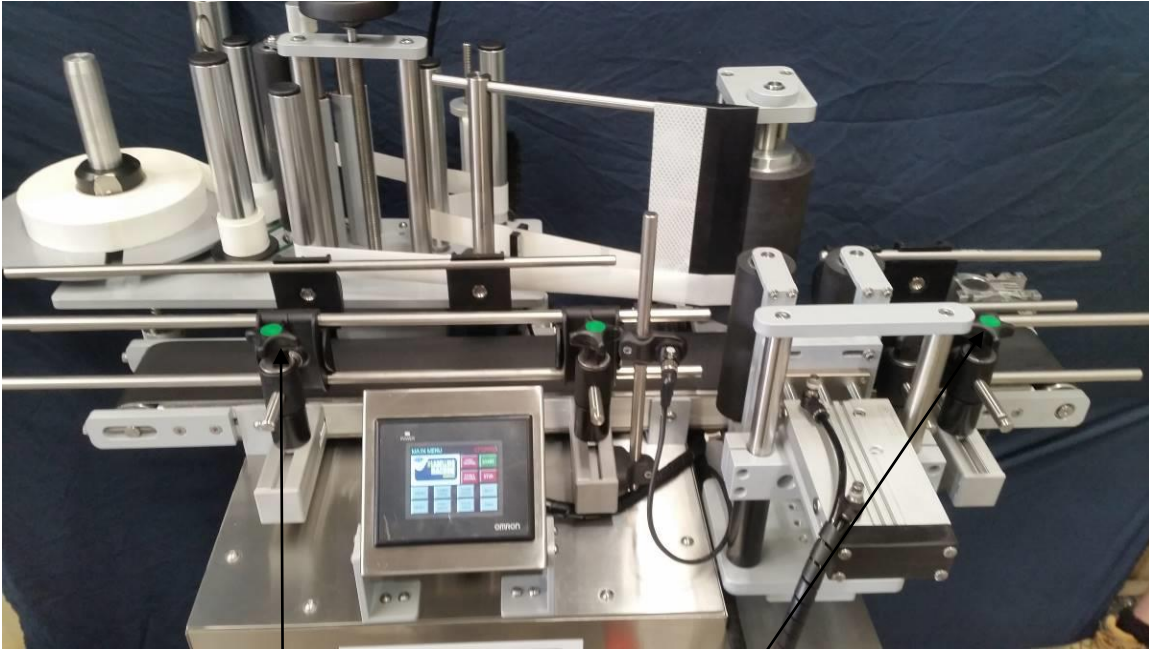


Fig 17

STAR KNOBS

2.4 CONTROL PANEL

Control Panel Functions

Emergency Stop –

The emergency stop button is used to cut power to the machine in the event of an emergency, or to turn the machine off.

Push to activate the stop and twist knob in an anti-clockwise direction and release to reset the stop.

Power Stop Button- The power stop button isolates power in the same way as the emergency stop, simply press the stop button to cut all power to the machine.

Power Start Button - The power start button applies power to the machine when pressed.

Note: the emergency stop button knob must be released to re start the machine.

SENSORS

There are two sensors on the machine and are as follows:

PRODUCT SENSOR – The purpose of the Product Sensor is to Sense the product travelling on the conveyor and triggers the start of the labelling sequence.

LABEL GAP SENSOR – The Label Gap Sensor senses the gaps between the labels and triggers the end of the labelling sequence.

ORIENTATION SENSOR – On some applications the label is to be orientated on to a certain position on the product. The Orientation sensor is used to sense a certain position on the product and place the label in relation to the position.

Refer to manufactures manuals for setup procedures on the sensors.

LABEL HEAD BUTTON OPERATIONS

MAIN SCREEN



Fig 18

From the Main Screen all other screens are accessible. The functions of the buttons are as follows:



Fig 19

This button accesses the Run screen.



Fig 21

This button accesses the setting screen.



Fig 22

This button accesses the Counter Screen.



Fig 23

This button accesses the Service screen.

G4 TOUCH SCREEN OPERATOR INTERFACE

The functions of the screens are as follows:

RUN SCREEN

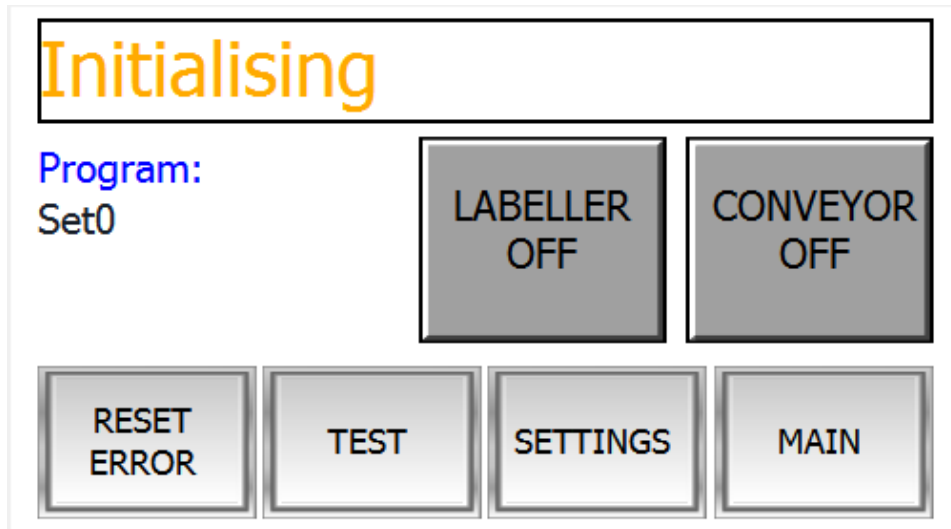


Fig 24

From the run screen the Labeller and the Conveyor/wrapper assemblies can be turned ON and OFF.



Fig 25

To turn on the Labeller, press the labeller button and the button will turn green and show labeller ON.

To turn off the Labeller, press the labeller button again and the button will turn grey and show labeller OFF.



Fig 26

To turn on the Conveyor, press the conveyor button and the button will turn green and show conveyor ON.

To turn off the Conveyor, press the conveyor button again and the button will turn grey and show conveyor OFF.

OPERATOR INTERFACE TOUCH PANEL

SETTINGS SCREEN

When the settings button is pressed, the screen will change to the first screen of the label settings. The screens and their operations are as follows:

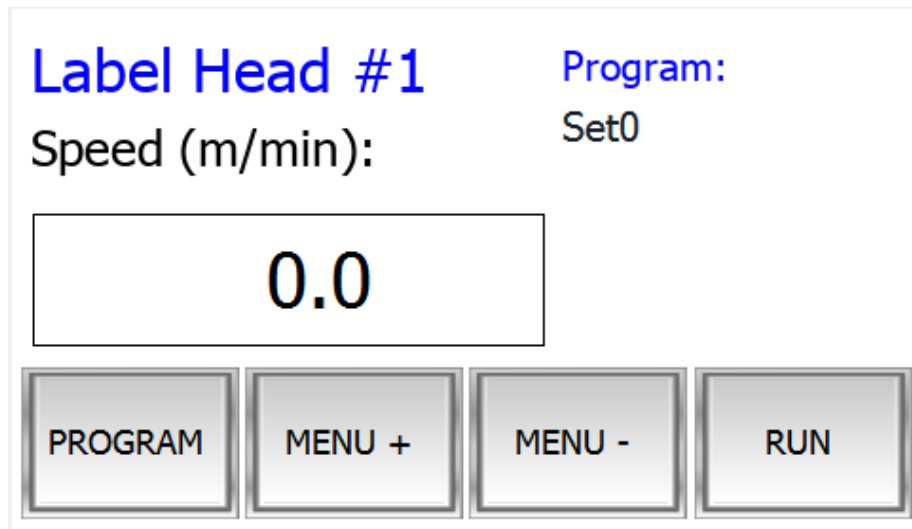


Fig 27

SETTING SCREEN BUTTONS

PROGRAM – Pressing this button will access the PROGRAM screen where the operator can LOAD and SAVE program settings.

MENU+ - Pressing this button will allow the operator to index up through the labelling settings.

MENU- - Pressing this button will allow the operator to index down through the labelling settings.

RUN – Pressing this button will return the operator to the RUN screen.

LABELLING OPERATION SETTINGS

The operation of the touch screen controller is laid out in a series of steps. The machine follows each of these steps in order and performs the function of each step, to skip a step, set the value setting to zero on that variable. i.e., if two labels are required, then to put a value setting in label 1 and label 2.

VARIABLE SELECTION



Fig 28

To switch through this variable menu, press the menu “MENU +” on the screen to go up the menu and “MENU -” to go down the menu or back step.

The variable settings “MENU +” are as follows:

1. **Speed** – This is the speed of the label ejection and is displayed in meters per minute. Set the value to get the speed required. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

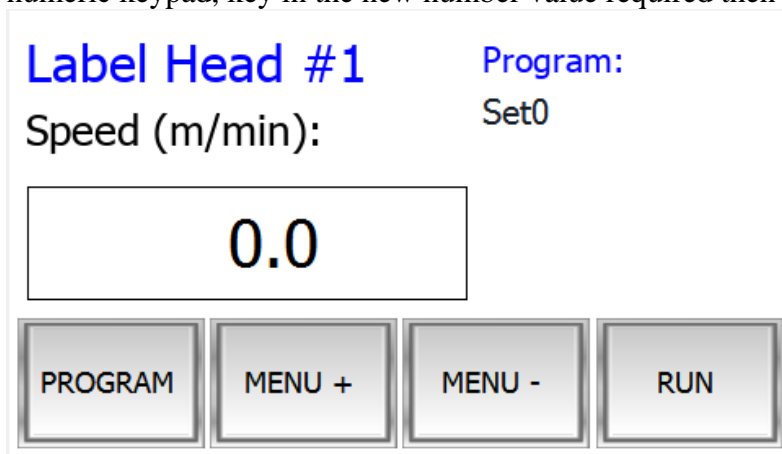


Fig 29

2. **Flag steps** – This is for setting where the label stops, it operates by receiving a signal from the label gap sensor to stop, after receiving this stop signal, the motor moves by the number set in the values. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

Label Head #1 Program:
Flag Steps (mm): Set0

0.0

PROGRAM MENU + MENU - RUN

Fig 30

3. **Start Delay** - This is the delay from the product sensor detecting the product to the close of the capture module. When using the wrap capture module to hold the product in place, set this delay to extend the pneumatic piston to hold the product at the right time in the centre if the wrapping module. If not using this feature, set value to 0000. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

Label Head #1 Program:
Start Delay (msec): Set0

0.0

PROGRAM MENU + MENU - RUN

Fig 31

4. **Piston extend** – When using the round container wrap module on the machine, this is the time delay required to allow the pneumatic piston to extend and hold the product to stabilise it within the capture module prior to labelling. When not using the wrap option, set the value to 0000. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

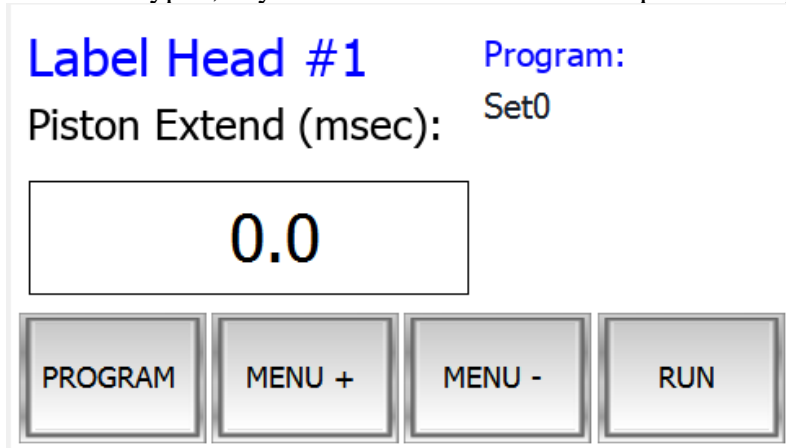


Fig 32

5. **Orientation** – This is where the optional orientation e.g. (poisons bottle labelling) is required to orientate the product (orientating is when a second product sensor detects a feature on the product to place the label in a specific position in relation to that feature). The higher the value, the later the label applies to the product after the orientation sensor detects to reference point. The lower the value, the earlier the label applies to the product after the orientation sensor detects to reference feature. To change this setting, touch either YES or NO to indicate if an Orientation Sensor is needed.

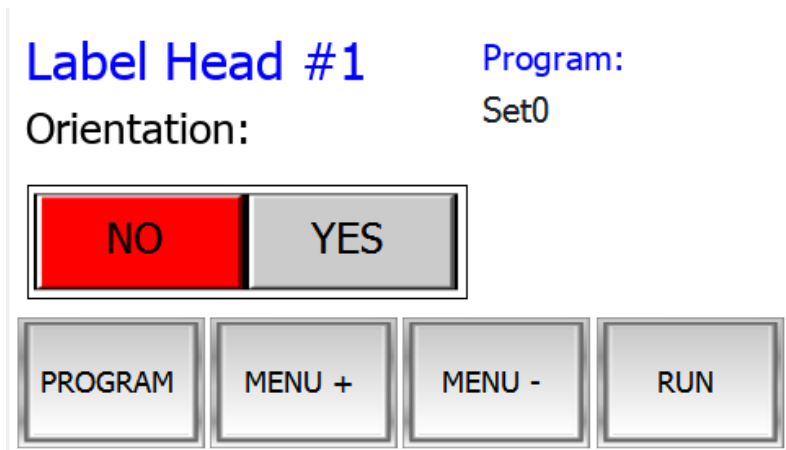


Fig 33

6. **Label 1 Delay** – This is the delay from the product sensor detecting the product to the close of the capture module. When using the wrap module to hold the product in place, set this delay to extend the pneumatic piston to hold the product at the right time in the centre if the wrapping module. If not using this feature, set value to 0000. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

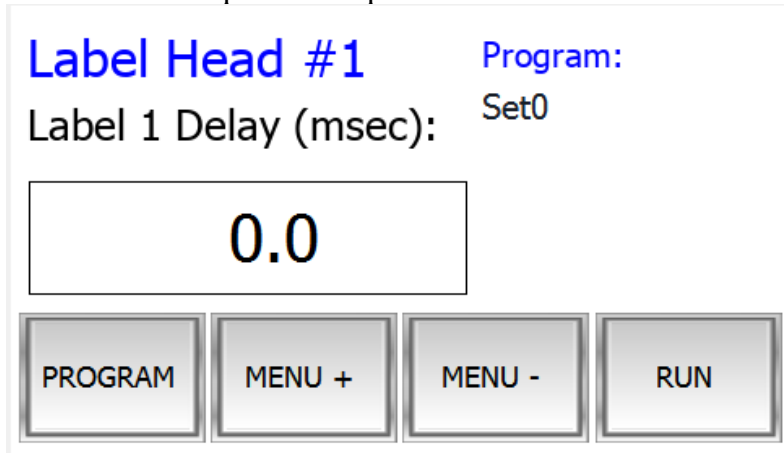


Fig 34

7. **Printer** – This setting is for those who wish to use an Ink Jet Printer to print onto either the labels or containers while they are still moving. The signal starts as soon as the label/product starts to move and will remain on for as long as the pre-set value, this value is the amount of time required to print. When not using an Ink Jet Printer, set this value to 0000. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

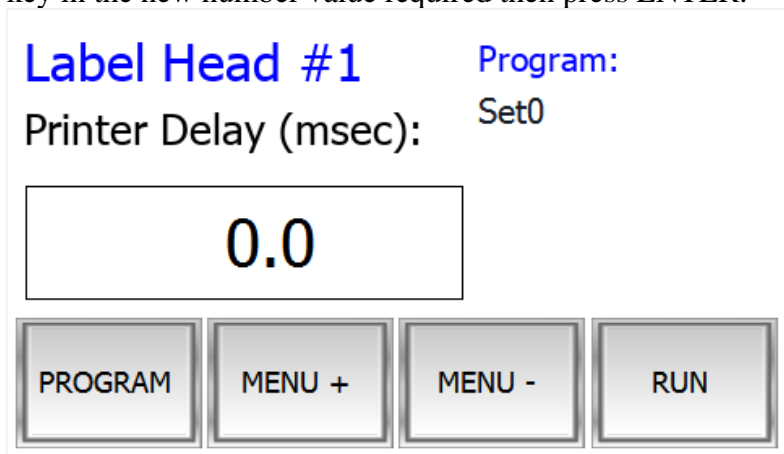


Fig 35

8. **Label 2** – This is the label position delay for a second alternate label to be applied. Set the delay time to get the label in the right position. When not using a second label, set this value to 0000. The higher the value, the later the label applies to the product. The lower the value, the earlier the label applies to the product. To change this setting, touch the number panel on the screen, this will activate a new pop up keypad. Using this numeric keypad, key in the new number value required then press ENTER.

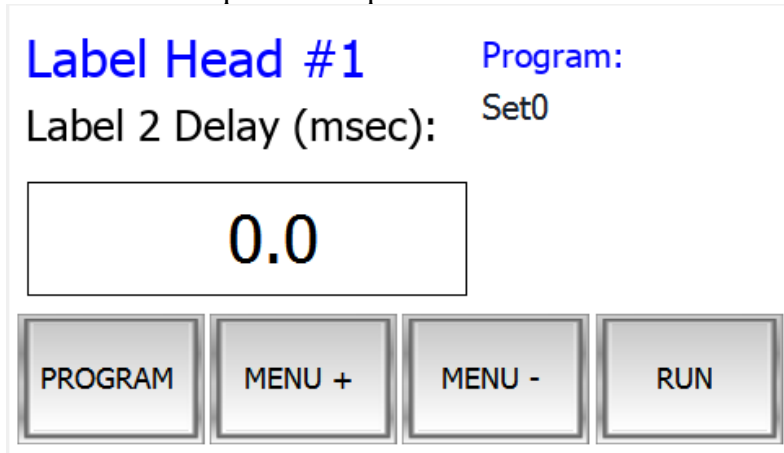


Fig 36

9. **Piston return** – When using the optional orientation e.g. (poisons bottle labelling) to hold the product, this is the time delay to when the pneumatic piston retracts and releases the product. On completion of the labelling cycle, the product will be released after the pre-set time has elapsed. When not using the optional orientation, set this value to 0000. To change this setting, touch the number panel on the screen, this will activate a new pop up keypad. Using this numeric keypad, key in the new number value required then press ENTER.

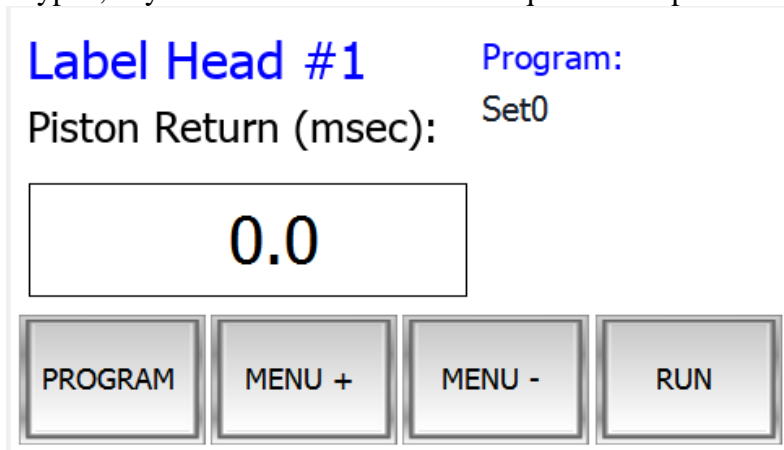


Fig 37

10. Coder delay – When using thermal printer to overprint print “USE BY” and “BATCH” detail on the label, this is done when the label has stopped moving. By setting a value, the thermal printer will print for the time set. To change this setting, touch the number panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the new number value required then press ENTER.

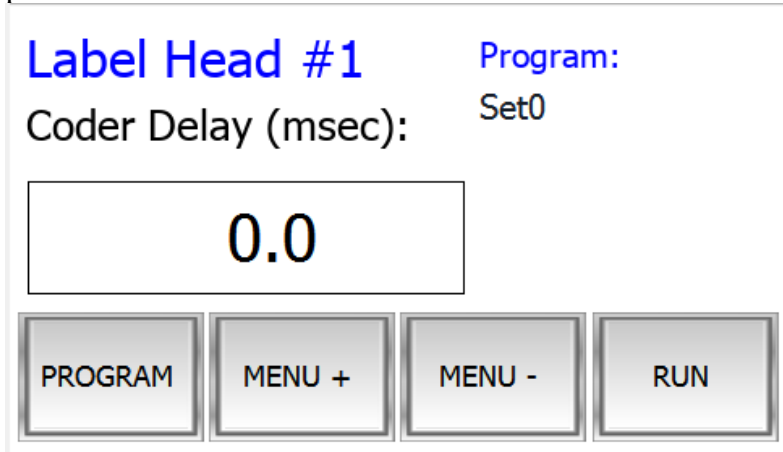


Fig 38

PROGRAM SCREEN

To load or save programs, the operator must enter the PROGRAM screens. To access the program screens, press the program button.

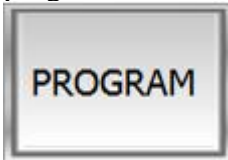


Fig 39



Fig 40

SAVING A PROGRAM

Once all settings are satisfactory, save them all to a program number for future reference. Up to 49 programs can be stored. **Note:** all settings are in relation to the fixed position of the product and label gap sensors. if these sensors are moved in any way, the program settings will be then incorrect. it will be necessary to re set all program.

To save a program, press the “**SAVE**” button. The screen will DISPLAY program and a number. Pick a number to save program to by pressing the select program window, then from the list select a program location. Then press the edit wind to load the alpha numeric keypad. On this keypad enter the title of the program being saved and then **press** “**ENTER**”. The program is now saved.



Fig 41

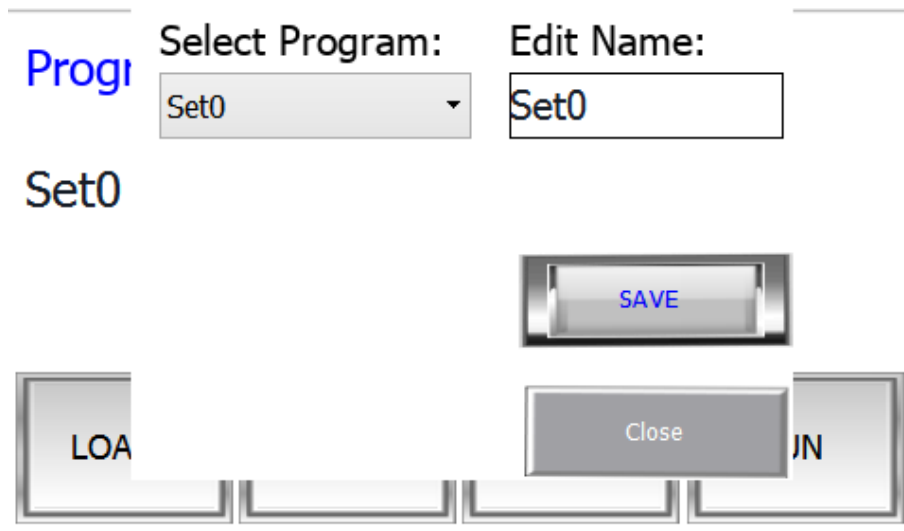


Fig 42

On pressing the save button the screen will change to the settings screen.

LOADING A PROGRAM

To revert to a previous saved program, they can be recalled at any time. By pressing the “**LOAD**” button the screen will display all previously loaded program numbers.



Fig 43

To load a program, select the number required by pressing the select program window, and then select the program from the program list. Then press the “**LOAD**” button. The saved pre-set for this program/product is now loaded to the sequence of events. And the screen will divert to the settings screen.

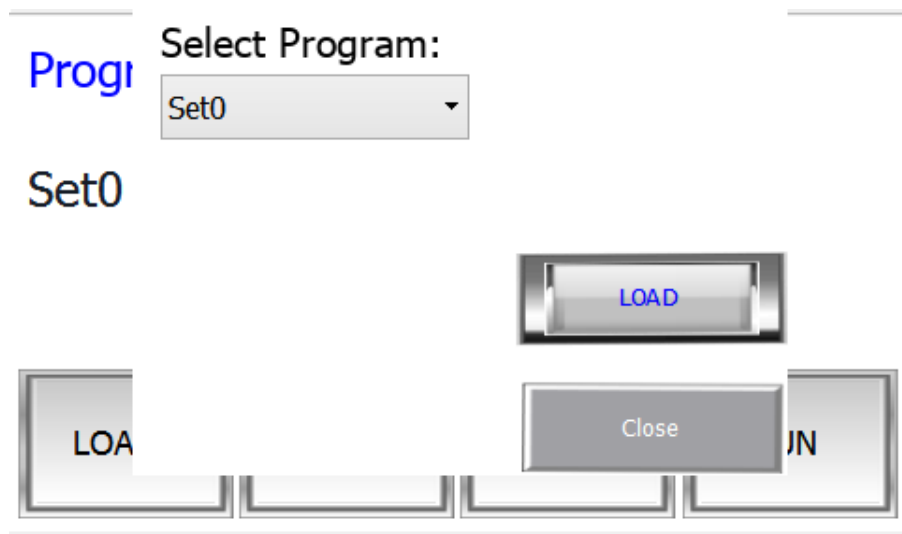


Fig 44

TEST SCREEN

The test screen is used when setting up a capture product. When test is activated, the labeller will go through the sequence of events without ejecting a label.

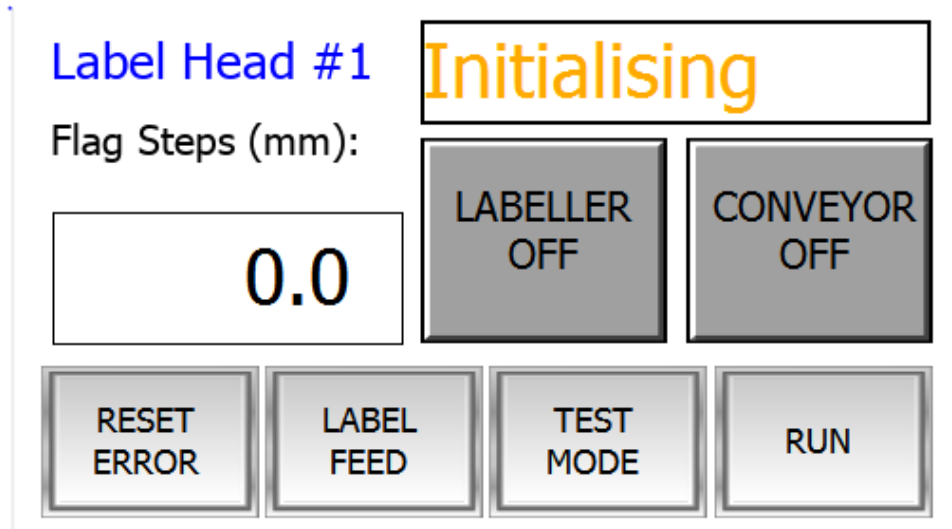


Fig 45

To activate the test mode, press the test mode button. When TEST mode is activated

ACCESSEING SERVICE MENU

1. Press the “SERVICE” button, the screen will say “Service menu yes/menu”.

User name:
1

Password:
1111

Error : The username or password you entered is incorrect.

Show password

Back Sign In

ABB

Fig 46

2. To access service menu, touch the BLANK USER panel on the screen, this will activate a new pop up a keypad). Using this numeric keypad, key in the number value 1 then press ENTER.

User name:
[]

Password:
[]

Show password

Back Sign In

ABB

Fig 47

1. To CONTINUE access service menu, touch the PASSWORD panel on the screen, this will activate a new pop up a keypad. Using this numeric keypad, key in the number value 1111 then press ENTER.

User name:
1

Password:
1111

Error : The username or password you entered is incorrect.

Show password

Back Sign In

ABB

Fig 48

GUIDE TO SERVICE MENU

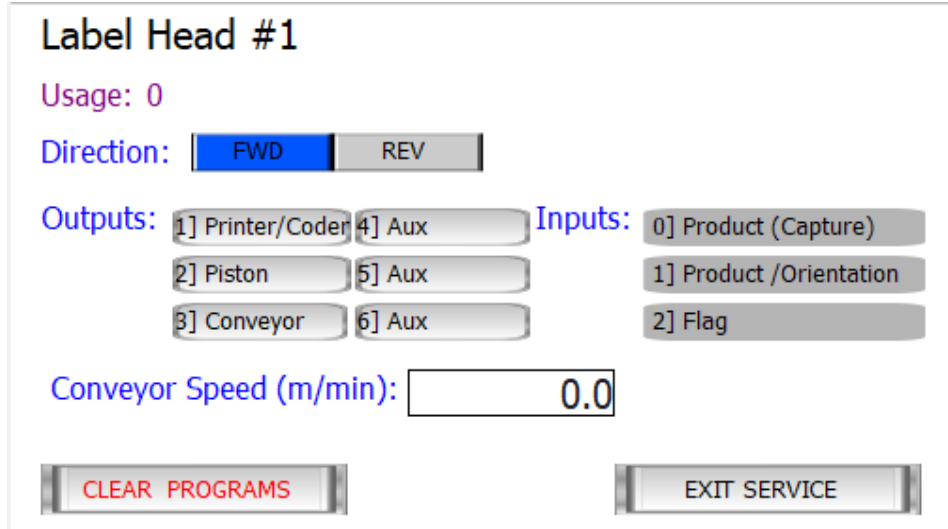


Fig 49

In the service menu, the operator is able to do the following:

- Change the direction of the Servo Motor
- Test all inputs and outputs
- Change the conveyor speed
- View machine usage counter
- Clear all saved programs



Fig 50

The direction of the servo motor driving the label head is selected in the service menu using the direction buttons. The default direction is FWD (Forward) and may be changed to REV (Reverse) by pressing the REV button. **Motor direction should only be changed by a qualified technician.**

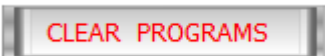


Fig 51

The Clear programs button will clear all setting saved in the controller. This is only to be used if there is a requirement for a machine to be factory reset. **Clear Programs should only be performed by a qualified technician.**

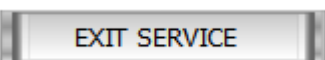


Fig 52

To return to the **HOME** screen select “**EXIT SERVICE**” on the touch screen

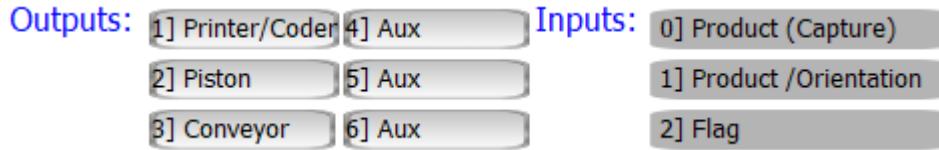


Fig 53

From the service menu all inputs and outputs associated with the labeller can be monitored or tested.

INPUTS

The inputs are activated from different sensors. When an input is activated, the location on the service menu will change colour to green. The Inputs are as follows:

Product – This is the sensor that triggers off the product being labelled.

Product/Orientation – This is the extra sensor fitted if there is a requirement for an orientation sensor.

Flag – This is the sensor that triggers off the gaps between the labels.

OUTPUTS

The controller outputs trigger various labelling functions when the output is activated. These outputs can be manually turned on and off by pressing the output in question. Press once to turn output on and press again to turn output off. The outputs are as follows:

Printer – This output turns on the relay signal for a continuous printer

Coder – This output turns on the relay signal for an intermittent printer

Conveyor – This output turns on the relay output for the conveyor run signal

Piston – This output turns on the relay output for the capture solenoid

There are two spare outputs that can be programmed to perform other functions.

NOMINAL SETTINGS FOR SERVICE MENU

1. REVERSE DIRECTION – DEPENDS ON THE DIRECTION OF TRAVEL REQUIRED FOR THE LABEL HEAD POSITION, CAN BE EITHER LEFT OR RIGHT HAND. **NOTE** ALL AZTRO MODEL DAVID LABELLERS ARE RIGHT HAND (LABEL COPY 4)

SETTINGS FOR ONE LABEL, SIDE APPLICATION **NO CODER OR PRINTER**

1. SPEED – VARIABLE
2. FLAG STEPS – VARIABLE
3. START DEL – VARIABLE
4. PISTON EXT – VARIABLE ORIENTATION
5. LABEL 1 – VARIABLE, DEPENDS ON LABEL PLACEMENT
6. PRINTER – 000
7. LABEL 2 – 0000
8. CODER – 000
9. PISTON RET – VARIABLE

SETTINGS FOR TWO LABELS, SIDE APPLICATION **NO CODER OR PRINTER**

1. SPEED – VARIABLE
2. FLAG STEPS – VARIABLE
3. START DEL – VARIABLE
4. PISTON EXT – VARIABLE
5. ORIENTATION – OFF
6. LABEL 1 – VARIABLE, DEPENDS ON THE FIRST LABEL POSITION REQUIRED
7. PRINTER – 000
8. LABEL 2 – VARIABLE, DEPENDS ON THE SECOND LABEL POSITION REQUIRED. THIS IN RELATION TO THE FIRST LABEL APPLIED
9. CODER – 000
10. PISTON RET - VARIABLE

CHAPTER 3. ELECTRICAL/PNEUMATIC DIAGRAMS

ELECTRICAL WORK IS TO BE CARRIED OUT BY A QUALIFIED ELECTRICIAN

3.1 AC Wiring

AC WIRING

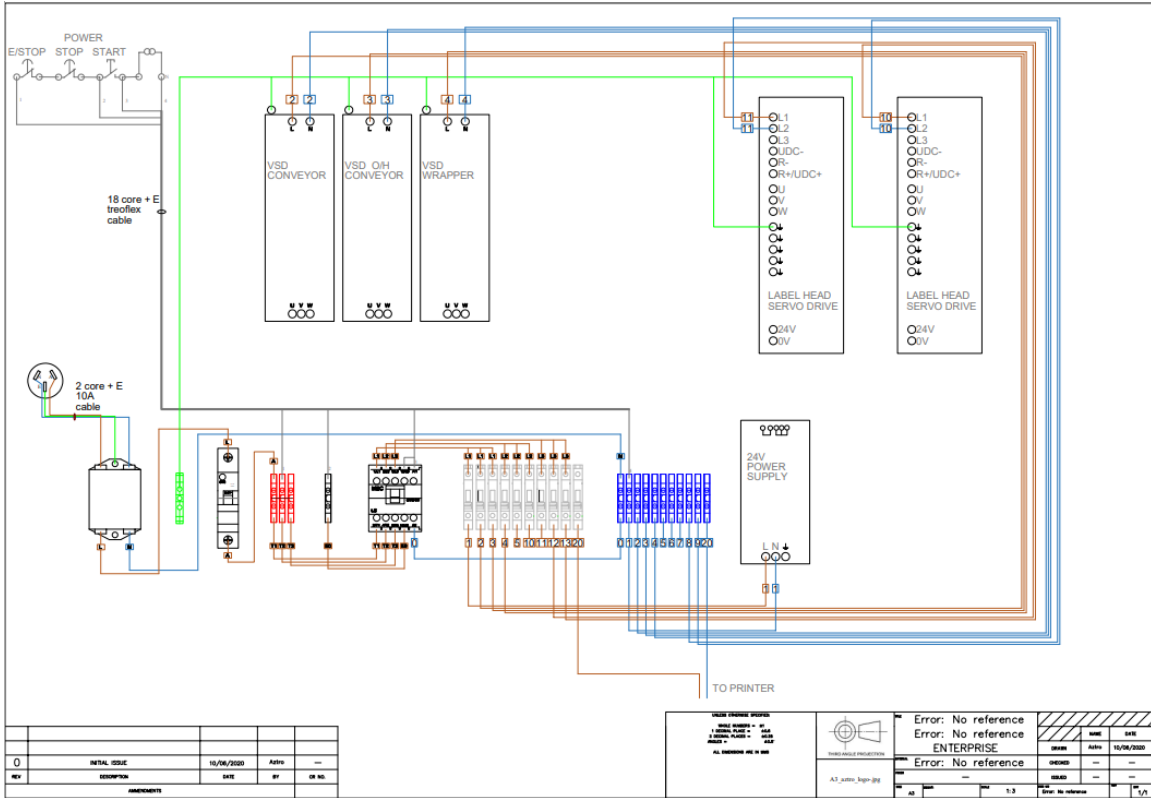


Fig 54

3.2 Servo Wiring

I/O WIRING

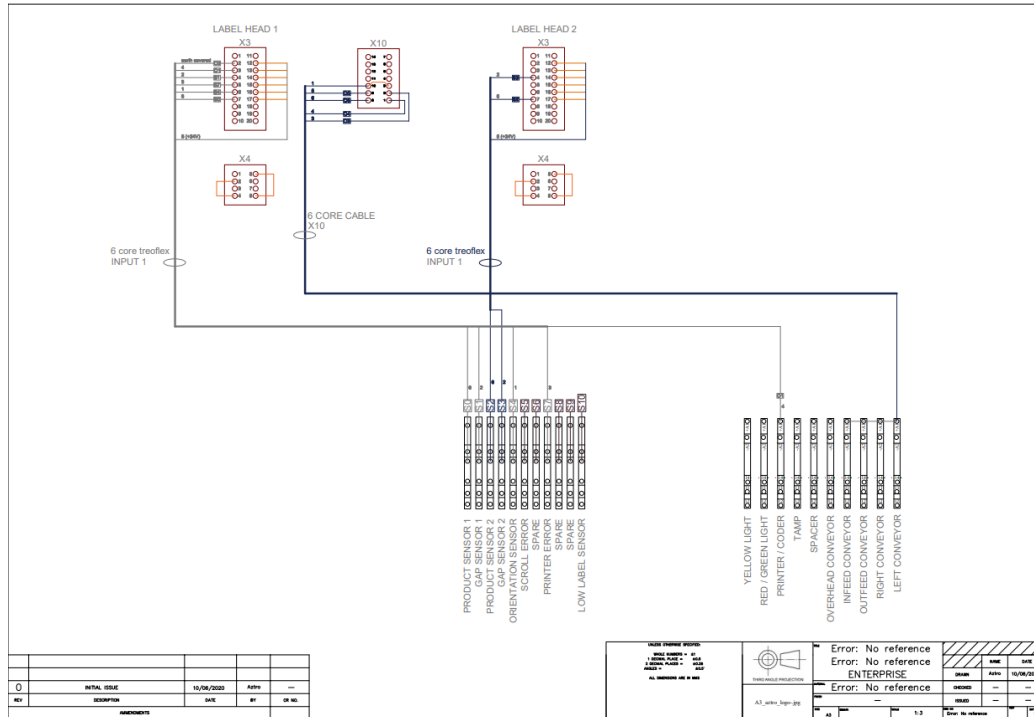


Fig 55

SERVO MOTOR WIRING

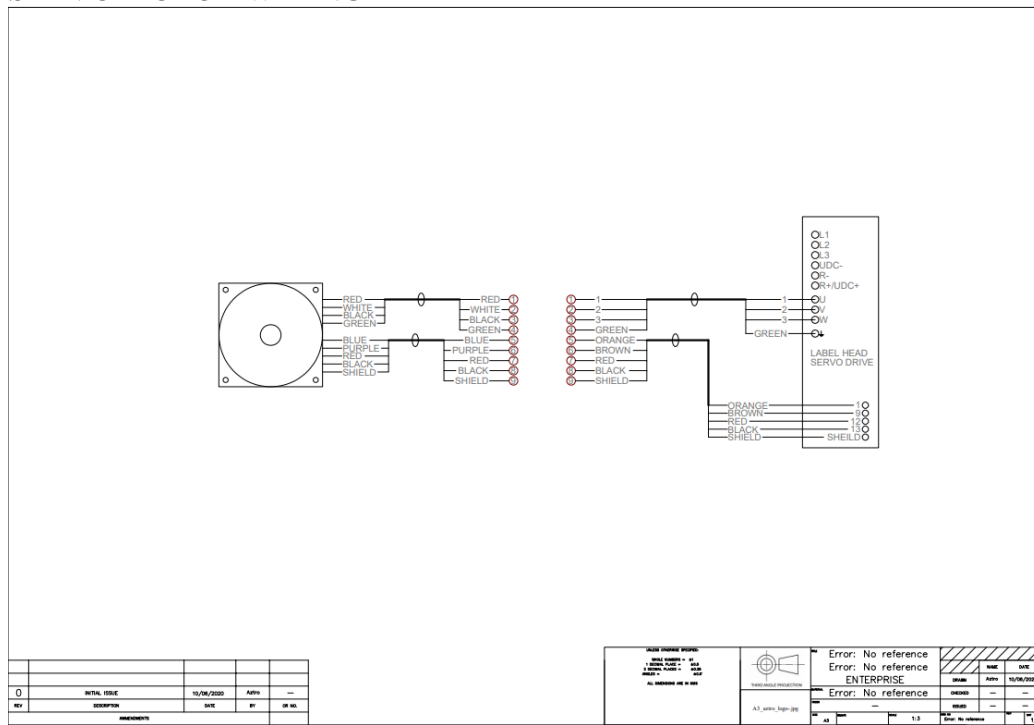


Fig 56

CHAPTER 4. SPARE PARTS LIST

4.1 Parts list and Suppliers List

DESCRIPTION	QTY	UNIT	SUPPLIER PART NO.
SENSOR COMPONENTS			
REFLECTIVE SENSOR NPN	1	EA	HL18-A4A3BA
LABEL SLOT SENSOR	1	EA	WF 40B410
8mm GAP LEAD STRAIGHT	1	EA	MU00041
12mm SENS LEAD STRAIGHT	1	EA	XS2F0719H
2 WAY BLOCK	2	EA	AZTRO-0217 CCC13114
T CLAMP	1	EA	AZTRO-0216 CCC13115
CONTROL BOX COMPONENTS			
EMERGENCY STOP	1	EA	PSN*NZ 0006
TWO BUTTONS START STOP ILLUM	1	EA	P SN/DDDL/GR/X1-XO-K11
4" TOUCH SCREEN	1	EA	CP604
WIRING ACCESSORIES			
FAN 80 X 80	1	EA	437-705
FAN FILTER	2	EA	580-641
ELECTRICAL TRAY COMPONENTS			
SLOW BLOW 5Amp FUSES boxP10	4	EA	AGDB5 20mm
SERVO DRIVE	1	EA	MICROFLEX E190
SERVO MOTOR	1	EA	7B3AXD50000041243
CONVEYOR & WRAPPER VSD	1	EA	i510
FILTER	1	EA	209-257
JUMPFLEX® socket with MSR, 1 CO (1u), 24VDC (10mA) / 250VAC (6A) - slimline relay	3	EA	857-304
LABEL HEAD			
RUBBER ROLLER 100mm HEAD	1	EA	AZTRO-0001/1
WASTE SPOOL GREEN FUSE IT BELT	1	EA	AZTRO-0900
RIGHT HAND DANCER ARM SPRING	1	EA	DANCRH
BRAKE ORING	1	EA	BRKOR
CONVEYORS			
DAVID BELT	1	M	
CONVEYOR DRIVE SHAFT	1	EA	Custom made
CONVEYOR IDLER SHAFT	1	EA	Custom made
DRIVE ROLLER	1	EA	Custom made
CONVEYOR IDLER ROLLER	1	EA	Custom made
0.18kW AC MOTOR	2	EA	4102117
GEAR BOX 20. 1	2	EA	4001894

4.2 Recommended Spare Parts

On Aztro machines, most of our parts are off the shelf items that are available from a variety of suppliers. Some of these suppliers are listed above in section 5.1. However, there are items which are solely available from Aztro Pty Ltd. We recommend that at least one of each of these items is carried by the machine owner. The recommended spare parts we recommend customers to carry are as follows:

<u>QTY</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
2	Right Hand Dancer Arm Spring	DANCRH
1	Green Fuse It Belt	AZTRO-0900
2	Brake O-ring	BRKOR

To order these parts or any other parts from the list in section 5.1, forward a purchase order to the contact below.

CONTACT FOR SUPPORT.

Aztro Pty Ltd

“THE LABELLING MACHINE COMPANY”

1/7 Enterprise Drive,

Glendenning,

NSW 2761

Ph: 1300 553 378

Email: admin@aztro.com.au

Web: www.aztro.com.au

CHAPTER 5. STANDARDS

5.1 List of Australian Standards Applicable to the Machine



Aztro Pty Ltd Standards and Compliance References

Aztro Pty Ltd builds its machines to comply with Australian guidelines and safety standards. A big part of this is to use components that will minimise or eliminate the risk of danger to personnel. Our machines are wired under a Category 1 safety The Standards listed below are the guides used in the design and construction of our labelling machines.

STANDARDS

Australian wiring Rules - **As 3000**

Electrical Installations - **As 3008**

Conveyor Safety Requirements - **As 1775**

Safeguarding of Machinery - **As 4024.1**

CHAPTER 6 MAINTENANCE

6.1 Maintenance Schedule

On the Aztro David Labeller there are very few maintenance requirements. Generally, if the machine is kept clean and looked after, problems or faults are rare. All the bearings in the machine are encased bearings which do not require any greasing. In saying this, the recommended maintenance schedule is as follows:

Daily

In the process of labelling, glue build up off the labels coats the Black Rubber Drive Roller that drives the labels. If this is allowed to build up, the label starts to slip on the drive roller which in turn affects the label positioning. To alleviate this problem, the rubber drive roller must be cleaned daily. This is done by the following:

- Isolate power to the machine.
- Using a white spirit (the best one for the job is turpentine), clean all glue residue off the roller.

Weekly

Clean off any residue on the conveyor belts. Wipe over with a white spirit.

Monthly

Do a visual check on all the bearings to make sure there is no oil leaking from them? If oil is leaking from a bearing, it must be replaced.

Clean and Oil all wind bars and wind threads to help maintain a smooth wind action.

6.2 Trouble Shooting Guide

TROUBLE SHOOTING GUIDE FOR AZTRO LABELLING MACHINES IN GENERAL		
FAULT	POSSIBLE FAULTS	POSSIBLE FIX
SCREEN NOT POWERING UP	MACHINE NOT PLUGGED IN	PLUG IN MACHINE
	MACHINE NOT TURNED ON	TURN ON MACHINE
	IS THE FUSE BLOWN	CHECK THE FUSE
	IS THE SCREEN PLUGGED IN	CHECK THE SCREEN PLUGS
	FAULTY SCREEN	CHANGE THE SCREEN
LABEL NOT EJECTING	MACHINE NOT PLUGGED IN	TURN ON MACHINE
	MACHINE NOT TURNED ON	PRESS START BUTTON
	PRODUCT SENSOR NOT CONNECTED	CONNECT SENSOR
	PRODUCT SENSOR NOT SEEING REFLECTOR	POINT SENSOR AT REFLECTOR
	NO SPEED SETTING	PUT AN EJECTION SPEED SETTING IN THE HMI
	NO SETTING IN LABEL 1	ENSURE THERE IS A VALUE SETTING IN LABEL 1
LABEL WONT STOP EJECTING	LABEL NOT THREADED IN GAP SENSOR	THREAD LABEL PROPERLY
	LABEL GAP SENSOR NOT SEEING GAP	TUNE THE GAP SENSOR
	LABEL FLAG SETTING SET LONGER THAN LABEL	ADJUST LABEL FLAG SETTING
	FAULTY GAP SENSOR	REPLACE THE GAP SENSOR
GETTING MORE THAN ONE LABEL	PRODUCT SENSOR SEEING MULTIPLE TRIGGERS	ENSURE ONE TRIGGER PER CYCLE
	HAVE SECOND LABEL SETTING	SET LABEL 2 TO ZERO
	LABEL FLAG SETTING SET LONGER THAN LABEL LENGTH	ADJUST LABEL FLAG SETTING
LABEL WRINKLING UP	EJECTION SPEED TO HIGH	LOWER EJECTION SPEED
	PEEL PLATE TO CLOSE TO PRODUCT	WIND LABEL HEAD BACK

LABEL DRAGGING ON PRODUCT	EJECTION SPEED TO LOW	RAISE EJECTION SPEED
LABEL WEB BREAKING	NOT THREADED CORRECTLY TO MUCH TENSION ON WEB LABELS DIE CUT TOO DEEPLY	CHECK THREAD PATH LOOSEN DANCER ARM TENSION CONTACT LABEL SUPPLIER
VERTICAL CREASING OF LABEL	EJECTION SPEED TO HIGH PEEL PLATE TO CLOSE TO PRODUCT	LOWER EJECTION SPEED MOVE PEEL PLATE AWAY
LABEL SKEWING	SIDE TO SIDE TILT NOT SET CORRECTLY	TILT HEAD TO STRAIGHTEN LABEL
LABEL WEB TRACKING	PEEL PLATE NOT SQUARED TO LABEL HEAD	LOOSEN GRUB SCREW ON TOP PEEL PLATE BAR TILT THE PEEL PLATE IN THE DEISRRED ANGLE AND TIGHTEN THE GRUB SCREWS IF LABEL IS TRACKING DOWN TILT THE PEEL PLATE UP IF THE LABEL IS TRACKING UP TILT THE PEEL PLATE DOWN
	EJECTION SPEED TO LOW	RAISE EJECTION SPEED
LABEL SERVO MOTOR STALLING	EJECTION SPEED TO HIGH TO MUCH DANCER ARM TENSION DANCER ARM JAMMING INTO TENSION BRUSH MECHANICAL DAMAGE FAULTY SERVO DRIVE FAULTY SERVO MOTOR DAMAGED WIRES	LOWER EJECTION SPEED LOOSEN DANCER ARM TENSION MOVE BRUSH TO ALLOW MORE DANCER STROKE CHECK ALL LABEL HEAD PARTS i.e., BEARINGS REPLACE SERVO DRIVE REPLACE SERVO MOTOR CHECK WIRING FOR DAMAGE

CHAPTER 7 RISK ASSESSMENTS

- 7.1 Conveyor risk Assessment
- 7.2 Label head Risk Assessment
- 7.3 Orientation Unit
- 7.3 Control Box Risk Assessment
- 7.4 Turn Table (Not Fitted)

7.1 MACHINERY RISK ASSESSMENT FORM

Name of Assessor: Mark Velez

Date assessed: 14/11/20

Machinery: Aztro David

Best control method chosen by assessor to resolve this hazard: No jewellery or loose clothing to be worn, long hair to be tied back and fingernails must be clipped. This is to eliminate entanglement in the machine. Pinch points are guarded where possible.

L = Low **M = Medium** **H = High** **E = Extreme**

LOCATION	EXISTING RISKS					METHODS –ADDITIONAL CONTROLS	NEW RISK – Ranking to be completed by Management	ACTION TO ADDRESS RISK
DESCRIPTION OF HAZARD								
Conveyor								
Catch clothing, Jewellery or long hair	2	D	L		Elimination		Not possible	
						Substitution		Not Applicable
RISK ANALYSIS MATRIX								
LIKLEHOOD	CONSEQUENCE							
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic	Isolation		Would impede machine operation.
A - Almost Certain	H	H	E	E	E	Engineering		Pinch points are kept to a minimum to prevent access to dangerous areas.
B - Likely	M	H	H	E	E			
C - Possible	L	M	H	E	E	Administration		
D - Unlikely	L	L	M	H	E	General		Isolate power if working on the conveyor.
E - Rare	L	L	M	H	H			

7.2 MACHINERY RISK ASSESSMENT FORM

Name of Assessor: Mark Velez

Date assessed: 14/11/20

Machinery: Aztro David

Best control method chosen by assessor to resolve this hazard: No jewellery or loose clothing to be worn, long hair to be tied back and fingernails must be clipped. This is to eliminate entanglement in the machine. Low wattage motors are used to introduce a stall factor in the event of an entanglement. Power should be isolated when re threading the labels or working on the label head.

L = Low **M = Medium** **H = High** **E = Extreme**

LOCATION	EXISTING RISKS					METHODS –ADDITIONAL CONTROLS	NEW RISK – Ranking to be completed by Management	ACTION TO ADDRESS RISK
DESCRIPTION OF HAZARD								
Label Head Pinch Ass.								
Catch clothing, Jewellery or long hair	1	D	L		Elimination		Not possible	
					Substitution		Not Applicable	
RISK ANALYSIS MATRIX								
LIKLEHOOD	CONSEQUENCE					Isolation	Engineering	Would impede machine operation.
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic			
A - Almost Certain	H	H	E	E	E			Low wattage motors are installed to keep risk to a minimum.
B - Likely	M	H	H	E	E			
C - Possible	L	M	H	E	E	PPE		No jewellery or loose clothing and hair nets to be worn
D - Unlikely	L	L	M	H	E	General		Isolate power when threading the labels
E - Rare	L	L	M	H	H			

7.3 MACHINERY RISK ASSESSMENT FORM

Name of Assessor: Mark Velez

Date assessed: 14/11/20

Machinery: Aztro David

Best control method chosen by assessor to resolve this hazard: Operators must be made aware of the dangers. Operators are to be instructed not to put their hands near the Orientation Unit unless power is isolated. Stopper block installed to limit pinch zone.

L = Low **M = Medium** **H = High** **E = Extreme**

LOCATION	EXISTING RISKS					METHODS –ADDITIONAL CONTROLS	NEW RISK – Ranking to be completed by Management	ACTION TO ADDRESS RISK
Orientation Unit								
DESCRIPTION OF HAZARD	CONSEQUENCE	LIKELEHOOD	RISK RANKING					
Fingers caught in the belt	4	E	H			Elimination		Not possible
						Substitution		
RISK ANALYSIS MATRIX								
LIKLEHOOD	CONSEQUENCE							
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic			
A - Almost Certain	H	H	E	E	E	Isolation		Not Possible.
B - Likely	M	H	H	E	E	Engineering		
C - Possible	L	M	H	E	E	PPE		Not Applicable.
D - Unlikely	L	L	M	H	E	General		Operator to be made aware of risk.
E - Rare	L	L	M	H	H			

7.4 MACHINERY RISK ASSESSMENT FORM

Name of Assessor: Mark Velez

Date assessed: 14/11/20

Machinery: Aztro David

Best control method chosen by assessor to resolve this hazard: Any electrical work is only to be carried out by a qualified person. Before the electrical cabinet is accessed, the technician will isolate the power and tag the machine out.

L = Low

M = Medium

H = High

E = Extreme

LOCATION	EXISTING RISKS					METHODS –ADDITIONAL CONTROLS	NEW RISK – Ranking to be completed by Management	ACTION TO ADDRESS RISK
Control Box	EXISTING RISKS							
DESCRIPTION OF HAZARD	CONSEQUENCE	LIKELEHOOD	RISK RANKING					
Electric shock	5	L	H			Elimination		Not possible
						Substitution		Not possible
RISK ANALYSIS MATRIX								
LIKLEHOOD	CONSEQUENCE							
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic	Isolation		Not Possible.
A - Almost Certain	H	H	E	E	E	Engineering		Door bolted to make access difficult.
B - Likely	M	H	H	E	E			
C - Possible	L	M	H	E	E	PPE		Not Applicable.
D - Unlikely	L	L	M	H	E	General		Only qualified personnel to access the electrical cabinets
E - Rare	L	L	M	H	H			

7.5 MACHINERY RISK ASSESSMENT FORM

Name of Assessor: Mark Velez

Date assessed: 14/11/20

Machinery: Aztro David

Best control method chosen by assessor to resolve this hazard: No personnel are to reach under the turn table unless power has been fully isolated. No loose clothing, jewellery or long fingernails are to be worn.

L = Low **M = Medium** **H = High** **E = Extreme**

LOCATION	EXISTING RISKS					METHODS –ADDITIONAL CONTROLS	NEW RISK – Ranking to be completed by Management	ACTION TO ADDRESS RISK
Turn Table								
DESCRIPTION OF HAZARD	CONSEQUENCE	LIKELEHOOD	RISK RANKING					
Pinch Point	3	D	M			Elimination		Not possible
						Substitution		Not possible
RISK ANALYSIS MATRIX								
LIKLEHOOD	CONSEQUENCE							
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic			
A - Almost Certain	H	H	E	E	E	Isolation		Turn off power before putting hands near the belts
B - Likely	M	H	H	E	E	Engineering		
C - Possible	L	M	H	E	E	PPE		No loose clothing, jewellery, or long fingernails.
D - Unlikely	L	L	M	H	E	General		Isolate machine before placing hands near the moving parts
E - Rare	L	L	M	H	H			