

TRAYMATIC

Instruction manual



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Contents

1. Introduction
2. Technical Specification
3. Installation
4. Preparing the Traymatic for Production
 - i) Assembling the Traymatic
 - ii) Programming the machine
5. Operating the Traymatic
6. Cleaning
7. Safety
8. Maintenance
9. Guarantee
10. Recommended Spares

Introduction

The Traymatic combines accurate food forming and portioning with a unique automated traying system.

Achieving consistently accurate results, the Traymatic has the ability to form a wide variety of food mixtures into numerous shapes and products. The added benefit of the automated traying system, allows the operator to maximise production efficiencies.

Accurate Portion Control

The operator can easily adjust the form depth from 5mm to 25mm, ensures that the required portion weight, typically 3grams (1/8 oz), is readily obtained.

Simple Programming

The Traymatic is programmed to place the produced form into a combination of row/column positions within the tray border, ensuring that the desired number of products and spacing's are place upon the baking tray prior to baking.

Tray Size

The machine is designed for a tray size of 750 mm x 510 mm.

This manual provides further information on the Traymatics capabilities and instructions on installation, operation, cleaning and maintenance of the equipment.

For further assistance contact

DEIGHTON MANUFACTURING LIMITED

on (01274) 668771

Technical Specifications

Traymatic

SPECIFICATIONS

Weight	<i>250 Kg</i>
Product Output (Max)	<i>3000 per hour</i>
Hopper Capacity	<i>20 Kg</i>
Electrical Supply	<i>220/240V 50 Hz AC</i>
Power	<i>1.9Kw</i>

Standard Form Drum Sizes

125mm (5") Diameter (maximum form

ACCESSORIES

STANDARD

Tool Kit
Piano Wire (1 metre)
Scraper Brush
Goose Neck Hopper

TO ORDER

Spare Drums of Various Forms
Auto Wire Clean
Extra Stop/Start Button
Drums

Installation

Components

The Traymatic is supplied with the following components.

1. Drive and Gearbox Assembly (including Drum).
2. Hopper and Guard.
3. Scraper Assembly.
4. Scraper Wire and Adjustments.
5. A PLC Controlled Tray; moving in 2 axis synchronised with the forming head.
6. Programmable Key Pad Interface; to store/retrieve tray movement patterns and product data.
7. Tool Kit and Spares.

**Your machine is supplied complete and ready to operate
(see operation instructions)**

Preparing the Traymatic for Production

1. Assembling the Traymatic

Before commencing a production run the major components must be correctly assembled.

i) Scraper Bar Assembly

The scraper shaft locates into the housing on the left hand side of the drum. Before assembling the scraper shaft, ensure that the shaft locking screw is clear of the housing bore. Push home the scraper assembly such that the wire support bar nearest the front plate engages in the housing slot. To ensure alignment in the housing slot it will be necessary to rotate the housing clockwise with the aid of the locking screw.

When the scraper assembly is in position secure with the locking screw.

ii) Drum Assembly

Locate the drum onto the drive shaft ensuring that the key ways are aligned and push completely home (if the form is not at the top you may have to lift the ejector set over the cam). Fit the papering cam plate/guard on to the end of the shaft and secure with the hand knob supplied (note left hand thread).

iii) Paddle Assembly

Place the paddle assembly onto the top shaft making sure that the key and keyway are aligned. Fasten down with the hand knob supplied.

iv) Hopper Assembly

Ensure the hopper sealing ring is pressed firmly into its retaining slot in the machine top.

Slacken the four hopper securing hand knobs on the top of the machine.

Place the hopper body into the top machined recess on to the hopper seal and rotate such that the hopper securing lugs engage with the hand knob studs.

NOTE: The hopper will only locate in one position with the resistance bars to the front right of the machine. It is not possible to fit the hopper when the paddles are in this position.

Lock the hopper body in place with the hand knob.

IMPORTANT

Always ensure the hopper is loaded correctly onto the base in contact with the seal along its whole parameter. **Failure to do so may cause permanent damage to the machine.**

Locate the hopper guard over the hopper body and lock into position.

Secure the guard with the 3 latches.

v) Drum Scraper Wire

The tension in this wire may be increased by rotating the front scraper bar hand knob. (This should be tight but be aware not to over tighten so as to snap the wire). The position of this is factory set.

However, this may be altered by unlocking the scraper arm adjustment screw until the desired position is achieved; just scraping the fully ejected form, approx. 1.5mm from the drum periphery.

vi) Tray Assembly

The machine will accept 760mm x 510mm tray. Place a tray on the top table between the plastic guide lugs provided.

ENSURE THAT THE TRAY IS FLAT.

2. Programming the Traymatic

The details of every Traymatic drum and tray pattern must be programmed into the machine and stored in the memory for future use.

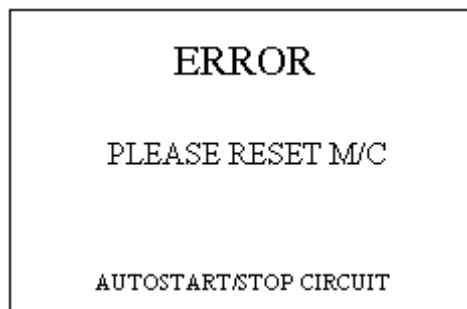
Accurate programming ensures that the required product placement will be achieved on every tray.

The following section provides a step by step guide to entering a new product into the memory and selecting a program for a production run.

The Traymatic

*All Traymatic commands are operated by a touch screen device. Please note that when the screen is inactivated a **blank screen saver** will appear on the screen.*

On switching on the mains you will be presented with the screen below



Press the DEIGHTON logo to enter the datum screen.

When the RESET button is pressed the DEIGHTON screen should be displayed if the error screen remains then check the error description which will be one of the following :-

FOWARD LIMIT (Y)

FORWARD LIMIT (X)

REVERSE LIMIT (Y)

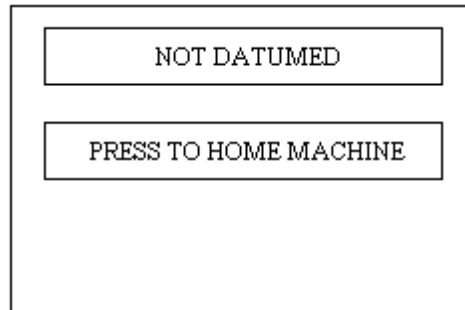
REVERSE LIMIT (X)

To remove the above error/errors first press the E-STOP button then move the relevant axis off the LIMIT SWITCH that has been activated, then press the RESET button.

In the event of a following error on any of the X, Y or DRUM axis', the Traymatic machine will require switching off for a period of 30 seconds to clear the error.

Datum Machine

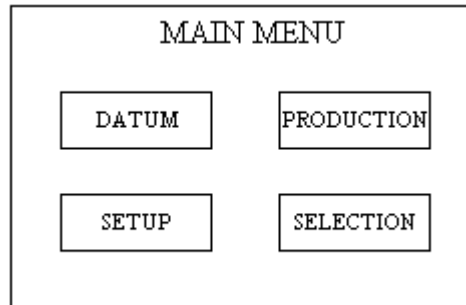
The following screen will now be displayed.



Follow instructions to home machine. After the machine has datumed the main menu screen will be displayed.

Main Menu

The following menu will now be displayed.



Datum

Returns the tray or table to the start / home position. This is the position at which the tray can be loaded and unloaded. The tray must always be homed following these circumstances :-

1. The machine is stopped during its run cycle.
2. After the mains have been disconnected.

Production

Initiates the production cycle after a product has been selected.

Set Up

Enter the Set Up menus to set all relevant production data / movement patterns.

Selection

Selects the required product data from memory to be run in the production cycle, allowing you to see the product dimensions without being able to change them.

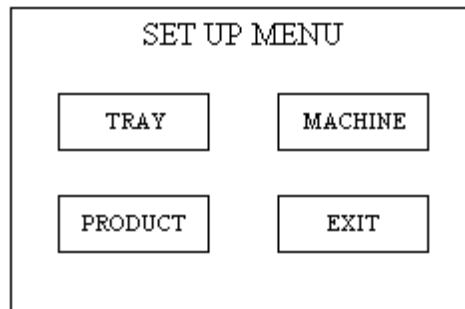
Programming new Traymatic drum data into the memory.

1. From the main menu press **SETUP**.
2. Enter the password, and press enter.

(All data stored is password protected. The Password will be given to you during the machines installation).

3. Press **SETUP** again to enter setup menu screen.

The Setup screen, illustrated below, should now be displayed on the monitor.



- Tray** - Donates the size of tray (**Factory set do not alter**).
- Machine** - **Factory set, do not alter.**
- Product** - Allows you to enter new product details.
- Exit** - Returns to the main menu.

4. Press **PRODUCT**.

The **Product Setup** Screen (below) should now be displayed.

PRODUCT SETUP MENU	
EDIT PRODUCT	SELECT PRODUCT
EXIT	

5. Press **EDIT PRODUCT** to create a new product number / edit existing product details.

The following screen will now be displayed

PRODUCT NO	00	
PRODUCT LENTH X	068	SAVE
PRODUCT LENTH Y	068	
SPACING SX	025	
SPACING SY	025	LOAD
BORDER BX	015	
BORDER BY	015	
FLIGHT	073	EXIT
DRUM CENTER	100	

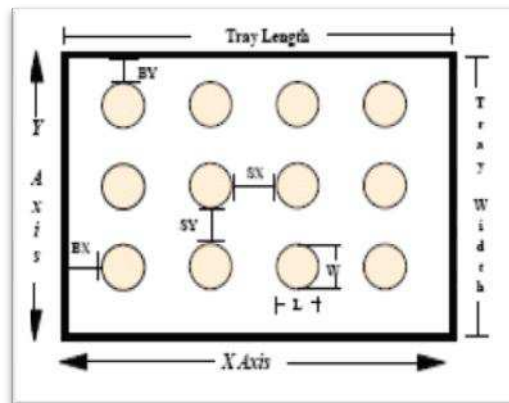
6. Press the product number and enter the number of the product you would like to alter/the next available number if you are creating a new product. (You can input a number from 1 to 20). Press **ENTER** followed by **LOAD**.

7. The screen will now display the data stored for that product number. To change the information press the relevant dimension (e.g. to change the product length on the above screen press 068).

8. Enter the new data via the keypad. Press **ENTER** after each dimension to save the information.

9. When all the details are entered / amended press **SAVE**, to store the full product details in the memory.

The illustration below indicates the product data required.



Key

W = Width

L = Length

SX / SY = Spacing Between Products

BX / BY = Borders from Tray edge.

1) The product Flight

This figure denotes the distance the product travels from exit at the scraper wire to where it lands on the tray. The figure will be given to you during the commissioning of the equipment. *If the product is being thrown too much to the front of the tray the preset flight figure should be increased until the batch of products is centralized on the tray.*

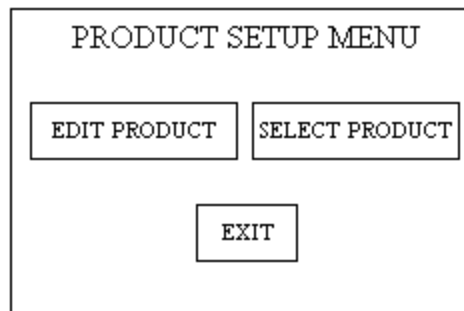
2) The Drum Centre measurement.

This figure denotes the measurement from the centre of the drum. This figure will be factory set at **73**. You will be informed by the manufacturer of this figure is for any reason different for your machine.

Checking product information

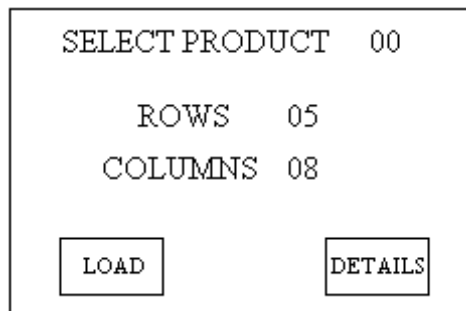
Before selecting a product for production, follow the instructions below to check that the product data is correct.

1. From the Product Setup Menu press **SELECT PRODUCT**.



A rectangular window titled "PRODUCT SETUP MENU". Inside the window, there are three buttons: "EDIT PRODUCT" and "SELECT PRODUCT" are positioned side-by-side at the top, and "EXIT" is centered below them.

The following screen should now be displayed.



A rectangular window titled "SELECT PRODUCT 00". Below the title, the text "ROWS 05" and "COLUMNS 08" is displayed. At the bottom of the window, there are two buttons: "LOAD" on the left and "DETAILS" on the right.

2. Press the product number and enter the number of the product you wish to view. Press **ENTER**, Press **LOAD**, Press **SELECT PRODUCT** to view the rows and columns for the new product information. To view the product dimensions press **DETAILS**.

3. After a few seconds the rows and columns formed by that product number will be displayed. To view the product dimensions press **DETAILS**.

The following screen should now be displayed.

PRODUCT NO	00	
PRODUCT LENTH X	068	
PRODUCT LENTH Y	068	
SPACING SX	025	
SPACING SY	025	
BORDER BX	015	
BORDER BY	015	
FLIGHT	073	EXIT
DRUM CENTER	100	

This screen allows you to view the dimensions only. To alter the details, refer to the previous section on entering / amending product data.

Press **LOAD** on **SELECT PRODUCT** screen to exit. Then press **EXIT, EXIT, ↵** to return to the main screen.

Operating the Traymatic

Having correctly assembled the Traymatic and created Traymatic drum programs, the machine is now ready to begin a production run.

The following section provides a step by step guide to operating the Traymatic, but **remember** to check the pre - production checklist **before** commencing a production run.

Pre-Operation Checks

1. Is the required drum fitted and secure?
2. Is the form thickness adjusted?
3. Is the front cam/guard fitted and secure?
4. Is the paddle assembly fitted and secure?
5. Is the hopper fitted and secure?
6. Is the scraper bar fitted and secured in its retaining slot?
7. Is the form scraper wire tensioned/adjusted?
8. Is the tray in place?
9. Is the product free from foreign bodies?
10. Is the product consistency correct?
11. Are the supplies adequate? i.e. Mains

(PLEASE NOTE:- The machine is fitted with Motor Current Overloads which will in normal operating conditions protect the machine from damage. If the machine is jammed or not adjusted/assembled correctly, damage will occur which cannot be protected against.)

Commencing Production

1. Select a product number.

The corresponding product number must be selected every time the product / drum is changed.

- i) From the Main Menu press **SELECTION**.
- ii) The following screen will now be displayed.

SELECT PRODUCT	00
ROWS	05
COLUMNS	08
LOAD	DETAILS

- iii) Press the product number and enter the product number required.
(It is recommended that every product drum and corresponding data is noted in a product book.)
- iv) Press **ENTER** followed by **LOAD**.
- iii) Press **SELECTION** then **DETAILS** to display details about your product selection. If these details are incorrect, follow earlier instruction on altering / entering new product data.

☑ The Traymatic is now setup to run this product when the production cycle is initiated.

2. Fill the hopper.

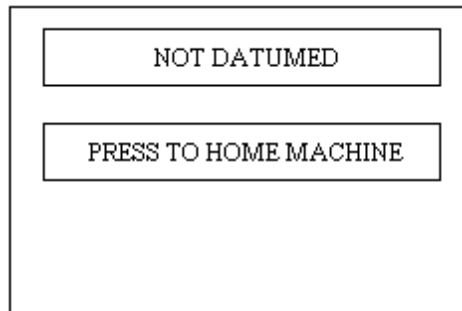
It is recommended that experiments are carried out to determine the best level of mix in the hopper. This level may alter depending upon the type of mix used, please contact the supplier for further advice.

The reason for controlling the hopper levels is that it can place increased load on the machine causing unnecessary wear.

3. Make sure that all guard circuits are enabled and the Emergency stop button is not depressed.
4. Press **RESET** to align the drum.

5. Press DEIGHTON logo

The following screen will now be displayed.



PRESS TO HOME THE MACHINE. This returns the tray table to the start position.

6. From the main menu press PRODUCTION

The following screen should now be displayed.

PRODUCT No	00
ROWS * COLUMNS	05 * 08
TRAY COUNT	0000
PRODUCT COUNT	0000
DRUM SPEED %	100
<input type="button" value="EXIT"/>	

NOTE :- To change the drum speed press the drum speed number, enter a new figure between 020 and 100 then press **ENTER**, 100 being the maximum speed.

7. Position the Tray in place

8. Press CYCLE START.

The Traymatic will now begin the production cycle. When the tray has been filled, the machine will return to the **HOME** position.

9. Replace the Tray, and press **START TRAY** to continue production

NB.

The number of trays used and products produced will be displayed throughout the production run.

Press **STOP** at any time to halt production.

*On completion of the full production cycle, press **EXIT** to return to the main menu.*

IMPORTANT

The machine will not run if :-

- 1. An emergency stop button is pressed.**
- 2. Any guards are not in place.**
- 3. The safety pressure sensors are activated.**
- 4. Axis limit switches are actuated.**

In any of these circumstances the operator MUST

- 1) Rectify the problem**
 - 2) Press RESET button**
 - 3) Press DEIGHTON logo**
 - 4) Press PRESS TO HOME MACHINE**
- BEFORE RECOMMENCING A PRODUCTION RUN**

Fine Tuning

❑ Resetting the machine

After any safety circuit isolation during machine running RESET the guard and press **DATUM** to reset the tray position. The production cycle can then be reinitiated.

❑ Adjusting the depth of the formed product

Always disconnect from mains or break the magnetic hopper guard switch prior to any adjustments that are made.

If the finished product is not the required portion weight adjust the form thickness as follows until the desired weight is achieved.

1. Approximately half fill the hopper with the mix to be used, checking its suitability (see pre-operation checks).
2. Initiate a production cycle until a few forms have been produced. Stop the tray using the STOP button, RESET and then DATUM the tray. Weigh the fully formed product and from this point adjust the spiral cam to either increase or decrease the thickness until the correct weight is achieved.

Spiral Cam Depth Adjuster

1. Remove the drum cover plate
2. Loosen the locking nut (anti - clockwise)
3. Turn the spiral cam (left / right)
This action will move the up and down, increasing and decreasing the form depth as required.
4. Tighten the locking nut (clockwise), locking the spiral cam at the required position.
5. Replace the cover plate and continue production.

Repeat this procedure until the required portion weight is achieved.

The weight of each item will remain consistent within the same batch of mix that the machine was originally set up on. If you change to a new batch of mix the setting must be rechecked again.

TIPS FOR GOOD PERFORMANCE

- Only fill the hopper with product not containing any hard objects.
- Keep the scraper wire as clean as possible.

Note: The scraper action is intermittent and manual scraping of the wire may be achieved during the non-working part of the scraping cycle. i.e. when the wire is not in contact with the drum.

- Do not lean on the moving tables.
- Do not use bent trays.
- It is better not to use a wet mix to produce a perfectly formed product using this machine.

Paddle Bars

You can obtain different paddles with all machines. These have been developed through experience using different types of mix and different shaped products. Generally, the size of the paddles should balance with the size of the product e.g. small paddles for small product forms.

Trying new mixtures

With each mix you use for the first time start it with the paddle providing the smallest pressure on the bottom with no top paddle. If this will not fill the form fit the smallest top paddle. If again poor filling is being obtained, change the small bottom paddle with a large one and so on gradually increasing the pressure to maximum (this is large tops and bottom paddles).

NB. Your machine is supplied complete with the paddle configuration deemed most suited to your product mix.

You are strongly recommended to consult with the manufacturers about any alternative mixes, which were not tried at commissioning, that you intend trying in the machine. If other mixes formed cause damage to the machine then there will not be cover under any warranty given.

Remember, there are three things to control for good operation

- 1. Product Recipe / mixture.**
- 2. Correct paddle / shape combination.**
- 3. Correct hopper capacity.**

CLEANING

Please ensure the machine is disconnected from the mains supply before proceeding to clean.

Always clean the machine thoroughly prior to production.

The following items can be removed for cleaning :-

1. Hopper seal /lid.
2. Paddles.
3. Drum.
4. Scraper Arm.

1. Dismantling these items is the reverse procedure of assembling the machine. Please note that the form drum will automatically stop in the correct position for removal and replacement.
2. Wash all removable parts with hot water, at a temperature no greater than 60 degrees centigrade.
3. The rest of the machine can be cleaned with a cloth. i.e. moving tables, forming machine top and frame.
4. Keep the timing belts / pulley free of dirt. Access to the bottom belt can be gained by removing the belt clamps from the side of the middle tray. When the power is off the table can be moved easily by hand.

IMPORTANT

- Do not** use strong alkaline/acidic based cleaners.
- Do not** hose the machine down.
- Parts **should not** be scraped with metal objects, a plastic scraper is the ideal cleaning aid.

SAFETY

Ensure all operatives read these instructions and are fully conversant with the machines operations and safety features.

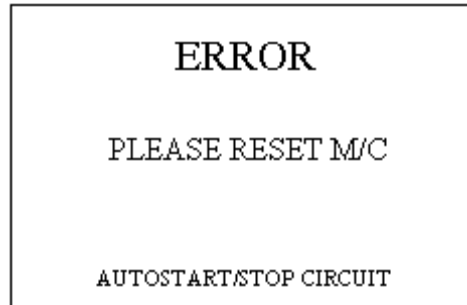
- Always** disconnect mains supply before servicing, cleaning or changing the drum.
- Disconnect mains supply when removing the drum and guard.
- Do not run the machine whilst the drum guard is removed.
- During operation the hopper can be topped up with product via the goose neck hopper.
- When replacing the scraper wire, remove the assembly from the machine.
- No attempt should be made to operate the machine without the guards in place.
- Use a 7 amp fuse in plug top.
- Do not attempt to run the machine without a tray in place.
- Do not put bent trays on the machine.
- Do not remove a tray until the machine has stopped.

SAFETY FEATURES

The Traymatic is complete with the following safety features :-

- Two Emergency Stop buttons, situation either side of the forming head.
Pressing either button will halt production immediately.
- Two pressure sensors on the left and right of the machine frame.
If pressure is applied to the sensors, the machine will cut our immediately.
- Hopper guard switch
The magnetic switch on the hopper must be in place for the machine to run. If the hopper is opened during production the machine will cut out.

If any of these safety features are activated the following screen will be displayed.



After pressing **RESET** the Deighton screen will be displayed.

To restart the machine :-

- 1) Identify the reason for interruption and make the machine safe.
- 2) Press **RESET** button.
- 3) Press **DEIGHTON** logo.
- 4) Press **PRESS TO HOME MACHINE**

NB. Whenever turning the machine off, allow a brief 30 second pause before turning the power back on.

MAINTENANCE

The only maintenance that is required is a light oiling on the form drum mechanism after cleaning. The most beneficial things you can do to extend the life of the machine are :-

1. Keep it clean and dry when not in use.
2. Ensure there are not any hard / large objects in the mix.
3. Ensure that the operator understands how the machine works.
4. Do not put bent trays on the machine.
5. Use a back up battery.
Do not leave the machine scheduled off for more than a month or
the stored program can be degraded?!?!?

GUARANTEE

The machine is guaranteed for twelve months against breakdown. The items not covered under the guarantee are those which wear through normal operation. Replacements are readily available from the manufacturer.

Trouble Shooting

If the machine will not start when the button is pressed, check the following:

1. The machine power is switched on and the supply is illuminated.
2. No guard circuit is open.
3. There is nothing preventing the free rotation of the paddles and drum.
4. The Formatic motor is on.
5. The stop button is not depressed.
6. The tray has been datumed.
7. If the tray and forming head are out of sink :-
 - i) Press **STOP**
 - ii) Press **RESET**
 - iii) Press **HOME**

Then run production as normal.

If after carrying out these simple checks you still do not get any rotation when the start button is depressed please contact the supplier of the Formatic machine or the manufacturer immediately.

Recommended Spares

F114BK	PADDLE SHAFT OIL SEAL (TOP)	1
F117A	MOULDED RETAIL HOPPER SEAL	1
F124	HOPPER SECURING KNOB	1
F129	DRUM RETAINING KNOB	1
F130	PADDLE RETAINING KNOB	1
F131	SCRAPER BAR LOCKING KNOB	1
F145	SCRAPER WIRE (METRE)	3
F147	WIRE TENSION LOCKING KNOB	1
T200SS	TABLE WHEEL BEARING	2
T201SS	TABLE DRIVE SHAFT BEARING	2
T205E	STEPPER DRIVE TIMING BELT	1
T206	TABLE BELT LONG	1
T207	TABLE BELT SHORT	1
T208	INTERMEDIATE TIMING BELT	1
T209	TRANSMISSION PULLEY	2
T210	TABLE PULLEY	2
T213	SPZ 850 WEDGE BELT	2
F410BKDD	FORM CAM DEEP DROP RETAIL	1
F463BK	PADDLE SHAFT KEY TOP	1
F1004	START BUTTON	1
F1004A	START BUTTON BOOT	1
F1005	STOP BUTTON	1
F1006	N/O CONTACT BLOCK	1
F1007	N/C CONTACT BLOCK	1

Manufactured by



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