

Safety Instruction

- Users are required to read the operation manual completely and carefully before installation or operation.
 - The product should be installed and pre-operated by well trained persons
 - All the instruction marked with sign must be observed or executed; otherwise, bodily injuries might occur.
 - For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection
 - When connecting power supply cords to power sources, it is necessary to make sure that the power voltage is lower than 250V AC 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. Continue supply 380V power over 5 minutes might damage the fuse F2, burst the electrolytic capacitors and the power module U14 of the main board and even might endanger the person safety.
- Please don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 0°C.
 - Please avoid operating near the heater at dew area or at the humidity below 10% or above 95%.
 - Please don't operate in area with heavy dust, corrosive substance or volatile gas.
 - Avoid power cord being applied by heavy objects or excessive force, or over bend.
 - The earth wire of power cord must be connected to the system ground of the production plant by proper size of conduction and terminals. This connection should be fixed permanently.
 - All the moving portions must be prevented to be exposed by the parts provided.
 - Tuning on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
 - Turn off the power before the following operation:
 - Connecting or disconnecting any connectors on the control box or motor.
 - Threading needle.
 - Raising the machine arm.
 - Repairing or doing any mechanical adjustment.
 - Machine is out of work.
 - Repairing and high level maintenance work should only be done by electronic technicians with appropriate training.
 - All the spare parts for repairing work must be provided or approved by the manufacturer.
 - Don't use any objects 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:
- Inappropriate use, including: wrong connecting high voltage, wrong application, disassembly, 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.
 - Damage by fire, Earth quake, lighting, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage caused by the natural disaster or by the inappropriate environments.
 - 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 all a failsafe device. (Such as residual current breaker).

1. Button Display and Operating Instructions

1.1 Key Description

Name	key	Indicate
Start Back-Tacking Sewing		Executions starting back seam B segment or execution starting back seam (A, B segment) 1 Execution starting back seam (A, B segment) 2 times.
End Back-Tacking Sewing		Execution terminates back seam C segment or execution terminates back seam (C, D segment) 1 Execution terminates back seam (C, D segment) 2 time.
Consecutive Reverse Sewing		Set consecutive reverse sewing function.
Free Sewing		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.
Constant Stitch Sewing		Execute section E constant stitch sewing.
Multi-section Sewing		Continuous press the key, the function will in four section sewing, seven section sewing, eight section sewing and user-defined multi-section sewing between the switch.
Auto Function		(Valid only the Constant-Stitch Sewing) when the one-shot sewing function ON, screen display the icon, one-shot pedal, it can automatic completion the setting of sewing process.
Thread trimming		Set used or cancelled thread trimming function.
Clamp Function Setting		Set used or cancelled clamp function.
Automatic Presser Foot Lifting		1. Automatic presser foot lifting after trimming function when is lighting. 2. Automatic presser foot lifting after pause function when is lighting. 3. Automatic presser foot lifting after pause function when icon and icon are lighting. 4. Presser Foot is inactive when icon and icon are not lighting.
Needle Stop Position Selection		1. The needle stop position is up position when icon is lighting. 2. The needle stop position is down position when icon is lighting.
Slow Launch Setting		Set used or cancelled slow launch function.
Lift Or Fill Up Needle		When sewing stop, press this key to actuate lift or fill up needle function.
Function parameter Edit		Press this key to enter or exit function parameter edit mode.
Setting Parameter Check And Save		After setting the function code, press this key to check the preset parameter and then can edit the parameter accordingly. When the parameter is fixed, press key to save the setting and quit.
Parameter Increase		Increase the parameter.
Parameter Decrease		Decrease the parameter.
Speed Increase		Increase the sewing speed.
Speed Decrease		Decrease the sewing speed.

1.2 Manually adjust the positioning

Press and hold the 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 key to save the parameters (after saving, under the needle position will be automatically adjusted accordingly), the key to exit without saving the parameters.

1.3 Restore factory settings

Hold down the left two key to boot

Double-click the key to confirm it, shutdown restart

1.4 Correct the electrical angle of motor

Press the Lift or Fill Up Needle, in the same time turn on the power, screen display **【P-92】**, press key S into the parameter, press the Lift or Fill Up Needle, then the motor will automatic running to calculate the electrical angle of motor. After the motor stops, the parameter will automatic change. Press key S to save.

1.5 Counter display

Under sewing mode, long press Thread Trimming, the display will show the counter.

1.6 Save the parameter value as the initial value.

In the parameter value interface, long press Slow Launch Setting, the display screen will display "SAVE" 1 second, then press key S to confirm. After that, the parameter value will revert to the saved parameter value every time the factory setting is restored.

2 User Parameter

No.	Items	Range	Default	Description
P01	Maximum sewing speed (rpm)	100-2200	2200	Maximum speed of machine sewing
P02	Set accelerated curve (%)	10-100	80	Set the acceleration slope
P03	Needle UP/ DOWN	UP/DN	DN	UP: Needle Stops at Up Position DN: Needle Stops at Down Position
P04	Start back-tacking speed (rpm)	200-3200	1200	Set Start Back-Tacking Speed
P05	End back-tacking speed (rpm)	200-3200	1200	Set End Back-Tacking Speed
P06	Bar-tacking speed (rpm)	200-3200	1200	Set Repeat Bar-Tacking Speed
P07	Soft start speed (rpm)	200-1500	400	Set Soft Start Speed
P08	Stitch numbers for soft start	0-99	2	Soft Start Stitches Setting
P09	Automatic constant-stitch sewing speed (rpm)	200-4000	2200	Speed adjustment for automatic constant-stitch sewing
P10	Automatic end back-tacking sewing	ON/OFF	ON	ON: After last seam of constant stitch sewing, it will automatic execute the End Back-Tacking sewing function. When turn on, the OFF: Automatic End Back-Tacking will not execute after last seam, but can be done by pedal manually.

P11	Back-tacking mode selection	J/B	J	J:JUKI Mode (Press TB switch will activate reverse solenoid when either machine is stopped or running). B:BROTHER Mode (Press TB switch will activate reverse solenoid only when machine is running).
P12	Start back-tacking running mode selection	0-3	1	0: Could be arbitrarily stop and start 1: Automatically perform actions 2: Pause mode
P13	Ending mode of start back-tacking	CON/STP	CON	CON: Start Back-Tacking is completed automatically continued for next action. STP: After the number of stitches is completed, stop automatically.
P14	Slow start function selection	ON/OFF	OFF	
P15	Mending stitch mode	0-4	2	0: half stitch; 1: one stitch; 2: continuous half stitch; 3: continuous one stitch; 4: continuous one stitch, quick stop.
P16	Back-Tacking speed limit	0-3200	0	When the parameter is 0, the speed limit function is OFF.
P17	Auto count selection	0-1	1	0: P41 item counter increment count automatically 1: P41 item counter not count automatically.
P18	Start Back-Tacking compensation 1	0-200	131	Compensation for A part of Start Back-Tacking.
P19	Start Back-Tacking compensation 2	0-200	158	Compensation for B part of Start Back-Tacking.
P20	End Back-Tacking running mode selection	0-3	1	1: Automatically perform actions 2: Pause mode
P21	The position of the pedal for running	30-1000	520	
P22	The position of the pedal for the stop	30-1000	418	
P23	The position of the pedal for lifting presser foot	30-1000	248	
P24	The position of the pedal for thread trimming	30-500	130	
P25	End Back-Tacking compensation 3	0-200	131	Stitch Balance for end back-tacking C section, 0-200 action gradually delay; the large value, the shorter of the C section first stitch.
P26	End Back-Tacking compensation 4	0-200	158	Stitch Balance for end back-tacking D section, 0-200 action gradually delay; the large value, the longer of the C section last stitch, and the shorter of the D section first stitch.
P27	Auxiliary function setting			N06 Counter trimming times N12 start machine display counter interface selection (0: OFF 1: ON) N13 Counter mode selection (0: added sewing counter 1: subtrahend sewing counter)
P28	Bar-Tacking running mode selection	0-3	1	0: Could be arbitrarily stop and start 1: Automatically perform actions 2: Pause mode
P29	The rate of thread trimming stop	1-45	20	
P30	The strength of the motor torque when sewing	0-100	0	The larger the value the greater the intensity, the adjustment is too large may cause the motor abnormalities
P31	The strength of the motor torque when thread trimming	0-100	40	The larger the value the greater the intensity, the adjustment is too large may cause the motor abnormalities
P32	Bar-Tacking compensation 5	0-200	131	Stitch Balance for start back-tacking A(C) section, 0-200 action gradually delay; the large value, the longer of the A(C) section last stitch; the shorter of the B(D) section first stitch.
P33	Bar-Tacking compensation 6	0-200	158	Stitch Balance for start back-tacking B(D) section, 0-200 action gradually delay; the large value, the longer of the B(D) section last stitch; the shorter of the C section first stitch.
P34	Constant-Stitch Sewing running mode selection	A/M	A	A: Automatically perform actions M: Could be arbitrarily stop and start
P36	Thread slacking function selection	0-11	5	0: OFF 1-11: The strength of thread slacking
P37	Automatic thread wiping function / Automatic thread clamping function selection	0-11	8	0: OFF 1: Automatic thread wiping Function 2-11: Automatic thread clamping Function and the strength of automatic thread clamping

P38	Automatic thread trimming function selection	ON/OFF	ON	ON: ON OFF: OFF
P39	Automatic presser foot lifting when pause function selection	UP/DN	DN	UP: ON DN: OFF
P40	Automatic presser foot lifting after trimming function selection	UP/DN	DN	UP: ON DN: OFF
P41	Counter display	0-9999		Display the quantity of finished sewing piece.
P42	Information Display			N01 The control system version number N02 The panel version number N03 Speed N04 The pedal AD N05 The mechanical angle(up position) N06 The mechanical angle(down position) N07 Busbar voltage AD N12 Kneeling device position sensor AD
P43	Direction of Motor Rotation	CCW/CW	CCW	CW: Clockwise CCW: Counter Clockwise
P44	The rate of normal stop	1-45	16	
P45	Back-tacking operation duty cycle (%)	1-50	25	Back-tacking operate in duty cycle to save electricity and protect the electromagnet from over-heat.
P46	Motor stop with a reverse angle after trimming function	ON/OFF	OFF	ON: ON OFF: OFF
P47	Adjust the reverse angle when motor stop after trimming	50-200	160	Adjusting at reverse direction after trimming.
P48	The minimum speed Limit (rpm)	100-500	210	Adjust the minimum speed
P49	Thread trimming speed (rpm)	100-500	300	Adjust thread trimming speed
P50	Foot lifter operation time to full output (ms)	10-990	200	
P51	Presser foot lifter operation duty cycle (%)	1-50	25	Presser foot lifter operate in duty cycle to save electricity and protect the electromagnet from over-heat.
P52	Motor starting delay time (ms)	10-990	120	Delay the start time, with automatic presser foot down.
P53	Half back pedaling lifting preset foot function to cancel	ON/OFF	OFF	ON: Function to cancel OFF: Half back pedaling lifting presser foot
P54	Thread trimming action time (ms)	10-990	200	Completion of the thread trimming action required time.
P55	Thread wiping action time (ms)	10-990	30	Completion of the thread wiping action required time.
P56	Power on and positioning	0-2	1	0: always not to find the up needle position 1: always to find the up needle position 2: If the motor is not into the up needle position, it will find the up needle position
P57	Hold time of presser foot lifter (s)	1-120	10	Forced shut-down after hold time.
P58	Up needle position adjustment	0-1439	40	Up position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P59	Down needle position adjustment	0-1439	750	Down position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P60	Testing Speed (rpm)	100-3500	3500	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	Running Time of Testing B and C	1-250	20	
P65	Stop Time of Testing B and C	1-250	20	
P66	Machine protection switch selection	0-2	1	0: Disable
P67	Thread trimming protection switch selection	ON/OFF	OFF	OFF: Disable ON: Enable
P70	The factory type selection			
P71	Presser foot release operation duty cycle (%)	0-50	2	The buffer force of presser foot release operation.
P72	Up needle position adjustment	0-1439		Hand rotation manual to the appropriate position, press S key to save.

P73	Down needle position adjustment	0-1439		Hand rotation manual to the appropriate position, press S key to save.
P74	The machine number 2			
P75	The machine number 1			
P76	Back-tacking operation time to full output (ms)	10-990	250	Back tacking start action, full output action times.
P77	End back-tacking response time	20-350	100	
P78	The start angle of thread clamping	5-359	100	
P79	The stop angle of thread clamping	5-359	270	
P80	The start angle of thread trimming	5-359	18	Shear line infeed sl angle setting(under defined as 0°)
P81	The angle of the motor start to increase torque when thread trimming	5-359	130	Torque angle of thread trimming setting(Down position as 0°, the value need greater than the P80 parameter item)
P82	The stop angle of thread trimming	5-359	172	Feeder back angle of thread trimming setting Down position as 0°, the value need greater than the P80 parameter item)
P84	The angle of the motor start to increase torque when sewing	0-359	9	
P85	The angle of the motor stop to increase torque when sewing	0-359	57	
P92	Correct the electrical angle of motor		160	Review the user manual 1.5 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	The delay time of the half back pedaling function	10-900	200	
P101	The start angle of thread slacking	1-359	30	Song line start angle (defined as 0° under calculation)
P102	The stop angle of thread slacking	1-359	180	Loose wire end angle (defined as 0° under calculation)
P117	The delay time of the presser foot release damping force (ms)	0-990	0	
P119	Electromagnet overcurrent protection selection	0-1	1	0: OFF 1: ON
P120	The oil level alarm switch selection	0-1	0	0: OFF 1: ON

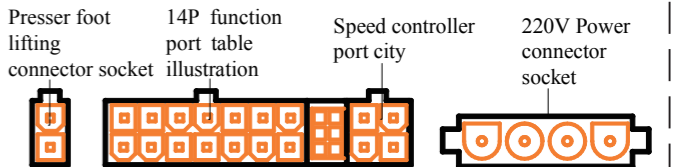
Note: the parameter initial value is for reference only, the actual parameter value is subject to the object.

3 Error Code List

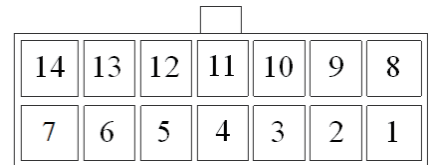
Error Code	Problem Description	Measure
E01	Over-voltage	Turn off the machine, check the power supply voltage (Or whether exceed the rated voltage of use). If there are still errors, please replace the control box and call for customer service.
E02	Low-voltage	Turn off the machine, check the power supply voltage (Or whether under the rated voltage of use). If there are still errors, please replace the control box and call for customer service.
E03	CPU communication error	Turn off the machine, please check if the operation panel in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E05	Pedal connection error	Turn off the machine, please check if the pedal in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E07	Motor locked-rotor error	Turn the machine handwheel, check if it is stuck. If it is stuck, you have to rule out the mechanical failure. If turn normal, check if the encoder and motor in bad connection or is too loose. If yes, please correct. If connection well, check if the power supply voltage is abnormal or sewing speed is too high. If yes, please adjust.
E08	Manual reverse feeding operation more than 15 seconds	Back-Tacking electromagnet response time is too long, you have only to restart the machine. If there are still errors E-08 after restart the machine, check if the manual reverse feeding switch is damaged.
E09 E11	Positioning signal error	Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E10	Solenoid over-current	Turn off the machine, please check the related circuit is shorted or damaged.
E14	Encoder error	Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E15	Power supply module abnormal over-current	Turn off the machine, then turn on again. If there are still errors, please replace the control box and call for customer service.
E17	Machine protection switch is not in the correct position	Turn off the machine, check if the machine is turn over, or the Mercury Switch is shifted or damaged.
E20	Motor failed to start (Electrical angle error)	Turn off the machine, please check if the encoder and motor in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.

4 Port Diagram

4.1 Port Description



4.2 14P function port description



- Thread trimming electromagnet: 1, 8 (+32V)
- Thread wiping/ thread clamping electromagnet: 2, 9 (+32V)
- Thread slacking electromagnet: 3, 10 (+32V)
- LED Light: 4 (DGND), 11 (+5V)
- Reverse stitch key: 5 (signal), 12 (DGND)
- Back-tacking electromagnet: 6, 13 (+32V)
- Mending stitch key: 7 (signal), 14 (DGND)