

Enter **Serial No.** here

In the event of an enquiry please quote this serial number.

**Store this document safely and ensure it is available  
At all times.  
Non-availability may affect the service / repair of your machine.**



## **OPERATING AND MAINTENANCE MANUAL MK10 ELECTRONIC DEPOSITOR**

# **-DECLARATION OF CONFORMITY-**

We hereby declare that this machine complies with the essential health and safety requirements of:-

**The Machinery Directive 98/37/EEC**

**The Low voltage Directive 73/23/EEC**

**The requirements of the  
Electromagnetic Compatibility Directive  
89/336/EEC,91/263/EEC,92/31/EEC**

**and  
General Safety of Machinery and  
food processing Standards applicable**

Signed:  (Quality Manager)  
G.A. Williams

Date: .....

Machine Code FG..... Machine Serial No. ....

A technical construction file for this machine is retained at the following address:

**MONO EQUIPMENT  
Queensway,  
Swansea West Industrial Park,  
Swansea  
SA5 4EB  
UK**

S  
E

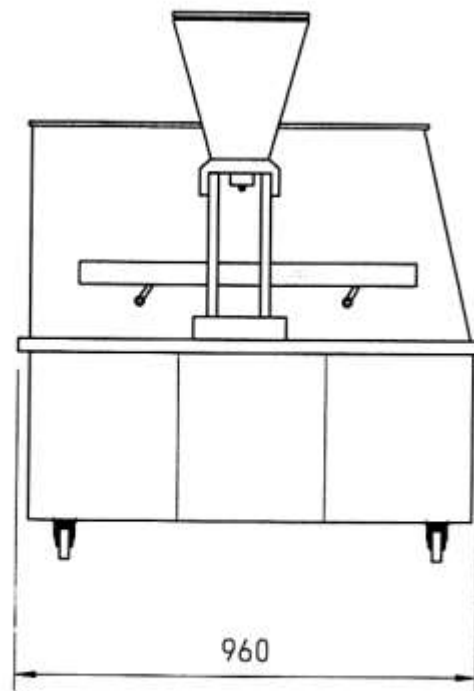
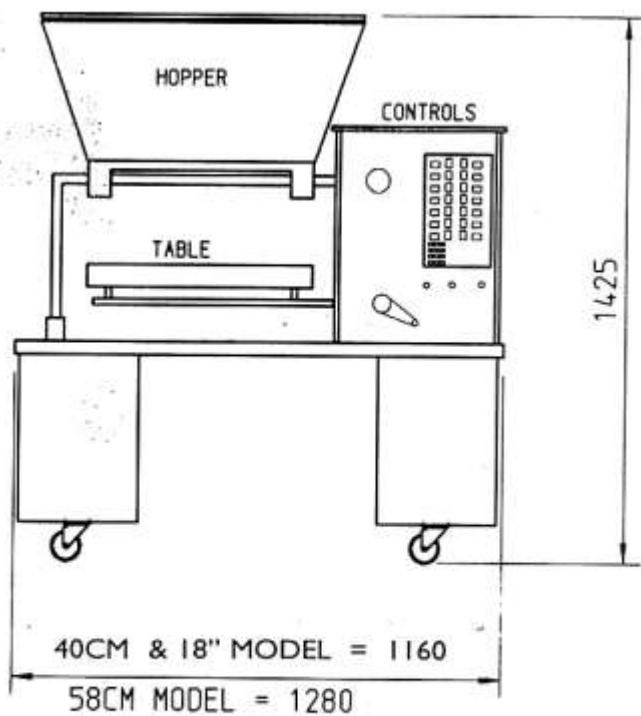
## 1.0 INTRODUCTION

Like all MONO products, the 'Electronic Depositor' is designed to save the baker and confectioner time, labour and money.

The operator can pre-programme the products required by punching in a number on the touch-sensitive control panel the machine will then produce totally consistent products of that type right through the production run. Individual programmes can be overridden, or slightly modified, to allow for different consistency of mixes, but the operator can still return to the original programme whenever required.

In order to achieve smooth production and trouble-free performance, it is recommended that the information given in this manual is studied before any operation is carried out.

## 2.0 DIMENSIONS



MONO ELECTRONIC DEPOSITOR  
GENERAL DIMENSIONS

## 2.1 Dimensions

### Model Size (tray width)

	40 cm	18"	58 cm
HEIGHT:	1425mm	56 1/8" (1425)	1425mm
DEPTH:	960mm	37 3/4" (960)	960mm
WIDTH:	1160mm	45 3/4" (1160)	1280mm

## 3.0 SPECIFICATIONS

Model	40 cm	18"	58 cm
WEIGHT:	320kg	705lb (320kg)	332kg

POWER: 1.4kW; single phase

2.4kW with heated hopper.

ELECTRONICS: All microprocessor controlled.

DEPOSIT

WEIGHT RANGE: 1/4 oz. - 20lb (7g - 9kg).

**NOTE:** The minimum deposit that can be made depends on several factors - recipe, mixing method, template size and deposit speed.

As a guide, the following is the minimum that should be attempted:-

Macaroons 6g, Meringues 3g, Choux Paste 5g, Viennese 4g, Sponge Drops 4g.

NOISE LEVEL: Less than 85dB.

## 4.0 SAFETY

- 4.1 Never use a machine in a faulty condition and always report any damage.
- 4.2 Only trained engineers may remove any part from this machine that requires a tool to do so.

- 4.3 Always ensure hands are dry before touching any electrical appliance (including cable, switch and plug).
- 4.4 All operatives must be fully trained.
- 4.5 People undergoing training on the machine must be under direct supervision.
- 4.6 Do not operate the machine with any panels or guards removed.
- 4.7 No loose clothing or jewellery should be worn while operating the machine.
- 4.8 Switch off power at the mains isolator when machine is not in use and before carrying out any cleaning or maintenance.

**ALL CLEANING AND MAINTENANCE OPERATIONS MUST BE MADE WITH MACHINE DISCONNECTED FROM THE POWER SUPPLY.**

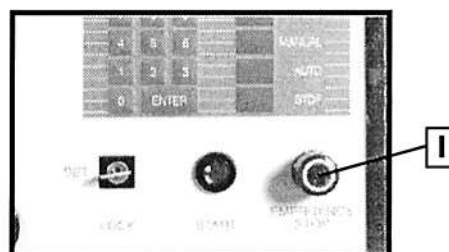
- 4.9 The Bakery Manager or the Bakery Supervisor must carry out daily safety checks on the machine
- 4.10 Do not operate machine without hopper template fitted.

**5.0 INSTALLATION**

- 5.1 Ensure that the Depositor is connected to the correct electric supply, as specified on the serial number plate on the base of the machine.

**6.0 ISOLATION**

- 6.1 In an emergency switch off at the mains wall isolator, or the machine's emergency stop button (1). To release the emergency stop button, turn clockwise.





## 7.0 CLEANING INSTRUCTIONS

**NOTE:** CLEANING MUST BE CARRIED OUT BY FULLY TRAINED PERSONNEL ONLY.

**NOTE:** ISOLATE MACHINE FROM MAINS SUPPLY BEFORE CARRYING OUT ANY CLEANING.

### 7.1 DAILY

7.2 All the outer surfaces of the machine should be wiped over with warm soapy water. Do not use any form of caustic detergent or abrasive.

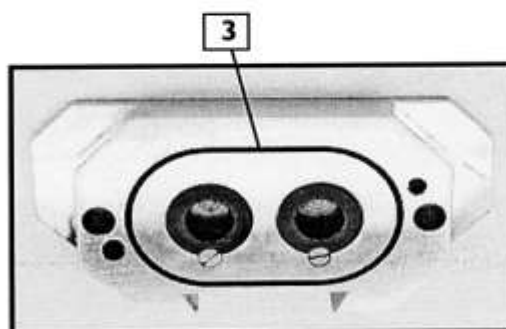
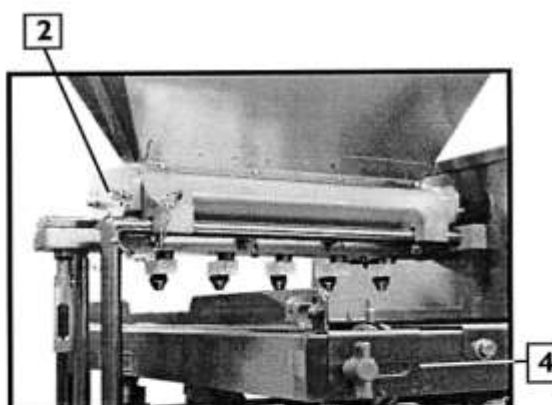
7.3 **NOTE:** Do not steam clean, use a jet of water, or allow water to wash over any of the machine surfaces.

7.4 The hopper, hopper pump, template, nozzles etc. should be dismantled for thorough cleaning.

### 8.0 TO DISMANTLE THE HOPPER REMOVE TEMPLATE

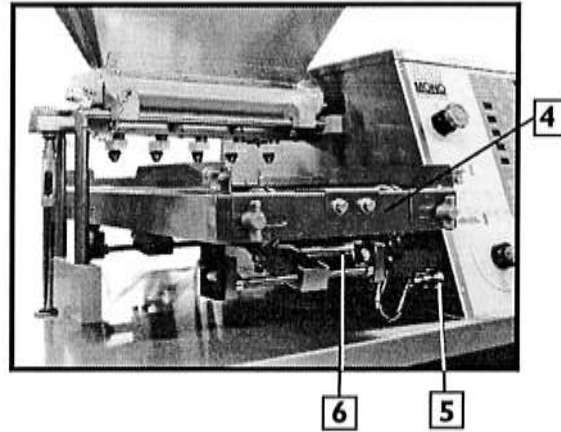
CAUTION SHOULD BE TAKEN WHEN REMOVING HOPPER AS WEIGHT EXCEEDS 20KGS.

- 8.1 Remove hopper assembly from the machine.
- 8.2 Unscrew the wingnuts (2) holding the pump endplate to the hopper. Ensure that the wing nuts are placed where they will not be lost.
- 8.3 Withdraw the endplate with the pump gears attached.
- 8.4 Ensure that the 'O' sealing ring (3) on the inside of the endplate is not damaged during cleaning.
- 8.5 The table (4) should be removed from the machine and cleaned using only warm soapy water.



## 9.0 TO REMOVE TABLE FROM MACHINE

- 9.1 Unscrew the holding nut and remove plug (5) from socket.
- 9.2 Withdraw the holding pin (6) from its socket.
- 9.3 Carefully lift and remove table (4).



## TO REPLACE, FOLLOW REVERSE PROCEDURE.

**NOTE:** Use only warm soapy water to clean these parts, which should be rinsed and thoroughly dried before re-assembly. The greatest care must be taken not to drop any of the hopper components, or allow any foreign matter to fall into the hopper. After washing, the component parts should be allowed to cool before attempting to reassemble.

## 10.0 OPERATING CONDITIONS

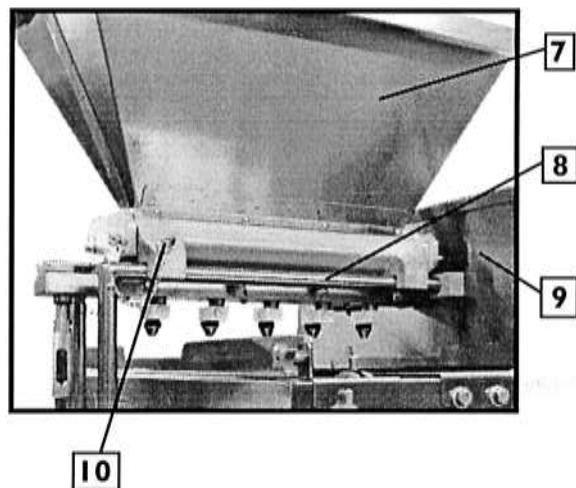
Make sure the depositor is used on a level floor to achieve best results.

## 11.0 OPERATING INSTRUCTIONS

### FITTING THE HOPPER

CAUTION SHOULD BE TAKEN WHEN REMOVING HOPPER AS WEIGHT EXCEEDS 20KGS.

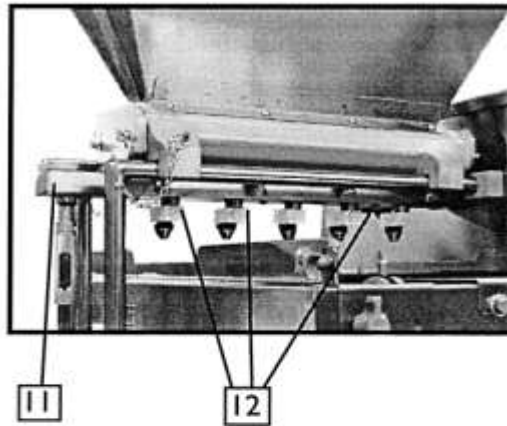
- 11.1 Place hopper (7) on hopper support bars (8) and slide up against bulkhead to engage with pump drive (9). Use PRIME button to cycle machine if pump drive will not engage. (Hopper safety guard must be in the closed position).
- 11.2 Insert hopper retaining pins (10).



**DO NOT OPERATE MACHINE WITHOUT TEMPLATE FITTED**

### **12.0 Fitting a non-rotary template**

- 12.1 Select template (refer 1,2,3 or 4 spares section) and nozzles required.
- 12.2 Screw nozzles into threaded retaining caps on templates.
- 12.3 Slide template (11) into matching recess at base of hopper until nylon stop engages in endplate.
- 12.4 Tighten wing nuts (12), on underside of hopper, to secure template. Leakage of mix will occur if the wing nuts are not securely tightened.



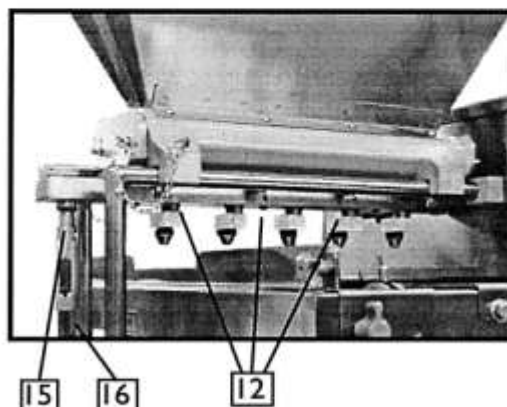
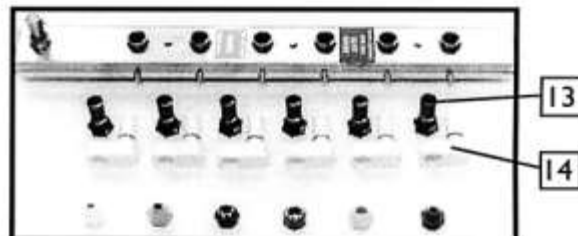
### **13.0 Fitting of rotary templates**

These units are used for the manufacture of circular products.

The straight rotary tubes (13) are used, for example, for whirls.

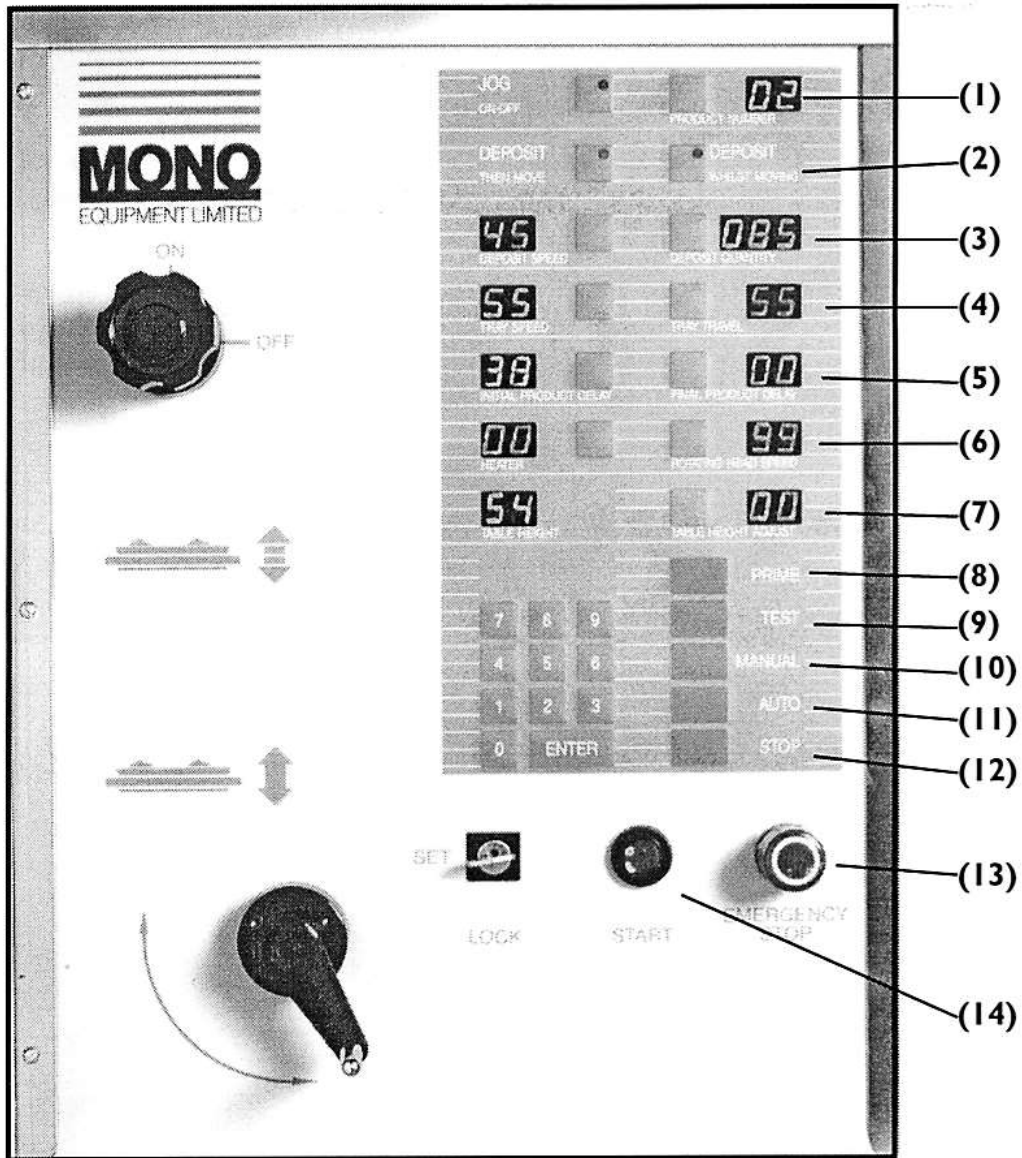
Offset rotary fittings (14) would be used for such products as meringue rings.

- 13.1 Screw nozzles into offset rotary fittings or straight rotary tubes.
- 13.2 Insert nozzle fittings into template ensuring that they are pushed fully into seatings.
- 13.3 Slide template into matching recess at base of hopper until nylon stop engages in endplate.
- 13.4 Tighten wing nuts (12), on underside of hopper, to secure template. Leakage of mix will occur if the wing nuts are not securely tightened.
- 13.5 Attach coupling from rotary drive shaft (15) to bayonet fitting of rotary template drive (16).





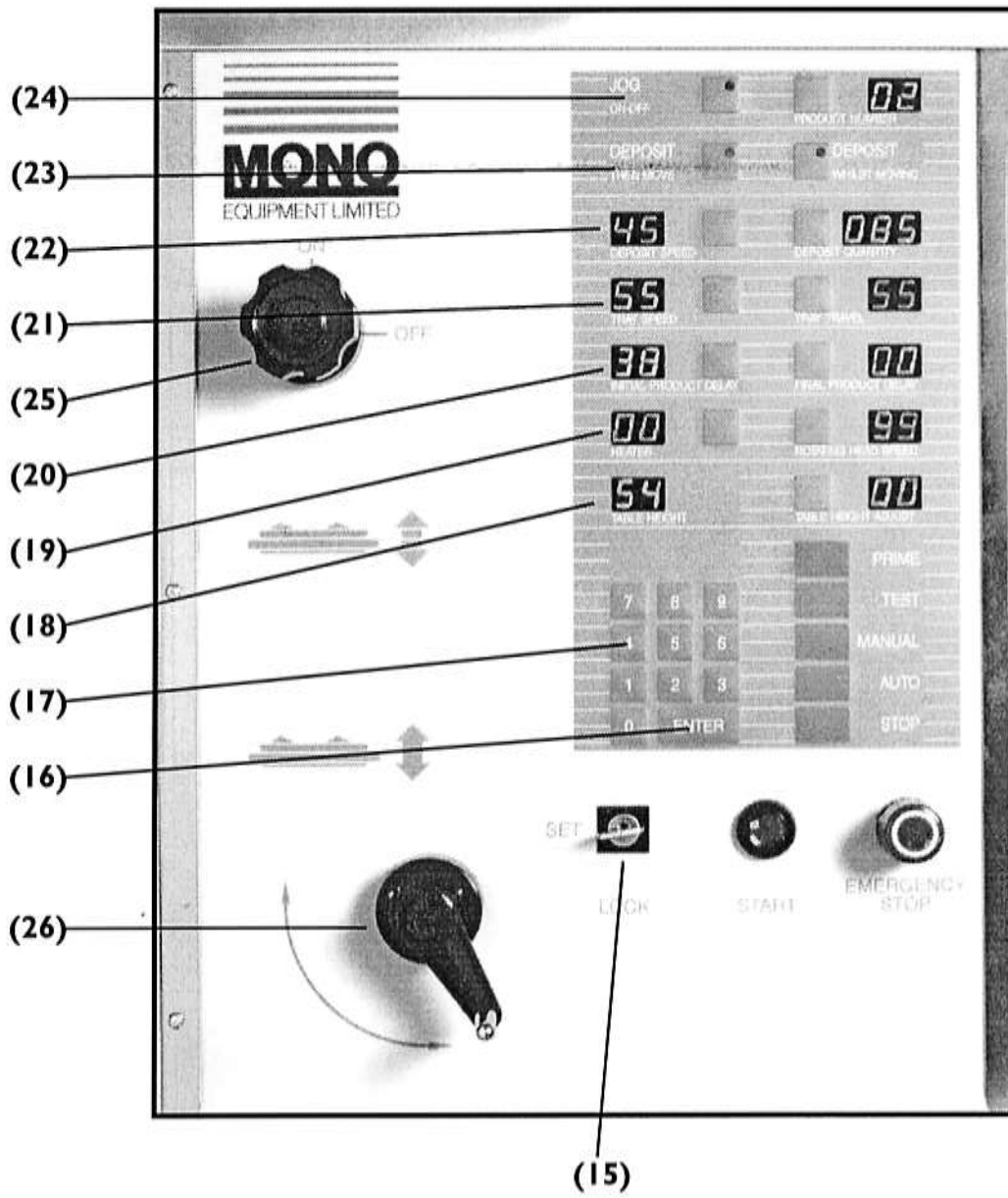
## CONTROL PANEL



## 14.0 DESCRIPTION OF CONTROLS

DRG. REF	NAME	FUNCTION
1	PRODUCT NUMBER	Number for preset product programme. Machine can store up to 99 different programmes.
2	DEPOSIT WHILST MOVING	Setting for elongated products such as fingers, eclairs, sheeting etc.
3	DEPOSIT QUANTITY	This control adjusts the length of time the pump operates for each product cycle.
4	TRAY TRAVEL	Adjusts distance between each product on tray.
5	FINAL PRODUCT DELAY	Provides a final delay adjustment to the tray at the finish of each deposit. Prevents 'tailing' of product at the end of each deposit.
6	ROTATING HEAD SPEED	Adjusts speed of rotation of rotary template nozzles.
7	TABLE HEIGHT ADJUST(MENT)	Programmable reminder for table height setting. Refer also to items 18 and 26.
8	PRIME	This button activates the hopper pump for as long as it is depressed. It fulfils two functions: a. To turn the hopper drive to ease the positioning of the hopper on the machine. b. To prime the hopper pump and nozzles with product mix.
9	TEST	For testing a product setting. The machine will cycle for as long as the button is depressed.
10	MANUAL	Machine will cycle and deposit product whether a tray is positioned on the table, or not.
11	AUTO(MATIC)	Activates a continuous machine cycle provided a tray is positioned on the table to receive product. Machine will start automatically when a tray is placed on the table, and stop when the tray is full.
12	STOP	Stop button for either the manual or automatic modes.
13	EMERGENCY STOP	Immediately isolates all circuits. To release, press and turn clockwise.
14	START	Activates all electric circuits, any machine facilities can be used.

# CONTROL PANEL





15	SET/LOCK	Key allows entry to machine's computerised product memory in SET position. Key can only be removed in LOCK position. Individual programmes can be overridden by the operator to allow for varying product mixes etc., even with the key removed from the machine. However when the machine is closed down the computer will automatically select the last used programme ready for start-up, and will discard any override instructions.
16	ENTER key	This key is touched to enter a product function or table function setting.
17	Numeric keys 1-9	Used to enter numeric codes against product function or table function settings.
18	TABLE HEIGHT	Digital display showing actual table height.
19	HEATER	Adjustment for heater temperature, (if fitted). Numbers displayed do not relate to actual degrees Centigrade or Fahrenheit.
20	INITIAL PRODUCT DELAY	Provides an initial delay adjustment to the tray, to ensure that product mix fills the leading edge of the tray before it is moved forward. Used also for rounding front edges of eclairs and finger sponge drops.
21	TRAY SPEED	Sets tray conveyor speed.
22	DEPOSIT SPEED	Varies hopper pump speed to suit nature of product.
23	DEPOSIT THEN MOVE	Setting for circular shaped products such as cup cakes, cream buns, sponges etc.
24	JOG ON/OFF	Programmable operator prompt to turn jog control ON or OFF. Refer to 25.
25	Jog ON/OFF control	When this function is engaged it lowers the table between each deposit to give a clean break between products and nozzles.
26	TABLE HEIGHT HANDLE	Table height adjustment. Anticlockwise to raise, clockwise to lower. Actual height is indicated at table height (18) digital display. Programmed height is indicated at TABLE HEIGHT ADJUST. Refer to 7.



## 15.0 OPERATIONAL CONTROLS

15.1 EMERGENCY STOP button (13). Isolates all electric circuits immediately. To release the EMERGENCY STOP button turn clockwise.

**NOTE: ONLY USE IN AN EMERGENCY.**

If used, machine must be turned off at mains isolator and turned back on to reset. To stop machine when in use only use stop button (12).

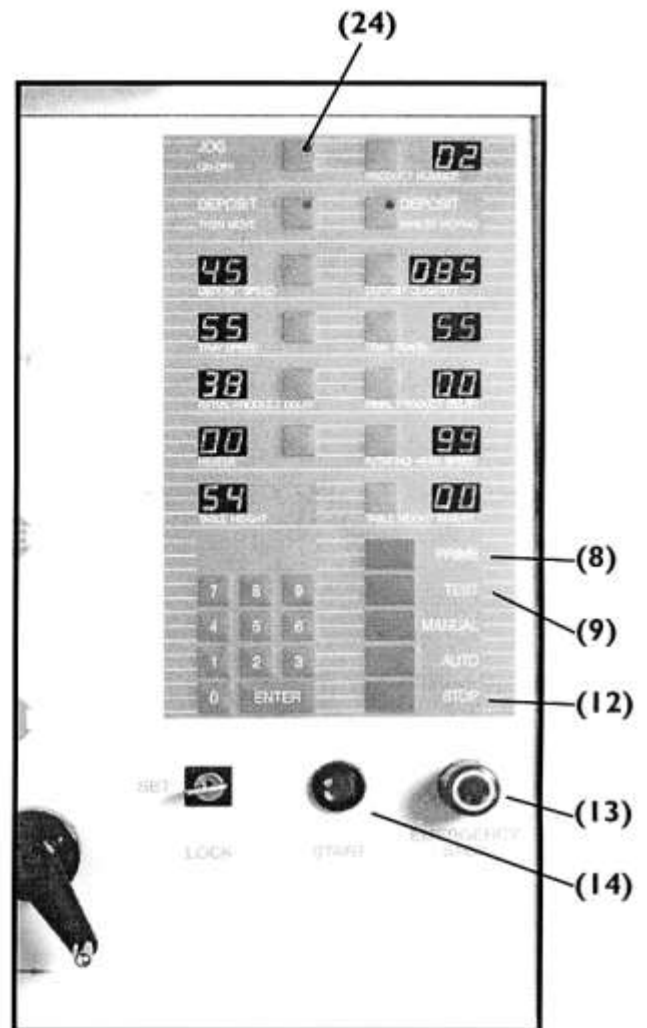
15.2 START button (14). Activates all electric circuits.

15.3 STOP button (12). Pressing this button will stop the machine immediately in either the AUTO(MATIC) or MANUAL modes. When the machine is started again, in either of these modes, it will begin to deposit at the start of a deposit cycle, no matter at what stage of the cycle the machine was stopped.

15.4 JOG ON/OFF (24). The illuminated button on the control panel is an operator prompt and should always be checked when a programme change is made. If table jog is required in a programme (the button will be illuminated), pull and turn the JOG handle to ON. If table jog is not required in a programme (the button will not be illuminated), turn the JOG handle to OFF.

15.5 PRIME button (8). After the hopper has been loaded with mix and the hopper guard has been closed, this button is pressed to prime the pump gears and nozzles with product. The deposit motor will run as long as the button is pressed.

15.6 TEST button (9). Trial deposits can be made of set quantities by pressing this button. The machine will stop as soon as the button is released.



15.7 **AUTO button (11).** This **AUTOMATIC** operation is activated by the tray trigger sensor on the table, and allows the machine to be constantly fed with trays without the operator having to touch the control panel. The machine will operate when a tray is placed on the table and will stop cycling when each tray of product is completed. A two second delay as each tray is placed on the table allows for correct tray positioning. To halt the **AUTOMATIC** cycle press the **STOP** button.

15.8 **MANUAL button (10).** When this button is pressed the machine will start to cycle, and if the hopper is primed, deposit product continuously. The machine will continue to cycle whether there is a tray on the table, or not, until the **STOP** button is pressed.

## 16.0 PREPARING FOR OPERATION

16.1 Fill hopper with mix and close hopper guard.

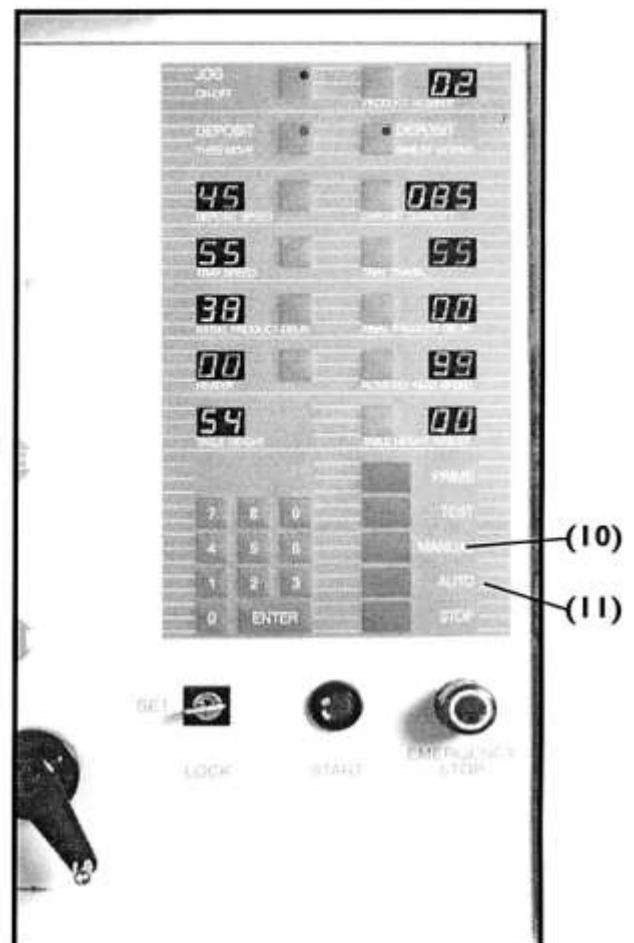
It is recommended that when heavy mixes are used the inside of the hopper should be coated with vegetable oil. For lighter mixes such as meringue, dampen with water. The oil or water will help the mix to settle down the hopper walls and prevent air being sucked in.

16.2 Press **START** button.

16.3 Place the small tray provided with the machine under the nozzles to collect initial deposits when the hopper pump is primed.

16.4 Press **PRIME** button until mix is ejected equally from all nozzles - then release **PRIME** button.

16.5 The machine is now ready for operation.



## 17.0 Entering a product setting

The Electronic Depositor is designed to process many types of confectionery product mix, which will all have different consistencies and flow rates.

The numbers in the digital displays can therefore be used as guides for accurate product setting and do not relate to units of measure, e.g. ounces, grammes or centimetres. To enter a function setting on any of the following keys:

DEPOSIT SPEED / DEPOSIT QUANTITY / TRAY SPEED / TRAY TRAVEL / INITIAL PRODUCT DELAY / FINAL PRODUCT DELAY / HEATER / ROTATING HEAD SPEED proceed as follows:-

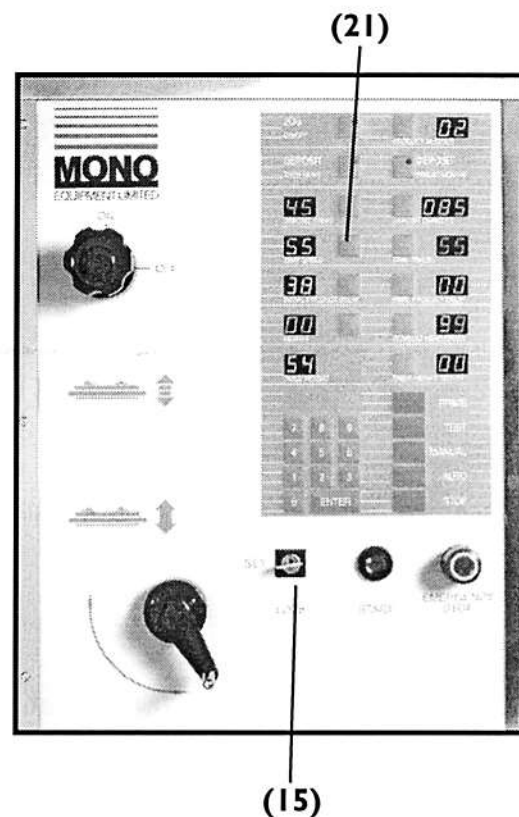
17.1 Turn key (15) to SET.

17.2 Choose a product number for the programme.

The number can be from 01 to 99. **IMPORTANT NOTE:** The operator should make a note in this booklet of the product name and number for future reference, and to ensure that when entering a new programme an existing programme is not erased accidentally.

Press button above PRODUCT NUMBER. The digital display alongside the number will start to flash slowly. To select a product number, press the appropriate numeric buttons.

17.3 Press button relating to only one of the above settings, e.g. TRAY SPEED (21)  
The digital display alongside the button will flash slowly indicating that the setting for this function can be changed.



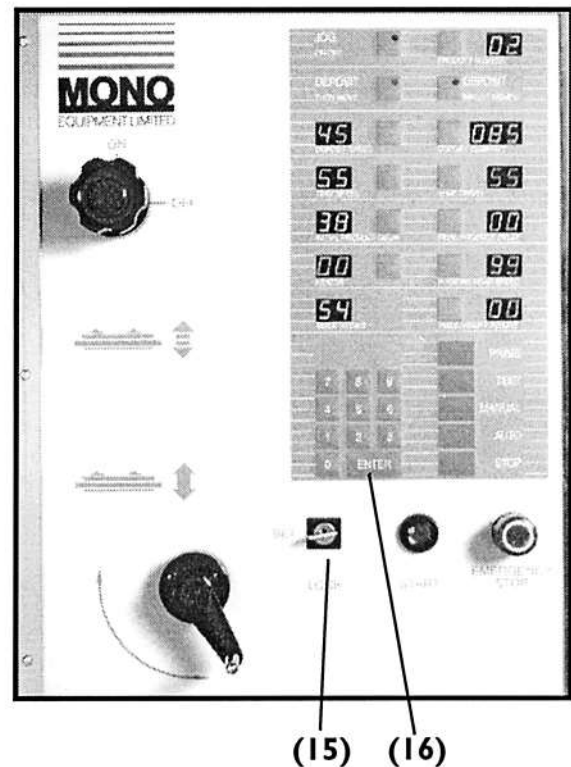


- 17.4 To change the function setting press the appropriate numeric buttons 0-9. The new setting will appear in the digital display
- 17.5 To store the function setting, press the ENTER button (16)
- 17.6 Each of the function settings are set in the same way.
- 17.7 Make any adjustments required to the mode of table operation, refer to 'Description of Controls', items 24-26. When the product programme has been tested and final adjustments have been made to the function settings and table settings, turn the key to LOCK. The programme is now locked into the machine and cannot be erased if the key is removed from the machine.
- 17.8 When the product programme has been tested and final adjustments have been made to the function settings and table settings, turn the key to LOCK. The programme is now locked into the machine and cannot be erased if the key is removed from the machine.

## 18.0 ENTERING A TABLE SETTING

To select JOG or DEPOSIT functions:-

- 18.1 Turn key (15) to SET.
- 18.2 Press button relating to function required,  
i.e. JOG ON/OFF (operator prompt only)  
DEPOSIT THEN MOVE  
DEPOSIT WHILST MOVING
- 18.3 A lamp in the button will illuminate, indicating which function has been selected.





18.4 Turn key to LOCK.

## 19.0 TO SELECT TABLE HEIGHT

19.1 Turn handle (26) to raise or lower table.  
The actual table height is indicated on the digital display marked TABLE HEIGHT.

19.2 When the correct height has been achieved enter the setting in the programme - (operator prompt only).

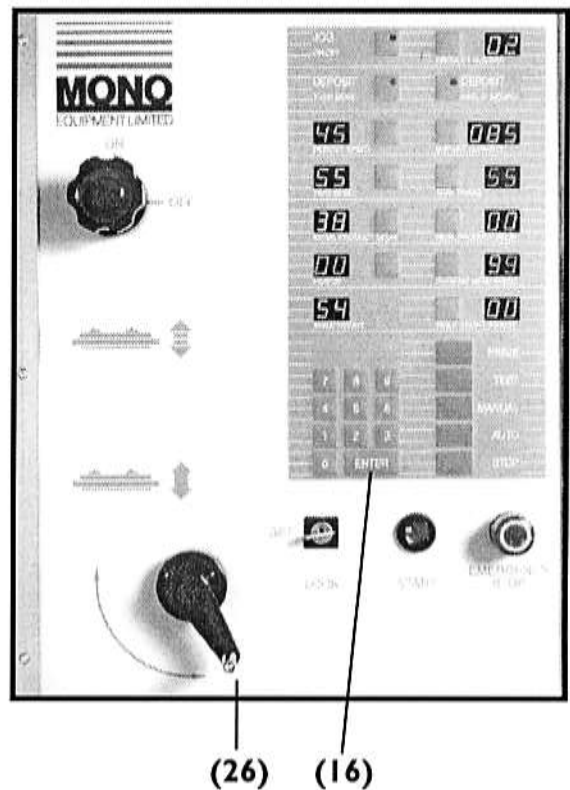
19.3 Turn key to SET.

19.4 Press button marked TABLE HEIGHT ADJUSTMENT.  
The digital display alongside this button will now flash indicating that the setting may be changed.

19.5 To change the recorded setting, press the appropriate numeric keys 0-9. The new setting will appear in the digital display.

19.6 To store the function setting, press the ENTER button (16).

19.7 Turn key to LOCK.





## **21.0 MAINTENANCE**

**WARNING:** Isolate machine from mains supply before carrying out any maintenance procedures. Refer to sections 7.0; 8.0 and 9.0.

### **RESETABLE MINIATURE CONTACT BREAKERS-**

These are located behind the right hand side sheet. If a circuit breaker trips out more than once in a short period of time, contact a qualified electrician immediately.

**WARNING!** DO NOT UNDER ANY CIRCUMSTANCES USE A WATER HOSE TO CLEAN MACHINE.

## **22.0 SPARES AND SERVICE**

If a fault arises, please do not hesitate to contact

### **UK SERVICE:**

#### **MILLERS VANGUARD LTD**

1 Chesham Fold Road  
Bury  
Lancashire.  
BL9 6LE

email: [service@millersvanguard.co.uk](mailto:service@millersvanguard.co.uk)

web site: [www.Millersvanguard.co.uk](http://www.Millersvanguard.co.uk)

Tel: 0161 7648646

Fax: 0161 7610016

### **SPARES and OVERSEAS SUPPORT:**

#### **MONO**

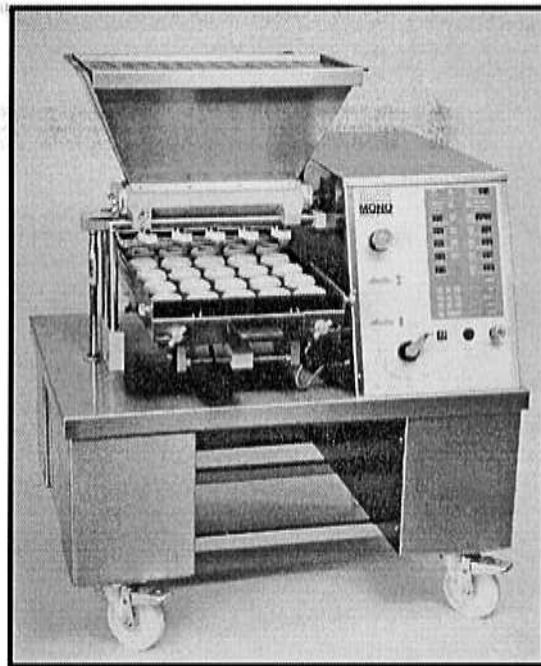
Queensway  
Swansea West Industrial Estate  
Swansea. SA5 4EB UK

email: [spares@monoequip.com](mailto:spares@monoequip.com)

Web site: [www.monoequip.com](http://www.monoequip.com)

Tel. 01792 561234

Fax. 01792 561016



## **24.0 SPARE PARTS**

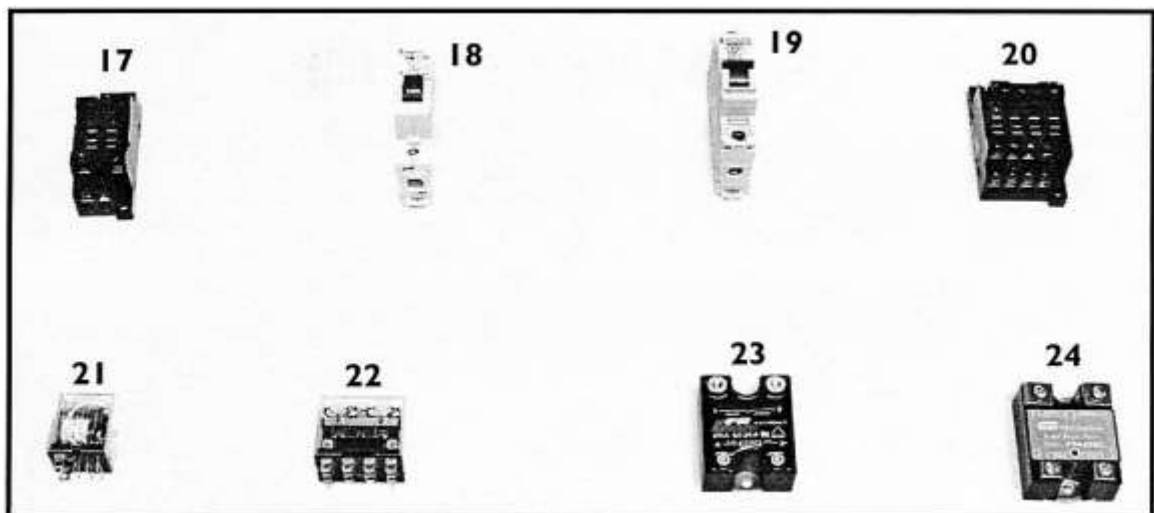
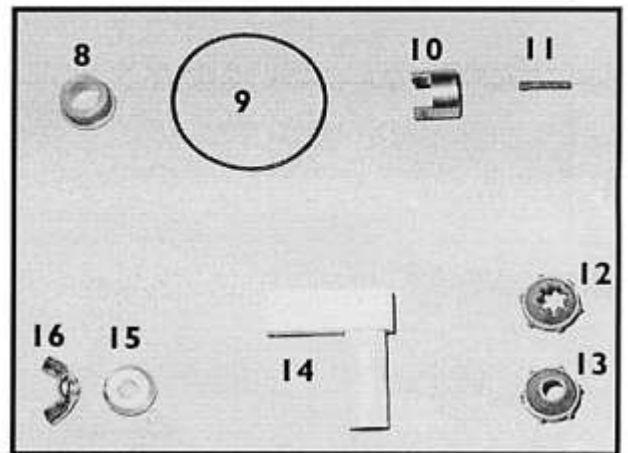
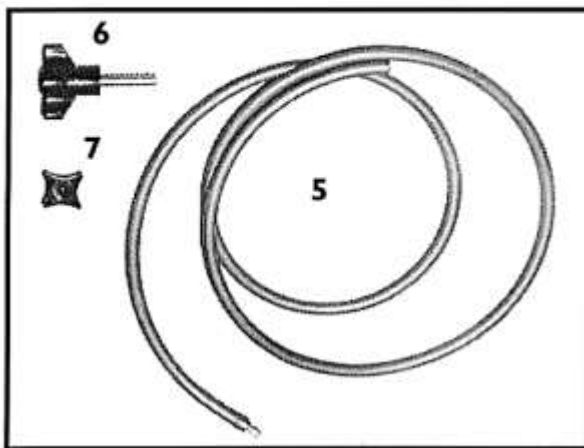
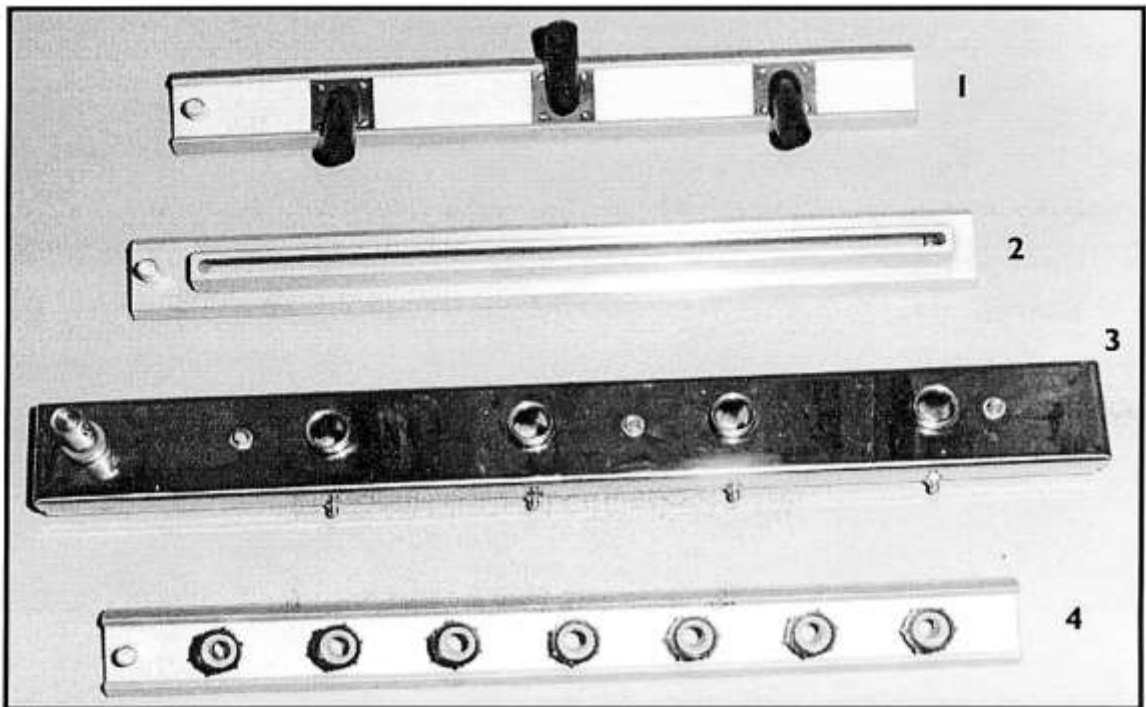


## 24.1 SPARE PARTS LIST

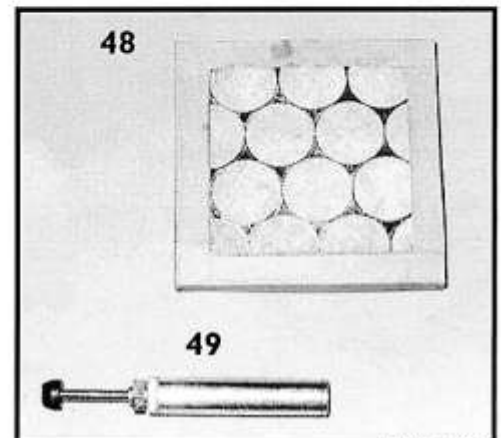
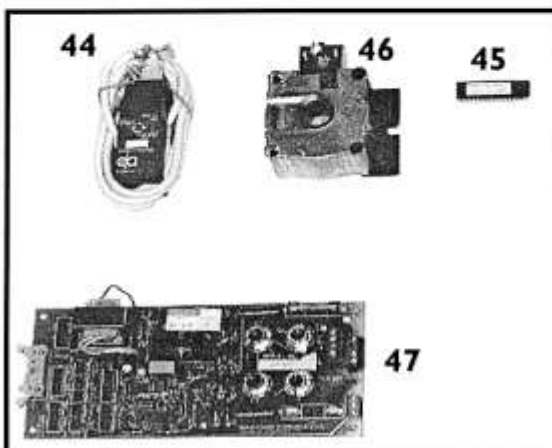
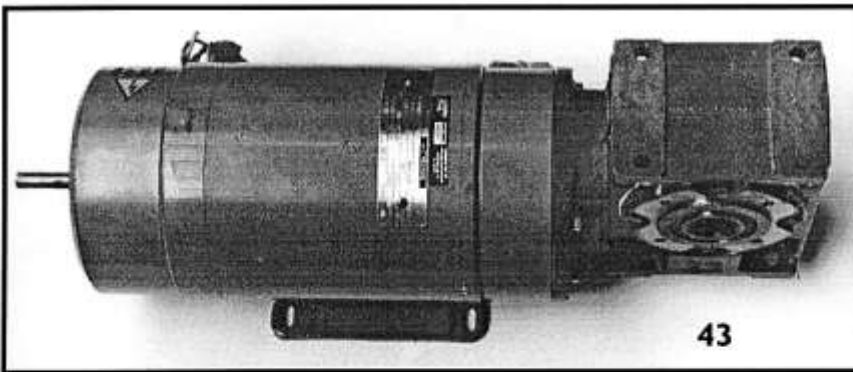
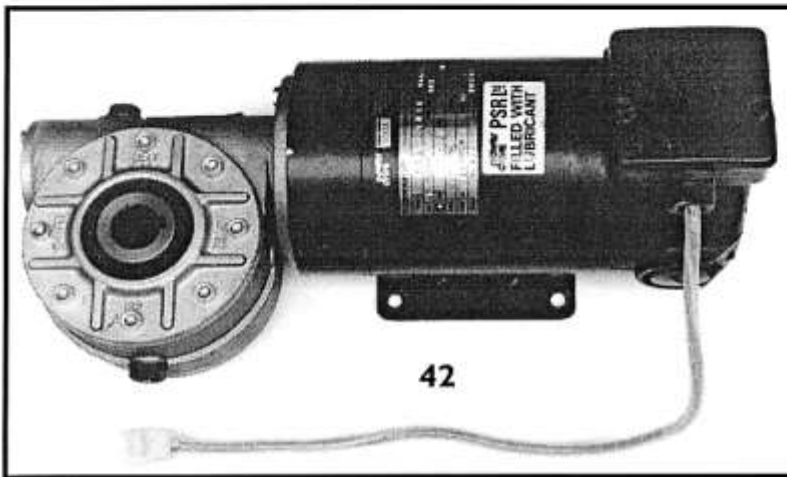
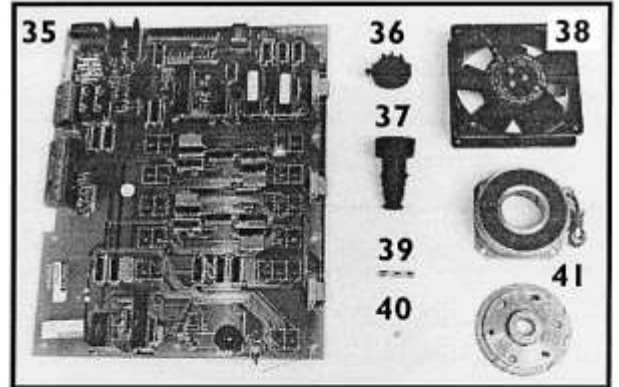
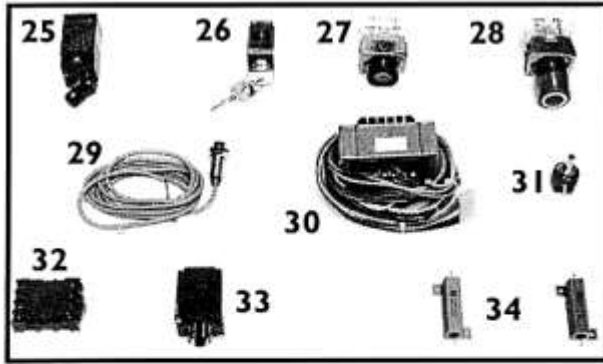
ITEM NO	DESCRIPTION
1	Staggered template
2	Sheeting template
3	Rotary template
4*	Standard template
5	Round belt
6	Thumb screw
7	Thumb screw
8	End cap bush
9	End cap 'O' ring
10	Hopper drive adaptor
11	Hopper drive adaptor securing pin
12	Star nozzle
13	Plain nozzle
14	Rotary offset nozzle
15	Template clamping cone
16	Template clamping wing nut
17	8 pin relay base
18	M.C.B. (1 Amp)
	M.C.B. (2 Amp)
19	M.C.B. (20 Amp)
	M.C.B. (5 Amp)
	M.C.B. (10 Amp)
20	14 pin relay base
21	8 pin relay
22	14 pin relay
23	30 Amp solid state relay
24	40 Amp solid state relay
25	Limit switch
26	Programme lock & key
27	Start switch
28	Stop switch
29	Auto/start sensor
30	Transformer
31	Potentiometer
32	8 pin relay base
33	90 volt power pack
34	50 Watt resistor 10ohm
	50 Watt resistor 2.2ohm
35	Main printed circuit board
36	3 pin socket (plastic)
37	3 pin plug
38	Fan
39	2.5 Amp fuse
	0.63 Amp fuse
	1.25 Amp fuse
40	3mm Nut
	4mm Nut
41	Brake unit
	Brake unit plate
42	Table drive motor
	Rotary drive gear box
43	Pump motor
44	Magnetic safety switch
45	ICI
	IC2
46	Shaft encoder
47	Tray travel speed controller
	Rotary head speed controller
	Deposit speed controller
48	Air filter
49	Damper

\* Note: a wider range of special templates is available to order

## 24.2 SPARES



### 24.3 SPARES



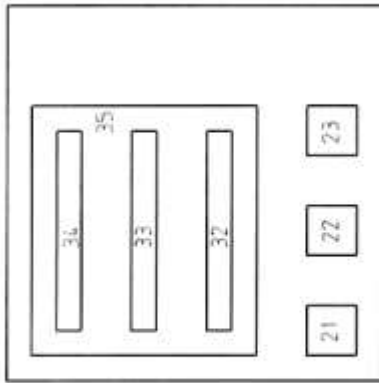


<u>DRAWING</u> <u>PT-Ref</u>	<u>DESCRIPTION</u>	<u>MONO</u> <u>PART NUMBER</u>	<u>DRAWING</u> <u>PT-Ref</u>	<u>DESCRIPTION</u>	<u>MONO</u> <u>PART NUMBER</u>
PT-1	DEPOSIT MOTOR DYNAMIC BRAKING S.C.R.	8819-37-001	PT-27	TRAY TRAVEL MOTOR WITH ENCODER	8912-74-004
PT-2	HEATED HOPPER S.C.R.	8945-37-001	PT-28	AIR CIRCULATING FAN	8869-75-003
PT-3	MAIN RELAY N'1	8723-37-008	PT-29	DEPOSIT MOTOR ELECTROMAGNETIC BRAKE	8912-31-001
PT-4	MAIN RELAY N'2	8723-37-008	PT-30	AUTO START SENSOR	8819-99-001
PT-5	FORWARD/REVERSE RELAY	8723-37-008	PT-31	ROTARY HEAD MOTOR UNIT	8912-74-005
PT-6	CONTRD M.C.B.(HD-2)	8872-22-061	PT-32	DEPOSIT MOTOR SPEED CONTROLLER	8819-93-002
PT-7	DEPOSIT MOTOR M.C.B.(HD-10)	8872-22-064	PT-33	TRAY TRAVEL MOTOR SPEED CONTROLLER	8819-93-012
PT-8	TRAY TRAVEL MOTOR M.C.B.(HD-6)	8872-22-063	PT-34	ROTARY HEAD MOTOR SHAFT ENCODER	8819-93-012
PT-9	ROTARY HEAD MOTOR H.C.B.(HD-6)	8872-22-063	PT-35	MAIN P.C.B.	8819-93-001
PT-10	HEATED HOPPER M.C.B.(HB-6)	8872-22-004	PT-36	DEPOSIT MOTOR SHAFT ENCODER	8912-99-001
PT-11	DEPOSIT MOTOR DYNAMIC BRAKING M.C.B.(HD-6)	8872-22-063	PT-37	TRAY TRAVEL MOTOR SHAFT ENCODER	8912-99-001
PT-12	DEPOSIT MOTOR ELECTROMAGNETIC BRAKE M.C.B.(HB-1)	8872-22-001	PT-38	E.M.C. FILTER	8842-48-009
PT-13	DEPOSIT MOTOR DYNAMIC BRAKING RESISTOR	8842-59-010	PT-39	FERRITE SLEEVE	8842-48-008
PT-14	DEPOSIT MOTOR ELECTROMAGNETIC BRAKE RELAY	8723-37-016			
PT-15	DEPOSIT MOTOR ELECTROMAGNETIC BRAKE POWER PACK	8912-93-001			
PT-16	TRAY TRAVEL MOTOR DYNAMIC BRAKING RELAY	8723-37-016			
PT-17	TRAY TRAVEL MOTOR DYNAMIC BRAKING M.C.B.(HD-4)	8872-22-062			
PT-18	TRAY TRAVEL MOTOR DYNAMIC BRAKING RESISTOR	8842-59-014			
PT-19	CONTROL TRANSFORMER	8819-31-001			
PT-20	TABLE HEIGHT POTENTIOMETER	8842-59-016			
PT-21	STOP BUTTON	8859-12-008			
PT-22	START BUTTON	8859-12-007			
PT-23a	PROGRAMME SET/LOCK SWITCH	8900-07-001			
PT-23b	SPARE KEY FOR PROGRAMME SWITCH	8900-07-003			
PT-24	JOG ENGAGED SENSOR	8819-99-001			
PT-25	REVERSE LIMIT SWITCH	8801-11-008			
PT-26	DEPOSIT MOTOR WITH ENCODER	8912-74-007			

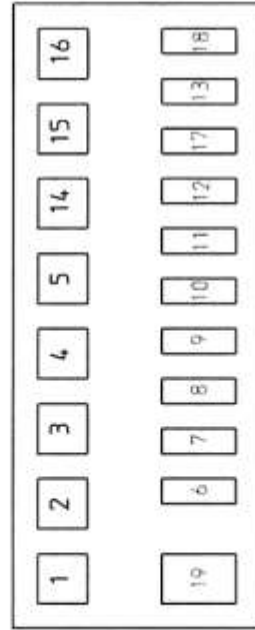
D	JC	8-9-98	8723-37-008 WAS 8822-37-014; 8723-37-016 WAS 8822-37-013.	07/98
C	S.P	26-1-96	PARTS 38 AND 39 ADDED	6049
B	S.P	21-12-93	ITEM 32 WAS 072-38-11100; ITEM 33 WAS 072-38-11200	4849
A	GWD	20-5-91	PT'S 32 & 33 WERE STORES NO.S 8819-93-002 & 8819-93-012	3536
REV	SIG	DATE	REVISION	ECN NO.
SWANSEA IND EST. FFORSESTFACH, SWANSEA, SAS 4EB, TEL: (01782) 581234 (SHEPHERD LIMITED FAX: (01782) 581016 Email: 100432.605@compuserve.com <b>MONO</b> COMPONENT PART LIST FOR MK10 V3 DEPOSITOR DRAWN: ELECTRICALLY APPROVED BY:- S.P/JC P. BOYLES DATE: 14-10-94 10-9-98 DRAWING NO. M072-38-11000 SHEET 1 of 2 REV: 0				

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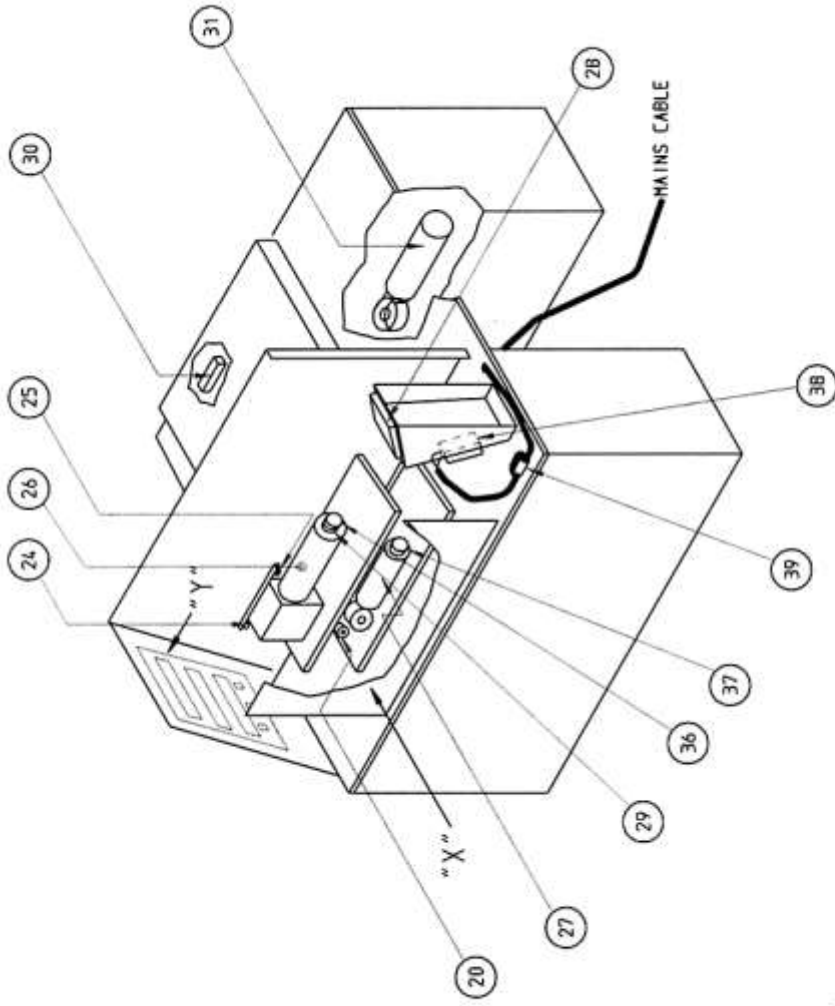




FRONT CONTROL PANEL LAYOUT  
(ARROW "Y")

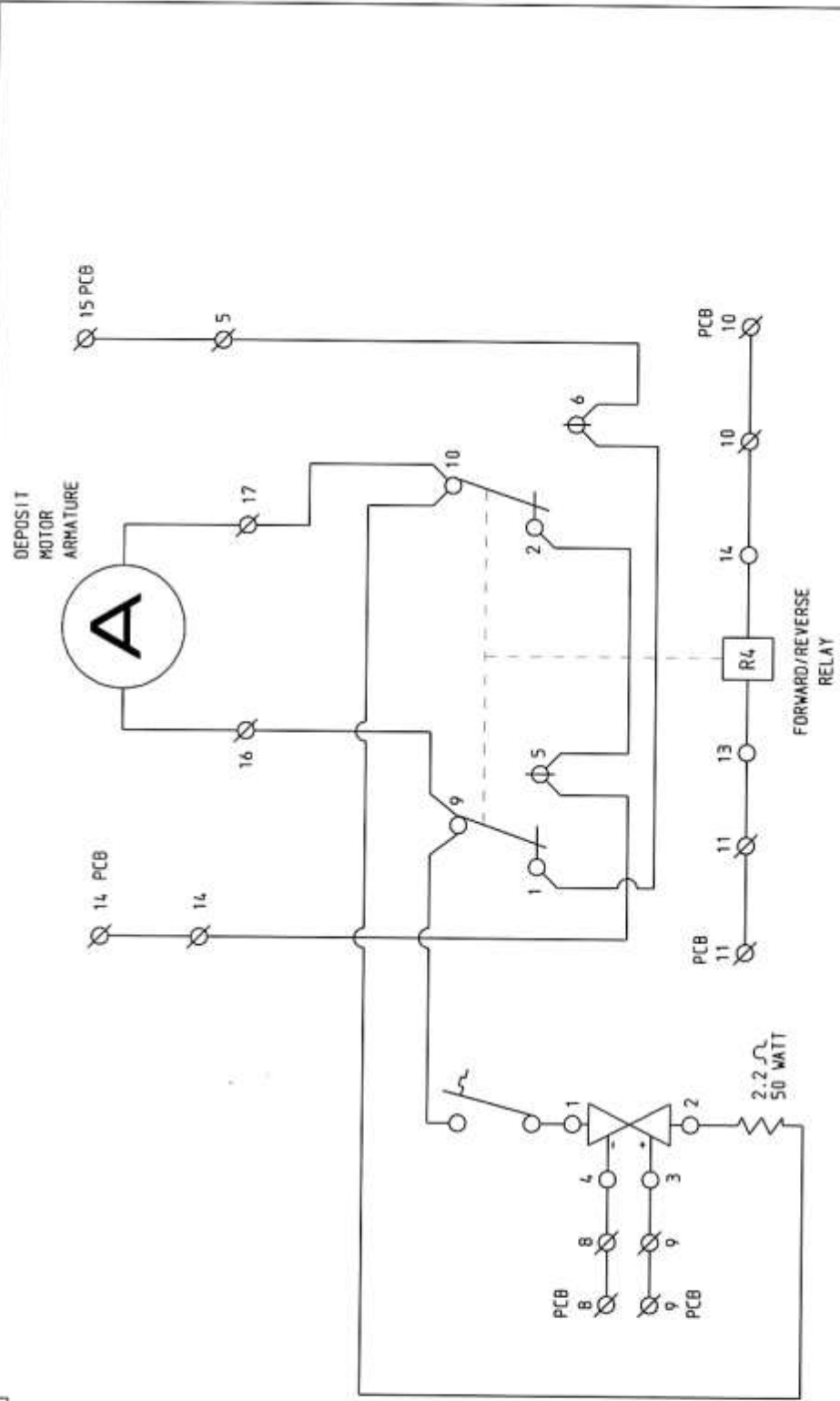


MAIN CONTROL PANEL COMPONENT LAYOUT  
(ARROW "X")



D	8-9-98	JC	SEE SHEET 1 FOR DETAILS	D7/98
C	26/01/96	SP	Parts 38 & 39 added.	ECN 6049
B	21/12/93	SP	for details see sheet 1	ECN 4849
REMOVE ALL BURRS & SHARP EDGES - ON SHEET METAL PARTS EXTERNAL CORNERS TO BE SAFETY RADIOUSED 2mm UNLESS STATED OTHERWISE				
MACHINING: ▽ COARSE FINISHING, ▽▽ MEDIUM FINISHING, ▽▽▽ FINE FINISHING, ▽▽▽▽ GROUND FINISHING				
OPEN TOL. 150 & BELOW ±.5 OVER 150 ±1.0 DECIMAL DIMS. 75 & BELOW ±.25 TO 300±.4, 300 TO 600±.5, OVER 600±1.0				
Title: COMPONENT LAYOUT FOR				
MK 10 V3 DEPOSITDR.				
No. Req'd	-	Drawn:	S.P.	
Material:	-	Date:	14-10-94	
Finish:	-	Scale:	-	
 MONO EQUIPMENT LTD., GREENWAY INDUSTRIAL ESTATE, FORESTFACH, SWANSEA SA5 4EB				Drawing No. SHEET 2 OF 2 Change M072-38-11000 0

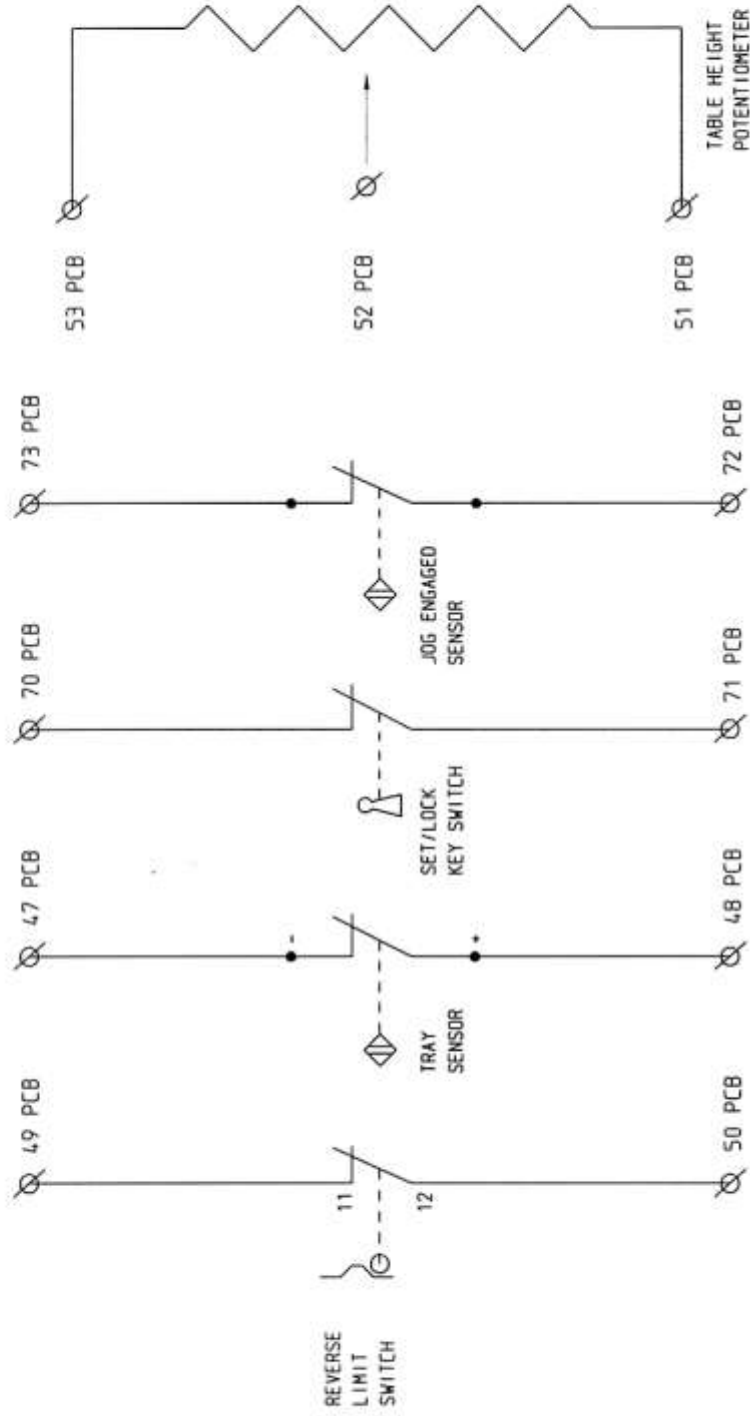
IF IN ANY DOUBT - ASK



REV	SIG	DATE	REVISION	ECN NO.
SWANSEA IND EST. FFORESTFACH, SWANSEA, SA5 4EB. <b>MONO</b> COMPANY LIMITED TEL: (01792) 561234 FAX: (01792) 661016 Email: 100432.606@compuserve.com			TITLE: <b>FORWARD/REVERSE &amp; BRAKING                  CIRCUIT FOR DEPOSIT MOTOR</b>	
ELECTRICAL SPECIFICATIONS:			DRAWN: ELECTRICALLY APPROVED BY:-	
			A J C / J C	
			DATE: 15-3-88	
			DRAWING NO. M072-38-10200	
			REV: —	

REDRAWN ON CAD 10-98  
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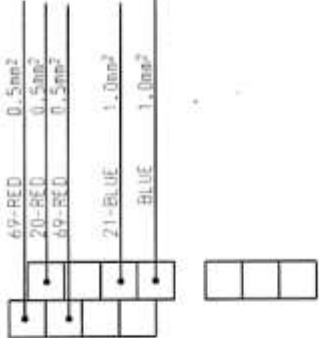


REV	SIG	DATE	REVISION	EON NO.
<p>SWANSEA IND EST. FFORESTFACH, SWANSEA, SA5 4EB. TEL: (01792) 561234 EQUIPMENT LIMITED FAX: (01792) 561016 Email: 100432.505@compuserve.com</p>				
<p><b>MONO</b></p>			<p>TITLE: CONNECTIONS FOR ANCILLARY COMPONENTS</p>	
<p>ELECTRICAL SPECIFICATIONS:-</p>			<p>DRAWN: A.J.C. / J.C.</p>	
<p>REVISIONS:</p>			<p>DATE: 25-3-88</p>	
<p>REVISIONS:</p>			<p>DRAWING NO. M072-38-10300</p>	
<p>REVISIONS:</p>			<p>REV: -</p>	

REVISIONS ON CAG 10-98  
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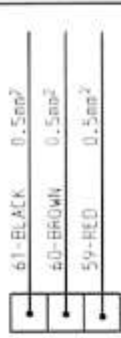
**ROTARY HEAD MOTOR  
SPEED CONTROLLER**



**TRAY TRAVEL MOTOR  
SPEED CONTROLLER**



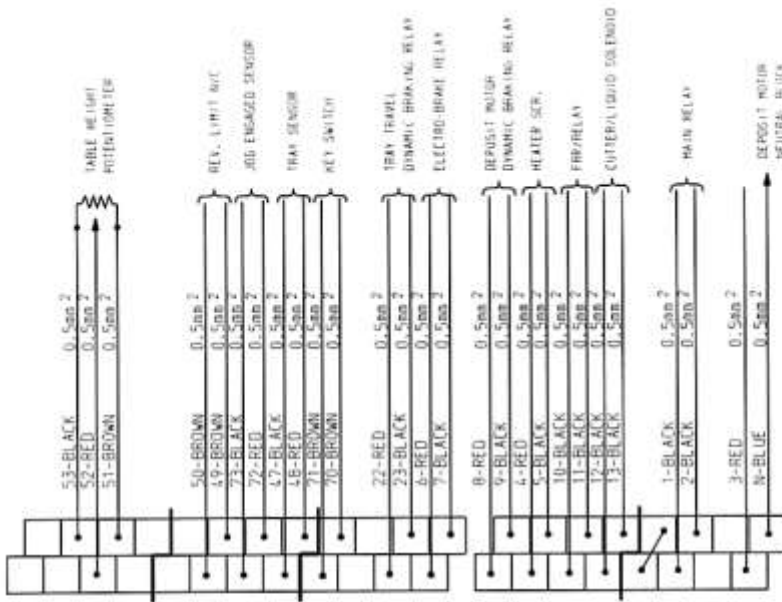
**SHAFT  
ENCODER**



**DEPOSIT MOTOR  
SPEED CONTROLLER**



**SHAFT  
ENCODER**



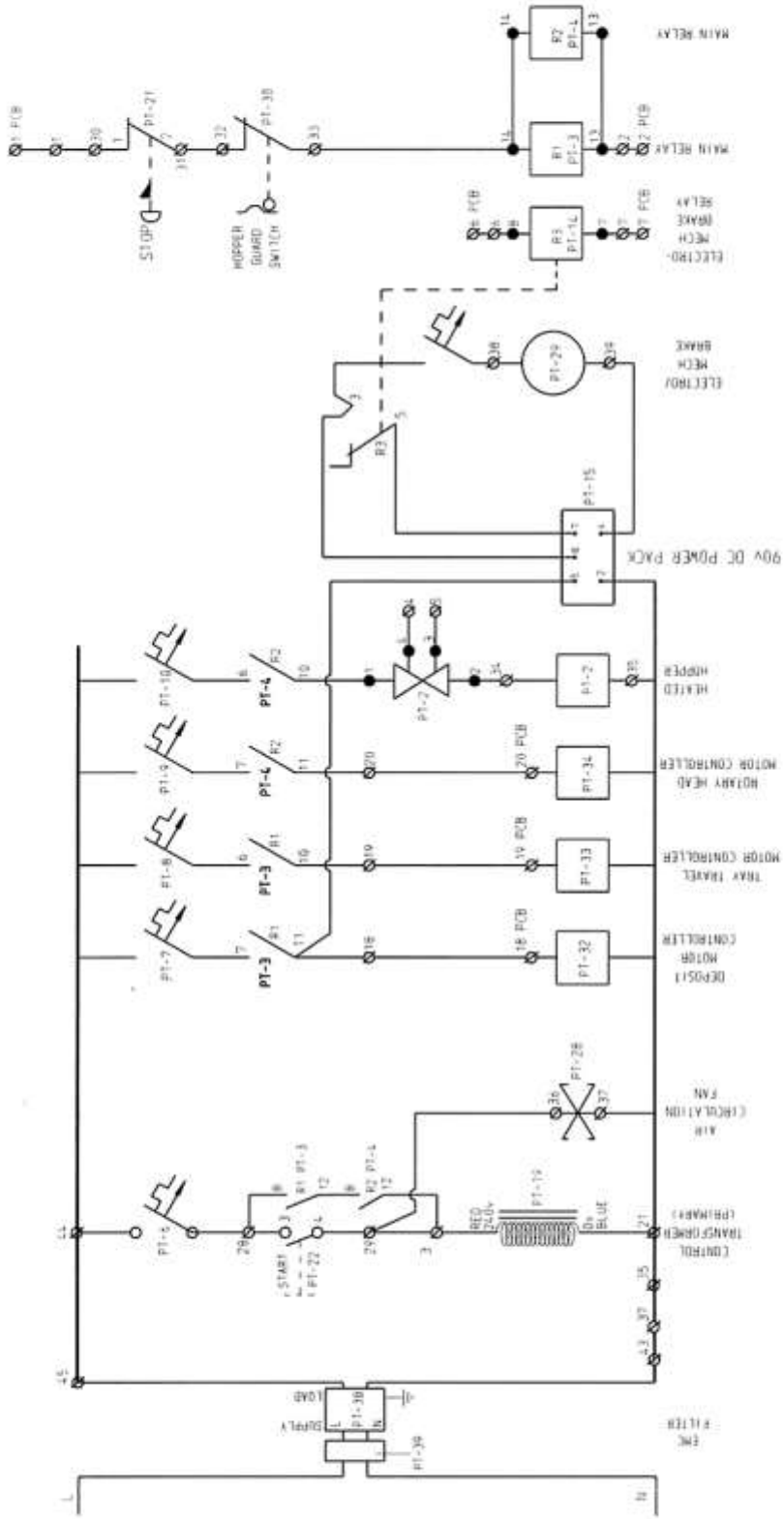
**MAIN PCB CONNECTIONS**

B	SP	21-12-93	REVISE MOTOR SPEED CONTROLLER SHAFT ENCODER NOW NOT WIRED TO SWIFT ENCODER OF TRAY TRAVEL SPEED CONTROLLER OR ELECTRO BRAKE RELAY	4849
A	GND	20-5-91	CONNECTIONS FOR KBMM TYPE SHOWN	3536
REV	SIG	DATE	REVISION	ECN NO.
SWANSEA IND EST. FFORESTFACH, SWANSEA, SA4 4EB, TEL: (01792) 561234 FAX: (01792) 561016 Email: 100432.505@compuserve.com				
TITLE: MOTOR CONTROLLERS & MAIN PCB CONNECTIONS (KBMM TYPE)			DRAWN: ELECTRICALLY APPROVED BY:-	
ELECTRICAL SPECIFICATIONS:-			WHO / JC	
DATE: 28-11-88			DRAWING NO. M072-38-10500	
REV: B			REV: B	

FOR EARLIER TYPE (CHROMALOCK) SPEED CONTROLLER SEE ORIGINAL ISSUE DATED 18/11/88



IF IN ANY DOUBT - ASK

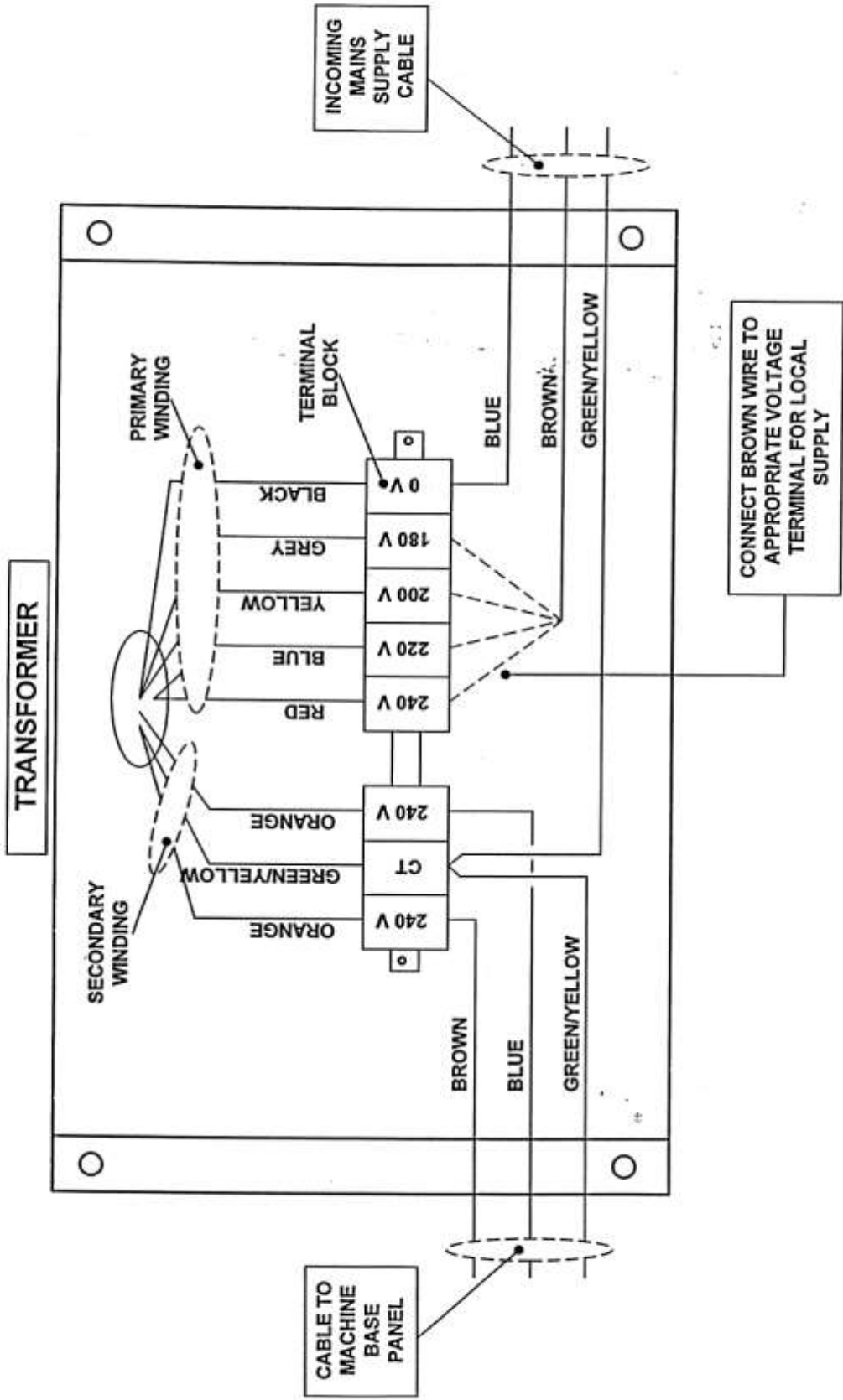


REV	SIG	DATE	REVISION	ECN NO.
A	SP	26-1-96	PT-38 & PT-39 ADDED	6049
TITLE: <b>MONO</b> SWANSEA IND EST. FFORESTFACH, SWANSEA, GLOS. HERF. TEL: (01792) 561234 FAX: (01792) 661016 Email: 100432.506@compuserve.com				
ELECTRICAL SPECIFICATIONS:-			ELECTRICALLY APPROVED BY:-	
DRAWN:			A J C / J C	
DATE:			DRAWING NO.	
14-3-88			M072-38-10100	
REV:			A	

REWORK ON CAB 10-98

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# MK10 DEPOSITOR ADJUSTMENT TO TRANSFORMER TAPPINGS FOR LOCAL SUPPLY VOLTAGE





## **SERVICE PROCEDURE**



**SCHEDULE C**

**ELECTRONIC (MK10) DEPOSITOR**  
**SERVICE PROCEDURE**

**TABLE**

<b>6 MONTHLY</b>	<b>12 MONTHLY</b>
1 Check table belts tension and adjust if necessary.	1 Change belts and tension.
2 Check drive box belt tension and adjust if necessary.	2 Change belt and tension.
3 Check drive box chain.	3 As 6 monthly.
4 Check table transfer box belt. Tension if necessary.	4 Change belt and tension.
5 Check pulley end float :- <ul style="list-style-type: none"> <li data-bbox="400 1229 831 1305">a Back shaft runs in 4 off oil-lite bearings (check float).</li> <li data-bbox="400 1346 842 1422">b Front shaft runs in 2 off plastic brushes.</li> </ul>	5 <ul style="list-style-type: none"> <li data-bbox="1225 1229 1442 1267">a As 6 monthly.</li> <li data-bbox="1225 1346 1461 1422">b As 6 monthly Lightly grease.</li> </ul>
6 Check table trigger and springs.	6 As 6 monthly.
7 Check general condition of table :- ie. Spot welds, lugs, nuts/bolts etc.	7 As 6 monthly.
8 Replace table (check alignment). <ul style="list-style-type: none"> <li data-bbox="400 1727 855 1803">a Check connecting link, adjust if necessary -- JIG REQUIRED --.</li> <li data-bbox="400 1843 855 1919">b Check table supports, adjust if necessary -- JIG REQUIRED --.</li> <li data-bbox="400 1960 855 2036">c Table height adjustment, level if necessary -- JIG REQUIRED --.</li> </ul>	8 As 6 monthly. <ul style="list-style-type: none"> <li data-bbox="1225 1727 1442 1765">a As 6 monthly.</li> <li data-bbox="1225 1843 1442 1881">b As 6 monthly.</li> <li data-bbox="1225 1960 1442 1998">c As 6 monthly.</li> </ul>



**SCHEDULE C****ELECTRONIC (MK10) DEPOSITOR****SERVICE PROCEDURE****HOPPER****6 MONTHLY**

- 1 Check general state of hopper and gears.
- 2 Check end cap bearings.
- 3 Check ' O ' rings.
- 4 Check alignment of end caps and state of end caps.
- 5 Check for movement of gears when reassembled. ( gears should turn freely when turned by hand ).
- 6 Check level of hopper support bars.
- 7 Check state of templates, nozzles, springs and tubes.

**12 MONTHLY**

- 1 As 6 monthly.
- 2 Change bearings.
- 3 Change ' O ' rings.
- 4 As 6 monthly.
- 5 As 6 monthly.
- 6 As 6 monthly.
- 7 As 6 monthly.



3  
SCHEDULE C

ELECTRONIC (MK10) DEPOSITOR  
SERVICE PROCEDURE

GENERAL

**6 MONTHLY**

- 1 Visual check on deposit drive unit.
- 2 Check gearbox backlash.
- 3 Check damper operation  
( adjust if necessary ).
- 4 Check tray motor alignment.
- 5 Check drive unit stop arm adjust  
if necessary -- SHOULD NOT  
HIT FORWARD STOP --.
- 6 Check jog engaged arm  
( adjust if necessary ).
- 7 Check jog arm assembly.
- 8 Check table height assembly.

**12 MONTHLY**

- 1
  - a As 6 monthly.
  - b Change drive pin.
  - c Check torque setting  
( 35 - 40 ft/lbs ).
- 2 As 6 monthly.
- 3 As 6 monthly.
- 4 As 6 monthly.
- 5 As 6 monthly.
- 6 As 6 monthly.
- 7
  - a As 6 monthly.
  - b Grease.
- 8
  - a As 6 monthly.
  - b Grease.

**SCHEDULE C****ELECTRONIC (MKI0) DEPOSITOR****SERVICE PROCEDURE****ELECTRICS**

- 1 Check maximum and minimum speed settings :-
  - a Deposit.
  - b Tray.
  - c Rotary.

Adjust if necessary. Seal potentiometers after completion of settings.  
( RV4 - maximum - RV3 - minimum ).
- 2 Check for hunting on motors.  
Adjust RV2 if necessary. Seal potentiometer after adjustment
- 3 Check for brake operation.  
Adjust plate gap if necessary.
- 4 Check shaft encoders :-
  - a Deposit - Ensure shaft encoder is secure.
  - b Tray - Ensure shaft encoder is secure.
  - c Deposit - Dynamic braking resistor is ( 2.2 ).
  - d Tray - Dynamic braking resistor is ( 10 ).
- 5 Check dynamic braking :-
  - a Deposit - Check wear / state of relay contacts.
  - b Tray - Check wear / state of relay contacts.  
Change relay if necessary.
- 6 Check circuit breaker ratings.
- 7 Check fan operation
- 8 Check displays - Enter 8 into every display.
- 9 Check LED's :-
  - a Jog on.
  - b Deposit then move.
  - c Deposit whilst moving.
- 10 Check prime button.

**SCHEDULE C****ELECTRONIC (MK10) DEPOSITOR****SERVICE PROCEDURE****ELECTRICS**

**11** Set programmes for :-

- a** Deposit then move.
- b** Deposit whilst moving.

During the running of the programmes, the following must be checked :-

- a** Test operation.
- b** Manual operation.
- c** Automatic operation (A1 and A2).
- d** Deposit interrupt.
- e** Rotary interrupt.
- f** Use of key switch.
- g** Programme recall after disruption.
- h** Changing of parameters whilst running.

**12** Check machine whilst running for :-

Table movement and operation :-

- a** Out of jog.
- b** In jog.

**13** Check reverse speed :-

- a** Out of jog.
- b** In jog.

**PRODUCT**

**14** Product check ( if available ).

Check :-

- a** Weight of product displayed.
- b** Length of product displayed.
- c** Shape of product displayed.
- d** Displacement of product across tray.
- e** Displacement of product down tray.



## **FAULT DIAGNOSIS CHART**

### **IMPORTANT NOTICE**

MONO Equipment Limited strongly recommend that **ONLY** qualified service personnel undertake **SERVICING, REPAIR, or ADJUSTMENT** of any equipment manufactured or supplied by MONO Equipment Limited. MONO will not accept any liability from any injury or damage as a result of non MONO qualified service personnel undertaking any of the following.

MONO Equipment Limited also strongly advises that all necessary safety precautions be taken before attempting any of the following. It is also recommended that the correct servicing equipment be available before commencing any of the following.

**ANY DEFECTIVE PARTS RETURNED TO MONO SHOULD BE LABELLED WITH THE FAULT OR SYMPTOM SO THAT PROPER PROCEDURES FOR FAULT ANALYSIS CAN BE CONDUCTED. FAILURE TO DO THIS WILL INCUR APPROPRIATE CHARGES.**

Before any fault tracing is started **PLEASE CHECK ALL SCREW CONNECTIONS**. This cannot be stressed enough. While the machine is in operation, vibration can cause faulty connections. Therefore, it is advisable that every relay PCB and terminal should be periodically checked for positive connection.

### **ADJUSTMENTS.**

**BEFORE ANY ADJUSTMENTS ARE MADE, TAKE NOTE OF ALL THE PROGRAM SETTINGS, AS THESE MAY BE LOST. CLEARING ALL MEMORIES.**

If an abnormal amount of electrical noise is present on the incoming mains supply, it is possible for the machine to receive and store corrupt information in its memories. The machine may exhibit such faults as freezing all operations or the buzzer sounding, or an inability to accept any front panel instructions. To clear all memories the top panel of the machine must first be removed and the following procedure followed.

At the top of the main PCB there is a small toggle switch marked **RUN/SETUP**. With the machine on, switch to **SETUP** and remaining in **SETUP** position, **PRESS DIGIT 6, THEN 8, THEN 0, THEN 5, THEN 'ENTER'**, the machine will then count down, clearing all its memories.

After this procedure has been followed return the toggle switch to the **RUN** position.

### **DEPOSITOR MOTOR REVERSE SPEED**

To set the reverse speeds the top panel of the machine must first be removed and the following procedure followed.

Both the following instructions have to be followed to set the speeds in **JOG** and **NO JOG**.

At the top of the main PCB there is a small toggle switch marked **RUN/SETUP**. With the machine on, switch to **SETUP** and leave in **SETUP** position. **PRESS DIGIT 4, THEN 3, THEN 2, THEN 1, THEN 'ENTER'**, the "**DEPOSIT SPEED**" display will now indicate a number from 0 to 15. 0 will be **MINIMUM** and 15 will be **MAXIMUM**. Select the required number, and press **ENTER**. After this procedure has been followed, return the toggle switch to the **RUN** position.

## FAULTS

### LED DISPLAYS NOT ILLUMINATED

On the main terminating block there are some terminals coloured blue. These are the neutral mains terminals. At the centre of these terminals there is a small brown shorting link - check the security of these screws.

Is the cooling fan running. If not check all the circuit breakers inside the machine. Also check the incoming power. This may be done by plugging in another appliance to power supply.

If the cooling fan is running, then check the fuses on the main PCB. These are mounted at the bottom of the PCB below an aluminium plate. Replace if found defective. Also check that the white plug at the bottom of the main PCB is firmly in place (this may be identified as the wires lead from it to a transformer mounted at the bottom of the machine).

The LED displays will only illuminate when the **ON** button is pressed. Then check that the hopper guard is in place and recheck. If this fault persists, check the wiring to the hopper guard switch.

### SOME DISPLAYS ILLUMINATE, BUT NOT ALL.

There is a fault on the main PCB. Please inform MONO Service Department and request a replacement **MAIN PCB**.

### SELECTION BUTTONS FAIL TO OPERATE.

Check that the wide blue connector on the ribbon cable from the front panel is firmly connected to the main PCB. If the fault persists then there is a fault either on the button panel or on the main PCB. Please inform MONO Service Department and request a replacement **MAIN PCB** and a front button panel.

It is not possible to store information, or information stored changes in the displays.

### CHECK THE CONNECTION ON THE SET/LOCK FRONT PANEL MOUNTED KEY SWITCH.

Check connection on **MAIN PCB**

If fault persists then replace **MAIN PCB**. Please inform MONO Service Department and request a replacement **MAIN PCB**.

## MOTION

### *MOTORS CONTINUOUSLY RUN IF IN DOUBT REPLACE BOTH TRAY AND DEPOSIT MOTOR SHAFT ENCODERS.*

#### DEPOSITOR MOTOR CONTINUOUSLY RUNS (OR ERRATICALLY).

Check the connections to the speed controller PCB.

Check the connections to the shaft encoder. This is a silver metal device mounted on the back of the motor.

Check the mechanical coupling on the shaft encoder to the motor shaft, making sure that this is firm and not slipping.

#### DEPOSITOR MOTOR REVERSES SLOWLY.

Check the gap on the jog sensor.

Check the operation of the jog sensor.

#### DEPOSITOR MOTOR DOES NOT RUN.

Check the circuit breakers have not tripped. Reset if required.

Check the fuses on the controller. Replace if required.

Check the small ribbon cable that connects the **MAIN PCB** to the speed controller, making sure that it has not

been trapped or damaged.

Check the connections in the circuit to the motor.

#### **TRAY MOTOR DOES NOT RUN.**

Check the circuit breakers have not tripped. Reset if required.

Check the fuses on the controller. Replace if required.

Check the small ribbon cable that connects the MAIN PCB to the speed controller, making sure that it has not been trapped or damaged.

Check the connections in the circuit to the motor.

#### **ROTARY HEAD MOTOR DOES NOT RUN.**

Check the circuit breakers have not tripped. Reset if required.

Check the fuses on the controller. Replace if required.

Check the small ribbon cable that connects the MAIN PCB to the speed controller, making sure that it has not been trapped or damaged.

Check the connections in the circuit to the motor.

#### **PRODUCT BECOMES ELONGATED OR THE TRAY RUNS ON.**

There is a gold power resistor mounted on a black heat sink at the bottom right side of the electrical panel. The value of this is 10 ohms.

Check and replace if found defective.

#### **FIRST ROW OF PRODUCTS ARE A DIFFERENT LENGTH TO OTHER PRODUCTS ON TRAY.**

This is due to the acceleration of the tray travel motor being different from the deposit motor. This can be overcome by adjusting the **ACCELL** or **ACL** potentiometer on the middle (tray) speed controller. Only adjust this a small amount at a time, testing the machine after each adjustment. If this is very bad it may be necessary to adjust the deposit **ACCELL** or **ACL** pot to compensate.

#### **PERIODIC SERVICE REQUIREMENTS (PREVENTIVE MAINTENANCE)**

Check electrically in accordance with regulations of the country where the machine is in use.

Thoroughly clean the machine, especially the table.

Lubricate bearings and all moving surfaces.

Check rubber belts on the table drive mechanism. Replace if perished or worn.

**VERY IMPORTANT.** Check the two gold resistors (mounted on the black heat sinks) with a test meter. The deposit resistor should read 2.2 ohms and the tray should read 10 ohms.

Inspect the contacts of all the relays. If the contacts appear black or burnt, replace them.

Check the condition of the bearings in the hopper. Replace if worn.

Check the seals in the hopper end plates.

Check the condition of the deposit return damper. If the machine seems to be operating fiercely then this would be suspect.

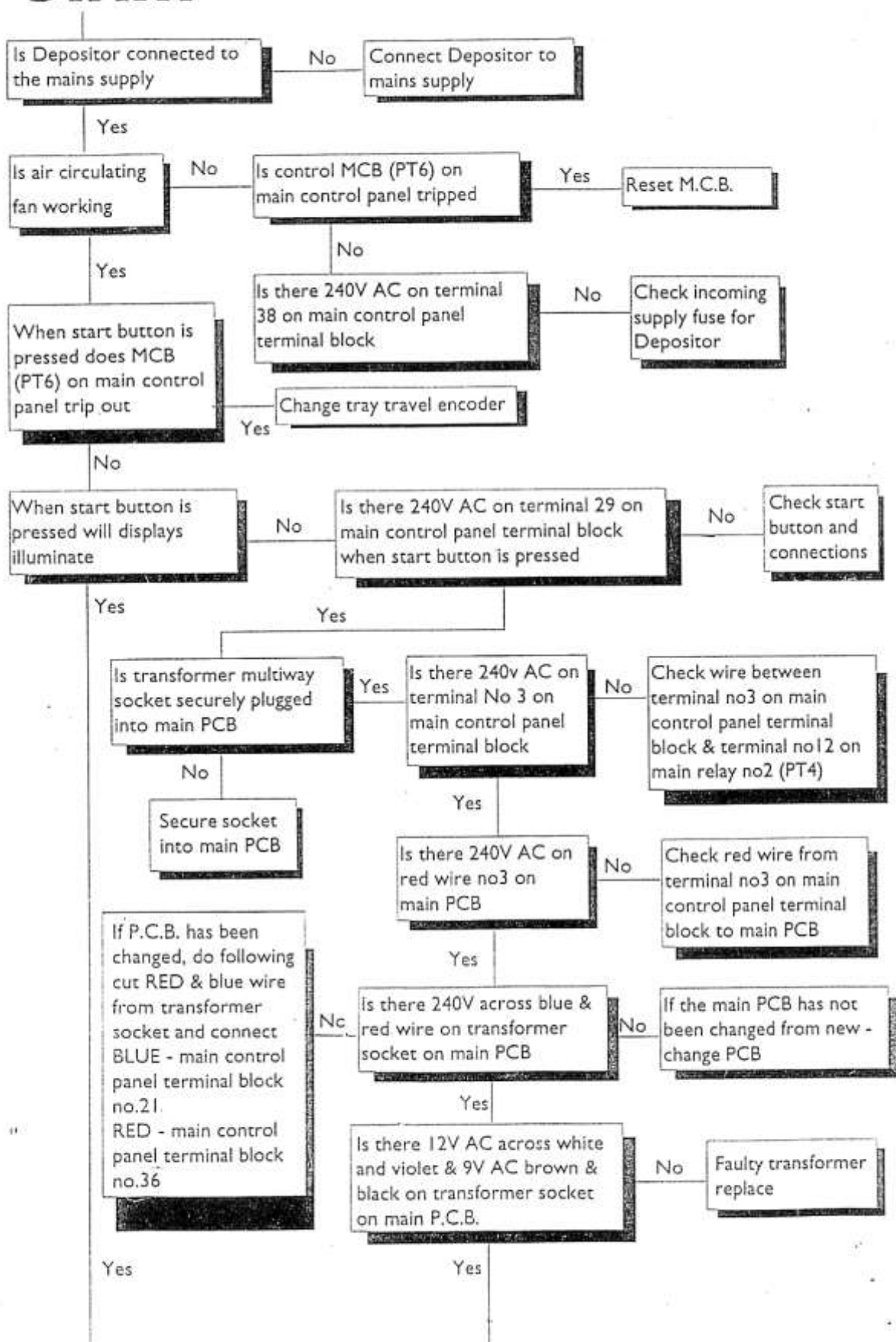
Check tightness of electrical connections.

Check the condition of the front keypad for cracks or ingress of moisture. Replace if defective.



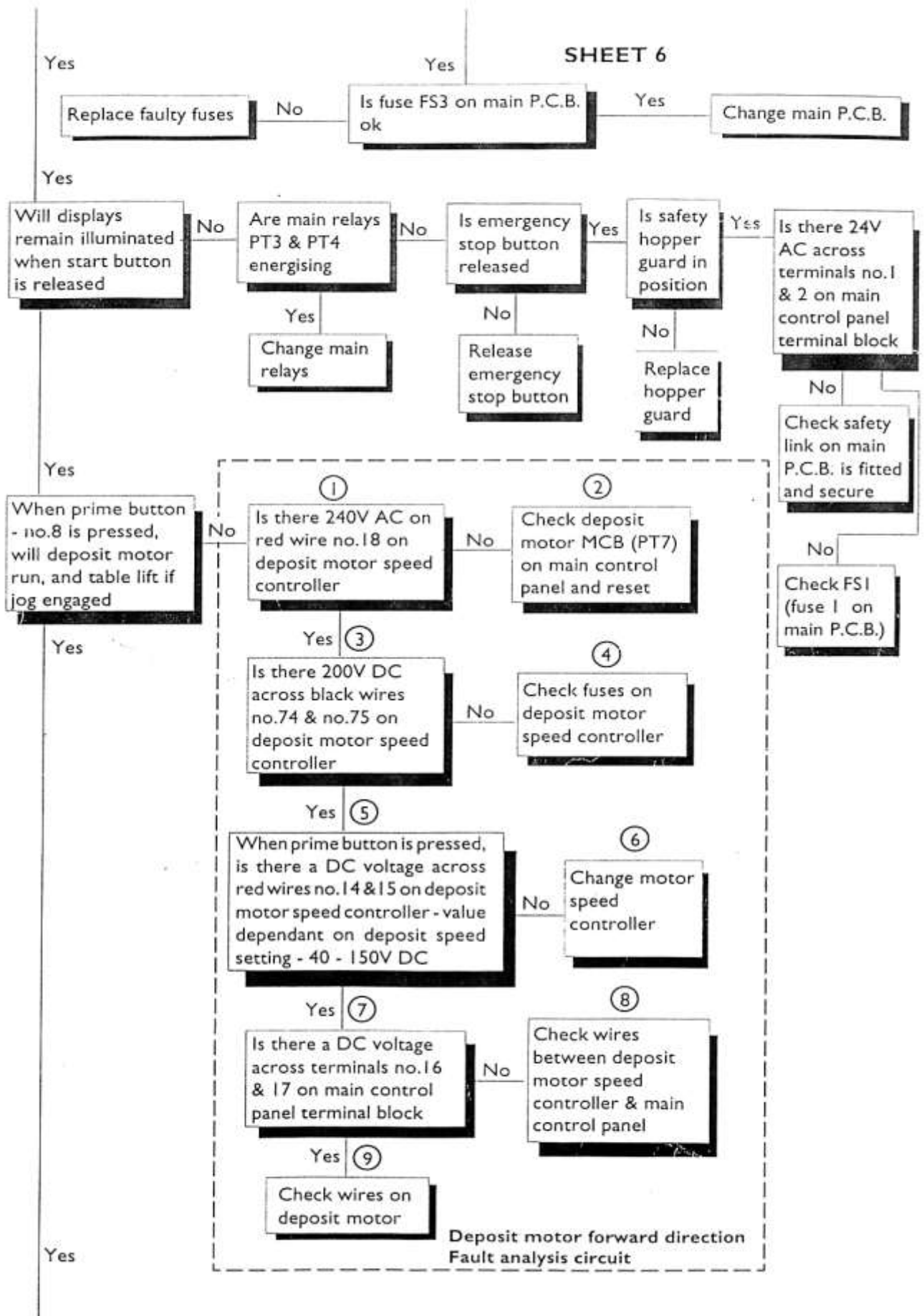
# START

## SHEET 5

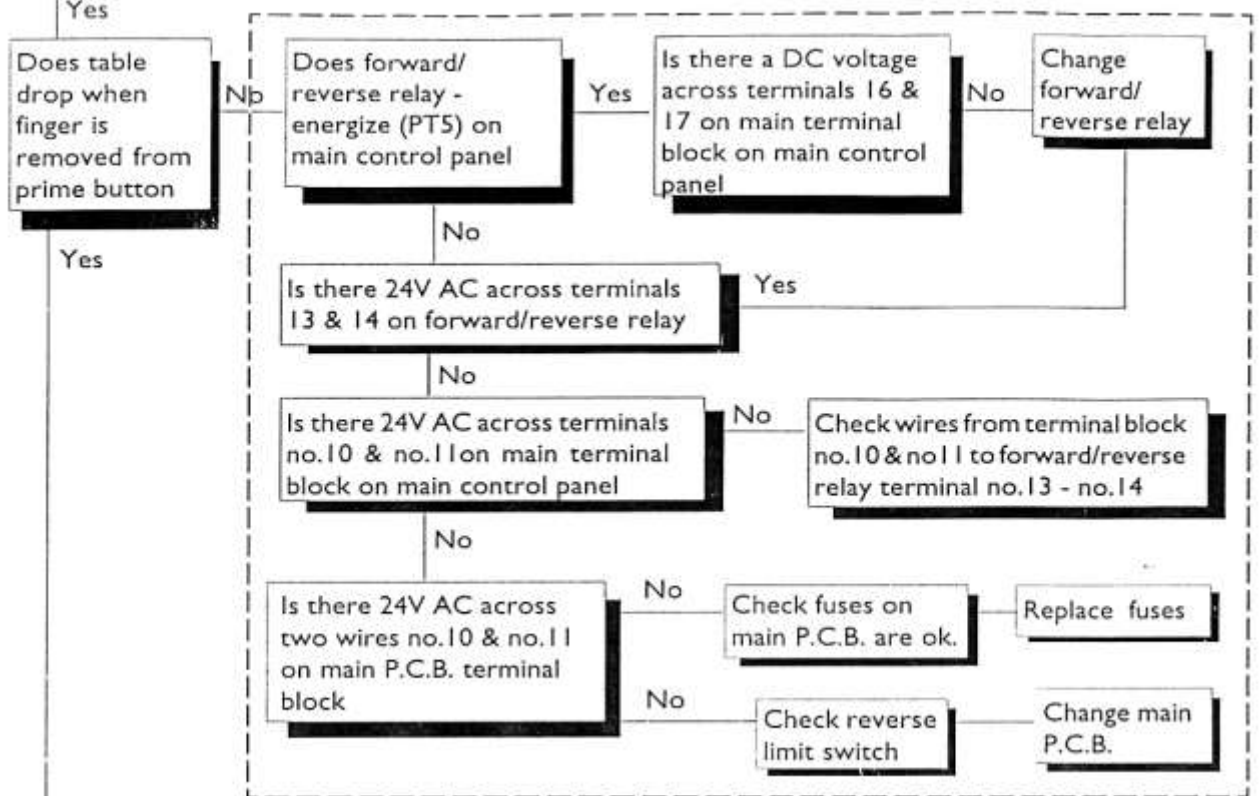




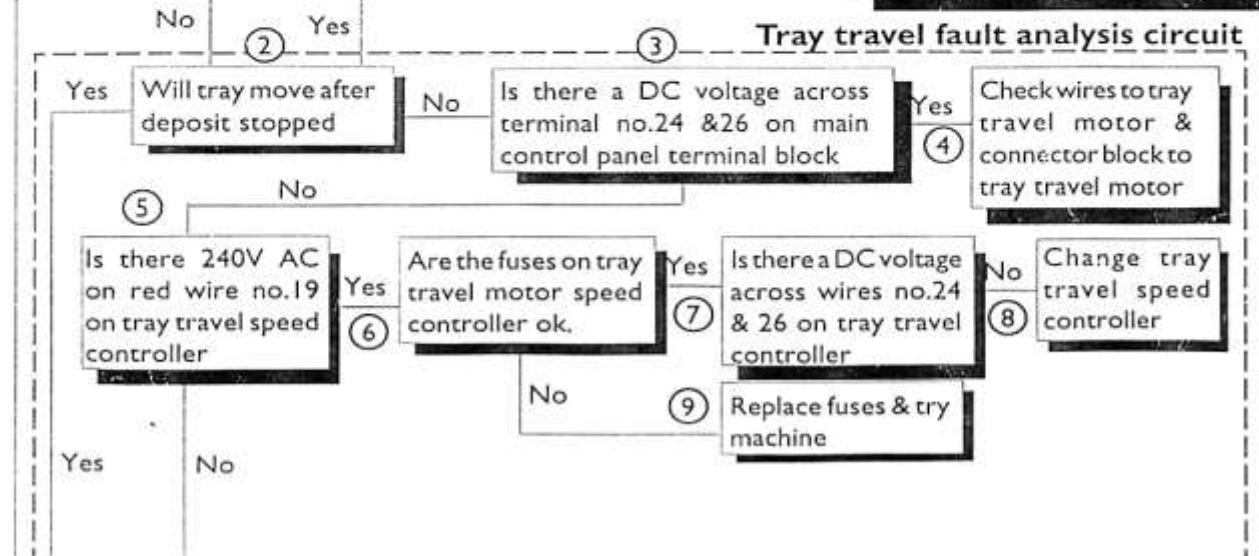
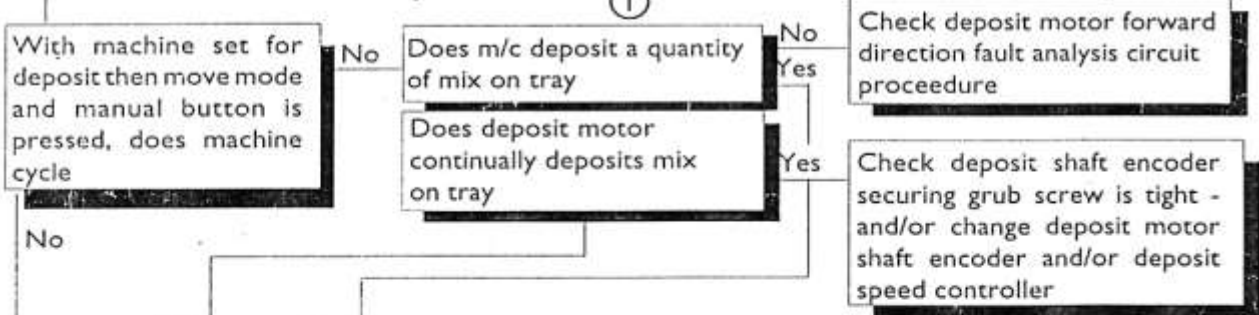
**SHEET 6**



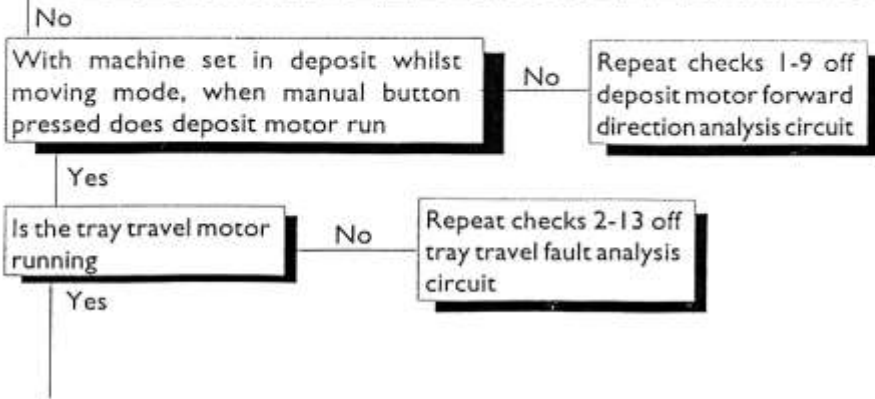
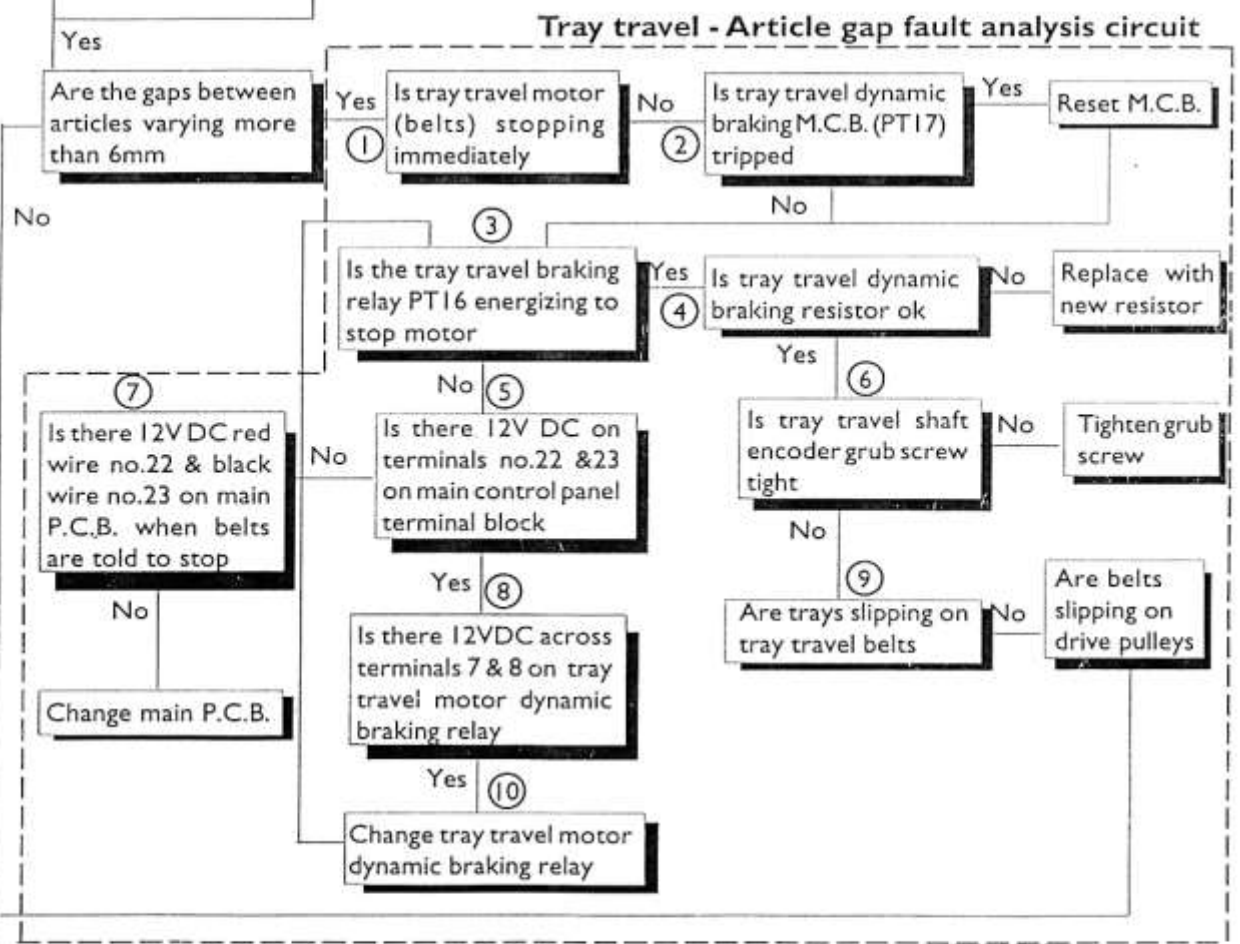
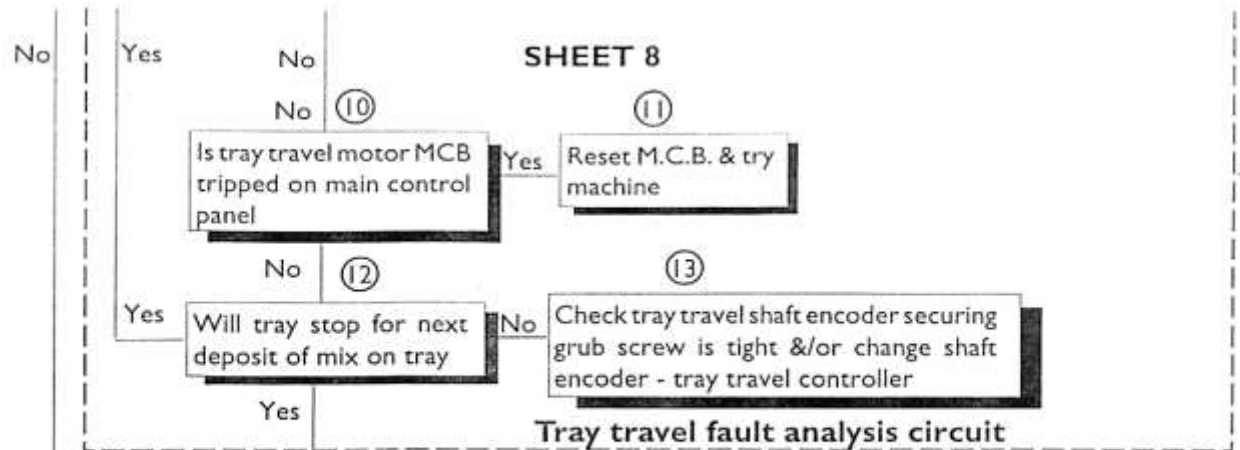
**SHEET 7**



**Deposit motor reverse direction  
Fault analysis chart**

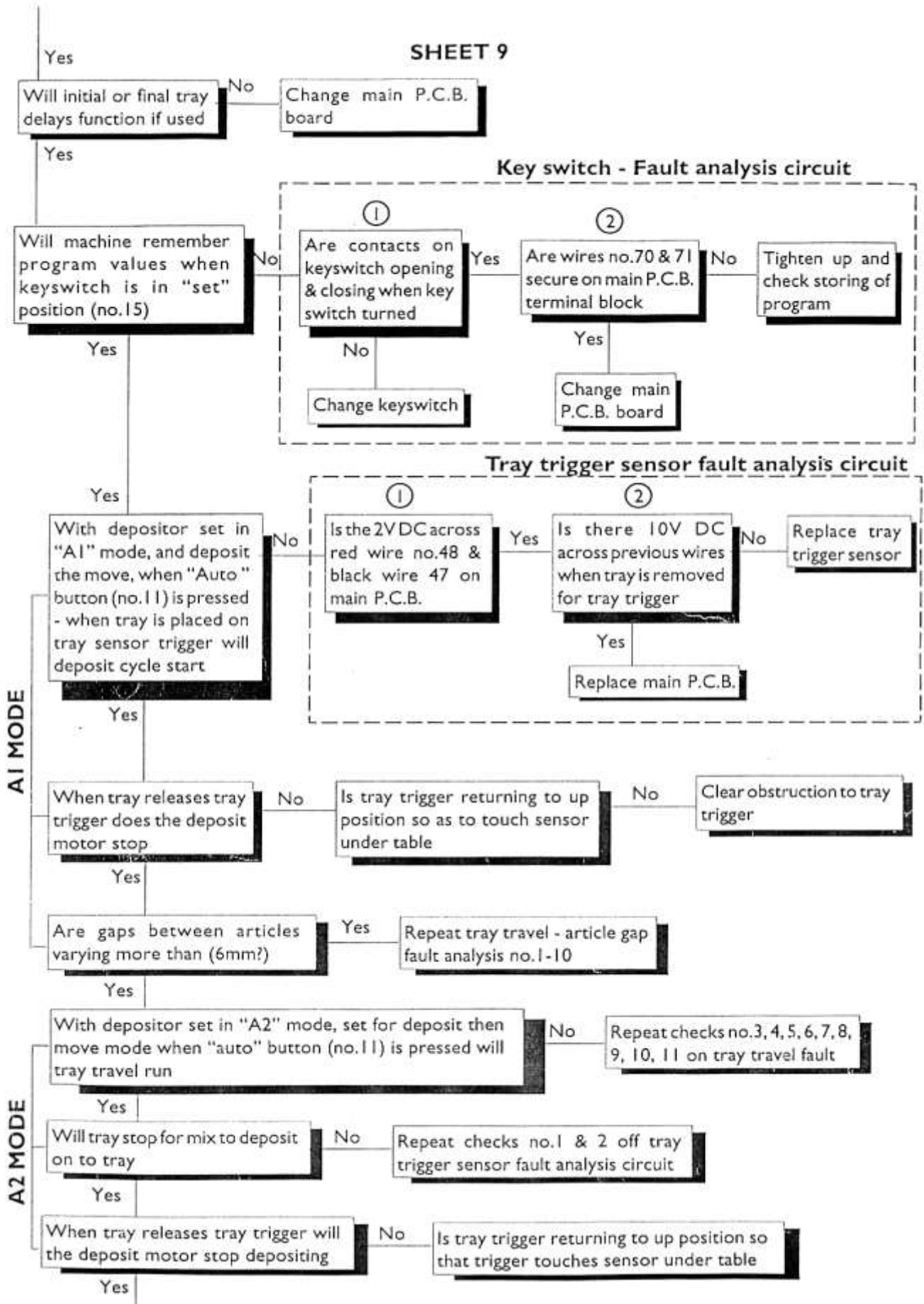


**SHEET 8**



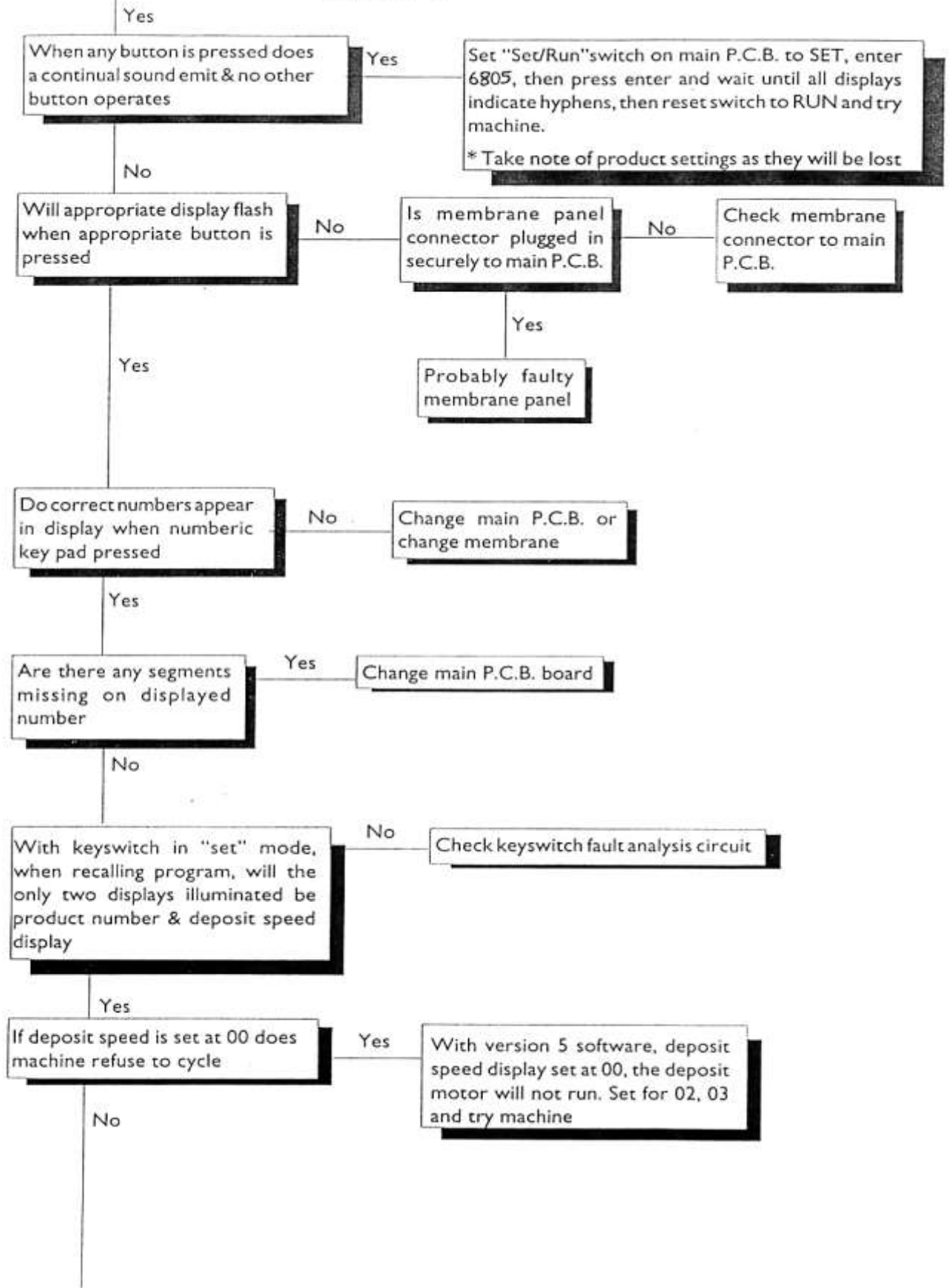


SHEET 9

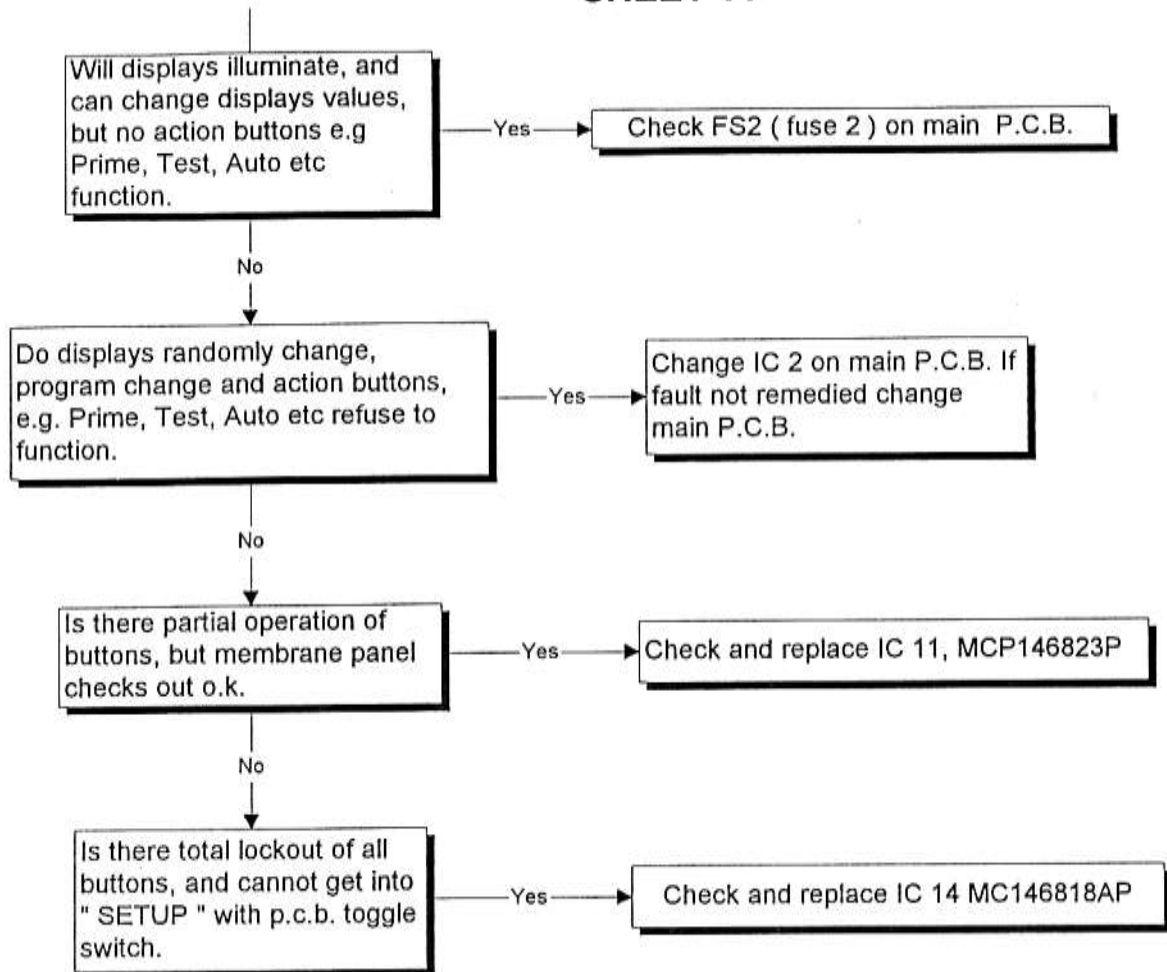




SHEET 10



## SHEET 11





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As it is our policy to improve our machines continuously, we reserve the right to change specifications without prior notice.