LIQUID DISPENSING APPLICATION (HEATED)

LDAH-1SYSM

For

Itm Filter Making Machine

PRODUCT MANUAL
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SECTION 6.0 BLEEDING & CALIBRATING THE SYSTEM

Whenever the flavour in the system is changed the system must be Bled and calibrated as follows:-

BLEEDING

6-1 Make sure the flavour tank is full of flavour.

6-2 Swing applicator nozzle away from the Stuffer jet.

6-3 Select the “BLEED FLAVOUR” Menu. See Figure 6-A Page 6-1.

6-4 Press Start and allow the flavour to pump into the container.

6-5 Start and stop the bleed several times, until all the air has been expelled from the system and a constant flow of flavour without any bubbles flows from the nozzle.

CALIBRATION

The system should be calibrated whenever a new flavour is being used, and on a regular basis to ensure accuracy.

Items required for Calibration:-

Weighing scales with a resolution of 0.1 Gram minimum.
Calibration container

6-6 Swing applicator nozzle away from the Stuffer jet.
6-7 Select the Calibration Menu. See Figure 6-B Page 6-1
6-8 Place weighing container on scales and TARE Display.
6-9 Place container under applicator nozzle.
6-10 Start calibration.
6-11 When the calibration has completed place container on scales.
6-12 Enter value collected in the menu being displayed. See Figure 6-B
BLEED FLAVOUR

REMOVE FLAVOUR APPLICATOR. PLACE A CONTAINER UNDER NOZZLE AND THEN PRESS START.

THE NOZZLE WILL OPEN AND THE PUMP WILL RUN UNTIL THE STOP BUTTON IS PRESSED.

Figure 6-A

FLAVOUR CALIBRATION

REMOVE FLAVOUR APPLICATOR. PLACE A MEASURING CONTAINER UNDER THE NOZZLE AND PRESS START.

THE APPLICATOR WILL OPEN AND THE PUMP WILL RUN FOR 1 MINUTE.

Figure 6-B
SECTION 5.0  CONTROLLER SETTINGS

The controller when supplied, has default settings entered into the Controller Setup & Configure Flavour menus.

**CONTROLLER SETUP**

5-1 All the values in the “Controller Setup” menu, SHOULD NOT BE CHANGED unless agreed with SPI Technician. See Page 5-1 Figure 5-A.

**CONFIGURE FLAVOUR SETPOINTS**

The values in the “Configure Flavour Setpoints” Menu may be changed depending upon the flavour being used and the Customer / Machine requirements

5-2 The “Flavour ON Speed”, sets the linear speed at which the flavour applicator system will start applying flavour during the Rod Making machine’s acceleration curve

5-3 The “Flavour OFF Speed”, sets the linear speed at which the flavour applicator stops applying flavour during the machine’s deceleration curve.

5-4 The “Overfeed values would not normally be used, If it is considered necessary to use this facility, please consult SPI Technician.
SECTION 5.0  CONTROLLER SETTING

**CONTROLLER SETUP**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Increment</th>
<th>Decrement</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECIRC. FREQ (Hz)</td>
<td>500</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td></td>
<td>5000</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>BLEED FREQ (Hz)</td>
<td>1000</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>CALIBRATION FREQ (Hz)</td>
<td>400</td>
<td>+0.01</td>
<td>-0.01</td>
</tr>
<tr>
<td>CALIBRATION VALUE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENCODER PULSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF SPEEDS ACTIVE</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5-A**

**CONFIGURE FLAVOUR SETPOINTS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Increment</th>
<th>Decrement</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAVOUR ON SPEED (M/min)</td>
<td>50</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>FLAVOUR OFF SPEED (M/min)</td>
<td>75</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>OVERFEED ON SPEED (M/min)</td>
<td>50</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>OVERFEED OFF SPEED (M/min)</td>
<td>75</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>OVERFEED VALUE (x Flow)</td>
<td>1</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
</tbody>
</table>

**Figure 5-B**
SECTION 4.0 POST INSTALLATION CHECKS

4-1 Switch on Mains air to unit.
4-2 Set the two switches on the control front panel to “MANUAL” & Security “OFF”.
4-3 Switch on electrical power to the unit.
4-4 Switch on the Green rocker POWER switch on rear of tank unit.
4-5 Check that all the indicators above the fuses on the front panel are illuminated. Check and replace fuses, if any lamps are not illuminated.
4-6 Adjust HOT AIR Flow restrictor fitted to rear of tank in connector “Q” as follows:- Turn adjuster fully clockwise till closed, adjust anticlockwise 3-4 turns open.
4-7 Check that a small flow of air is coming out of the applicator nozzle tube.
4-8 If the unit was cold from switch on, the alarm menu will be displayed on the screen, showing the temperature zones a See Figure 4-A on Page 4-1.

ALARMS / SETTINGS

4-9 If the tank empty alarm is flashing, fill the tank with flavour and press Reset.
4-10 If the Air Pressure alarm is on, switch on the air supply and press Reset.
4-11 When only the temperature alarm is left flashing, press “EXIT”, the screen will change to the SETUP Screen. See Figure 4-B.
4-12 Press “TEMP CONTROL” Button, the screen will change to the Tank & Hose temperature control zones, See Figure 4-C.
4-13 Check that all the temperature zones are set @ 50°C.
4-14 If they are not all set to 50°C press the respective SP value and a keyboard will appear, type in the new value and then ENTER.
4-15 Check all the other temperatures in Temp Control Screen (2) are also set @ 50°C. See figure 4-D
4-16 Press “Temp Alarm SP’s” Button, and the temperature alarm setting screen will appear. See Figure 4-D
4-17 Check and adjust the temperature alarms if required to 2 or 3°C
SECTION 4.0  POST INSTALLATION SYSTEM CHECKS

Figure 4-A  Figure 4-B  Figure 4-C  Figure 4-D

PRESS SP Value, FOR EACH TEMPERATURE ZONE AND A KEYBOARD WILL APPEAR

TEMPERATURE ALARM SETPOINTS
SET TEMPERATURE ALARM TOLERANCES (+/- DegC) OF THE RESPECTIVE TEMPERATURE CONTROL SP’s.

- TANK TEMP - <000000000 =0.0 + 0.1 - 0.1
- HOSE TEMP - <000000000 =0.0 + 0.1 - 0.1
- APPLIC TEMP - <000000000 =0.0 + 0.1 - 0.1
- FLUID TEMP - <000000000 =0.0 + 0.1 - 0.1
SECTION 3.0 INSTALLATION – ELECTRICAL

Refer to Wiring Diagram on Page 3-1

INTERFACE BOX LDAH17000 - wiring

3-1 Connect 230-240 vac Single Phase power with a minimum amperage capacity of 13 Amps to terminals E – 1 & 2.

START SIGNAL

NOTE: - The LDAH-1 unit requires a start signal from the Rod Making machine to initiate the application of flavour, this is normally taken from the same signal that starts the application of glue for the lap adhesive (via the front panel glue switch).

On the ITM machine this start signal is normally the 110vac signal used for the KAYMICH gravity feed unit.

3-2 Connect the 110vac start signal to terminals 3 & 4 (Note:- if this start signal is not 110vac then change the start relay to the correct voltage.

ENCODER

3-3 Connect the encoder wires RED – BLACK – WHITE to terminals 10-11-12

XENON LAMP & AWD

3-4 Connect Terminal 15 to xenon terminal 5, Connect terminal 11 to xenon terminal 4

The remaining outputs available from the LDAH-1 unit are not essential to be connected, their use will depend upon the existing control unit on the Rod Making machine as to it’s suitability and customer requirements.

Machine Stop Signal

Terminals 5-6-7 are voltage free relay contacts, and can be connected to the machine PLC stop circuit, these relay contacts will give a 1 second pulse to stop the machine if there is a problem with the LDAH-1 Unit.

EJECT Signal

This is a 24vdc signal sent to the machine to eject if required.

WATCHDOG SIGNAL

This is a 24vdc pulsed signal sent to the machine PLC to advise that the LDAH-1 Unit is alive & functioning.
LDAH-1 INTERFACE to MACHINE WIRING

NOTE: - MAKE SURE THAT START RELAY VOLTAGE MATCHES FLAVOUR START SIGNAL INPUT VOLTAGE FROM PARENT MACHINE - RELAY VOLTAGES AVAILABLE 240vac/110vac/24vdc/12vdc

START RELAY

E
E
1
1
LIVE 240vac
2
2
NEUTRAL 240vac
3
3
FLAVOUR START SIGNAL INPUT - 110vac (RELAY)
4
4
FLAVOUR START SIGNAL INPUT - 110vac (RELAY)
5
5
MACHINE STOP - N/O
6
6
MACHINE STOP - COMMON
7
7
MACHINE STOP - N/C
8
8
START SIGNAL OUTPUT + 24vdc
9
9
START SIGNAL OUTPUT - 0 vdc
10
10
ENCODER SUPPLY + 24vdc
11
11
ENCODER SUPPLY - 0 vdc
12
12
ENCODER INPUT SIGNAL
13
13
WATCHDOG SIGNAL OUTPUT (+24vdc PNP)
14
14
EJECT OUTPUT SIGNAL
15
15
FENON OUTPUT SIGNAL

110 vac START SIGNAL FROM ITM PLUG MAKER - TERMINALS 27 & 28 ON ITM Drawing 40-S7-E001/03.1

220 - 240 vac SINGLE PHASE 13 AMP

Page 3-1
SECTION 2.0  INSTALLATION – MECHANICAL

HEATED HOSE

2-7 Connect the large end of the heated hose to the tank rear outlet and tighten with 19mm spanner (do not overtighten), See Figure 2-C on Page 2-3.

2-8 Connect hose electrical connector into socket on rear of tank.

2-8 2-4 Connect small end of heated hose to Applicator and tighten with 19mm spanner (do not overtighten), See Figure 2-C on Page 2-3.

INTERFACE CABLE

2-9 Connect Interface cable to Interface box and rear of tank.

PNEUMATIC CONNECTIONS

2-10 Using the 4mm Blue pipe supplied, connect between tank outlet “Nozzle Piston PA” to Applicator fitting marked “PA”. See Figure 2-D on Page 2-3.

2-11 Plug the small flow restrictor supplied into the Tank fitting marked “Hot Air – HA – Q” See Figure 2-D on Page 2-3.

2-12 Using the 4mm Yellow pipe supplied, connect between this flow restrictor and the Applicator fitting marked “HA”. See Figure 2-D on Page 2-3.

2-13 Connect a suitable 6mm mains air pipe to 6mm fitting on rear of tank unit.

2-14 Connect other end of 6mm pipe to a suitable mains air supply giving a minimum of 4.5 Bar pressure.
FIGURE 2-C

FIGURE 2-D

6 mm MAINS AIR PIPE @ 5 bar
SECTION 2.0 INSTALLATION – MECHANICAL

TANK UNIT

2-1 Site the main tank unit behind either the Rod Maker or the Tow Processing Unit, as shown in Figure 2A on page 2-1.

APPLICATOR

2-2 Fasten the LDAH-1 Nozzle Mounting plate onto the Stuffer Jet mounting bolts as shown in Figure 2-B on page 2-1.

2-3 Mount the Blue Nozzle mounting block onto the applicator body insulation block, using the screws provided.

2-4 Mount the Applicator with mounting block onto the Nozzle mounting plate as shown in Figure 2-B on page 2-1.

INTERFACE BOX

2-5 Mount the Interface box LDAH17000 at the rear of the machine, in a convenient position to allow electrical wiring to the machine and within a distance of 1.5 meters from where the LDAH-1 tank unit has been sited.

ENCODER

2-6 Mount the encoder and roller on front face of machine in place of the existing diverter roller on the Rod Making machine, as shown below.
LOCATE LDAH-1 PORTABLE UNIT, IN EITHER OF THE TWO POSITIONS SHOWN

FIGURE 2-A

LDAH-1 NOZZLE MOUNTING

NOZZLE MOUNTING

LDAH-1 APPLICATOR

EXISTING ITM STUFFER JET ASSEMBLY

FLAVOUR INJECTOR

FIGURE 2-B
The LDAH-1 system will dispense heated liquid flavours (including 100% menthol) proportionally to the parent machine speed, the flow is controlled via a microprocessor control unit driving a precision pump. The flavour is pumped directly from the tank through a heated hose to the applicator. The encoder is mounted on the parent machine and the microprocessor measures the machine speed and calculates the correct flow per product, the flow can be changed via the touch screen. Normal application accuracy is 0.2mg/product (depending upon flavours used)

Main Features

- Latest technology microprocessor control system for all functions.
- Controller can be mounted remotely on parent machine via extension cable.
- Recirculation of flavour when unit not dispensing, to ensure good product mix.
- Automatic calibration and bleed facilities.
- Permanent or portable tank units available.
- Encoder – Paper driven.
- Flexible heated hose to allow access to machine application area.
- A range of applicators are available for different applications.
- Junction box provided for parent machine, allowing unit to be moved to different machines.