


## Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
  2. All the instruction marked with sign  must be observed or executed; otherwise, bodily injuries might occur.
  3. The product should be installed and pre-operated by well trained persons.
  4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
  5. When connecting power supply cords to power sources, it is necessary to make sure that the power voltage is lower than 250 VAC and matches the rated voltage indicated on the motor's name plate.
- ※Attention: If the Control Box is AC 220V system, please don't connect the Control Box to AC 380V power outlet. Otherwise, the error will occur and motor will not work. If that happens, please turn off the power immediately and check the power voltage.
6. Don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 5°C.
  7. Please avoid operating near the heater at dew area or at the humidity below 30% or above 95%.
  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:
    - a) Connecting or disconnecting any connectors on the control box or motor.
    - b) Threading needle.
    - c) Raising the machine head.
    - d) Repairing or doing any mechanical adjustment.
    - e) Machines idling.
  14. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
  15. All the spare parts for repair must be provided or approved by the manufacturer.
  16. 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

Note: 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  | Icons |
|--|-----|---|-------|
| Start /End Back-Tacking Selection              |     | Execution starting back seam B segment or execution starting back seam (A, B segment) 1 Execution starting back seam (A, B segment) 2 times   |       |
|  |     | Execution terminates back seam C segment or execution terminates back seam (C, D segment) 1 Execution terminates back seam (C, D segment) 2 times   |       |
| Freedom sewing shortcuts                       |     | As the treadle is toed down, machine will start sewing. Once the treadle returns to neutral, machine will stop immediately. As the treadle is heeled back, machine will automatically start trimming cycle.   |       |
| Continuous back seam shortcuts                 |     | Once the treadle is toed down, all the seams of Bar-Tacking will be completed with D times, and then the thread will automatically be trimmed. Note: When the Bar-Tacking Sewing starts, will not stop until the trimming cycle finished, except for the treadle heeled back to cancel the action.  |       |
| Some fixed stitch shortcuts                    |     | As the treadle is toed down, Constant-Stitch Sewing E, F, G or H performs section by section. Once the treadle returns to neutral intermediately in any section, machine will stop immediately. When the treadle is toed down again, the balance stitches of E, F, G or H goes on. The key adjustable four, seven-segment, eight, and other multi-sew sewing patterns. When the display P1 ~ PF press [S] key to confirm the changes multistage sewing patterns P1 ~ PF is appropriate to modify the number of segment, the latter two is to modify the segment pin number. |       |
| Multi-set stitch shortcuts                     |     |   |       |
| Enter and determine \ save button              |     | Enter parameter values such items and their contents change after adjustment, need to press the [S] key to save the confirmation. Note: The parameters are saved directly by the [S] key.   |       |
| Mention needles / fill needle key              |     | Continuous back seam except, any kind of sewing stop, click for lifting the needle or forward fill half needle. Any kind of sewn termination is not tangent, click for lifting the needle or forward fill half needle.  |       |
| Automatically trigger button                   |     | 1. In Free sewing: One touch of this key makes beep sound without any function also LED does not light up.<br>2. In Constant-Stitch Sewing: One shot to the pedal, stitches number of E, F, G or H will be automatically performed. Toe down the pedal again and again to finish the rest sections until it finish pattern.   |       |
| Tangent line function keys                     |     | 1. Set or cancel the use of the tangent function.<br>2. The corresponding icon is not lit, turn off the corresponding functions.  |       |
| Function key enter parameter area              |     | Under normal mode, press the [P] key to enter the user parameter mode Press and hold the [P] key to boot into parameter mode Technician   |       |
| Set value increment / parameter increment key  |     | 1. A, B, C, D, E, F, G, H section, increase the number of setting stitch.<br>2. Increase the parameter in Parameter selection.<br>3. Increase the setting value in Parameter value.   |       |
| Set value decrement / decrement key parameters |     | 1. A, B, C, D, E, F, G, H decrease the number of setting stitch<br>2. Decrease the parameter in Parameter selection.<br>3. Decrease the setting value in Parameter value.   |       |
| Needle stop up and down keys                   |     | 1.  LED ON indicate stopping machine at the upper stop needle position.<br>2.  LED ON indicate stopping machine at the lower stop needle position.  |       |
| Presser foot shortcuts                         |     | 1.  LED ON=Presser Foot automatically goes up after trimming.<br>2.  LED ON=Presser Foot automatically goes up after motor stops.<br>3. Two icons are both LED ON= Presser Foot automatically goes up after trimming and motor stops.<br>4. Two icons are both LED OFF=Presser Foot is inactive.  |       |










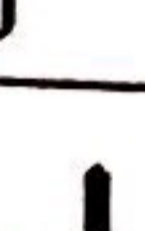







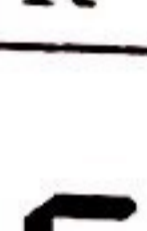

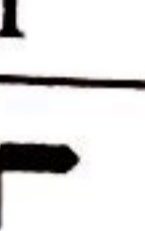





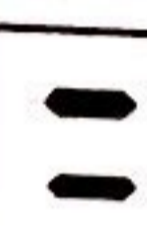
|                           |   |  |   |
|---------------------------|---|--|---|
| Slow play seam shortcuts  |  | 1. The corresponding icon lights, slow starting sewing open.<br>2. The corresponding icon is not lit, no slow-starting sewing function.    |  |
| Clamp function keys       |  | 1. The corresponding icon lights, thread nipper function is turned on.<br>2. The corresponding icon is not lit, no thread nipper function. |  |
| Maximum speed setting key |  | Speed up key: the speed should not lower than the value set by technician  |   |
|                           |  | Slow down key: the minimum speed is 200r/m   |   |

### 1.2 Comparison Table of LCD Display Fonts and Actual Fonts



#### Arabic Numerals:


|         |   |   |   |  |   |   |   |   |   |   |
|---------|---|---|---|--|---|---|---|---|---|---|
| Actual  | 0   | 1   | 2   | 3  | 4   | 5   | 6   | 7   | 8   | 9   |
| Display |  |  |  |  |  |  |  |  |  |  |

#### English Alphabet

|         |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|---|---|---|---|---|---|---|
| Actual  | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   |
| Display |  |  |  |  |  |  |  |  |  |  |
| Actual  | K   | L   | M   | N   | O   | P   | Q   | R   | S   | T   |
| Display |  |  |  |  |  |  |  |  |  |  |
| Actual  | U   | V   | W   | X   | Y   | Z   |   |   |   |   |
| Display |  |  |  |  |  |  |   |   |   |   |

### 1.3 Manually adjust the positioning












Press and hold the **[S]** key to boot into the needle position P72 term correction parameters

Enter the parameter content, the hand wheel adjustment supreme needle position (parameter will change with the hand wheel position), the **[S]** key to save the parameters (after saving, under the needle position will be automatically adjusted accordingly), the key **[P]** to exit without saving the parameters.

### 1.4 Restore factory settings

Hold down the left two **[-]** key to boot

Double-click the **[S]** key to confirm it, shutdown restart

## 2 user parameter & technician parameter

| Parameter                       | Parameter Function  | Range    | Default | Key | Description  |
|---------------------------------|---|----------|---------|-----|--|
| In the normal screen, press [P] |   |          |         |     |  |
| P01                             | Maximum Sewing Speed (r/S)  | 100-3700 | 2200    | + - | Maximum speed of machine sewing  |
| P02                             | Speed Curve Adjustment (%)  | 1-100    | 80      | + - | The Larger the value, the faster to increase speed   |
| P03                             | Needle UP/ DOWN   | UP/DN    | DN      | + - | UP: Needle Stops at Up Position<br>DN: Needle Stops at Down Position   |
| P04                             | Start Back-Tacking Speed (r/S)  | 200-3200 | 1200    | + - | Start Back-Tacking Speed Adjustment  |
| P05                             | End Back-Tacking Speed (r/S)  | 200-3200 | 1200    | + - | End Back-Tacking Speed Adjustment  |
| P06                             | Bar-Tacking Speed (r/S)   | 200-3200 | 1200    | + - | Repeat Bar-Tacking Speed Adjustment  |
| P07                             | Soft Start Speed (r/S)  | 200-1500 | 400     | + - | Soft Start Speed Adjustment  |
| P08                             | Stitch Numbers for Soft Start   | 0-99     | 2       | + - | Soft Start Stitches Setting ( one unit = half stitch)  |
| P09                             | Automatic Constant-Stitch Sewing Speed (r/S)                                      | 200-4000 | 2200    | + - | Constant-Stitch sewing speed 【034.SMP】 is set at A (or when one shot signal is active)   |
| P10                             | Automatic End Back-Tacking Sewing (Can invalidate the stitch correction function) | ON/OFF   | ON      | + - | The Stitch-Correction is valid in sewing stop.<br>Note: Valid only when the 【0.11.RVM】 must set on B<br>ON: Invalid (Constant-Stitch sewing, it can automatic continue action as CD function)<br>OFF: Valid (Can't continue execute CD function) |
| P11                             | Back-Tacking Mode Selection   | J/B      | J       | + - | J: JUKI Mode (it will activate when machine is stopped or running)<br>B: BROTHER Mode (It will activate only the machine is running)   |
| P12                             | Start Back-Tacking Mode Selection   | A/M      | A       | + - | A: One shot to pedal, it will automatic execute Start Back-Tacking.<br>M: Pedal-controlled and motor can stop arbitrarily  |
| P13                             | Mode Selection at the end of Start Back-Tacking                                   | CON/STP  | CON     | + - | CON: At the end of Start Back-Tacking, machine continues sewing if pedal pressed or START signal on (standing operation)<br>STP: At the end of Start Back-Tacking, machine stops   |
| P14                             | Soft Start  | ON/OFF   | OFF     | + - | ON: Slow start feature is turned on.<br>OFF: Slow start function off.  |
| P15                             | Make up pin mode  | 0-2      | 0       | + - | 0: Semi-pin; 1: a pin  |
| P16                             | Setting Stitches B of Start Back-Tacking  |          |         | + - | Reserve; set here invalid  |
| P17                             | Setting Turns of Start Back-Tacking   |          |         | + - | Reserve; set here invalid  |
| P18                             | Stitch Balance for Start Back-Tacking 1   | 0-200    | 138     | + - | 0 → 200 Action gradually lag   |
| P19                             | Stitch Balance for Start Back-Tacking 2   |          | 153     | + - |  |
| P20                             | Mode Selection for End Back-Tacking   | A/M      | A       | + - | A: Pedal full heeling, it will automatic execute end Back-Tacking<br>M: Pedal-controlled and motor can stop arbitrarily  |
| P21                             | End Back-Tacking Function Selection   | ON/OFF   | ON      | + - | ON: termination feature is turned back seam<br>OFF: End back seam is off<br>Quick Setup from the front, where the setting is invalid   |
| P22                             | Setting Stitches C of End Back-Tacking  |          |         | + - | 【End Back-Tacking】 C, D segment pin count set<br>Quick Setup from the front, where the setting is invalid  |
| P23                             | Setting Stitches D of End Back-Tacking  |          |         | + - |  |
| P24                             | Anti-pedaling pedals points; voltage  | 30-1000  | 110     | + - |  |
| P25                             | Stitch Balance for End Back-Tacking 3   | 0-200    | 138     | + - | 0 → 200 Action gradually lag   |
| P26                             | Stitch Balance for End Back-Tacking 4   |          | 153     | + - |  |

| Parameter                          | Parameter Function  | Range   | Default | Key | Description   |
|------------------------------------|---|---------|---------|-----|---|
| P27                                | Adding 1 Stitch to C Segment of End Back-Tacking          | 0-1     | 1       | + - | 1:Thin materials<br>0 : Thick materials   |
| P28                                | Mode Selection for Bar-Tacking                            | A/M     | A       | + - | Bar-Tacking, reverse solenoid action:<br>A:One shot to pedal, it will automatic execute Bar-Tacking.<br>M:Pedal-controlled and motor can stop arbitrarily   |
| P29                                | Tangent after braking force                               | 1-50    | 23      | + - |   |
| P30                                | Thick material afterburner                                | 0-100   | 0       | + - |   |
| P31                                | Shear line afterburner                                    | 0-100   | 60      | + - |   |
| P32                                | Stitch Balance for Bar-Tacking 5                          | 0-200   | 138     | + - | 0 → 200 Action gradually lag  |
| P33                                | Stitch Balance for Bar-Tacking 6                          |         | 153     | + - |   |
| P34                                | Mode Selection for Constant-Stitch Sewing                 | A/M     | A       | + - | A:One shot to pedal, it will automatic execute Constant-Stitch<br>M:Pedal-controlled and motor can stop arbitrarily   |
| P35                                | Constant-Stitch Sewing Function Selection                 | ON/OFF  | OFF     | + - | Reserve; set here invalid   |
| P36                                | Setting Stitches for Section P1 of Constant-Stitch Sewing |         | 0       | + - | Reserve; set here invalid   |
| P37                                | Wiper Function Selection or Thread Clamp Pressure Setting | 0-11    | 8       | + - | 0 : No Action 1: Wiper Action 2-11: Thread Clamp action and the pressure gradually increased)   |
| P38                                | Trimmer Function Selection                                | ON/OFF  | ON      | + - | ON: Trimmer Valid<br>OFF: Trimmer Invalid   |
| P39                                | Presser Foot UP / Down a intermediate stop                | UP/DN   | DN      | + - | UP: Presser foot goes up automatically<br>DN: Presser foot keeps down (Controlled by heeling pedal)   |
| P40                                | Presser Foot UP / Down after Trimming                     | UP/DN   | DN      | + - | UP: Presser foot goes up automatically<br>DN: Presser foot keeps down (Controlled by heeling pedal)   |
| P41                                | Display the sewing finished quantity                      |         | 0       | + - | Counting the finished-sewing quantity   |
| P42                                | Information Display                                       |         | N01     | + - | No1 Electrically controlled version serial numbers<br>NO2 Selected needle cassette version<br>NO3 Speed<br>NO4 Pedals AD,<br>NO5 Positioning angle (0--359),<br>NO6 Under the positioning angle<br>NO7 Bus voltage AD |
| P43                                | Setting Direction of Motor Rotation                       | CCW/CW  | CCW     | + - | CW: Clockwise<br>CCW: Counter Clockwise   |
| Press and hold the [P] key to boot |   |         |         |     |   |
| P44                                | Brake force   | 1-50    | 18      | + - | Efforts to stop the machine when selecting  |
| P45                                | Back-seam operation duty cycle (%)                        | 10-90   | 25      | + - | Back-seam action to periodic power output   |
| P46                                | Motor stops with a reverse angle after trimming           | ON/OFF  | OFF     | + - | ON: It will automatic as reverse function after trimming (angle adjustment according to the parameter 【047.TR8】 OFF: No Function  |
| P47                                | Adjustment of reverse angles after trimming               | 50-200  | 160     | + - | Adjusting at reverse direction after trimming   |
| P48                                | Low (Positioning) Speed (r/S )                            | 100-500 | 210     | + - | Setting Positioning Speed   |
| P49                                | Trimming Speed (r/S )                                     | 100-500 | 250     | + - | Adjusting trimming speed  |

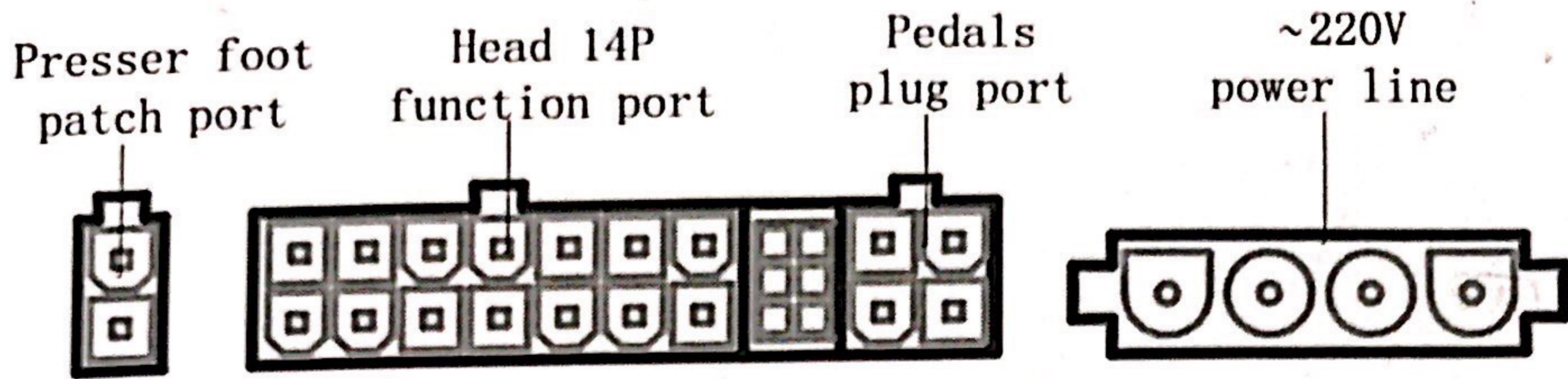
| Parameter                                      | Parameter Function                                   | Range    | Default | Key | Description   |
|--|--|----------|---------|-----|---|
| P50  | The time of Foot lifting                             | 10-990   | 250     | + - | Adjustment of foot lifting action   |
| P51  | Duty-Cycle Setting for Foot Lifter (%)               | 10-90    | 25      | + - | Adjustment for Duty-Cycle of Foot Lifter / Back-Tacking (Fine tuning can reduce the over-heating)   |
| P52  | The time of Foot down                                | 10-990   | 120     | + - | Adjustment of foot down action  |
| P53  | Cancel Foot Lifting when Half-Heeling the Pedal      | ON/OFF   | OFF     | + - | ON: Pedal half heeling without foot lifting function.<br>OFF: Pedal half heeling with foot lifting function                                 |
| P54  | Trimming Time (ms)                                   | 10-990   | 200     | + - | Trimming sequence time setting  |
| P55  | Setting Wiper Timing                                 | 10-990   | 270     | + - | Wiper sequence setting  |
| P56  | Needles Goes Up Automatically as Power turned on     | ON/OFF   | ON      | + - | ON: Power turned on, needle goes up position automatically OFF: No Function.  |
| P57  | Protection time for foot lifter (S)                  | 1-120    | 10      | + - | It will automatic come down when foot lifter keep lift over the setting time.   |
| P58  | Up Position Adjustment                               | 0-1439   | 40      | + - | Up Position Adjustment<br>The needle will advance stop when the value decreased.<br>The needle will delay stop when the value increased.    |
| P59  | Down Position Adjustment                             | 0-1439   | 750     | + - | Down Position Adjustment<br>The needle will advance stop when the value decreased.<br>The needle will delay stop when the value increased.  |
| P60  | Testing Speed (r/S)                                  | 100-3700 | 2200    | + - | Setting testing speed.  |
| P61  | Testing A  |          | OFF     | + - | Option of Testing A, after setting press 【060. Tv】 to set the speed keep running.   |
| P62  | Testing B  |          | OFF     | + - | Option of Testing B, after setting press 【060. Tv】 to set the speed execute the cycle of Start - Sewing - Stop - Trimming                   |
| P63  | Testing C  |          | OFF     | + - | Option of Testing C, after setting press 【060. TV】 to set the speed execute the cycle of Start - Sewing - Stop without positioning function |
| P64  | Running Time of Testing B and C                      | 1-250    | 20      | + - | Setting running time of testing B and C   |
| P65  | Stop Time of Testing B and C                         | 1-250    | 20      | + - | Setting stop time of testing B and C  |
| P66  | Machine Protection Switch Testing                    | 0-2      | 1       | + - | 0: Disable, 1: Testing zero signal, 2: Testing positive signal  |
| P67  | Trimming Protection Switch Testing                   | ON/OFF   | OFF     | + - | OFF: Disable ON: Enable   |
| Press and hold the [P], [S] key while the boot |  |          |         |     |   |
| P69  | Backstitch release buffer (ms)                       | 0-500    | 5       | + - | Slow release delay factor   |
| P70  | The factory Type Selection                           |          | 0       | + - |   |
| P71  | Presser foot release buffer (ms)                     |          | 0       | + - | Efforts to ease foot pressure release time  |
| P72  | The needle position correction                       | 0-9999   | 0       | + - |   |
| P73  | Under needle position correction                     | 0-9999   | 0       | + - |   |
| P76  | Backstitch output of full time (ms)                  | 10-990   | 250     | + - |   |
| P77  | Freedom sew back seam even terminate pause time (ms) | 20-200   | 100     | + - |   |
| P78  | The Thread Clamp release angle                       | 10-150   | 100     | + - | The positioning angle of starting clamp   |
| P79  | Clamp start action angle                             | 160-359  | 270     | + - | The positioning angle of release  |
| P80  | Shear line infeed is angle                           | 5-359    | 18      | + - | Shear line infeed is angle setting (under defined as 0°)  |
| P81  | Afterburner Shear line angle                         | 5-359    | 150     | + - | Afterburner Shear line angle setting (under defined as 0°)  |
| P82  | Retract angle Shear line                             | 5-359    | 185     | + - | Retract Shear line angle setting (under defined as 0°)  |

### 3 Error Code Table :

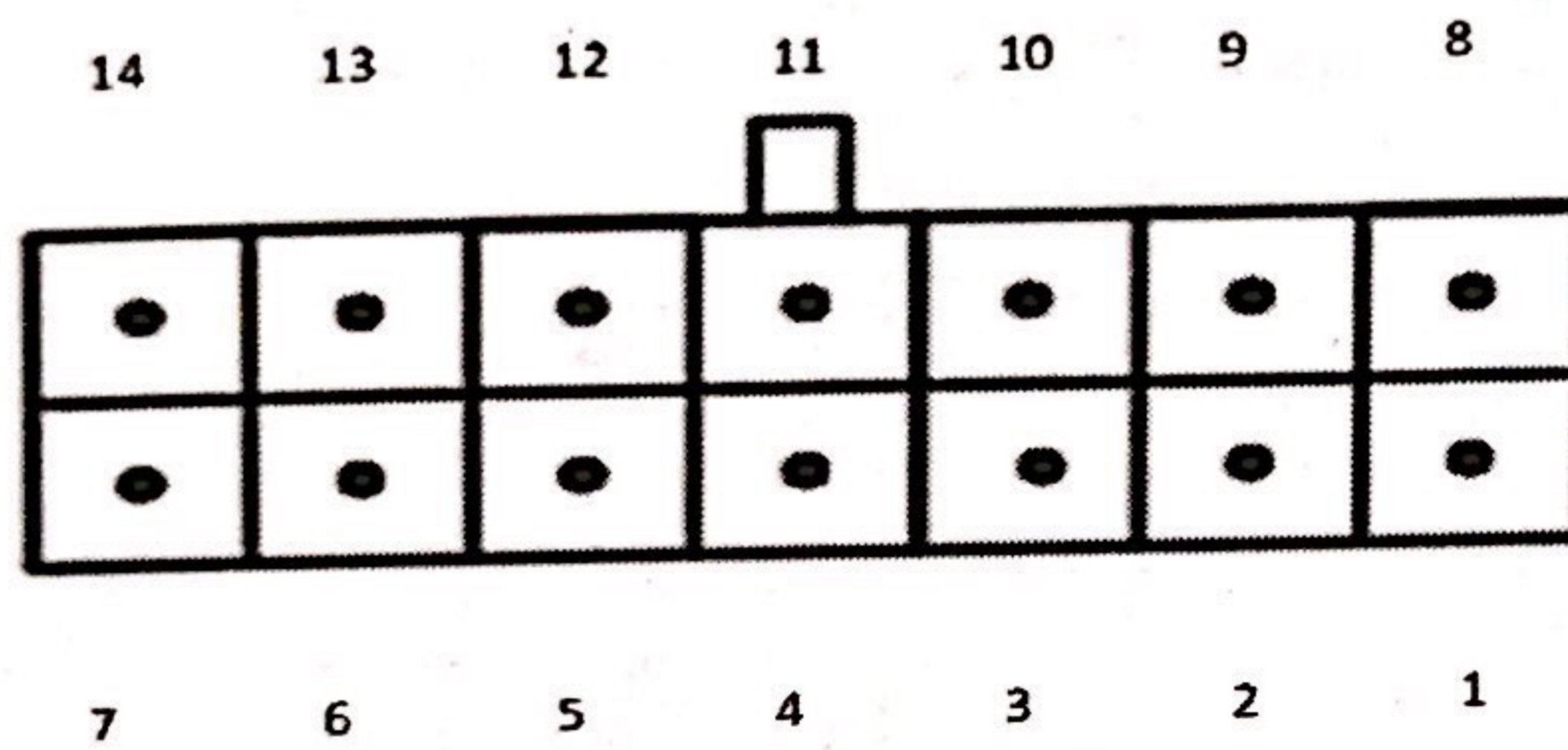
| Error Code | Problem  | strategies  |
|------------|--|---|
| E1         | Power Module is faulty.<br>Abnormal over current or voltage.<br>Resistor is damaged or F1 fuse is blown.   | System will be shut down until the power resets on.<br>Please check the power board in detail.  |
| E2         | 1 ) When power on, detected main voltage too low<br>2 ) Connect the wrong voltage, too low.  | Moto and machine will be shutting down.<br>Please check the AC power. (Too low) Please check the main pc board.   |
| E3         | Operation Box linked to CPU interface had communication error.   | Motor and machine will be shutting down.<br>Please check the operation box.   |
| E5         | The connection of the Foot Pedal error   | Motor and machine will be shutting down.<br>Please check the connection of the Foot Pedal or the problem of it  |
| E7         | a) Bad connection at the motor connector.<br>b) Machine locked or object stuck in the motor pulley.<br>c) Sewing material is too thick.<br>d) Module output is abnormal. | Motor and machine will be shutting down.<br>Please check the motor connectors, synchronizer situation and machine situation.  |
| E8         | Manual Back-Tacking lasts for 15 sec.  | Motor and machine will be shutting down until the power resets on.  |
| E9         | Synchronizer signal error.   | Check the upper and lower positioning signal is normal; no locator mode automatically, and the tangent; thread wiper; the positioning and all fixed stitch sewing style features also invalid. Motor can not operate normally. (Please check the positioning signal abnormalities.) |
| E10        | Solenoids, relays, solenoid valves overcurrent   | Driver and front output module output will be fully closed.<br>Check the solenoid valve solenoid or relay is abnormal   |
| E12        | Power is turned on without the synchronizer signal.  | Motor still can run, but it automatically starts the clutch mode. All constant-stitch sewing pattern and trimmer /wiper function is invalid. Please check the synchronizer.   |
| E13        | Overheat Protection for Power Module   | Please check the connection between power module and heat sink.   |
| E14        | Encoder signal error.  | Please check the encoder signal or change the encoder.  |
| E15        | Abnormal over current protection for Power Module.   | System will be shut down until the power resets on.<br>Please check the power board in detail.  |
| E17        | Trimmer switch error.  | Please check the trimmer switch whether turn in the correct position.   |

## 4 Port Outline Diagram

### 4.1 The Name of each port



### 4.2 14P Function Port Table



- ① Trimming Solenoid: 1、 8
- ② Clamp, dial line solenoid: 2、 9
- ③ Clothing lights: 4 (Signal ground) 、 11 (+5v)
- ④ Backstitch manually switch: 5 (Sensor signal) 、 12 (Signal ground)
- ⑤ Backstitch solenoid: 6、 13
- ⑥ Complement Needle switch: 7 (Sensor signal) 、 14 (Signal ground)