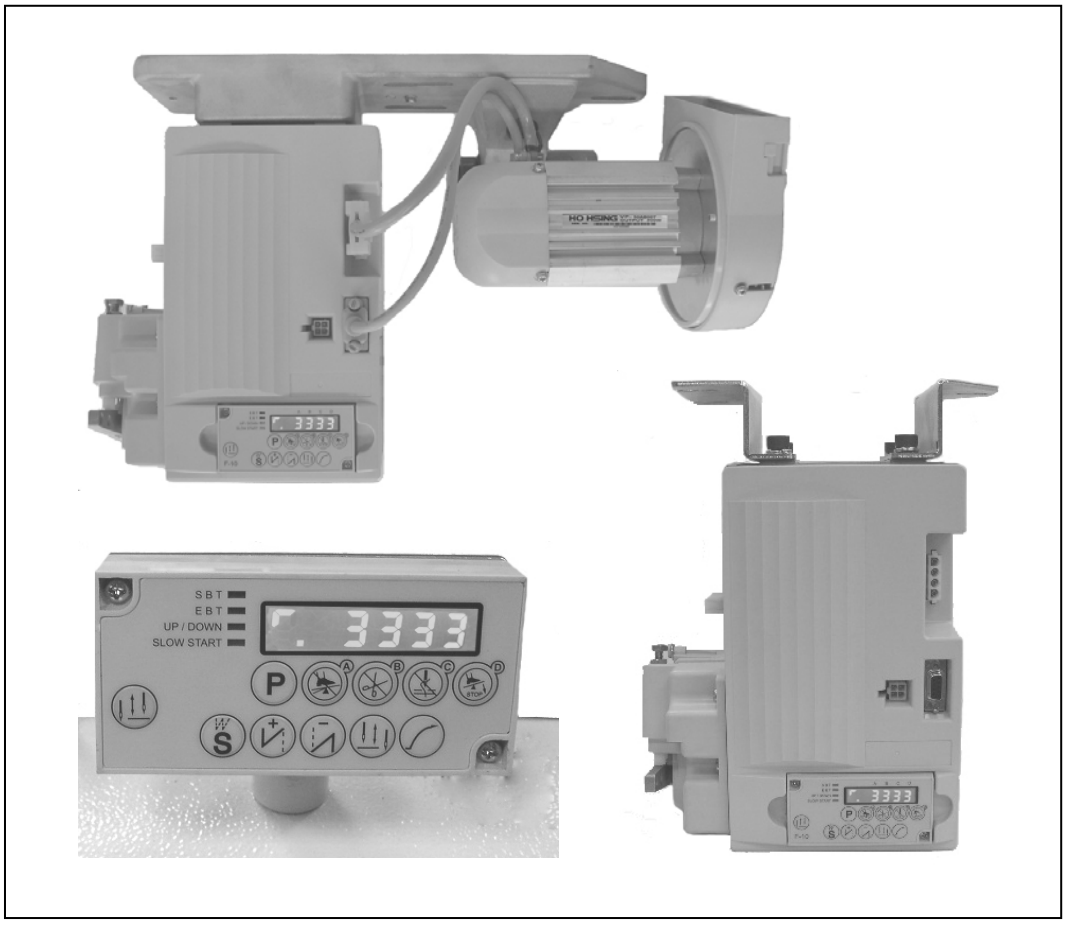
CE

AC SERVO MOTOR

INSTRUCTION MANUAL

MODEL : H V P – 20 SERIES



ENGLISH

HSVP20U01 - EN 2006. 10

Model : HVP - 20 Series

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1. Safety Precaution :

1.1 Operating purpose :

HVP-20 AC servo motor is designed and used for the industrial sewing machine, if use for any other purpose, please take extreme caution for the user safety.

1.2 Working environment :

(1). Use power voltage indicated on the name plate of the motor or control box in ±10 % ranges.
(2). To avoid the false operation, please keep the product away from the high electromagnetic machinery or electro pulse generator.
(3). Temperature / Humidity :
  a. Please operate the product in the room temperature is 5°C above or 45°C under.
  b. Don't operate in direct sun light、outdoors area.
  c. Don't operate near the heater.
  d. Please keep the room humidity in 30 % ~ 95 % range.
(4). Don't operate near the flammable gas or explosive area.

1.3 Installation :

(1). Motor and control box must be installed in accord with the correct instruction of the manual.
(2). Turn off the power and unplug the cord before any installation or adjustment.
(3). Don't set the power cord near the V-belt and the pulley, keep 3mm space or above.
(4). To avoid the static interference and current leakage, all grounding must be done.
(5). Before turning on the power, confirmed the power voltage in accord with the name plate of the motor or control box in ±10 % range.

※ **Attention : If the control box is AC 220V system, please don't connect to the AC 380V power outlet, otherwise the error code E-01 will occur. 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 fuse F1,F2 and burst the electrolytic capacitor C8,C9,C70 and even might endanger the person safety.**

(6). For the safety protection, recommend to install the Residual Current Breaker / Relay.

1.4 Regulation of maintenance :

(1). Turn off the power before any maintenance or repair.
(2). Make sure the power off before turning over the machine head or changing the needle、bobbin or thread a needle.
(3). High voltage inside the control box! After the power is turned off, wait for 5 minutes before opening the control box cover.
(4). Maintenance and repairs must be done by the specially trained personnel.
(5). Maintenance and repair during motor running is absolutely prohibited.
(6). All spare parts for repair must be approved or supplied by the manufacturer.

1.5 Warning signs :

This symbol indicates the caution on installation, risks that may cause personal injury or risk to the machine.

This symbol indicates a high voltage area or electrical risks and warnings.

1.6 Other safety regulation :

(1). After the machine is turned on, use low speed to operate first and check the correct rotation direction.

(2). During machine operation, don't touch any moving parts.

(3). All moving parts must use the protective device to avoid the body contact and the objects insertion.

(4). Don't operate machine with-out the belt cover or with-out any other safety device.

(5). Don't drop the motor or control box on the floor.

(6). Don't pour tea or coffee or any other liquid into the control box or motor.

1.7 Warranty information :

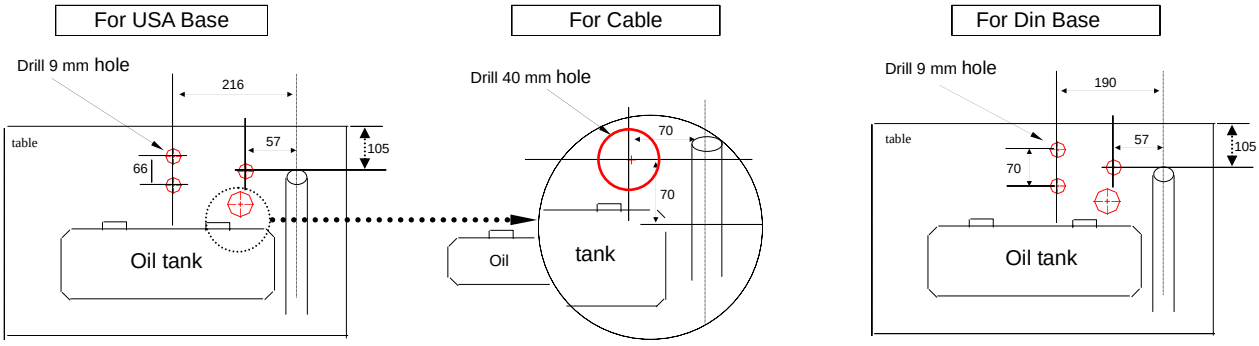
Manufacturer provides a warranty in respect of the products covered for a period of 18 months after the shipping date of the products for any defects arising in the normal course of use of the products by customers.

2. Installation and Adjustment :

2.1 Motor installation :

A). Direct drive type : Motor and sewing machine installed together, please refer to the sewing machine manual for instruction.

B). Under table type : Drill holes in the table as the following diagrams for the installation.



1). Pulleys of motor and machine must be properly aligned.

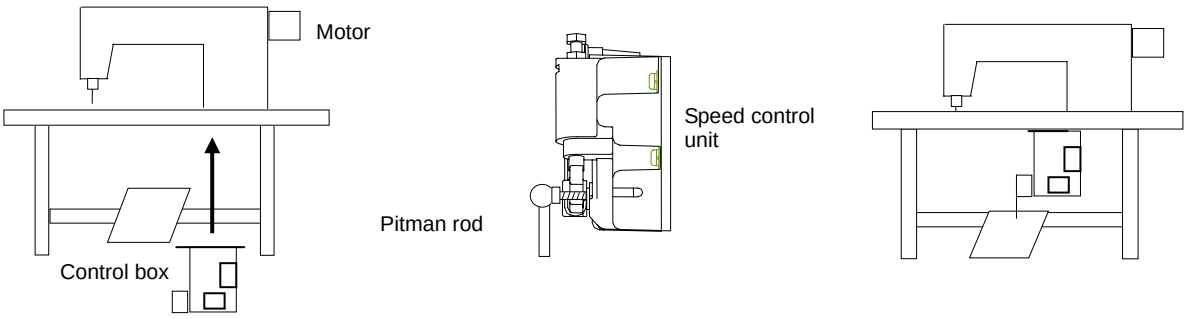
2). Cable pass through under the working table must be secured to avoid the V-belt to be rubbed.

3). Use the motor base to adjust belt's tension.

2.2 Control box installation :

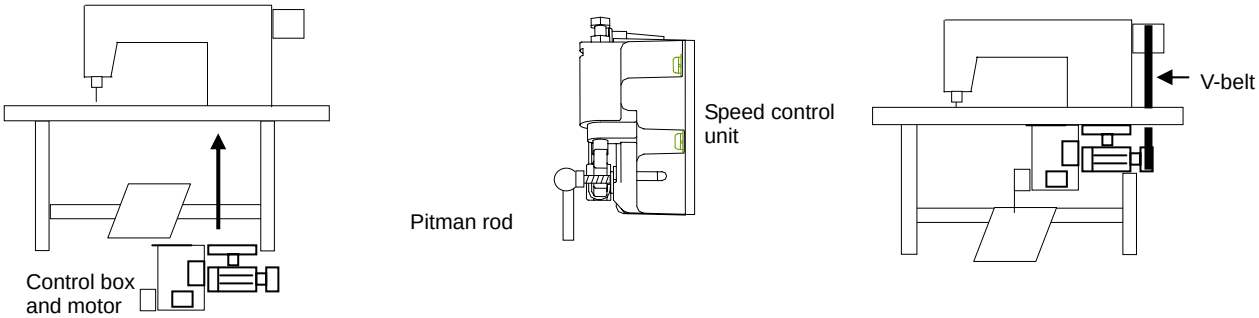
A). Direct drive :

1). Install the control box under the table 2). Install the pedal with speed control unit 3).Finished diagram



B). Under table :

1). Install the motor and control box under the table 2). Install the pedal with speed control unit 3).Finished diagram

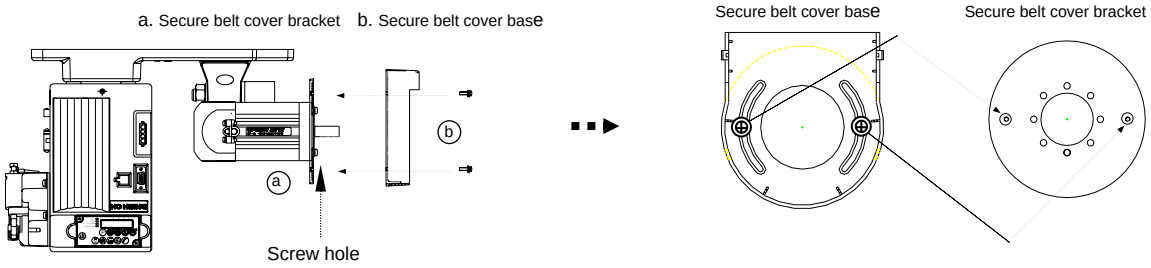


2.3 Install and adjust the belt cover :

A). Install the belt cover:

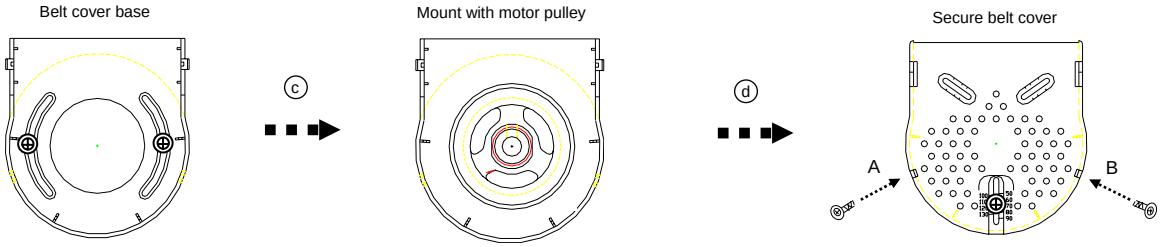
Note : The belt cover bracket、base and pulley is pre-mounted during factory assembly.

1). install the belt cover bracket at motor front cover.(screw nut face motor) 2). then secure base to the belt cover bracket, let the opening face machine pulley.



3). After base is installed, mount the motor pulley and secure it.

4). Finally put the belt cover and secure the screw A, B



B). Adjust the belt cover :

1. Finger guard adjustment :

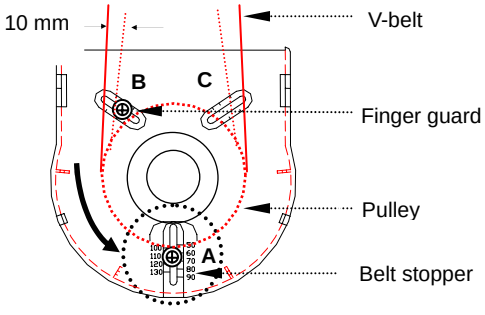
a). Factory default, Finger guard is set at (B). (for lockstitch machine rotation direction)

b). When using Interlock stitch machine, Finger guard must be set at (C).

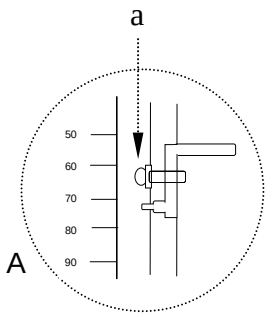
2. Belt stopper adjustment :

a). Factory preset the belt stopper at scale above 85 mm position (Fig. **A)**, if pulley size changed, adjust the scale to match the pulley size.

b). Adjustment tips: Loosen the screw (a) in the Fig. A. adjust the belt stopper and make sure it doesn't touch with either belt or pulley. Then secure the screw (a).



Front view



Installation for the pulley under 85 mm

1). Prevent the accident occurred, pleas turn off the power and wait for motor complete stop before the adjustment

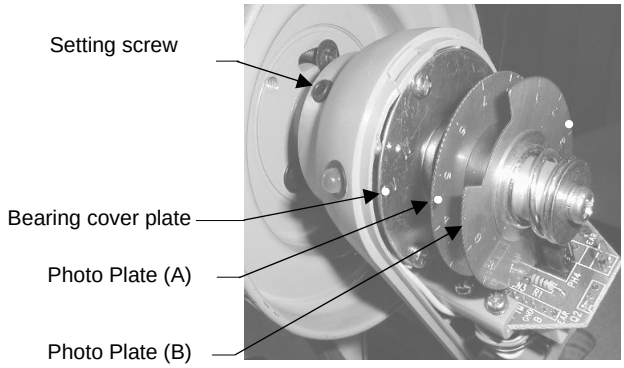
2). Make sure the finger guard and belt stopper don't collide with the pulley before operating.

2.4 Install and adjust the synchronizer (sensor) :

Note : If use built-in (internal) synchronizer, please refer to the sewing machine manual.

a). Synchronizer installation：Mounting the Synchronizer onto the flange of machine pulley and fasten the rotor by setting screws.

b). Synchronizer adjustment：Loosen the screw and up cover first



Caution :

Turn OFF the power, before making the adjustment.

Needle up position : Rotate the machine pulley to reach mechanical needle up position and turn the photo plate (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 plate (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.

2.5 Speed control unit adjustment :

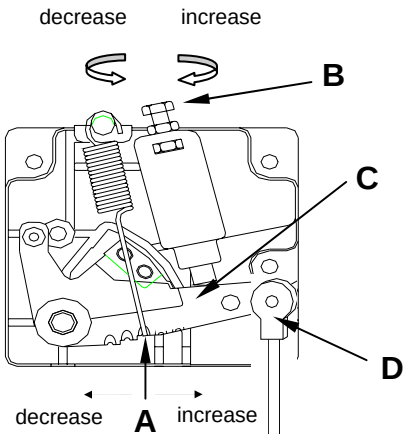
Components of speed control unit : see figure

A： Spring for toeing forward force adjustment

B： Bolt for heeling backward force adjustment

C： Treadle / Pedal arm

D： Rod for Treadle / Pedal



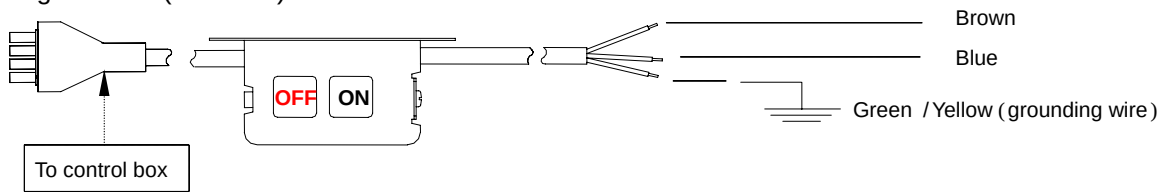
Term of adjustment		Adjustment result
1	Toeing forward force adjustment	Spring A moved to right = force increased Spring A moved to left = force decreased
2	Heeling backward force adjustment	Bolt B turned ⟲ = force decreased Bolt B turned ⟳ = force increased
3	Treadle stroke adjustment	Rod D secured at right = stroke is longer Rod D secured at left = stroke is shorter

3. Power Connection and Grounding :

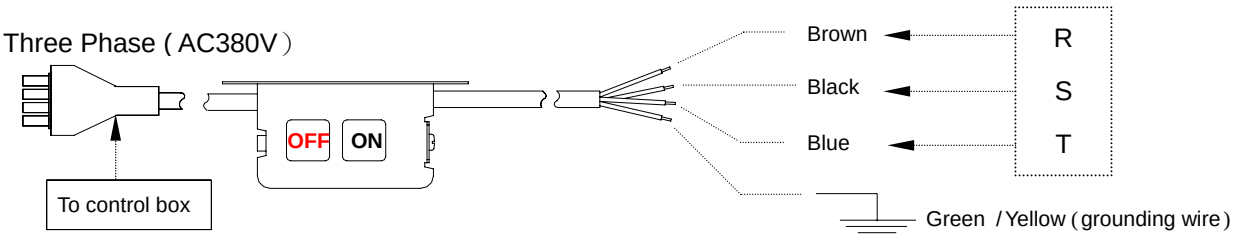
3.1 Single phase and three phase connection :

Green/yellow wire is the ground wire.

Single Phase (AC220V)



Three Phase (AC380V)



Caution : Green / Yellow wire must be grounded.

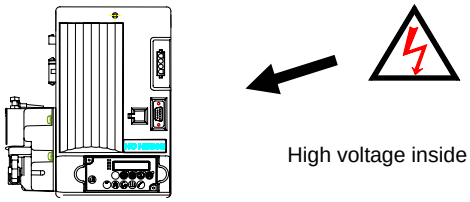
3.2 How to change solenoid supply voltage (DC: 24 V OR 30 V)

When changing the solenoid voltage to 24V or 30V, use the JP1 and JP2 on the power board to do the jumper switch.

Caution （1）： Before making the switch, check the machine head's solenoid specification.

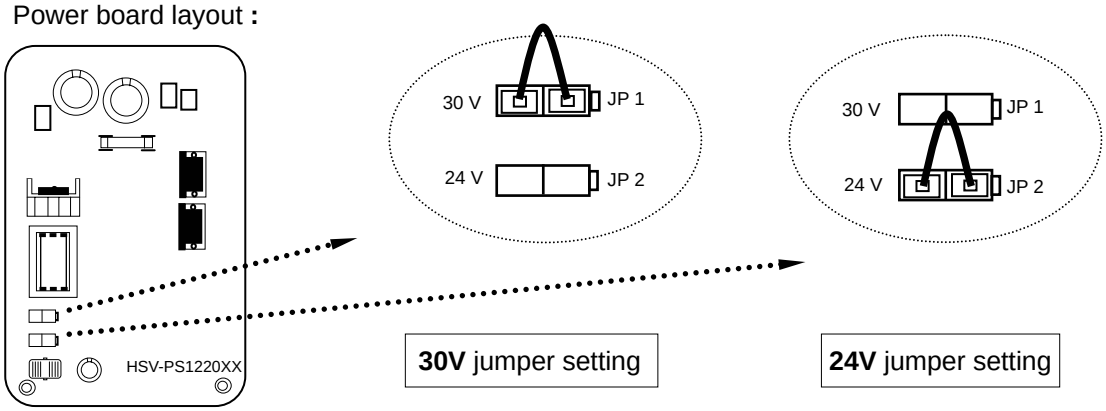
Caution （2）：

Turn off the power and wait for 5 min. before opening the cover, then make the change.



High voltage inside

Power board layout :



4. Part Name of the Control Box :

Use the following numbers cross reference with the control box picture.

1 : Mounting bracket for direct drive motor.

2 : Mounting bracket for under table motor.

3 : Motor power socket

4 : Standing operation panel socket

5 : Motor encoder socket

6 : Safety switch socket

7 : Speed control unit

8 : F-10 mini panel

9 : Motor encoder connector

10 : Motor power connector

11 : Motor body

12 : Belt guard

13 : External lamp socket

14 : Main power socket

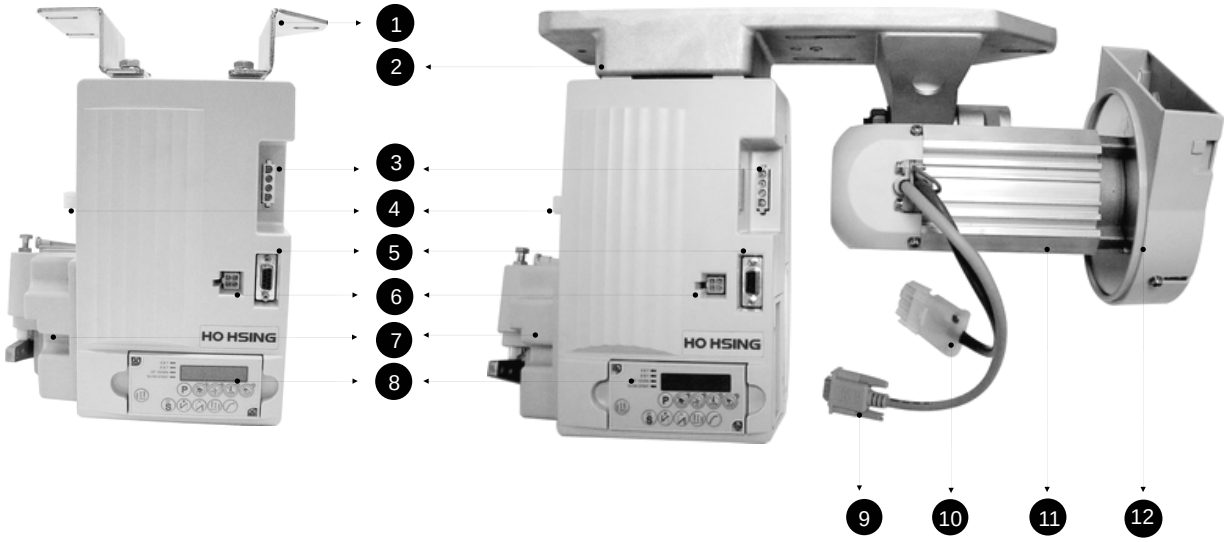
15 : 7P synchronizer socket （7W model use only）

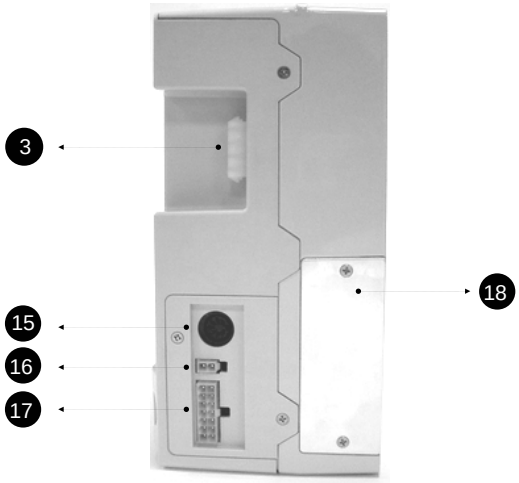
16 : Presser foot signal output socket （7W model use only）

17 : Sewing machine signal output socket （7W model use only）

18 : Sewing machine signal output terminal panel (Panel maybe varied depend by the sewing machine model）

Be careful for all the connector shape and plugging direction. All connectors must be plugged and secured

Exterior of under table and direct drive motor / control box


Control box right side	Control box left side
	

5. General Parameter Adjustment :

5.1 How to enter each parameter mode :

Parameter mode		Operating step	First display	Keys	Range of parameter
Level **1**	**【Mode A】**	At【Normal mode】, press and hold **P** key for 2 sec.	001. H		# 001 ~ 046
Level **2**	**【Mode B】**	**P** + **Turn-on power**	047.MAC		# 001 ~ 122

5.2 How to enter parameter value area and make adjustment :

Step 1：Follow the steps to access the mode you desired, then use the key or to find the parameter number.

Step 2：After the parameter number found, use the **S** key to access the parameter value area. Then use the **A** **B** **C** **D** key to adjust the value.

Note：After value adjusted, press the **S** key to save the value, otherwise the adjusted value will lost after power is turned off.

5.3 Terms and value setting for **A** **B** **C** **D** key in the parameter value :

KEY / TERMS / VALUE	**A**	**B**	**C**	**D**
IN TERMS OF SPEED	1000 spm	100 spm	10 spm	1 spm
IN TERMS OF ANGLE	--------	100 °	10 °	1 °
IN TERMS OF TIMING	1000 ms	100 ms	10 ms	10 ms
IN TERMS OF FUNCTION				FUNCTION SWAP
∴ Other than the function selection, each press of the key will change the value from 1 to 10 in cycle				

5.4 Machine code adjustment :

Caution：1). Wrong machine code setting might cause the abnormal operating and damage the sewing machine.

2). If machine code adjustment is necessary, please consult with the technical support before the adjustment.

Follow the steps to access parameter mode B, find the parameter【047. MAC】and press **S** key to access the parameter value area. Press **C** **D** key to change the machine code. Then press **S** key to save the setting.

Note 1. Find out the correct machine code corresponding to the sewing machine model before changing.

Note 2. After machine code is changed, general parameters (function, speed) will automatic load the default setting corresponding to the machine code you selected.

Note 3. After machine code is changed, you also need to adjust the parameter【046.DIR】and【119. DD】manually depend by the motor type. Refer to the following chart for detail :

Motor rotate direction and related parameter chart：

Motor type	【046.DIR】setting	【119. DD】setting	Rotation icon	Actual rotate direction
Direct drive	CCW	ON		Clockwise
	C W	ON		Counter clockwise
Under table	CCW	OFF		Counter clockwise
	C W	OFF		Clockwise
Note	1. Actual rotate direction means the motor rotate direction when machine sewing (rotate direction face the machine pulley) 2. Parameter【046.DIR】setting will change the motor rotate direction. 3. Parameter【119. DD】 setting will change the rotation icon on the LED display.			

5.5 General function parameter：(Follow the steps on section 5.1、5.2 to adjust these parameters)

Speed function	
【001. H 】	Maximum sewing speed (spm)
【004. N 】	Start back-tacking speed (spm)
【005. V 】	End back-tacking speed (spm)
【006. B 】	Bar-Tacking Speed (spm)
【007. S 】	Soft start speed (spm)
【009. A 】	Automatic constant-stitch sewing speed (spm)
【122. HL】	Upper limit of maximum speed (spm)

Back tacking	
【014.SBT】	Start back-tacking function selection
【015.SBA】	Setting stitches A of Start back-tacking
【016.SBB】	Setting stitches B of Start back-tacking
【017.SBN】	Setting turns of Start Back-tacking
【021.EBT】	End back-tacking selection
【022.EBC】	Setting stitches C of End back-tacking
【023.EBD】	Setting stitches D of End back-tacking
【024.EBN】	Setting turns of End back-tacking

Bar tacking / Constant stitch	
【010.ACD】	Automatic sewing End back-tacking
【032.BAR】	Bar-tacking selection
【033.BRC】	Setting stitches of Bar-tacking
【034.BRN】	Setting turns of Bar-tacking
【038 . PM】	Constant-stitch sewing selection
【039 . PS】	Setting stitches for section of Constant-stitch sewing

Wiper / Trimmer	
【040.WON】	Wiper function selection
【092 . W1】	Delayed timing prior to wiper engaged
【093 . W2】	Setting timing of wiping
【041. TM 】	Trimmer function selection
【082 . T1 】	Delayed timing prior to trimmer engaged
【083 . T2 】	Trimming time

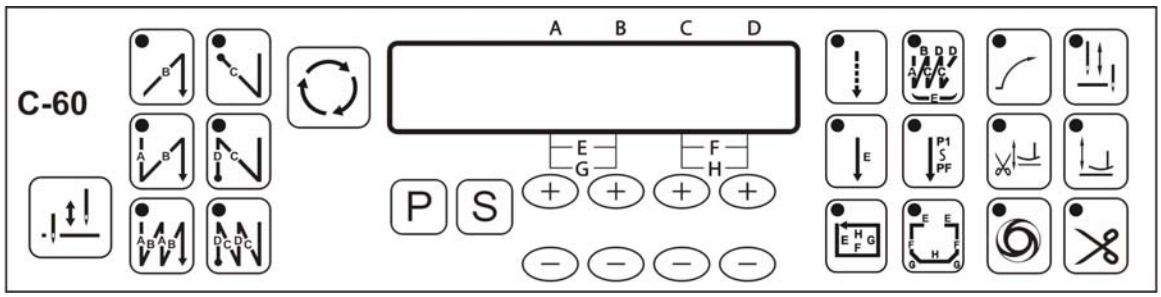
Automatic presser foot	
【063. FTP】	Type selection for foot lifting solenoid
【064. FO 】	Full-On time setting for foot lifting solenoid
【065. FC 】	Duty cycle time setting for foot lifting solenoid
【066. FD 】	Running-Delay time setting
【070.HHC】	Cancel foot lifting at half-heeling pedal

Caution：1). Wrong parameter setting might cause the abnormal operating and damage the sewing machine and the control box.

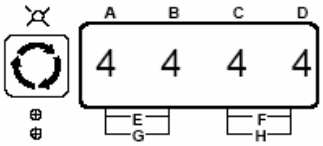
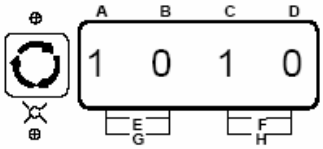
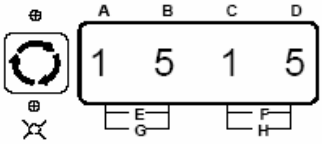
2). If parameter adjustment is necessary, please consult with the technical support before the adjustment.

6. C-60 / F-10 Operation Box :

6.1 C-60 Operation box keys definition :



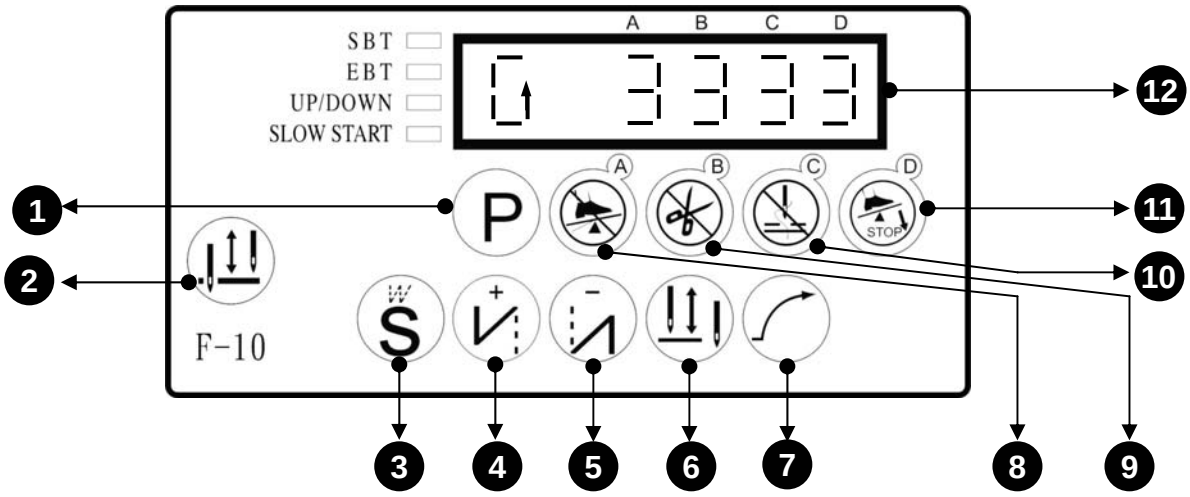
Function	KEY	Operation of Sewing Machine
Start / End back tacking selection		Double start back tacking (A,B sections)
		Single start back tacking (A,B sections)
		Half start back tacking (B section)
		Double end back tacking (C,D sections)
		Single end back tacking (C,D sections)
		Half end back tacking (C section)
Constant stitch sewing		1). As the treadle is toed down, constant-stitch sewing E、F、G or H performed section by section. 2).Once the treadle returns to neutral intermediately in any one section, the machine will stop immediately. When the treadle toeing down again, the balanced stitches of E、F、G or H goes on. 3).If the parameter【010. ACD】is set ON, the machine will not stop and automatically start trimming cycle and end back tacking at the end of the last section E or H. 4).When using P1~PF function, P1~P4 default setting is 15 stitches, other unused sections must set 0 stitch.
Free sewing		1).As the treadle is toed down, machine will start sewing. Once the treadle returns to neutral, machine will stop immediately. 2).As the treadle heeled back, the trimming cycle will be finished automatically.

Bar tacking		As the treadle is toed down, all the seams of bar tacking, A、B、C、D sections will be completed with E times, and the trimming cycle will be finished automatically Note：When the bar tack sewing start, it will not stop until the trimming cycle finished, except for the treadle heeling back to cancel the action.
Stitch setting selection		A、B、C、D -- stitch setting range in 0 ~ F **(Note)** E、F、G、H -- stitch setting range in 0 ~ 99  ---- A=B=C=D=4 stitches  ---- E = F = 10 stitches  ---- G = H = 15 stitches ∴ Press key to select **:** Top A、B、C、D Middle E、F Bottom G、H
Needle up / Forward stitch correction		1).In free sewing: One touch of this key act as stitch correction. (half stitch forward) 2).In constant-stitch sewing：(In Bar-tack sewing, it act as needle up) a. If sewing stops intermediately in one section, one touch of this key will raise the needle to up position. b. If sewing stops at the end of section, one touch of this key will correct one stitch forward.
One-shot sewing (AUTO)		1). In free sewing and bar-tack sewing： One touch of this key makes beep sound but no function; also LED does not light up. 2). In Constant-stitch sewing： a. One shot to the pedal, automatic performed number of stitches of E、F、G、H sections. b. Toeing down the pedal again to finish the rest sections until it finish pattern.
Trimming cycle selection		Enable or disable the trimming cycle.

Soft start		1).When function is turned ON, soft start activated at first run of motor start. After trimming, it will activate again on next motor start. 2). Speed of the soft start can be set by parameter [007. S]. 3). Number of stitches can be set by parameter [008.SLS].
Needle up / down when motor stop		Needle stop setting LED ON= Stop at UP position LED OFF=Stop at DOWN position
Presser foot up / down after trimming cycle		Presser Foot action after trimming LED ON= Automatic lift the presser foot after trimming LED OFF=Presser foot not active after trimming..
Presser foot up / down when motor stop		Presser foot action when motor stop LED ON=Motor stop, presser foot goes up automatically. LED OFF=Presser Foot not active when motor stop.
Value / Parameter increment key		A、B、C、D section value increment key, range in 0~ F.**(Note)** E、F、G、H section value increment key, range in 0~99.
Value / Parameter decrement key		A、B、C、D section value decrement key, range in 0~ F.**(Note)** E、F、G、H section value decrement key, range in 0~99.
Enter parameter area / Parameter increment		Press and hold this key for 2 second to enter parameter area. Also act as parameter increment key
Enter parameter value / Saving		Press this key in parameter area to enter parameter value area. Also act as the parameter value saving key.

Note：Stitches setting of A、B、C、D sections correspond to the alphabet.
A=10、B=11、C=12、D=13、E=14、F=15 stitches

6.2 F – 10 mini operation box / panel :



NO.	Function keys for the lock-stitch machine	Function keys for the interlock stitch machine	Function keys under parameter mode
1	Enter the parameter area	Enter the parameter area	Also act as parameter increment key
2	Needle up	Needle up	Invalid
3	Free sewing / Bar tacking / Constant stitch sewing	Invalid	Enter parameter value area / parameter value saving key
4	Start back tacking ON / OFF	Invalid	Parameter increment key
5	End back tacking ON / OFF	Invalid	Parameter decrement key
6	Needle up / down when motor stop	Needle up / down when motor stop	Invalid
7	Soft start ON / OFF	Soft start ON / OFF	Invalid
8	Number of stitches of A section (ranged in 0 ~ 15 stitch)	Cancel half heeling back : means half heeling back invalid	Parameter / value selection key
9	Number of stitches of B section (ranged in 0 ~ 15 stitch)	Cancel trimmer : means trimmer function invalid	Parameter / value selection key
10	Number of stitches of C section (ranged in 0 ~ 15 stitch)	Cancel wiper : means wiper function invalid	Parameter / value selection key
11	Number of stitches of D section (ranged in 0 ~ 15 stitch)	Start constant stitch sewing : mean start constant stitch function valid.	Parameter / value selection key
12	Motor rotation icon / Number of stitches display	Motor rotation icon / Special function display	Parameter display

6.3 C – 60 / F – 10 parameter function adjustment：

Please refer to the chapter 5 on general parameter adjustment for instructions.

7. HVP-20 Error Code / Measurement :

Error Code	Cause of the Problem	Status and Measurement
ER0.1	Motor and module over current protection	Motor and machine will be shutting down Turn off the power then turn on again.
ER0. 4	1. When power on, detected high voltage 2. Connect the wrong voltage or supply power is too high. 3. Aluminum casing resistor for the brake circuit is defective or power board F1 fuse burst.	Motor and machine will be shutting down. Please check the AC power. (Too high) **＊If control box is AC 220V system, don't use the AC 380V power voltage, otherwise the LCD will display ER0. 4 after 2 second of power ON. If continue supply the 380V power, the electrolytic capacitors (C8,C9,C70) of power board will burst out in a while and cause the fuse (F1,F2) of EMI board short circuit.** Please check the power board. Please check the aluminum casing resistor and power board F1 fuse.
ER0. 5	1. When power on, detected low voltage 2. Connect the wrong voltage or supply power is too low..	Motor and machine will be shutting down.. Please check the AC power. (Too low) Please check the power board.
ER0. 7	1. Bad connection at 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 it's signal. Please check machine head to see if objects stuck in the motor pulley, or rotate not smoothly.
ER0. 8	Operation box linked to CPU interface had communication error	Motor and machine will be shutting down. Please check the operation box.
ER0. 9	1. Machine solenoid shorted. 2. Main board's power transistor is faulty.	Motor still can run, but all output signals and operation box's pattern sewing function will be invalid.. Please check machine's solenoids or the resistance value is 2 Ω less. Please check all the power transistors, which related to solenoid.
ER0. 11	If parameter 【121.ANU】 is set ON, but auto needle up is malfunction when the power turned on.	Motor and machine will be shutting down. Please check synchronizer's up position's signal. Please check control box. Please check machine head to see if objects stuck in motor pulley, or pulley rotate not smoothly.
ER0. 12	Power on, no synchronizer signal or not connected (valid for under table motor)	Automatic starts the clutch mode. If use direct-drive motor, please short the pin 4 and pin 5 of the CN18 on the main board. If use under table motor, please check the synchronizer. (also check the connection and model)
	Motor rotation icon in LED is halting and not moving. 1. Safety switch is either faulty or bad connection. (For interlock stitch or blind stitch machine). 2. Parameter【075. SFM】setting not match the machine head model.	Motor stops. Please check the safety switch. Please check parameter table on【075. SFM】 setting, make sure it match machine head's safety switch

8. General Parameter List :

8.1【Parameter Mode A】list :

Parameter Code	Parameter Function	Range / Selection	Description
【 001. H 】	Maximum sewing speed (spm)	50 ～ 9999	Maximum speed adjustments
【002. SLM】	Soft start mode selection	A / T	A：Toe down the pedal, soft start automatic running T：After trimming, soft start automatic running on next sewing
【 003. CNR】	Counter ratio selection	1 ~ 100	Setting the multiple to the value of 【042. CUD】
【 004. N 】	Start back-tacking speed (spm)	50 ～ 8000	Start back-tacking speed adjustments
【 005. V 】	End back-tacking speed (spm)	50 ～ 8000	End back-tacking speed adjustments
【 006. B 】	Bar-tacking speed (spm)	50 ～ 8000	Repeat bar-tacking speed adjustments
【 007. S 】	Soft start speed (spm)	50 ～ 2000	Soft start speed adjustments
【 008. S L S 】	Stitch numbers for soft start (stitch)	0 ～ 99	Soft start stitches setting
【 009. A 】	Automatic constant-stitch sewing speed (spm)	50 ～ 8000	Valid only at the auto pattern sewing or one shot signal（SH）active
【 012. S M S 】	Mode selection for start back-tacking	A / M / SU / SD	A：One shot sewing M：Pedal control and motor can stop at middle way. SU：One shot sewing but motor stops at needle up by【027.CT】timer at end of each seam. SD：One shot sewing but motor stops at needle down by【027.CT】timer at end of each seam.
【 018. B T 1 】	Stitch balance for start back-tacking 1	0~F	BT1=0:Invalid,1-8:Increase stitches of reverse seam, 9-F:Increase stitches of forward seam BT2=0:Invalid,1-8:Increase stitches of forward seam, 9-F:Increase stitches of reverse seam
【 019. B T 2 】	Stitch balance for start back-tacking 2		
【 020. S ME 】	Mode selection for end back-tacking	A / SU / SD	A：One shot sewing. SU：One shot sewing but machine stops up position by【027. CT】timer at the end of each seam. SD：One shot sewing but machine stops down position by【027. CT】timer at the end of each seam.
【 025. B T 3 】	Stitch balance for end back-tacking 3	0~F	BT3=0:Invalid,1-8:Increase stitches of reverse seam, 9-F:Increase stitches of forward seam BT4=0:Invalid,1-8:Increase stitches of forward seam, 9-F:Increase stitches of reverse seam
【 026. B T 4 】	Stitch balance for end back-tacking 4		
【 027. C T 】	Setting time interruption at each section end of back-tacking. (ms)	0 ～ 990 ms	【012. SMS】,【020. SME】,【031. SMB】= SU,SD setting valid. Conner stop timer, valid only at 【012. SMS】,【020. SME】,【031. SMB】setting SU/SD.
【 031. S M B 】	Mode selection for bar-tacking	A / M / SU / SD	A：One shot sewing. M：Pedal control and motor can stop at middle way. SU：One shot sewing but motor stops at needle up by【027. CT】timer at end of each seam. SD：One shot sewing but motor stops at needle down by【027. CT】timer at end of each seam.
【 035. B T 5 】	Stitch balance for bar-tacking 5	0~F	BT5=0:Invalid,1-8:Increase stitches of reverse seam, 9-F:Increase stitches of forward seam BT6=0:Invalid,1-8:Increase stitches of forward seam, 9-F:Increase stitches of reverse seam
【 036. B T 6 】	Stitch balance for bar-tacking 6		
【 037. S M P 】	Mode selection for constant-stitch sewing	A / M	A：One shot sewing. M：Pedal control and motor can stop at middle way.
【 039. P S 】	Section 1～4 of constant-stitch sewing	0 ～ 250 stitches	Stitches setting of seam P1-P4. 【038. PM】 =ON valid. Stitches setting of seam P5-PF. 【038. PM】 = ON valid.
	Section 5～F of constant-stitch sewing	0 ～ 250 stitches	
【 040. W O N】	Wiper function selection	ON / OFF	ON：Enable / OFF：Disable
【 041. T M 】	Trimmer function selection	ON / OFF	ON：Enable / OFF：Disable
【 042. C U D】	Count mode selection (For Bobbin Thread or Sewing Piece)	NOP/U/D/US/DS/ UT/DT/UTS/DTS	NOP : The counter is invalid. U : Count up by stitches. When count over, counter will be auto-reset. D : Count down by stitches. When count over, counter will be auto-reset. US : Count up by stitches. When count over, motor stops and the counter must be reset by the external switch or the A key on the front panel.. DS : Count down by stitches. When count over, motor stops and the counter must be reset by the external switch or the A key on the front panel.. UT : Count up by trimming. When count over , counter will be auto-reset. DT : Count down by trimming. When count over , counter will be auto-reset UTS : Count up by trimming. When count over, motor stops and the counter must be reset by the external switch or the A key on the front panel.. DTS : Count down by trimming. When count over, motor stops and the counter must be reset by the external switch or the A key on the panel..
【 043. U D 】	Setting the count	1～9999	Count setting . (Note: The real number = the value of【003.CNR】X【043.UD】,when【042.CUD】= U,D,US,DS)
【 045. S P 】	Sewing speed	----------	Showing the current sewing speed.
【 046. D I R 】	Direction of motor rotation	CW / CCW	CCW：Counterclockwise. CW：Clockwise.

8.2【Parameter Mode B】list :

Parameter Code	Parameter Function	Range / Selection	Description
【 047. MAC 】	Machine Code	0 ～ 101	Machine code switchover
【 049. SPD 】	Machine's pulley dimension	1 ～ 250	Setting machine pulley size when【051. PL】 = ON valid.
【 050. MPD 】	Motor's pulley dimension.	1 ～ 250	Setting motor pulley size when 【051. PL】 = ON valid.
【 060. L 】	Low speed (spm)	50 - 500	Low speed adjustments
【 061. T 】	Thread trimming speed (spm)	50 - 500	Thread trimming speed adjustments
【 064. FO 】	Full-On time setting for foot lifting solenoid (ms)	0 ～ 990	For solenoid pulling torque adjustment.
【 065. FC 】	Duty cycle time setting for foot lifting solenoid (%)	10 ～ 90 %	For solenoid's switching power adjustment. Note : Wrongly adjustment will cause the solenoid unable to lift or over-heating
【 066. FD 】	Running-Delay time setting	0 ～ 990	If foot lifter is installed, set 100 ms min. to ensure the presser foot will come down first.
【 070. HHC 】	Cancel foot lifting at half-heeling pedal	ON / OFF	ON : No foot lifting at half-heeling. (but full-heeling can operate foot lifter) OFF : Operate foot lifting at half-heeling.
【 075. SFM 】	Safety switch protection mode	NC / NO	NO：Normal open. When signal at close, motor immediately stops and rotation symbol will stop. NC：Normal close. When signal at open, motor immediately stops and rotation symbol will stop
【 082. T 1 】	Delayed timing prior to trimmer engaged (ms)	0 ～ 990 ms	Valid for【079. LTM】= T4/TK/TS/T7.
【 083. T 2 】	Trimming time (ms)	0 ～ 990 ms	Valid for【079. LTM】= T1/T3/T4/TK/TS/T7.
【 086. L 1 】	Delayed timing prior to tension release engaged (ms)	0 ～ 990 ms	Valid for【080. LLM】= L4/LK/LS/L7.
【 087. L 2 】	Timing of tension release (ms)	0 ～ 1500 ms	Valid for【080. LLM】 = L1/L3/L4/LK/LS/L7.
【 092. W 1 】	Delayed timing prior to wiper engaged (ms)	0 ～ 980 ms	Time setting between needle up to wiper active.
【 093. W 2 】	Setting timing of wiping (ms)	0 ～ 9990 ms	Wiper ON timer setting.
【 094. W F 】	Delayed timing prior to foot lifter engaged (ms)	0 ～ 990 ms	Timer setting between wiper OFF to presser foot ON.
【 114. UEG 】	Needle UP position stop angle	5 ～ 180°	Adjust the needle up stop position.
【 119. DD 】	Direct drive or belt drive	ON / OFF	O N : Direct drive. OFF : Belt drive (under table)
【 121. ANU 】	Needle goes up as power turned ON	ON / OFF	O N : Automatic needle UP at power on. OFF : Function invalid
【 122. H L 】	Upper limit of maximum speed (spm)	50 ～ 9999 spm	The motor's maximum speed setting

Caution : Wrong setting of the parameter might cause the abnormal operating and damage the sewing machine. You must fully understand the function usage and the setting effects to make adjustment. Don’t try to adjust the parameter gropingly.

7-Segment Display Characters Compare Table

Arabic Numerals

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

English Alphabet

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