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# **S-4000**

## **CIGARETTE MAKING MACHINE**



**USER GUIDE**  
**OPERATION MANUAL**



## FOREWORD

### Notes About Documents

This description is intended only for use by trained specialists in the field of control and automation engineering who understand the applicable national standards. The following documents, notes, and explanations must be followed when installing and operating components. It is the duty of technical personnel to use the documents issued at the time of each installation and commissioning.

Responsible staff shall ensure that the application or use of the described product meets all safety requirements, including all relevant laws, regulations, guidelines and standards.

### Statement

This document has been carefully prepared. However, the described product is still being developed. We reserve the right to revise and amend this document at any time and without prior notice. Claims for product modifications that have been provided should not be made based on the data, diagrams and descriptions in this document.



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## SUMMARY



Figure 0.1 S-4000 Cigarette Making Machine

The S-4000 machine is an automatic cigarette making machine that can produce high-quality cigarettes, with a production speed of up to 4,000 cigarettes per minute. This machine arranges various cigarette materials such as tobacco, cloves, tobacco wrapping paper, glue, filters, roll paper, and paper adhesive into cigarette sticks through a mechanical system.

The S-4000 machine is an ideal choice for cigarette production in smaller cigarette brands. Operation is very simple through an integrated industrial PC equipped with a touch screen, making it easy to monitor the functions of the machine. The entire control system is connected to the modular unit using PLC, thereby increasing the efficiency of the production process. This machine technology has been tested and is the basis for ensuring optimal quality in cigarette production.

## CONTROL PANEL

### 1. S-4000 Control Panel

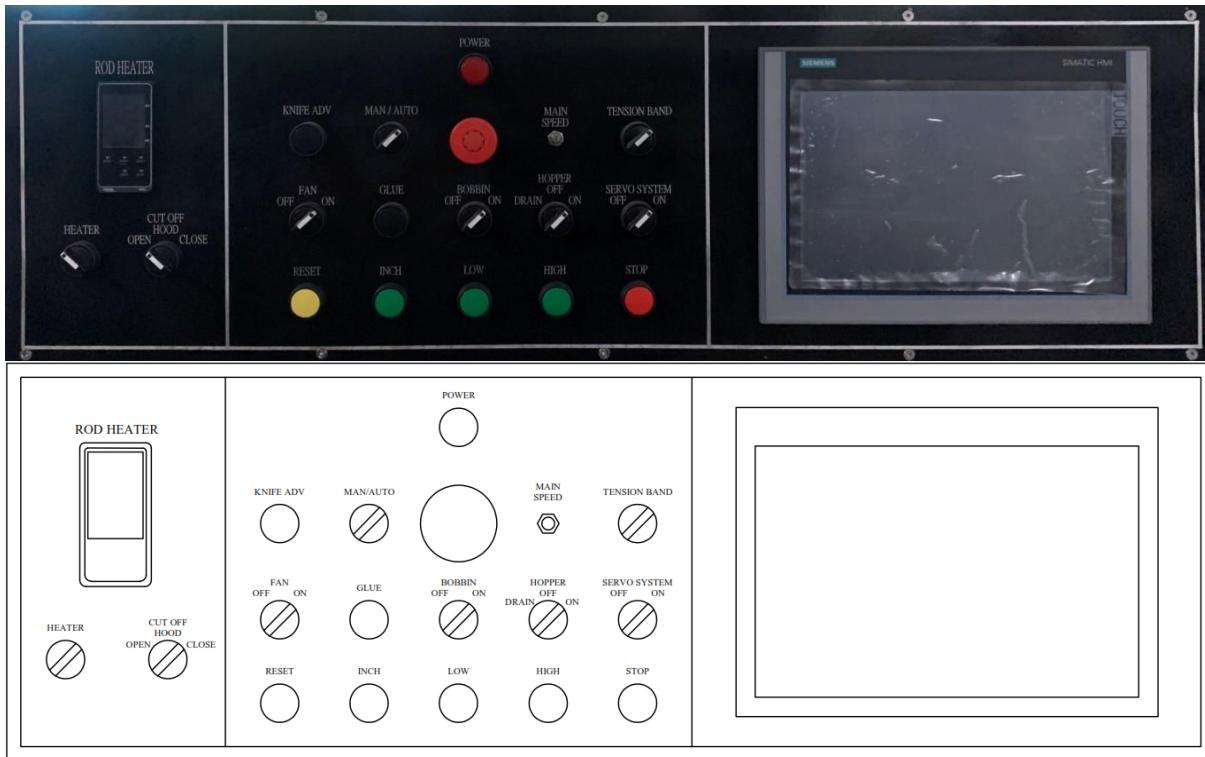


Figure 1.1 Panel Control S-4000

A control panel equipped with buttons and selectors is one of the key elements in machine operations, designed to give the operator the ability to manage and control various aspects of machine performance. With these buttons, the operator can easily make adjustments to parameters such as speed, temperature, and others, depending on the complexity and function of the machine. Physical buttons offer quick and intuitive tactile feedback, ensuring changes can be made efficiently without the need to dive into complicated digital menus.

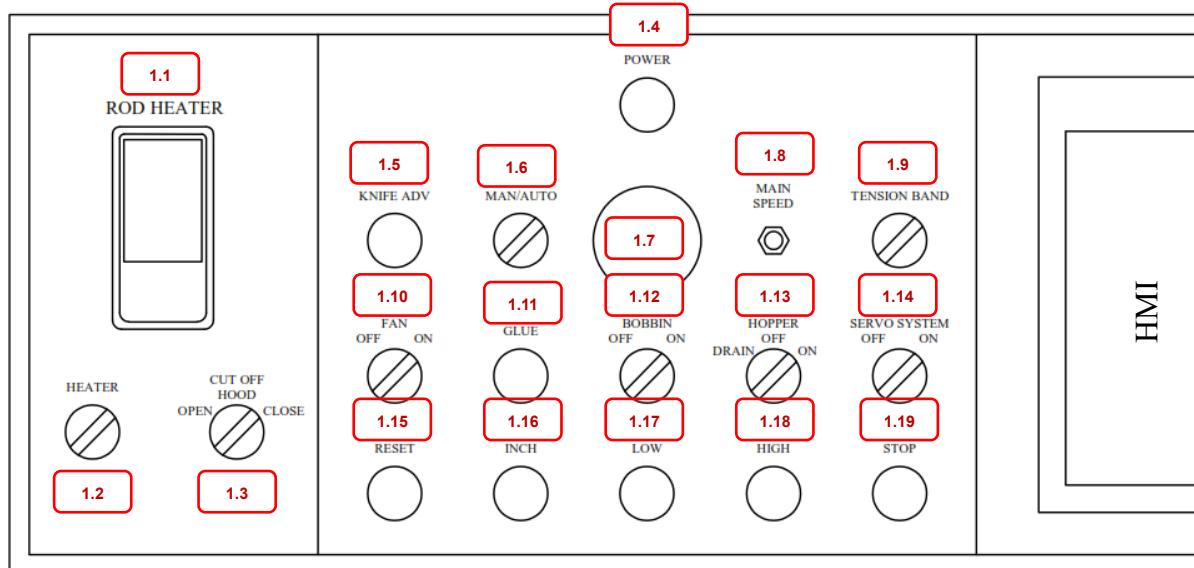


Figure 1.2 Buttons, Selectors, Control Panel Module S-4000

<b>Position Function</b>	<b>Description</b>
PANEL CONTROL S-4000	
1.1	Module that serves to regulate the temperature of the heater.
1.2	Selector that functions to turn on / off the heater.
1.3	Selector that functions to open / close the cut off door.
1.4	An indicator light indicating if the power is on.
1.5	The button that functions to do the knife adv. on the cutoff knife.
1.6	Selector that functions to set the running mode of the machine to manual / auto.
1.7	<b>Emergency Switch.</b>
1.8	Potentiometer that serves to adjust the value of engine speed.
1.9	Selector to turn on/off the nylon tape motor on the section.
1.10	Selector to turn the vacuum fan on/off.
1.11	A button that serves to turn on glue.
1.12	Selector that functions to turn on / off the bobbin motor.
1.13	Selector that functions to set the mode on the hopper machine.

1.14	Selector to turn on/off the servo system.
1.15	The button that serves to reset the contactor to turn on the MCB again.
1.16	The button that serves to run the machine with inc. speed.
1.17	A button that serves to run the machine at low speed.
1.18	The button that serves to run the machine at high speed.
1.19	A button that serves to stop the running of the engine.

## 2. M-5000 Control Panel

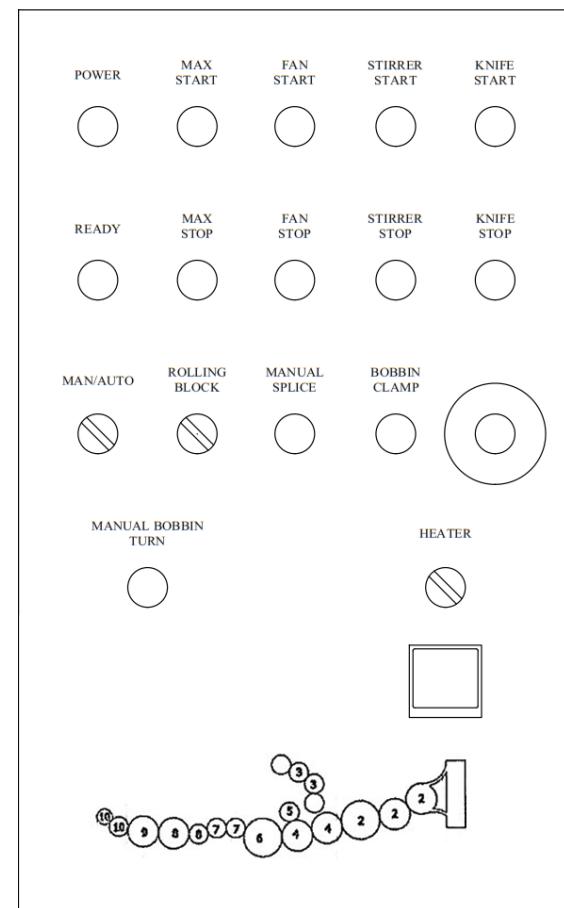


Figure 1.3 M-5000 Control Panel

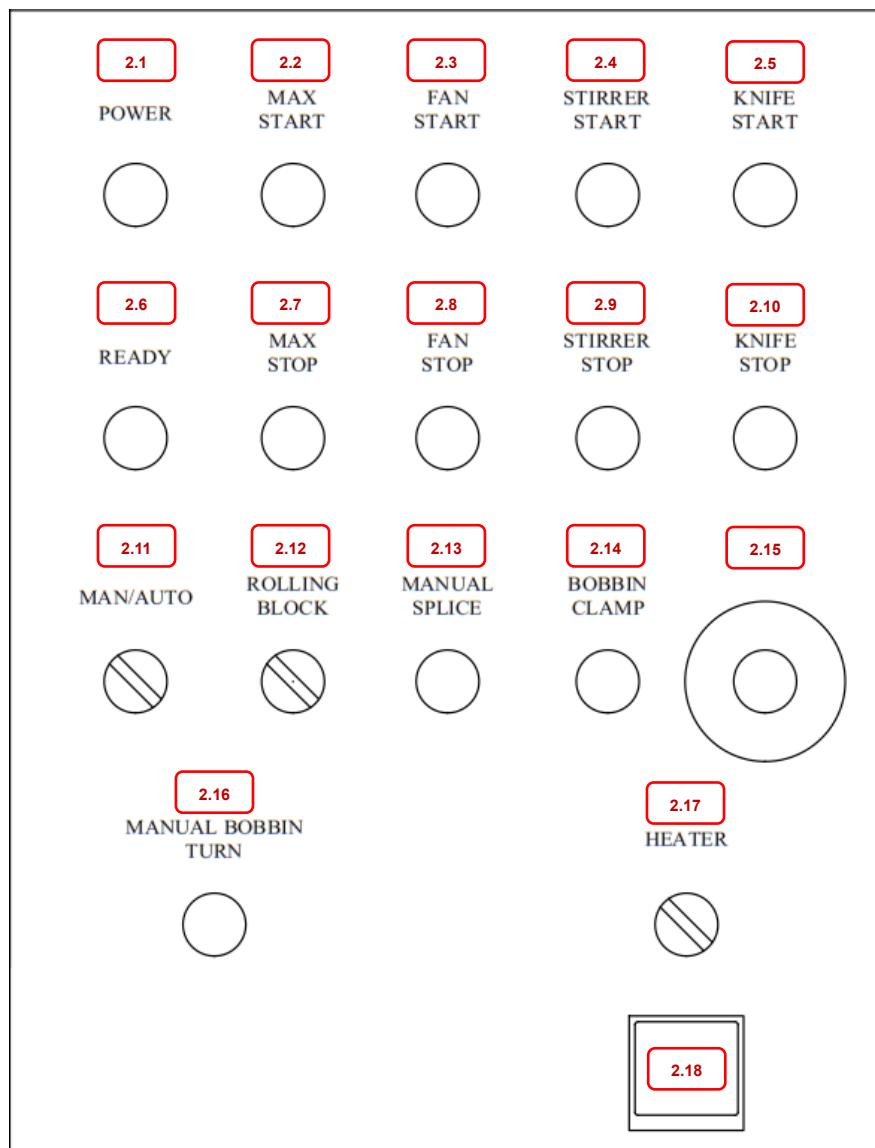


Figure 1.4 Buttons, Selectors, Control Panel Module M-5000

Position Function	Description
M-5000 CONTROL PANEL	
2.1	An indicator light indicating if the power is on.
2.2	A button that serves to start running the M-5000 engine.
2.3	A button that serves to turn on the M-5000 vacuum fan.
2.4	A button that serves to turn on the stirrer on the M-5000 machine.
2.5	A button that serves to turn on the rotation of the knife on the M-5000 engine.

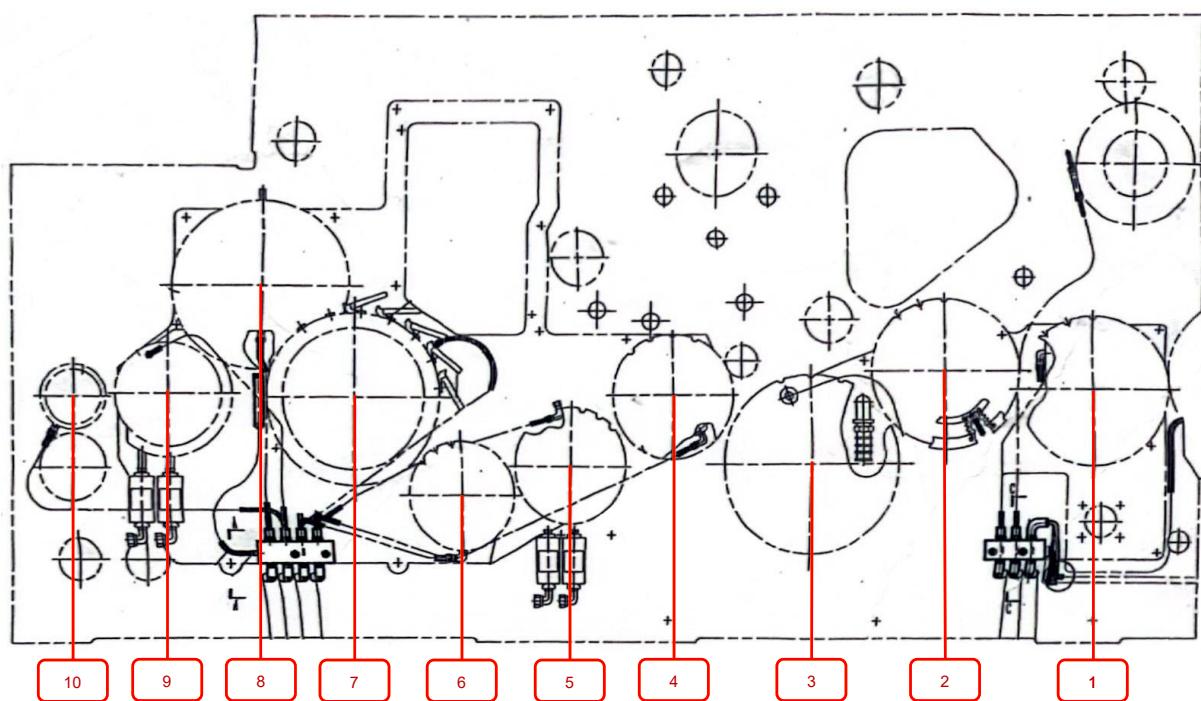
2.6	Indicator light indicating when the M-5000 engine is ready. The ready requirements on the M-5000 engine are set at 1.9 (S-4000 SCREEN FUNCTION).
2.7	A button that serves to stop the running of the M-5000 engine.
2.8	A button that serves to turn off the M-5000 vacuum fan.
2.9	A button that serves to turn off the stirrer on the M-5000 machine.
2.10	A button that serves to turn off the rotation of the knife on the M-5000 engine.
2.11	Selector that functions to select manual / auto in lowering the filter.
2.12	The selector that functions to turn the rolling block position on or off is above or below.
2.13	A button that serves to perform manual bobbin splice on the M-5000 engine.
2.14	A button that functions to lock / open the bobbin holder.
2.15	<b>Emergency Switch.</b>
2.16	The button that serves to perform a manual bobbin turn on the M-5000 engine.
2.17	Selector that functions to turn on / off the heater.
2.18	Module that serves to regulate the temperature of the heater.



<b>Position Function</b>	<b>Description</b>
M-5000 CONTROL PANEL	
2.19	Button that serves to turn on the drum cleaning wind 1.
2.20	Button that serves to turn on the drum cleaning wind 2.
2.21	Button that serves to turn on the drum cleaning wind 3.
2.22	Button that serves to turn on the drum cleaning wind 4.
2.23	Button that serves to turn on the drum cleaning wind 5.
2.24	Button that serves to turn on the drum cleaning wind 6.
2.25	Button that serves to turn on the drum cleaning wind 7.
2.26	Button that serves to turn on the drum cleaning wind 8.
2.27	Button that serves to turn on the drum cleaning wind 9.
2.28	Button that serves to turn on the drum cleaning wind 10.
2.29	Selector that serves to set the eject mode. MAN (Manual): eject mode that lets all cigarettes enter the next route. OFF: eject mode that lets all cigarettes fall into the trash. AUTO : eject mode that activates inspection that allows good cigarettes to go to the next route and those detected as damaged, will be thrown into the trash.



The drum numbering can be seen in the picture below.



### 3. F-80 Control Panel

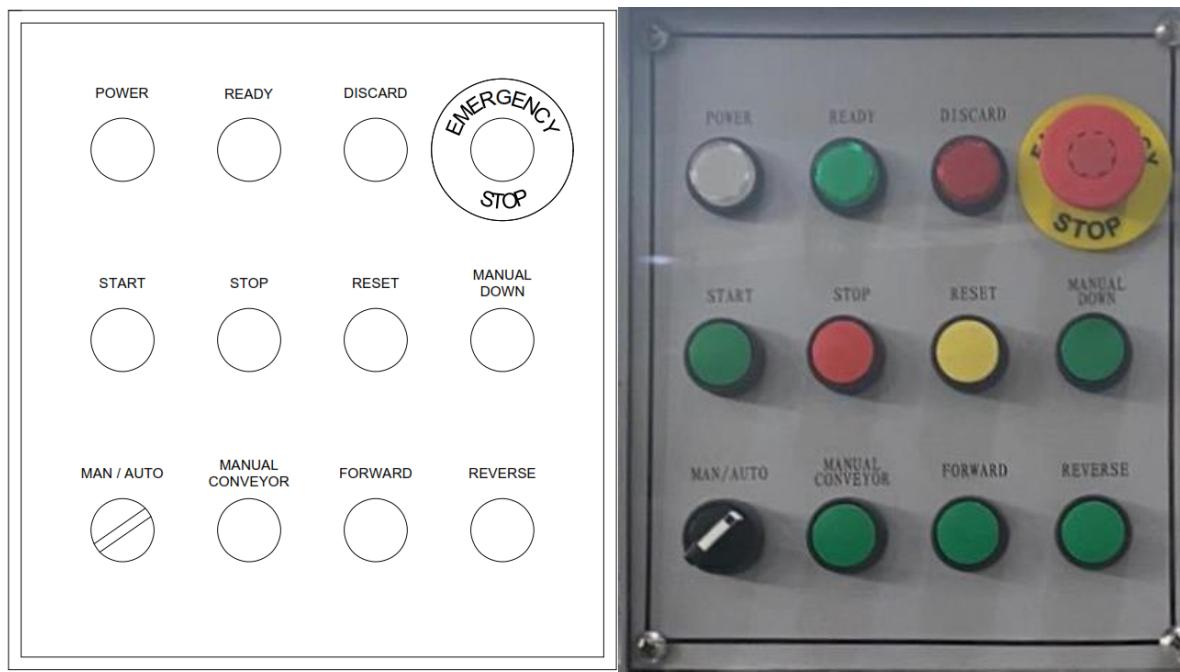


Figure 1.5 Panel Control F-80

Control panels that have a wide range of functions are designed to improve efficiency and ease of use in a variety of applications, allowing users to quickly access various features or operations by pressing specific buttons. Each button on this panel is usually created to perform a specific task so that the user can operate the device or system more intuitively and effectively.

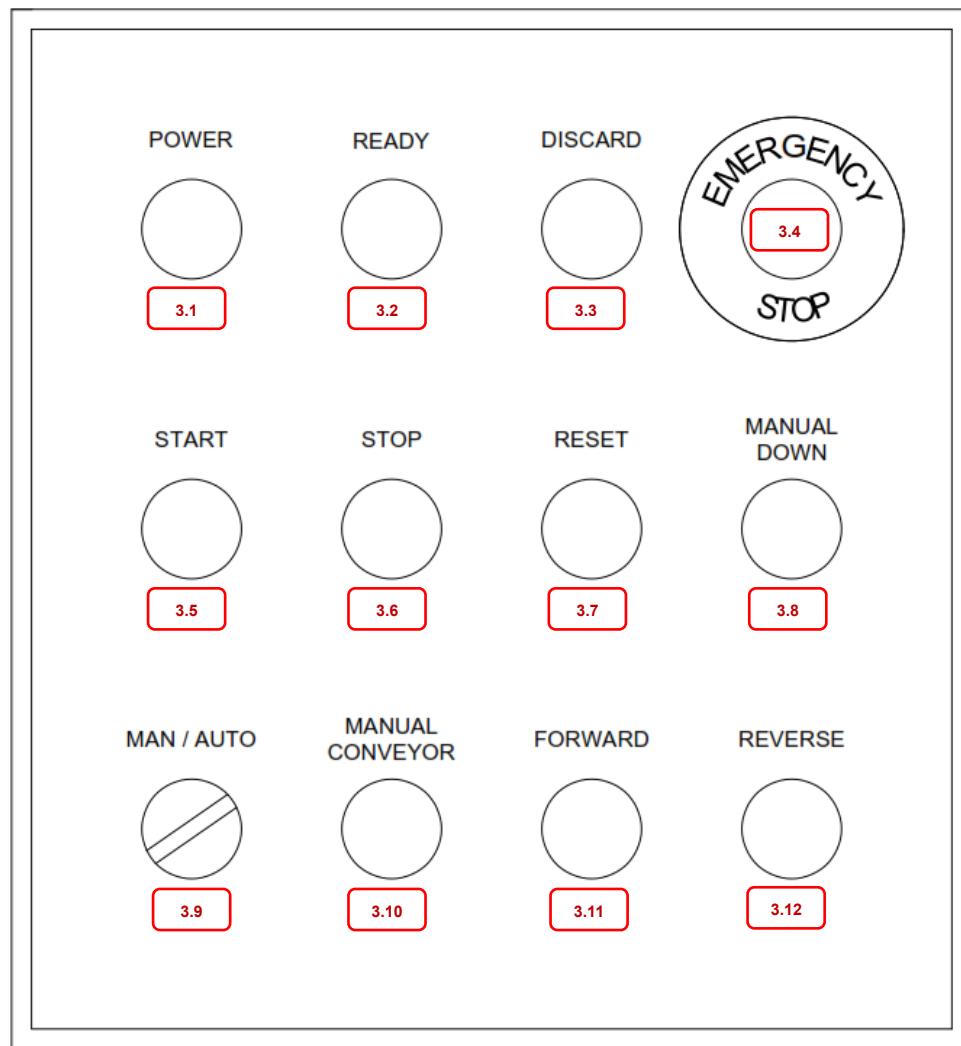


Figure 1.6 F-80 Panel Button Function

<b>Position Function</b>	<b>Description</b>
<b>PANEL CONTROL F-80</b>	
3.1	An indicator light indicating if <i>the power</i> is on.
3.2	Indicator lights indicating when the F-80 engine is <i>ready</i> .
3.3	Indicator light that indicates when a cigarette has entered.
3.4	<i>Emergency Switch.</i>
3.5	The button that serves to start the machine.
3.6	A button that serves to stop the running of the engine.
3.7	A button that serves to reset data on the HCF machine.



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3.8	A button that serves to lower the <i>tray</i> manually. Only when manual mode
3.9	Selector that functions to select manual/auto mode of running HCF machine.
3.10	A button that serves to run the cigarette conveyor manually. Only when manual mode.
3.11	The button serves to run the forward conveyor tray manually. Only when manual mode.
3.12	A button that serves to manually run the reverse conveyor tray. Only when manual mode.



## FUNCTIONS OF THE S-4000 SCREEN

When the device is turned on, the screen displays various interactive menus. Users can explore a more comprehensive menu section to access various features and functions such as, home screen, settings, alarms, shifts, reports, device and links. Users can easily see the number of products that have been produced, including information on the number of good items, missing filters, imperfect cigarette tips, and exit trays .

Through detailed menu presentation, it gives the user the ability to control specific S-4000 operations, and monitor engine performance.

## 1. Home Screen

The Home screen on the S-4000 machine displays easy-to-understand information. In addition, the home screen also displays indicators for various machine functions, such as active elevator, blade progress, active drain, active adhesive, active heater, active blade, active M-5000 fan, and active stirrer. Thus, users can quickly view and monitor various important aspects of the operation of the S-4000 engine.



Figure 2.1 Home Screen Display

Position Function	Description
HOME SCREEN	
1.1	Displays the speed of the S-4000 engine when working effectively.
1.2	Displays the overall state of affairs on the S-4000 section. The state will be "READY" when all the part points on the S-4000 (0.9) are ready.
1.3	Displays the overall state of the M-5000 section. The state will be "READY" when all the part points on the M-5000 (0.10) are ready.
1.4	Displays the overall state of section F-80. The state will be "READY" when all the part points on the F-80 are ready.

1.5	Displays the number of containers/baskets of production that come out of HCF.
1.6	Displays the number of cigarettes produced successfully and not damaged.
1.7	A button that functions to restart (reset) the number of containers / baskets that have come out of the HCF.
1.8	Displays the day, date, and time.
1.9	Displays the points of the M-5000 parts that need to be prepared to run the machine.
1.10	Displays the points of the S-4000 parts that need to be prepared to run the engine.
MENU	
2	A button that serves to bring to more detailed information about the identity of the machine.
3	A button that serves to bring to the speed setting.
4	The button that serves to bring to the settings menu.

## 1.9 M-5000 Status

In an effort to identify the location of the error on the M-5000 engine, it is important to start by tracing the critical components that interact in the engine operation, allowing us to accurately determine the source of the problem.

### 1. Filter Jam

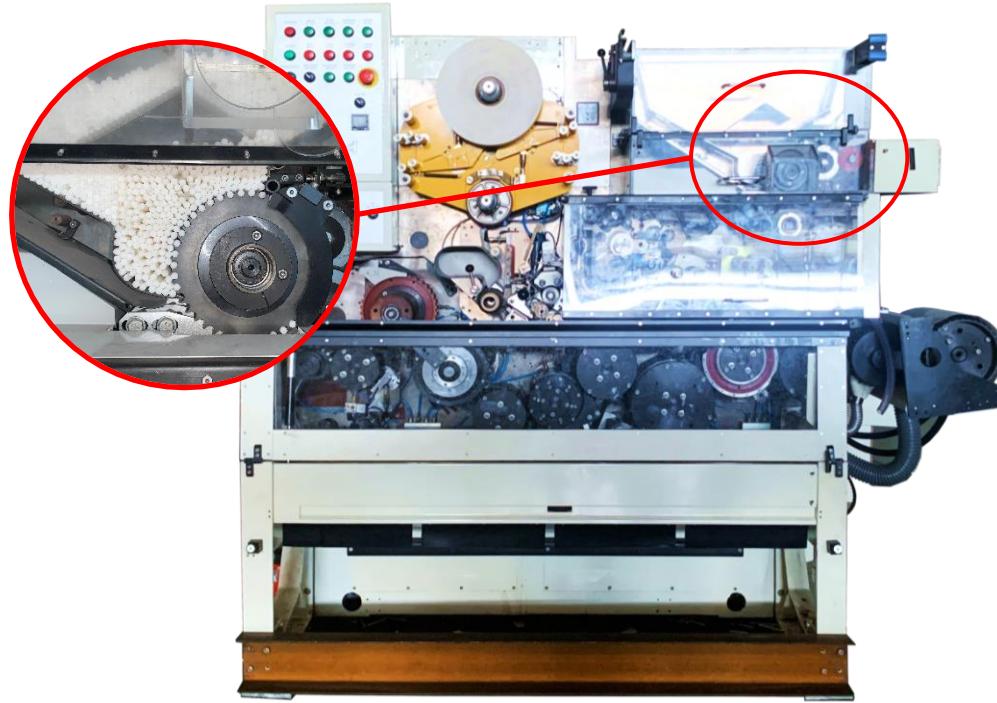


Figure 2.2 Filter Jam

### 2. No Glue in Roll

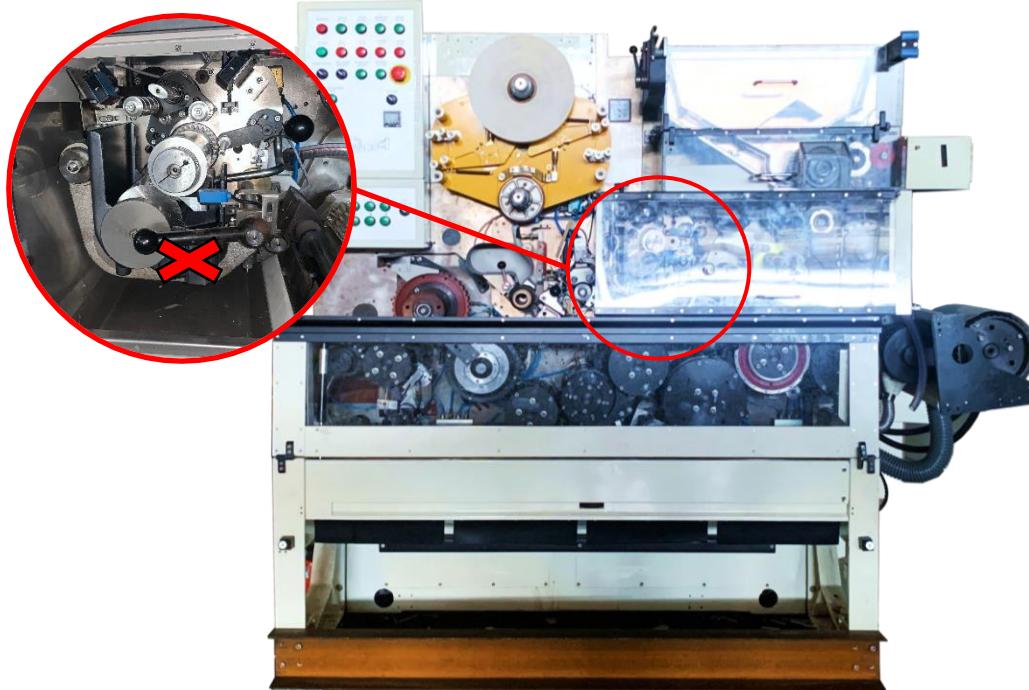


Figure 2.3 Glue Roll

### 3. Tipping Broken

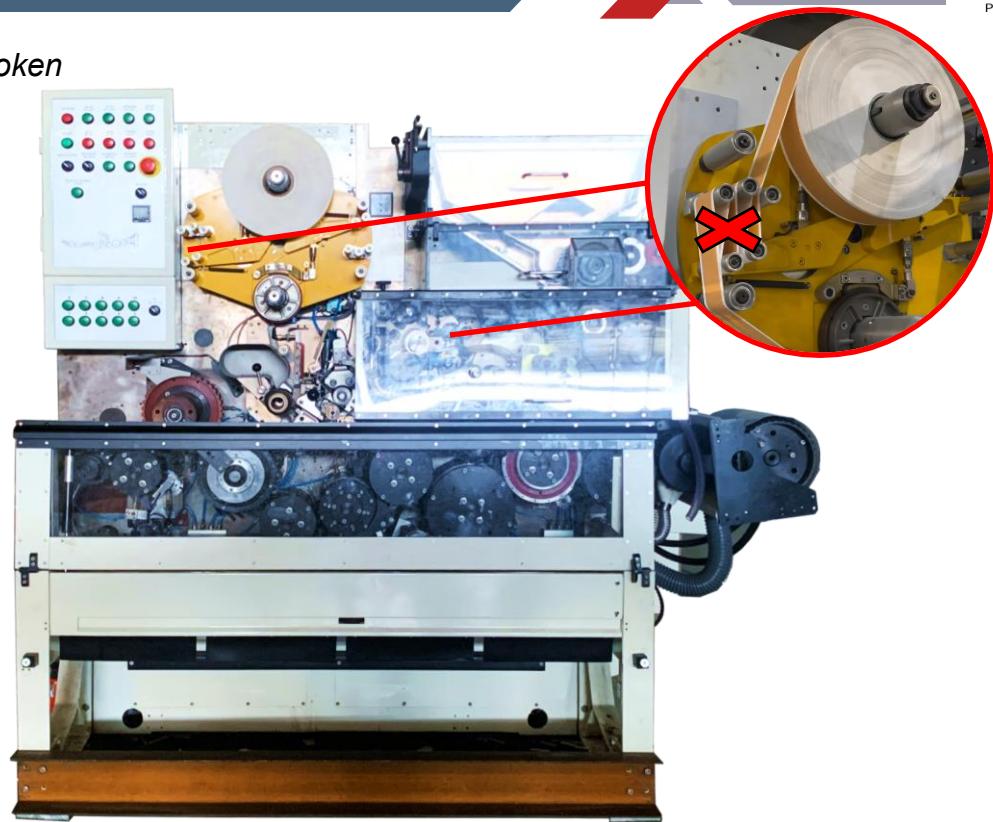


Figure 2.4 Tipping Broken

### 4. Rolling Block Jam

### 5. Rolling Block Down

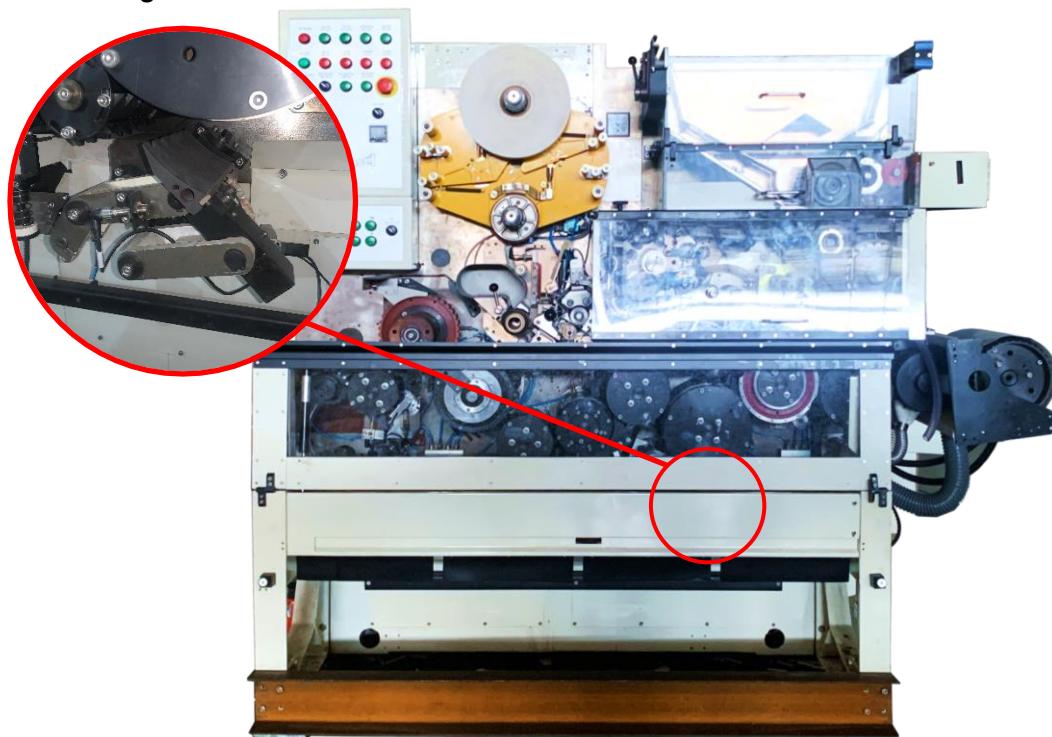


Figure 2.5 Rolling Block

## 6. Bottom Guard



Figure 2.6 Bottom Guard

## 7. Filter Miss 3x

This happens when the machine detects cigarettes that do not have filters 3 times in a row.

## 8. Fan Off

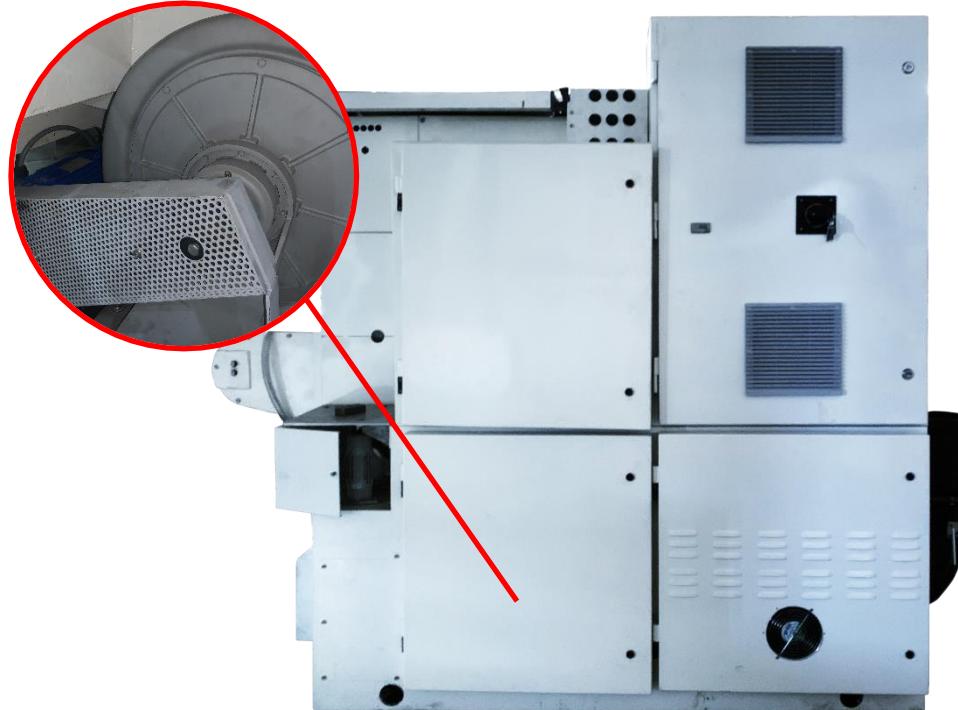


Figure 2.7 Vacuum Fan

### 9. Stirrer Off

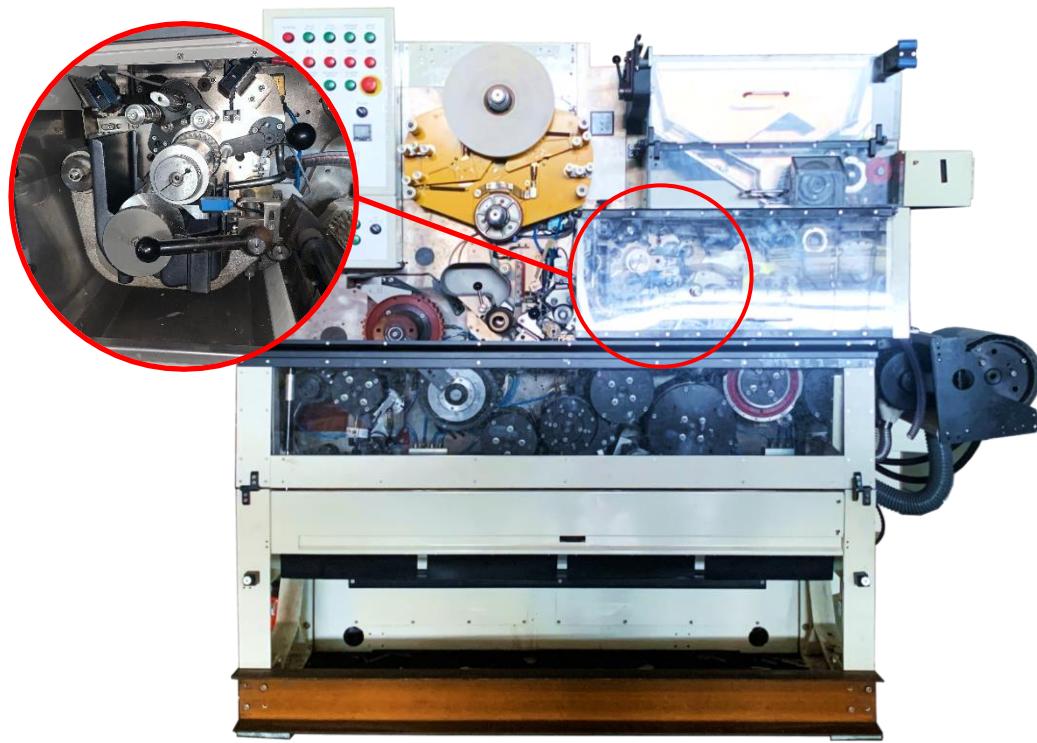


Figure 2.8 Glue Stirrer

10. Vacuum Overload
11. Bobbin Turn Overload
12. Knife 1 Overload
13. Knife 2 Overload
14. Stirrer Overload
15. Large Fan Overload

On the M-5000 status status, there are several points that show indications of overload. This is indicated by the overload safety which drops if an overload occurs.

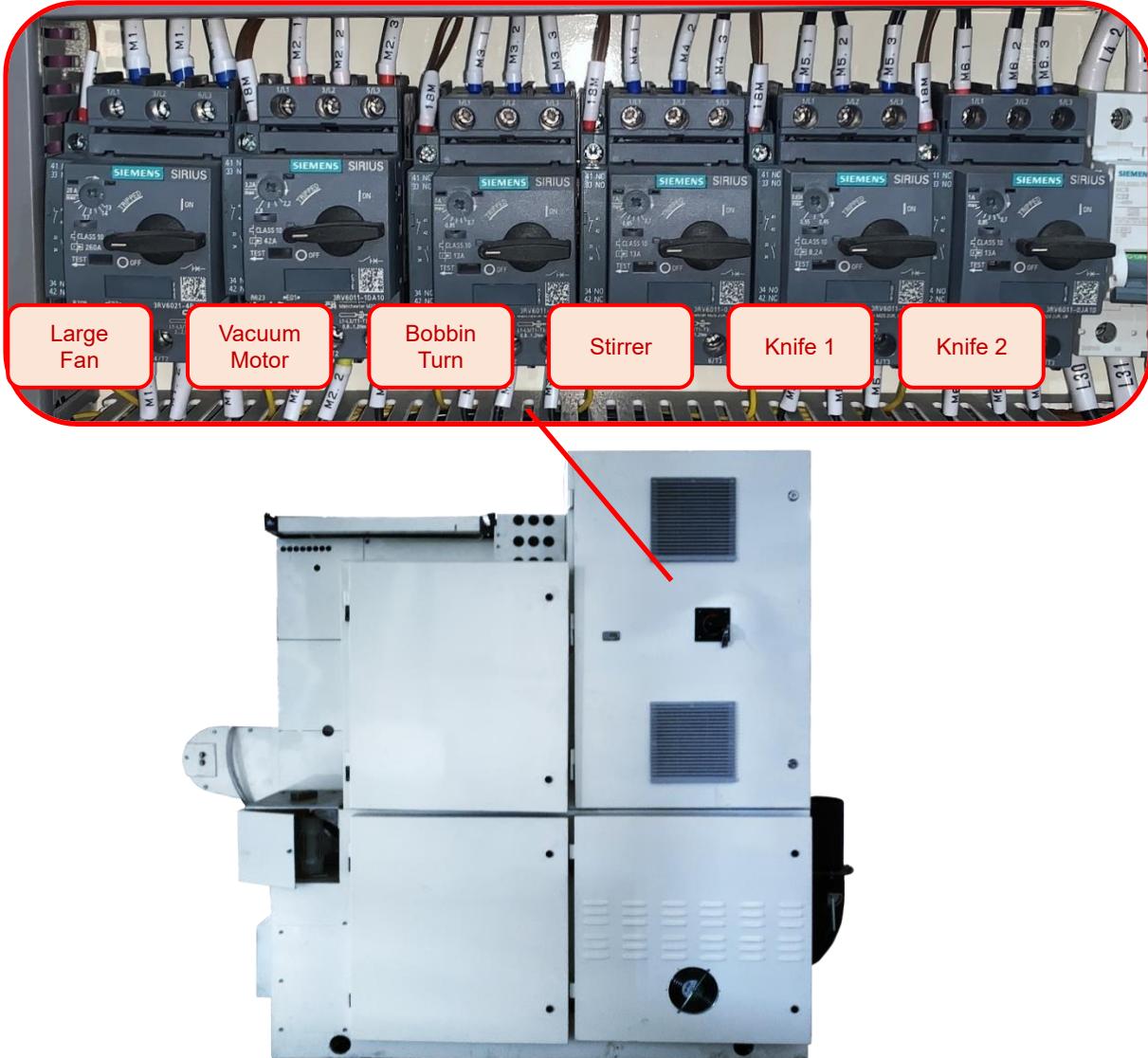


Figure 2.9 M-5000 Overload

If an overload condition occurs in the system, the first step that must be taken is to carry out a thorough inspection of the overload safety device on the control panel. This process involves several important steps to ensure that all components operate in optimal condition and that none suffer damage due to overload.

### 16. Air Pressure Low

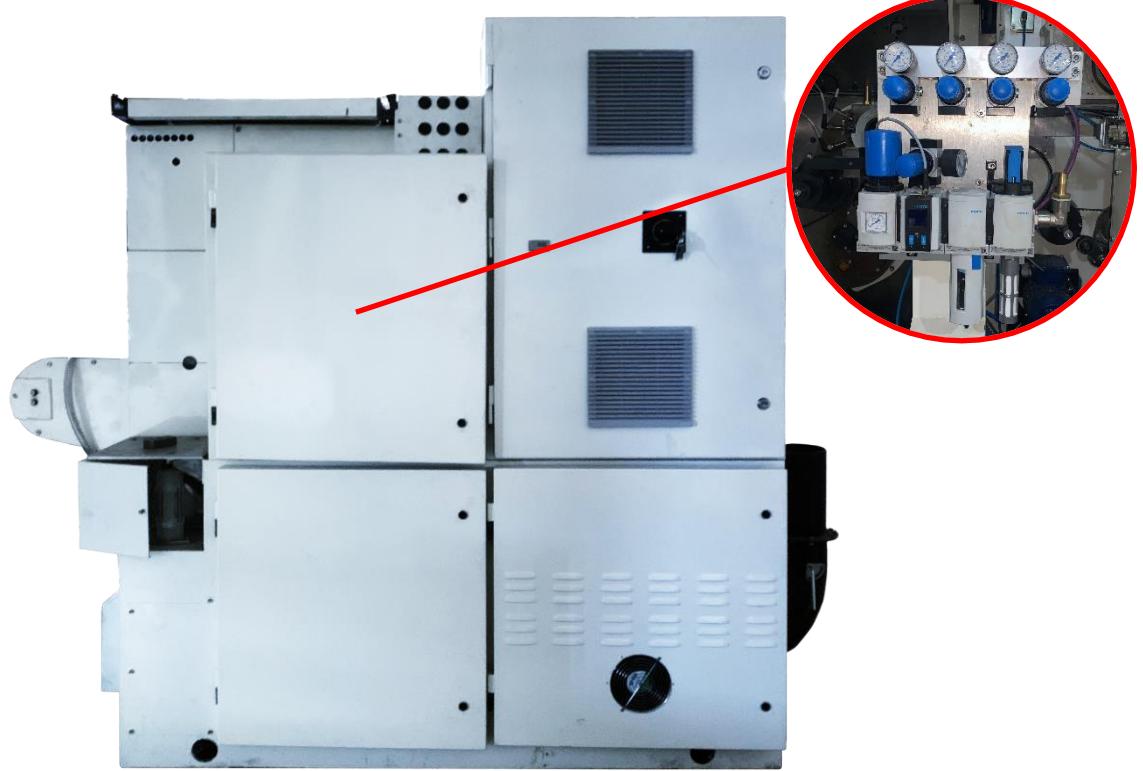


Figure 2.10 Festo Air Pressure Control

### 17. Tipping Roll

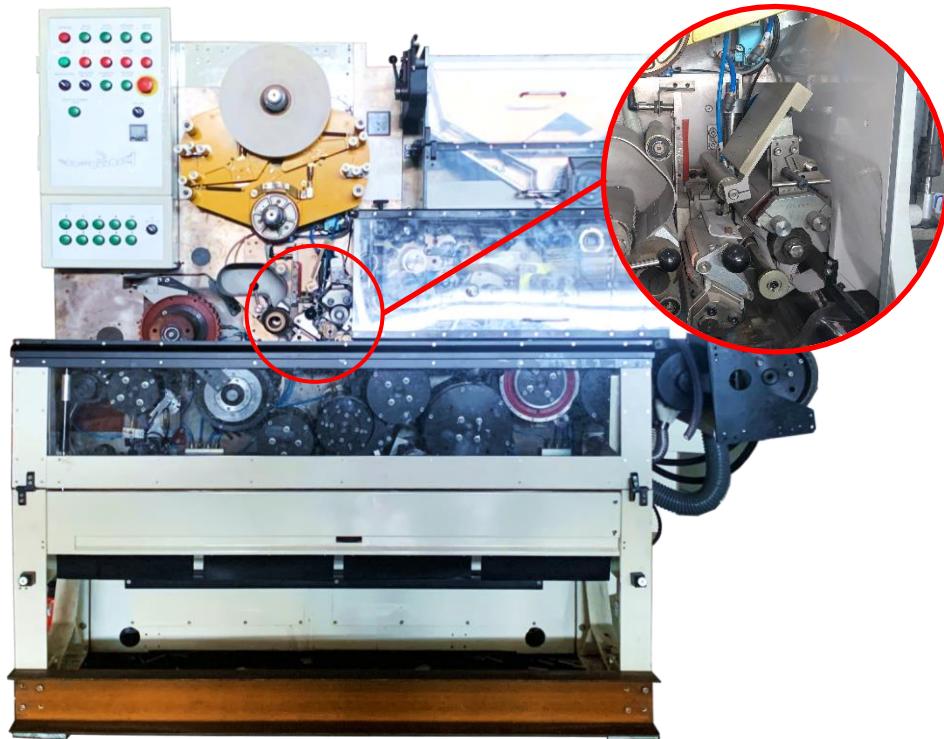


Figure 2.11 Tipping Roll

## 18. RBO

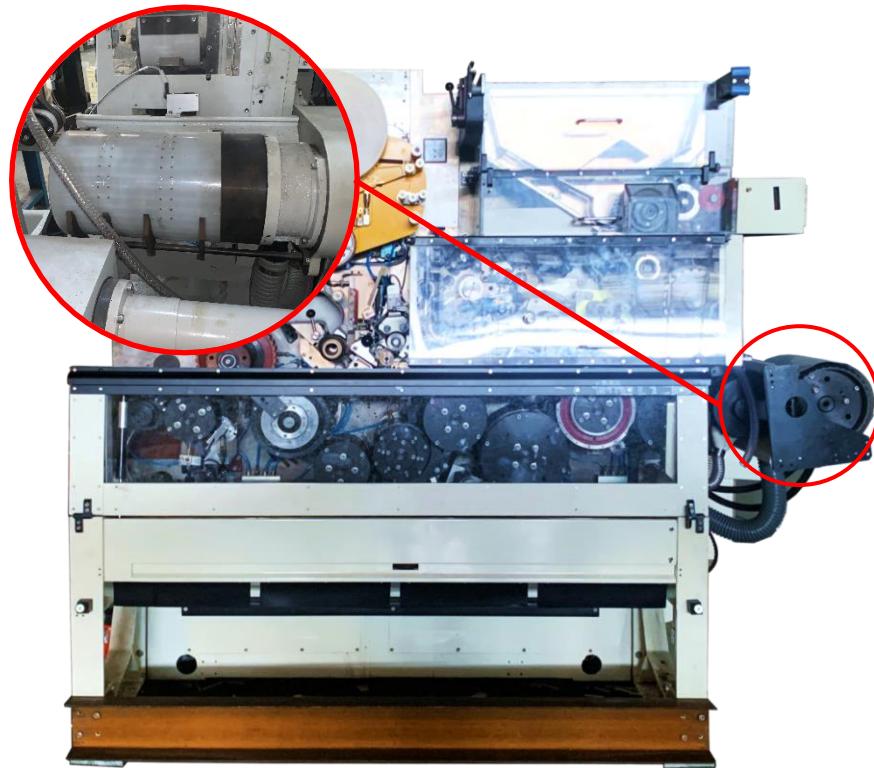


Figure 2.12 Link Up

This condition occurs when the machine does not detect cigarettes being produced, but the machine continues to run.

## 1.10 S-4000 Status

### 1. Oil Pressure Low

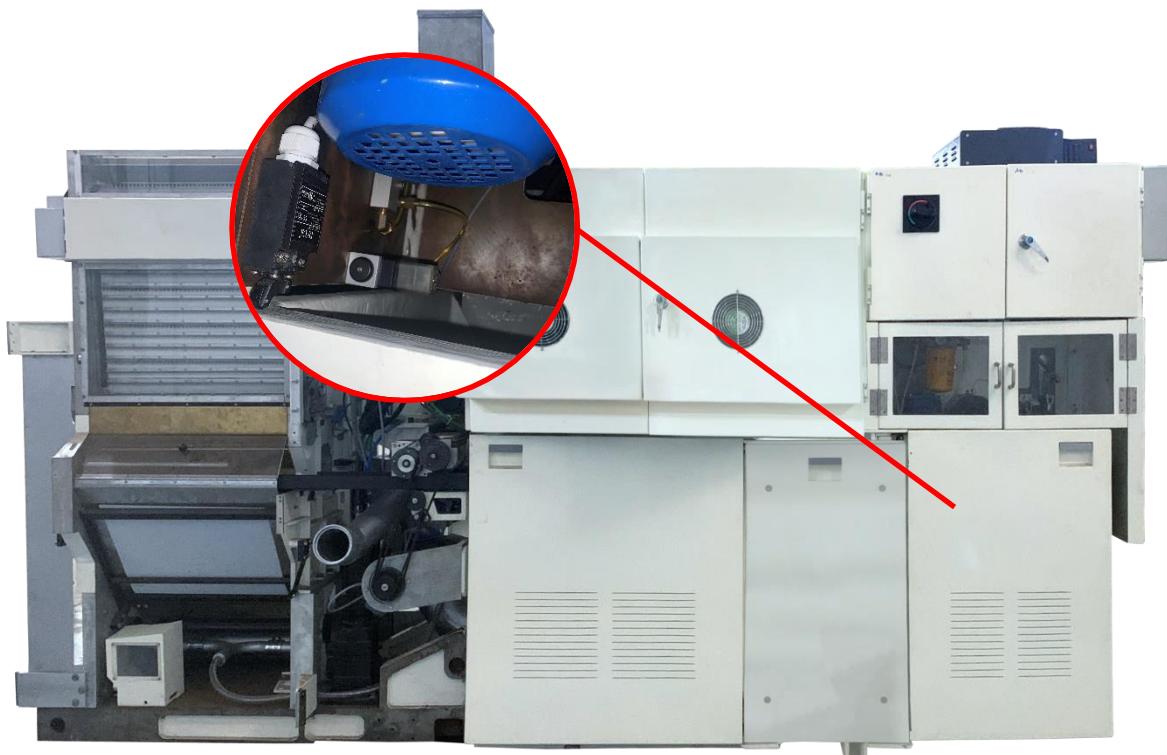


Figure 2.13 Oil Pressure

### 2. Tobacco Low too Long

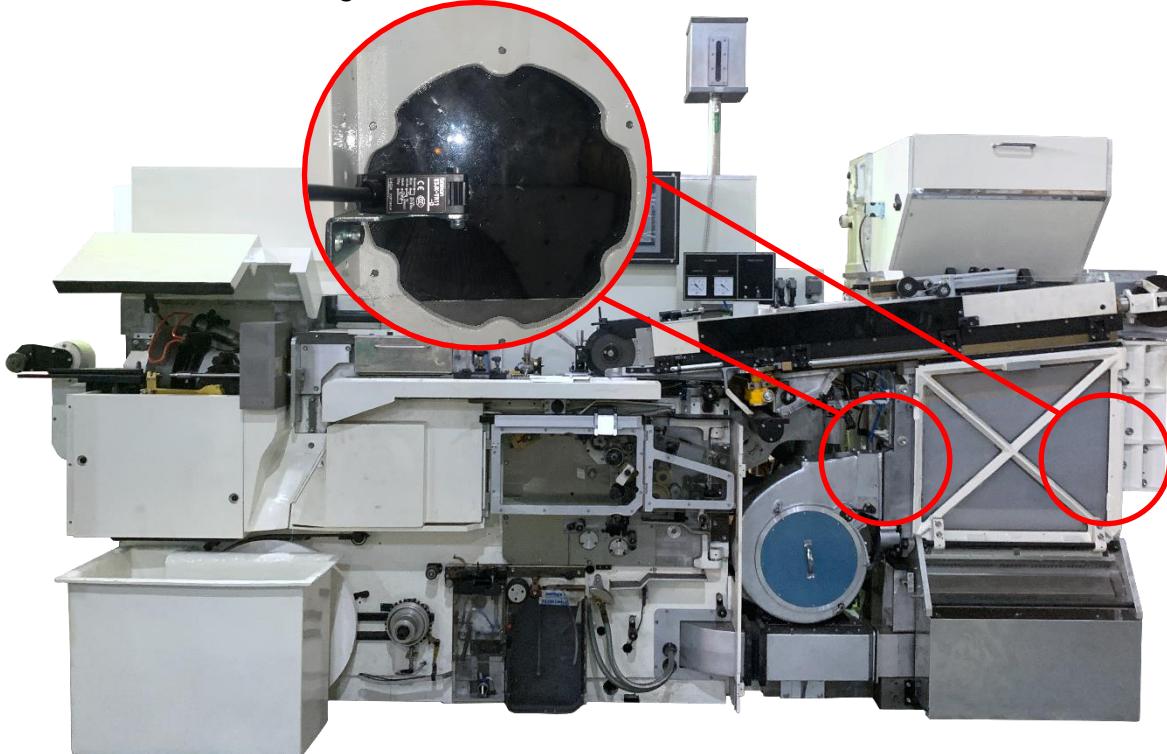


Figure 2.14 Picker Roll Sensors

3. Picker Roll Overload
4. Large Fan Overload
5. Small Fan Overload
6. Tobacco Return Overload
7. Oil Pump Overload

On the S-4000 status status, there are several points that show indications of overload. This is indicated by the overload safety which drops if an overload occurs.

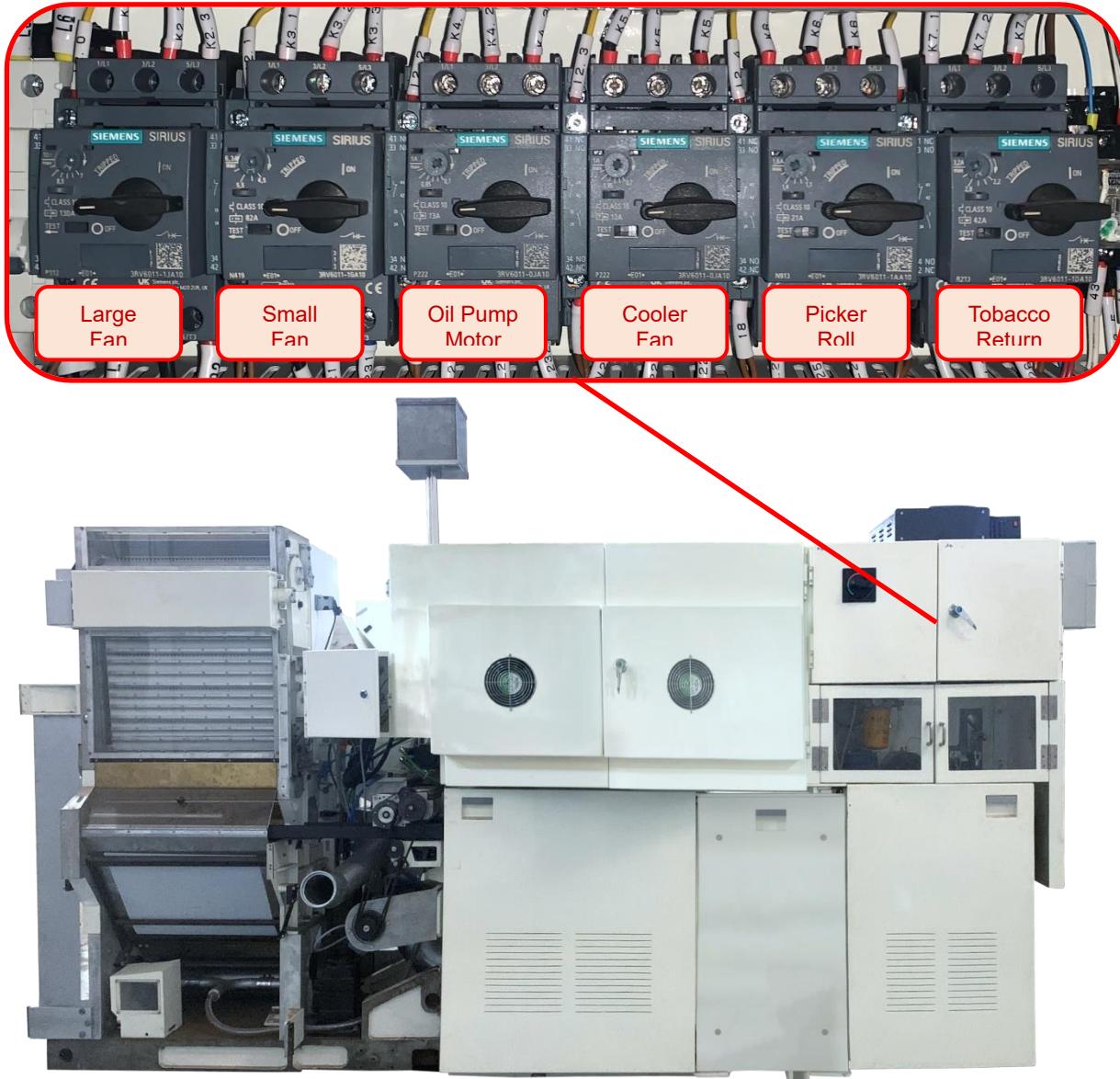


Figure 2.15 S-4000 Overload

If an overload condition occurs in the system, the first step that must be taken is to carry out a thorough inspection of the overload safety device on the control panel. This process involves several important steps to ensure that all components operate in optimal condition and that none suffer damage due to overload.

### 8. Hopper Off

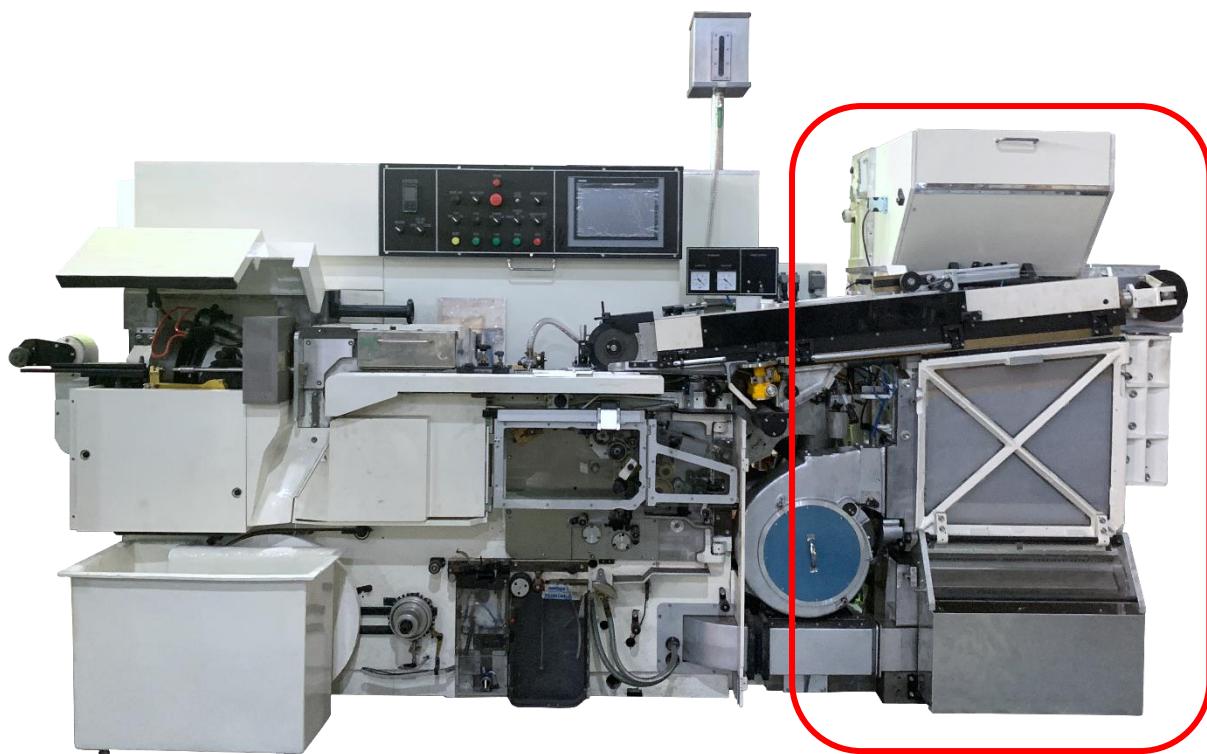


Figure 2.16 Hopper

### 9. RBO

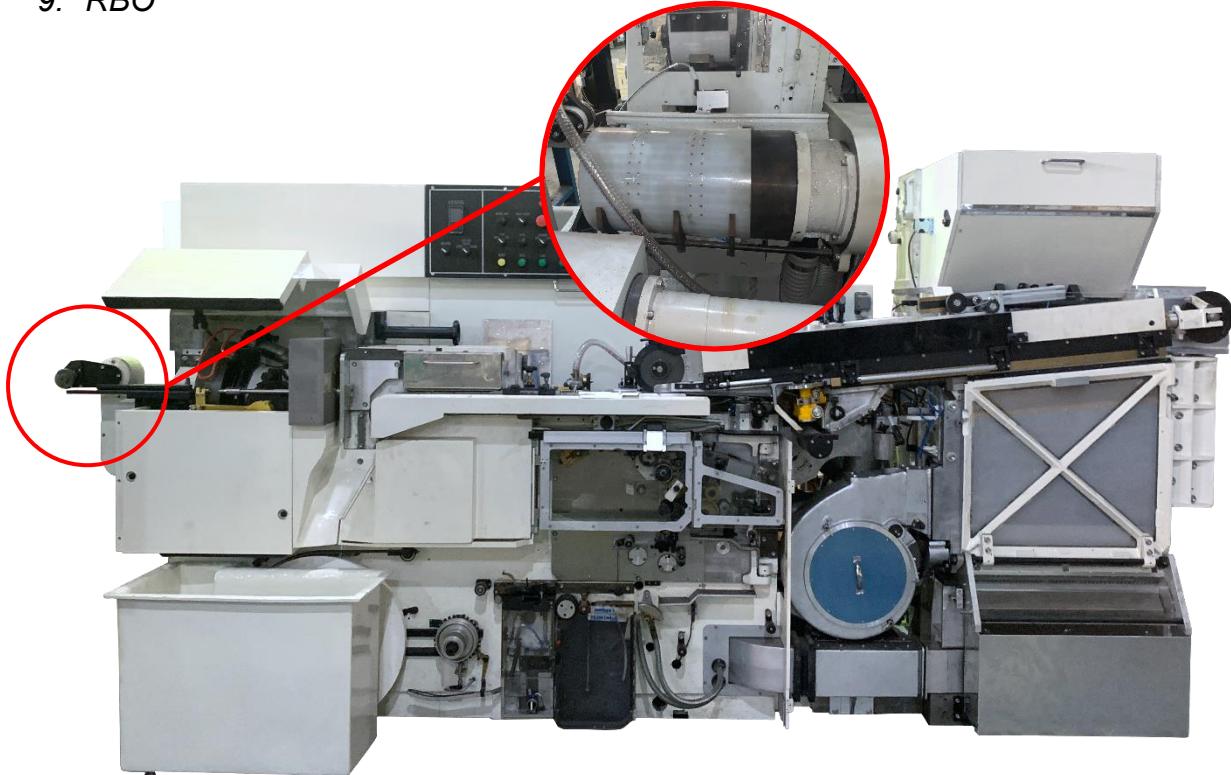


Figure 2.17 Link Up

10. Cut Off Open

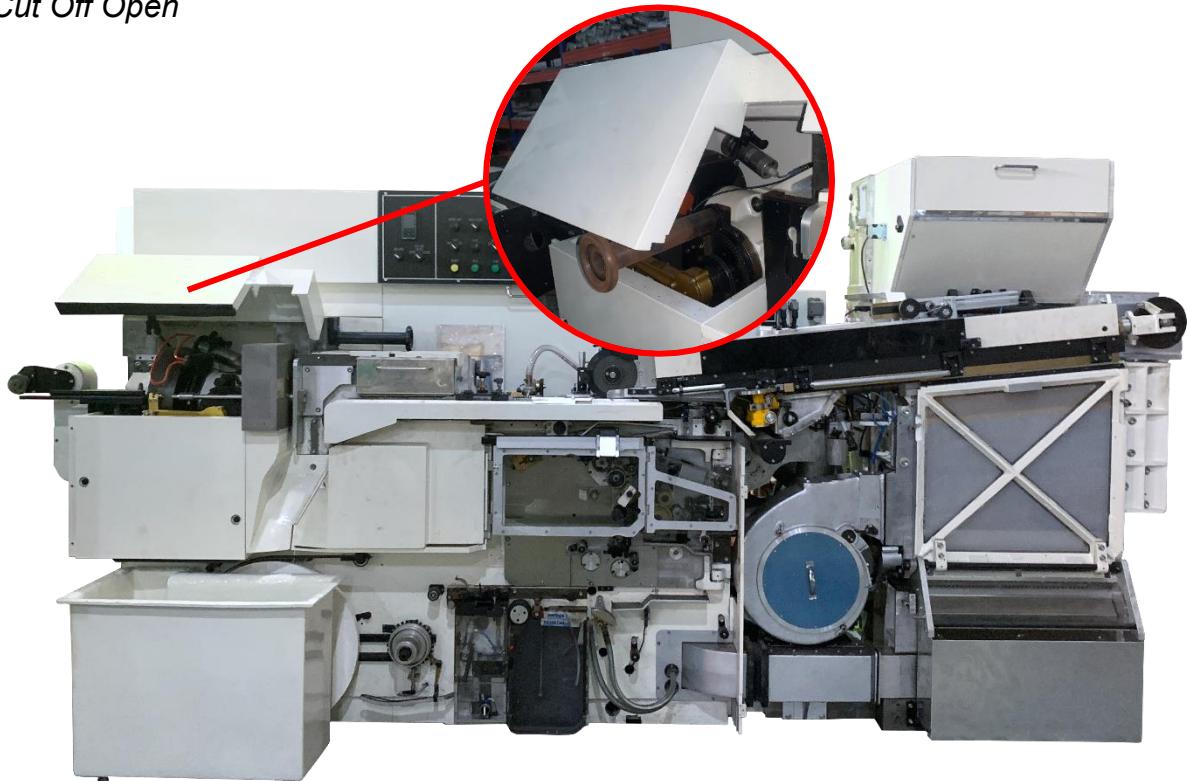


Figure 2.18 Cut Off Cover

11. Paper Broken

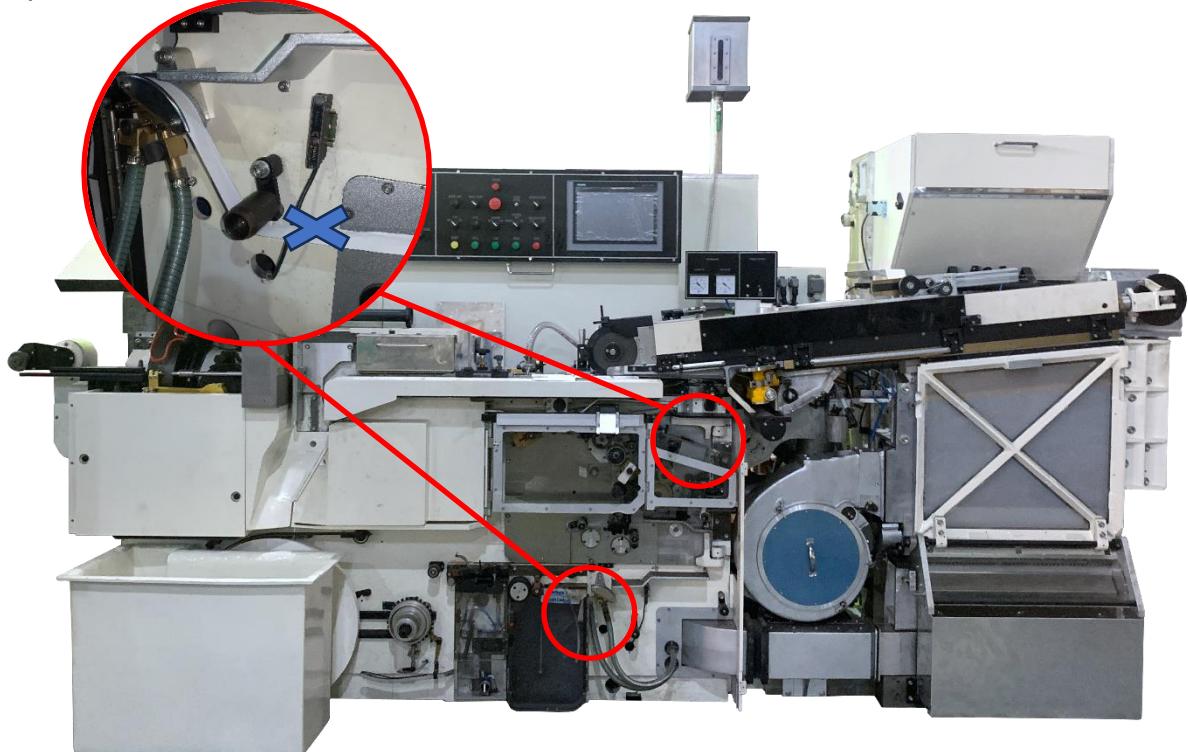


Figure 2.19 Paper Broken

12. Hopper Door Open

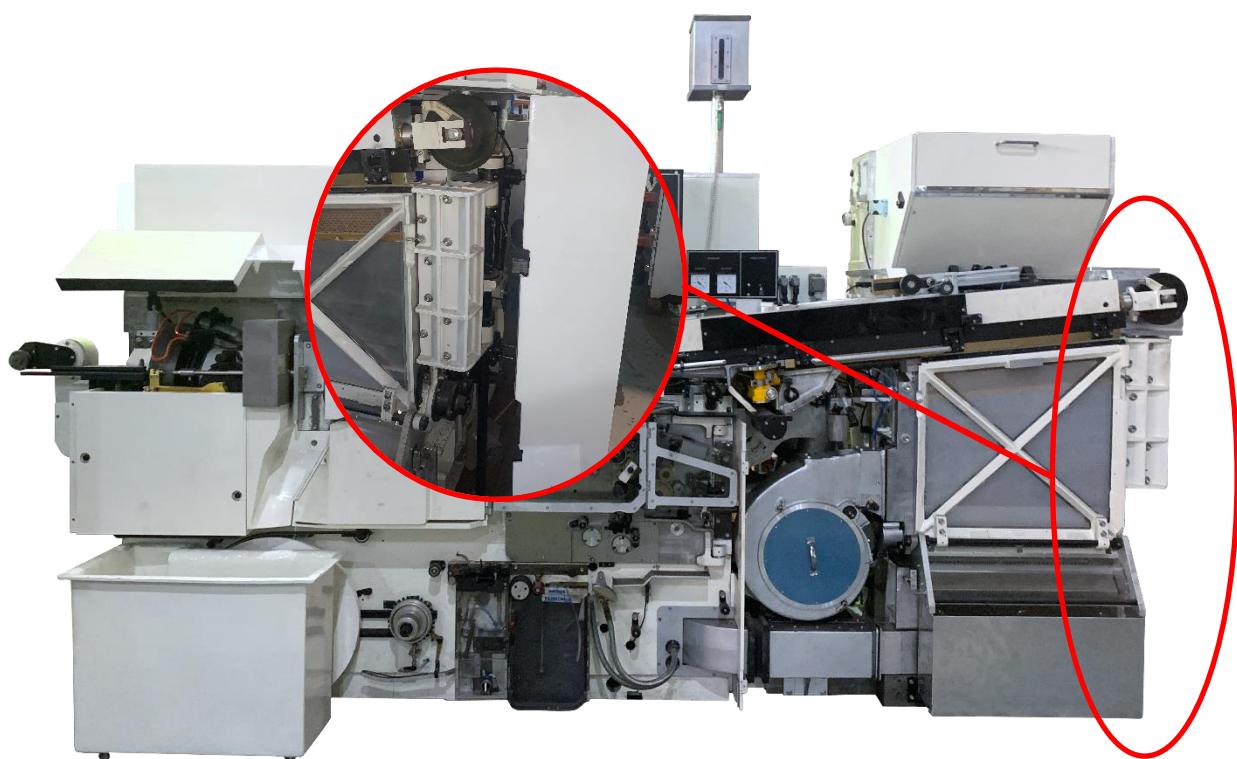


Figure 2.20 Hopper Door

13. Fan Off

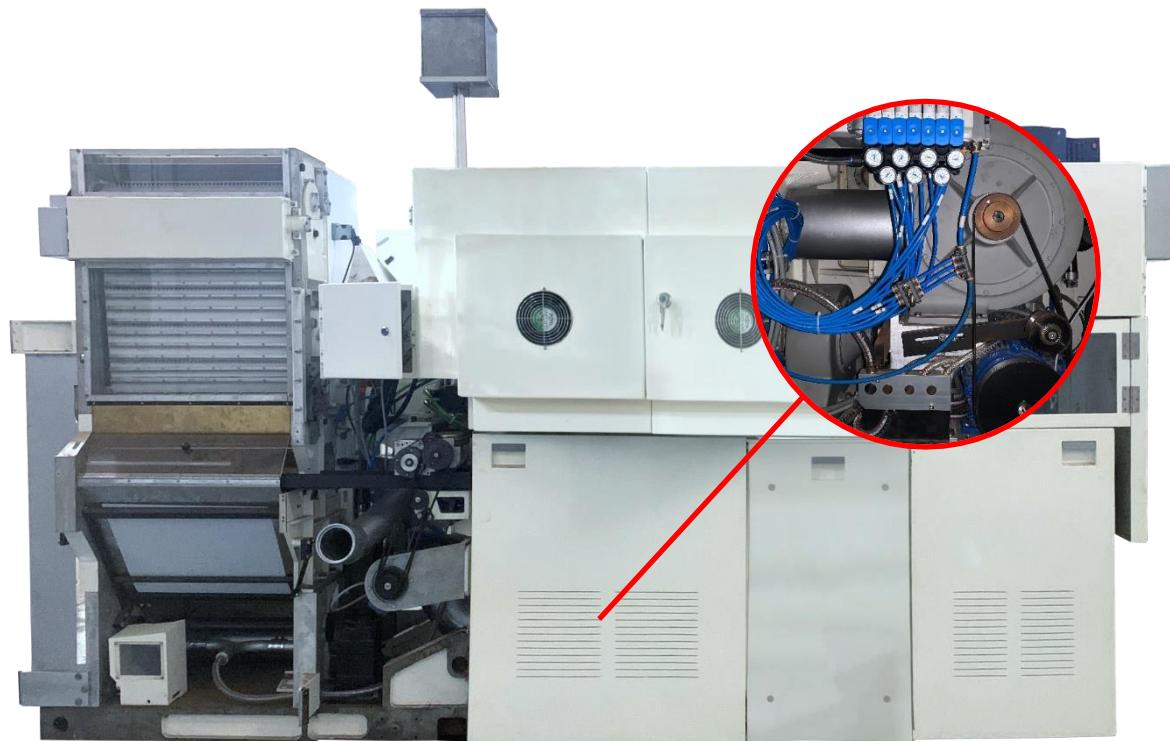


Figure 2.21 S-4000 Fan

#### 14. Inverter Fault

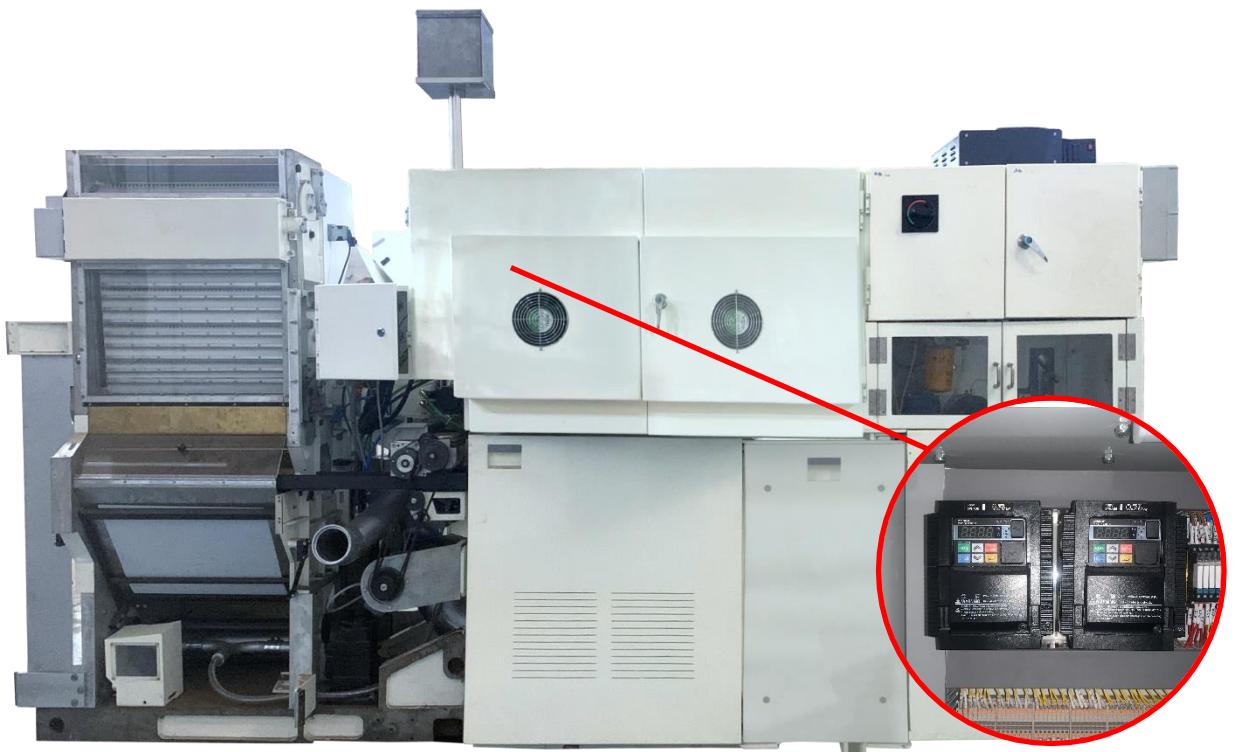


Figure 2.22 Omron Inverter

#### 15. Servo Service

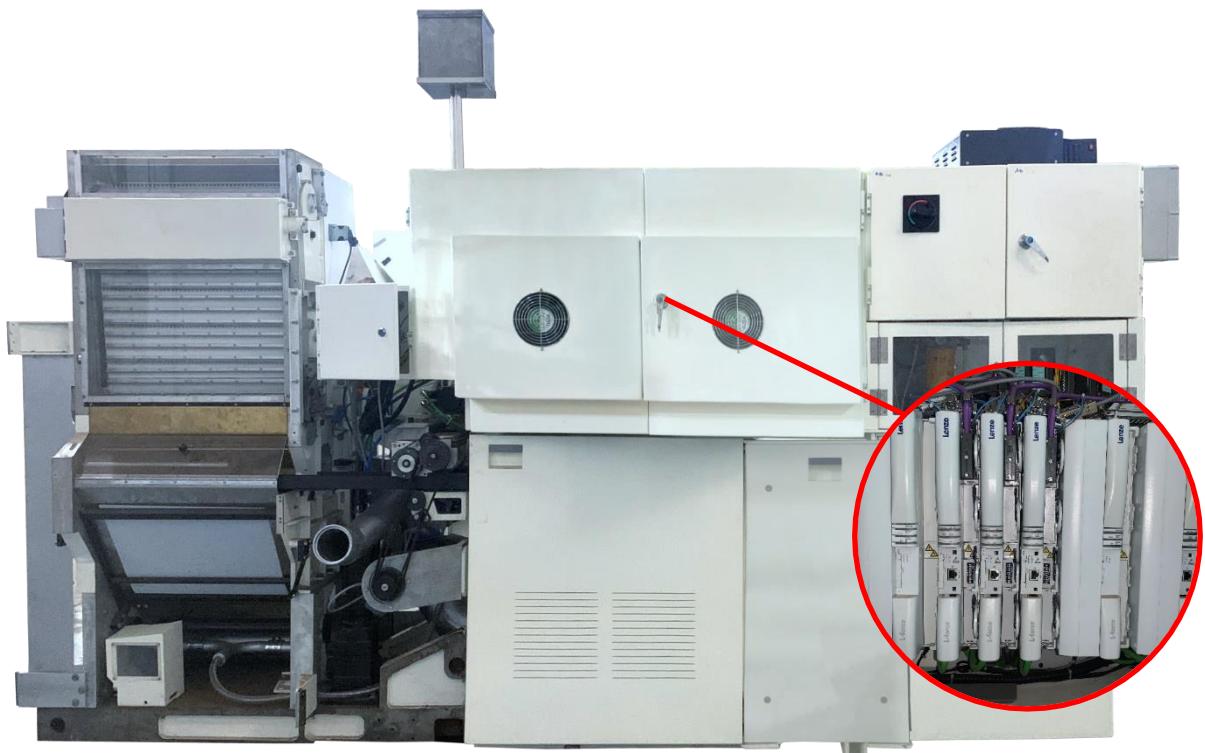


Figure 2.23 Lenze Servo Driver

16. Knife Empty Reset

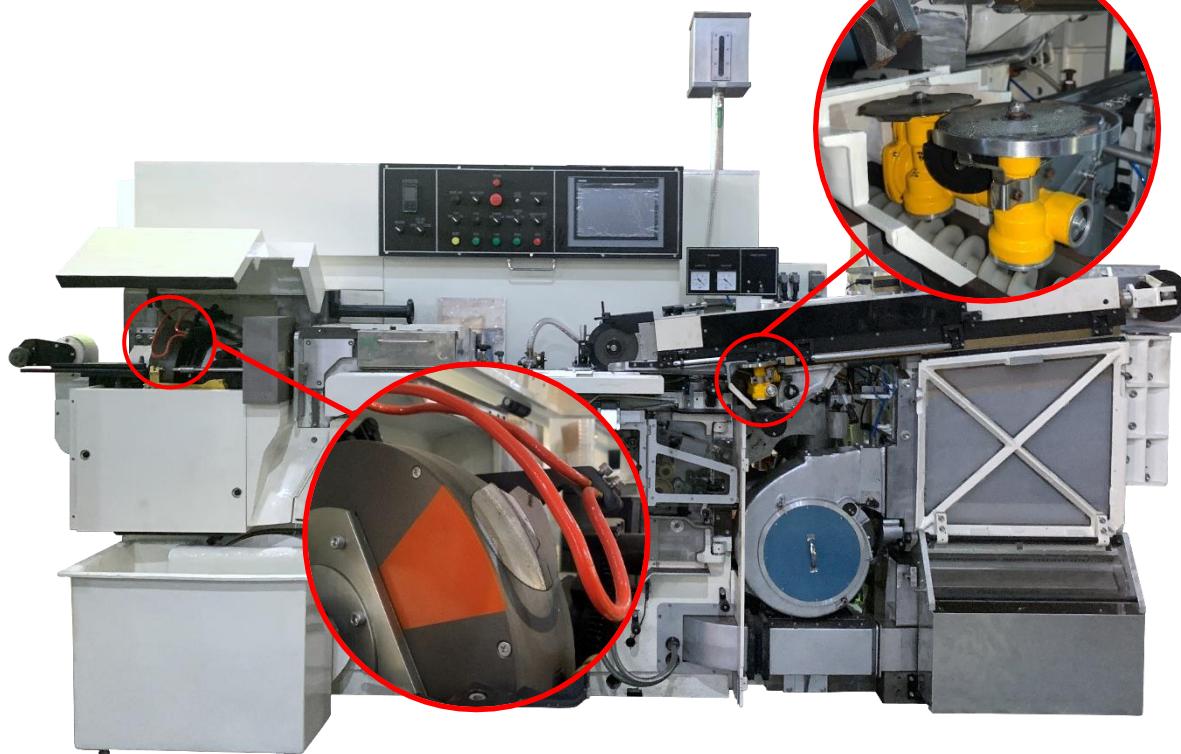


Figure 2.24 Cut Off & Ecrature

17. Main door open

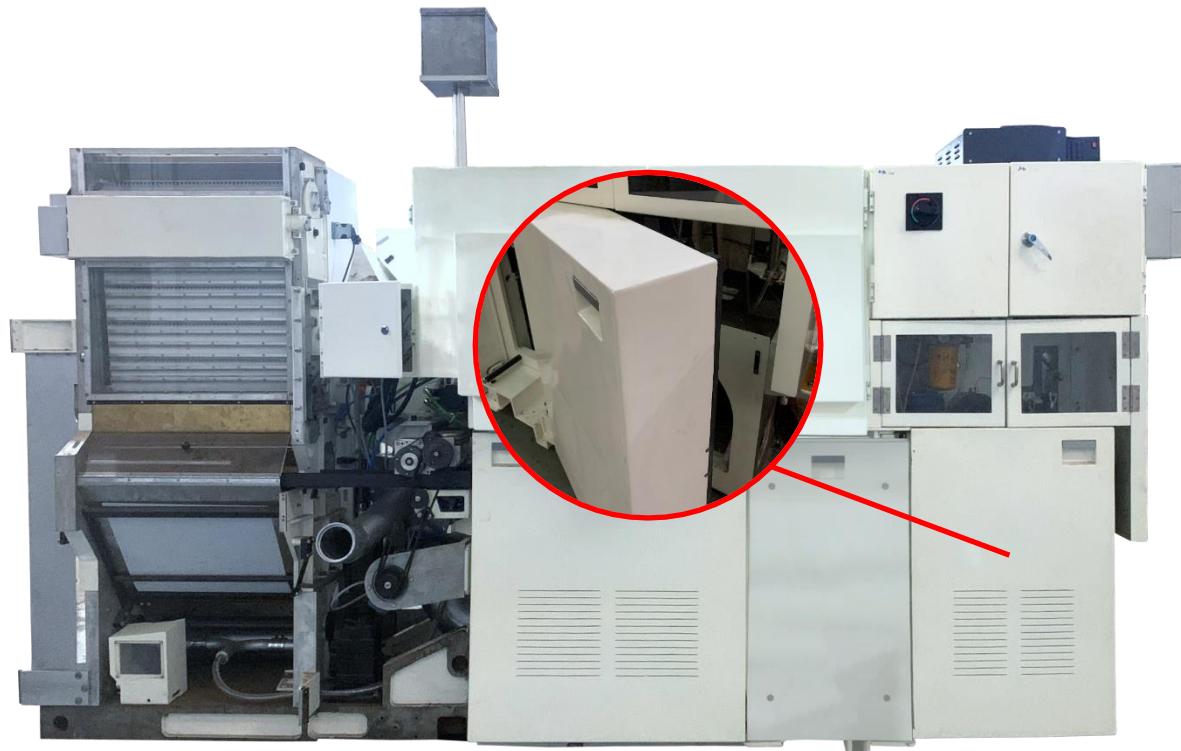


Figure 2.25 S-4000 Main Door

## 2. Information

By pressing the "information" button, the screen will switch to the information menu display. With easy navigation, users can see machine name information in more detail.



Figure 2.26 Tombol Menu Information

In addition to displaying the machine name in more detail, this information display still displays information that has previously been displayed (1.1 – 1.10).



Figure 2.27 Information Menu Display

Position Function	Description
INFORMATION	
2.1	Displays information in the form of the full name of the machine.
2.2	The button that serves to close the information menu again.

### 3. Speed Setting

By pressing the "speed" button, the screen will display the engine speed settings on the left side of the screen. With easy navigation, users can adjust the speed of the machine.



Figure 2.28 Speed Setting Button

The settings on the display provide overall control of the engine speed. Setting the engine speed can be done with the up or down button. These overall features are designed with the aim of providing the maximum level of flexibility, allowing users to customize the machine as per the user's specific needs and preferences.

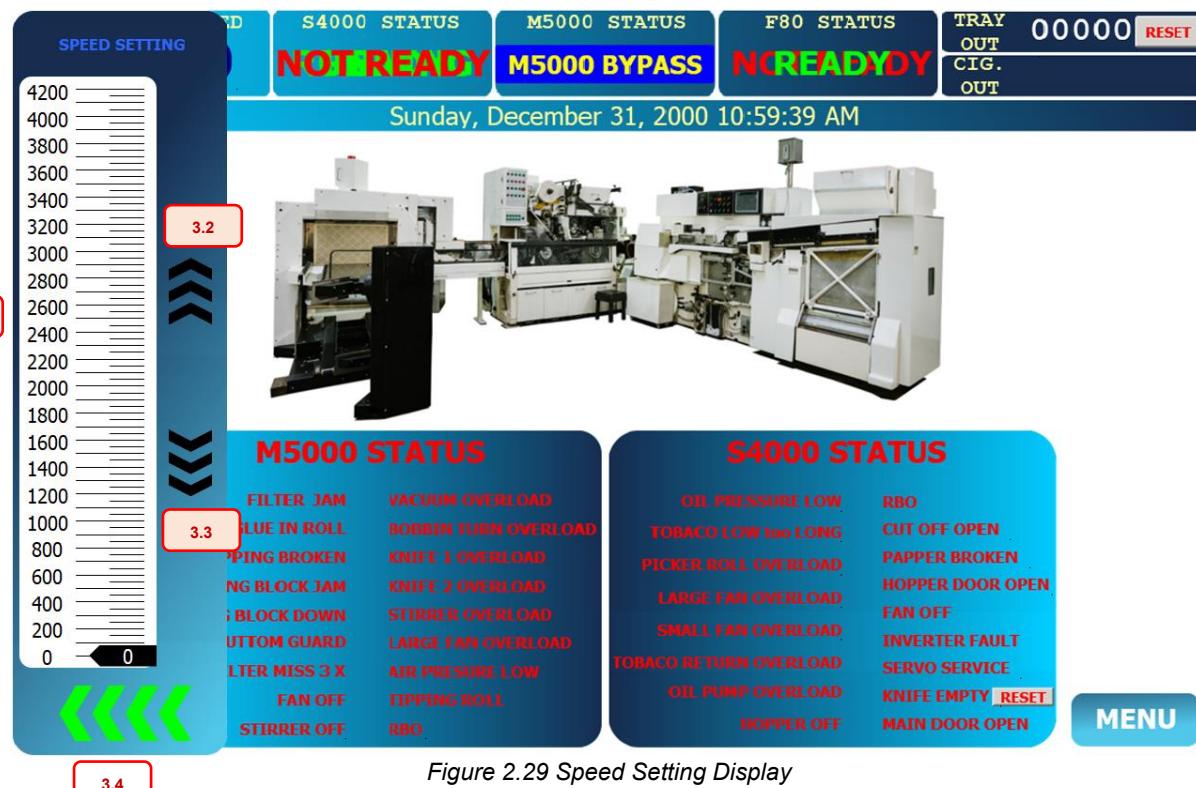


Figure 2.29 Speed Setting Display

Position Function	Description
SPEED SETTING	
3.1	Displays the actual speed of the machine.
3.2	A button that serves to increase engine speed. Every press of the button, the speed of the machine will increase by 100, and so on.
3.3	A button that serves to lower the engine speed. Every press of a button, the speed of the machine will drop by 100, and so on.
3.4	The button that serves to close the speed menu back.

#### 4. Menu

By pressing the "menu" button, the screen will bring up the menu display on the right side of the screen. With easy navigation, users can explore several available options within the menu.



Figure 2.30 Menu button

The menu on the layer presents a number of information about the machine, customizable features, giving the user control over various aspects of the machine. Some of these include configuration options S-4000 set, M-5000 set, festo S-4000, and temperature settings. These overall features are designed with the aim of providing the maximum level of flexibility, allowing users to customize the machine as per the user's specific needs and preferences.



Figure 2.31 Menu Display

Position Function	Description
MENU	
4.1	A button that serves to display machine information.
4.2	A button that serves to display I/O information.
4.3	A button that serves to display air pressure.
4.4	The button that serves to display the S-4000 settings.
4.5	A button that serves to display the M-5000 settings.
4.6	A button that serves to display weight settings.
4.7	A button that serves to close the settings menu.

#### 4.1 Machine Information

After pressing the "Machine Information" button, the screen will switch to an information display that displays detailed machine information.



Figure 2.32 Machine Information Display

This screen serves to display all information about the identity of this S4000 machine. The information is in the form of the date and time at that time, the full name of the machine, the specifications of the electrical system used, the language on the HMI, until the date the last system update was carried out.

## 4.2 I/O Information

After pressing the "I/O Information" button, the screen will switch to an information display displaying the inputs and outputs of each machine, on the "S-4000 Input" menu.

The display on this menu will directly display the S-4000 Input address.



Figure 2.33 I/O Information Display

Position Function	Description
MENU	
4.2.1	A button that serves to display input information on the S-4000 machine.
4.2.2	A button that serves to display output information on the S-4000 machine.
4.2.3	A button that serves to display input information on the M-5000 machine.
4.2.4	A button that serves to display output information on the M-5000 machine.
4.2.5	A button that serves to display input information on the F-80 machine.
4.2.6	A button that serves to display output information on the F-80 machine.

4.2.7	Displays the distance between the input and output addresses to be displayed.
4.2.8	Displays a detailed description of each input or output within a specified address range (4.2.7). If the description has no explanation (-), the address is not in use and is used as a spare.
4.2.9	Indicator of the input or output of the desired address. ● Red indicates that the address is inactive. ● Green indicates that the address is active. ● Gray indicates that the address is not in use or as a spare.

#### 4.2.1 Input S-4000

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
I0.0 -I0.7	I1.0 -I1.7	I2.0 -I2.7	I3.0 -I3.7		
I0.0 EMERGENCY I0.1 INVERTER FAULT I0.2 LADGER I0.3 AUTO FEEDING SENSOR I0.4 Pb RESET I0.5 FAN SWITCH I0.6 HOPPER ON SWITCH I0.7 HOPPER LLEVEL	I1.0 GLUE BUTTON I1.1 STOP BUTTON I1.2 JOG BUTTON I1.3 LOW SPEED BUTTON I1.4 HIGH SPEED BUTTON I1.5 AUTO SWITCH I1.6 KNIFE ADVANCE BUTTON I1.7 CAPSTAN SWITCH	I2.0 OVERLOAD 1 LARGE FAN I2.1 OVERLOAD 2 SMALL FAN I2.2 OVERLOAD 3 PIC ROLL I2.3 OVERLOAD 4 T RETURN I2.4 OVERLOAD 5 OIL PUMP I2.5 OVERLOAD 6 OIL COOLER I2.6 BOBBIN 10% I2.7 BOBBIN SPLICING	I3.0 CUT OFF GUARD I3.1 MAIN MOTOR GUARD I3.2 HOPPER DOOR I3.3 - I3.4 BOBBIN SMALL I3.5 HEATER DOWN I3.6 OIL PRESSURE I3.7 LOOP TO M5000		
I124.0 - I124.7	I125.0 - I125.7				
I124.0 - I124.1 - I124.2 SPLISING SENSOR I124.3 ROD SENSOR I124.4 PAPPER DET I124.5 - I124.6 INK EMPTY I124.7 -	I125.0 SERVO SERVISE I125.1 CUT OFF SWITCH I125.2 DRAIN I125.3 SUCTION BAND SWITCH I125.4 CLAMP OPEN I125.5 PHULSE RETURN I125.6 HEATER SWITCH I125.7 HOPPER RES EMPTY				

Figure 2.34 S-4000 Input List

This picture displays a list of PLC inputs from the S-4000 engine. In the input section, we can see various types of sensors, buttons and other input devices connected to the machine's PLC, ranging from I0.0 to I125.7 addresses. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

#### 4.2.2 S-4000 output

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
Q0.0 - Q0.7		Q1.0 - Q1.7		Q6.0 - Q6.7	
Q0.0 F HOPPER PLATE	●	Q1.0 CUT OFF CLOSE	●	Q6.0 L FAN	●
Q0.1 F SUCTION BAND	●	Q1.1 CUT OFF OPEN	●	Q6.1 FOR EJECT DRUM	●
Q0.2 F GLUE	●	Q1.2 GANITURE	●	Q6.2 SPIDER OIL SOL	●
Q0.3 F KNIFE ADVANCE	●	Q1.3 MW(2)	●	Q6.3 S_FAN	●
Q0.4 MW(1)	●	Q1.4 HOPPER PLATE	●	Q6.4 HOPPER PIC ROLL	●
Q0.5 HEATER DOWN SOL.	●	Q1.5 GLUE UP	●	Q6.5 MACHINE RUN	●
Q0.6 HEATER UP 1&2	●	Q1.6 GLUE DOWN	●	Q6.6 BRAKE	●
Q0.7 SHORT EJECT	●	Q1.7 GLUE GUN	●	Q6.7 ROD MONITOR	●
Q8.0 - Q8.7		Q9.0 - Q9.7		Q7.0 - Q7.7	
Q8.0 KNIFE ADV	●	Q9.0 HEATER 1	●	Q7.0 SPLICE SOL	●
Q8.1 MW ON	●	Q9.1 HEATER 2	●	Q7.1 BOBBIN ON	●
Q8.2 ROD FEED	●	Q9.2 -	●	Q7.2 ROD FEED	●
Q8.3 TOBACCO RETURN	●	Q9.3 -	●	Q7.3 ELEVATOR	●
Q8.4 -	●	Q9.4 -	●	Q7.4 SHORT EJECT	●
Q8.5 GLUE PUMP	●	Q9.5 -	●	Q7.5 AUTO FEEDING	●
Q8.6 Tag_96	●	Q9.6 Tag_52	●	Q7.6 ECRETURE UP	●
Q8.7 -	●	Q9.7 -	●	Q7.7 ECRETURE DOWN	●

Figure 2.35 S-4000 Output List

This figure displays a list of PLC outputs from the S-4000 engine. In the output section, we can see various types of actuators and other output devices connected from the PLC machine, ranging from the address Q0.0 to Q9.7. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

#### 4.2.3 Input M5000

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
I0.0 - I0.7		I1.0 - I1.7		I2.0 - I2.7	
I0.0 FAN OVERLOAD	●	I1.0 D6 BUTTON	●	I2.0 ROD MONITOR	●
I0.1 D1 BUTTON	●	I1.1 D7 BUTTON	●	I2.1 OVERLOAD STIRRER	●
I0.2 D2 BUTTON	●	I1.2 D8 BUTTON	●	I2.2 START ORDER	●
I0.3 D3 BUTTON	●	I1.3 EJECT DRUM	●	I2.3 STOP BUTTON	●
I0.4 D4 BUTTON	●	I1.4 BOBBIN TURN BUTTON	●	I2.4 START BUTTON	●
I0.5 VACUUM OVERLOAD	●	I1.5 AUTO EJECT SWITCH	●	I2.5 FAN STOP BUTTON	●
I0.6 SPLICING BUTTON	●	I1.6 MANUAL EJECT SWITCH	●	I2.6 FAN START BUTTON	●
I0.7 DS BUTTON	●	I1.7 GLUE	●	I2.7 STIRRER STOP BUTTON	●
I4.0 - I4.7		I5.0 - I5.7		I6.0 - I6.7	
I4.0 BOBBIN TURN OFF	●	I5.0 -	●	I6.0 Tag_14	●
I4.1 FILTER CHECK	●	I5.1 FILTER JAM	●	I6.1 -	●
I4.2 TIPPING MATERIAL	●	I5.2 KNIFE1 OVERLOAD	●	I6.2 -	●
I4.3 BOTTOM GUARD	●	I5.3 D9 BUTTON	●	I6.3 -	●
I4.4 KNIFE 3 OVERLOAD	●	I5.4 KNIFE2 OVERLOAD	●	I6.4 -	●
I4.5 LOOP	●	I5.5 -	●	I6.5 -	●
I4.6 D10 BUTTON	●	I5.6 -	●	I6.6 GLUE SENSOR	●
I4.7 ROOL PRESS	●	I5.7 -	●	I6.7 ROD SENSOR(1)	●
I7.0 - I7.7					
I7.1 Tag_1	●			I7.1 Tag_1	●
I124.5 2 PULSE	●			I124.5 2 PULSE	●
I124.7 A	●			I124.7 A	●
I125.1 PULSE SENSOR	●			I125.1 PULSE SENSOR	●

Figure 2.36 M5000 Input List

This picture displays a list of PLC inputs from the M-5000 machine. In the input section, we can see various types of sensors, buttons and other input devices connected to the machine's PLC, ranging from I0.0 to I125.1 addresses. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

#### 4.2.4 Output M5000

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
Q6.0 - Q6.7	Q7.0 - Q7.7		Q8.0 - Q8.7		Q9.0 - Q9.7
Q6.0 DRUM 1	Q7.0 OVERLOAD		Q8.0 ROLLING BLOCK		Q9.0 C4
Q6.1 DRUM 2	Q7.1 -		Q8.1 -		Q9.1 C1 FAN
Q6.2 DRUM 3	Q7.2 SPLICING		Q8.2 -		Q9.2 DRUM 9
Q6.3 DRUM 4	Q7.3 -		Q8.3 WREPPING		Q9.3 DRUM10
Q6.4 DRUM 5	Q7.4 FILTER TRANSPORT		Q8.4 TIPPING BREAK		Q9.4 KNIFE ADV(1)
Q6.5 DRUM 6	Q7.5 GLUING		Q8.5 C6 KNIFE		Q9.5 TIPPING QCC
Q6.6 DRUM 7	Q7.6 TIPPING		Q8.6 C3 STIRRER		Q9.6 DRUM EJECT
Q6.7 DRUM 8	Q7.7 SAFETY LOG		Q8.7 C2		Q9.7 READY
Q124.0 - Q124.2					
Q124.0 INSPECTION EJECT					
Q124.1 CORCK CLEAN					
Q124.2 FILTER SHARNING					

Figure 2.37 M5000 Output List

This picture shows a list of PLC outputs of the M-5000 engine. In the output section, we can see various types of actuators and other output devices connected from the PLC machine, ranging from the address Q0.0 to Q124.2. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

#### 4.2.5 Input F-80

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
I0.0 - I0.7	I1.0 - I1.7		I2.0 - I2.7		I3.0 - I3.7
I0.0 OVERLOAD	I1.0 CONVULL		I2.0 -		I3.0 OUT SRART (b57)
I0.1 START BUTTON	I1.1 MANUAL_DOWN		I2.1 LOW LEVEL		I3.1 CHANG TREY (b58)
I0.2 STOP BUTTON	I1.2 SENSOR CON CLKH		I2.2 HIGH LEVEL		I3.2 SLOW FOR STOP(b59)
I0.3 MANUAL AUTO	I1.3 SENSOR CON HIGH		I2.3 -		I3.3 TREY ON POSITION(b60)
I0.4 RESET BUTTON	I1.4 SENSOR CON LOW		I2.4 -		I3.4 PATEN START (b61)
I0.5 MANUAL RUN	I1.5 FMG PUSH		I2.5 HOPPER FULL		I3.5 TAG_24
I0.6 FORWARD BUTTON	I1.6 EMG 1		I2.6 SPEED STOP		I3.6 -
I0.7 REVERS BUTTON	I1.7 -		I2.7 OUTSTOP (b56)		I3.7 -
I4.0 - I4.7	I5.0 - I5.4				
I4.0 TRAY_EMPTY	I5.0 T FEED FULL				
I4.1 LIF_STOP	I5.1 -				
I4.2 T OUT SENSOR	I5.2 -				
I4.3 R TREY DET	I5.3 TAG_63				
I4.4 L TREY DET	I5.4 TAG_66				
I4.5 LIF_L START	I5.5 -				
I4.6 LIF_R START	I5.6 -				
I4.7 T FEED STOP	I5.7 -				

Figure 2.38 F-80 Input List

This figure shows a list of PLC inputs from the F-80 machine. In the input section, we can see various types of sensors, buttons and other input devices connected to the PLC machine, ranging from I0.0 to I5.7 addresses. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

#### 4.2.6 Output F-80

INPUT S4000	OUTPUT S4000	INPUT M5000	OUTPUT M5000	INPUT F80	OUTPUT F80
Q3.0 - Q3.7		Q6.0 - Q6.7		Q7.0 - Q7.7	
Q3.0 -	●	Q6.0 SOL	●	Q7.0 -	●
Q3.1 -	●	Q6.1 CONV OUT	●	Q7.1 OUT LIF	●
Q3.2 -	●	Q6.2 TREY FEED F	●	Q7.2 -	●
Q3.3 -	●	Q6.3 TREY FEED R	●	Q7.3 -	●
Q3.4 -	●	Q6.4 PATEN	●	Q7.4 -	●
Q3.5 -	●	Q6.5 -	●	Q7.5 -	●
Q3.6 -	●	Q6.6 -	●	Q7.6 -	●
Q3.7 TAG_53	●	Q6.7 LINK-MAX_TRAY OUT	●	Q7.7 -	●
Q9.0 - Q9.7				Q8.0 - Q8.7	
Q9.0 CONV FASH	●			Q8.0 ALARM	●
Q9.1 CONV FEED H	●			Q8.1 TAG_23	●
Q9.2 FEED CLAH	●			Q8.2 GUARD SOL	●
Q9.3 LOOP	●			Q8.3 STOPER	●
Q9.4 CLUTH_BREACK UP	●			Q8.4 DOWN SPARE	●
Q9.5 -	●			Q8.5 DOWN_RELAY2	●
Q9.6 -	●			Q8.6 DOWN	●
Q9.7 -	●			Q8.7 DOWN FASH	●

Figure 2.39 F-80 Output List

This picture shows a list of PLC outputs of the M-5000 engine. In the output section, we can see various types of actuators and other output devices connected from the PLC machine, ranging from the address Q0.0 to Q124.2. Each of these inputs plays an important role in monitoring the operational condition of the machine and the surrounding environment, providing real-time data to the PLC for processing.

**I/O List****S-4000**

I/O S-4000			
Input		Output	
<b>I0.0-I0.7</b>		<b>Q0.1-0.7</b>	
I0.0	Emergency	Q0.0	F Hopper Plate
I0.1	Inverter Fault	Q0.1	F suction Band
I0.2	Lagder	Q0.2	F Glue
I0.3	Auto Feeding Sensor	Q0.3	F Knife Advance
I0.4	Pb Reset	Q0.4	MW (1)
I0.5	Fan Switch	Q0.5	Heater Down Sol
I0.6	Hopper On Switch	Q0.6	Heater Up 1&2
I0.7	Hopper Lavel	Q0.7	Short Eject
<b>I1.0-I1.7</b>		<b>Q1.0-Q1.7</b>	
I1.0	Glue Button	Q1.0	Cut Off Close
I1.1	Stop Button	Q1.1	Cut Off Open
I1.2	Jog Button	Q1.2	Garnish
I1.3	Low Speed Button	Q1.3	MW (2)
I1.4	High Speed Button	Q1.4	Hopper Plate
I1.5	Auto Speed Button	Q1.5	Glue Up
I1.6	Knife Advance Button	Q1.6	Glue Down
I1.7	Capstan Switch	Q1.7	Glue Gun
<b>I2.0-I2.7</b>		<b>Q6.0-Q6.7</b>	
I2.0	Overload 1 Large Fan	Q6.0	L Fan
I2.1	Overload 2 Small Fan	Q6.1	For Eject Drum
I2.2	Overload 3 Pic Fan	Q6.2	Spider Oil Sol
I2.3	Overload 4 T Return	Q6.3	S Fan
I2.4	Overload 45 Oil Pump	Q6.4	Hopper Pic Roll
I2.5	Overload 6 Oil Cooler	Q6.5	Machine Run
I2.6	Bobbin 10%	Q6.6	Brake
I2.7	Bobbin Splicing	Q6.7	Rod Monitor
<b>I3.0-I3.7</b>		<b>Q7.0-Q7.7</b>	
I3.0	Cut Off Guard	Q7.0	Splice Floor
I3.1	Main Motor Guard	Q7.1	Bobbin On
I3.2	Hopper Door	Q7.2	Rod Feed
I3.3	-	Q7.3	Elevator
I3.4	Bobbin Small	Q7.4	Short Eject
I3.5	Heater Down	Q7.5	Auto Feeding
I3.6	Oil Pressure	Q7.6	Slice Up
I3.7	Loop To M5000	Q7.7	Acresure Down
<b>I124.0-I124.7</b>		<b>Q8.0-Q8.7</b>	
I124.0	-	Q8.0	Knife Adv
I124.1	-	Q8.1	MW On



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I124.2	Splicing Sensor	Q8.2	Rod Feed
I124.3	Rod Sensor	Q8.3	Tobacco Return
I124.4	Paper It	Q8.4	-
I124.5	-	Q8.5	Glue Pump
I124.6	Ink Empty	Q8.6	Tag_96
I124.7	-	Q8.7	-
<b>I125.0-I125.7</b>		<b>Q9.0-Q9.7</b>	
I125.0	Servo Service	Q9.0	Heater 1
I125.1	Cut Off Switch	Q9.1	Heater 2
I125.2	Drain	Q9.2	-
I125.3	Suction Band Switch	Q9.3	-
I125.4	Clamp Open	Q9.4	-
I125.5	Pulse Return	Q9.5	-
I125.6	Heater Switch	Q9.6	Tag_52
I125.7	Hopper Res Empty	Q9.7	-

## M-5000

I/O M-5000			
Input		Output	
I0.0-I0.7		Q6.0-Q6.7	
I0.0	Fan Overload	Q6.0	Drum 1
I0.1	D1 Button	Q6.1	Drum 2
I0.2	D2 Button	Q6.2	Drum 3
I0.3	D3 Button	Q6.3	Drum 4
I0.4	D4 Button	Q6.4	Drum 5
I0.5	Vacuum Overload	Q6.5	Drum 6
I0.6	Splicing Button	Q6.6	Drum 7
I0.7	D5 Button	Q6.7	Drum 8
I1.0-I1.7		Q7.0-Q7.7	
I1.0	D6 Button	Q7.0	Overload
I1.1	D7 Button	Q7.1	-
I1.2	D8 Button	Q7.2	Splicing
I1.3	Eject Drum	Q7.3	-
I1.4	Bobbin Turn Button	Q7.4	Filter Transport
I1.5	Auto Eject Switch	Q7.5	Glueing
I1.6	Manual Eject Switch	Q7.6	Tipping
I1.7	Glue	Q7.7	Safety Log
I2.0-I2.7		Q8.0-Q8.7	
I2.0	Rod Monitor	Q8.0	Rolling Block
I2.1	Overload Staring	Q8.1	-
I2.2	Start Order	Q8.2	-
I2.3	Stop Button	Q8.3	Wrapping
I2.4	Start Button	Q8.4	Tipping Break
I2.5	Fan Stop Button	Q8.5	C6 Knife

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I2.6	Fan Start Button	Q8.6	C3 Stirrer
I2.7	Stirrer Stop Button	Q8.7	C2
<b>I3.0-I3.7</b>		<b>Q9.0-Q9.7</b>	
I3.0	Stirrer Start Button	Q9.0	C4
I3.1	Rolling Jam	Q9.1	C1 Fan
I3.2	Bobbin Clamp Button	Q9.2	Drum 9
I3.3	Bobbin Turn Overload	Q9.3	Drum 10
I3.4	Rolling Block Switch	Q9.4	Knife Adv (1)
I3.5	Knife Stop Button	Q9.5	Tipping QCC
I3.6	Knife Start Button	Q9.6	Drum Eject
I3.7	Auto Switch	Q9.7	Ready
<b>I4.0-I4.7</b>		<b>Q124.0-Q124.2</b>	
I4.0	Bobbin Turn Off	Q124.0	Inspection Eject
I4.1	Filter Check	Q124.1	Cork Clean
I4.2	Tipping Material	Q124.2	Filter Sharing
I4.3	Button Guard		
I4.4	Knife 3 Overload		
I4.5	Loop		
I4.6	D10 Button		
I4.7	Roll Press		
<b>I5.0-I5.7</b>			
I5.0	-		
I5.1	Filter Jam		
I5.2	Knife 1 Overload		
I5.3	D9 Button		
I5.4	Knife 2 Overload		
I5.5	-		
I5.6	-		
I5.7	-		
<b>I6.0-I6.7</b>			
I6.0	Tag_14		
I6.1	-		
I6.2	-		
I6.3	-		
I6.4	-		
I6.5	-		
I6.6	Glue Sensor		
I6.7	Rod Sensor (1)		
<b>I7.0-I7.7</b>			
I7.1	Tag_1		
I124.5	2 Pulse		
I124.7	A		
I125.1	Pulse Sensor		

**F-80**

I/O F-80			
Input		Output	
I0.0-I0.7		Q3.0-Q3.7	
I0.0	Overload	Q3.0	-
I0.1	Start Button	Q3.1	-
I0.2	Stop Button	Q3.2	-
I0.3	Manual Auto	Q3.3	-
I0.4	Reset Button	Q3.4	-
I0.5	Manual Run	Q3.5	-
I0.6	Forward Button	Q3.6	-
I0.7	Revers Button	Q3.7	Tag_53
I1.0-I1.7		Q6.0-Q6.7	
I1.0	Conv Full	Q6.0	Sun
I1.1	Manual Down	Q6.1	Conv Out
I1.2	Sensor with clkh	Q6.2	Trey Feed F
I1.3	Sensor Con High	Q6.3	Trey Feed R
I1.4	Sensor with Low	Q6.4	Pattern
I1.5	EMG Push	Q6.5	-
I1.6	EMG 1	Q6.6	-
I1.7	-	Q6.7	Link-Max Tray Out
I2.0-I2.7		Q7.0-Q7.7	
I2.0	-	Q7.0	-
I2.1	Low Lavel	Q7.1	Out Lif
I2.2	High Level	Q7.2	-
I2.3	-	Q7.3	-
I2.4	-	Q7.4	-
I2.5	Hopper Full	Q7.5	-
I2.6	Speed Stop	Q7.6	-
I2.7	Outstop (b56)	Q7.7	-
I3.0-I3.7		Q8.0-Q8.7	
I3.0	Out Start (b57)	Q8.0	Alarm
I3.1	Chang Trey (b58)	Q8.1	Tag_23
I3.2	Slow For Stop (b59)	Q8.2	Guard Sol
I3.3	Trey On Position (b60)	Q8.3	Stopper
I3.4	Paten Start (b61)	Q8.4	Down Spare
I3.5	Tag_24	Q8.5	Down_Relay2
I3.6	-	Q8.6	Down
I3.7	-	Q8.7	Down Fash
I4.0-I4.7		Q9.0-Q9.7	
I4.0	Tray Empty	Q9.0	Conv Fash
I4.1	Lif Stop	Q9.1	Conv Feed H
I4.2	T Out Sensor	Q9.2	Feed Clah



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I4.3	R Trey It	Q9.3	Loop
I4.4	L Trey Det	Q9.4	Clutch Break Up
I4.5	Lif L Start	Q9.5	-
I4.6	Lif R Start	Q9.6	-
I4.7	T Feed Stop	Q9.7	-
<b>I5.0-I5.7</b>			
I5.0	T Feed Full		
I5.1	-		
I5.2	-		
I5.3	Tag_63		
I5.4	Tag_66		
I5.5	-		
I5.6	-		
I5.7	-		

### 4.3 Air Pressure Test

After pressing the "Air Pressure Test" button, the screen will switch to a button display that functions to perform tests on compressed air on each machine in certain parts.

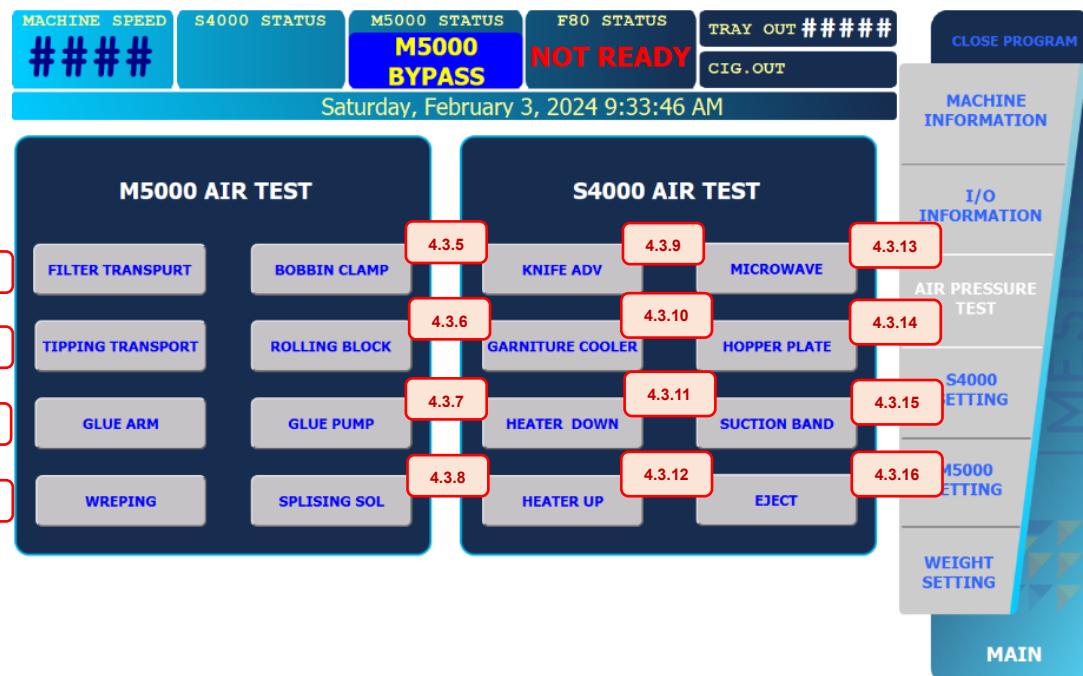


Figure 2.40 Air Pressure Test Display

Position Function	Description
M-5000 AIR TEST	
4.3.1	A button that serves to test the running of the filter.
4.3.2	A button that serves to perform a test of the course of the tipping paper.
4.3.3	A button that serves to perform a flame test on the glue arm.
4.3.4	A button that serves to perform a flame test on wreping.
4.3.5	The button that serves to perform a flame test on the bobbin clamp actuator. The bobbin clamp actuator will allow the operator to install or remove the bobbin.
4.3.6	A button that serves to perform a flame test on the rolling block actuator.
4.3.7	A button that serves to perform a flame test on the glue pump.
4.3.8	A button that serves to perform a flame test on the splicing sole.

S-4000 AIR TEST	
4.3.9	The button that serves to perform a flame test on the knife adv thruster.
4.3.10	A button that serves to perform a flame test on the garniture cooler.
4.3.11	The button that serves to perform the test lowers the heater.
4.3.12	The button that serves to perform the test raises the heater.
4.3.13	A button that serves to perform a wind flame test on the microwave.
4.3.14	A button that serves to perform a flame test on the hopper plate.
4.3.15	A button that serves to perform a suction flame test on the tape.
4.3.16	The button that serves to do the production test.

#### 4.4 S-4000 Setting

After pressing the "S-4000 SETTING" button, the screen will switch to the display of the S-4000 engine parameter settings. There are 3 parts of the setting, namely speed regulation, hopper setting and bobbin setting.

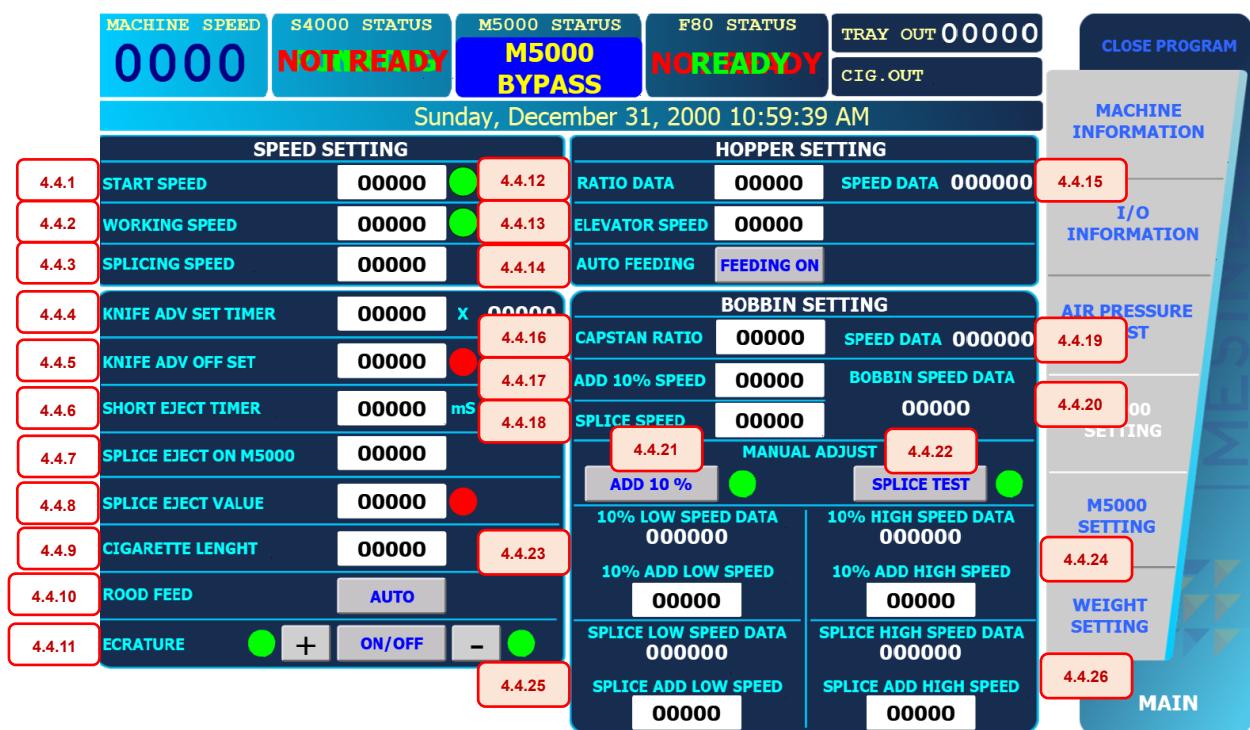


Figure 2.41 Display S-4000 Settings

Position Function	Description
SPEED SETTING	
4.4.1	Setting the engine speed at the time of the inch button and the engine speed when the engine starts working. This condition occurs when the cover cut off has been closed.
4.4.2	Speed regulation when the engine is running normally.
4.4.3	Machine settings at the time of paper splicing. When the diameter of the paper has reached the specified limit, then from the maximum speed position, the speed will decrease according to the predetermined number.
4.4.4	Setting the time value when the cutoff knife is sharpening. The time will start counting when the "Knife ADV" button on the panel is pressed.
4.4.5	Cutoff knife positioning. This value will be a benchmark, when the actual value of the cutoff knife does not match, there will be an indicator that states it.
4.4.6	The timing for the machine can throw away cigarettes when the new machine is running.
4.4.7	Setting the value that is used as a benchmark on the machine to reject after a splice bobbin occurs and is discarded when in the M-5000 engine.
4.4.8	Setting the value of the number of cigarettes to be discarded after a bobbin splice occurs in the section.
4.4.9	Setting the value of the length of cigarettes to be produced. This value will affect the cutting of the adv knife. and tap the drum so as to produce the appropriate length of cigarette sticks.
4.4.10	A button that functions to change the rood feed mode to auto or manual.
4.4.11	(+ ) Button to increase the ecreture position.
	(ON/OFF) Button to turn ecreture rotation on or off.
	(-) Button to lower the ecreture position.
HOPPER SETTING	
4.4.12	Setting the speed data ratio value of the hopper motor.

4.4.13	Regulation of the elevator motor speed of the hopper machine at the time of tobacco filling.
4.4.14	Button to turn on auto feeding on hopper machine.
4.4.15	Displays the actual motor speed data of hopper machine.
<b>BOBBIN SETTING</b>	
4.4.16	Data ratio setting that will affect bobbin speed when the machine is running normally.
4.4.17	The bobbin speed setting is used as a speed benchmark to increase the bobbin speed by 10%. This is intended so that the paper becomes piled up so that when splicing occurs, the bobbin can stop for a while and the paper remains available.
4.4.18	Setting the bobbin speed when doing bobbin splice.
4.4.19	Displays actual data of the speed of the working machine.
4.4.20	Displays the actual data of bobbin motor speed.
4.4.21	A button that serves to add 10% of the speed of the S-4000 bobbin motor manually.
4.4.22	A button that serves to do bobbin splice manually.
4.4.23	Setting the bobbin speed when the machine increases the speed of the bobbin by 10% when the paper starts to shrink. This value is used when the engine is in low speed condition.
4.4.24	Setting the bobbin speed when the machine increases the speed of the bobbin by 10% when the paper starts to shrink. This value is used when the engine is in high speed condition.
4.4.25	Bobbin speed regulation when the machine performs bobbin splice. This value is used when the engine is in low speed condition.
4.4.26	Bobbin speed regulation when the machine performs bobbin splice. This value is used when the engine is in high speed condition.

## 4.5 M-5000 Setting

After pressing the "M-5000 SETTING" button, the screen will switch to the display of the M-5000 engine parameter settings. There are 3 parts of settings, namely synchronization settings, bobbin settings and inspection settings.

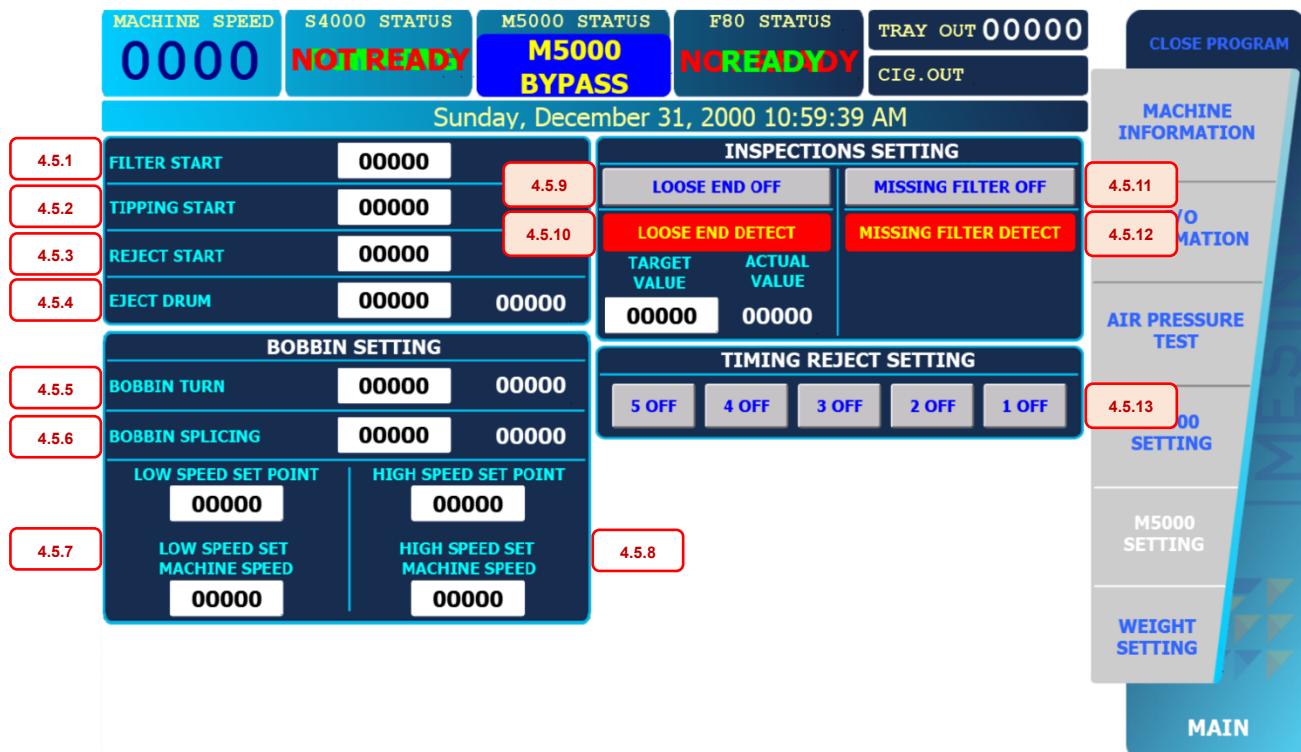


Figure 2.42 Display M-5000 Settings

Position Function	Description
M-5000 SETTING	
4.5.1	The timing is used as a benchmark on the machine to start lowering the filter. The comparison value will begin to calculate as the sensor on the link up has detected that the tobacco stem has entered.
4.5.2	The timing is used as a benchmark on the machine to start running the tipping paper. The comparison value will begin to calculate as the sensor on the link up has detected that the tobacco stem has entered.
4.5.3	Setting the value in the form of counting is used as a benchmark on the machine to reject the drum after combining tobacco and filters on the M-5000 machine.
4.5.4	Setting the value of the number of cigarettes to be discarded the first time the machine combines tobacco and filters on the M-5000 machine.

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BOBBING SETTING	
4.5.5	<p>Displays a number that shows the reference value of bobbin speed to perform bobbin turn on the M-5000 engine. This value will adjust to the set speed.</p> <p>Displays numbers showing the actual bobbin speed on the M-5000 engine in real time.</p>
4.5.6	<p>Displays a number that shows the reference value of the small bobbin speed to perform bobbin splicing on the maker machine. This value will adjust to the set engine speed.</p> <p>Displays a number showing the actual speed of the small bobbin in real time.</p>
4.5.7	<p>Setting the value of "LOW X" which will be used as one of the calculation values to get the bobbin speed value to do bobbin turn or bobbin splicing.</p> <p>Setting the value of "LOW Y" which will be used as one of the calculation values to get the bobbin speed value to do bobbin turn or bobbin splicing.</p>
4.5.8	<p>Setting the value of "HIGH X" which will be used as one of the calculation values to get the bobbin speed value to do bobbin turn or bobbin splicing.</p> <p>Setting the value of "HIGH Y" which will be used as one of the calculation values to get the bobbin speed value to do bobbin turn or bobbin splicing.</p>
4.5.9	A button that functions to turn on or off the inspection on cigarettes with an empty end / loose end.
4.5.10	<p>Indicator when the sensor detects a loose end cigarette.</p> <p>The number of cigarettes to be thrown away.</p>
INSPECTIONS SETTING	
4.5.11	A button that serves to turn on or off the missing filter.
4.5.12	Indicator when the sensor detects a cigarette that has a missing filter.
TIMING REJECT SETTING	



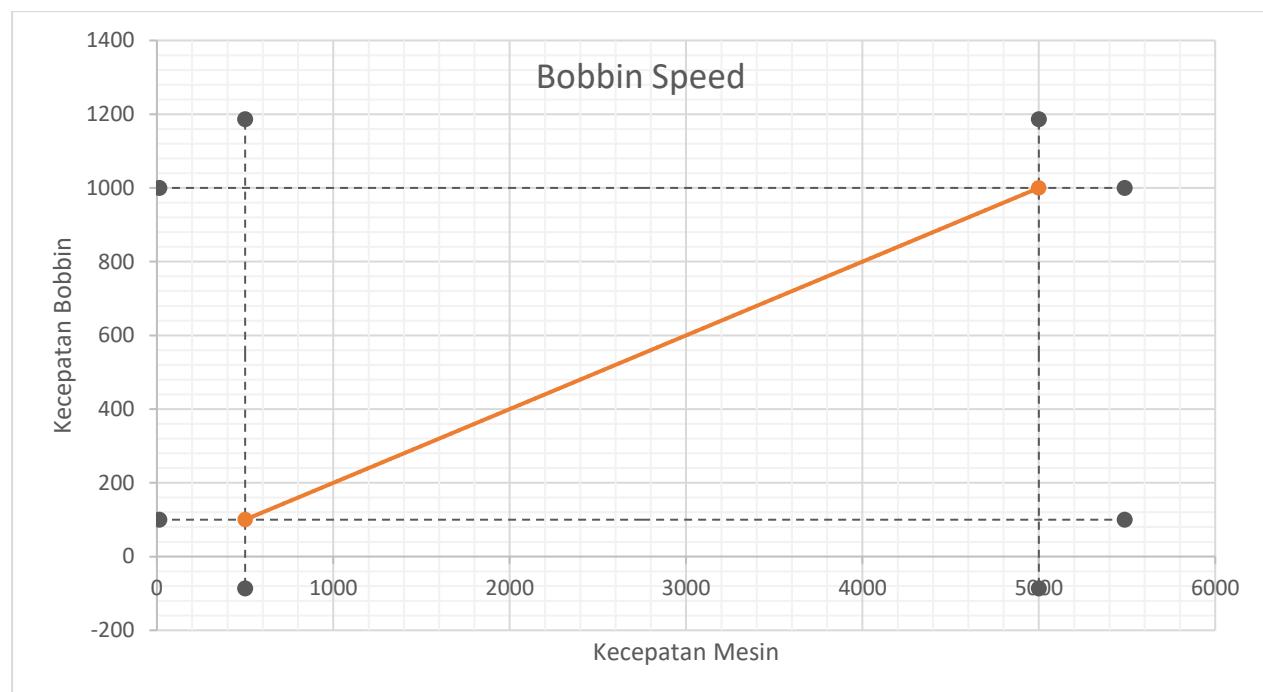
4.5.13

Setting the calculation of the time needed to dispose of the reject cigarette that has a "Loose End and Missing Filter". When the reject product is detected, the program will calculate the pulse according to the settings, after arriving at the timing calculation the reject product will be wasted.

To get the LOW and HIGH values, a search for the corresponding value is performed first. It is said to be appropriate if the LOW or HIGH value matches the desired bobbin diameter both when the machine performs a "bobbin turn", or "bobbin splicing".

This equation can be described as follows:

$$\frac{\text{bobbin speed} - \text{LOW Y}}{\text{HIGH Y} - \text{LOW Y}} = \frac{\text{machine speed} - \text{LOW X}}{\text{HIGH X} - \text{LOW X}}$$



Exm : LOW X = 500 (Usually this value is already set in the program)

HIGH X = 5000 (Usually this value is already set in the program)

LOW Y = 100 (This value is obtained from the results trial run)

HIGH Y = 1000 (This value is obtained from the results trial run)

Engine District = 4000 (This value is the speed of the machine when working normally)

$$\frac{\text{bobbin speed} - 100}{1000 - 100} = \frac{4000 - 500}{5000 - 500}$$

$$\frac{\text{bobbin speed} - 100}{900} = \frac{3500}{4500}$$

$$\text{Kec. Bobbin} - 100 = \frac{3500 \cdot 900}{4500}$$

$$\text{Kec. Bobbin} = 700 + 100$$

$$\text{Kec. Bobbin} = 800$$

\*Bobbin Rate for turn/splicing is 800 at 4000 cpm engine speed. Bobbin turns and splicing will be different when working for real.

## 4.6 Weight Setting

After pressing the "WEIGHT SETTING" button, the screen will switch to the weight setting display under "weight control". There are several settings that can affect the size of the cigarette weight.

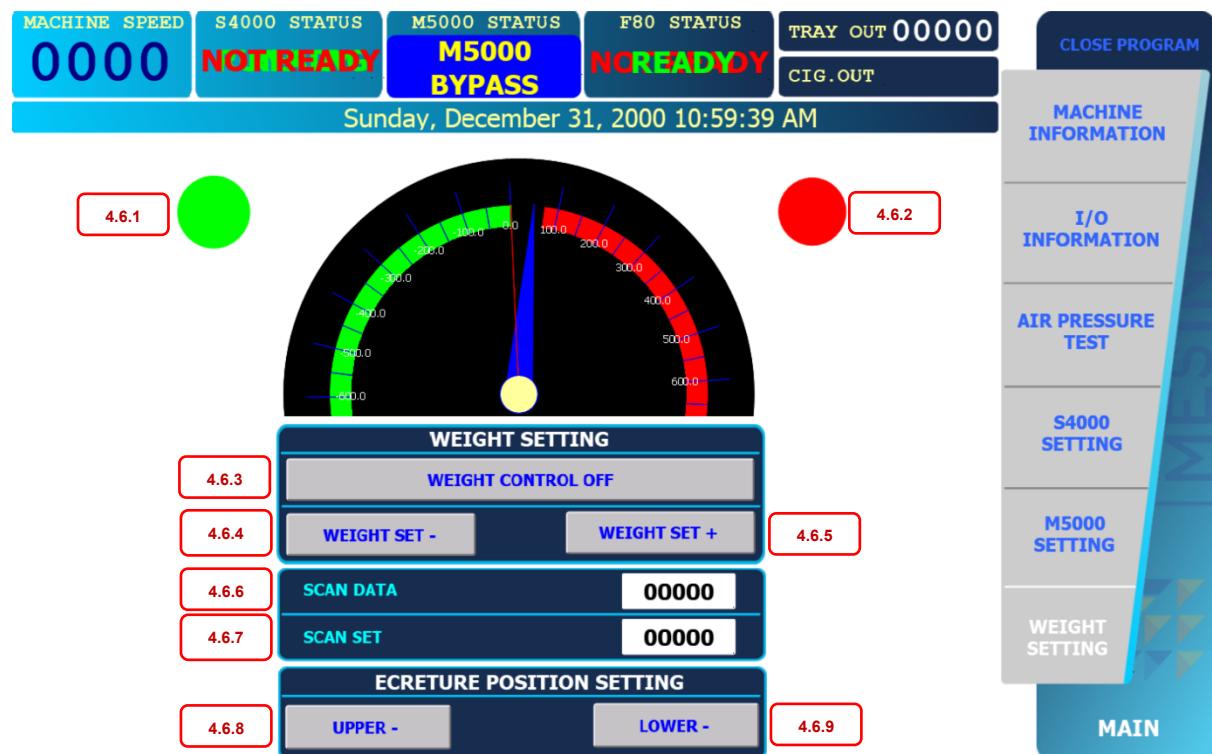


Figure 2.43 Weight Setting Display

Position Function	Description
WEIGHT SETTING	
4.6.1	Indicator when the cigarette is being weighed, lighter than the specified weight.
4.6.2	Indicator when the cigarette is being weighed, heavier than the specified weight.
4.6.3	A button that serves to turn weight control on or off.
4.6.4	A button that serves to lower the specified weight value.
4.6.5	A button that serves to raise the specified weight value.
4.6.6	Displays the weight value of the cigarette being weighed.
4.6.7	Displays the value that is used as a benchmark for the desired weight of cigarettes.



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#### ECRETURE POSITION SETTING

4.6.8	A button that serves to raise the ecreture. The goal is to add tobacco that enters the cigarette stick.
4.6.9	A button that serves to lower the ecreture. The goal is to reduce tobacco that enters cigarettes.



## CLOSING

Thus, we close the manual book of the S-4000 cigarette making machine as a complete source of information to ensure efficient operations and optimal production results. We hope that this guide will provide a clear and deep understanding for users to be able to manage this machine well.

For further questions or technical assistance, please contact our customer service team. Thank you for your trust in choosing our products, and may the S-4000 cigarette making machine make a positive contribution to the smooth running of your business.