D	EEPROM 错误	存放参数的 EEPROM 有问题	更换 EEPROM
E	EEPROM 内设置参数错误	EEPROM 内设置参数不正确。	上电重新启动
F	电机编码器输出信号错误	如果"F"持续报警，说明电机内置编码器存在问题。	检查电机输出信号线是否断线或者接触不良

发生故障后，首先关闭系统电源，检查控制系统接地是否良好。30 秒后重新启动电源观察系统是否能正常工作。若故障没有清除，请多试几次，仍然没有清除时，请联系供应商。

7.操控盒显示字符与实际数值对照表：

数字字体部分：

实际数值	0	1	2	3	4	5	6	7	8	9
显示字体	0	1	2	3	4	5	6	7	8	9

英文字体部分：

实际字母	A	B	C	D	E	F	G	H	I	J
显示字体	A	b	C	d	E	F	G	H	i	J
实际字母	K	L	M	N	O	P	Q	R	S	T
显示字体	t	L	∏	n	o	P	q	r	S	Г
实际字母	U	V	W	X	Y	Z				
显示字体	U	u	H	‖	Y	☰				

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Foreword

 Attention!

Please make sure that you have read the user manual and the enclosed sewing machine instruction before operating the machine and it must be debugged or operated by the professional person, who has been trained. Once operating the machine, you were supposed that have already read the manual and know the function and the using range for the product.

The product is only applicable for the sewing machine which is in the specified range.

The final explanation belongs to our company.

Please contact our distributor or our company directly when you have any questions to our products or any advises to our service.

Safety instruction

1. The sign means safety warn, user must take care and obey it strictly. Otherwise it will cause personal injury or machine damage.

2. The sign neans the safety warn about the high-voltage and the electronic. User must take care and obey it strictly. Otherwise it will cause personal injury or machine damage.

3. The product must be debugged and operated by the professional perso who has been trained.

4. When connecting the power, make sure that it is conformed to the voltage and the technical requirements marked on the label, and the product connect the ground.

5. Don' t step the pedals when the power is being connected.

6. It' s a precision electronic product. Please don' t use when thundering or the voltage is not steady or the poor contact. It may cause the machine damage.

7. The power must be cut off when doing the following operations:
   ■When installing the machine
   ■When opening the control box and pulling out and inserting any plug from the control box.
   ■When opening the head of the machine, changing the needle and threading a needle.
   ■When thundering, the machine stops working or haven' t been used for a long time, being mended or being adjusted.

8. When restarting the machine, the interval must be longer than 30 seconds.

9. It must be set and mended by the professional person who has been trained.

10. All the spare parts for mending must be supplied by our company or confirmed by our company before using

1.Product instruction

1.1 summary

The industrial sewing machine digital AC servo system adopts many high technical digital control and AC servo technology. The technology and function achieve or exceed the international advanced level. It is a high-end product which adapts to industrial super high-speed lockstitch sewing machine. Compared with the normal clutch motor, it can save more than 40% power. The efficiency of the industrial sewing machine has been improved greatly, and the cost is lower. Increase the competitiveness of the garment factory.

The system is composed of AC servo motor and controller.

The AC servo motor adopts the rare earth permanent magnetic brushless servo motor. It has the advantage of small, light, long life-time, big power, low voice, low vibration, high efficiency, big torque, running steady and easy to install.

The control box adopts the aluminum alloy shell. The box has high intensity, the heat dissipating is much better; the anti-jamming capability is stronger. The control circuit adopts the advanced photoelectric separation technology and the vector control technology. The high-speed control chip can control the motor speed in high accuracy, can stop the needle quickly, the position is precise and easy to operate.

The circuit board adopts the advanced high speed paster technology. The machine's power supply system adopts switching power supply. It's suitable for larger voltage range. It has the function of over-voltage protection, under-voltage protection, over-current protection, short-circuit protection advanced fault self-diagnosis and man-machine dialogue. It can prevent the machine breakdown in abnormal state, make sure the control system working regularly.

1.2 The product operating environment

1.2.1 Please keep far away from the place where has high frequency electromagnetic wave and Radio transmitter when operating the machine, otherwise it will cause false action.

1.2.2 The product operating temperature requirement:

a. Please operate the machine in the temperature between 5℃ and 45 ℃.

b. Please don't operate the machine in the direct sunlight or outdoor.

c. Don't operate the machine beside the heater(electric heater).

d. Keep the working place's relative humidity in 30%~95%.

e. Please don't operate the machine beside the combustible gas or the explosive.

1.2.3 Rated working voltage: 220V+10% 50(60) HZ

1.2.4 Electric resistance of system connecting ground: <4 Ω

1.3 Product specifications

Motor output power: 400W,500W and 550W ,optional

Motor Pulley Diameter: 80mm

The diameter of the sewing machine head reel: 65~130mm,the setting of default is 75mm

Sewing Speed:150r/min~5000r/min

The way to adjust speed: CVT, it can also run automatically at constant speed.

Input Signal Port: 2 ways, including the switch of manual reverse sewing switch and safety switch.

Solenoid Signal Output Port: 5 ways, including tangent, sweep line, clamp line, reverse sewing and the foot presser solenoid drive.

Fault protection: over-current, over-temperature, short circuit, stall etc.

The judgment time of stall protection:1.5 seconds

1.4 Component and construction

1.4.1 The control box as below the picture 1

a 70T

b 70E2
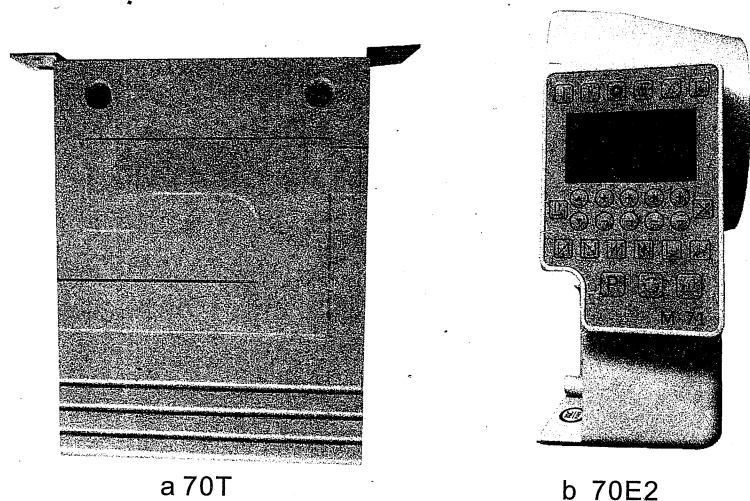
Picture 1

1.4.2 The outside double control panel as below picture 2

a 70T

M-71

b 70E2
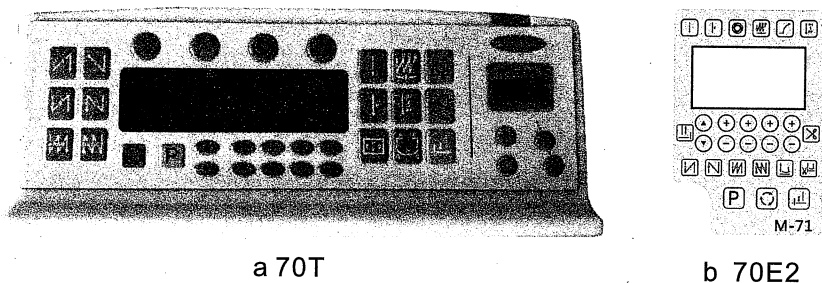
Picture 2

2、 Installation and adjustment

2.1.1 The installation of the operate panel

The operate panel is fixed on the support. The support is fastened by two screws on the rear window back of the head. As below picture:
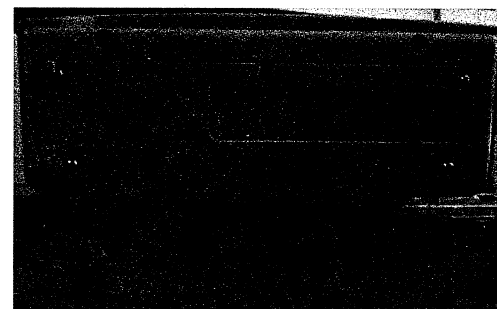
2.1.2 The installation of the control box

Control box is fixed by automatic screw, and the effect as below picture:

2.1.3 The installation and adjustment of the pedal

Penetrate the pedal connecting bar into the hole of the pedal rocker and fasten the screw nut, and adjust the connecting bar's length according to the actual needs to get the best pedals angle, so that the pedal is comfortable and convenient. The pedal's angle from the start position to the highest speed position and the sewing speed and each movement's connecting as below pictures:

The pedal step forward from the start position ① to the position ②, the sewing machine start to work at a low speed. And continue to step to the position ④, the machine work in a high spee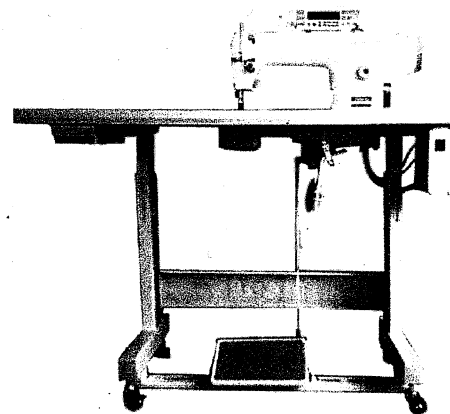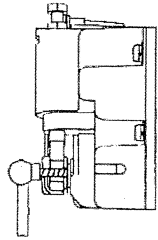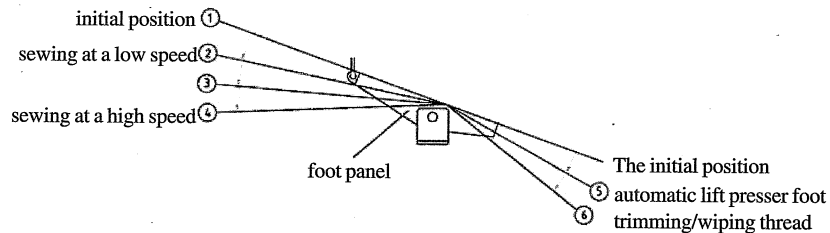d. Between them is infinitely adjustable-speed. The pedal step backward from start position ① to the position ⑤, the machine start to trim line, and continue to move to position ⑥, the foot presser will lift automatic(only in the case that the machine installed the auto presser foot electromagnet),and the needle bar stop to the up needle position.

The adjustment of the foot lifter as below picture:

initial position ①
sewing at a low speed ②
③
sewing at a high speed ④
foot panel
The initial position
⑤ automatic lift presser foot
⑥ trimming/wiping thread

2.1.4 Cord connection and ground connection

Connect the power cord and button switch as the following picture

Single-phase connection(AC220V)
brown line
OFF ON
blue line
connecting the control box
green/yellow line(connect the ground line)
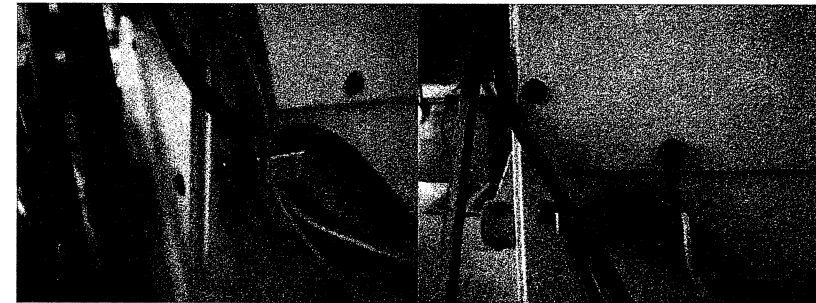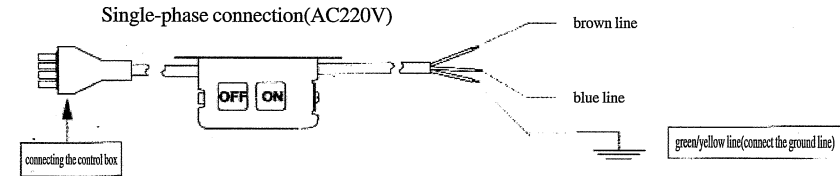
⚠ Attention:

■ The green yellow line is the ground line. It must be connected to the ground safely. The resistance should be below 4 Ω (<4 Ω).

■ When all power cord/signal cord/ground cord connect, please make sure that they are not pressed by other things or they are not bent overly, and surface should not be damaged. Can't be close to the belt and the pulley, at least keep 3CM away from them to make sure to be safe when fasten them.

■ The power plug must adopt two phase three wire socket, at the meantime user should make sure that the ground cord connected to the ground safely.

■ The power cord of 70E(M-70) controller is special power cord, and don't use other type controller power cord, otherwise it has the danger of electric shock.

2.1.5 The specification of connector socket:
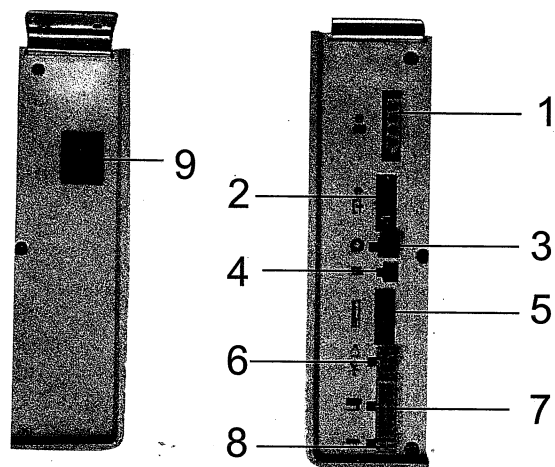
a 70T
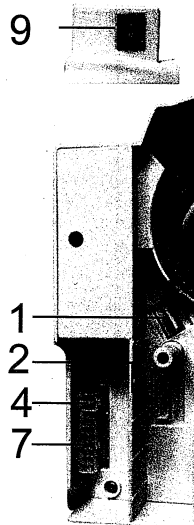
b 70E2

① Servo-motor socket   ② Motor encoder socket

③ Head locator socket   ④ Foot pedal switch socket

⑤ Control box socket   ⑥ 5V light and safety switch socket

⑦ Electromagnet socket (the yellow-green line is the machine head ground line)

⑧ Clamp solenoid socket   ⑨ 220v power switch

⑩ Power club socket

Please insert each connecting line according to the instruction of the terminal block panel. After DB plug lock insert firmly, and determine that lock catch has been anchored after the rest of the plug insert.

3. Function introduction

3.1 product function

	Function	Diagram	Description
Auto function	Auto thread trimming		The machine will finish the motions automatically according to the user's setting after the sewing machine is installed the foot lifter electromagnet
	Auto thread sweeping	O/I	
	Auto foot lifter		
	Front straight line bar-tacking		After the sewing machine is installed the reverse sewing electromagnet, it finished once, twice and many times reverse sewing automatically to reinforce the start and end stitch according to the user's setting.
	Continuously reverse sewing		
	Auto stitch quantity sewing		
	Free sewing		
	Back straight line bar-tacking		
Other functions	The selection of up/down stop needle position		Up/down needle position are optional during the sewing.
	Slow start		When motor begins running, it will execute the slow-start needles first before regular sewing.
	Over-current, overvoltage, Locked rotor, power off	Reference for the error code	It will be self-protection automatically when overvoltage, over-current and power-off happened.

4 Basic operation

4.1 The operation of display panel

Control panel as below picture:

a 70T   b 70E2
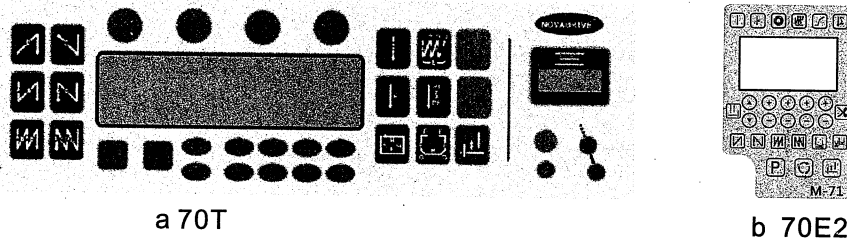
The key and function:

Function	Key	The instructions of lockstitch Sewing motions
The selection of front straight line bar-tacking		Execute front straight line bar-tacking (A,B sections)twice
		Execute front straight line bar-tacking (A,B sections) once
		Execute front straight line bar-tacking B section
The selection of back straight line bar-tacking		Execute back straight line bar-tacking (C,D sections) twice
		Execute back straight line bar-tacking(C,D sections) once

Stitch quantity sewing		1)When the pedal is stepped forward, the machine executes the E, F or G section's position needles. 2)Once the pedal is back to the middle position during any section's lockstitch sewing, the machine stops sewing immediately. Now step the pedal forward again, the machine begins to execute the E, F, or G, H section's left needles. 3)When the machine finishes the last section's needles of the E, F, G, H, it will stop reverse sewing, thread trimming, or thread sweeping etc motions automatically. 4)The P1-P4's factory setting number is 15 when the P1-PF's function is used. If not, the number is 0
Free sewing		1)The machine sew regularly when the pedal is stepped forward, it stops sewing when the pedal is back to middle position. 2)The machine finishes thread trimming and thread sweeping automatically when the pedal is stepped towards back.
Continuously reverse sewing		1)The machine executes the continuously reverse sewing motion automatically when the pedal is stepped forward. The time is up to the D section setting. 2)After stepping the pedal forward, the machine executes the function to finish the thread trimming automatically, it won't stop sewing in the midway unless pressing the pedal towards the back to cancel the motion.
Number of needles setting selection		For A,B,C,D four sections, the No. of needles can be set from 0 -F For E, F,G,H four sections, the No. of needles can be set from 0-99. 4 4 4 4 A B C D Means A=B=C=D=4 needles 1 E 0 1 F 0 Means E=F=10 needles 1 G 5 1 H 5 Means G=H=15 needles Pressing the key can choose to switch the up sections A,B,C,D, middle sections E,F, below sections G,H's No. of needles setting and windows show. After changing the parameter, please press the key to reserve.

Lift/compen-sate Needles		1)In the free sewing Pressing the key can do the function of lift needle or half-needle compensation forth motions(it can do the continuous compensation sewing motions according to the actual needs) 2)In the stitch quantity sewing:(except continuously reverse function) a. When the lockstitch sewing stop in the midway of every section, the machine will only do the lift needle when pressing the key. b. When the lockstitch sewing stop in the end of every section, press the key that it will compensate one needle forward. (It can do the continuously compensate needles according to the actual needs).
AUTO		1）In the free sewing and continuously sewing model: Press the key, the buzzer will sound, but have no the LED function and no bright. 2) In the stitch quantity sewing press the key: a.When the pedal is stepped forward, it will execute the setting needles in the E,F or G,H sections, the AUTO will stop automatically when all the needles in the sections are finished. b. Then touch the pedal one by one ,the machine will execute the next section's needles until to finish the thread trimming and thread sweeping.
Thread trimming switch		Set use or cancel the thread trimming function. It will execute the thread trimming function when the diagram shows in the LCD control box. It won't execute the thread trimming function when the diagram doesn't show in the LCD control box.
Slow start		1)When the function turned on, when the motor start the machine will execute the slow start needles before regularly sew. It will only sew regularly when it's pressed forward again after stopping in the middle, unless the pedal is stepped towards back and then stepped forward ,the motor will execute slow start before running. 2) The speed of the slow start setting can adjust by parameter[6] 3) The No. of needles of the slow start can adjust by parameter[7]
The position of needle stop(up/down) setting when motor stop		The position of needle stop setting when motor stop When the diagram show in the LCD control box, the needle stop in the up position when motor stop. When the diagram doesn't show in the LCD control box ,the needle stop in the down position when motor stop
The auto foot lifter up/down after thread trimming		The presser foot move or not after thread trimming When the diagram shows in the LCD control box, the presser foot will lift up automatically after thread trimming. when the diagram doesn't show in the LCD control box, the presser foot won't move after sewing stop

The auto foot lifter up/do within when stop in the sewing		The foot lifter move or not when sewing stop. When the diagram shows in the LCD control box, the presser foot will lift up automatically when sewing stopped. When the diagram doesn't show in the LCD control box, the presser foot won't move when sewing stop.
Parameter increment setting		Setting the No. of needles in A, B, C, D areas increment. The number can be set from 0 to F. Setting the No. of needles in E, F, G, H areas increment. The number can be set from 0 to F. The number increment key should be set in the parameter area.
Number decreasing setting		Setting the No. of needles in A, B, C, D areas decreasing, the number can be set from 0 to F. Setting the No. of needles in E, F, G, H areas decreasing. The number can be set from 0 to F. The number decreasing key should be set in the parameter area.
Enter into the parameter area/ Parame-ter increment		Press the key for two seconds can enter into parameter area. The key can be considered as the button of parameter increment
The number of bottom line recovery/ The setting button of bottom line		Press once shortly and recover the current number of bottom line to the setting number. Then press for 3 seconds and enter to the setting number of the bottom line.
Show the toggle key		The bottom line can be switched to be transferred digit number.
Increasing button		When pressing the increasing button, the setting data will increase in the setting range
Decreasing button		When pressing decreasing button, the setting data decrease in the setting range.

Note: In the needle selection box, A=10, B=11, C=12, D=13, E=14, F=15 needles.

5. Function parameter list

5.1 A function parameter list (for user)

Press the ⟦ℙ⟧ key for 2 seconds to enter into the user operating model afte turning on or thread trimming, and each need to press the button ⟦△▽⟧ to reserve after modify parameter.

Parameter code	Corresponding content	Range	Factory setting	Content instruction and memo
001. H	the highest rotational speed r/min	150～5000	3500	The setting of the lockstitch sewing highest speed is related to the machine
002. PSL	the adjustment of acceleration curve%	1～100%	80%	The setting of the controller climbing slope.
003. NUD	The options of stop needle position	UP/DN	DN	UP(Up stop-needle)/DN(down stop-needle)
004. N	Starting reverse sewing speed r/min	150～2800	1800	The setting of starting reverse sewing speed
005. V	Stopping reverse sewing speed r/min	150～2800	1800	The setting of stopping reverse sewing speed
006. B	Continuously reverse sewing speed r/min	150～2800	1800	The setting of continuously reverse sewing speed
007. S	Slow starting sewing speed r/min	150～2800	400	The setting of slow starting sewing speed
008. SLS	Slow starting sewing needle number(needle)	0～99 needles	2	The needle setting of slow starting sewing
009. A	Auto stitch quantity sewing speed r/min	300～5000	3000	The operation panel box AUTO key has the speed setting under pressing.
010. ACD	Automatic execute the function of stopping reverse sewing after stitch quantity sewing（Setting the function of un-compensate needle）	OFF/ON	ON	ON：After executing the last setting needle sewing, it will stop the reverse sewing automatically. Even in any sewing modes, it can not compensate needle before stopping reverse sewing. OFF：After executing the last setting needle sewing, it will not stop the reverse sewing automatically. It must restart, and it can compensate before stopping reverse sewing.
011. RVM	Manual reverse sewing function	JUK/BRO	JUK	The time that pressing the switch of the head reverse sewing: JUK:

				JUKI way（Even in the lockstitch sewing and stop, there are also actions） BRO：BROTHER way（Only in the lockstitch are there actions.）
012. SMS	The sport mode selection of starting reverse sewing	A/M	A	A：Step the pedal lightly and it will execute the stitch quantity sewing automatically. M：It can stop and start by controlling the foot pedal.
013. TYS	The operation mode selection after starting reverse sewing	CON/STP	CON	CON：After finishing the starting reverse sewing, it can continue sewing next function. STP：After finishing the starting reverse sewing, it will stop automatically.
017. SBN	Starting reverse sewing setting	1～4	2	Set the back and forth times of starting reverse sewing
018.BT1	Starting reverse sewing compensation 1	Advanced actions：1～16 Delay actions：17～31	7	BT1,BT2 = 0 Invalid; BT1,BT2 = 1～16 ahead action (1/8,the unit is needle); BT1,BT2 = 17～31 delay action (1/8,the unit is needle);
019.BT2	Starting reverse sewing compensation 2		6	
020. SME	The sport mode selection of the stopping reverse sewing	A/M	A	A：Step the pedal lightly and it will operate the setting sewing automatically. M：It can stop and start by controlling the foot pedal.
024. EBN	Stopping reverse sewing setting	1～4	2	Set the back and forth times of the stopping reverse sewing
025.BT3	Stopping reverse sewing compensation 3	Advanced actions：1～8 Delay actions：9～15	6	BT3,BT4 = 0 Invalid; BT3,BT4 = 1～16 ahead action; BT3,BT4 = 17～31 delay action;
026.BT4	Stopping reverse sewing compensation 4		7	
030. BCC	When stopping reverse sewing, C add to 1 needle.	OFF/ON	OFF	When stopping reverse sewing, C add to 1 needle automatically. ON: valid OFF: invalid
031. SMB	Continuously reverse sewing sport mode	A/M	A	A：Step the pedal lightly and it will execute the setting sewing automatically. M：It can stop and start by controlling the foot pedal.

Parameter Code	Parameter content	Range	Factory setting	Content instruction
032. BAR	Continuous reverse sewing parameter setting	0/1/2	0	0: Continuously reverse sewing A,B,D (The maximum is 9 needles) The last operation mode of the keyboard: The operation of I style is defined as E,F,G, H,H,G,F,E,and don't have the P1~-PF operation mode. 1:Continuously reverse sewing AB.CD-F (The maximum is 99 needles) It needs to deploy II operation pedal and has the P1~-PF operation mode. 2:Continuously reverse sewing A.B-F+C.D (The maximum is 9 needles) It needs to deploy II operation pedal and has the P1~-PF operation mode. After this parameter changes, it will work after power-off 10 seconds to re-start.
035. BT5	Continuously reverse sewing compensation 5	Advanced actions: 1~16 Delay actions: 17~31	7	BT5,BT6 = 0 invalid; BT5,BT6 = 1~16 ahead action time; BT5,BT6 = 17~31 delay action time;
036. BT6	Continuously reverse sewing compensation 6		6	
037. SMP	The sport mode selection of the setting sewing	A/M	M	A: Step the pedal lightly and it will execute the setting sewing automatically. M: It can stop and start by controlling the foot pedal.
038. PM	Retain			
039. PS	The compensation needle function of the reverse sewing button	0/1	0	011.RVM is valid at the mode of BRO; OFF: The reverse sewing button can't be regarded as the function of the compensation needle; ON: The reverse sewing button can be regarded as the function of the compensation needle;

Parameter Code	Parameter content	Range	Factory setting	Content instruction
040. WON	Sweep line/grasp line output function setting	0/1/2/3	3	0: Don't have the action of sweeping line and grasping line 1: Have the action of sweeping line and don't have the action of grasping line 2: Don't have the action of sweeping line and have the action of grasping line(When the machine start, the angle is in the control of 071.W1、072.W2) 3: Have the action of sweeping line and grasping line.
041. PBS	Unit statistics/The setting of bottom line count	0/1/10/100	0	0—The mode of the number statistics, it increases according to the quantity of processing; Not 0—The mode of the number statistics, it decreases according to the quantity of processing 1—The cardinal number 1 decrease 10—The cardinal number 10 decrease 100—The cardinal number 100 decrease
042. PSM	When it stops during the lockstitch sewing, and select the presser foot output.	OFF/ON	OFF	OFF: It means to cancel the function of the foot lift.
043. FTM	When trimming stops, and select the presser foot output.	OFF/ON	OFF	OFF: It means to cancel the function of the foot lift.
044. PN	The finished number of lockstitch sewing	0~9999	0	Setting according to 041.PBS parameter, it will show the finished number or the number of bottom line
045. SSS	The selection of slow starting sewing	OFF/ON	OFF	OFF: It means to eliminate the function of slow start sewing.

5.2 B Function parameter list (for technician)

Turn on the power while pressing the key ⯀P, enter into the technician model after 2 seconds. After changing the parameter, it needs to press the key ⯀ to reserve.

Parameter Code	Parameter content	Range	Factory setting	Content instruction
046. DIR	The motor running direction setting	CW/CCW	CCW	CCW: counter-clockwise CW: clockwise

047. MAC	The style of sewing machine	0～256	6	The style set of the sewing machine. Less than 80,it is the lockstitch sewing. 9: Special lockstitch sewing has a slow start needle. At the situation of slow start, the first needle of free sewing is always slow.
048. SYM	The style setting of synchronous machine	0～3	a:2 b:3	0:H is synchronous machine, and it is compatible to HOHSING 1: B is modified synchronous machine. Up needle position, down needle position, self-check signal line 2: D is synchronous machine with direct drive Db9 installed electric self-check signal line without synchronous machine. Up needle position, down needle position, and encode signal。 3: S is synchronous machine, it only has zero signal, up needle position and down needle position that need 076.DRU and 078.URU to set the angle of needle position.
049. SPD	The size of the head pulley	30～200	75	The front pulley size is set along with the head model code.
050. MPD	The size of the motor belt	50～150	75	The front pulley size is set along with the head model code.
051. CHK	Whether power-on self-test function turn on or not. （the foot pedal signal, power-off detection）	0～10	1	1:Power-on self-test function turn on 0:Power-on self-test function turn off The setting of extended feature: Judging the time by locked machine. 0 means 10 seconds. 1 means 2 seconds. 2 means 3 seconds. ..... 9 means 10 seconds.
052. PA	Front foot pedal sewing speed react the sensitivity settings.	50—400％	200％	5% of the pedal speed react the slowest speed, 400％of the pedal speed react the pedal the quickest speed, according to the operator proficiency to set.

053. FT	Half step backward presser foot in the process of sewing (step lightly backward presser foot) to confirm the time.	50～ 2000ms	300	If installing the foot lift, please according to the sewing machine pedal flexibility to set the parameters.
054. BK	When the motor stop, the brake can lock automatically.	OFF/ON	OFF	ON：When the motor stop, the brake can lock the head. OFF：No effect.
055. TOT	When UTD is ON, it means the limit time of motor running.	1～800Hrs	2	The longest time is 33 days(800 hours)
056. TM1	When UTD is ON , it means the motor running time.	1～60s	3	When operating test automatically, it means the working hours of free sewing.
057. TM2	When UTD is ON, it means the motor stopping time	1～60s	3	When operating test automatically, each interval time.
058. UTD	The function of automatic operation test	OFF/ON	OFF	When the parameter is ON, the automatic operation test start and run according to the elected needle sewing pattern box to set.
059. T	The speed setting of trimming and stopping r/min	120～400	350	The speed adjustment of trimming parking, the speed is too low that may lead to abnormal trimming. The speed is too high that may lead to an unstable position control.
060. L	Low speed r/min	120～400	250	The speed adjustment of operating slowly
061. F0	The full initial output time of presser foot, reverse sewing /ms	0～990	250	When presser foot and reverse sewing start, the time of the full output.
062. FC	The cycle signal of presser foot and reverse sewing %	10～90	28	When presser foot and reverse sewing operate, the power output periodically to avoid the presser foot hot
063. FD	Delay the motor start to protect the time of the presser foot put down.	0～990	50	When stepping, delay the machine start to match the confirmation of presser foot.
064. HHC	Half-step pedal to cancel the presser foot function	OFF/ON	ON	ON：When half-step pedal, it doesn't have the output of lifting pedal and direct trimming. OFF：When half-step step, it has the output of lifting pedal and don't trim (Trimming only full-step pedal)
065. SFM	Safety switch signal form	0/1	0	0：When the safety switch input signal , it must remain open state; 1：When the safety switch input signal, it must remain normally close.

066. LTM	Trimming time-series mode	0/1/2/3	2	0: retain 1: retain 2:Bottom positioning cut to up positioning trimming mode (lockstitch sewing trimming mode) 3:Interlock sewing trimming mode (the stop cut)
067.T1	The mechanical angle of grasping line start/ms	0~180	150	Absorb the grasp electromagnet from any mechanical angles of the up needle. If setting 10,it is the 10 degree of the up needle that absorb.
068.T2	The continuous angle of absorbing the grasp electromagnet	0~360	150	The angle of absorbing the grasp electromagnet (mechanical angle),from T1 to (T1+T2), the total of (067, T1+068, T2) must be larger than 076.DRU.
069. M	The speed setting of midway parking	150~800	350	The speed setting of midway no-parking trimming.
070. NC	After trimming parking, the angle setting of reverse lifting needle	0~280	0	0: Do not need to lift the needle back. 1-280 the angle of reverse lifting needle, 4 represents one degree.
071. W1	Delay time before sweeping /ms	0~980	10	The interval time of sweeping after finding up-position.
072. W2	Sweeping time /ms	0~9990	70	Sweeping time
073. WF	Delay time before the presser foot /ms	0~990	50	The interval time of entering into the foot lift after sweeping
074. FHT	when sewing stops, automatic presser foot rise maintenance time/s	1~200	30	Automatic presser foot rise maintenance time
075. UEG	The adjustment of the up-needle stop position	5~250	40	Modify lightly the angle position of the up-needle stop (the center number is 40): It will lift the needle stop in advance when the number decreases. It will delay the needle stop when the number increasing.
076. DRU	From the down-needle position reverse rotation reaches the angle of the up-needle position	1~360	165	[048.SYM] set 3:00,from the down-needle reaches the up-needle reverse angle to set the virtual down-needle position.

077. ANU	After power-on, automatically find the position	OFF/ON	ON	ON: After the power turn on, automatically find the positioning signal to stop OFF: No effect
078. URU	From the up-needle position, reverse rotation reaches zero angle	1~360	a:0 b:235	[048.SYM] set 3:00,from zero reaches to the reverse angle of up-needle positions set a virtual down-needle position
079. ERR	The error code of the last trouble	0~999	0	0—No trouble

5.3 Recover the factory setting:

Press the buttons ⟨A A⟩ and ⟨P⟩ simultaneously, then power-on. The parameters will recover to the factory setting. (The data that store in the mainboard is the default number.)

1. The way to operate: Press the buttons ⟨A A⟩ and ⟨P⟩ simultaneously, then power-on, it shows "3-xxxx" ,the parameters inside the mainboard will recover to the factory setting 5 seconds later. Renew power-on after power-off.

6 Error code and the way to solve

Error code		Code Content	The possible problem	The way to solve
Fatal error	ERR—00	The self-test of input signals is wrong	1. The circuit of the pedal has a problem, or the pedal has been in forward riding, backward riding and can't return to the neutral position. 2. DC voltage is low. 3. The fault signal of the drive module is abnormal.	1. Loose the pedal and return to the neutral position. 2. Checking whether the signal line of the pedal insert or not.
	ERR—01	The head signal feedback is abnormal.	1. The synchronous machine is abnormal, and can not find the up-needle position. 2. The sensor magnet is off. 3. The belt is off or over-loose.	

PWROFF	Power-off	1. The 30v fuse is wrong. 2. The system is power-off.	Power-off and check each fuse and power on again.	
ERR−03	The operation of the head is abnormal.	1. The synchronous machine is abnormal and can't find the down-needle position. 2. The sensor magnet is off. 3. The belt is off or over-loose.		
ERR−04	Over-current, over-voltage, under-voltage	1.The motor power module is wrong. 2.Immediately interrupt.		
ERR−05	DC voltage exceeds the voltage.	1.The braking resistor is wrong or the braking fuse is broken. 2.Immediately interrupt.	Close the system power-supply and check	
ERR−06	The solenoid power is over-current	1. The electromagnet is over-loaded or short circuit. 2. The driving circuit is wrong. 3. Immediately interrupt.	Close the system power-supply and check	
ERR−07	Block	1. The machine is blocked. 2. The cutting-line system is wrong. 3. The encoder signal is abnormal.	Close the system power-supply and check whether the sewing machine's mechanical features is normal or not.	
General warn	**A**	The error of the positioning parking	1. The setting of the MPD, SPD parameter is wrong. 2. Over-load. 3. The encode signal is abnormal. 4. The synchronous signal is not stable. 5. The motor is wrong or the driving power is not enough.	Power-off and check whether the head and motor is normal or not.
	B	Exceed the maximum speed	1. Exceed the same direction maximum speed. 2. Exceed the inverse direction speed 300r/min. 3. The encode signal is not normal. 4. The motor is wrong.(Such as demagnetization)	1. Whether the driving line U/V/W between control box and motor connects or not. 2. Whether the system connects ground reliably or not.
	C	The self-test of the synchronous machine is wrong	The synchronous machine doesn't insert.	1. Power-off and insert the synchronous machine and then power-on. 2. Change the synchronous machine.

D	The error of EEPROM	The EEPROM that store parameters has a problem.	Change EEPROM
E	The inside parameter of EEPROM is wrong.	The inside parameters of EEPROM is wrong.	Power-on and renew to start.
F	The output signal of motor code is wrong.	If F continues calling, it states that the inside encode of the motor has a problem.	Checking whether the output signal line disconnect or not.

After having a problem, firstly, shutting down the system supply, and then checking whether the control system connect ground or not.

After 30 seconds, renew to start the power supply and checking whether the power supply work or not. If it still don't work, please try again.

If the problem still eliminate, please contact the supplier.

7 Comparison table for script display on control box with the actual digital

The number style part:

Actual number	0	1	2	3	4	5	6	7	8	9
Display style	0	1	2	3	4	5	6	7	8	9

The English style part:

actual grapheme	A	B	C	D	E	F	G	H	I	J
display grapheme	A	b	C	d	E	F	G	H	i	J
actual grapheme	K	L	M	N	O	P	Q	R	S	T
display grapheme	t	L	M	n	o	P	q	r	S	r
actual grapheme	U	V	W	X	Y	Z				
display grapheme	U	u	H	II	Y	=				