

⚠ 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 90%.
- 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 conductions and terminals. This connection should be fixed permanently.
- All the moving portions must be prevented to be exposed by the parts provided.
- Turning 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, 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.
- 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

1.Button Displays and operating instructions



1.1.Key Description

Name	key	Indicate	Icons
Start/End Back-Tacking Selection	[M]	Execution starting back seam B segment or execution starting back seam (A, B segment) 1 Execution starting back seam (A, B segment) 2 times	[Icon]
Freedom sewing shortcuts	[W]	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.	[Icon]
Continuous back seam shortcuts	[W]	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.	[Icon]
Some fixed stitch shortcuts	[E]	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.	[Icon]
Multi-set stitch shortcuts	[M]		[Icon]
Enter and determine \ save button	[S]	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.	[Icon]
Mention needles / fill needle key	[M]	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.	[Icon]
Automatically trigger button	[S]	1. In Free sewing: One touch of this key makes beep sound without any function also LED does not light up. 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.	[Icon]
Tangent line function keys	[S]	1. Set or cancel the use of the tangent function. 2. The corresponding icon is not lit, turn off the corresponding functions.	[Icon]
Function key enter parameter area	[P]	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	[Icon]

Set value increment / parameter increment key	[+]	1. A, B, C, D, E, F, G, H section, increase the number of setting stitch . 2. Increase the parameter in Parameter selection. 3. Increase the setting value in Parameter value.	[Icon]
Set value decrement / decrement key parameters	[-]	1. A, B, C, D, E, F, G, H decrease the number of setting stitch 2. Decrease the parameter in Parameter selection. 3. Decrease the setting value in Parameter value.	[Icon]
Needle stop up and down keys	[Up/Down]	1. LED ON indicate stopping machine at the upper stop needle position. 2. LED ON indicate stopping machine at the lower stop needle position.	[Icon]
Presser foot shortcuts	[Up/Down]	1. LED ON=Presser Foot automatically goes up after trimming. 2. LED ON=Presser Foot automatically goes up after motor stops. 3. Two icons are both LED ON= Presser Foot automatically goes up after trimming and motor stops. 4. Two icons are both LED OFF=Presser Foot is inactive.	[Icon]
Slow play seam shortcuts	[S]	1. The corresponding icon lights, slow starting sewing open. 2. The corresponding icon is not lit, no slow-starting sewing function.	[Icon]
Clamp function keys	[S]	1. The corresponding icon lights, thread nipper function is turned on. 2. The corresponding icon is not lit, no thread nipper function.	[Icon]
Maximum speed setting key	[S]	Speed up key: the speed should not lower than the value set by technician	[Icon]
	[S]	Slow down key: the minimum speed is 200r/m	[Icon]

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	0	1	2	3	4	5	6	7	8	9

English Alphabet

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

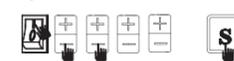
1.3Manually adjust the positioning



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

1.5 No magnet reference point the way for the motor encoder

Press the [M], Screen display [P-92]. Save by [S]. According to the [M], At this point the motor will automatically turn a circle to find the reference point of the encoder. After the motor stops.

Save by [S].

Parameter	Parameter Function	Range	Default	Key	Description
P01	Maximum Sewing Speed (r/S)	100-3700	3700	[+/-]	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 DN: Needle Stops at Down Position
P04	Start Back-Tacking Speed (r/S)	200-3200	1800	[+/-]	Start Back-Tacking Speed Adjustment
P05	End Back-Tacking Speed (r/S)	200-3200	1800	[+/-]	End Back-Tacking Speed Adjustment
P06	Bar-Tacking Speed (r/S)	200-3200	1800	[+/-]	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	3700	[+/-]	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. Note: Valid only when the [0.11.RVM] must set on B ON: Invalid (Constant-Stitch sewing, it can automatic continue action as CD function) OFF: Valid (Can't continue execute CD function)
P11	Back-Tacking Mode Selection	J/B	J	[+/-]	J: JUKI Mode (In the middle of the car to stop the middle of the time to stop when the inverted seam) B: BROTHER Mode (That is, in the vehicle to perform the reverse operation of the seam, in the end of the time to stop the needle
P12	Start Back-Tacking Mode Selection	A/M	A	[+/-]	A: One shot to pedal, it will automatic execute Start Back-Tacking. 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) STP: At the end of Start Back-Tacking, machine stops
P14	Soft Start	ON/OFF	ON	[+/-]	ON: Slow start feature is turned on. OFF: Slow start function off.

P15	Make up pin mode	0-3	0	[+/-]	0: Semi-pin: 1: a pin 2: Continuous filling half needle 3: Continuous injection
P18	Stitch Balance for Start Back-Tacking 1	0-200	131	[+/-]	
P19	Stitch Balance for Start Back-Tacking 2	0-200	158	[+/-]	
P20	Mode Selection for End Back-Tacking		A	[+/-]	A: Pedal full heeling, it will automatic execute end Back-Tacking
P21	Step voltage before pedal	30-1000	520	[+/-]	
P22	Foot pedal without foot point voltage	30-1000	418	[+/-]	
P23	Half step voltage of foot pedal	30-1000	248	[+/-]	
P24	Foot pedal reverse voltage	30-500	120	[+/-]	
P25	Stitch Balance for End Back-Tacking 3	0-200	131	[+/-]	
P26	Stitch Balance for End Back-Tacking 4	0-200	158	[+/-]	
P28	Mode Selection for Bar-Tacking	A/M	A	[+/-]	Bar-Tacking, reverse solenoid action: A: One shot to pedal, it will automatic execute Bar-Tacking. M: Pedal-controlled and motor can stop arbitrarily
P29	Tangent after braking force	1-50	20	[+/-]	
P30	Thick material angle	0-100	0	[+/-]	
P31	Cutting angle	0-100	20	[+/-]	
P32	Stitch Balance for Bar-Tacking 5	0-200	131	[+/-]	
P33	Stitch Balance for Bar-Tacking 6		158	[+/-]	
P34	Mode Selection for Constant-Stitch Sewing	A/M	A	[+/-]	A: One shot to pedal, it will automatic execute Constant-Stitch M: Pedal-controlled and motor can stop arbitrarily
P36	Slack line output function setting(loose line power set)	0-11	8	[+/-]	
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 OFF: Trimmer Invalid
P39	Presser Foot UP / Down at intermediate stop	UP/DN	DN	[+/-]	UP: Presser foot goes up automatically 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 DN: Presser foot keeps down (Controlled by heeling pedal)
P41	Display the sewing finished quantity		0	[+/-]	Counting the finished-sewing quantity
P42	Information Display		N-01	[+/-]	NO1 Electrically controlled version serial numbers NO2 Selected needle cassette version NO3 Speed NO4 Pedals AD. NO5 Positioning angle (0-359). NO6 Under the positioning angle NO7 Bus voltage AD
P43	Setting Direction of Motor Rotation	CCW/CW	CCW	[+/-]	CW: Clockwise CCW: Counter Clockwise

Press and hold the [P] key to boot					
P44	Brake force	1-50	16	[+/-]	Efforts to stop the machine when selecting
P45	Back-seam operation duty cycle (%)	1-50	30	[+/-]	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	300	[+/-]	Adjusting trimming speed
P50	The time of Foot lifting	10-990	250	[+/-]	Adjustment of foot lifting action
P51	Lift foot full force time (%)	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	[+/-]	Delay starting motor, ensure that the foot is put down.
P53	Cancel Foot Lifting when Half-Heeling the Pedal	ON/OFF	OFF	[+/-]	ON: Pedal half heeling without foot lifting function. 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	0-2	1	[+/-]	0: always not to find a position 1: always looking for positioning 2: If the motor is positioned on the no longer find location (only with magnet motor)
P57	Protection time for foot lifter (s)	1-60	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 The needle will advance stop when the value decreased. The needle will delay stop when the value increased.
P59	Down Position Adjustment	0-1439	720	[+/-]	Down Position Adjustment The needle will advance stop when the value decreased. The needle will delay stop when the value increased.
P60	Testing Speed (r/S)	100-3700	2000	[+/-]	Setting testing speed.
P61	Testing A	ON/OFF	OFF	[+/-]	Option of Testing A, after setting press [060.TV] to set the speed keep running.
P62	Testing B	ON/OFF	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	ON/OFF	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	0-50	5	[+/-]	
P70	The factory Type Selection		27	[+/-]	
P71	Lift foot release buffer duty ratio (ms)	0-90	5	[+/-]	Efforts to ease foot pressure release time
P72	The needle position correction	0-1439	0	[+/-]	Hand rotation manual to the appropriate position, press S key to save
P73	Under needle position correction	0-1439	0	[+/-]	Hand rotation manual to the appropriate position, press S key to save
P76	Backstitch output of full time (ms)	10-990	250	[+/-]	
P77	Freedom sew back seam even terminate pause time (ms)	20-200	75	[+/-]	
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	Cut the line start angle	5-359	140	[+/-]	Afterburner Shear line angle setting (under defined as 0°)
P82	Cut the line end angle	5-359	172	[+/-]	Retract Shear line angle setting (under defined as 0°)
P84	Thick start angle	0-330	9	[+/-]	
P85	The thick end angle	0-330	57	[+/-]	
P92	Encoder start angle	160	160	[+/-]	View manual 1.5 chapter
P101	Loose line starting angle	1-359	30	[+/-]	
P102	Loose end angle	1-359	180	[+/-]	
P127	Foot knee touch power ratio	0-50	25	[+/-]	

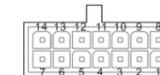
3 Error Code List

Error Code	Problem	Strategies
E1	Power Module is faulty. Abnormal over current or voltage. Resistor is damaged or F1 fuse is blown.	System will be shut down until the power resets on. Please check the power board in detail.
E2	1) When power on, detected main voltage too low 2) Connect the wrong voltage, too low.	Moto and machine will be shutting down. 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. Please check the operation box.
E5	The connection of the Foot Pedal error	Motor and machine will be shutting down. Please check the connection of the Foot Pedal or the problem of it
E7	a) Bad connection at the motor connector. b) Machine locked or object stuck in the motor pulley. c) Sewing material is too thick. d) Module output is abnormal.	Motor and machine will be shutting down. 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	Electromagnetic flow	Check the die is aging, damage
E11	The boot automatically find the needle position signal exception	Cannot detect the handwheel magnetic signal

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. Please check the power board in detail.
E17	Trimmer switch error.	Please check the trimmer switch whether turn in the correct position.
E20	Motor starting failure	After driving the motor does not rotate, do not look for the encoder reference point

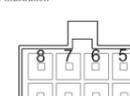
4. Port Outline Diagram

4.1 14P function port table illustration



- Trimming electromagnet: 1, 8
- Wiper/clamp solenoid: 2, 9
- Loose wire electromagnet: 3, 10
- 5V sewing machine lamp: 4, 11
- Manual backstitch: 5, 12
- Backstitch solenoid: 6, 13
- Needle switch: 7, 14

8P function port table illustration



- The level of induction: 5(+5V), 6 (signal ground). 2 (Induction signal)
- Foot pressure sensing: 1(+5V), 7 (signal ground). 3 (Induction signal)
- Foot pressure electromagnet: 4, 8

4.2 Port Name

