

ME SERIES USER MANUAL

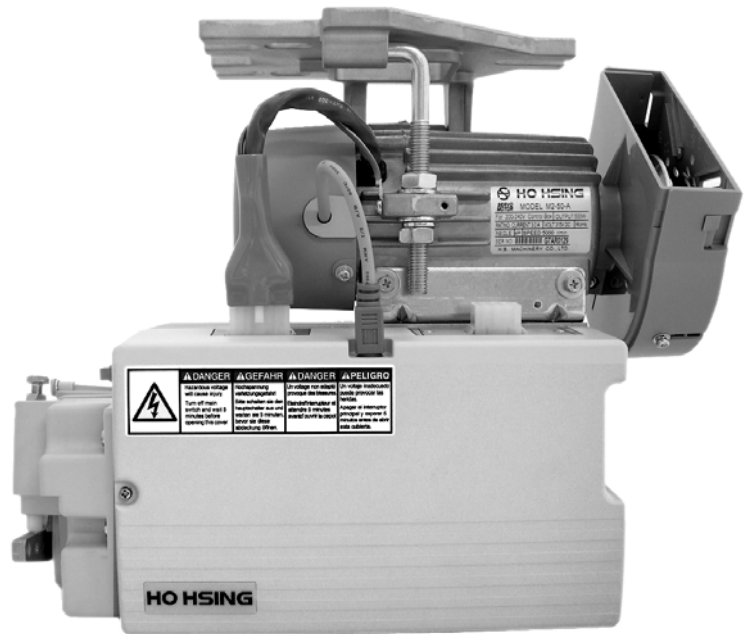
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HSVPMU01-0

2008.03



EC Declaration of Conformity

We hereby declare that the following products: AC servo motor--MA · MB · MD · ME · MH · MF series are in conformity with the provision of the EC directives as following :

- EC Low Voltage Directive (73/23/EEC)
 - EC Electromagnetic Compatibility Directive (89/336/EEC)
 - EC Machinery Directive (98/37/EC)
- Applied harmonized standards :
 EN 60204-31 : Electrical equipment of industrial machines. Particular requirements for sewing machines, sewing units and sewing system.
 EN 292-1 : Safety of machines.
 EN 292-2 : Safety of machines, technical guidelines and specifications.
 EN 61000-6-2 : EMS for industrial environment.
 EN 61000-6-3 : EMI for residential environment.

Declaration of Conformity for Concentration Limits for Certain Hazardous Substances

We hereby declare that the following products: AC servo motor--MA · MB · MD · ME · MH · MF series are complies with the following directives and requirements :

1. European Union RoHS Directive (2002/95/EC) and the concentration limits for certain hazardous substances (2005/618/EC)
2. People's Republic of China Electronic Business Standard : Requirements for concentration limits for certain hazardous substances in electronic information products (SJ/T 11363-2006)

Our product itself (motor, control box) or its packing materials and accessories (box, screws package, user manual, sticker, label, print...etc.) or the suppliers of parts and raw materials are all in conformity with the provision of the European Union RoHS Directive and People's Republic of China Electronic Business Standard to conform the following concentration limits for the six hazardous substances :

Hazardous Substance	Permissible Values
Lead (Pb)	Less than 240 ppm
Mercury (Hg)	Less than 800 ppm
Cadmium (Cd)	Less than 80 ppm
Hexavalent chromium (Cr VI)	Less than 800 ppm
Polybrominated Biphenyl (PBB)	Less than 800 ppm
Polybrominated Diphenyl ether (PBDE)	Less than 800 ppm

- * The concentration of lead in the lead-free process for PCB shall be less than 800 ppm.
- * For packing materials shipped with our products or parts, the hazardous substances shall be 80 ppm or less in sum of Pb+Hg+Cd+Cr VI.

H. S. Machinery. Co., Ltd.

Mr. C. H. Tai
Plant Manager

1. Safety Precaution :

Please read this manual with sewing machine manual thoroughly and pay attention for the following safety precaution.

- Installation and operation must be done by the trained personnel, also turn off the power switch and remove the plug from outlet and wait for 5 minutes before any installation.
- This product is designed for the specific sewing machines and must not be used for other purposes.
- Only use the power voltage as described on the name plate of the ME motor and control box in $\pm 10\%$ ranges.

⚡ Attention : If the control box is AC 220V system, please don't connect to the AC 380V power outlet, otherwise the error will occur and motor is not functional. If that happened, please turn off the power switch immediately and check the power voltage. Continue supply the 380V power over 5 minutes might damage the fuses (F1,F2) of EMI board and burst the electrolytic capacitors (C4,C5) of power board and even might endanger the person safety.



- In order to prevent abnormal operation, keep the product away from the high frequency machines.
- Don't operate in direct sun light · outdoors area and the room temperature is 45°C above or 5°C under.
- Don't operate near the heater · dew area and the humidity is 30 % less or 95% more.
- Don't operate in dusty · evaporate · combustible gas area, and stay away from corrosive material.
- Don't apply heavy objects or excessive force on the power cord, also don't bend or pull the power cord.
- Power cord must keep 3 cm or above distance away from the V-belt and the pulley.
- In order to prevent the static interference and current leakage, all grounding works must be done properly.
- After power on the machine for the first time, use low speed to operate and check the correct rotation direction.
- During machine operation, don't touch any moving parts.
- All moving parts must have protective device to avoid the body contact and objects insertion.
- Maintenance and repair must be done by the properly trained technician, also all the spare parts for repair must be approved or supplied by the manufacturer.
- Don't use any objects or force to hit or ram the product.

Danger and caution signs



Risks that may cause personal injury or risk to the machine are marked with this symbol in the instruction manual.



This symbol indicates electrical risks and warnings.

Limited Warranty

Warranty period of this product is 1 year from purchasing, or 18 months from our manufacturing date.

Warranty Detail

Any trouble found within warranty period under normal use condition in conformance with this manual, it will be repaired free of charge. Repair will be chargeable in the following cases even if within warranty period :

1. Inappropriate use include: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operate the product without the precaution, or operate the products out of its specification range. Insert odd 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 purchase, or damage in transportation by customer himself. (or by customer's shipping agency)

Note : We put our best effort and mind in testing and manufacturing for assuring the quality and reliable of this product. But it is possible this product can still 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 be well-connected to this product and it's also recommended to install a failsafe device. (such as residual current breaker).

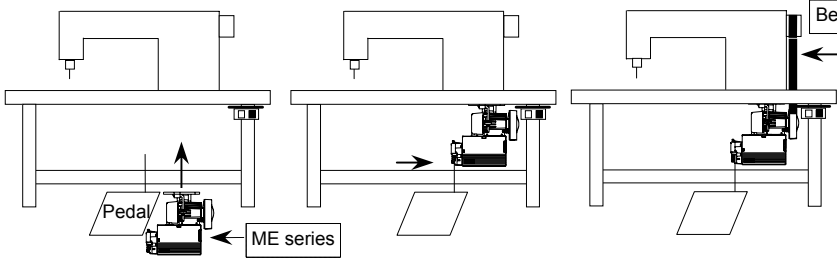
2. Installation :



Caution :
For person safety, turn off the power switch and remove the power plug from outlet before any adjustment.

ME installation

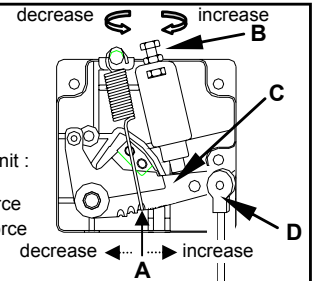
- Install the motor and control box under the table
- Install the pedal with speed control unit.
- Install the V-Belt on the motor and machine pulley, then adjust the belt to its appropriate tension.



Speed control unit adjustment

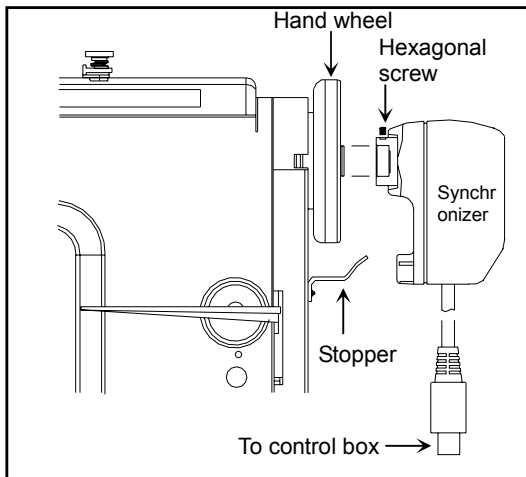
Components of speed control unit : see figure

- A : Spring for toeing forward force
- B : Bolt for heeling backward force
- C : Pedal arm
- D : Pitman rod for pedal



	Term of adjustment	Adjustment result
1	Toeing forward Force adjustment	Spring A move to right = force increased Spring A move to left = force decreased
2	Heeling backward force adjustment	Bolt B turn = force decreased Bolt B turn = force increased
3	Pedal stroke adjustment	Rod D secure at right = stroke is longer Rod D secure at left = stroke is shorter

Synchronizer installation



Synchronizer Adjustment (Please open the top cover first)

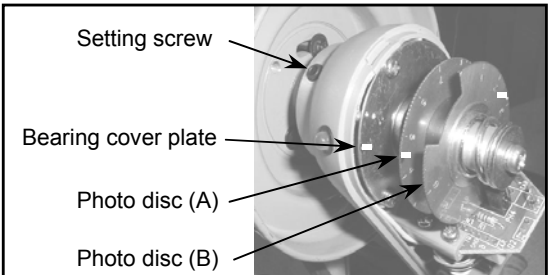
Needle up position : Rotate the machine pulley to reach mechanical needle up position and turn the photo disc (A) until its red mark is aligned with the red mark on the bearing cover plate.

Needle down position : Rotate the machine pulley to reach mechanical needle down position and turn the photo disc (B) until its blue mark is aligned with the red mark on the bearing cover plate.

Note: Instruction above is the standard adjustment. If you feel the position wasn't accurate, please do the fine tuning by yourself.

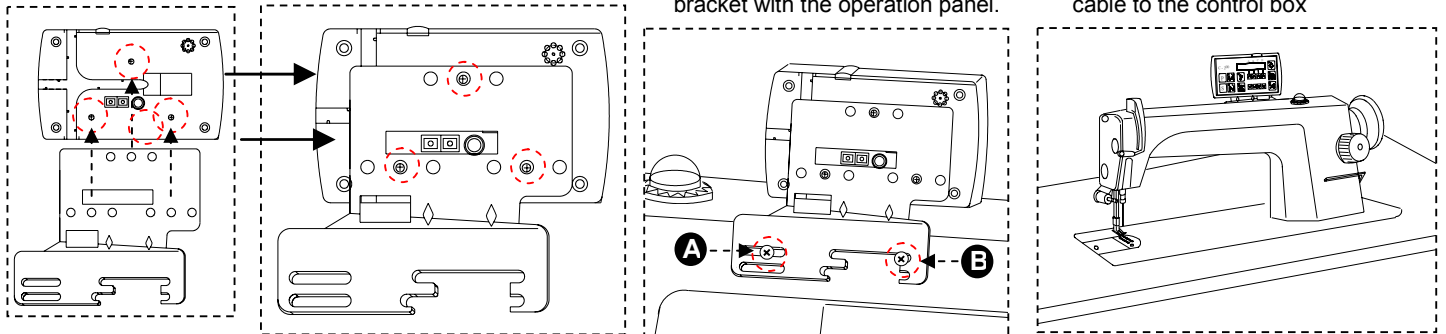
Mounting the Synchronizer onto the flange of hand wheel and match the stop groove of the synchronizer with the stopper of the machine head then tighten and secure 2 hexagonal screws of the synchronizer rotor, then connect the synchronizer cable to the control box.

Note : Stopper type and location might be varied, depend by the machine model.



C-200 operation panel (Operation panel install location might be varied depend by the bracket type and sewing machine model.)

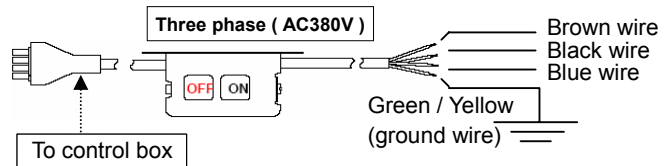
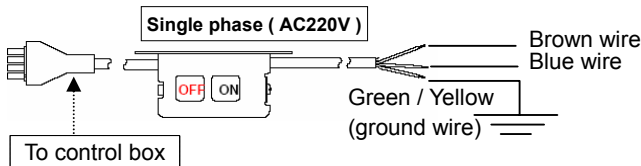
- Mount the operation panel on the bracket and secure the 3 screws show in the diagrams.
- Loosen screws **A** **B** in the back of machine head and install the bracket with the operation panel.
- After installation secure the screws **A** **B** and connect the cable to the control box



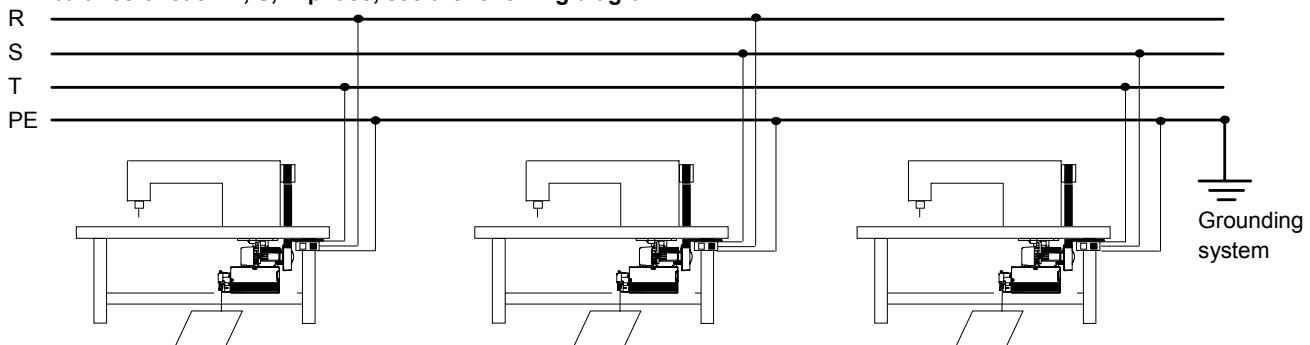
3. Wiring and Grounding :



Caution :
Green / Yellow wire is for grounding, and all grounding works must be done properly.

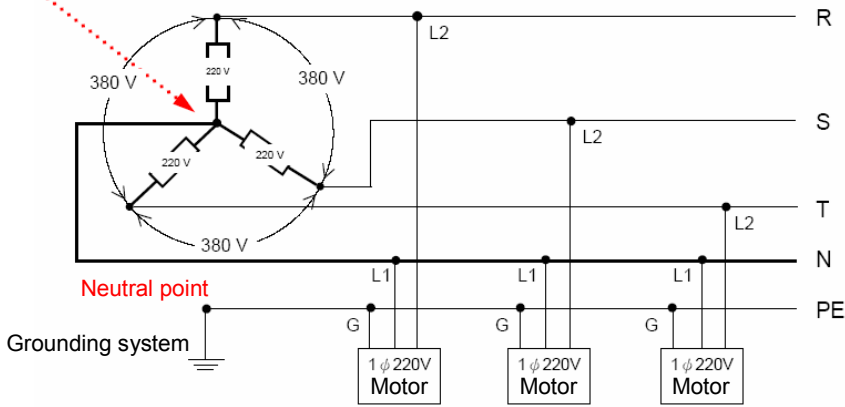


When multiple 1Φ / 220 V motors are connected to a 3 Φ / 220 V power source, take caution for the load balance of each R, S, T. phase, see the following diagram :



How to connect a 1Φ / 220 V power from a 3 Φ / 380 V power source

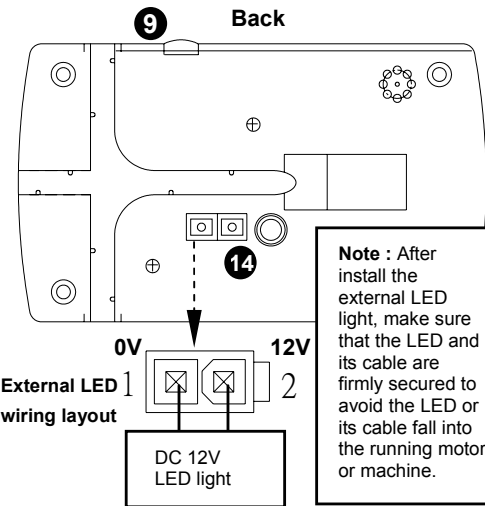
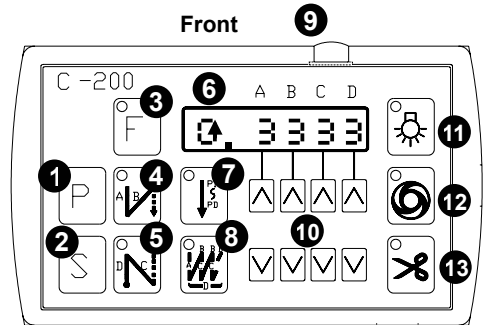
Attention : Must have a neutral point layout



Caution : If the power source does not have the neutral point, then this 1Φ / 220 V servo motor is not suitable for this connection. Please ask supplier to offer our 3Φ / 380 V servo motor.

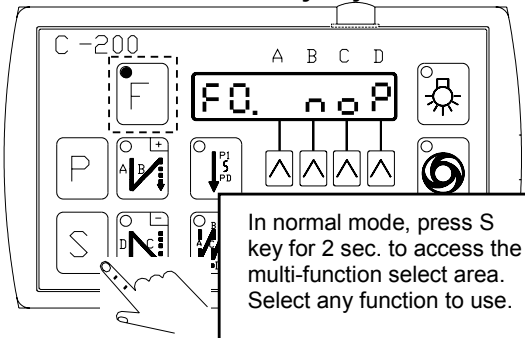
4. C-200 Operation Panel Key Functions :

1	Parameter enter / increment	Enter parameter mode / parameter NO. increment
2	Parameter value / save	Enter value area / Save key / Enter multi-function
3	F multi-function	Definable multi-function key
4	Start back-tacking	Stitches for A - B section, 15 stitches max. / Parameter NO. increment
5	End back-tacking	Stitches for C - D section, 15 stitches max. / Parameter NO. decrement
6	LED display	Parameters / functions / A - B - C - D area value
7	Constant-stitch sewing	13 sections max. (P1~PD section), 250 stitches max. for each section.
8	Bar-tacking	15 stitches max. for A-B-C section, 15 turns max. (D area) for bar-tacking.
9	Power ON LED	Power ON LED / Warning LED
10	A - B - C - D area value adjust key	▲ = increment / ▼ = decrement
11	External LED light switch	For external LED light, its ON or OFF state can be memorized by the operation panel.
12	Auto	Auto-function for constant-stitch sewing.
13	Trimming	Trimming function ON or OFF
14	External LED light socket	The socket for external DC 12V LED light.

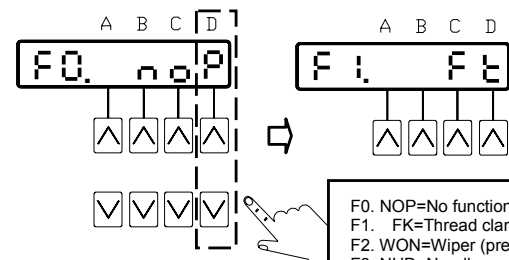


Note : After install the external LED light, make sure that the LED and its cable are firmly secured to avoid the LED or its cable fall into the running motor or machine.

F multi-function key adjustment



In normal mode, press S key for 2 sec. to access the multi-function select area. Select any function to use.



The ▲ ▼ key under the D area is the selection key for F multi-function. (F0~F6)

After function selected, press the F key under the normal mode to use the function. The operation panel will memorized the selected function and its state automatically.

- F0. NOP=No function.
- F1. FK=Thread clamp (press F key to switch the function ON/OFF)
- F2. WON=Wiper (press F key to switch the function ON/OFF)
- F3. NUD=Needle up or down (press F key to switch the needle up or down)
- F4. SLOW=Slow start (press F key to switch the function ON/OFF)
- F5. USW=Needle up switch (press F key to lift the needle to up position)
- F6. CRS=Counter reset (press F key under the counter mode to reset the counter).

5. Parameter Adjustment :

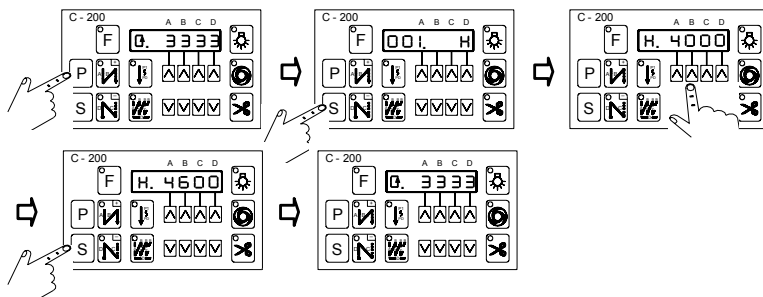
How to enter parameter value area to adjust the value :

Step 1 : Enter any parameter mode show at right side, then use ▲ or ▼ key to find the parameter NO. which need to be adjusted.

Step 2 : After find the parameter NO., press the S key to enter the parameter value area, then use ▲ or ▼ key to adjust the value.

Note : After the value adjusted, press the S key to save the setting, or else the setting will be lost after power OFF.

Level	Parameter mode	Operation	First display	Range for parameter
Level 1	Mode A	On normal mode, press and hold P key for 2 sec.	001. H	Parameter from # 001 ~ 046
Level 2	Mode B	Hold P key and power ON at same time.	047.ARC	Parameter from # 001 ~ 122



General parameter list

Parameter	Function Name	Range	Description
Speed related parameter			
【001. H】	Maximum sewing speed	50~9999 spm	Maximum sewing speed setting.
【002.SLM】	Soft start mode selection	T / A	T=Soft start activate on next sewing after trimming. A=Soft start activate when pedal down.
【004. N】	Start back-tacking speed	50~8000 spm	Start back-tacking speed adjustments
【005. V】	End back-tacking speed	50~8000 spm	End back-tacking speed adjustments
【006. B】	Bar-Tacking Speed	50~8000 spm	Bar-tacking speed adjustments
【007. S】	Slow start speed	50~2000 spm	Slow start speed adjustments
【009. A】	Automatic constant-stitch sewing speed	50~8000 spm	Automatic constant-stitch sewing speed adjustments
【122. HL】	Upper limit of maximum speed	50~9999 spm	The limit of the maximum sewing speed. (If 【122. HL】 =3000, but 【001. H】 = 4000, then the valid maximum sewing speed is limited to 3000)
Back tacking related parameter			
【014.SBT】	Start back-tacking function selection	ON / OFF	Start back-tacking turn ON or OFF
【015.SBA】	Setting stitches A of Start back-tacking	0~15 stitches	Start back-tacking stitches for A section
【016.SBB】	Setting stitches B of Start back-tacking	0~15 stitches	Start back-tacking stitches for B section
【017.SBN】	Setting turns of Start Back-tacking	0~4 turns	Start back-tacking turns
【021.EBT】	End back-tacking selection	ON / OFF	End back-tacking turn ON or OFF
【022.EBC】	Setting stitches C of End back-tacking	0~15 stitches	End back-tacking stitches for C section
【023.EBD】	Setting stitches D of End back-tacking	0~15 stitches	End back-tacking stitches for D section
【024.EBN】	Setting turns of End back-tacking	0~4 turns	End back-tacking turns
【032.BAR】	Bar-tacking selection	ON / OFF	Bar-tacking turn ON or OFF
【033.BRC】	Setting stitches of Bar-tacking	0~99 stitches	Bar-tacking stitches
【034.BRN】	Setting turns of Bar-tacking	0~15 turns	Bar-tacking turns
Constant stitch related parameter			
【010.ACD】	Automatic sewing End back-tacking	ON / OFF	Auto end back-tacking after constant stitches sewing
【038. PM】	Constant-stitch sewing selection	ON / OFF	Constant-stitch sewing turn ON or OFF
【039. PS】	Setting stitches for section of Constant-stitch sewing	0~250 stitches	Stitches for each section of constant-stitch sewing (P1~PD sections, total13 sections)
Wiper & Trimmer related parameter			
【040.WON】	Wiper function selection	ON / OFF	Wiper turn ON or OFF
【041. TM】	Trimmer function selection	ON / OFF	Trimmer turn ON or OFF
【075.SFM】	Safety switch	NO / NC	Safety switch
Presser foot related parameter			
【063.FTP】	Selection for foot lifting solenoid	M / A	M=Magnetic type / A=Air type
【064. FO】	Full-On time for foot lifting solenoid	0~990 ms	Solenoid pulling torque adjustment
【065. FC】	Duty cycle time for foot lifting solenoid	10~90 %	Solenoid switching power adjustment.
【066. FD】	Running-Delay time setting	0~990 ms	Delay time for presser foot
【070.HHC】	Cancel foot lifting at half-heeling pedal	ON / OFF	No foot lifting at half-heeling when turn ON

6. Error Code List :

Error code	Cause of the problem	Condition and solution (Repair and maintenance must be performed by a trained technician.)
ER0. 7	1. Bad connection to the motor connector. 2. Synchronizer (sensor) signal error. 3. Machine locked or object stuck in the motor pulley. 4. Sewing material is too thick.	Motor and machine will be shutting down. Please check the motor or motor connectors' connection. Please check the synchronizer (sensor) and its signal. Please check machine head to see if any objects stuck in the motor pulley, or machine does not rotate smoothly.
ER0. 12	Power on, no synchronizer signal was detected or synchronizer is not connected.	Automatic starts the clutch mode. Please check the synchronizer and its connection.
ER0.16	1. Safety switch is defected or bad connection. 2. Parameter 【075. SFM】 setting not match the machine head model.	Motor stopped Please check the safety switch. Please check parameter 【075. SFM】 setting, make sure it match machine head's safety switch.

7. 7 Segment LED Characters Compare Chart :

Arabic Numerals																			
0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9
English Alphabet																			
A	A	B	b	C	C	D	d	E	E	F	F	G	G	H	H	I	i	J	J
K	k	L	L	M	M	N	n	O	O	P	P	Q	Q	R	r	S	S	T	T
U	U	V	v	W	W	X	X	Y	Y	Z	Z								