MCj03463170000[1]Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
2. The product should be installed and pre-operated by well-trained persons. All power supplies must be turned off during the installation work, remember not to operate with power on.
3. All the instruction marked with sign MCj03463170000[1] must be observed or executed. Otherwise, bodily injuries might occur.
4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
5. When connecting the power cord, it must be determined that the operating voltage conforms to the rated voltage value specified in the product identification.
6. Don＇t operate in direct sun light，outdoors area and where the room temperature is over 45°C or below 0°C.
7. Please avoid operating near the heater at dew area or at the humidity below 10% or above 90%.
8. Don＇t operate in area with heavy dust, corrosive substance or volatile gas.
9. Avoid power cord being applied by heavy objects or excessive force, or over bend.
10. The earth wire of power cord must be connected to the system ground of the production plant by proper size of conductions and terminals. This connection should be fixed permanently.
11. All the moving portions must be prevented to be exposed by the parts provided.
12. Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
13. Turn off the power before the following operation:

1. Connecting or disconnecting any connectors on the control box or motor.

2. Threading needle.

3. Raising the machine head.

4. Repairing or doing any mechanical adjustment.

5. Machines idling.

1. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
2. All the spare parts for repair must be provided or approved by the manufacturer.
3. Don’t use any objects or force to hit or ram the product.

**Guarantee Time**

Warranty period of this product is 1 year dated from purchasing, or within 2 years from ex-factory date.

**Warranty Detail**

Any trouble found within warranty period under normal operation, it will be repaired free of charge. However, maintenance cost will be charged in the following cases even if within warranty period:

1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.

2. Damage by fire, Earth quake, lighting, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.

3. Dropping after purchasing or damage in transportation by customer himself or by customer’s shipping agency

\* We make our best effort to test and manufacture the product for assuring the quality. However, it is possible that this product can be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected. Therefore the grounding system of operate area must guarantee the good earth and it’s also recommended to install a failsafe device (Such as residual current breaker).

**1 Button displays and operating instructions**

**1.1 Key description**

| Name | key | Indicate |
| --- | --- | --- |
| Function key |  | If press, enter or exit function parameter edit mode.  If long press, switch to the password input interface. Enter the correct password, press the S key to confirm, you can enter the advanced parameter setting interface. |
| Enter key |  | For the content of the selected parameters check and save: after select parameter press this key to check and modify operation, after modified parameter value press this key to exit and save the parameter. |
| Speed increase |  | If press, increase the speed.  If long press, the speed will be increased continuously. |
| Speed decrease |  | If press, decrease the speed.  If long press, the speed will be decreased continuously. |
| LED brightness adjustment |  | In the main interface, if press, adjust LED brightness.  In the parameter interface, if press, the value of thousands digit will be increased. |
| Slow launch setting |  | In the main interface, if press, set used or cancelled slow launch function.  In the parameter interface, if press, the value of hundreds digit will be increased. |
| Automatic presser foot lifting setting |  | In the main interface, if press, switch function off, automatic presser foot lifting after trimming, automatic presser foot lifting after pause, full function successively.  In the parameter interface, if press, the value of tens digit will be increased. |
| Auto-suction |  | In the main interface, if press, set used or cancelled auto-suction function.  In the parameter interface, if press, the value of units digit will be increased. |
| Needle stop position selection |  | In the main interface, if press, set needle stop position.  In the parameter interface, if press, the value of thousands digit will be decreased. |
| Thread sweep key |  | In the main interface, if press, set used or cancelled thread sweeping function.  In the parameter interface, if press, the value of hundreds digit will be decreased. |
| Upper knife trimming |  | In the main interface, if press, set used or cancelled upper knife trimming function.  In the parameter interface, if press, the value of tens digit will be decreased. |
| Lower knife trimming |  | In the main interface, if press, set used or cancelled lower knife trimming and upper knife trimming function.  In the parameter interface, if press, the value of units digit will be decreased. |

**1.2 Auxiliary function**

**1.2.1 Debugging mode**

Long press “” in the main interface, switch to the debugging parameter interface. P92 motor electrical angle correction, P72 quick adjustment of upper positioning and P100 lower knife test mode.

**1.2.1 Reset**

In the main interface, press “” and “” at the same time, you can restore factory settings

**2 User parameter**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Items | Range | Default | Description |
| P01 | Maximum sewing speed (rpm) | 100-9000 | 3500 | Maximum speed of machine sewing. |
| P02 | Set accelerated curve (%) | 10-100 | 80 | Set the acceleration slope.  The greater the slope value, the steeper the speed; the smaller the slope value, the slower the speed. |
| P03 | Needle UP/ DOWN | UP/DN | UP | UP: Needle stops at up position  DN: Needle stops at down position |
| P04 | Upper sweeping solenoid output duty cycle | 0-100 | 75 |  |
| P05 | Upper sweeping action time (ms) | 10-990 | 20 |  |
| P06 | Upper sweeping return time (ms) | 10-990 | 15 |  |
| P07 | Soft start speed (rpm) | 200-1500 | 1000 |  |
| P08 | Stitch numbers for soft start (stitch) | 1-99 | 2 |  |
| P14 | Slow start function selection | ON/OFF | OFF |  |
| P21 | The position of the pedal for accelerating | 30-1000 | 500 |  |
| P22 | The position of the pedal for the stop | 30-1000 | 420 |  |
| P23 | The position of the pedal for presser foot lifting | 30-1000 | 280 |  |
| P24 | The position of the pedal for thread trimming | 30-1000 | 130 |  |
| P27-N06 | Automatic piece counting selection | 0-50 | 1 | 0: P41 item trimming counter does not automatically count  1-50: Counter thread trimming times |
| P29 | The stopping force when thread trimming | 1-45 | 20 |  |
| P37 | Upper knife thread trimming output function setting | 0-11 | 1 |  |
| P38 | lower knife thread trimming output function setting | ON/OFF | ON |  |
| P39 | [Automatic presser foot lifting](C:/Users/Administrator/AppData/Local/youdao/dict/Application/7.2.0.0703/resultui/dict/javascript:;) when pause | UP/DN | DN | UP: ON  DN: OFF |
| P40 | [Automatic presser foot lifting](C:/Users/Administrator/AppData/Local/youdao/dict/Application/7.2.0.0703/resultui/dict/javascript:;) after trimming | UP/DN | DN | UP: ON  DN: OFF |
| P41 | Counter display | 0-9999 |  | Display the quantity of finished sewing piece. Long-press “-” key to clear the count. |
| P42-NO1 | The control system version number |  |  |  |
| P42-NO2 | The panel version number |  |  |  |
| P42-NO3 | Speed |  |  |  |
| P42-NO4 | The pedal AD |  |  |  |
| P42-NO5 | The mechanical angle(up position) |  |  |  |
| P42-NO6 | The mechanical angle(down position) |  |  |  |
| P42-NO7 | Bus bar voltage AD |  |  |  |
| P42-N11 | Status information |  |  |  |
| P43 | Direction of motor rotation | CCW/CW | CCW | CW: Clockwise  CCW: Counter clockwise |
| P44 | Normal stopping force | 1-45 | 15 |  |
| P45 | Periodic signal of suction output (%) | 1-80 | 80 |  |
| P48 | The minimum speed (positioning speed) (rpm) | 200-1000 | 500 | Adjust the minimum speed. |
| P52 | Delay the start of the motor to protect the lowering time of presser foot (ms) | 10-990 | 100 | Delay the start time, with automatic presser foot down. |
| P53 | Presser foot lifting function selection | 0-2 | 1 | 0: OFF  1: Back pedaling and half back pedaling with lifting presser foot  2: Half back pedaling without lifting presser foot, back pedaling with lifting presser foot |
| P55 | Upper thread trimming action time (ms) | 10-990 | 20 |  |
| P56 | Power on and positioning | 0-2 | 0 | 0: Always not to find the upper position  1: Always to find the upper0 position  2: If the motor is already in the upper position, no longer find the upper position |
| P57 | Presser foot protection time (s) | 1-120 | 10 | Forced to close after lifting the presser foot for a holding time. |
| P58 | Upper positioning adjustment | 0-1439 | 40 | Upper positioning adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased. |
| P59 | Down positioning adjustment | 0-1439 | 750 | Down positioning adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased. |
| P60 | Testing speed (rpm) | 100-6000 | 4000 | Setting testing speed. |
| P61 | Testing A | ON/OFF | OFF | Continuous running testing. |
| P62 | Testing B | ON/OFF | OFF | Start and stop testing with all functions. |
| P63 | Testing C | ON/OFF | OFF | Start and stop testing without all function. |
| P64 | Test run time | 1-250 | 50 |  |
| P65 | Test stop time | 1-250 | 50 |  |
| P69 | Motor type selection | 0-50 | 0 |  |
| P70 | Model selection | 1-45 | 31 |  |
| P72 | Quick adjustment of upper positioning | 0-2399 |  | Adjust up needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as up needle position. |
| P73 | Quick adjustment of down positioning | 0-2399 |  | Adjust down needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as down needle position. |
| P76 | Lower thread trimming engage stroke | 0-800 | 580 |  |
| P77 | Height of press foot stroke | 0-1000 | 580 |  |
| P78 | Lower thread trimming engage acceleration | 1-30 | 10 |  |
| P79 | Lower thread trimming retract acceleration | 1-40 | 12 |  |
| P80 | Acceleration of presser foot lifting | 1-60 | 20 |  |
| P81 | Acceleration of presser foot lowering | 1-60 | 12 |  |
| P86 | Up and down needle position distance | 0-2399 | 1200 |  |
| P87 | Return delay of upper thread trimming (ms) | 10-990 | 15 |  |
| P88 | Upper thread trimming solenoid output duty cycle | 0-100 | 75 |  |
| P89 | AC overvoltage setting | 500-1023 | 880 |  |
| P92 | Motor electrical angle correction |  | 160 | Reading the initial Angle of encoder, the factory default was set, please do not change the values (parameter value cannot be changed manually, random change it will result the control box and motor abnormal or damaged). |
| P93 | Half back pedal delay time (ms) | 10-900 | 150 |  |
| P100 | Lower knife test mode | 0-800 | 0 | When the value is 0, the knife will be closed by default. When it is greater than 0, the stroke of the corresponding value will be taken (for example, if it is adjusted to 200, and then press save, the scissors will take a stroke of 200). After exiting P100, the knife will be closed by default. |
| P105 | Output selection of upper knife trimming port | 0-3 | 1 | 0: Upper knife trimming  1: Upper thread sweeping  2: Upper knife trimming and Upper thread sweeping  3: Air blow |
| P107 | Suction action time (s) | 0-60 | 0 |  |
| P108 | DC motor drive output enable | 0-1 | 0 | 0: OFF  1: ON |
| P110 | Thread trimming / presser foot stepping motor zero point correction | -500~500 | 0 |  |
| P111 | Presser foot steady current (0.1A) | 7-25 | 10 |  |
| P112 | Current compensation for presser foot (0.1A) | 0-9 | 5 |  |
| P119 | Electromagnet overcurrent protection | 0-1 | 1 | 0: No alarm, turn off the output.  1: Alarm and shutdown. |

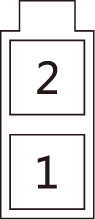
Note: the initial value of parameters is for reference only, and the actual value of parameters is subject to the real object.

**3 Error code list**

|  |  |  |
| --- | --- | --- |
| Error code | Problem description | Solutions |
| E01 | High voltage | 1. Whether the grid voltage is higher than AC260V.  2. If it is self-generated power supply, please reduce the generator power.  3. If it still does not work normally, please replace the control box and notify the after-sales service. |
| E02 | Low voltage | 1. Whether to connect to low voltage.  2. Reset.  3. If it still does not work normally, please replace the control box and notify the after-sales service. |
| E03 | CPU communication abnormal | 1. Turn off the system power and check whether the connection of the display screen is loose or disconnected, restart the system after returning it to normal.  2. Turn off the system power, remove the control box and only plug in the power cord to power on, whether alarm E05, if it still alarms E03, replace the control box and notify the after-sales service. |
| E05 | Pedal signal abnormal | 1. Check whether the pedal connector is loose or fall off, and restart the system after returning it to normal.  2. If it still does not work normally, please replace the control box or speed controller and notify the after-sales service. |
| E07 | Main shaft motor locked-rotor | 1. Turn off the power and check whether the handwheel can be turned smoothly (turn the handwheel by hand), if it cannot be turned, please check the machine.  2. Turn off the power, check whether the motor power connector is loose, plug it in and restart it.  3. Check whether the upper needle stop position is correct, if not, please adjust the upper positioning position.  4. If it still does not work normally, please replace the control box or spindle motor and notify the after-sales service. |
| E10 | Electromagnet overcurrent protection | Turn off the system power and check the solenoid (solenoid valve) for damage or short circuit. |
| E09  E11 | The positioning signal of main shaft motor encoder is abnormal | 1. Turn off the system power, check whether main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system.  2. Check whether the motor zero point correction setting is correct; Reset the motor zero point correction; Whether there is oil on the encoder code plate, please clean it if there is any.  3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service. |
| E14 | Main shaft motor encoder signal is abnormal | 1. Turn off the system power, check whether the main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system.  2. Check whether the grating is installed correctly (whether the grating screws are tightened and whether the grating is in the center of the encoder).  3. Check whether there is oil on the encoder code plate, if there is, please clean it up, and restart the system after recovery.  4. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service. |
| E15 | Main shaft motor drive overcurrent | 1. Please check whether the motor power cord has bad contact.  2. Please check whether the motor power cord is crushed.  3. Please replace the control box or main shaft motor and notify the after-sales service. |
| E16 | The thread trimming switch is not in the correct position | Turn off the system power and check if the thread trimming mechanism returns to the correct position. |
| E20 | Main shaft motor failed to start | 1. Turn off the system power, check whether main shaft motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system.  2. Check whether the motor zero point correction setting is correct, reset the motor zero point correction.  3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service. |
| E92 | Overcurrent when the stepping motor is trimming | 1. Turn off the power of the system and observe whether the stepping motor for thread trimming (presser foot) is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor interface is loose or falling off, and then restart the system after returning it to normal.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |
| E94 | The positioning signal of trimming (presser foot) stepping motor encoder is abnormal | 1. Turn off the system power and observe whether trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether trimming (presser foot) stepping motor encoder connector is loose or falling off, and whether there is oil on the encoder code plate. If there is, please clean it up, restore it to normal and restart the system.  2. If it still does not work normally, please replace the control box or trimming (presser foot) stepping motor and notify the after-sales service. |
| E95 | Trimming (presser foot) stepping motor encoder signal is abnormal | 1. Turn off the system power, check if the thread trimming (presser foot) stepping motor encoder connector is loose or fall off, restore it to normal and restart the system.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |
| E96 | Trimming (presser foot) stepping motor failed to start | 1. Turn off the power of the system, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, and restart the system after returning it to normal.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |
| E97 | The stepping motor is locked-rotor when thread trimming | 1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |
| E98 | The stepping motor is locked-rotor when presser foot lifting | 1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |
| E99 | The stepping motor overcurrent when presser foot lifting | 1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system.  2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service. |

**4 Port diagram**

**2P function port description**



1. LED lights: 1 (DGND), 2 (+5V)

**6P function port description**



1. Upper knife thread trimming: 1 (DGND, 4 (32V)

2. Suction: 2 (DGND), 5 (32V)

3. Thread sweeping: 6 (DGND), 3 (32V)