SOUTHERN MACHINERY

Meet the Needs of the SMT Age

Please read this user manual carefully before running

SOUTHERN MACHINERY

SEMI AUTOMATIC PRINTER

USER MANUAL

Thanks for using semi automatic printer!

Warning:

- **Only well-trained personnel should operate and maintain this equipment**
- **Ensure input power coincide with rated voltage and current of machine**
- **Ensure the power supply is under OFF state before making connection to prevent damage to the control system**
- **In order to ensure safety operation, the descent speed of lift cylinder for stencil should not less than 1.5 seconds.**

Notice:

○ Please read this user manual carefully before operating

○ Do not install the machine near the source of EMI (Electro Magnetic Interference)

○ Please maintain the machine according to manual demand

○ Do not make changes to any software and hardware settings in electric control box

○ Please keep this manual carefully for reference during maintenance and examination

○ Please turn off the circuit breaker in the machine if machine is no use for a long time

Shipping list:

(Besides computer, it includes the following accessory, or contact our service department)

◇ One tool box (a set of Allen key, crosshead screwdriver, flat-blade screwdriver, a monkey wrench and a 3A fuse)

◇ 20 support posts

◇ 12 location pins (4 kinds of specifications and 4 pieces for each kind)

◇ A pair of blades, the specifications of steel blade is 250mm (equip with the machine)

CONTENTS

1.SUMMARY

Printer mainly use for solder paste and pastern's printing.

The main parts of this machine adopt import parts, microcomputer controls the electrical equipment, SMC cylinder, multiple safeguard design, good reliability and capability.
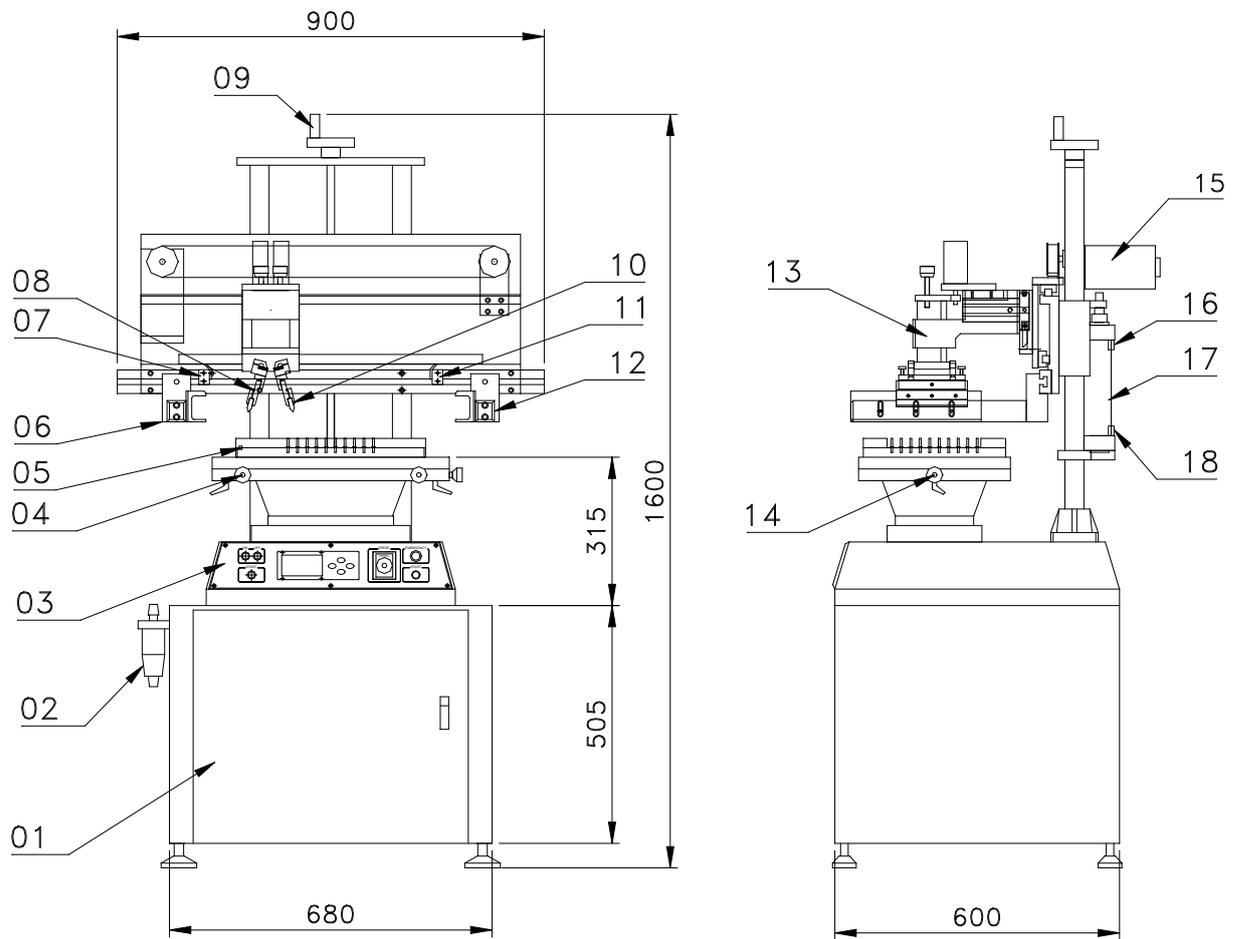
Main features:

○Adopts Panasonic speed control motor and rail drive steel squeegee base to ensure printing steady

○The squeegee base can be uplifted 45°, easy to disassemble the squeegee and clean the screen

○The printing base can be move front and rear and fixed to ensure perfect printing effect

○ The printing table has groove and location pin, suited for single and double-sided board production

○Adopts X.Y.Z axes to align the board by using arm (screen stencil) and printing table

○ Microcomputer control, equipped with LCD, user friendly interference and with counting function.

2.TECHNICAL SPEC

TYPE	SP-300
Printing area	330X250mm
Printing table	400X300mm
Max. screen dimensions	750X550mm
Min. screen dimensions	470X370mm
Table adjusting	1.front and rear——±10mm 2.left and right——±10mm 3.truning——±30°
Dimensions	About 900（L）X700（W）X1600（H）mm
Weight	About 300 kg
Power supply	220V　　10A　　50/60HZ
Air supply	5kg/cm^2
Power	0.6KW

3.OPERATING GUIDE

01.frame

02.air filter combination

03.control panel

04.Y axes inching

05.table

06.left arm

07.left limit－proximity/position switch

08.left squeegee

09.printing space setting handwheel

10.right squeegee

11.right limit－ proximity/position switch

12.right arm

13.squeegee base

14.X axes inching

15.drive motor

16.up-limit magnetic switch

17.lift cylinder

18.down-limit magnetic switch

4.FIXING AND ADJUSTING

4.1 GENERAL OPERATING CONDITION

1. Place the machine on a horizontal location with adequate air ventilation;

2. Do not install the machine near the source of EMI;

3. Ambient temp should be within 5~45℃;

4. Ambient humidity should be within 20~95%;

5. Use rated voltage of 220V(10A) (good earth);

6. Use 5-7kg/cm^2 industry air supply which has been filtered.

4.2 FIXING AND ADJUSTING

1.Ensure there is an adequate space between machine and around for maintenance;

2.Adjust the bolt higher than truckle, and make the table level and fixed with level bar;

3.The power supply is 220V 50/60Hz, and connected to supply socket;

4.The air pressure is 5-7kg/ cm^2, and connected to air filter.

5.OPERATION

5.1 EXAMINE BEFORE POWER ON

1. Check if power supply is single phase of rated voltage and current;

2. Check if the main power supply is connected to the machine;

3. Check if the air supply is connected to the machine and the pressure is adjusted to 5kg/cm^2;

4. Check if there is any sundries in the control box;

5. Check the lubrication for each parts;

6. Check if each connection socket in control box is connected well;

7. Ensure the installation of the machine has been completed as detailed in manual.
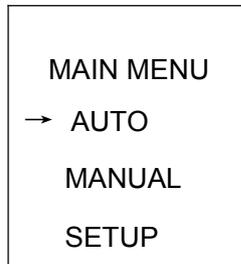
5.2 OPERATING PROGRAM

5.2.1 EXAMINE BEFORE POWER ON
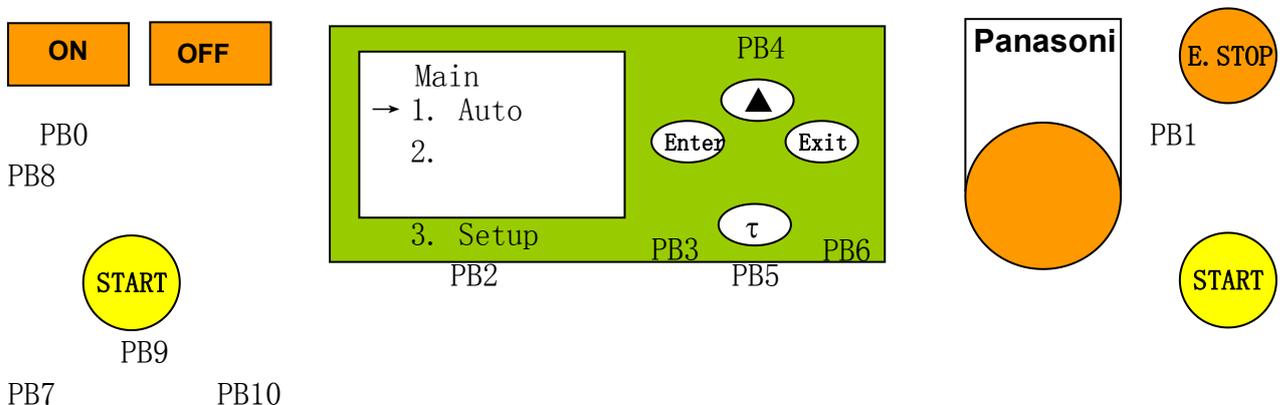
5.2.2CONTROL PANEL ILLUMINATION

PB0： ON   (Power on)   PB1： OFF   (Power off)

PB2：LCD   PB3：ENTER   (Confirm)

PB4： ▲   (Cursor up)   PB5： τ   (Cursor down)

PB6：EXIT   (Exit)   PB7: Speed controller

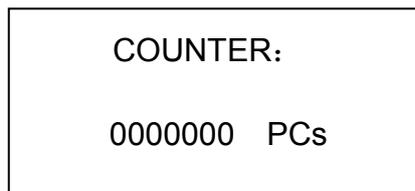PB8：Emergency stop button   PB9/PB10： START   (Start up)

5.2.3OPERATION STEPS

5.2.3.1Turn on the machine, press ON, the control circuit electrified and will be delayed 3 secs., the main circuit electrified. The machine will enter into initialization program, and the panel will display: 'JT   PRINTER······ '

5.2.3.2After initializing, panel will display the menu as follow:

```
┌─────────────────────┐
│                     │
│    MAIN MENU        │
│  →  AUTO            │
│     MANUAL          │
│     SETUP           │
│                     │
└─────────────────────┘
```
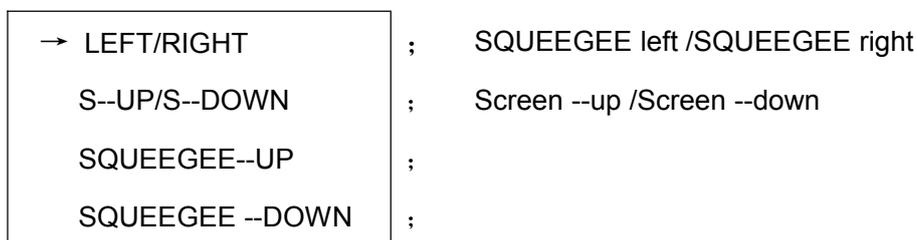
Press ▲ or τ , choose the cursor to the position you need, then press ENTER will be OK.

5.2.3.3AUTO—mode: Choose AUTO in the main menu, depress ENTER will enter into auto working interface, the menu will display as follow:

```
┌─────────────────────┐
│                     │
│    COUNTER：         │
│                     │
│    0000000   PCs    │
│                     │
└─────────────────────┘
```

Place the PCB, press the two START at the same time, the printer will carry out single or double print according to the setting operation mode. It will be finished a period of screen stencil down, squeegee down, single print, squeegee up and stencil up, and the counter will be added one. Repeat for normal operation, LCD will display the printed board no. Press EXIT to turn back to main menu. Other keys will be ineffective in the process of operation except E.STOP key, it will be reworked after finishing a working period.

5.2.3.4 MANUAL mode: Choose MANUAL then press ENTER, it will display the following menu:

```
┌─────────────────────┐
│  →  LEFT/RIGHT      │  ；   SQUEEGEE left /SQUEEGEE right
│     S--UP/S--DOWN   │  ；   Screen --up /Screen --down
│     SQUEEGEE--UP    │  ；
│     SQUEEGEE --DOWN │  ；
└─────────────────────┘
```

Press ▲ or τ to choose the function, then press ENTER, for example, choose the cursor point to LEFT/RIGHT, then press ENTER, if the squeegee is on the left side of rail, it will run to the right side of rail, whereas it will run to the left side of rail. Repress ENTER, the squeegee will run repeatedly.

When you want to carry out the function of screen stencil up/down, choose S—UP/S—DOWN at the menu, and press START at the same time, if the stencil is on the upper side of cylinder, the stencil will fall down to the bottom, whereas it will rise up to the top. Repress START it will up/down repeatedly.

Choose KNIFE-UP then press ENTER, the two squeegees will up to position at one time.

Choose KNIFE-DOWN then press ENTER, if the printhead is on the left side of rail, the left squeegee down, if the printhead is on the right side of rail, the right squeegee down.

Press EXIT to exit the main menu. The function is used for stencil, squeegee and PCB adjusting.

5.2.3.5SETUP mode: Choose SETUP at the main menu, press ENTER, it will display the following:

UP--TIME	00	SEC	;	The time of squeegee up
DOWN--TIME	00	SEC	;	The time of squeegee down
SCOUNTER	00	PCs	;	Counting number
MODE	0		;	Operation mode

Press ENTER to choose the parameter you need to set, press ▲ or τ to change parameter:

To change the squeegee's rising time, press ENTER to make the cursor point to UP—TIME, press▲, the data will be added one, press τ will be reduced one, its value will be confirmed by the squeegee rising speed. It means the needed time of the printhead rises to the top after printing. (0—99)

To change the falling time, press ENTER to make the cursor point to DOWN—TIME, press ▲, the data will be added one, press τ will be reduced one, its value will be confirmed by the falling speed. It means the time of the squeegee falling to the screen after the screen falling to the position, and the squeegee will print the board. (falling time is 0—99)

To change the counting number, press ENTER to make the cursor point to SCOUNTER, press ▲, the data will be added one, press τ will be reduced one, its function is to set a number, when the printing time equal to the present value, the buzzer will prompt for clean the screen stencil. The setting time will be confirmed according to ordinary time. When the setting value is zero, the buzzer won't prompt. The specific setting will be confirmed by customer's demand (the time is 0—99).

To change the operation mode, press ENTER to make the cursor point to MODE, it has 0 and 1 two value, press ▲ or τ , the data will be changed from 0 to 1 or from 1 to 0 to set the printing time.

When MODE is 0, the printer will finish a period of screen down, squeegee down, single print, squeegee up and screen up.

When MODE is1, the printer will finish a period of screen down, squeegee down, single print, squeegee up, squeegee down, single print, squeegee up and screen up.

Press EXIT to exit the menu.

Press E.STOP, the machine stop, turn-on E.STOP, machine will be backed and turn to main menu.

The machine has power down protection function, the parameters need to set only one time.

The machine has counting function, it can count the output (upper limit is 9999999, over is 0).

If you want to clear the value, go back to the main menu, and press ENTER and EXIT key will be OK.

Notice: For safety setting, you should press the two START keys to make the screen down;

It must be 1 minute's interval to turn on the machine to ensure normal working;

After pressing EXIT every time, you should wait a moment to go on next operation.

5.3 SEQUENCE OF ADJUSTMENT AND INSTRUCTION

1.Start-up the machine: Press ON to turn on power supply, and the printing base will back to the original position automatically (subject to the last machine's shut down).

2.home：choose MANUAL，in manual state，choose S--DOWN（Screen-down），Make the halftone fell to lows，Use a ruler or PCB is put between the bedplate and holder in a horizontal line，Adjust the spacing to adjust the handwheel as zero setting，Determined by the thickness of the PCB printing spacing。

3.printing setting：According to the screen graphics to place PCB，Adjust the PCB to the suitable position，Activity type adjustable positioning PIN locating fixed them accordingly。

4.Mode of plate position,Using artificial correction first，Fixed screen bedplate fine-tuning of the reoccupy after correction。

5.Printing stroke setting：Proximity switch position adjustment，Use manual way scraper about moving to the corresponding screen graphics。

6.Scraper leveling method：Loosen the scraper fixed nut，Adjust the knurled screw on both ends to scraper levels Then fixed。

7.Adjusting squeegee elevation: Loosen the front and rear fixed bolts to adjust the angle.

8.Adjusting printing speed: Adjust the speed controller on control panel to optimum speed.

6.BASIC TROUBLESHOOTING

| Malfunction	Cause of trouble	Troubleshooting
Otter cannot rise Otter cannot down	1.Air not access or air pressure is insufficient 2.Upper and lower cylinder throttle valve adjustment not good 3.Upper and lower cylinder magnetic switch is not induced or defective, solenoid valve is faulty 4.Control boardl is damaged	1.Check air 2.Adjust valve 3.Check or change switch 4.Check or change control board
1,About scraping glue cannot be printed 2,Scraper holder is beyond the scope of mobile	1.Upper and lower cylinder magnetic switch is not induced or defective 2,Control boardl is damaged	1,Check or change switch 2,Check or change control board
1,no power input 2,LCD screen display	1.The main power supply without access to or supply fault occurs 2.Open the air switch in the main power supply connection place 3.Damage of the fuse burned or control panel 4.Control panel with LCD screen attachment loss	5.Check the main power supply or replace the switch 6.Check the air switch 7.Check or replace the fuse or control panel 8.To access the attachment
The liquid crystal display garbled	1.The signal interference	1.At the same time press EXIT and ENTER to clear the screen, will set the content to reset
Membrane switch control failure	1.Control panel and membrane switch attachment loss 2.Control boardl is damaged	1.Check the control panel and membrane switch connection 2.Check or change control board

7.AIR PRESSURE MAINTENANCE

7.1AIR PRESSURE MODULE:
　　1.Please don't use too much water and impurity to enter air pressure system ,In order to avoid airway blockage and make their lives cut short;
　　2.Please keep the air compressor air dry and clean;
　　3.If there is no air compressor filters,Please note that often examine whether combination of air filtration water cup water;

7.2AIR FILTER UNIT:
　　1.Pressure regulating valve setting 5-7kg/cm^2;
　　2.Please note every day check if cups has water or drainage;
　　3.Please note that every month to see if need to add a new oil to oil cup;

7.3OTHERS:
　　1.Input and output of air pressure shown as the following figure;
　　2.Adjusting the oil quantity of air filter, add oil and drainage shown as the following figure;
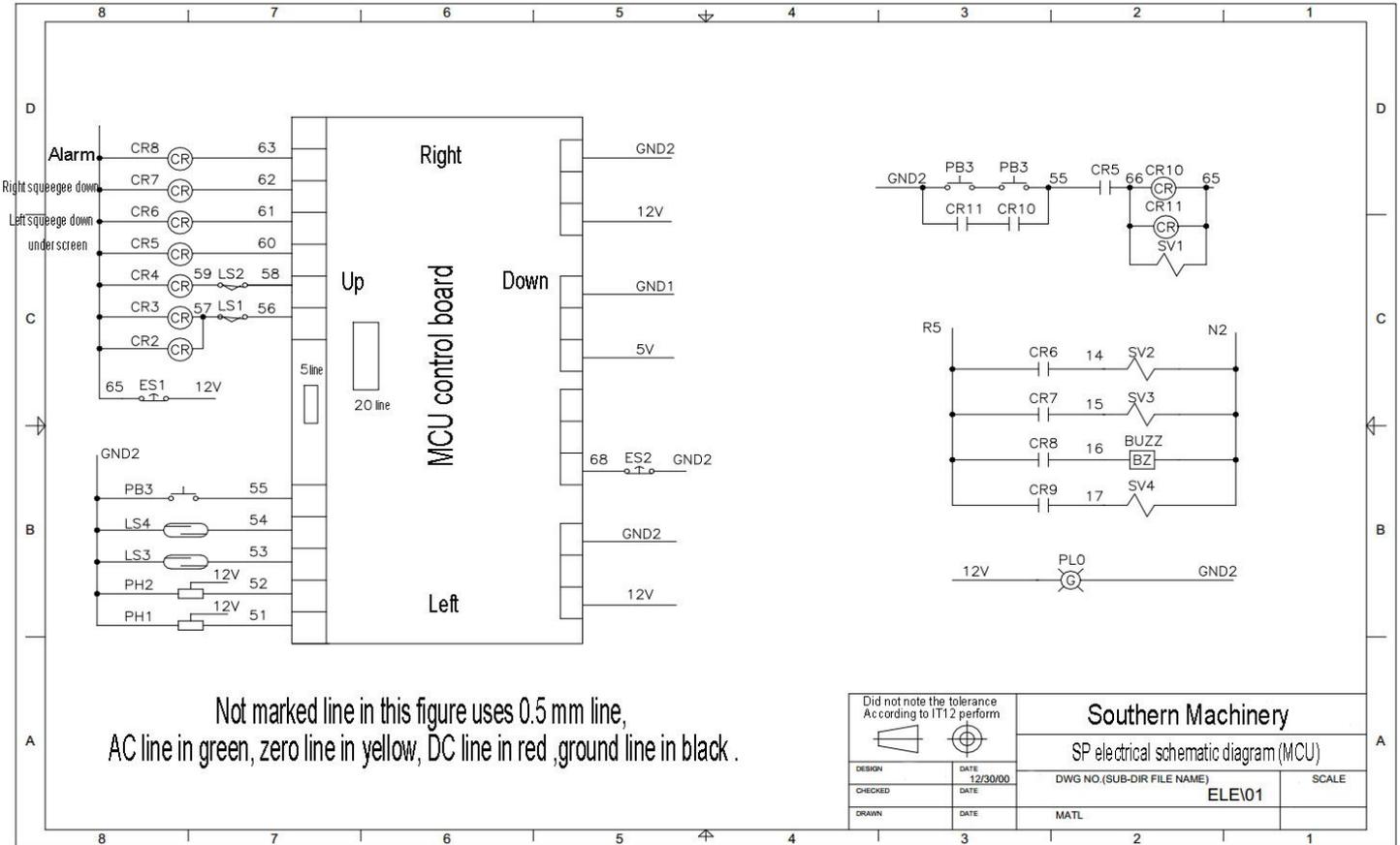　　3.Don't disassemble the air filter unit by yourself for it is precision assembly.
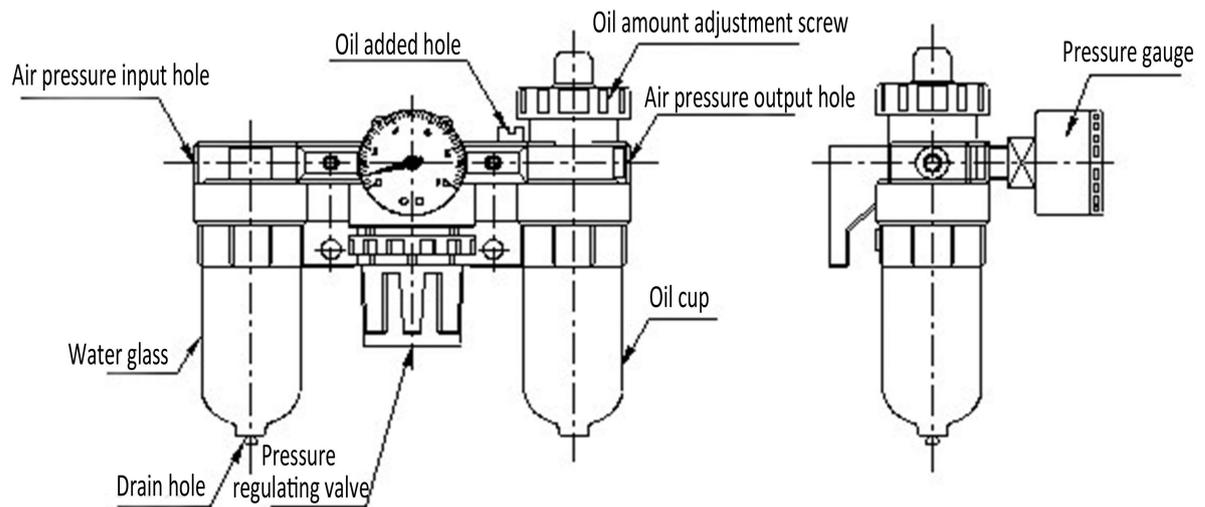
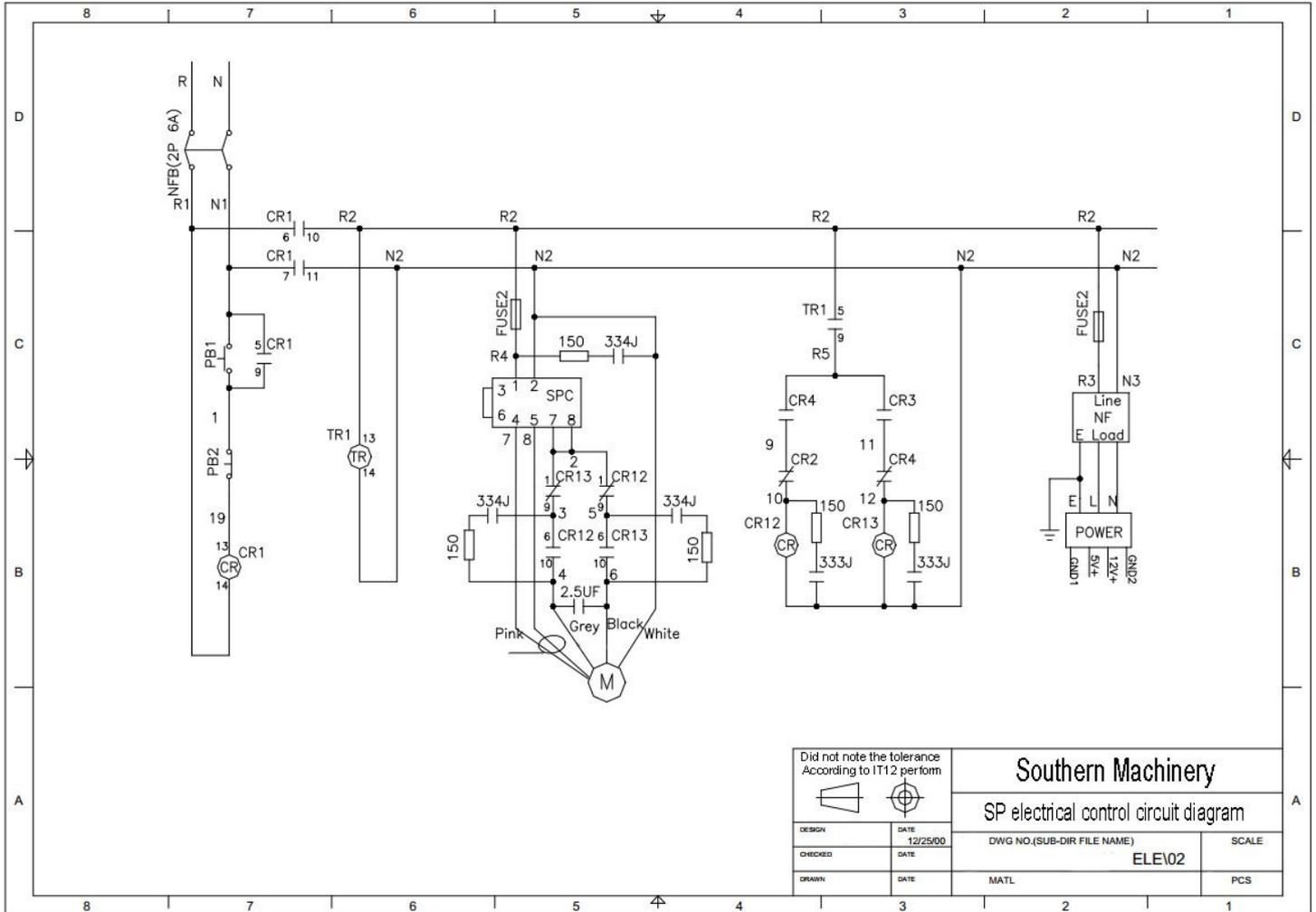（ **Air filter combination**）

8.APPENDICES

8.1   PNEUMATIC DIAGRAM
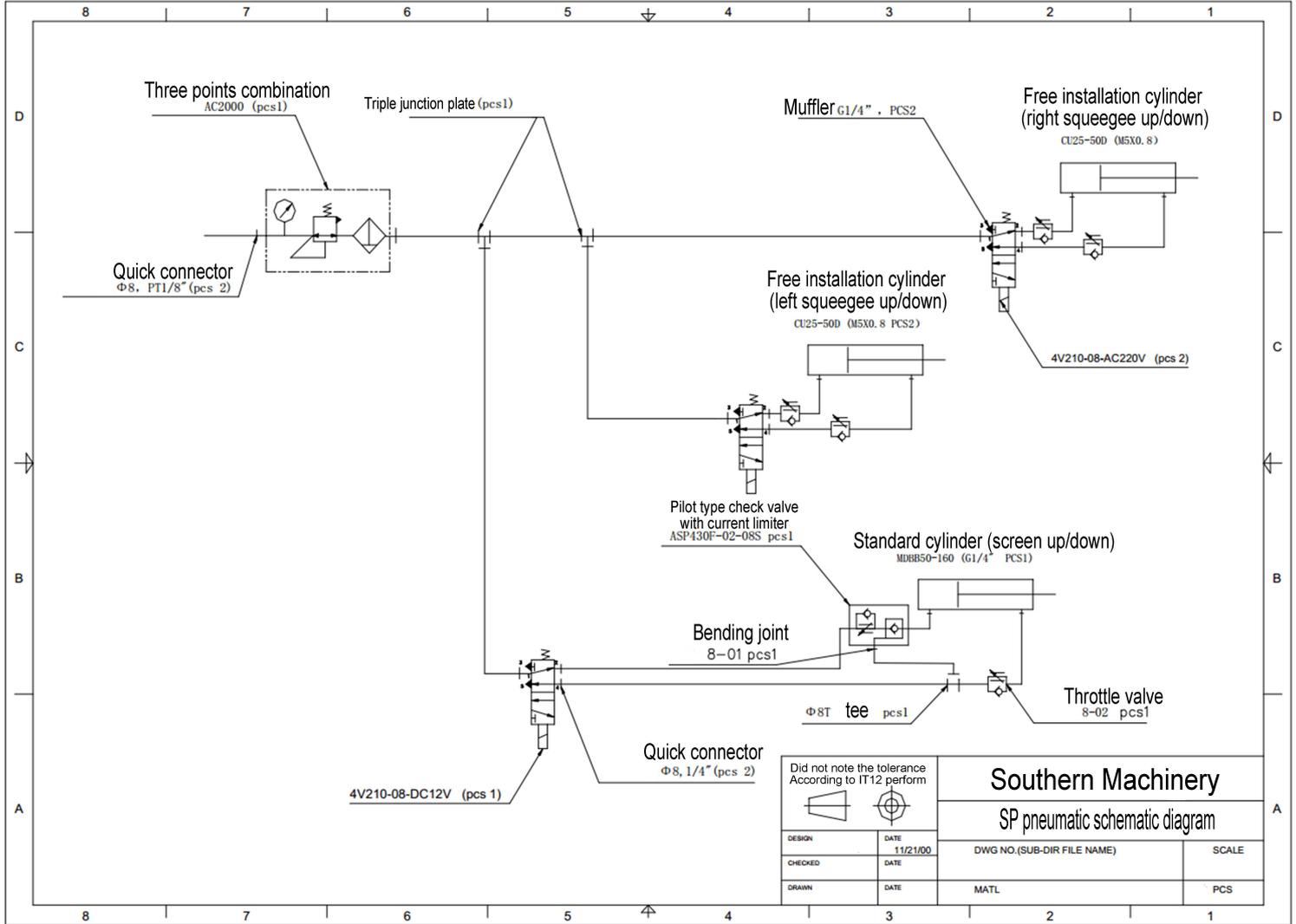
8.2 CONTROL DIAGRAM 1

8.3   CONTROL DIAGRAM 2

The specifications here are subject of change without prior notice.

 Welcome to choose and buy other types of equipment of our company,

special demand should be allowed as order.

Welcome inquiry

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