

# **GRAFMAC**



## **Operational Manual**

Thermal Processor

***W-PTP-32CDN / W-PTP-45CDN / W-PTP-53CDN***

PS Plate Processor

***W-PTP-32SN / W-PTP-45SN / W-PTP-53SN***

**20080601A**

# Table of Contents

## **1 Parts Description**

## **2 LCD Control Panel Buttons**

- 2.1 Auto/Manual Mode Button
- 2.2 Set Button
- 2.3 On/Off Switch, Enter
- 2.4 Cleaning the Rollers
- 2.5 Increment Value
- 2.6 Decrement Value

## **3 Manual Mode**

- 3.1 Roller Motor Switch
- 3.2 Chiller
- 3.3 Developer Fill Pump
- 3.4 Developer Circle Pump
- 3.5 Dryer Fan Heater
- 3.6 Developer Heater
- 3.7 Brush Motor Switch
- 3.8 Developer Replenishment Switch
- 3.9 Dry Fan Switch
- 3.10 Washing Valve Switch
- 3.11 Gum Switch
- 3.12 Reset Processed Plate Length
- 3.13 Reset Processed Plate Number

## **4 Description of Parameter Settings**

- 4.1 Developing Speed Setting
- 4.2 Developing Replenishment Rate
- 4.3 Anti-oxidation Replenishment Rate
- 4.4 Power On Replenishment
- 4.5 Developer Temperature Setting
- 4.6 Brush Speed Setting
- 4.7 Dryer Fan Temperature Setting

4.8 Standby Operation Setting

4.9 Clean Notification Setting

4.10 Additive Setting

## **5 Hidden Parameter Settings**

5.1 General Explanations

5.2 Temperature Calibration

5.3 Chinese/English Mode Setting

5.4 Gum rollers cleaning setting

5.5 Temperature setting

5.6 Replenish Rate for Developer Pump

5.7 Calendar Setting

5.8 Pulse Calculator

## **6 Plate Processor Status**

## **7 Operations**

7.1 Starting Up

7.2 Standby Replenishment

7.3 Temperature Standby

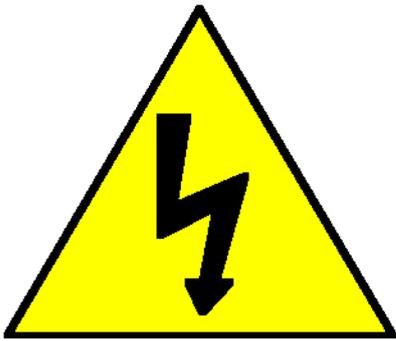
7.4 Setting Operational Conditions

7.5 Auto Mode (Plate Developing)

7.6 Plate Eject

7.7 Emergency Stop

## Description of Symbols



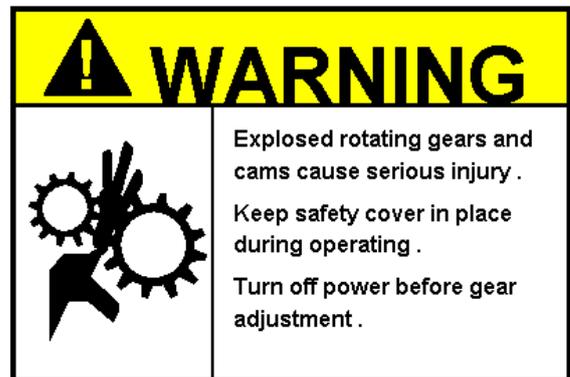
**Electricity**



**Caution**

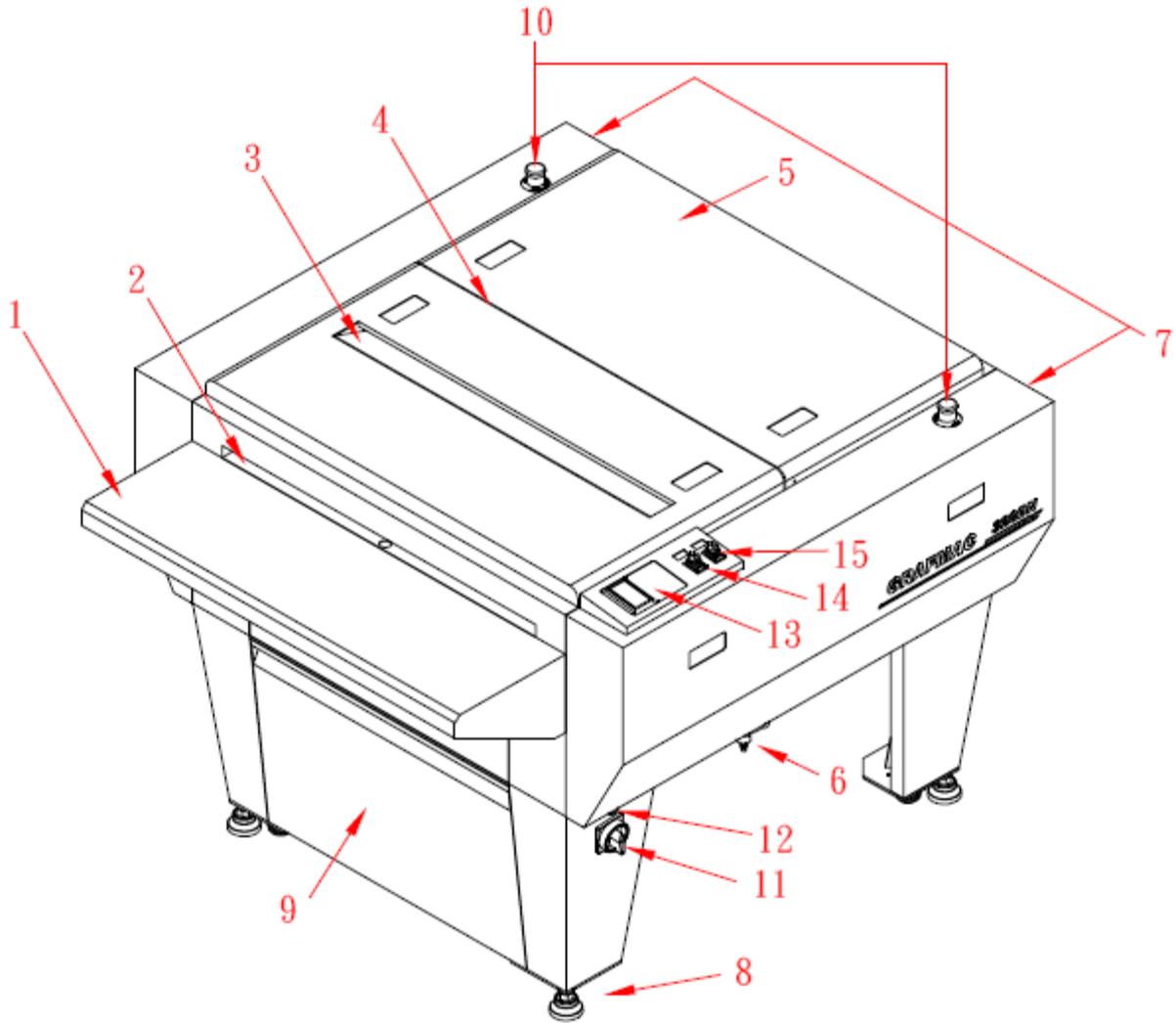


**Danger:  
Electrical Hazard**



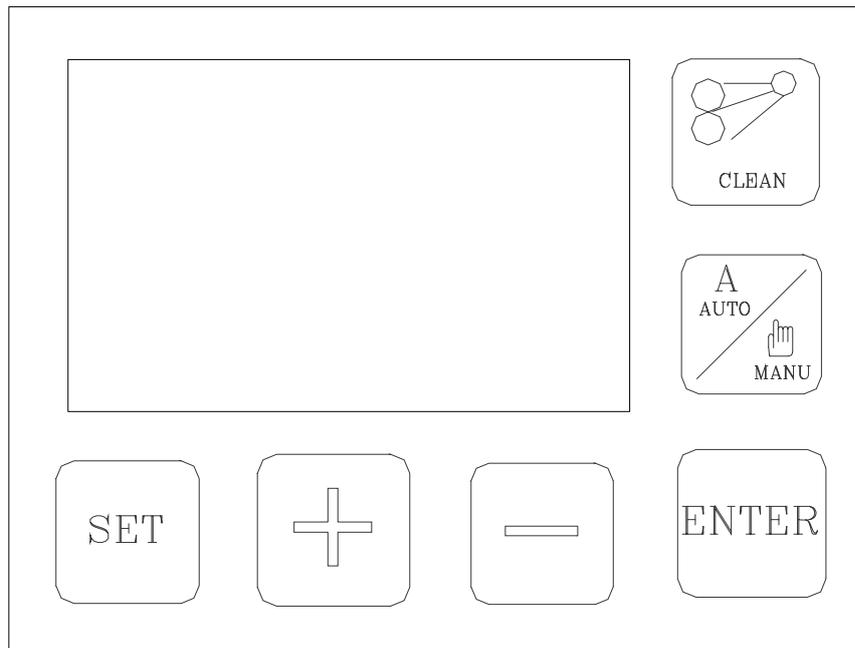
**Warning:  
Observe Safety Procedures**

# 1. Parts Description



NO.	Items	NO.	Items
1	Plate feeding table	9	Electrical box
2	Plate feeding inlet	10	Emergency Stop Button
3	Re-wash inlet	11	Main power switch
4	Developing top cover (interlock)	12	Start button
5	Dryer top cover	13	LCD Control Panel
6	Filter for developer	14	Re-wash switch
7	Right side and left side cover	15	Plate eject switch
8	Leveling Feet	16	

## 2 LCD Control Panel Buttons



### 2.1 Auto/Manual Mode Button

**2.1.1** Switch from “Auto” to “Manual” modes. When the Plate Processor is in the Auto Mode, press this button once to switch to Manual Mode. When the Plate Processor is in Manual Mode, press this button once to switch to Auto Mode.



### 2.2 Set Button

**2.2.1** Use to set the Plate Processor parameters. The Set Mode includes many sub-menus. Press [SET] repeatedly to change the main setting categories.

**2.2.2** Once the parameters are set, press [Auto/Manual] to return to the normal mode of operation.



### 2.3 On/Off Switch, Enter

**2.3.1** This button has different functions in the Manual Mode and Set Mode.

**2.3.2** In Manual Mode, this button functions as an On/Off switch to turn the plate processor **on** or **off** manually. It indicates normal operating



condition after the Plate Processor passes error diagnostics.

- 2.3.3 In the Set Mode, the button selects the currently displayed parameter or input value.

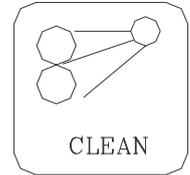
## 2.4 Cleaning the Rollers

- 2.4.1 This button includes both **【gum rollers cleaning】** & **【skip】** functions.

- 2.4.2 Press this button to begin cleaning the rollers. (This function is optional and

may vary according to the actual equipment in use.)

- 2.4.3 Push this button to skip executing standby replenishment



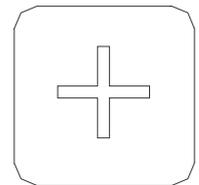
## 2.5 Increment Value

- 2.5.1 This button has different functions in the Auto Mode, Manual Mode, and Set Mode.

- 2.5.2 In the Auto Mode, press the button to return to the previous control setting.

- 2.5.3 In the Manual Mode, press the button to return to the previous manual control setting.

- 2.5.4 In the Set Mode, press the button to increment the current parameter setting.



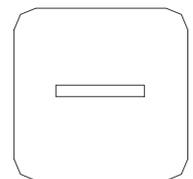
## 2.6 Decrement Value

- 2.6.1 This button has different functions in the Auto Mode, Manual Mode, and Set Mode.

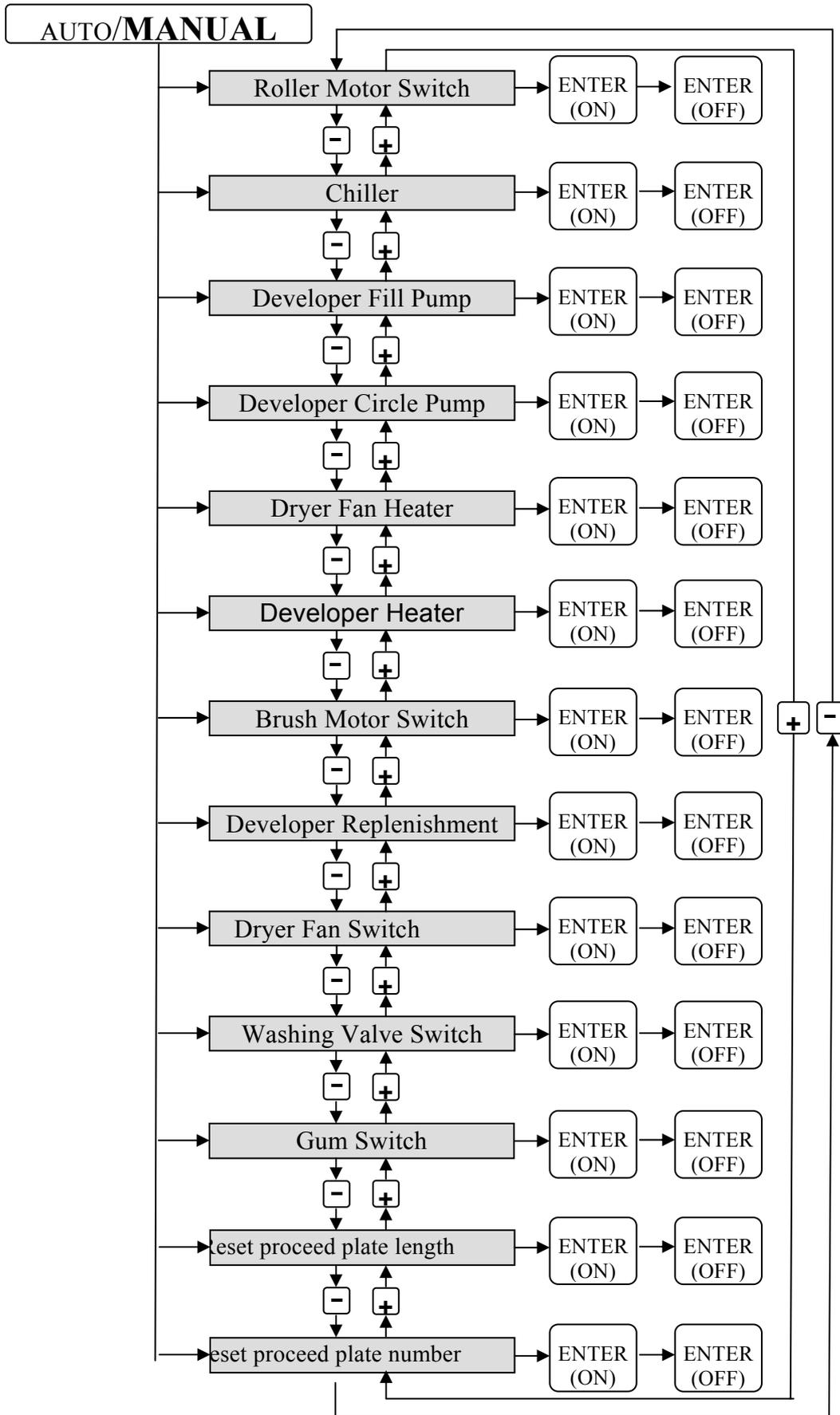
- 2.6.2 In the Auto Mode, press the button to go to the next control setting.

- 2.6.3 In the Manual Mode, press the button to go to the next manual control setting.

- 2.6.4 In the Set Mode, press the button to decrease the current parameter setting.



## Operational Chart (Manual Mode)



### 3 Manual Mode

#### 3.1 Roller Motor Switch

- Function: Checks whether the roller motor function is normal. This function can detect abnormality in roller motor operation and is useful in error diagnostics.

#### 3.2 Chiller

- Function: Checks whether the chiller is normal. If the chiller becomes abnormal, this function checks whether the chiller is working property, and is useful in error diagnostics

#### 3.3 Developer Fill Pump

- Function: Checks whether the developer filling motor is normal. If the motor becomes abnormal, this function checks whether the motor is working property, and is useful in error diagnostics.

#### 3.4 Developer Circle (Circulation) Pump

- Function: Checks whether the developer circulation pump is normal. If the pump becomes abnormal, this function checks whether the pump is working property, and is useful in error diagnostics.

#### 3.5 Dryer Fan Heater

- Function: Checks whether the dryer fan heater is normal. If the heater becomes abnormal, this function checks whether the heater is working property, and is useful in error

#### 3.6 Developer Heater

- Function: Checks whether the solution heater is normal. If the developer heater becomes abnormal, this function checks whether the heater is working property, and is useful in error diagnostics.

#### 3.7 Brush Motor Switch

- Function: Checks whether the brushing function is normal. If the brushing operation becomes abnormal, this function checks whether the brushing motor is rotating, and is useful in error diagnostics.

### 3.8 Developer Replenishment Pump

- Functions:

- Manually replenishes the developer solution into the developing tank.
- Checks whether the developer replenishing function is normal.

In the presence of abnormal conditions, this function checks whether the replenishment pump is working properly, and is useful in error diagnostics.

### 3.9 Dryer Fan Switch

- Function: Checks whether the dryer function is normal. If dryer operation fails, the function checks whether the dryer fan is rotating, and is useful in error diagnostics.

### 3.10 Washing Valve Switch

- Function: Checks whether the washing operation is normal. If washing operation fails, this function can determine whether the water valve is open, and is useful in error diagnostics.

### 3.11 Gum Switch

- Function: Checks whether the application of the gum solution is normal. When the application of gum solution fails, this function checks whether the gum dispenser pump is functioning properly, and is useful in error diagnostics.

### 3.12 Reset Processed Plate Length

- Function: Resets the total processed length to zero. Please note that the total processed length is different from the number of plates processed.

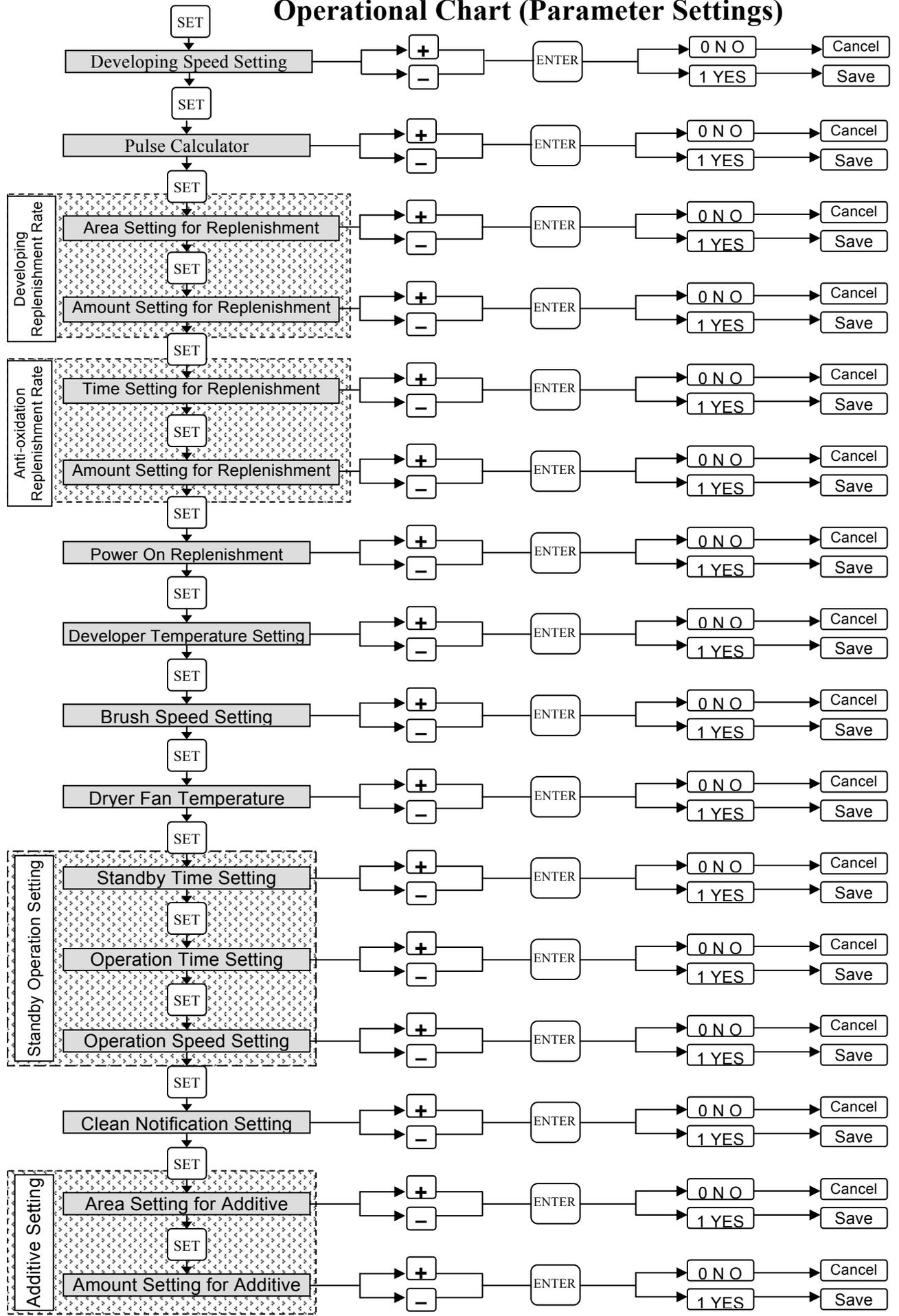
### 3.13 Reset Processed Plate Number

- Function: Resets the total number of plates processed to zero. The running plate number is convenient for determining the work quantity and can be used to determine whether the filter needs to be replaced.

**Tips : 【Operation: Press [Enter] to turn the function On and Off.】**

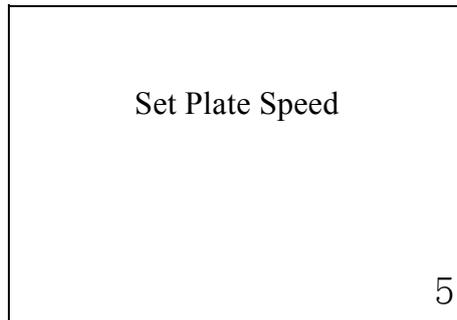
**【Press [Auto/Manual] to exit the Manual Mode. The LCD displays “Auto Mode.”】**

# Operational Chart (Parameter Settings)



## 4 Description of Parameter Settings

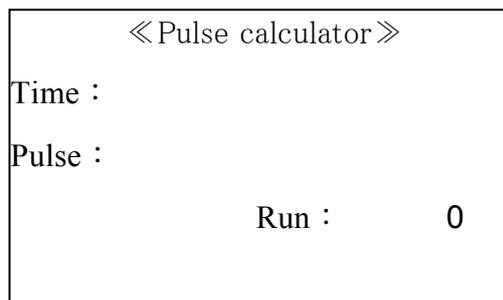
### 4.1 Developing Speed Setting



- Different types of plates and developers require different developing speed. Set the appropriate plate processing speed for proper plate developing.
- Range of Settings: 1 ~ 19. Use [+] or [-] to increase or decrease the setting value. The displayed value is the increment between the low and high speeds, and is not indicative of the physical speed.

### 4.2 Pulse Calculator :

Use to calculate the pulse. All the running procedure of the processor is controlled by the pulse. The pulse can be reference to the developing time setting. Technician can also use the pulse calculator to measure exact replenish pump rate.

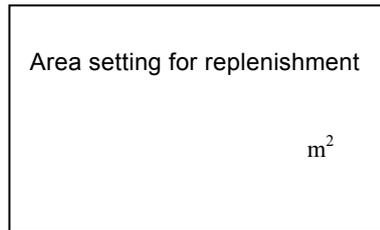


### 4.3 Developing Replenishment Rate

(The replenishment pump runs for Y ml every X m<sup>2</sup> .)

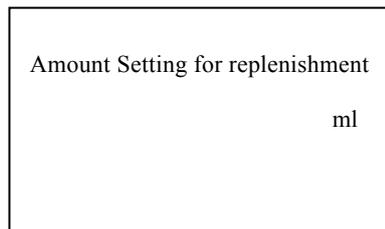


#### 4.3.1 Area setting for replenishment (X m<sup>2</sup>)



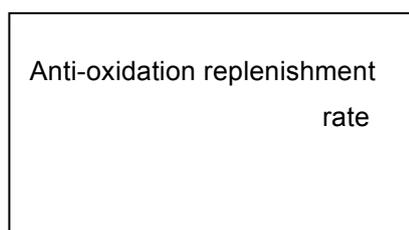
- Definition: Sets the area value X in m<sup>2</sup>. When accumulated X m<sup>2</sup> reached, the replenishment pump starts to deliver the developer from the replenishment container to the developing tank. This will ensure that the consistency of the developer is not affected by the number of developed plates thus reducing its processing capacity.
  - Range of Settings: 0.1 ~ 9.9 m<sup>2</sup>. Use [+] or [-] to increase or decrease the setting value, set unit of 0.1 m<sup>2</sup>. The value indicated is the actual area(square measure) of the processed plate.

#### 4.3.2 Amount Setting for Replenishment (Y ml)



- Definition: Sets the value Y in ml. When accumulative square measure X m<sup>2</sup> reached, the replenishment pump starts to replenish for Y ml.
- Range of Settings: 1 to 250 ml. Use [+] or [-] to increase or decrease the setting value, set unit of 1 ml. The value indicated is the actual amount of replenishment.

#### 4.4 Anti-oxidation Replenishment rate



#### 4.4.1 Time Setting for Replenishment (X min)

Time Setting for replenishment  (min)
---

- Definition: Sets the replenish time X in minute. When accumulative time X reached, the developer replenishment pump starts to deliver the developer from the replenishment container to the developing tank. This ensures that the developer concentration in the tank does not oxidize and diminish the developing quality.
- Range of Settings: 1 to 120 minutes. Use [+] or [-] to increase or decrease the setting value, set unit of 1 min. The value indicated is the actual time in minutes.

#### 4.4.2 Amount Setting for Replenishment (Y ml)

Amount Setting for replenishment  (ml)
--

- Definition: Sets the amount Y in ml. When accumulative time X min reached, the replenishment pump starts to replenish for Y ml.
- Range of Settings: 1 to 250 ml. Use [+] or [-] to increase or decrease the setting value, set unit of 1 ml. The value indicated is the actual amount of replenishments.

#### 4.5 Power On Replenishment Setting

<Power On Replenishment>  
(ml/h)  
0

- Definition: Set replenishment value X in ml. With One hour of plate processor been turned off, X ml of developer was replenished.(The system timer calculate the replenishment value automatically after the processor power on )
- Range of Settings: 1 to 250 ml. Use [+] or [-] to increase or decrease the setting value, set unit of 1 ml. The value indicated is the actual amount of replenishment.

#### 4.6 Developer Temperature Setting

Set Developer Temperature  
C  
28.0

- Range of Settings: 18 to 40°C. Use [+] or [-] to increase or decrease the setting value, set unit of 0.1 °C. Press [Enter] to select and store the desired setting to memory. The value indicated is the actual thermometer reading.

#### 4.7 Brushing Speed Setting

Set Brushing Speed  
12

- Range of Settings: 1~22. Use [+] or [-] to increase or decrease the setting value, set unit of 1. Press [Enter] to select and store the desired setting to memory. The displayed value is the increment between low and high speed, and is not indicative of the physical speed.

#### 4.8 Dryer Fan Temperature Setting

Set Dryer Fan Temperature
°C
50.0

- Range of Settings: 20°C to 80°C. Use [+] or [-] to increase or decrease the setting value, set unit of 0.2°C. Press [Enter] to select and store the desired setting to memory. The value indicated is the actual thermometer reading.

#### 4.9 Standby Operation Setting

(The roller motor turns at Z speed for Y seconds after every X minutes.)

Standby Operation Setting
---------------------------

##### 4.9.1 Standby Time Setting (X min)

Standby Time Setting
( sec)

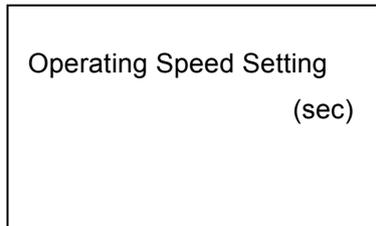
- Definition: Sets a period in X minutes. When accumulative time X minutes reached, the roller starts to turn to prevent the gum solution from hardening on the rollers.
- Range of Settings: 1 to 250 minutes. Use [+] or [-] to increase or decrease the setting value, set unit of 1 min. The value indicated is the actual time in minutes.

##### 4.9.2 Operating Time Setting (Y sec)

Operating Time Setting
(sec)

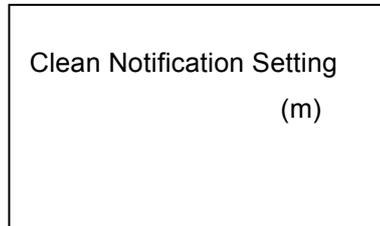
- Definition: Sets a period Y in seconds. The roller motor turns for Y seconds when the accumulative time X min reached.
- Range of Settings: 0 to 99 seconds. Use [+] or [-] to increase or decrease the setting value, set unit of 1 sec. The value indicated is the actual time in seconds.

#### 4.9.3 Operation Speed Setting (Z)



- Definition: The roller motor turns at Z speed for Y seconds when the previous setting of X minutes has elapsed.
- Range of Settings: 1 to 19. Use [+] or [-] to increase or decrease the setting value, set unit of 1. The displayed value is the increment between low and high speed, and is not indicative of the physical speed.

#### 4.10 Clean Notification Setting



- Definition: Sets the length value X in meters. When the accumulative length X meters reached, the LCD will indicate with cleaning requirement.
- Range of Settings: 50 to 3000 meters. Use [+] or [-] to increase or decrease the setting value, set unit of 50 meters. The value indicated is the actual length of the processed plate.
- After cleaning or to suspend cleaning, press [Auto/Manual] to enter the Auto Mode. The Plate Processor will remain in operational status
- After cleaning, reset the total processed length to zero.

#### 4.11 Additive Setting

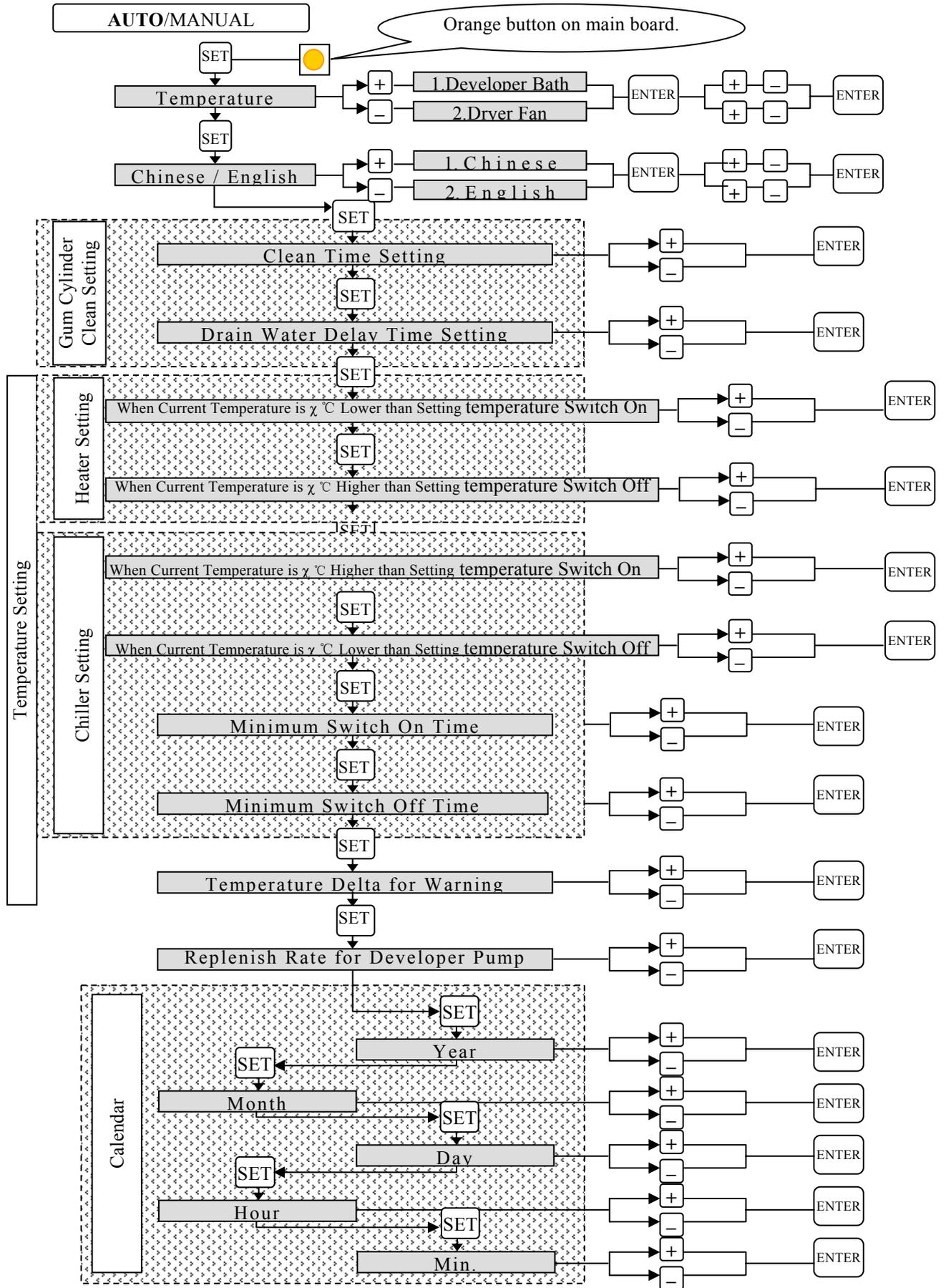
- **this is a preserved setting function and no need to do any setting on it.**

**Tips : 【Press [Enter] to select and store the desired setting to memory.】**

**【Prolonged Pressing [+] or [-] for one second to quickly increase or decrease current setting.】**

**【Choose the selected data than press[Enter] and choose [1 YES]to save the parameter.】**

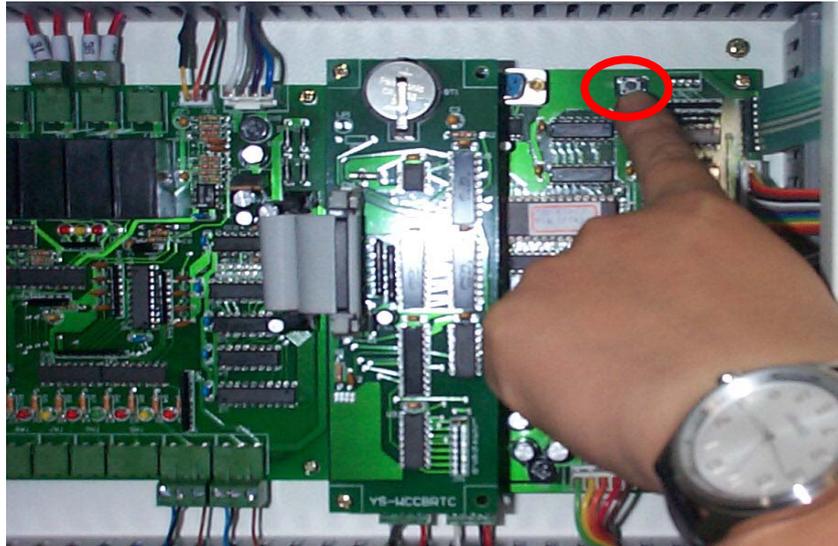
# Operate Command Function Chart (Hidden Parameter Setting)



## 5 Hidden Parameter Settings :

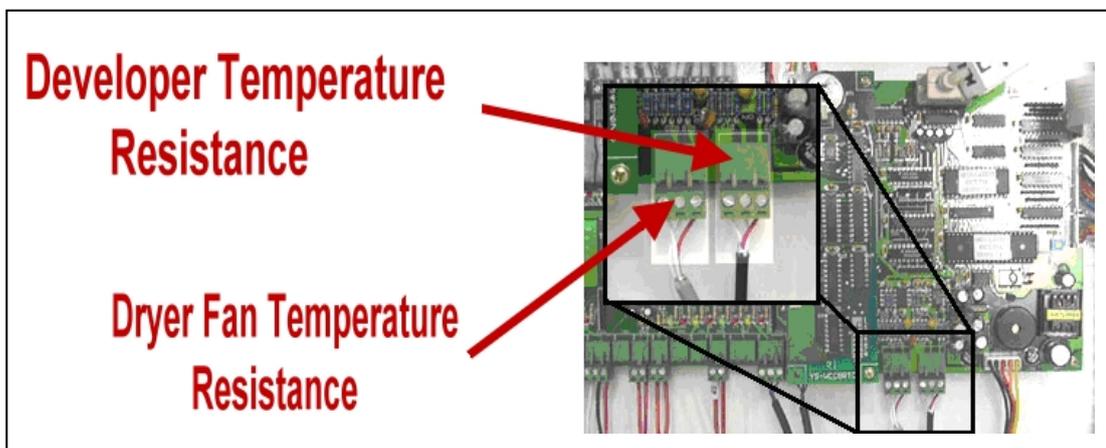
### 5.1 General Explanations :

Some parameter setting items in the processor are no need to adjust and some are important data that need to be protected to prevent wrong adjustment. The parameter described below were set for hidden and can not be found unless pressing the orange button on main board while selecting the setting menu.



### 5.2 Temperature Calibration :

The temperature sensor and the temperature sensor circuit can have error margins and are therefore calibrated before the Plate Processor leaves the factory. If the temperature reading on the LCD is different from actual value measured by the thermometer, temperature calibration is required, to make sure it feedback accurate and reliable value (temperature) to the main board.



※ Always calibrate developer temperature if a CPU board is replaced.

### 5.2.1 Choose setting option :

There two options for temperature calibration.

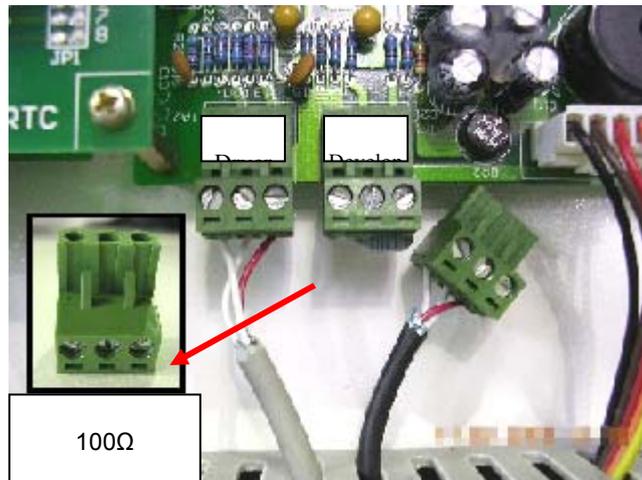
- 1 Developer Bath : to calibrate developer temperature
- 2 Dryer Fan : to calibrate dryer fan temperature.

Use [ + ] or [ - ] key to choose the items and press [ **Enter** ] key to enter (start) temperature calibration.

#### Temperature Calibration Selections

```
<Temperature Calibration>
1. Developer Bath
2. Dryer Fan
```

### 5.2.2 Developer Bath Calibration :



#### Step1. Insert zero-degree standard resistor.

Please replace the developer bath temperature-detect resistor with the zero-degree standard resistor.

Press [Enter] to continue

As above display appeared ,replace the green connector (developer temperature sensor) on TA1 with the zero-degree standard resistor and press [ **Enter** ] key. The following message appears.

**Step2. Zero-degree calibration in progress.**

Zero-degree temperature calibration in progress.  
Please wait.

This message indicates that the Plate Processor is calibrating the zero-degree temperature resistor. Please wait as the process will take a few moments. After finished zero-degree calibration, the following message appears.

**Step3.Replace the original resistor and input correct temperature**

Please replace the developer bath temperature-detect resistor and enter the current developer temperature.  
2 5 . 0

Place developer bath temperature-detect resistor back and input current bath temperature. Press **【Enter】** to finish the calibration.

5.2.3 Dryer Fan Calibration :

Referring to the operation of **5.2.2** to calibrate the dryer fan temperature.

**5.3 Chinese / English Mode Setting :**

Definition: To select the language (English or Chinese) displayed on the LCD

中／英文模式切換  
1.中文模式  
2.E n g l i s h  
1

#### 5.4 Gum Cylinder Clean Setting :

Definition: After a long period of stop working, the gum adheres to the gum roller and become harden. It might contaminate or scrape the plate surface or cause an obstruction to the gum discharging tube. Gum cylinder clean setting could keep off the situation mentioned above. (Optional)

##### 5.4.1 Gum Cylinder Clean Time Setting ( min ) :

Gum Cylinder Clean Time Setting ( min ) :
--

Input the required cleaning time of gum cylinder

##### 5.4.2 After clean, drain water delay time ( min ) :

Gum Cylinder Clean After Clean , Drain Water delay Time
--

Set drain water delay time. After the period of delay time, the system switches to gum circulation. It prevents the remained cleaning water mixed with gum.

#### 5.5 Temperature Setting :

Definition: To set appropriate value of temperature to switch on or off the heater and chiller.

##### 5.5.1 Heater Setting :

- a. When current temperature is x °C lower than setting temperature, turn the heater on :

Heater Setting Delta T : Heater On  0.3
--

- b. When current temperature is  $x$  °C higher than setting temperature, turn the heater off :

Heater Setting	
Delta T :	Heater Off
	0.1

5.5.2 Chiller Setting :

- a. When current temperature is  $x$  °C lower than setting temperature, turn the Chiller on :

Chiller Setting	
Delta T :	Chiller On
	0.4

- b. When current temperature is  $x$  °C higher than setting temperature, turn the chiller off :

Chiller Setting	
Delta T :	Chiller Off
	0.2

- c. Set the minimum running time for the chiller to prevent frequently start and stop.

Chiller Setting	
Minimum Chiller	
On Time (Min)	5

- d. Set the minimum shut down time for the chiller to prevent frequently start and stop.

Chiller Setting
Minimum Chiller
Off Time (Min)
5

5.5.3 Temperature Delta for Warning ( °C ) :

- a. Set a tolerance value, if the developer temperature is higher or than the setting value, a warning message showed on LCD.
- b. Even if the warning message showed on LCD, plate processor is still functioning.

Temperature Delta for Warning(C)
0.8

5.6 Replenish Rate for Developer Pump :

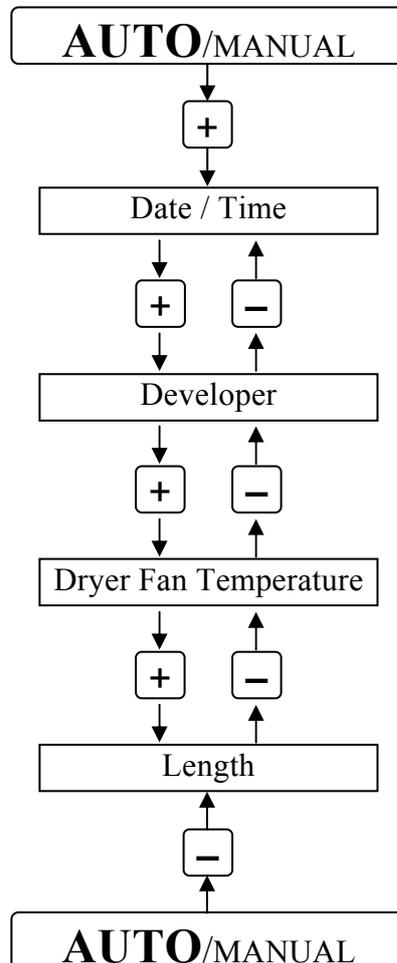
Set the replenish rate (ml per second) of developer pump  
(Executed only by qualified technician)

Replenish Rate for Developer Pump
(ml / sec)
4.85

### 5.7 Calendar Setting :

Set the correct time on the system. Follow the displayed message to input the current Year 、 Month 、 Day 、 Hour and Minute.

### Plate processor status chart



## 7. Plate Processor Status

In the auto mode, there are four sets of processor status displayed on LCD alternated by pressing the [-] or [+] button.

- Date: Displays the current year, month, day, and time.
- Developer Solution: Displays the current developer solution temperature, in degrees Centigrade, as detected by the temperature sensor.
- Fan: Displays the current dryer temperature, in degrees Centigrade, as detected by the temperature sensor.
- Length: Displays the current total length of the processed plate in meters.

## 8 Operations

### 8.1 Starting Up

Turn on the external power source, reset the Emergency Stop button, turn on the main power switch, press the Start button, and select whether to apply the gum solution.

### 8.2 Standby Replenishment

- When the Plate Processor is turned on, the system checks the total time that has elapsed since the last standby replenishment. The display will display “Execute Standby Replenishment?”
- Press [+] or [-] to select 0 (Don’t Replenish) or 1 (Replenish).
- Press [Enter] to begin the selected operation. If 0 (Don’t Replenish) is selected, the Plate Processor goes into temperature standby. If 1 (Replenish) is selected, the Plate Processor automatically determines the total time that has elapsed since the last standby replenishment by calculating the day and time the Plate Processor was last used and the current day and time, and converting the result into minutes. At this point, the Plate Processor will use the Standby Replenishment setting to replenish the developer solution. (Please refer to the Standby Replenishment Setting.)
- After replenishment, the system goes into temperature standby.

### 8.3 Temperature Standby

Standby
Developing: 37.5
Now: 28.0

- During temperature standby, if the current developer solution temperature is lower than that required in operation, the LCD will display a “Standby” message along with two rows of values.

The upper row shows the preset developing temperature, while the lower row shows the current developer solution temperature. The Plate Processor automatically detects the actual temperature and compares it with the set temperature, and decides whether to increase the temperature to the set temperature. The Plate Processor is in

temperature standby and is unable to perform work until the temperature reaches the set value.

- The operator can continue to set parameter values during temperature standby.

#### 8.4 Setting Operational Conditions

- Setting the developer solution temperature (range: 20 – 40 C, different developer solutions have different optimal temperature settings)
- Setting the plate processing speed (range: 0.7 – 3.1 m/min; initial setting: 1.0)
- Setting the brushing speed (range: 80 – 160; initial setting: 120)
- Setting the dryer temperature (range: 20 – 80 C; initial setting: 70 C)

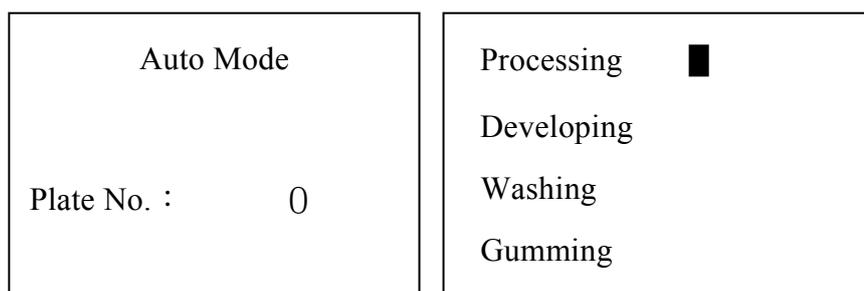
#### 8.5 Auto Mode (Plate Developing)

- The figure below at left shows the LCD display after pressing [Auto/Manual] and entering the Auto Mode.
- In Auto Mode, the Plate Processor begins automatic developing when the plate feeder sensor detects a plate.
- The LCD will display the current Plate Processor operation in reverse animation: developing, washing, fixing, and drying.

01. The LCD display will return to normal after each of the above operations is completed.

02. A rectangular cursor will be displayed at the lower left corner of the LCD screen after the plate is fed into the Plate Processor. The next plate can now be fed into the Plate Processor.

03. After a plate is developed, the LCD will display the Auto Mode at the left of the following figure, and the Plate Processor will wait for the next plate to be processed.



## 8.6 Plate Eject

- If the plate being fed is askew and jams to the side, press the Plate Eject Switch at the left side to eject the jammed plate.
- After the plate is ejected, turn off the Plate Eject Switch to return to the Auto Mode.

## 8.7 Emergency Stop

- There are two red Emergency Stop Buttons, one at the upper left side at the front, and the other at the upper right side at the back of the Plate Processor. Press the Emergency Stop Button to cut power supply to the Plate Processor during an emergency.
- To re-start the Plate Processor, reset the Emergency Stop Button by pulling it upward. Power is not immediately supplied to the Plate Processor after reset; press the green Start Button to turn on the power.