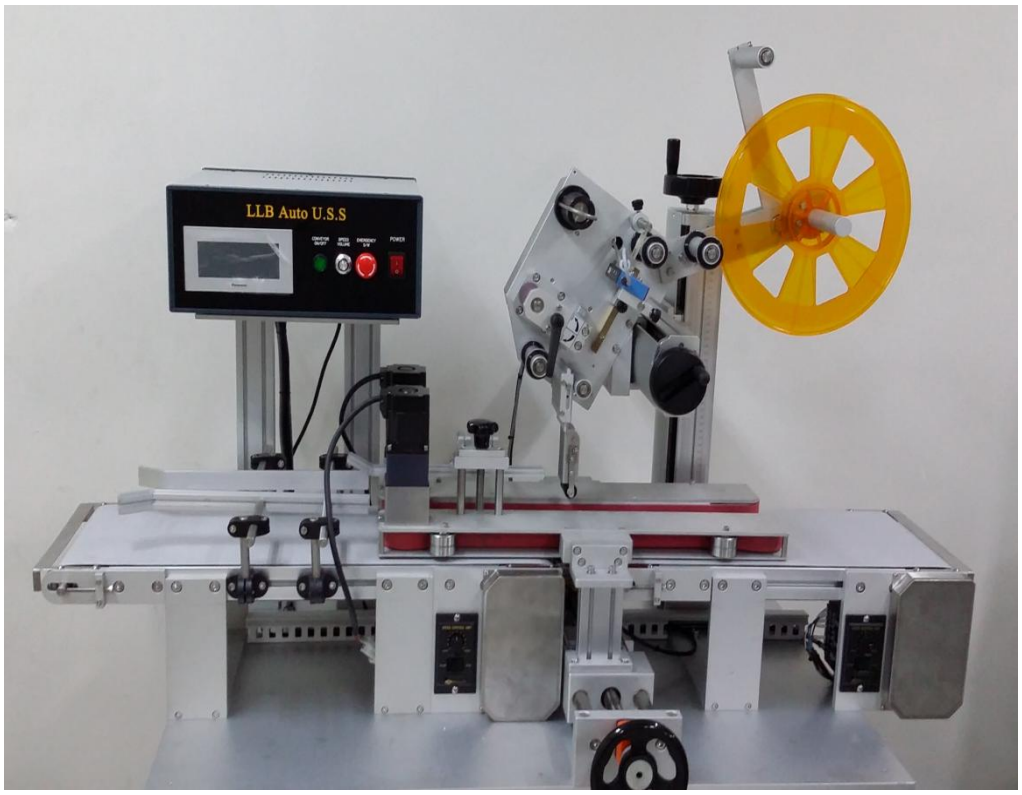
LLB AUTO USS MANUAL

CARTON CORNER SEALING LABELER

MINI–CON L AND
MINI–CON L–80



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Introduction

Thank you very much for purchasing our machine.
The machine you have purchased has been carefully designed and manufactured to provide you the maximum benefit, ensuring ease of use and safe operation.
Mini-Con L and Mini-Con L-80 is useful for various product
This manual provides all information you need for the installation, maintain and operation of this machine.

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Section 1 General Instruction

1.1 Overview of Mini-Con L

*USS is derived from the first letter of the upper single side.

① The Mini-Con L can seal with label for the carton single corner as follow the picture.

② This machine is designed as simply as possible to facilitate trouble-shooting or maintenance work as well as ease of normal production operation

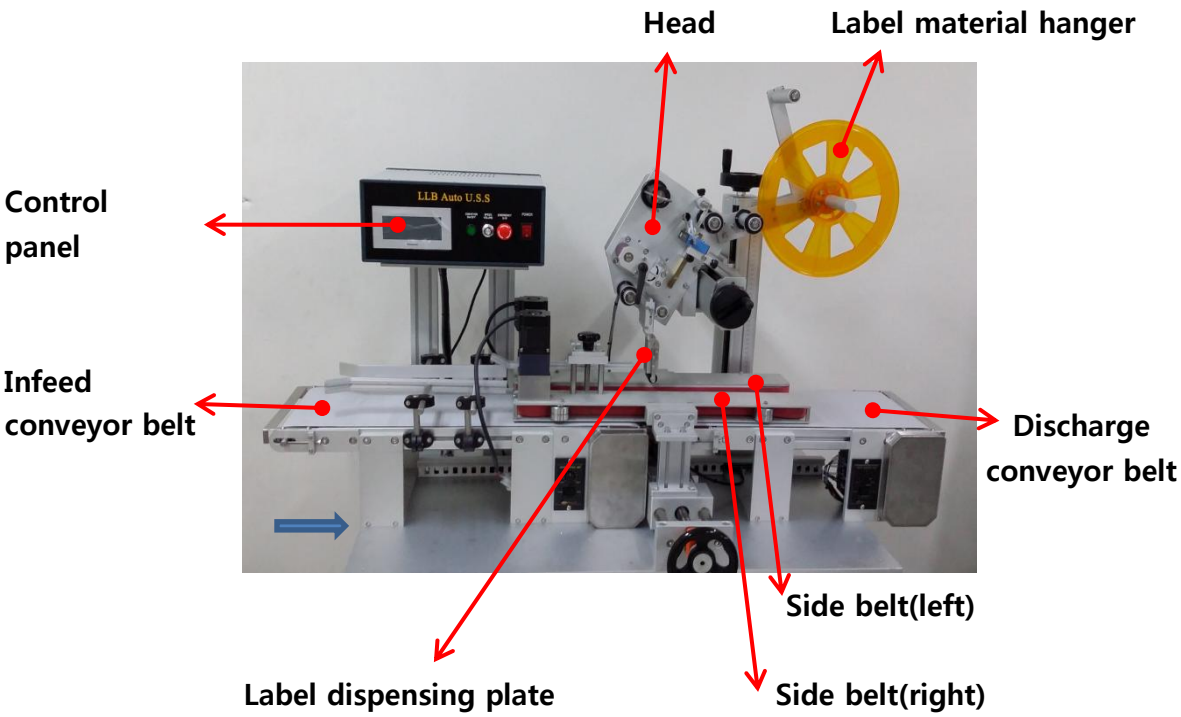
③ The machine was designed based on the movement of the product from left to right.

1.2 Specification

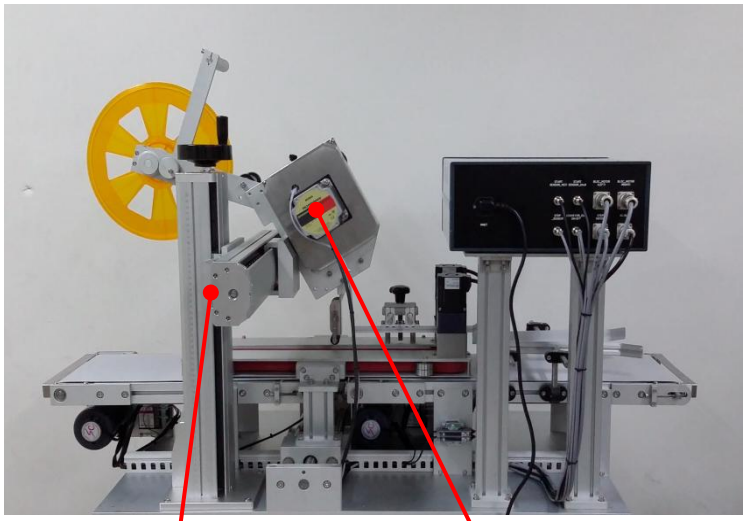
①	**M/C Dimension(mm)**	1,300(L) x 850(W) x 780(H)	
②	**Motor Total Power consumption**	**270w**	
	ⓐ Head motor	70w	1
	ⓑ conveyor belt motor(infeed)	40w	1
	ⓒ conveyor belt motor(discharge)	40w	1
	ⓓ side belt motor (left)	60w	1
	ⓔ side belt motor (right)	60w	1
③	**Voltage**	110 V	
④	**Frequency**	50/60Hz	
⑤	**Phase**	1P	
⑥	**Design M/C speed**	28m/min	
⑦	**Operating M/C speed(recommend)**	22m/min	

1.3 Lay-out

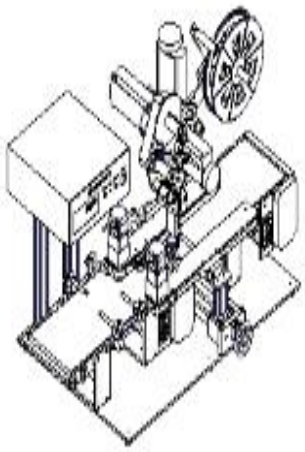
1.3.1 Front side

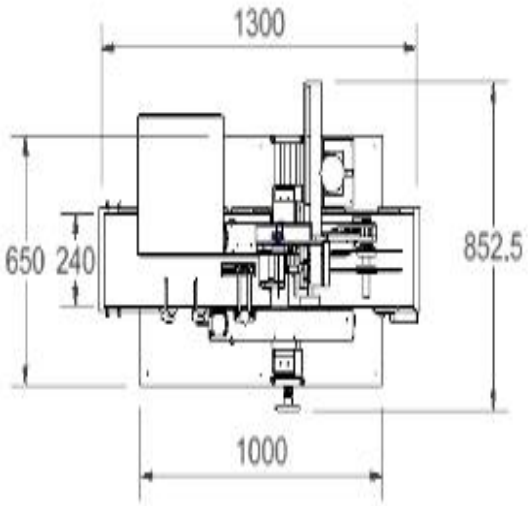


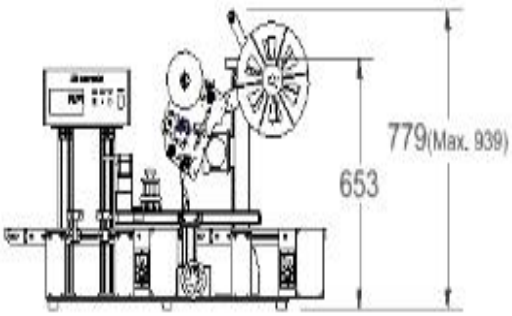
1.3.2 back side



1.4 Lay-out drawings & dimension





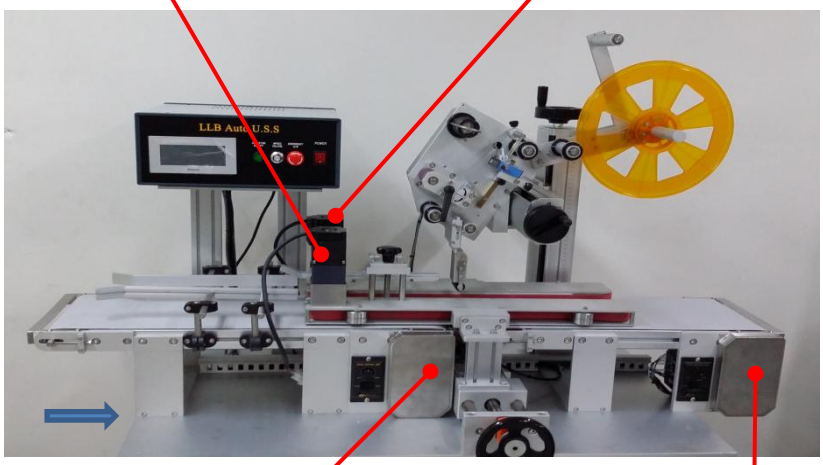


1.5 Motor position

Side belt(right) motor

Side belt(left) motor

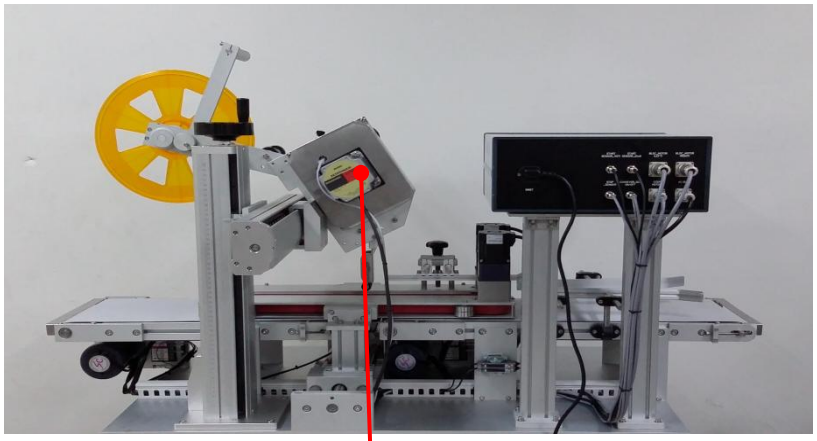
Front side



Infeed conveyor belt motor

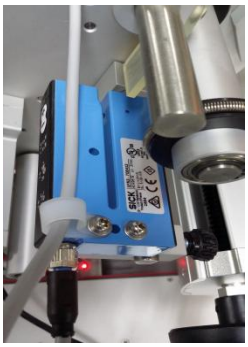
Discharge conveyor belt motor

Back side

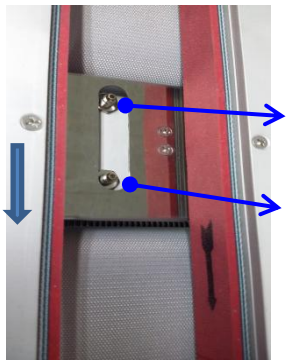


Stepping motor
(label feeding)

1.6 Sensor position



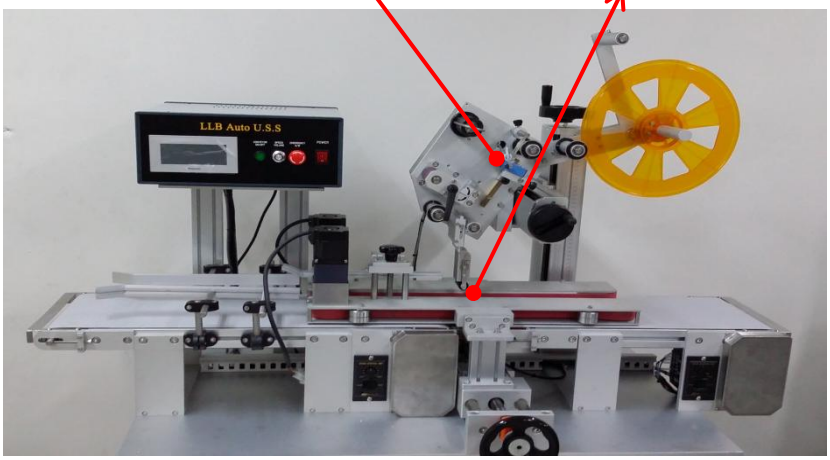
Stop sensor



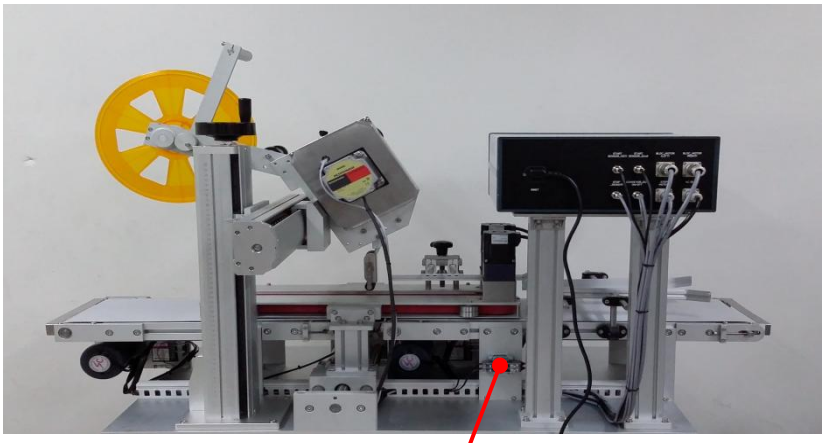
Start sensor(1)

Start sensor(2)

Front side



Back side



stop sensor

start sensor

Sensor sensitivity meter

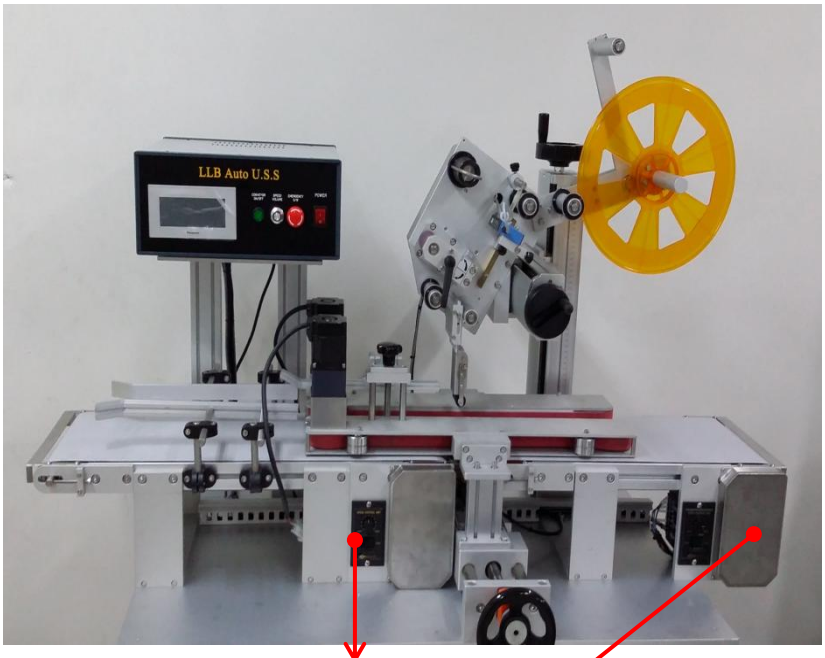
down mode up

Touch and adjust with your finger

1.7 Belt Speed control

Side belts speed control volume

① The two side belts(left, right) are speed-controlled at the same time.
② clockwise(higher)
③ counterclockwise(lower)



Speed control volume
① clockwise(higher)
② counterclockwise(lower)

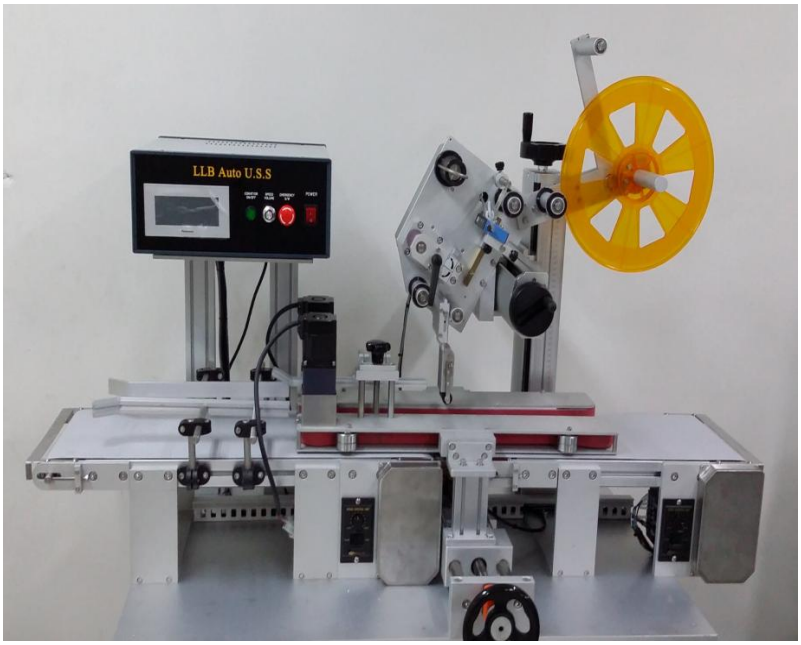
Conveyor belt on/off

Speed controller
(Infeed/Discharge conveyor belt)

Section 2 Structure and Function

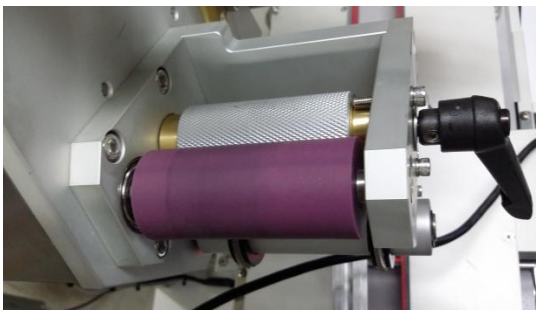
2.1 Head unit

2.1.1 Front side



2.1.2 Driving side

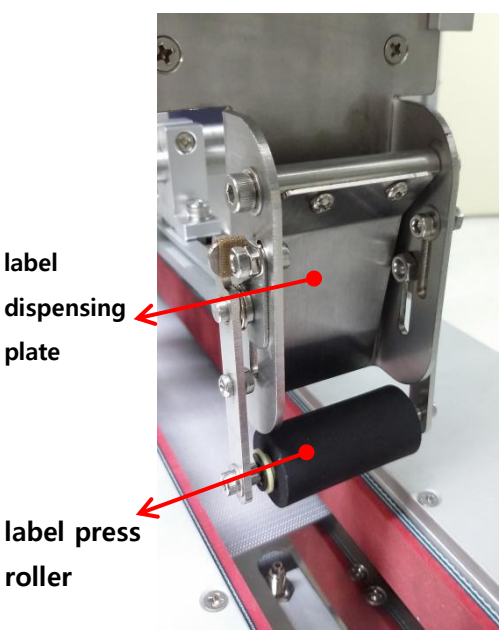
Stepping motor & timing belt(rear)

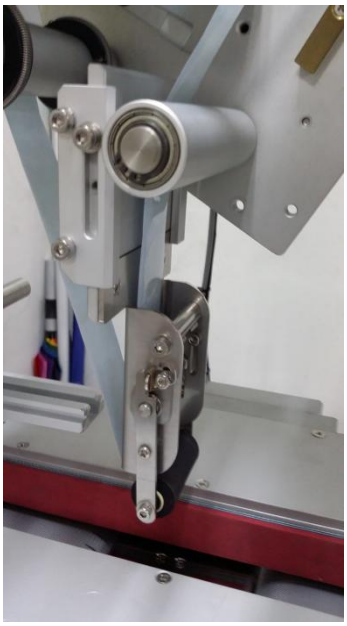


Label feed roller (front)

The speed control of the label feed roller can be adjusted by the stepping motor that be controlled from the "LABEL SPPED" of the control panel.

2.2 Label dispensing plate unit





2.2.1 Label dispensing plate instruction

1) This is a device that stands by each one label, separates the label according to the sensor signal, and seals the corner of the carton box by labelling it.

2) The label dispensing plate is located between the start sensor (1) and the start sensor (2). This is because there is a difference in the supply process of the label according to each sensor signal.

Section 2 Structure and Function

2.2.2 Labelling method

(e.g. 20mm in length per label, each 10mm labelling in surface of carton box (a) and (b) to seal the corner of carton box)

1) Preparatory work

By operating the start sensor(1), a 10mm label should be located on the centerline of the label press roller(black color).

2) Labelling process

(1) If the front part of the carton box in progress is detected in the start sensor (1), after a slight delay time has passed, a 10mm label that had been located on the centerline of the label press roller begins to be attached to the A side of the carton box.

(2) At the same time, the label is supplied further 10mm by driving the label-feed roller and is placed on the B side of the carton box, and the corner is sealed with total of 20mm.

(3) when the end part of the labeled carton box passes through the start sensor (2), The new label of 10mm is to be placed the centerline of the label press rubber roller by driving the label feed roller, so the next 1 cycle can be prepared newly.

2.2.3 The nature of start sensor (1), (2)

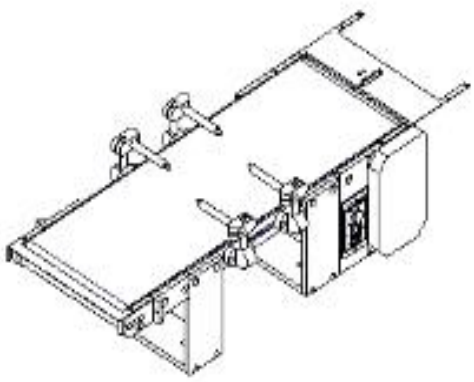
1) Start sensor (1) has a positive nature and reacts immediately after it detects an object.

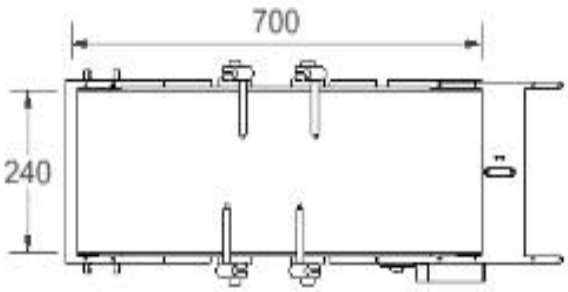
2) Start sensor (2) has a negative nature and reacts after object passes through the sensor and in condition the empty space.

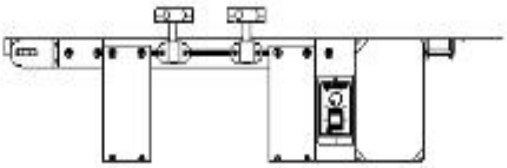
Section 2 Structure and Function

2.3 Conveyor belt unit

2.3.1 Infeed conveyor belt

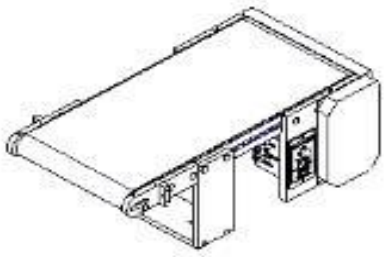


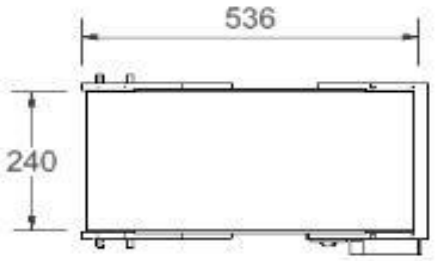


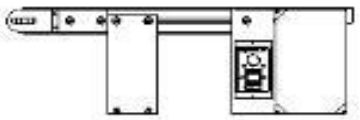


① Infeed conveyor belt	240(W) x 1,430(L)mm
② Infeed conveyor belt motor	S9I40GAH-V12
③ Speed controller	SUA40IA-V12

2.3.2 Discharge conveyor belt

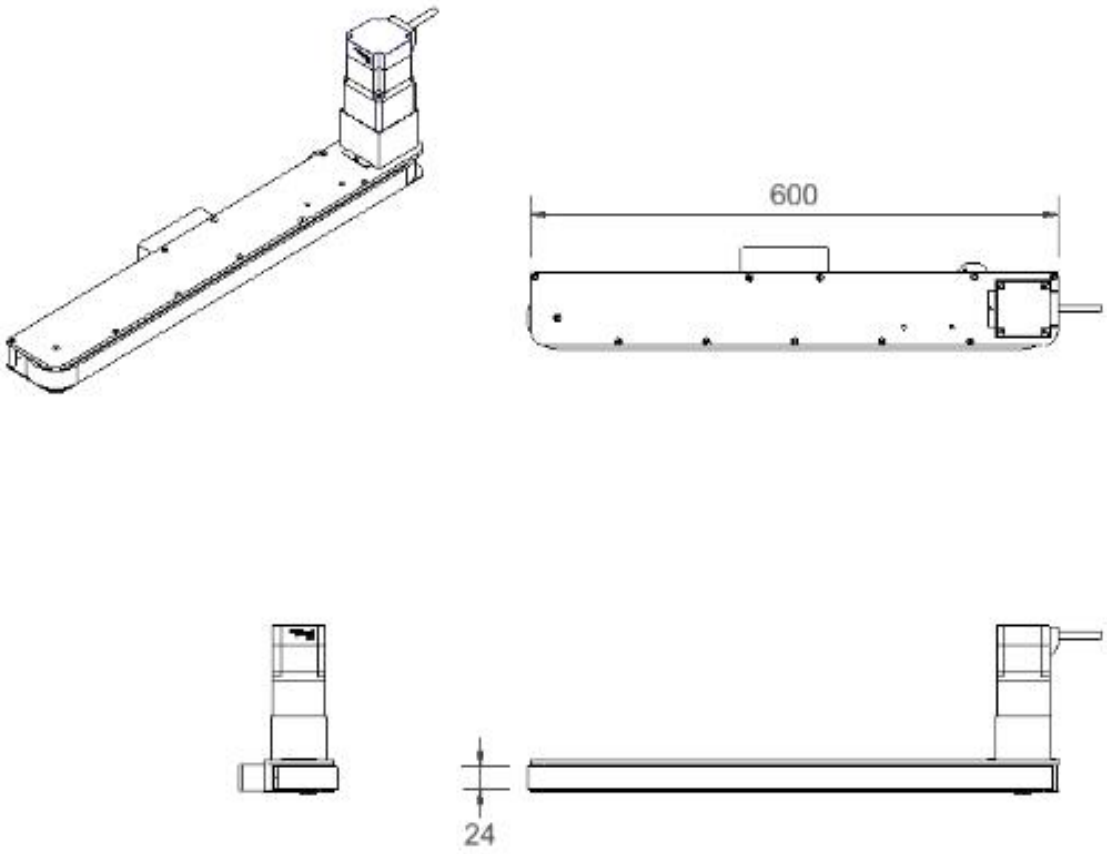






① Discharge conveyor belt	240(W) x 1,100(L)mm
② Discharge conveyor belt motor	S9I40GAH-V12
③ Speed controller	SUA40IA-V12

2.3.3 Side belt unit



① Side belt(left)	24(W) x 1,250(L)mm
② Side belt(right)	24(W) x 1,250(L)mm
③ Side belt driving motor	B60Q-H24071-G1

Section 3 Operation

3.1 Setting summary

① **Confirm 4 main parts proper position**

ⓐ Stand
ⓑ Conveyor
ⓒ Head
ⓓ Controller

② **Adjust height and width**

Refer to page 18

③ **Adjust "press plate" of side belt**

Refer to page 18 ⓓ

④ **Set Label**

Refer to page 19~22

⑤ **Set start sensor position**

Refer to page 19~22

⑥ **Set control**

Especially adjust 'START DELAY"

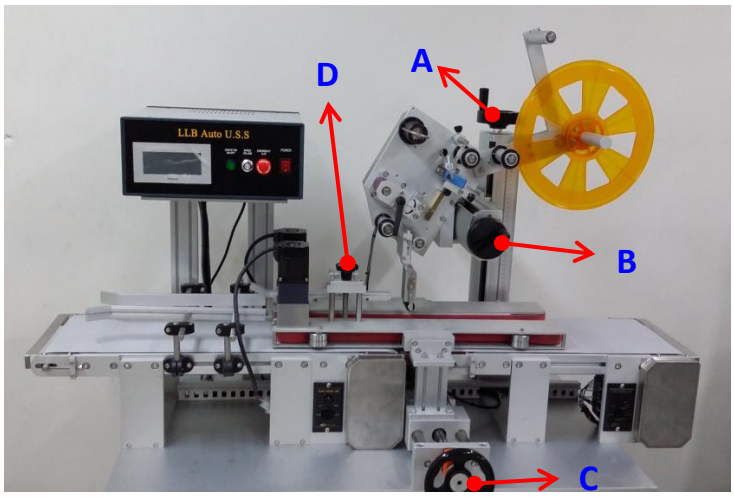
⑦ **Switch on the conveyor**

⑧ **Test 1 or 2 pieces, adjust again or go ahead produce**

Section 3 Operation

3.2 Adjust height and width

Use the handle to adjust the position to match the external dimensions of the product.



ⓐ Handle A

Adjust the height of the head so that the height of the label dispensing plate is suitable for the label attachment of the product.

ⓑ Handle B

Adjust the back and forth of the head to match the center line of the label separation plate and the side belt.

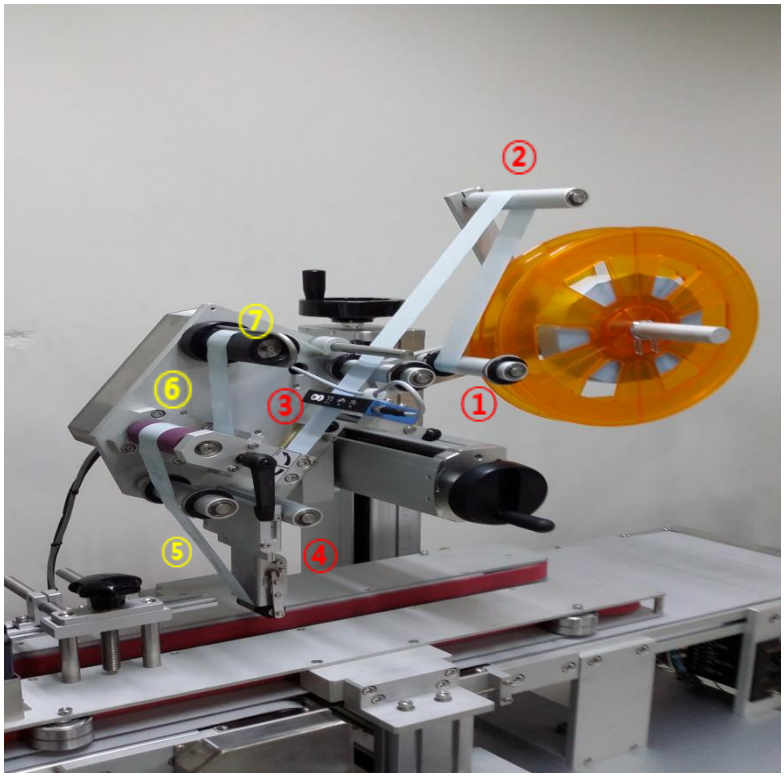
ⓒ Handle C

Adjust the width of the side belt so that the product can be safely held and transported.

ⓓ Handle D

Adjust the height of the press plate so that the upper lid of product can be safely kept outshape not opened and transported.

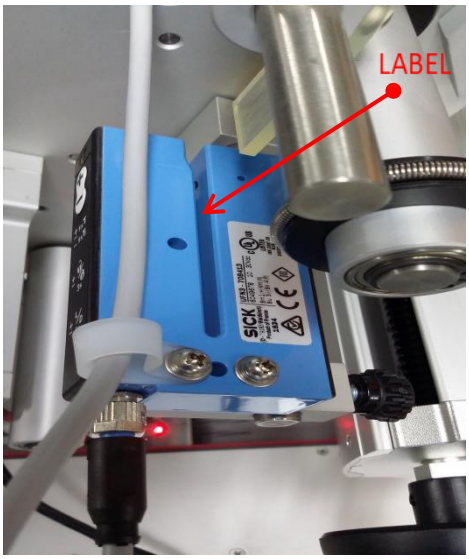
3.3 Label material setting procedure

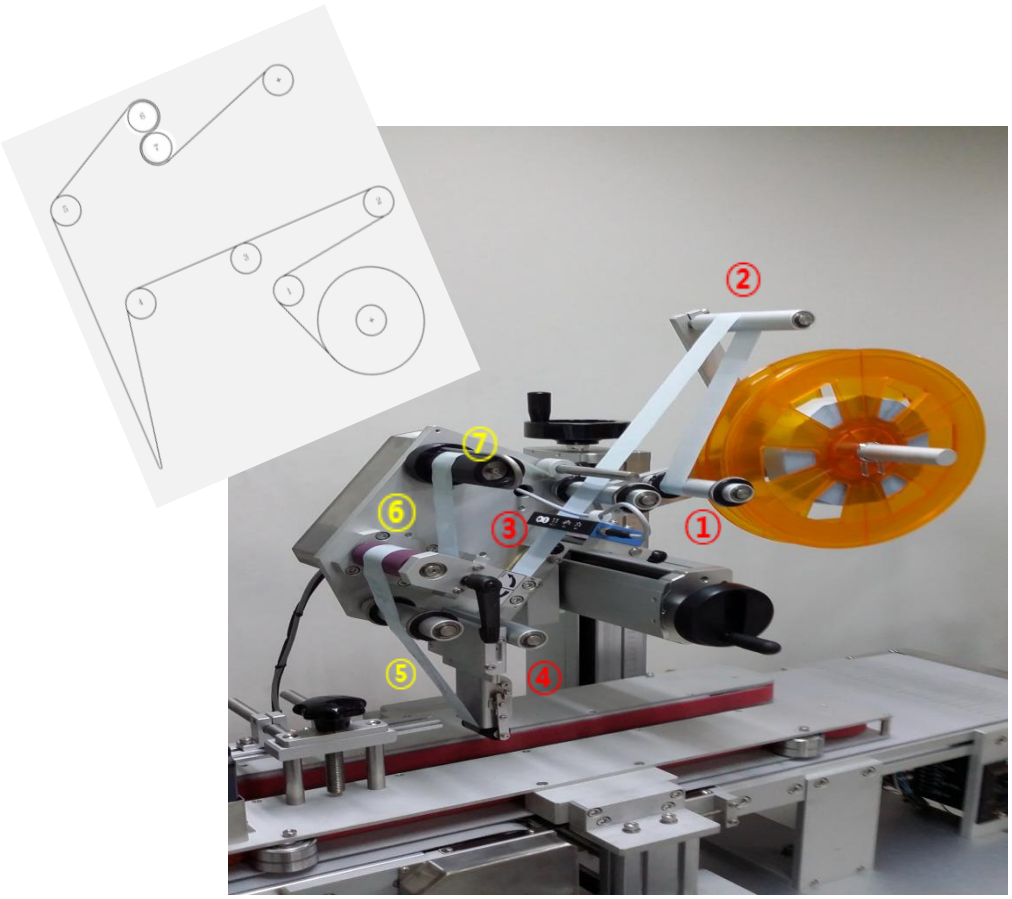


① Guide roller (1)

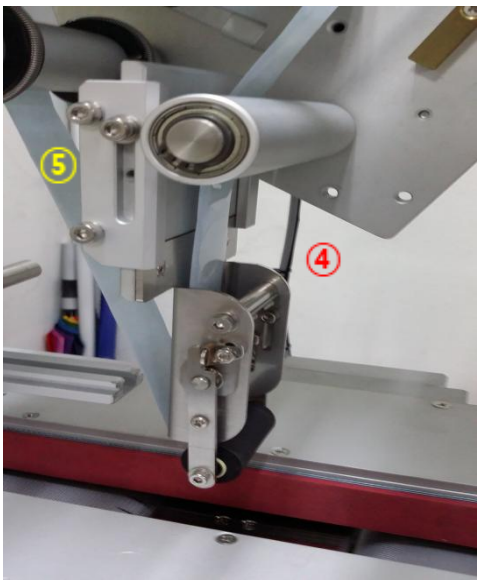
② Guide roller (2)

③ pass through label to the gap of stop sensor.

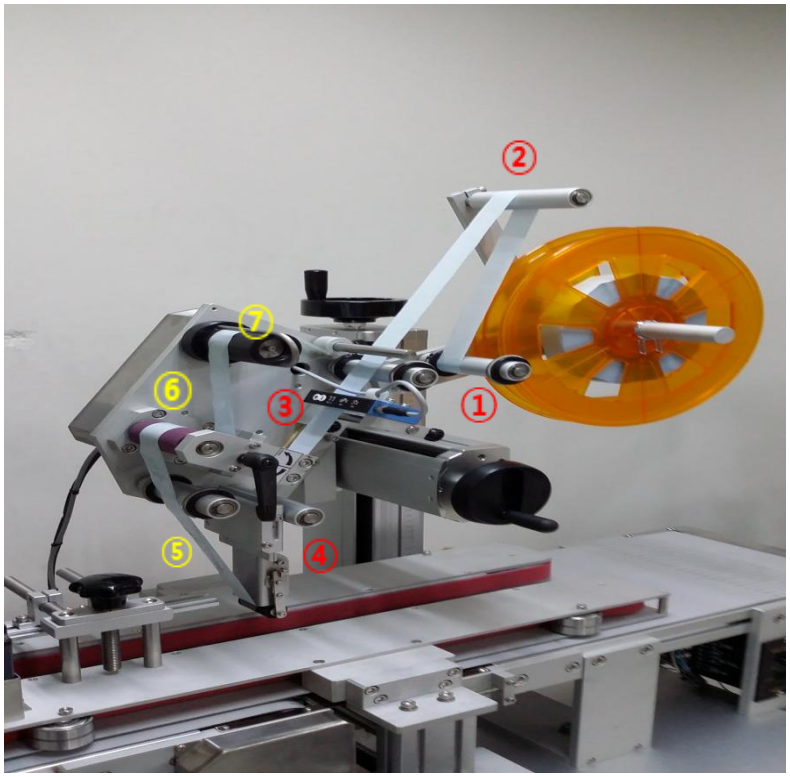




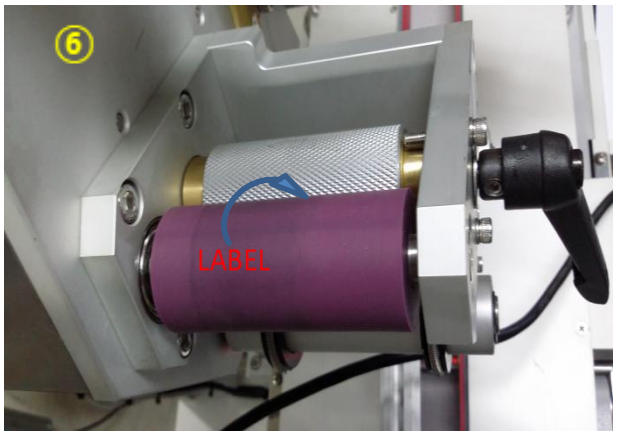
④ pass througth label to Guide roller & Dispensing plate.



⑤ pass througth label to the dispensing plate and lead it towards the press roller(purple color).



⑥ pass througth label to the gap of press roller(purple color) knurling roller.



Don't forget press roller must be closed after label set.

⑦ Wrap it in the rewinder.

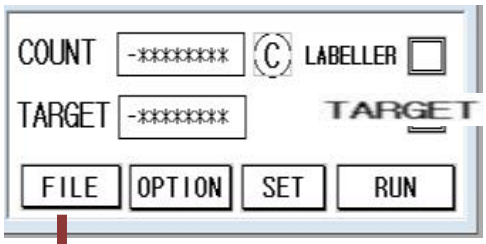
	Operation	

problem **The length of label come out from the dispensing plate is too long.**

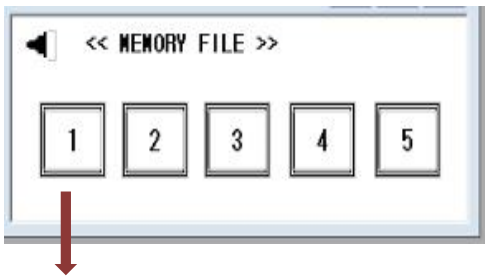
solution This problem can be adjusted by using **"LABEL LENGTH".**

The set value length of the label is too higher.

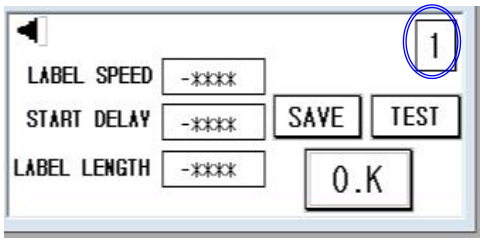
Set the value of "LABEL LENGTH" to lower. (i.e, 500 → 400)



Touch the "FILE"menu



Press the saved "FILE" number. (i.e, No.1)

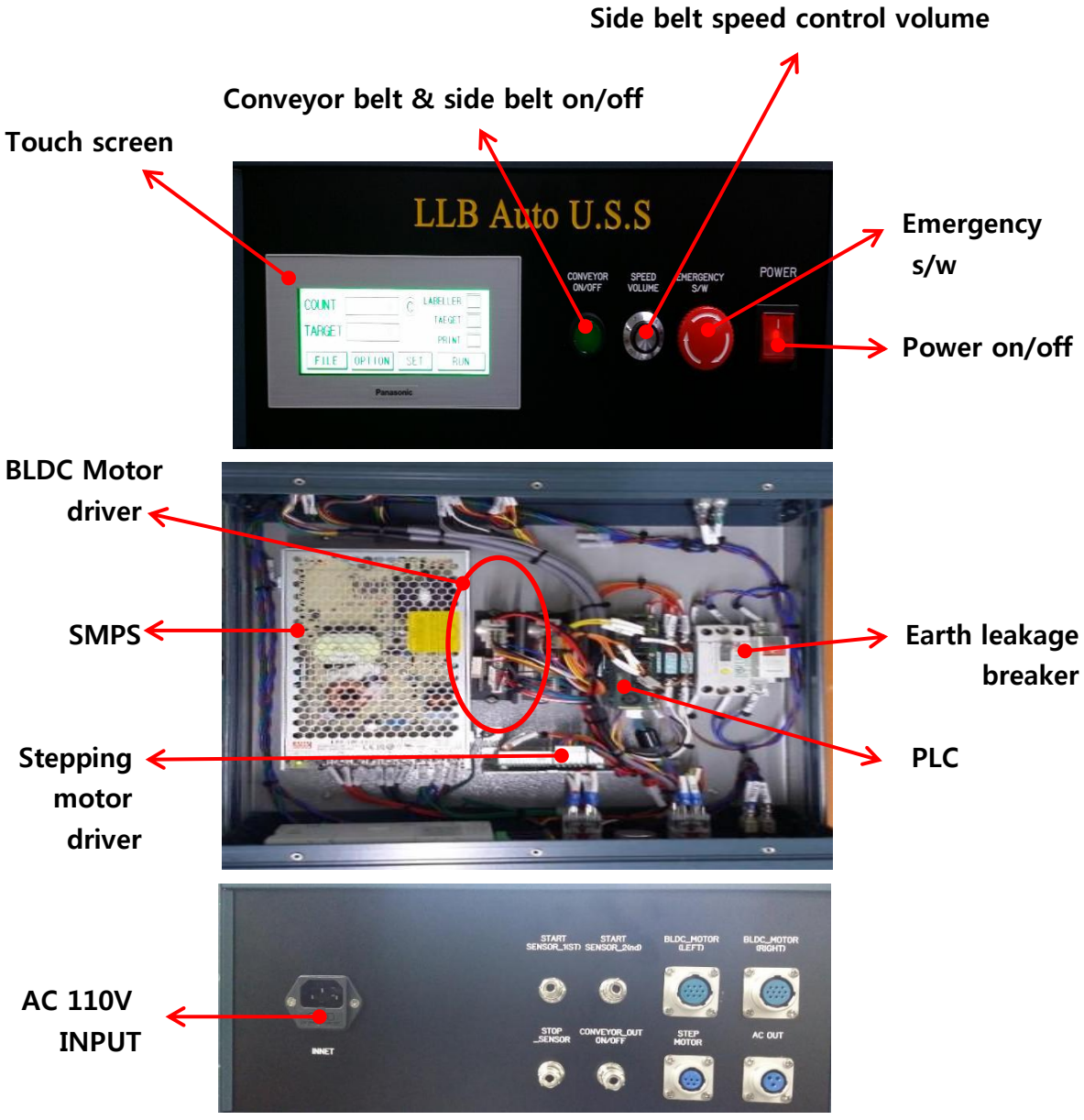


Set the value of "LABEL LENGTH" to lower step by step and repeat until the normal.

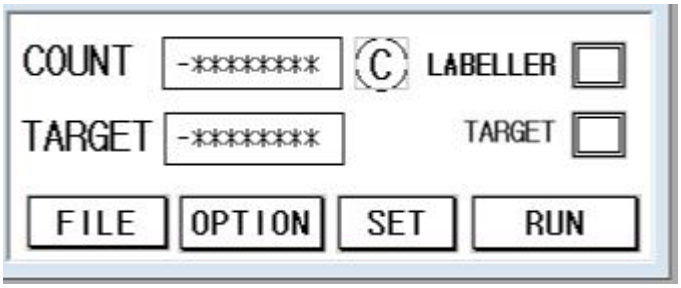
▣ **Even though the set value reaches 'zero', the length of label is not enough , push the stop sensor back to the proper distance, so the come out label length is getting shorter accordingly.**

3.4 Control Panel operation

3.4.1 Control Panel Sketch



3.4.2 Control Panel description and operation



① COUNT -******** C — Indicates the output of the product currently being produced.

② TARGET -******** — Shows the set production target amount.

③ TARGET — ② Indicate whether production target amount is set or not.

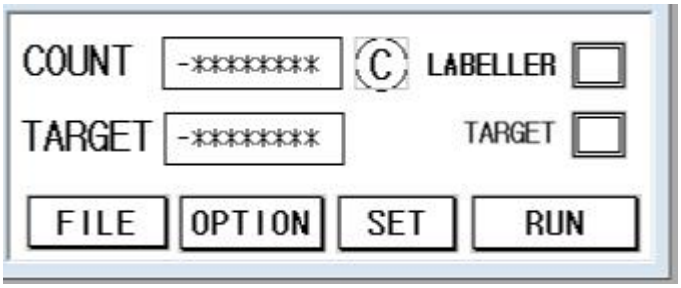
If set TARGET ■

If not set TARGET □

④ LABELLER — Indicate whether the labeller unit is active or not.

If activation LABELLER ■

If not activation LABELLER □

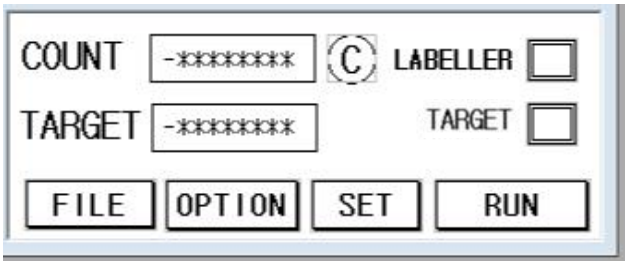


⑤ FILE — There are five rooms and each of the five types of external dimensions can be stored.

⑥ OPTION — It is used for testing the normal operation of the normal operation of certain parts.

⑦ SET — set the sensor Positive or Negative
check the sensor & motor IN/OUT

⑧ RUN — when the machine begins operation, "RUN" button should be pressed.



① COUNT -******** C

ⓐ Indicates the output of the product currently being produced.

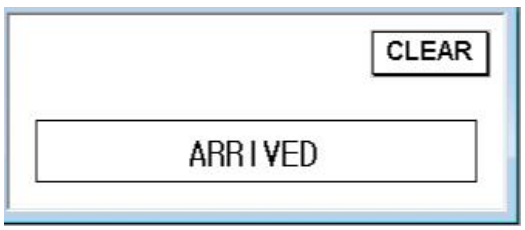
ⓑ After completion of the target production, press C button to reset it.

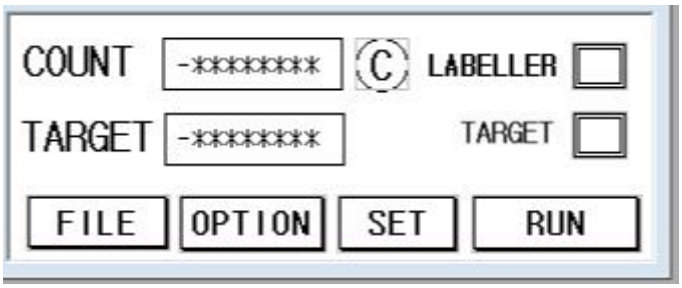
② TARGET -********

ⓐ Shows the set production target amount.

ⓑ e.g. If the target amount is set to 100, the following screen appears when the production volume reaches 100, and further unnecessary overproduction can be prevented.

ⓒ When the target quantity of 100 is achieved, the following screen is displayed and is touched to reset.





③ TARGET ☐

② Indicate whether production target amount is set or not.

If set TARGET ■

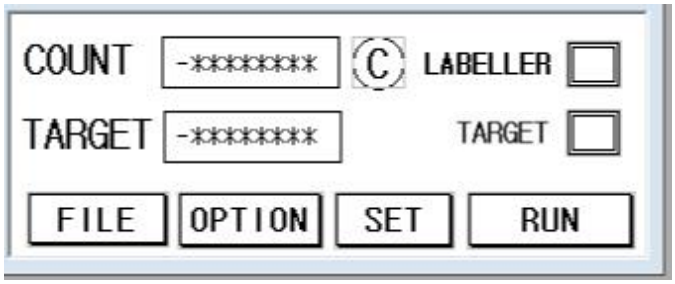
If not set TARGET ☐

④ LABELLER ☐

Indicate whether the labeller unit is active or not.

If activation LABELLER ■

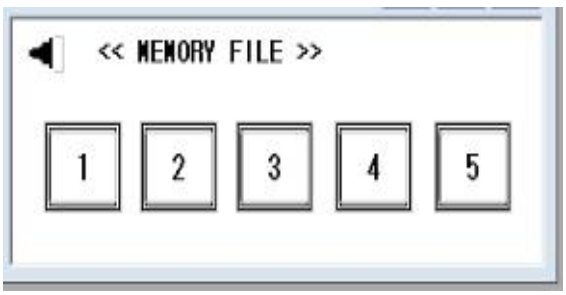
If not activation LABELLER ☐

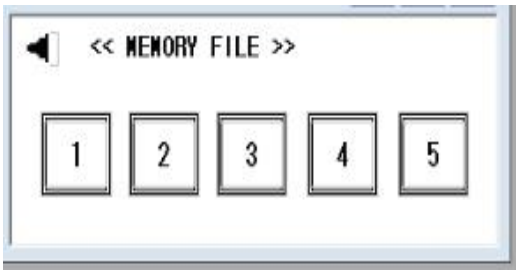


⑤ FILE

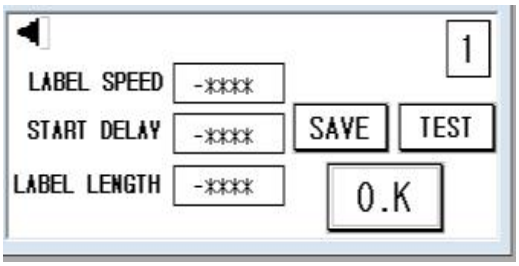
The File menu has five rooms, and each room can store five different kinds of parameters with different dimensions. In other words, to make the most suitable condition, the label attachment status of the carton boxes, the different parameters of LABEL SPEED, START DELAY and LABEL LENGTH are determined and stored in rooms 1 through 5 and the carton boxes of the required external dimensions are used each time they are produced.

Touch the FILE menu to display the following screen.





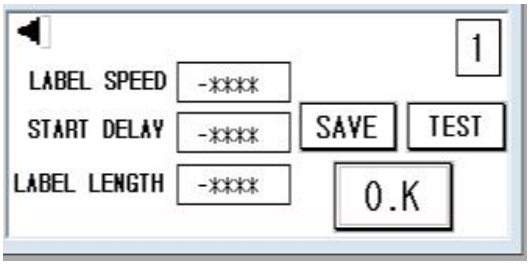
Selecting a number for one of the five stored (e.g., [1]) will display the following screen.



ⓐ LABEL SPEED

As the label suppling speed, It shall be aligned with the conveyor belt speed and the side belt speed.

If the feeding speed of the label is faster than the conveyor belt speed, wrinkles will occur on the surface of the attatched label. This can be resolved by setting the "label speed" value on the control panel lower than the current value.

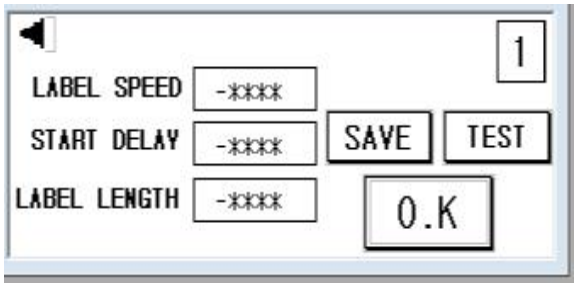


ⓑ START DELAY

START SENSOR detects the carton box and the label issues after the corresponding time with the value entered.
The lower the entered value,
the faster it will be.

If the label is attached to the front of the correct position line, this is because the start delay value is too low.

It can be resolved by setting the "start delay" value on the control panel higher than the current value.

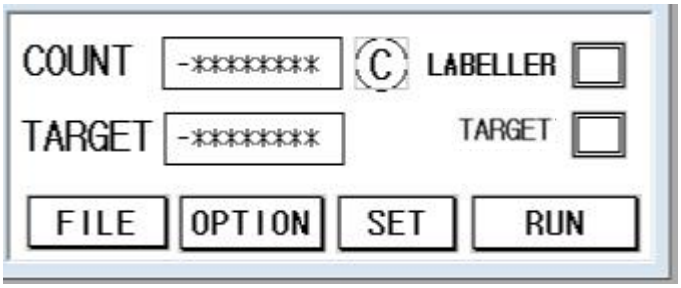


ⓒ LABEL LENGTH

Determines the time until the stop sensor detects the gap on the label and stops. when a label is extracted from the dispensing plate and how long it will be on the dispensing plate.

The larger the value, the more the label comes out and stops. The closer you get to '0', the shorter you get to go in.

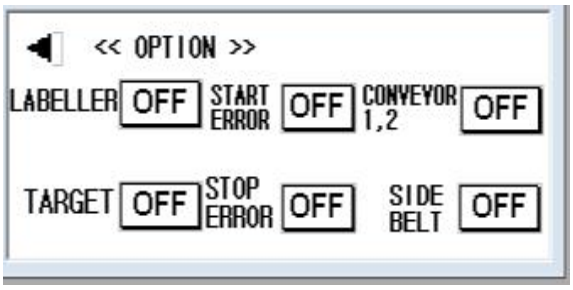
After input is complete, press SAVE button.
At this point, if not press SAVE button.
It will function with the value entered before, not the new value you entered.



⑥ OPTION

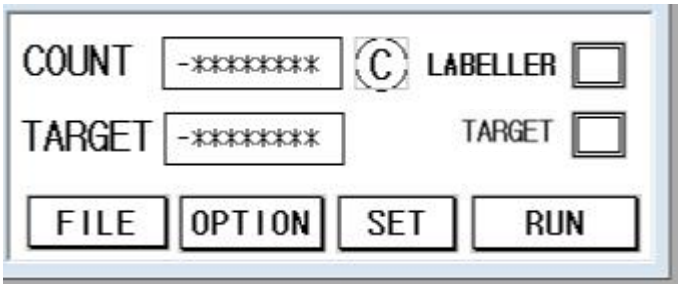
It is used for testing the normal operation of the normal operation of certain parts.

Touch OPTION menu, the below screen is displayed.



Each touch changes the ON/OFF setting and the part marked with OFF does not operate.

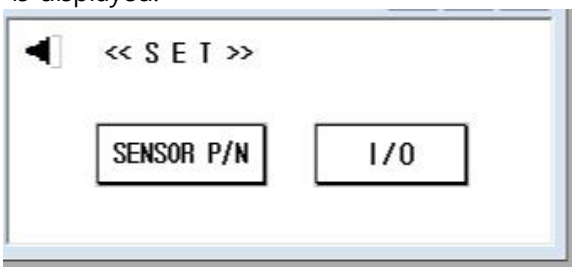
For example, if you want to check the side belt status only, leave the remaining parts "OFF" and place the side belt only in the "ON" state.

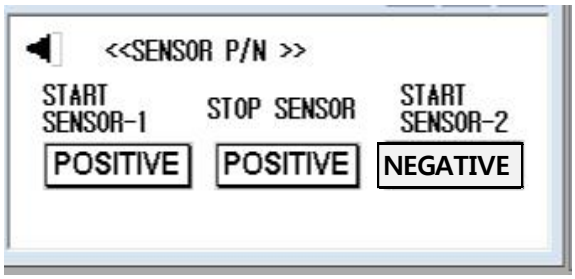


⑦ SET

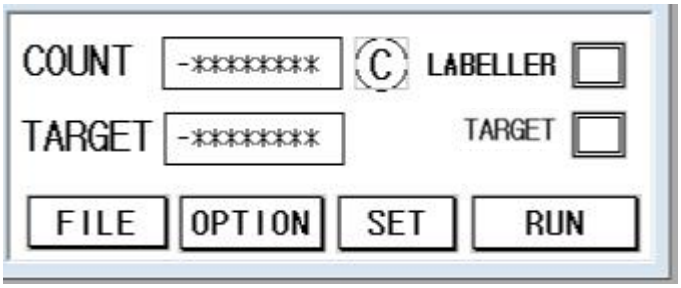
set the sensor Positive or Negative, check the sensor & motor IN/OUT

Touch SET menu, the below screen is displayed.

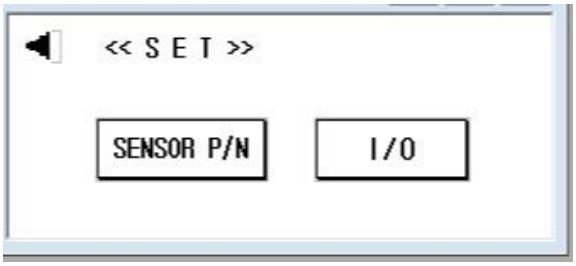


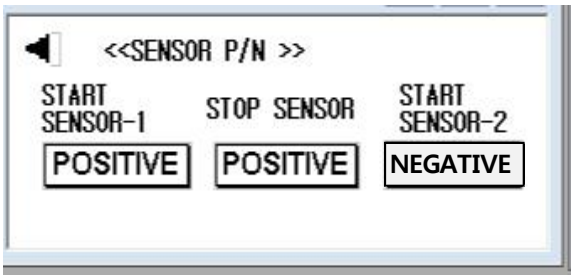


1) Start sensor (1) has a positive nature and reacts immediately after it detects an object. In here, In here, Start sensor (1) should be set as positive.

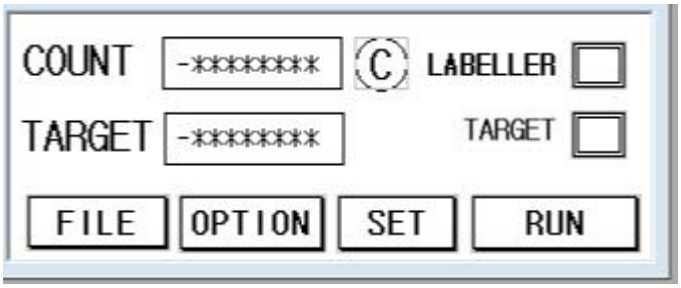


⑦ SET



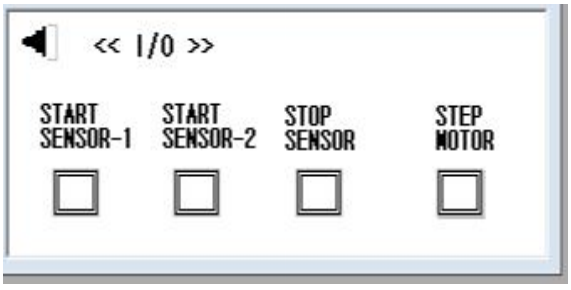


2) Start sensor (2) has a negative nature and reacts after object passes through the sensor and in condition the empty space. In here, Start sensor (2) should be set as negative.

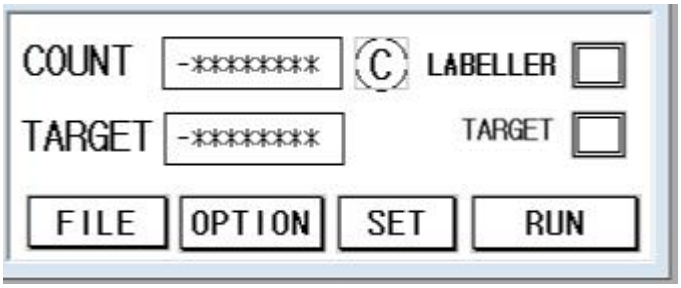


⑧ I/O

It is used to check the normal operation of the in/out signals of each sensor and stepping motor.



For example, if the start sensor-1 is detected and changed from ☐ to ■,
it can be seen that it is working normally.

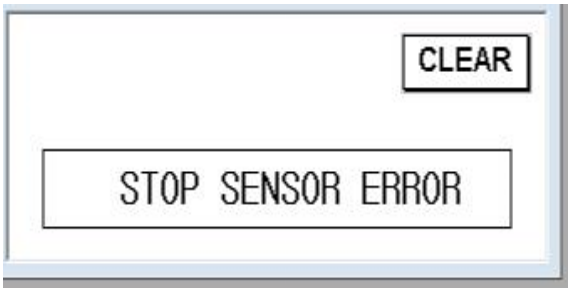


⑨ RUN

ⓐ Used to start machine operation.

ⓑ Touch "RUN", the machine starts operating.

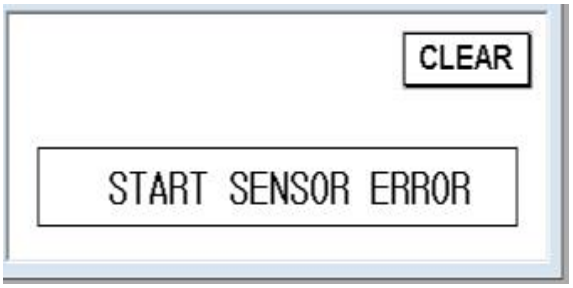
⑩ **"ERROR"**



ⓐ Multiple labels for 1 SENSOR detection
Appears when issued repeatedly.

ⓑ * Normal operation conditions *
Only one label should be issued for 1 sensor detection.

ⓒ Press the "CLEAR" button to release "ERROR".



ⓐ Even though a carton box is detected just once, Displayed when detected irregularly several times.

ⓑ *Normal operation conditions
If a carton box entering from the conveyor belt is detected, it shall be terminated as a detection only once and then stand by for the next detection.

ⓒ Press the "CLEAR" button to release "ERROR".

Section 4 Trouble-shooting

4.1 perfect attatched outshape

PERFECT

① The folding status of the carton box has a significant effect on the labeling operation. In other words, the folding status of the carton box must be checked carefully before putting the carton box in. It's difficult to label the carton box, which has a defective lid.

② Depending on the thickness of the label and the lack of adhesion on the surface of the carton box, the adhesion of the label may be poor, so care must be taken in advance.

(I,e,. Wrinkles)

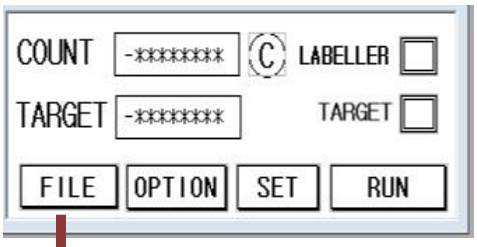
trouble(4) **Attached label is folded up and crease.**

solution(4) This problem can be adjusted by using **'LABEL SPEED'**.

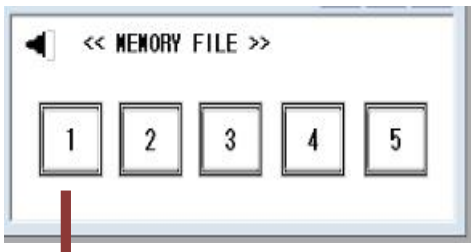
The labeller speed is faster than conveyor speed.

Set the value of "LABEL SPEED" to smaller. (i.e, 500 → 400)

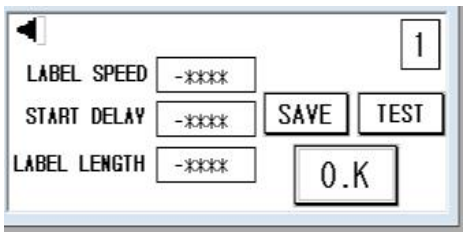
In other words, adjust labeller to speed down.



Touch the "FILE"menu



Press the saved "FILE" number. (i.e, No.1)



Set the value of "LABEL SPEED" to smaller step by step and repeat until the wrinkles on the label surface are removed.

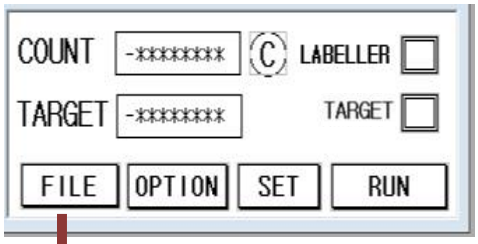
4.2 Trouble-shooting method

trouble(1) **The Label is attached to the back position more than target line.**

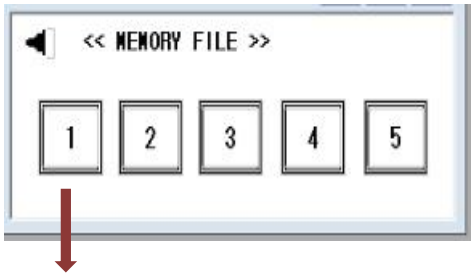
solution(1) The label position can be adjusted by using **'START DELAY'**.

The start delay time is too slow.

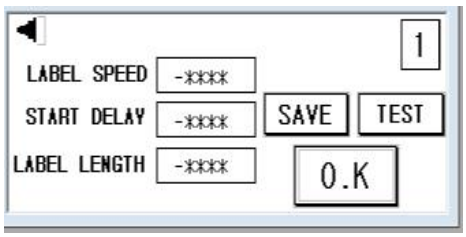
Set the value of start delay to lower. (i.e, 500 → 400)



Touch the "FILE"menu



Press the saved "FILE" number. (i.e, No.1)



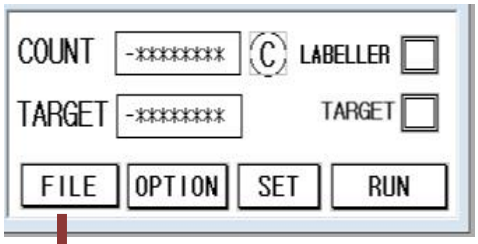
Set the value of "START DELAY" to lower step by step and repeat until the target line.

trouble(2) **The Label is attached to the front position more than the target line.**

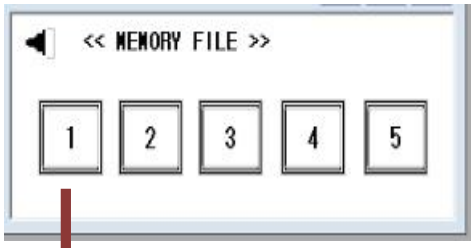
solution(2) The label position can be adjusted by using **'START DELAY'**.

The start delay time is too fast.

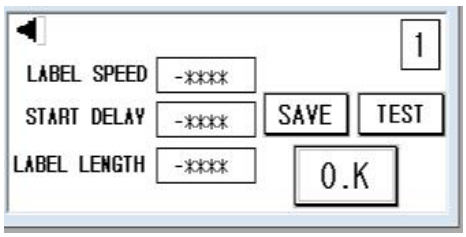
Set the value of start delay to higher. (i.e, 500 → 600)



Touch the "FILE"menu



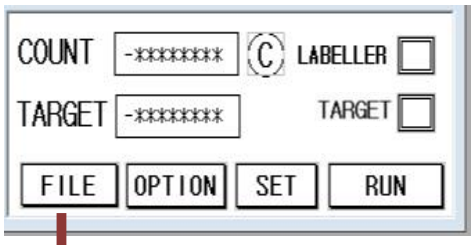
Press the saved "FILE" number. (i.e, No.1)



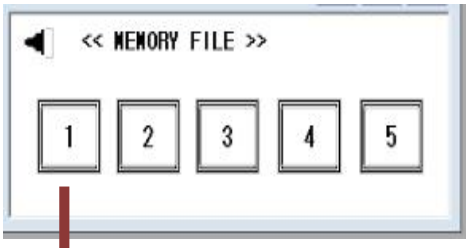
Set the value of "START DELAY" to higher step by step and repeat until the target line.

trouble(3) **Two labels were issued, although the sensor detected only one time.**

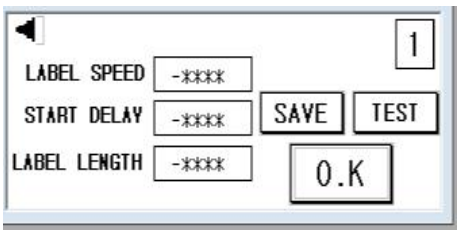
solution(3) This problem can be adjusted by using **"LABEL LENGTH".**
The set value length of the label is too higher.
Set the value of "LABEL LENGTH" to lower. (i.e, 500 → 400)



Touch the "FILE"menu



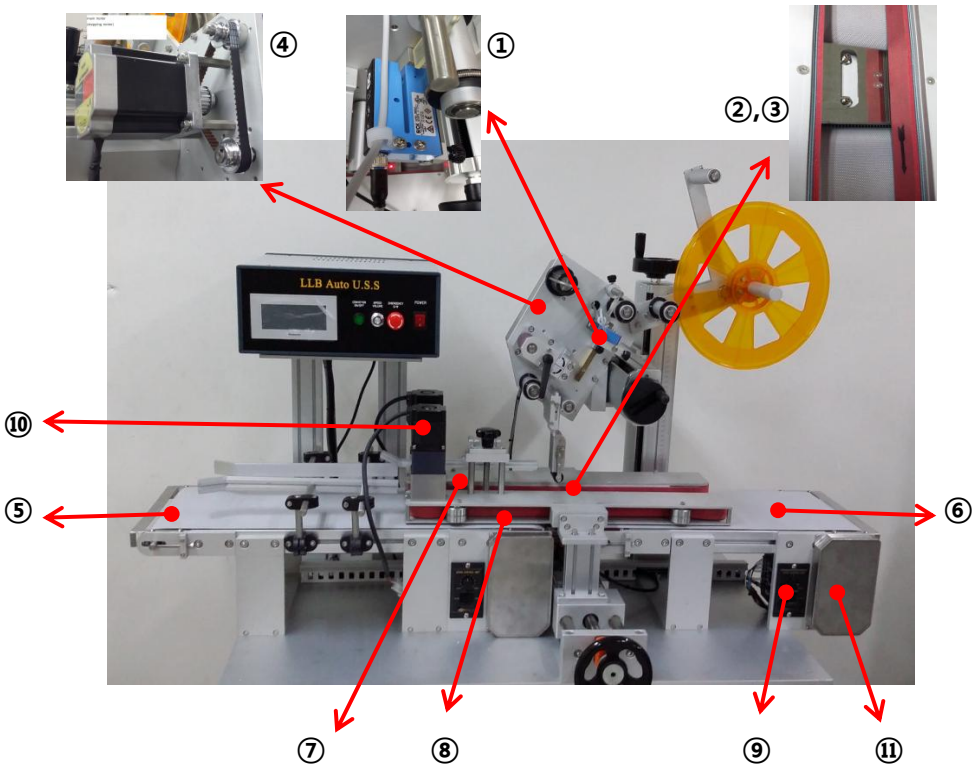
Press the saved "FILE" number. (i.e, No.1)



Set the value of "LABEL LENGTH" to lower step by step and repeat until the normal.

Section 5 Maintenance

5.1 Spare parts list (for 1 year)



Parts name		Model	Q'ty
Senser	① Stop sensor	UFN3-70B413	1
	② Start sensor (1)	BF5R-D1-N	1
	③ Start sensor (2)	BF5R-D1-N	1
Belt	④ Head timing belt	154XL037	1
	⑤ Conveyor belt(Infeed)	240 X 1,430	1
	⑥ Conveyor belt(Discharge)	240 X 1,100	1
	⑦ Side belt (left)	24 X 1,250	1
	⑧ Side belt (right)	23 X 1,250	1
Speed control	⑨ Speed controller	SUA40IA-V12	1
motor	⑩ side belt motor	B60Q-H24071-G1	1
	⑪ conveyor belt motor	S9I40GAH-V12	1

	Maintenance	

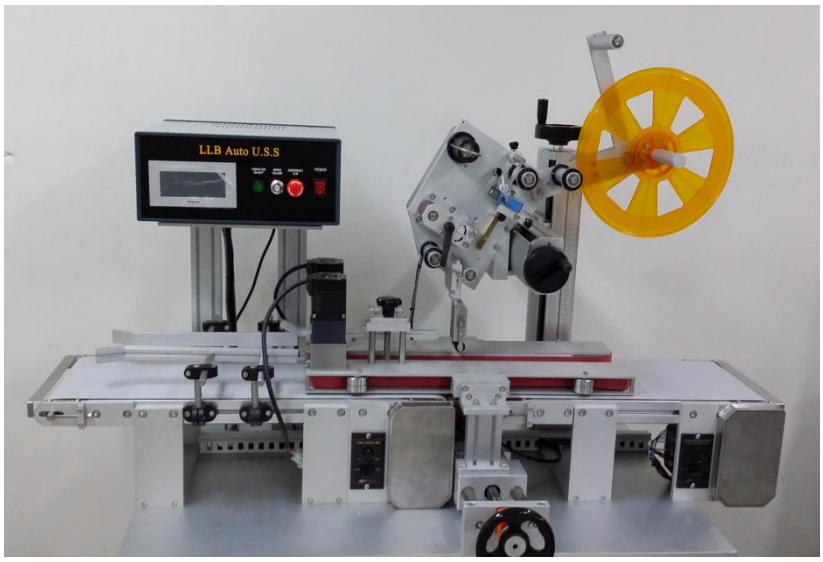
5.2 LLB AUTO USS M/C Part Inspection Cycle and Method

No	Inspection part	Inspection cycle				Inspection method
		Daily	weekly	monthly	yearly	
1	**stop sensor**	◎				• Remove foreign materials • Check if the sensor detects or not in proper • Clean the eye of sensor
2	**start sensor (1)**	◎				
3	**start sensor (2)**	◎				
4	**head timing belt**	◎				• Remove foreign materials of the surface of the belt • Check the tension of the belt
5	**conveyor belt (infeed)**	◎				
6	**conveyor belt (discharge)**	◎				
7	**side belt (left)**	◎				
8	**side belt (right)**	◎				
9	**The kind of motor**		◎			• After removing safety cover, use air spray to clean it.
10	**Inside of control panel**		◎			

5.3 Emergency Switch Repair and Maintenance

Emergency stop switch is installed around the places of operation and repair/maintenance.

If the emergency switch is pressed, the machine (LLB AUTO USS) stops automatically for the safety of the workers and the machine.

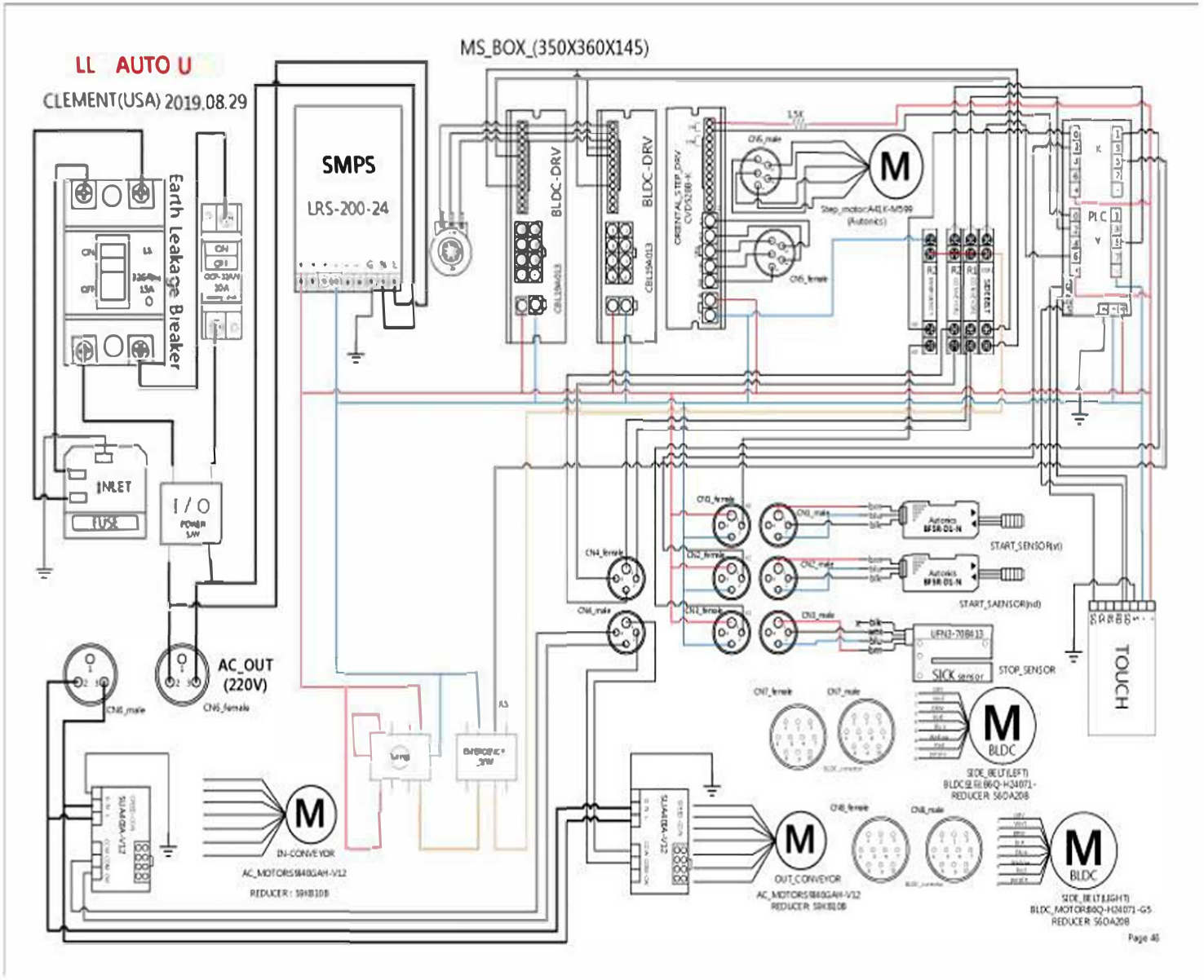


Recommend monthly repair and maintenance for emergency switch, and test the following things if the machine does not operate for a long time (a week or longer).

(1) Press the emergency button while the machine operates.

(2) Then all drivers of the machine stop.

If the emergency switch operates poorly, it shall be replaced with a priority for safety of the operator and the machine.


LL AUTO U
CLEMENT(USA) 2019.08.29
MS_BOX_(350X360X145)
Earth Leakage Breaker
SMPS
LRS-200-24
BLDC-DRV
BLDC-DRV
PLC
INLET
I / O
AC_OUT
(220V)
START_SENSOR(v)
START_SENSOR(nd)
STOP_SENSOR
TOUCH
IN-CONVEYOR
AC_MOTORS840GAH-V12
REDUCER : 5IK810B
OUT_CONVEYOR
AC_MOTORS840GAH-V12
REDUCER 5IK810B
SIDE_BELT(LEFT)
BLDC_MOTOR86Q-H24071-
REDUCER 560A208
SIDE_BELT(LIGHT)
BLDC_MOTOR86Q-H24071-GS
REDUCER 560A208
BLDC
BLDC
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