

⚠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.	
14. All the spare parts for repair must be provided or approved by the manufacturer.	
15. 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)
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1 Button Displays and Operating Instructions		
1.1 Key Description		
Name	Key	Indicate
Function Parameter Edit		Press this key to enter or exit function parameter edit mode.
Setting Parameter Check And Save		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.
Parameter Increase		Increase the parameter.
Parameter Decrease		Decrease the parameter.
Slow Launch Setting / Counter Key		1. If click, Set used or cancelled slow launch function. 2. If click, shift to counter interface.
Stitch Length Key (reserved) / Needle Stop Position Selection		1.Press this key to stitch length regulation 2. If long-press, the needle stop position after shift the sewing mode (Up position / Down position)
Pattern Sewing Key / Thread Trimming		1. If click, shift to pattern sewing mode setting interface. 2. If long-press, set used or cancelled thread trimming function.
Automatic Presser Foot Lifting Setting		1. Automatic presser foot lifting after trimming function when icon is lighting. 2. Automatic presser foot lifting after pause function when icon is lighting. 3. Automatic presser foot lifting after pause function or trimming function when icon and icon are lighting. 4. Presser Foot is inactive when icon and icon are not lighting.
Clamp Function Setting / Loose Line Function Key		Set used or cancelled clamp function and loose line function.
Mode shift key		If click, shift to free sewing, constant stitch sewing, continuous back seam shortcuts and multi-section set needle shortcuts.
Start Back-Tacking Sewing		Execution starting back seam B segment or execution starting back seam (A, B segment) 1 Execution starting back seam (A, B segment) 2 times. If long press, can increase screen backlighting brightness.
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. If long press, can decrease screen backlighting brightness.
Auto Function		1. under the free sewing mode: press this key no function. 2. Under the Constant-Stitch Sewing mode press this key: As the treadle is toed down, it will automatic performs E,F or G,H section by section, after finished section stitches, it will stop automatically. When the treadle is toed down again, it will automatically execute next section stitches of setting till finished trimming, wiper and so on action. The LED OFF indicate the corresponding function is turn off. 3. If long press, can restore factory setting.
Locking Screen Function		If click, set used or cancelled locking screen function.
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2 User Parameter & Technician Parameter					
Parameter	Parameter Function	Range	Default	Key	Description
Under the normal mode press [P] key					
P01	Maximum Sewing Speed (rpm)	100-3000	3000		Maximum speed of machine sewing
P02	Speed Curve Adjustment (%)	1-100	80		The Lager 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 (rpm)	200-2000	700		Start Back-Tacking Speed Adjustment
P05	End Back-Tacking Speed (rpm)	200-2000	700		End Back-Tacking Speed Adjustment
P06	Bar-Tacking Speed (rpm)	200-2000	700		Bar-Tacking Speed Adjustment
P07	Soft Start Speed (rpm)	200-1500	400		Soft Start Speed Adjustment
P08	Stitch Numbers for Soft Start	0-99	2		Soft Start Stitches Setting
P09	Automatic Constant-Stitch Sewing Speed (rpm)	200-3500	2000		Constant-Stitch sewing speed adjustment when one shot signal us active.
P10	Automatic End Back-Tacking Sewing(Can invalidate the stitch correction function)	ON/OFF	ON		ON: After finished the last seam of Stitch-Correction, it can automatic execute end back-tacking action. Under the any of sewing mode, the end back-tacking can't as the stitches correction function. OFF: After finished the last seam of Stitch-Correction, it can't automatic execute end back-tacking function, it must step or full healing action again then can execute end back-tacking or stitch-correction function.
P11	Back-Tacking Mode Selection	J/B	J		Press Back-Tacking switch by hand: J: JUKI Mode (it will activate when machine is stopped or running) B: BROTHOR mode (It will active the reverse solenoid when machine is running, and it will active stitch-correction action when machine is stopped)
P12	Start Back-Tacking Mode Selection	0-3	2		0: Manual, Pedal- control can stop and start. 1: Automatic, One shot to pedal, it can automatic excute back-tacking action.
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	OFF		ON: Soft start function is turn on. OFF: Soft start function is turn off.
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P15	Stitch Correction Mode	0-4	2		0: Half stitch 1: One stitch 3. Continuous correct stitch and quickly stop machine.
P17	Automatic count mode selection	0-1	0		0: P41 parameter value increase auto-count 1: P41 parameter disable auto-count.
P18	Stitch Balance for Start Back-Tacking 1	0-200	170		Stitch Balance for start back-tacking A section, 0-200 action gradually delay; the large value, the longer of A section last seam, and the short of B section first seam.
P19	Stitch Balance for Start Back-Tacking 2		170		Stitch Balance for start back-tacking B section, 0-200 action gradually delay; the large value, the longer of B section last seam.
P20	Mode Selection for End Back-Tacking	1-3	2		1: Automatic, one shot to pedal, it can automatic excute back-tacking action. 2: Pause
P24	The vollage of foot heeling pedal point	30-500	110		the foot heeling pdeal posit position adjustment
P25	Stitch Balance for End Back-Tacking 3	0-200	170		Stitch Balance for end back-tacking C section,0-200 action gradually delay; the large value, the short of C section first seam.
P26	Stitch Balance for End Back-Tacking 4		170		Stitch Balance for end back-tacking D section,0-200 action gradually delay; the large value, the longer of C section last seam, and the short of D section first seam
P28	Mode Selection for Bar-Tacking	0-3	2		0: Manual, Pedal- control can stop and start. 1: Automatic, One shot to pedal, it can automatic excute bar-tacking action. 2: Pause
P29	After trimming braking output	1-45	23		The large value the more strength, if adjust more value maybe will caused motor abnormal
P30	Thick materialforce	0-50	0		The large value the more strength, if adjust more value maybe will caused motor abnormal
P31	Trimming force	0-50	0		The large value the more strength, if adjust more value maybe will caused motor abnormal
P32	Stitch Balance for Bar-Tacking 5	0-200	170		Stitch Balance for bar-tacking A (C) section, 0-200 action gradually delay; the large value, the longer of A (C) section last seam, and the short of B (D) section first seam
P33	Stitch Balance for Bar-Tacking 6		170		Stitch Balance for bar-tacking B (D) section, 0-200 action gradually delay; the large value, the longer of B (D) section last seam, and the short of C section first seam
P34	Mode Selection for Constant-Stitch Sewing	A/M	A		A: One shot to pedal, it will automatic excute Constant-Stitch M: Pedal-controlled and motor can stop and start arbitrarily
P36	Thread tension release output function setting (tension release device pressure setting)	0-11	8		0: No tension release action 1-11: tension release streghth; gradually large
P37	Wiper, Clamp function Selection (Pressure setting of the Thread Clamp Device)	0-11	0		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		Valid for enter sewing pieces display interface, automatic save; long press minus key to reset the counter.
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P42	Information Display			N-01		Press S key to enter, press P key to exit NO1 Control box version serial number NO2 Operation panel version number. NO3 Sewing Speed NO4 Pedal AD value NO5 Up positioning angle NO6 Down positioning angle NO7 Busbar voltage AD value NO8 Solenoid testing mode
P43	Setting Direction of Motor Rotation (CCW/CW))	CCW/CW	CCW		CW: Clockwise CCW: Counter Clockwise	
Press [P] key to turn on the mahine						
P44	The force of intermediate stop	1-45	18		The strengthselection at the sewing intermediate stop	
P45	Duty-Cycle setting of Back tacking output duty-cycle (%)	1-50	30		Adjustment for duty-cycle of back tacking. Fine tuning can reduce the over- heating. ON:It will automatic as reverse function after trimming (angle adjustment according to the parameter 【P47,TR8】 OFF: No Function	
P46	Motor stops with a reverse angle after trimming	ON/OFF	OFF			
P47	Adjustment of reverse angles after trimming	50-200	160		Adjusting at reverse direction after trimming	
P48	Low (Positioning) Speed (spm)	100-500	200		Setting Positioning Speed	
P49	Trimming Speed (spm)	100-500	200		Adjusting trimming duty-cycle motor speed.	
P50	The time of Foot lifting (ms)	10-990	150		Foot lifting sequence time	
P51	Duty-Cycle Setting for Foot Lifter (%)	1-50	25		Adjustment for Duty-Cycle of Foot Lifter (Fine tuning can reduce the over-heating)	
P52	Foot lift lay down time (ms)	10-990	200		Foot lift lay down sequence time	
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	Thread wiping/Thread sweeping time	10-990	270		Thread wiping/Thread sweeping sequence time	
P56	Needles Goes Up Automatically as Power turned on	0-2	2		0: No Function. 1: Power turned on, needle goes up position automatically 2: If needle at the up position,no function!f the motor at the up position, so no longer to find up position.	
P57	The presser foot protection time (s)	1-60	10		The presser foot lift exceeds the set value automatically disconnect protection 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	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	2000		Setting testing speed	
P61	Testing A		OFF		Option of Testing A, after setting press 【P60】to set the speed execute the cycle of Start – Sewing –Stop - Trimming.	
P62	Testing B		OFF		Option of Testing C, after setting press 【P60】to set the speed execute the cycle of Start – Sewing –Stop without positioning function	
P63	Testing C		OFF			
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	

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Press [P], [S] key at the same time to turn on the machine					
P69	Back tacking release buffering(%)	0-50	0		Adjustment output when back tacking release
P70	Factory type selection		10		
P71	Foot lift release buffering(%)	0-50	1		Adjustment output when foot lift lay down
P72	Upper needle stop position correction				1. In the shutdown state, hold on the S key to turn on machine and enter P-72,press the S key into the parameter; 2.Turn the hand wheel till the needle's point touches the board,and the value will change at the same time; 3. press the S key,and then end the operation.
P73	Down needle stop Position Adjustment				Ajstment down needle stop postion, the value will changed according to the hand-wheel position, press S key to save current position(value) as down needle stop postion.
P76	Back tacking fully output time (ms)	10-990	200		Back tacking start action, fully output action time.
P77	Freedom sew back seam even terminate pause time (ms)	20-200	100		
P78	Clamp start action angle	5-359	100		
P79	Clamp end angle	5-359	270		
P80	The angle of trimming infeced	0-359	0		The angle of trimming infeced setting (Down needle stop position as 0 °)
P81	Trimming start angle	5-359	200		Trimming start angle setting (Down needle stop position as 0 °)
P82	Trimming end angle	5-359	280		Trimming end angle setting (Down needle stop position as 0 °)
Press and hold needle up/ forward stitch correction key to turn on the mahine.					
P83	Brake force after trimming	10-120	30		Adjustment of brake force after trimming
P84	Torque increase initial angle of over thick material	0-359	5		
P85	Torque increase finish angle of over thick material	0-359	50		
P86	The distance of up and down position	100-1400	240		The angle of the distance of up and down position.(each 4 value as 1 degree)
P87	The thread wiping/ sweep back delay times	10-990	50		Ensure Thread wiping/Thread sweeping in situ
P89	Alternatingcurrent(ac) overvoltage value set	500-1023	880		
P93	Half step delay times(ms)	10-990	300		The valid time of half step relative function
P98	Back tacking release time (ms)	1-800	200		Back tacking release sequence actioning time.
P101	Thread tension release start angel	1-359	240		Start angle of thread tension release (Down needle stop position as 0 °)
P102	Thread tension release end angel	1-359	280		End angle of thread tension release (Down needle stop position as 0 ° , the value should bigger than P101)
P109	The delay time before thread wiping/ sweep (ms)	5-990	5		The interval time of thread wiping/ sweep action after finding up needle stop position
P110	Trimming back delay time (ms)	60-990	60		Ensure trimming in situ
P111	Motor type selection	0-1	0		0: without magnetic ring; 1:with magnetic ring
P112	Trimming fully output time (ms)	10-990	200		trimming start action, fully output action time.
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P113	Duty-cycle setting for trimming action (%)	0-100	80		Adjustment for duty-cycle of trimming. (Fine tuning can reduce the over heating)
P114	Trimming release buffering (%)	0-100	0		Adjustment output of trimming release.
P115	Trimming release buffering time (ms)	0-990	0		Adjustment time of trimming relase buffering function.
P116	Trimming release buffering delay time (ms)	0-990	0		Adjustment delay time of trimming release buffering
P117	Presser foot lift release buffering delay time (ms)	0-990	0		Adjustment delay time of presser foot lift release buffering
P118	Under pause mode pause position adjustment	0-1000	150		(Down needle stop position as 0°)
P119	Solenoid over-current protection function switch	0-1	1		0: OFF; 1: ON

3 Error Code List

Error Code	Problem	STATUS / MEASUREMENT
E01	1) When power on, detected main voltage too high. 2) When the supply voltage is too high	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed the rated voltage.) If correct, please replace the control box and inform the factory
E02	1)When power ON, detected main voltage too low. 2) When the supply voltage is too low.	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed therated voltage) If correct, please replace the control box and inform the factory
E03	Operation panel linked to CPU interface had communication error.	Turn off the system power supply, please check the operation panel plug if loose. If connecting well, please replace the operation panel. If not the operation panel, it is control box caused, please replace the control box.
E05	Speed control unit connection is abnormal	Turn off the system power supply, please check the speed control unit connector if loose or fall off. Will resume normal after the restart system If you still can not work normally, please replace the speed control unit and notify the manufacturer.
E07	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.	Please check the machine head to see if objects stuck in the motor pulley. If stuck it is not the machine head machinery fault. If normal running, please check the encoder connector and motor power cord connector if loose. If loose please tight connection. If connection well, please check supply voltage whether abnormal or setting speed too high. If have please modify. If normal, please replace the control box and notify the manufacturer.
E08	Manual Back-Tacking lasts for 15 sec.	Back-tacking solenoid running time too long, please restart the machine. If restart the machine it still error E-08, please check the manual back-tacking switch is damage or not.
E10	Solenoid over-current protection	Turn off the system power supply, please check the solenoid (solenoid valve) connector or solenoid (solenoid valve) is broken or not.

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E09 E11	Synchronizer signal error.	Turn off the system power supply, please check motor encoder connector if loose or fall off, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.
E14	Encoder signal error.	Turn off the system power supply, please check motor encoder connector if loose or fall off, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.
E15	Power module abnormal over current protection	Module driver output and head output will close all. Waiting for the power to open / reset. (please carefully check power supply board each function)
E17	The sewing table safety switch is not in the correct position	Please check sewing table is open or not, the sewing table safety switch is damage or not, the socket is abnormal or not.
E20	Power On motor drive fail	Turn off the system power supply, please check motor encoder connector and motor power interface if loose or fall off, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.
4 Port Outline Diagram 4.1 The Name of each port		
4.2: 14P Function Port Table		
①Under backstitch electromagnet 1, 7 ② Presser foot electromagnet 2, 8 ③ Needle bar electromagnet 3, 9 ④Backstitch on the electromagnet 4, 10 ⑤lease solenoid 5, 11 ⑥ Trimming electromagnet 6, 12		
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