



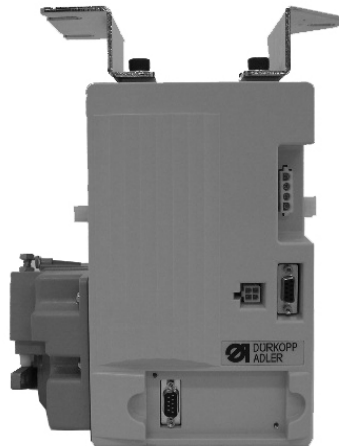
AC SERVO MOTOR



INSTRUCTION MANUAL FOR DUERKOPP ADLER-281 MACHINE

HVP-20-4-28-CE FOR DUERKOPP ADLER-281

MINI-MOTOR



ENGLISH

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Model : HVP - 20 Series

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(1). Level 1 parameter list P1
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(3). Level 3 parameter list P6
(4). Level 4 parameter list P10
(5). Level 5 parameter list P12

Bottom page : 7-Segment Display Characters Compare Chart

1. Safety Precaution

When install and operate HVP-20 control box, precaution must be taken as the following.

This product is designed for the industrial sewing machines (DA281) and must not be used for other purposes.

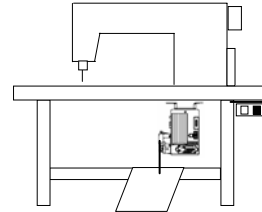
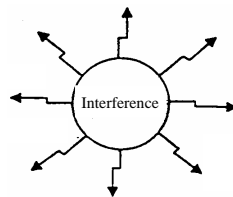
(1). Work environment :

(a). Power voltage:

Only use Power Voltage indicated on the name plate of the HVP-20 in $\pm 10\%$ ranges.

(b). Electromagnetic pulse interference:

To avoid the abnormal running, please keep the product away from the high electromagnetic machine or electro pulse generator.



(c). Temperature:

1. Please don't operate in room temperature is above 45°C or under 5°C
2. Avoid operating in direct sun light or outdoors area.
3. Avoid operating near the heater.
4. Avoid operating in the area which humidity is 30% less and 95% more, also keeps away from dew area.

(d). Atmosphere:

1. Avoid operating in dusty area, and keeps away from corrosive material.
2. Avoid operating in evaporative or combustible gas area.

(2). Safety in installation :

(a). Control box: Follow the instruction in this manual for proper installation.

(b). Accessories: Turn off the power and unplug the cord before mounting any accessories.

(c). Power cord:

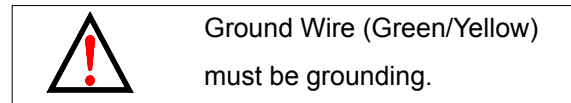
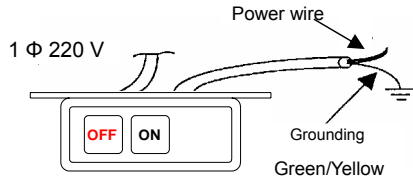
1. Avoid power cord being applied by heavy objects or excessive force, or over bend.
2. Power cord must not set to be near the V-belt and the pulley, keep 3 cm space or above.
3. Check the outlet voltage before plugging the cord, make sure it match the voltage shown on the name plate of the HVP-20 in $\pm 10\%$ ranges.

※ **Attention** : If the control box is AC 220V system, please don't connect to the AC 380V power outlet, otherwise the error code E r 0 . 4 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 fuses (F1,F2) of EMI board and burst the electrolytic capacitors (C4,C5) of power board and even might endanger the person safety.



(d). Grounding:

1. To avoid the static interference and current leakage, all grounding must be done.



2. Use the correct connector and extension wire when connecting ground wire to Earth and secure it tightly.

(3). Safety in operating :

- (a). When turn on the machine in the first time, use low speed to operate and check the correct rotation direction.
- (b). During machine operation, don't touch any moving parts.
- (c). All moving parts must use the protective device to avoid the body contact and objects insertion.

(4). Safety in maintenance and repairs :

Power must be turned off first, when:

- (a). Uninstall the motor or the control box, or plug and unplug any connector.
- (b). Turn off the power and wait 5 minutes before opening box cover.



- (c). Raising the machine arms or changing needle, or threading needle. (Shown as above)
- (d). Repairing or doing any mechanical adjustment.
- (e). Machines rest.

(5). Regulation in maintenance and repairs :

- (a). Maintenance and repairs must be done by trained personnel.
- (b). Don't cover up motor's ventilation, it can cause motor over heated.
- (c). Don't use any objects or force to hit the product.
- (d). All spare parts for repair must be approved or supplied by the manufacturer.

(6). 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.

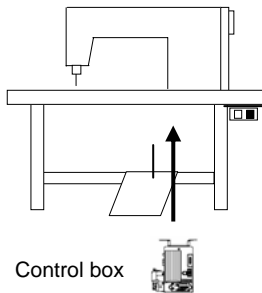
(7). Warranty information :

Manufacturer provides a limited warranty in respect of the products covered for a period of 18 months for any defects arising in the normal course.

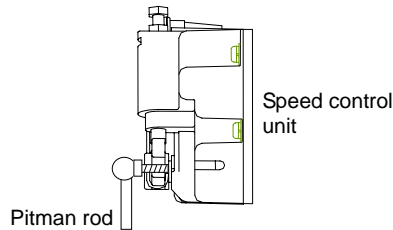
2. Installation and Adjustment

(1).Control box installation :

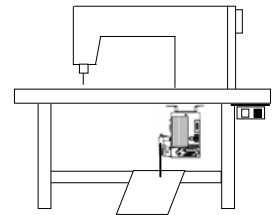
a). Install the control box under the table.



b). Install the pitman rod of pedal with speed control unit.

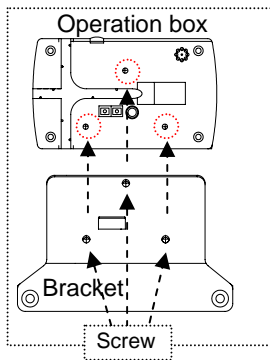


c). Finished diagram

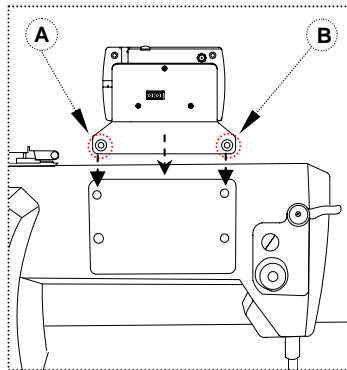


(2).Operation box installation :

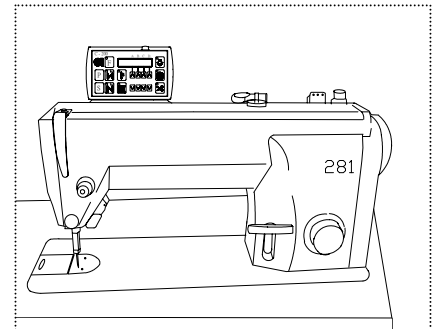
a). Assembling the operation box on the bracket and secure screws.



b). Mounting the bracket on the screw hole A, B of the machine head rear side.



c). Remember to secure the screw A, B and plug the operation box connector to control box.



(3). Speed control unit adjustment :

Components of speed control unit : see figure

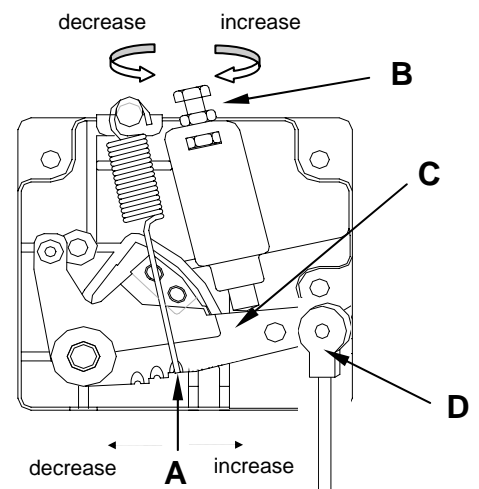
A : Spring for toeing forward force adjustment

B : Bolt for heeling backward force adjustment

C : Treadle / Pedal arm

D : Pitman rod

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

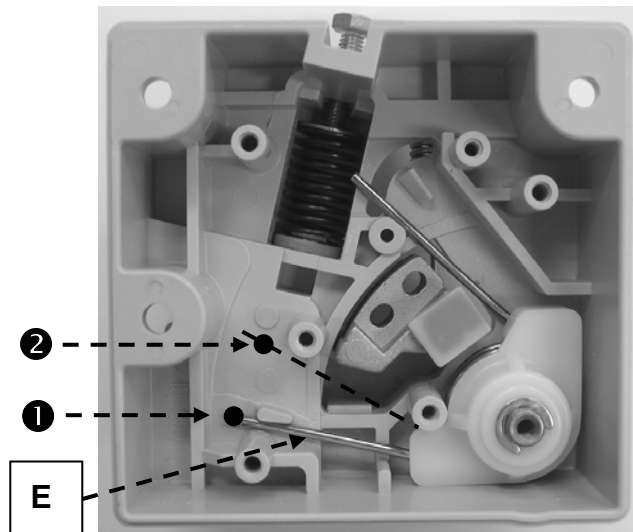


(4). Speed control unit Forward / Backward function & force adjustment :

Delivery condition the inside torsion spring "E" is in position „1“.

After the adjustment of the outside springs (chap.3) the inside torsion spring (E) can be adjusted additionally.

a). Machine with foot lifter:

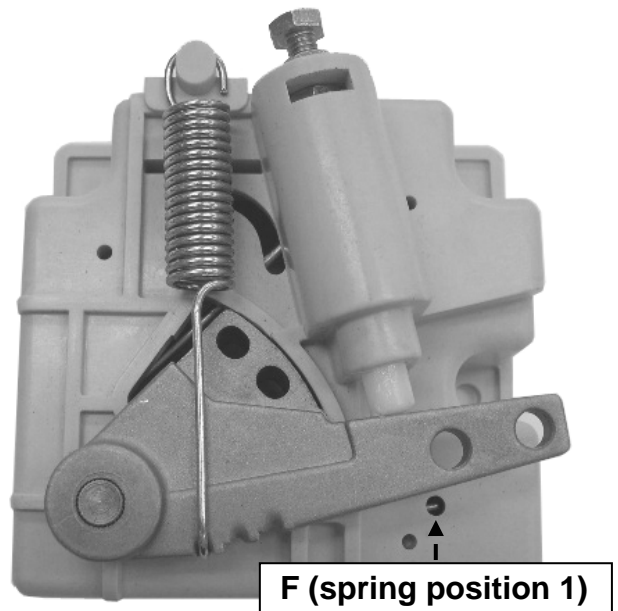
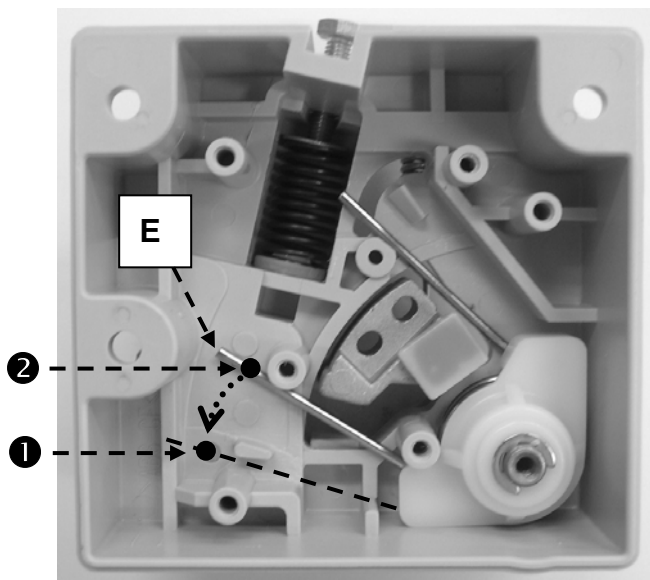


For machines **with** foot lifter solenoid, the lower blade of the spring must be placed in position 1. This causes a clear position for pedal half heeling position for sewing foot lifting without thread trimming. The thread trimming will follow with pedal full heeling.

In this position of the spring blade the pedal force forward is lower than in position 2.

Attention: The parameter 70 has to be set onto OFF for machines with foot lifter solenoid.

b). Machine without foot lifter:



For machines **without** foot lifter solenoid the spring blade can be brought from position 1 to position 2. Push with a small screw driver through the hole (F) and the blade will jump from position 1 to position 2. The pedal forward force is higher in position 2 than in position 1.

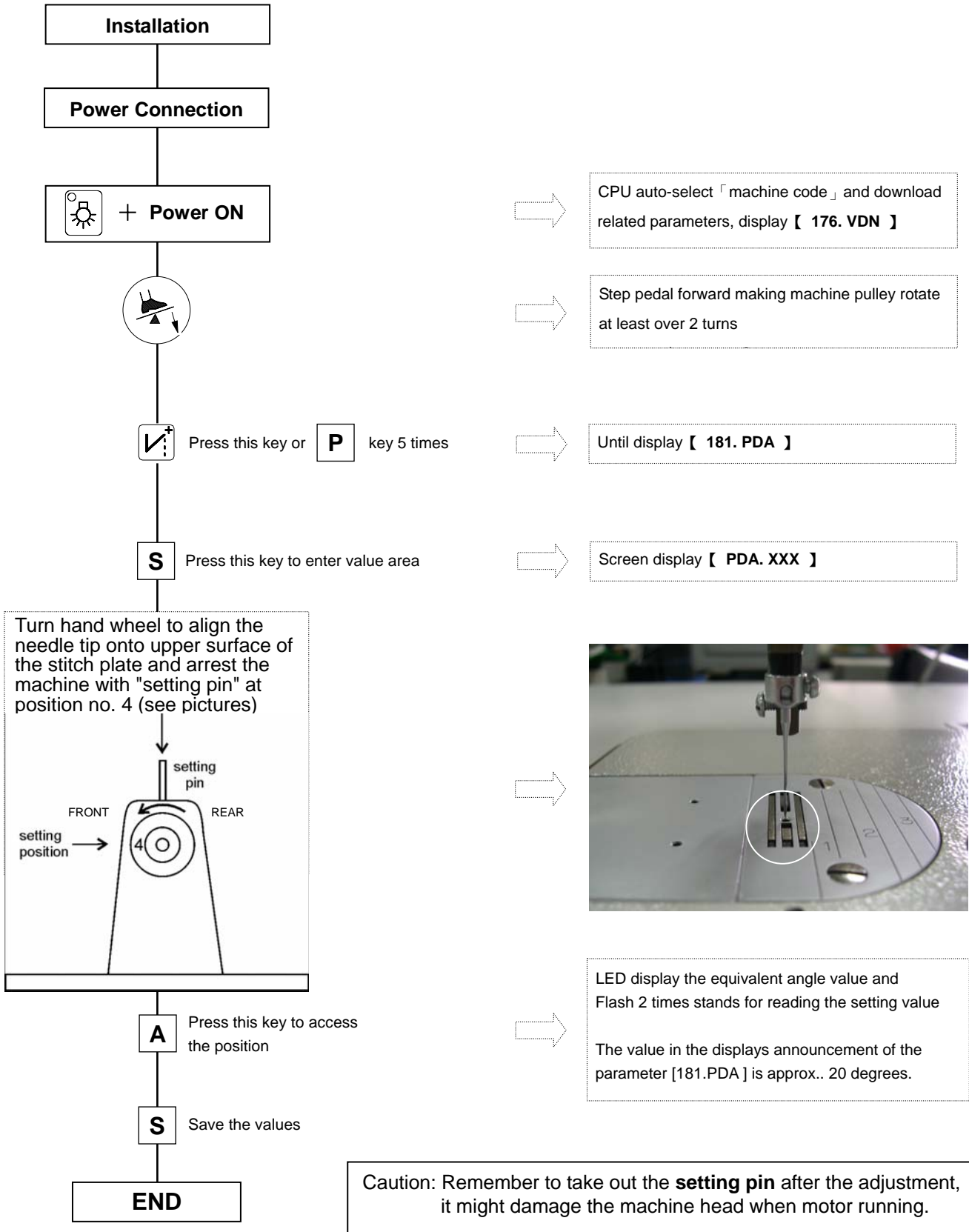
Attention:

1. For machines without foot lifter solenoid the parameter 70 has to be set onto **ON**, that the thread trimming happens in half heeling position of the foot pedal.
2. The reverse positioning of the springs blade (E) from position 2 to 1 can only be made after opening of the speed control unit housing from inside.

(5). How to adjust needle position for DA-281: (ex. use with C-200 operation box).

OPERATION STEP

DISPLAY AND REMARK

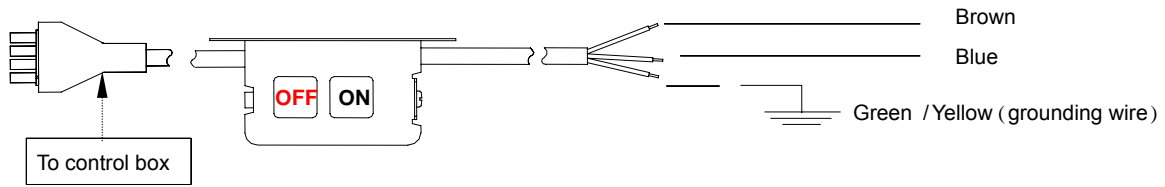



3. Power Connection and Grounding

(1). Single phase connection :

Green/yellow wire is the ground wire.


Single Phase (AC220V)





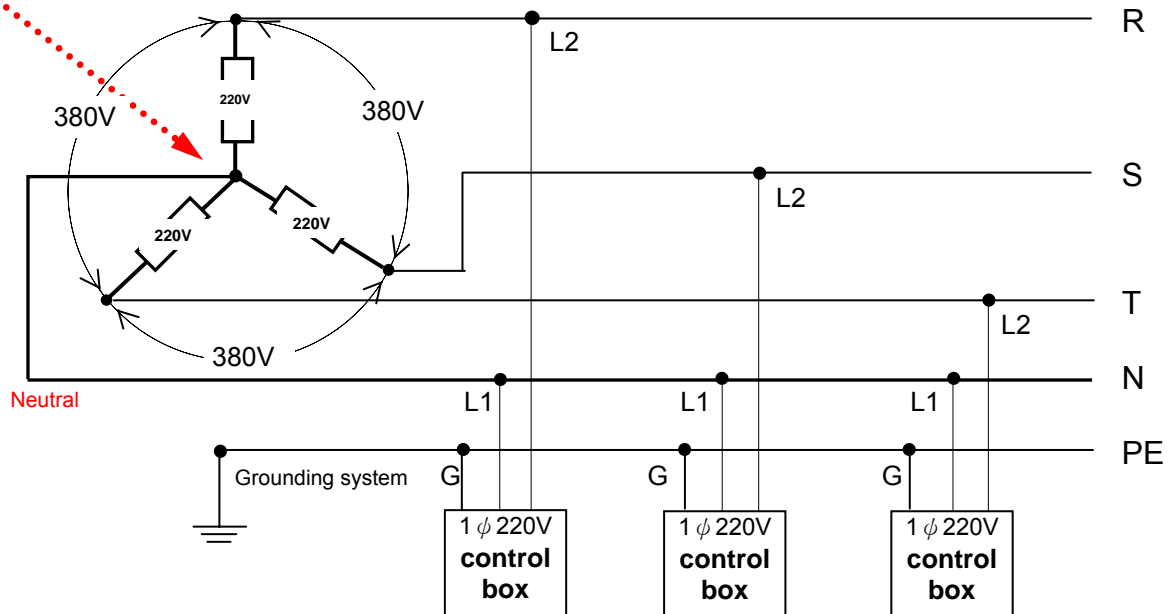
Caution : Green / Yellow wire must be grounded.

(2). How to connect a 1 Φ / 220 V power from a 3 Φ / 380 V power source :



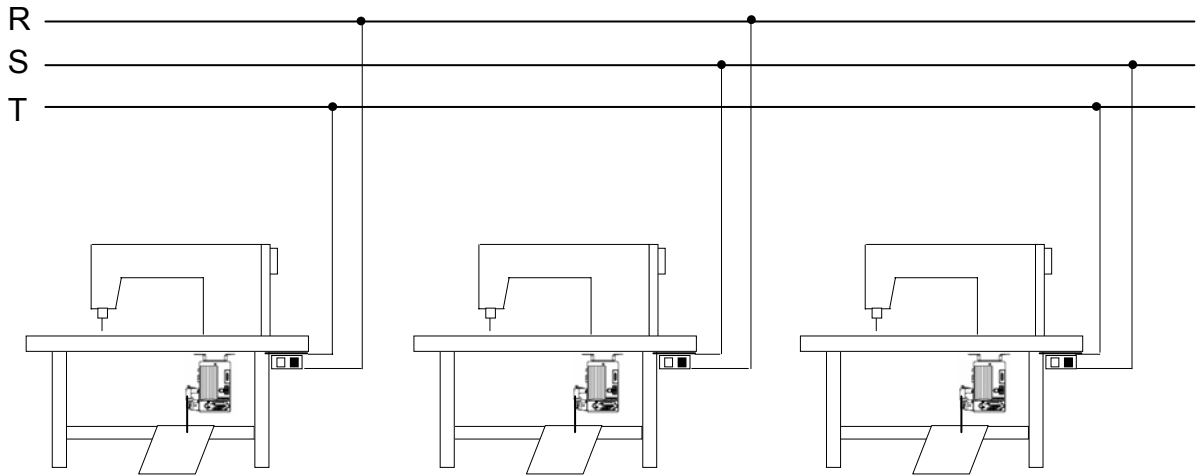
Caution : If the power source does not have the neutral point, then this 1 Φ / 220 V control box is not suitable for this connection. Please ask supplier to offer our 3 Φ / 380 V control box.

Caution: Must have a Neutral point




(3). The load balance when using 1Φ / 220V control box in 3Φ / 220V power system :


Please install the power connections as the following diagrams for the load balance.




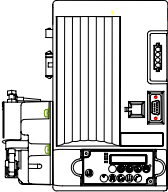
(4). How to change solenoid supply voltage : (DC: 24 V OR 30 V)

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

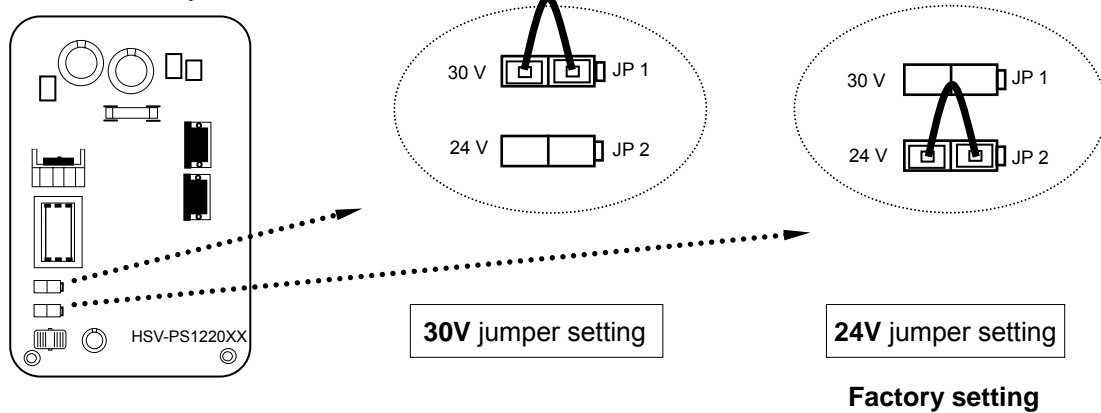
 **Caution (1) :** Before making the switch, check the machine head solenoid specification.

 **Caution (2) :** Turn off the power and wait for 5 min. before opening the cover, then make the change.

 High voltage inside



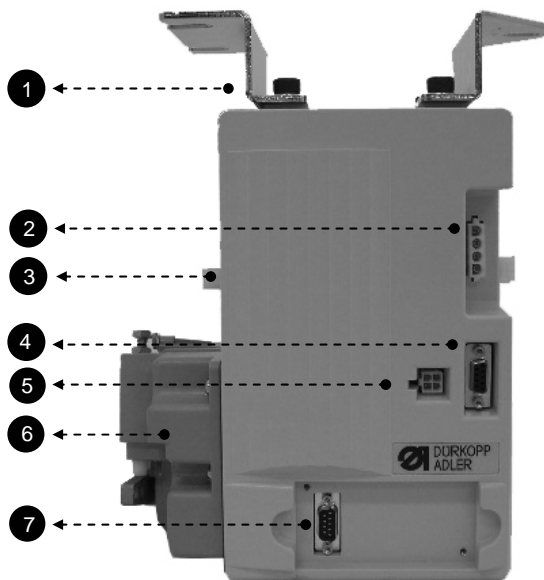
Power board layout :



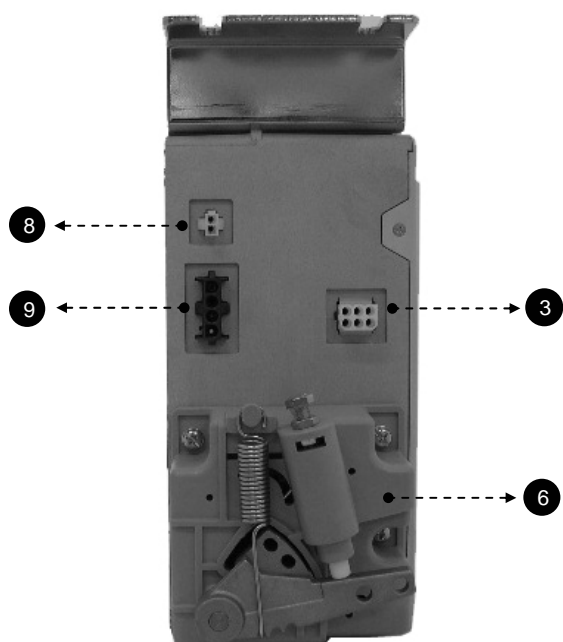
4. Part Name of the Control Box

(1). Use the following numbers cross reference with the control box picture :

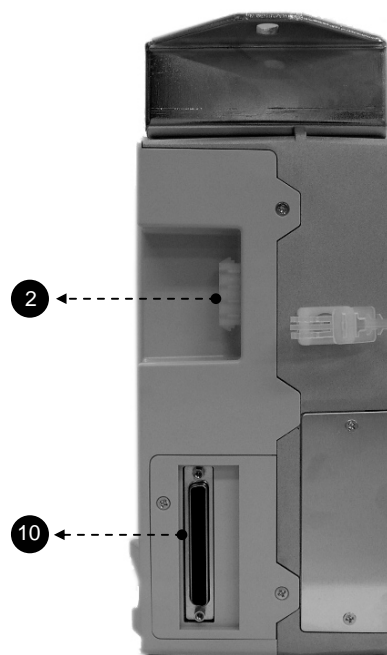
- ① : Mounting bracket for control box
- ② : Motor power socket
- ③ : Standing operation panel socket
- ④ : Motor encoder socket
- ⑤ : Safety switch socket
- ⑥ : Speed control unit
- ⑦ : Operation panel / box socket
- ⑧ : External lamp socket
- ⑨ : Main power socket
- ⑩ : Sewing machine signal output socket



Control box front side



Control box left side



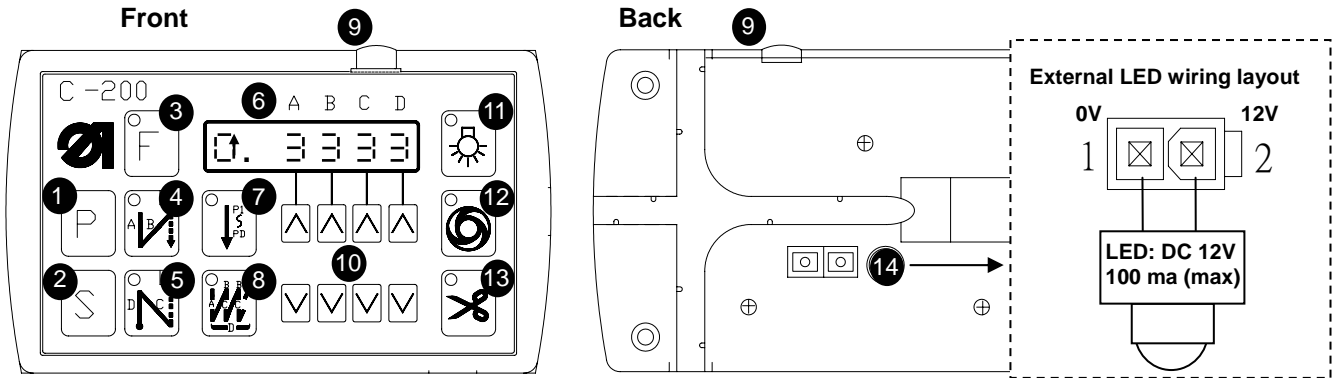
Control box right side



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

5. C-200 Operation Panel Key Functions

(1). Panel key functions



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.

Function key :

1	Parameter enter / Increment	Enter parameter mode / parameter NO. increment key.
2	Parameter value / Save / Enter multi-function	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 display.
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=0 for unlimited turns)
9	Power ON LED	Power ON LED / Warning LED
10	A · B · C · D area value adjust key	Δ = 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	Automatic 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.

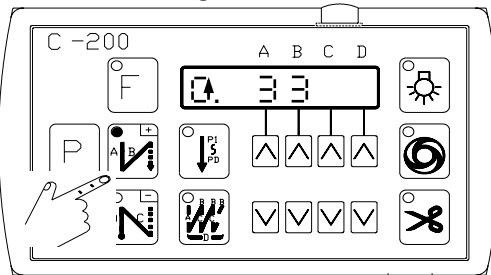
(2). Other functions by panel key combination :

Function	Key combination	Description
Operation panel reset function	Δ + Δ + Power ON	Reset the panel function setting(not include the parameter setting)
Parameter reset function	Δ + Δ + Power ON	Reset the parameter setting to default value.
Motor rotating icon selection	Δ + Δ + Power ON	Cancel the motor rotating icon on the LED panel
Parameter mode A	\square + Hold for 2 sec.	Refer to how to enter parameter mode A
Parameter mode B	\square + Power ON	Refer to how to enter parameter mode B

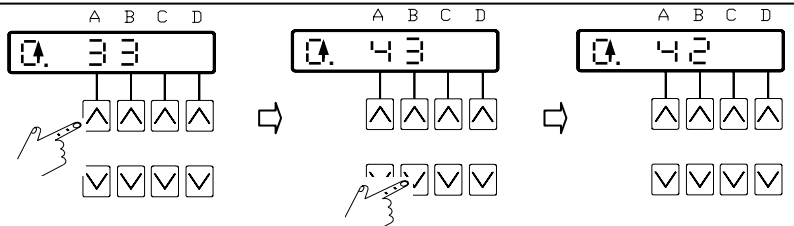
(3) C-200 panel function setting :

C-200 Panel function setting :

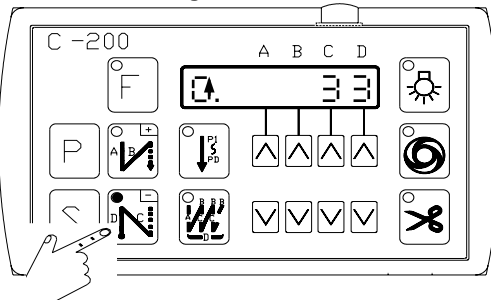
Start back-tacking



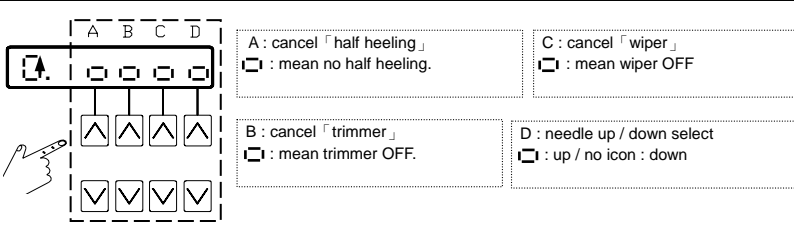
Use \uparrow = +1 and \downarrow = -1 to adjust the stitches of A · B · C · D section in Start / End back-tacking, 15 stitches max. in each section. (note)



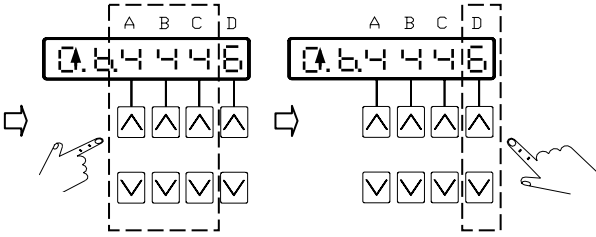
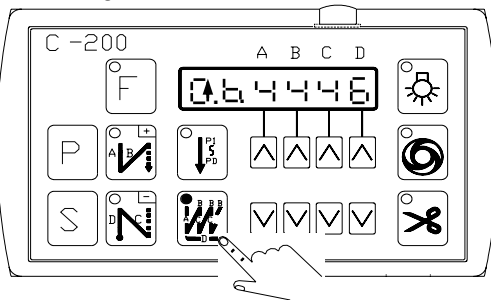
End back-tacking



When Start / End back-tacking turn off, use the \uparrow \downarrow key to turn the special function ON or OFF in the A · B · C · D area. Icon \square indicate the function state.



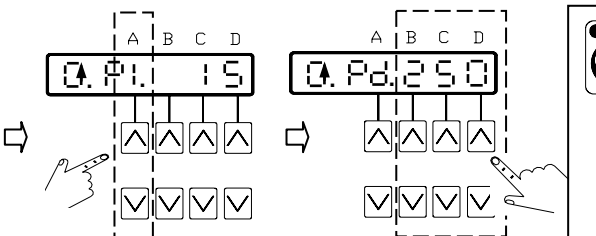
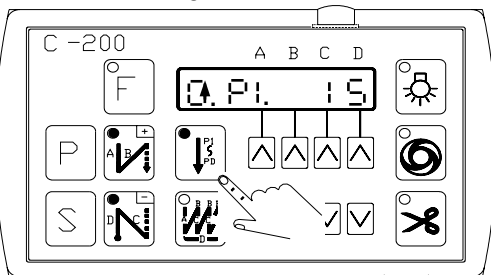
Bar-tacking



Bar-tacking stitches for A · B · C section, 15 stitches max. for each section. (note)
Bar-tacking turns D=6, perform bar-tacking 6 turns, 15 turns max. (note)

Note: under the Bar-tacking mode, if this key is ON, the trimming performed automatically after Bar-tacking.

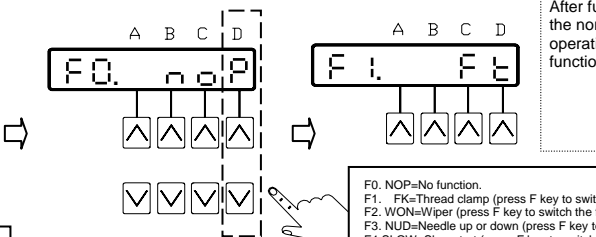
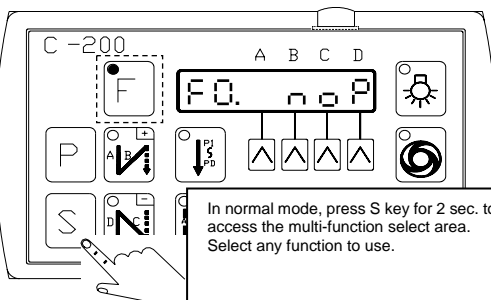
Constant-stitch sewing



Use \uparrow \downarrow key under the A area to select each section for constant-stitch sewing
Use \uparrow \downarrow key under the B · C · D area to set the stitch for each section of constant-stitch sewing. 13 sections max. (note : P1-PD), 250 stitches max. for each section.

Note: when auto function is ON, toe down pedal once to finish the setting stitches in that section automatically. If all the sections are finished, the trimming and wiping will be performed automatically.

F multi-function



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

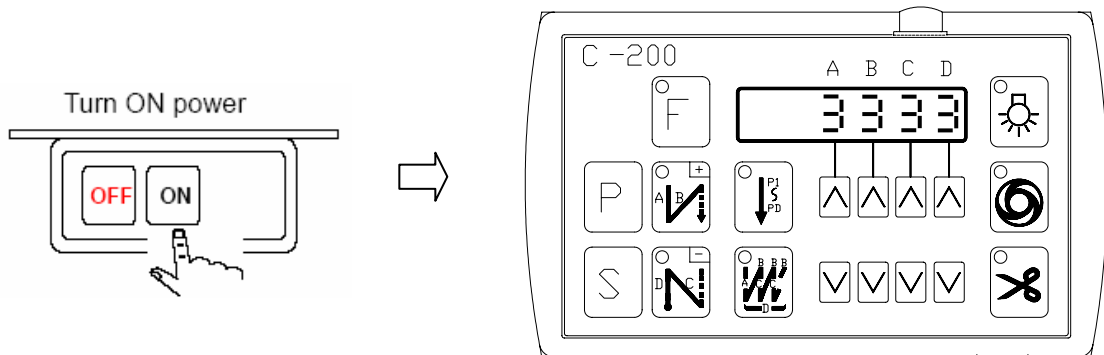
- F0. NOP=No function.
- F1. FK=Thread clamp (press F key to switch the function ON/OFF)
- F2. WON=Wiper (press F key to switch the function ON/OFF)
- F3. NUD=Needle up or down (press F key to switch the needle up or down)
- F4. SLOW=Slow start (press F key to switch the function ON/OFF)
- F5. USUW=Needle 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.

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

6. Parameter Adjustment

(1). How to enter **【Normal Mode】** :

Just turn ON the power to enter **【Normal Mode】**



(2). How to enter **【Parameter Mode】** level :

Parameter Mode		Operation	First display	Range for Parameter
Level 1	Parameter Mode A	At 【Normal Mode】 press P key for 2 sec.	001. H	Parameter # 1 ~ 46
Level 2	Parameter Mode B	P + POWER ON	047.0AC	Parameter # 1 ~ 122
Level 3	Parameter Mode C	S + POWER ON	123.FAS	Parameter # 1 ~ 243
Level 4	Parameter Mode D	+ POWER ON	176.uδn	Parameter # 1 ~ 243
Level 5	Parameter Mode E	+ POWER ON	208.uEr	Parameter # 1 ~ 243

(3). How to set the **【Parameter Value】** with C-200 operation box :

a. Enter one of the **【Parameter Mode A to E】**

b. Use or key to select the target parameter number.

c. Use **S** key to access **【value area】**

d. Use the key under the A · B · C · D area to set the value.

e. press **S** key to save the value.

a. Hold for 2 sec.

c. Access

b. Select

e. Save

d. Adjust

Caution :



1. When motor running, the parameter area is locked and prohibited for access. The parameter only can be adjusted when motor stop.
2. 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

(4). Value setting for A、B、C、D key in the 【Parameter Value】 :

TERMS \ KEY SCALE	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 start change the value from 0 to 9 .				

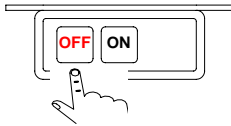
Note : After value change, press **S** key to save the value, otherwise the new value will be lost when turning power off.

7.How to Use Reset Function

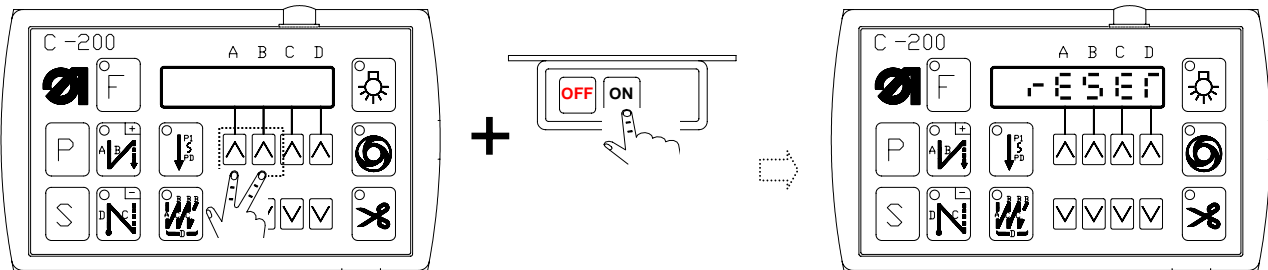


1. Before **【Reset】** , please confirm the current machine code and any special setting for the parameter. Once reset and all the setting will return to the factory default.
2. After **【Reset】** , If the machine code is not match with the machine head. It could damage the machine head or cause machine not working properly.

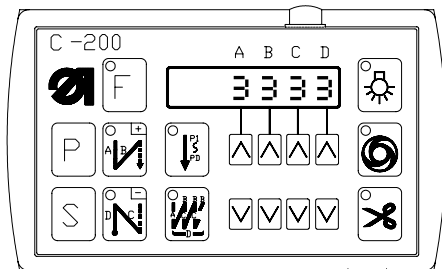
a. Turn off the power first.



b. Press and hold **A** and **B** key and turn on the power. The LED will show **【RESET】** and blink twice.



c. Blinking means the data been **【Reset】** and LED will return to **【Normal mode】** area.



8. Basic Troubleshooting

(1). Error Code and Measurement :

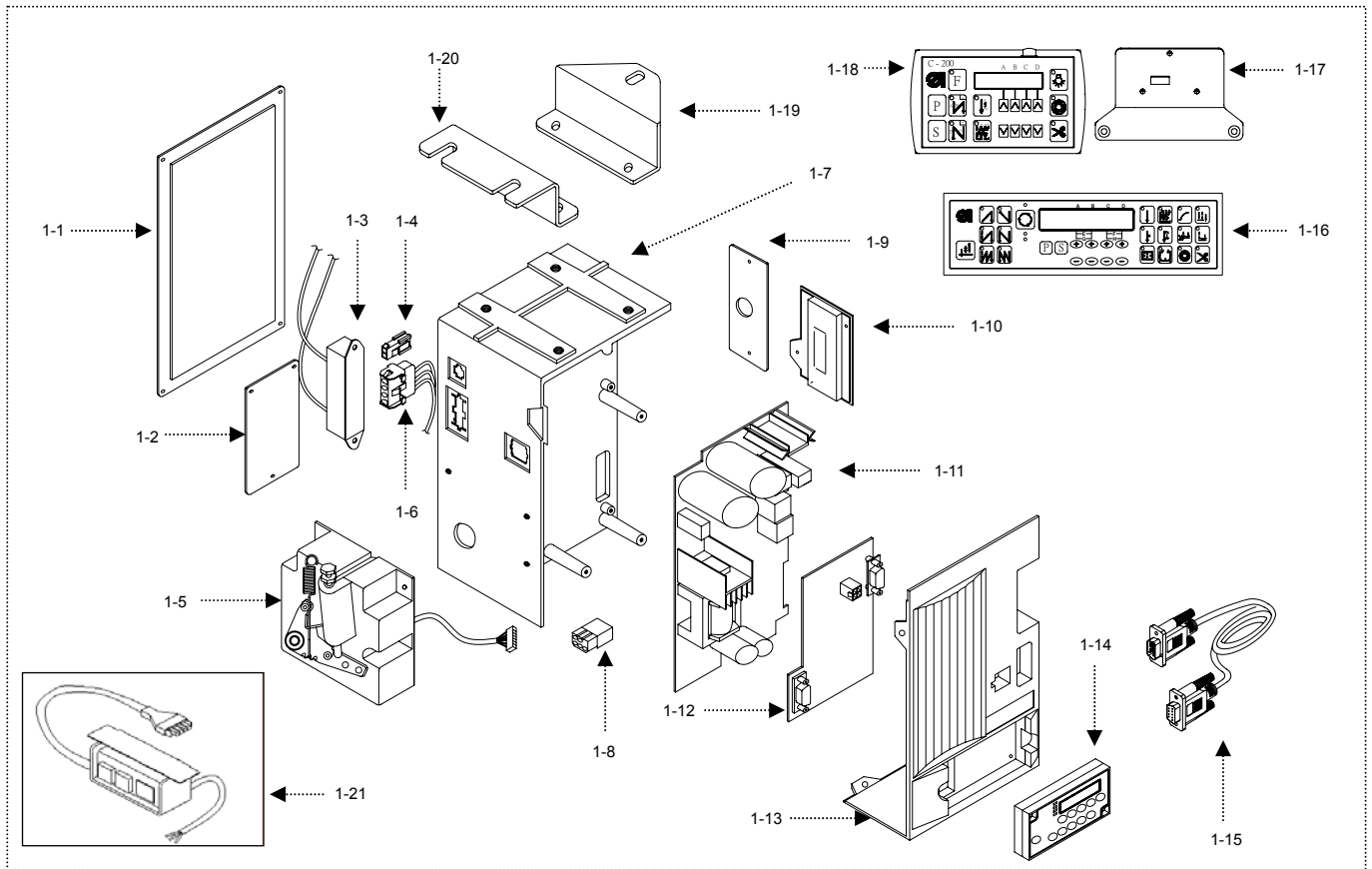
Error Code	Cause of The Problem	Status and Measurement
ER0. 1	<ol style="list-style-type: none"> 1. Power module detected error. 2. Abnormal over current or voltage occurred.. 	<p>Motor and machine will be shutting down. Please check the power module. Please check the power board over current circuitry.</p>
ER0. 2	E ² PROM (IC3) r/w malfunction.	<p>Motor and machine will be shutting down. Replace the IC3 memory unit.</p>
ER0. 4	<ol style="list-style-type: none"> 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. 	<p>Motor and machine will be shutting down. Please check the AC power. (Too high)</p> <p>* 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 (C4,C5) of power board will burst open over a period of time and cause the fuses (F1,F2) of EMI board open circuit.</p> <p>Please check the power board. Please check the aluminum casing resistor and power board F1 fuse.</p>
ER0. 5	<ol style="list-style-type: none"> 1. When power on, detected low voltage 2. Connect the wrong voltage or supply power is too low. 	<p>Motor and machine will be shutting down. Please check the AC power. (Too low) Please check the power board.</p>
ER0. 7	<ol style="list-style-type: none"> 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. 	<p>Motor and machine will be shutting down. Please check the motor or motor connection. Please check the synchronizer (sensor) and its signal. Please check the machine head to see if objects stuck in the motor pulley, or rotate not smoothly.</p>
ER0. 8	Operation box linked to CPU interface had communication error	<p>Motor and machine will be shutting down. Please check the operation box.</p>

Error Code	Cause of The Problem	Status and Measurement
ER0. 9	1. Machine solenoid shorted. 2. Main board power transistor is faulty.	Motor still can run, but all output signals and operation box pattern sewing function will be invalid.. Please check the machine solenoids; or the solenoid 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 the synchronizer up position signal. Please check the control box. Please check the machine head to see if objects stuck in the motor pulley, or rotate not smoothly.
ER0. 12	Power on, no synchronizer signal or not connected.	Automatic starts the clutch mode. Please check the synchronizer. (also check the connection and model)
ER0. 14	Using PSU signal without sewing material when 【106. PSN】 = OFF	Motor stops. Please check the 「PSU」 sensor circuitry and its signal.
ER0. 15	Using PSD signal without sewing material when 【106. PSN】 = OFF	Motor stops. Please check the 「PSD」 sensor circuitry and its signal.
ER0. 16	1. Safety switch is either faulty or bad connection. 2. Parameter 【075. SFM】 setting not match the machine head model.	Motor stops. Please check the safety switch. Please check the parameter 【075. SFM】 setting, make sure it match machine head safety switch
ER0. 51	1. Motor overloads for more than 20 seconds during one sewing. 2. Motor's coil is defective. 3. Machine head is too crude to rotate smoothly.	Motor stops. Please check to see if the machine head is too heavy to sew. Please check to see if the sewing material is too thick to sew. Please check the motor coils to see if it is defective. Please check the machine head to see if it is too crude to rotate smoothly.

Digital Alphabet	English Alphabet	Cause of The Problem	Status and Measurement
Po8oFF	POWER OFF	1. AC power shut down or bad connection. 2. Power board OI 1 sensor circuitry faulty.	Motor stops Please check the AC power and connection. Please check the power board OI 1 circuitry.
ENStOP	EM STOP	An emergency stop signal activated when Parameter 【149. IND】 = ES.	Motor emergent stop. Restart the power to return normal operation.

(2). HVP-20 Parts list for DA-281 :

1. Control Box Parts :

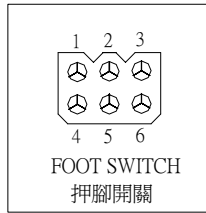
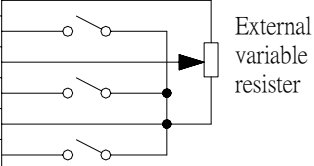


NO.	Order Code	Parts Name	Description	NO.	Order Code	Parts Name	Description
1	2VP2040028201	Control Box	HVP-20-4-28-CE 9800 370005(* 1)	1-11	2VP20103215	Power Board	For 1 ϕ 200-240V 15A
1-1	313MPB190	Rear Cover	For HVP-20	1-12	2VP20402006	Main Board	For HVP-20-4-28
1-2	2VPPCB382	EMI Board	For HVP-20 (LM)	1-13	315MPB580	Front Cover	For HVP-20
1-3	2VP20104202	Cement Resistor	220 Ω 30W	1-14	2VPOPBF01005	F-10 Operation panel	9800 360102(* 1)
1-4	32QRCH270	2P Connector	5559-02P	1-15	322PWG340	F-10 EXT. cable	1 m.
1-5	2VP20106003	Speed Control Unit	9800 370003(* 1)	1-16	2VPOPBC06008	C-60 Operation box	9800 360103(* 1)
1-6	2VPPPW0220	Power Cable	For HVP-20	1-17	2NP13MPT2802	Operation box bracket	For DA-281
1-7	2VPMPB2074	Control Box Casing	For HVP-20 DA-281	1-18	2VPOPBC20002	C-200 operation box	9800 360105(* 1)
1-8	2VPTPW1540	S.O.P Connector set	For HVP-20	1-19	313BTV030	Bracket (1)	For HVP-20
1-9	32ZVPB700	Connector Panel	For HVP-20-4-28	1-20	313BTV040	Bracket (2)	For HVP-20
1-10	315MPB610	Connector Panel (A)	For HVP-20-4-28	1-21	2VPSW0111P20	Power switch	9800 360104(* 1)

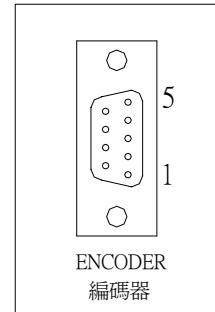
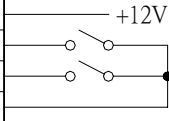
* 1: Duerkopp Adler part number.

9. HVP-20-4-28-CE Pin Assignment

FOOT SWITCH	
1	+12V
2	START
3	VC
4	KNEE SW.
5	0V
6	TRIMMER

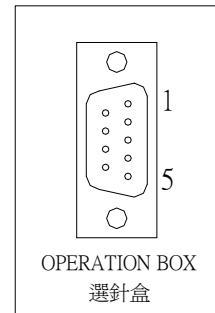
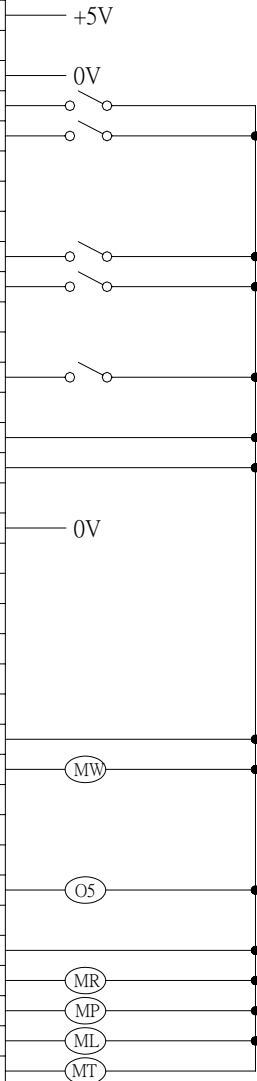


SAFETY SW.		
1	+12V	+12V
2	INL	SAFETY SW.
3	INB	PSD
4	0V	0V

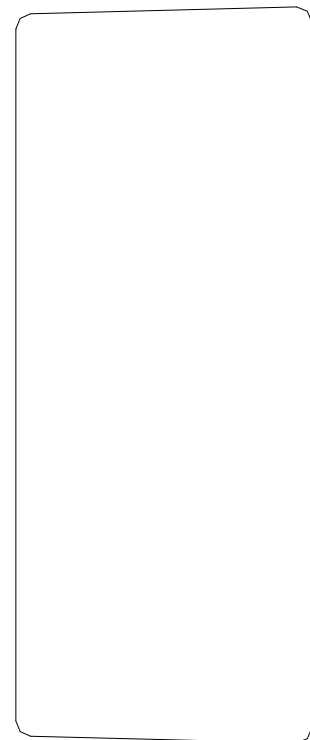
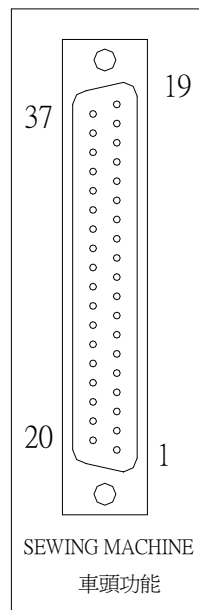


ENCODER	
1	A PHASE
2	B PHASE
3	INDEX
4	---
5	+5V
6	---
7	---
8	---
9	0V

SEWING MACHINE		
1		---
2	+5V	+5V
3		---
4	0V	0V
5	INE	REV. SW.
6	IN2	NEEDLE UP SW.
7		---
8		---
9		---
10	INF	KNEE SW.
11	INL	SAFETY SW.
12		---
13		---
14	INJ	BTL SW.
15		---
16	+24V/+30V	+24V
17	+24V/+30V	+24V
18		---
19	0V	0V
20		---
21		---
22		---
23		---
24		---
25		---
26	+24V/+30V	+24V
27	OB	WIPER SOL.
28		---
29		---
30		---
31	O5	OUT-5
32		---
33	+24V/+30V	+24V
34	OC	REV. SOL.
35	OF	A.F.L. SOL.
36	OD	TENSION SOL.
37	OA	TRIMMER SOL.



OPERATION BOX	
1	+12V
2	CKU
3	T1out
4	R1in
5	---
6	U SW.
7	---
8	---
9	0V



HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N

Key	Parameters Code	Parameters Function	Range	Pre.setting	Description		
P O W E R - O N	1	H	Maximum sewing speed	50 - 9999 spm	4800	Maximum speed adjustments	
	2	SLM	Slow start operation mode	T/A	T	The slow start operation mode is selected. This is valid when the panel [SL] key is ON in the normal mode. T : Slow start operation will begin when the power is turned ON or when the first toe down after thread trimming, or the first external run signal (S0,S1) is turned ON. A : Slow start operation will begin when the pedal is toed down or when the external run signal (S0,S1) is turned ON.	
	3	CNR	Counter ratio selection	1 - 100	1	Setting the multiple to the value of 【042. CUD】 Connection : 【042. CUD】 , 【159. O4】 , 【097. TK3】	
	4	N	Start back-tacking speed	50 - 8000 spm	1300	Start back-tacking speed adjustments	
	5	V	End back-tacking speed	50 - 8000 spm	1300	End back-tacking speed adjustments	
	6	B	Bar-Tacking Speed	50 - 8000 spm	1300	Repeat bar-tacking speed adjustments	
	7	S	Slow start speed	50 - 2000 spm	800	Slow start speed adjustments	
	8	SLS	Stitch numbers for Slow start	0 - 99 stitches	2	Slow start stitches setting	
	9	A	Automatic constant-stitch sewing speed	50 - 8000 spm	4800	Valid only at the auto pattern sewing or one shot signal (SH) active	
	10	ACD	Automatic sewing End back-tacking	ON/OFF	ON	Only at the last seam of pattern sewing ON : Valid. OFF : Invalid.	
	11	RVM	Back-tacking mode selection	J/B	J	J = JUKI mode , B = BROTHER mode. J : Active when motor stop or running B : Active only when motor running	
	12	SMS	Mode selection for Start back-tacking	A/M/SU/SD	A	Start back-tacking mode selection 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.	
	13	TYS	Mode selection at the end of Start back-tacking	CON/STP/TRM	CON	Mode selection at the end of Start back-tacking 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 and must re-start by pedal command. TRM : Making the trimming cycle once the Start Back-Tacking finished. (Mini Bar tacking)	
	14	SBT	Start back-tacking function selection	ON/OFF	ON	Valid only when the operation panel disconnected. ON : Perform OFF : Not perform	
	15	SBA	Setting stitches A of Start back-tacking	0 - 15 stitches	3	Start back-tacking stitches setting , 【014. SBT】 = ON valid	
	16	SBB	Setting stitches B of Start back-tacking		3		
	17	SBN	Setting turns of Start Back-tacking		2		Setting the seam times of Start back-tacking , 【014. SBT】 = ON valid
	18	BT1	Stitch balance for Start Back-tacking		4		BT1=0:Invalid,1-8:Increase stitches of reverse seam,9-F:Increase stitches of forward seam .
	19	BT2	Stitch balance for Start Back-tacking		6		BT2=0:Invalid,1-8:Increase stitches of forward seam,9-F:Increase stitches of reverse seam .
	20	SME	Mode selection for End back-tacking	A/SU/SD	A	End back-tacking mode selection. 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.	
	21	EBT	End back-tacking selection	ON/OFF	ON	Valid only when the operation panel disconnected. ON : Perform OFF : Not perform	
	22	EBC	Setting stitches C of End back-tacking	0 - 15 stitches	3	End back-tacking stitches setting , 【021. EBT】 = ON valid	
	23	EBD	Setting stitches D of End back-tacking		3		
	24	EBN	Setting turns of End back-tacking		2		Setting the seam times of End back-tacking , 【021 · EBT】 = ON valid
	25	BT3	Stitch balance for End Back-tacking 3		6		BT3=0:Invalid,1-8:Increase stitches of reverse seam,9-F:Increase stitches of forward seam .
	26	BT4	Stitch balance for End Back-tacking 4	0 - F	3	BT4=0:Invalid,1-8:Increase stitches of forward seam,9-F:Increase stitches of reverse seam .	
	27	CT	Setting time interruption at each section end of Back-Tacking.	0 - 990 ms	80	【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.	

HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N

Key	Parameters Code	Parameters Function	Range	Pre.setting	Description		
P O W E R - O N	28	SB5	15 stitches plus on Start/End back-tacking (with C-60)	ON/OFF	OFF	Additional 15 stitches are added to the Start and End back-tacking stitches function selection. (invalid with operation panel). ON : Valid. OFF : Invalid.	
		AFM	Mode selection for foot lifting . (with F-10 , C-200)	0/1/2/3	0	0. Depends on the pedal. 1. At motor stop. 2. At trimming after . 3. At trimming after & at motor stop.	
	29	SB9	0-99 stitches plus on Start/End back-tacking	0 - 99 stitches	0	Additional setting stitches are added to the Start and End back-tacking stitches. (invalid with operation panel)	
	30	BCC	Added 1 stitch to the C segment of End back-tacking	ON/OFF	OFF	Added 1 stitch to the C segment of End back-tacking function selection. ON : Valid OFF : Invalid	
	31	SMB	Mode selection for Bar-tacking	A/M/SU/SD	A	Bar-tacking mode selection. 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.	
	32	BAR	Bar-tacking selection	ON/OFF	OFF	Valid only when the operation panel disconnected. ON : Perform OFF : Not perform.	
	33	BRC	Setting stitches of Bar-tacking	0 - 99 stitches	4	One setting for all seams , 【032. BAR】 = ON valid.	
	34	BRN	Setting turns of Bar-tacking	0 - 15 times	4	Setting the seam times of Bar-tacking , 【032. BAR】 = ON valid.	
	35	BT5	Stitch balance for Bar-tacking 5	0 - F	4	BT5=0 : Invalid,1-8 : Increase stitches of reverse seam; 9-F : Increase stitches of forward seam.	
	36	BT6	Stitch balance for Bar-tacking 6		6	BT6=0 : Invalid,1-8 : Increase stitches of forward seam; 9-F : Increase stitches of reverse seam.	
	37	SMP	Mode selection for Constant-stitch sewing	A/M	M	Constant-stitch sewing mode selection. A : One shot sewing. M : Pedal control and motor can stop at middle way.	
	38	PM	Constant-stitch sewing selection	ON/OFF	OFF	Valid only when the operation panel disconnected. ON : Perform. OFF : Not perform.	
	39	PS	Stitches for section 1~4 of Constant-stitch	0 - 250 stitches	15	Stitches setting of seam P1-P4. 【038. PM】 =ON valid.	
	Stitches for section 5~D of Constant-stitch		0		Stitches setting of seam P5-PD. 【038. PM】 = ON valid.		
	40	WON	Wiper function selection	ON/OFF	ON	Wiper function selection. ON : Enable. OFF : Disable.	
	41	TM	Trimmer function selection	ON/OFF	ON	Trimmer function selection. ON : Enable. OFF : Disable.	
	42	42	CUD	Count mode selection (For Bobbin Thread or Sewing Piece)	NOP/U/D/US/DS/UT/DT/UTS/DTS	NOP	Counter function mode selection. 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 S4 【152.INI】 =CRS 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 S4 【152.INI】 =CRS 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 S4 【152.INI】 =CRS 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 S4 【152.INI】 =CRS or the A key on the front panel.
	43						UD
	44	PN	Display the current count	0 - 9999	0	Display the current count of 【043.UD】	
	45	SP	Sewing speed	0 - 8000	0	Showing the current sewing speed.	
46	46	DIR	Direction of motor rotation	CW/CCW	CCW	Motor rotation direction adjustments. (Viewed from the motor shaft side) Connection : 【119. DD】 CCW : counterclockwise. CW : clockwise.	

HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N

Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
POWER ON	47	MAC Machine Code	0 - 101	73	Machine code switchover
	48	N12 Positioning Mode selection (ON=UP ONLY, OFF=UP/DOWN)	ON/OFF	OFF	Positioning Mode selection. ON : One position UP only. OFF : Two positions Up / DOWN.
	49	SPD Machine's pulley dimension.	1 - 250 mm	75	Setting machine pulley size when 【051. PL】 = ON valid.
	50	MPD Motor's pulley dimension.	1 - 250 mm	75	Setting motor pulley size when 【051. PL】 = ON valid.
	51	PL Pulley's ratio setting mode selection	ON/OFF	ON	Selecting the mode of setting pulley ratio. ON : Manually setting the pulley sizes by 【049, SPD】 , 【050, MPD】 . OFF : Automatically setting the pulley sizes by the CPU.
	52	BT Braking time of motor	50 - 500 ms	200	Braking time of motor
	53	POL Slow start at the first cycle of power ON	ON/OFF	ON	Slow start at the first cycle of power ON function selection. ON : Enable and speed is set by 【007. S】 . OFF : Disable.
	54	BK Motor braked at normal stop	ON/OFF	OFF	Motor stops with brake function. ON : Enable. OFF : Disable.
	55	SRM Motor start running with a reverse angle	ON/OFF	OFF	Valid only when needle stops at up position. ON : Enable. When the needle stops at up position, the first stitching will be done with a reverse angle which is set by the 【056.SRA】 . OFF : Disable. Exception: If 【147. INA】 = BCR, an external switch may be used as a selection of ON / OFF to this function.
	56	SRA Setting the angles of 【055. SRM】	1 - 360 degrees	60	Valid only when 【055. SRM】 = ON.
	57	TRU Motor stops with a reverse angle after trimming	ON/OFF	OFF	ON : Enable. OFF : Disable.
	58	TR8 Setting the angles of 【057. TRU】	1 - 360 degrees	14	Valid only when 【057.TRU】 = ON .
	59	M Middle speed	L speed - 8000 spm	800	Setting the middle speed.
	60	L Low speed	50 - 500 spm	250	Low speed adjustments
	61	T Thread trimming speed	50 - 500 spm	180	Thread trimming speed adjustments
	62	HPM Mode for foot lifting stroke change at special compound feed machine.	ALT/MON	MON	For machines have HP function only. 【ALT】 mode : Presser foot lifting stroke changed by each time of the HP switch pushed on. 【MON】 mode : Presser foot lifting stroke must be remained by the HP switch kept on.
	63	FTP Type selection for foot lifting solenoid	M/A	M	M : Magnetic type. A : Air type. Note : When set at A type, 【064. FO】 and 【065. FC】 setting will be invalid. It will be full on.
	64	FO Full-On time setting for foot lifting solenoid	0 - 990 ms	250	Only valid when 【063. FTP】 set at 「 M 」 mode. For solenoid pulling torque adjustment.
	65	FC Duty cycle time setting for foot lifting solenoid	10 - 90%	40	Only valid when 【063. FTP】 set at 「 M 」 mode. For solenoid's switching power adjustment. Note : Wrongly adjustment will cause the solenoid unable to lift or over-heating.
	66	FD Running-Delay time setting	0 - 990 ms	80	If foot lifter is installed, set 100 ms min. to ensure the presser foot will come down first.
	67	FPM Protection for foot lifter solenoid.	ON/OFF	ON	Selection of solenoid protection. ON: The foot lifting solenoid activated time will be controlled by 【068. FP】 . OFF : The foot lifting solenoid will be always active unless heeling back the pedal.
	68	FP Working time limit for foot lifter solenoid.	(0 - 9990) x 0.01s	3000	Setting the lifting solenoid activated time. Valid only when the 【067. FPM】 = ON.
	69	HD Sensitivity adjustment for half-heeling pedal	0 - 990	80	Use this setting as foot lifter delay time at half heeling the pedal. If foot lifter is installed, set 100 ms min. 1.If timing set to short, it will cause foot lifter started once before trimming at full heeling the pedal. 2.If timing set to long, it will cause foot lifter started too slow or laggard at half heeling the pedal.
70	HHC Cancel foot lifting at half-heeling pedal	ON/OFF	ON	ON : No foot lifting at half-heeling. (but full-heeling can operate foot lifter) OFF : Operate foot lifting at half-heeling. Note : When 【134.KLK】 = ON for interlock-stitch machine, this function can be controlled by A key on the control box panel.	
71	FL Cancel foot lifting at full-heeling pedal	ON/OFF	OFF	ON : No foot lifting at heeling pedal. OFF : Has foot lifting at heeling pedal.	
72	FHC Cancel trimming at full-heeling pedal	ON/OFF	OFF	ON : No function at heeling pedal. (foot lifter and need up function are also invalid) OFF : Trimmer is functioned at heeling pedal.	
73	NTC Trimming works at neutral pedal	ON/OFF	OFF	When the pedal is returned to neutral position, trimming works automatically. ON : Enable. Only valid when 【072.FHC】 = OFF OFF : Disable.	

HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N

Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
POWER ON	74	FRV Converter for foot lifter signal output	ON/OFF	OFF	Foot lifter output signal converted. ON : The foot lifter goes up during sewing. OFF: Function invalid.
	75	SFM Safety switch protection mode	NC/NO/NOP	NC	Trimming device protection for Cover-Stitch machine. NC : Normal close. When signal at open , motor immediately stops and rotation symbol will stop. NO : Normal open. When signal at close , motor immediately stops and rotation symbol will stop. NOP : Cancel safety switch function (No Trimming device protection)
	76	TCL Thread trimmer cancel	ON/OFF	OFF	With TCL trigger signal input, the next trimming will be cancelled as full heeling the pedal. ON : Valid. OFF : Invalid.
	77	ILC Cancel of interlock timing after full heeling pedal	ON/OFF	OFF	Canceling the interlock timer for quick restarting. For machine without trimmer device only. ON : Valid. OFF : Invalid.
	78	TRM Motor running mode at trimming sequence	LK/RK/KA/KB/KC	KB	Motor running mode at trimming sequence selection. LK : For general Lock-Stitch machines .Trimming from needle down to up. RK : For Chain-Stitch machine easy pull out cycle. Needle stops with a reverse angle set by 【116.DRU】 . KA : For general Cover-Stitch machines with under trimmer only. KB : For special Cover-Stitch machines with upper trimmer . KC : Valid only when 【079. LTM】 =TK and 【081. TS】 >0, otherwise function same as LK mode.
	79	LTM Mode selection for trimming sequence. (For TM output signal)	T1/T2/T3/T4/TK/TS/T7	TS	Reference the timing chart T1 : At down position delayed 【081. TS】 angles on, at up position delayed 【083. T2】 time off. T2 : At down position delayed 【081. TS】 angles on, extended 【084. TE】 angles off. T3 : At down position delayed 【081. TS】 angles on, extended 【083. T2】 time off. T4 : At down position delayed 【082. T1】 time on, extended 【083. T2】 time off. TK : At up position delayed 【082. T1】 time on, extended 【083. T2】 time off. TS : At down position always on, at up position delayed 【082. T1】 time on, extended 【083. T2】 time. T7 : At down position delayed 【081. TS】 angles on, at up position off, and delayed 【082. T1】 time on, extended 【083. T2】 time off.
	80	LLM Mode selection for tension-release sequence. (For ML output signal)	L1/L2/L3/L4/LK/LS/L7	LS	Reference the timing chart L1 : At down position delayed 【085. LS】 angles on, at up position delayed 【087. L2】 time off. L2 : At down position delayed 【085. LS】 angles on, extended 【088. LE】 angles off. L3 : At down position delayed 【085. LS】 angles on, extended 【087. L2】 time off. L4 : At down position delayed 【086. L1】 time on, extended 【087. L2】 time off. LK : At up position delayed 【086. L1】 time on, extended 【087. L2】 time off. LS : At down position always on, at up position delayed 【086. L1】 time on, extended 【087. L2】 time off. L7 : At down position delayed 【085. LS】 angles on, at up position off, and delayed 【086. L1】 time on, extended 【087. L2】 time off.
	81	TS Delayed angles prior to trimmer engaged	0 - 360 degrees	0	Valid for 【079. LTM】 = T1/T2/T3/T7 .
	82	T1 Delayed timing prior to trimmer engaged	0 - 990 ms	0	Valid for 【079. LTM】 = T4/TK/TS/T7.
	83	T2 Trimming time	0 - 990 ms	40	Valid for 【079. LTM】 = T1/T3/T4/TK/TS/T7.
84	TE Setting angles of trimming	0 - 360 degrees	0	Valid for 【079. LTM】 = T2 .	
85	LS Delayed angles prior to tension release engaged	0 - 360 degrees	0	Valid for 【080. LLM】 = L1/L2/L3/L7 .	
86	L1 Delayed timing prior to tension release engaged	0 - 990 ms	0	Valid for 【080. LLM】 = L4/LK/LS/L7.	
87	L2 Timing of tension release	0 - 1500 ms	0	Valid for 【080. LLM】 = L1/L3/L4/LK/LS/L7.	
88	LE Setting angles of tension release	0 - 360 degrees	0	Valid for 【080. LLM】 = L2 .	
89	D1 Delayed timing for upper trimmer at down-stop	0 - 990 ms	0	Only valid when 【078. TRM】 set at 「 KB 」 mode.	
90	D2 Setting timing of upper trimming at down-stop	0 - 2500 ms	0	Signal output from the wiper MW.	
91	D3 Timing recall of upper trimming at down-stop	0 - 990 ms	0	See the KB timing chart.	
92	W1 Delayed timing prior to wiper engaged	0 - 980 ms	0	Time setting between needle up to wiper active.	
93	W2 Setting timing of wiping	0 - 9990 ms	100	Wiper ON timer setting.	
94	WF Delayed timing prior to foot lifter engaged	0 - 990 ms	0	Timer setting between wiper OFF to presses foot ON.	
95	CSF Condense-Stitch function selection	ON/OFF	OFF	Condense-Stitch function by 【027. CT】 timer for needle up & motor stop. ON : Enable. Note : 【021. EBT】 =ON, 【022. EBC】 =8, 【023.EBD】 =3 and 【024.EBN】 =2 and 【027. CT】 =100 must be adjusted. OFF : Disable.	
96	CON Setting stitches of Condense-Stitch sewing	0 - 99 stitches	8	Valid only when the 【095. CSF】 = ON.	
97	TK3	Tape cutter on timer	0 - 2500 ms	10	Tape cutter on timer setting x10 = 100 ms.
		Bobbin counter alarm preaction value. stitches prior to stop beyond Condense-Stitch	0 - 250 stitches	0	When 【042.CUD】 = US_DS the value is bobbin counter alarm preaction value. Valid only when the 【095. CSF】 = ON.

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description	
POWER ... ON	98	SLU	Stitch length selection for backtack	ON/OFF	ON	ON : Normal stitch length. OFF : Long stitch length.
	99	SEN	Edge sensor function selection	ON/OFF	OFF	Edge sensor function selection.. ON : Enable. OFF : Disable.
	100	SRS	Edge sensor signal check 1	0 - 99 stitches	1	Only valid when [099. SEN] set at ON. To avoid photo interference.
	101	CMS	Edge sensor signal check 2	0 - 99 stitches	3	Only valid when [099. SEN] set at ON. To avoid photo interference.
	102	SE	Setting stitches from edge sensing to stop	1 - 999 stitches	6	Setting Stitches to stop., when edge signal detected. Only valid when [099. SEN] set at ON
	103	SET	Trimming mode at sensory stop	ON/OFF	OFF	When edge signal detected out. Motor will do the trimming cycle automatically. ON : After the stitches of [102. SE] finished, trimming works. OFF : After the stitches of [102. SE] finished, trimming doesn't work.
	104	PSU	Stitches for emergency up-stop	1 - 99 stitches	6	When [PSU] signal detected, running the stitches then stop at UP position. The speed of setting stitches is set by [009. A] .
	105	PSD	Stitches for emergency down-stop	1 - 99 stitches	6	When [PSD] signal detected, running the stitches then stop at DOWN position. The speed of setting stitches is set by [009. A] .
	106	PSN	Re-start function at emergency stop	ON/OFF	ON	When the pedal on and the edge signal detected, the motor can start running. ON : Enable. OFF : Disable.
	107	S7U	Manual Back-Tacking engaged at needle-up position	ON/OFF	OFF	When motor running, manually push the Touch Back switch , reverse solenoid engaged on at needle up. ON : Valid. OFF : Invalid.
	108	S7D	Manual Back-Tacking engaged at needle-down position	ON/OFF	ON	When motor running, manually push the Touch Back switch , reverse solenoid engaged on at needle down. ON : Valid. OFF : Invalid.
	109	ROF	Mode for de-engaging Back-Tacking	ON/OFF	OFF	During sewing, reverse output will be OFF at needle UP or DOWN position . ON : At ↑ needle UP ↓ position. OFF : At ↑ needle DOWN ↓ position.
	110	TB	Mode for Back-Tacking at trimming cycle	ON/OFF	OFF	The trimming and reverse solenoid activated on the same time. ON : Valid. OFF : Invalid.
	111	COR	Correction Mode of Touch-Back Switch	1/2	2	Correction mode selection for Touch-Back Switch. Note : [010. ACD] = OFF and [011. RVM] = B 1: Doing correction with one touch the Touch-Back switch . 2: Doing correction with double touch the Touch-Back switch.
	112	WMD	Wiper function related to full-heeling pedal	W/O/A	W	W : Regular wiper function (active 1 time when full heeling back after sewing) O : Wiper works at each full heeling back (unlimited) A : Wiper works only the pedal is kept full heeling back . Wiper turn off when the pedal return to neutral. Note : Wiper on time controlled by the [093. W2] .
	113	DEG	Needle DOWN position stop angle	5 - 180 degrees	12	Adjust the needle down stop position.
	114	UEG	Needle UP position stop angle	5 - 180 degrees	12	Adjust the needle up stop position.
	115	PMD	Power on display condition	ON/OFF	OFF	Power on display condition selection. ON : When power switch turned on, the panel displays previous condition. (Keep previous condition). OFF : When power switch turned on, the panel displays normal mode.
	116	DRU	Reverse angles through Needle down and up	1 - 360 degrees	180	Valid only when [078. TRM] = ↑RK ↓ mode Motor reverses from needle down, and stops at the needle upper dead point.
	117	ER	Error code display	10 SETS	-	Error code history display , total 10 events can be memorized.
118	NOS	Converting to a clutch motor selection	ON/OFF	OFF	ON : Without the synchronizer , motor is running as a clutch motor and stops at random position. OFF : With synchronizer .	
119	DD	Direct drive or belt drive	ON/OFF	OFF	ON : Direct drive. OFF : Belt drive.	
120	FHM	Mode selection for full-heeling after power on or trimming	FU/NU/NO/NUF/EFF	FU	F U : Regular operation -- full heeling for trimming and foot lifting. N U : Full heeling for up needle. N O : No foot lifting function. N U F : Full heeling for foot lifting and up needle. E F F : Full heeling for foot lifting and running at low speed.	
121	ANU	Needle goes up as power turned ON	ON/OFF	OFF	O N : Automatic needle UP at power on. O F F : Function invalid.	
122	HL	Upper limit of maximum speed	50 - 9999 spm	5000	The motor's maximum speed setting.	

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description	
S + P O W E R O N	123	FASET	Factory default reset		Factory setting reset Program mode selection. NOP : No function LOAD : Down load the program from operation panel . SAVE : Save the program to operation panel. COPY : Save the Host working area parameter value to operation panel , working area . (invalid with C-300 operation box) IU : Current sensor initial value. (invalid with C-300 operation box) IV : Current sensor initial value. (invalid with C-300 operation box)	
	124	PG	Program down load from operation box / save to operation box	NOP/LOAD/SAVE/COPY/IU/IV	NOP	Function for the needle up switch. Connection : [145.IN2] =U or [221.INJ] =U and C300,C60,F10 operation panel needle up switch key. C-200 can use F multi-function key as needle up switch. (see C-200 user manual) A : Stitch changeover + inching B : Stitch changeover only C : Up needle only . D : Up needle and presser foot . E : Inching one stitch only. F : Inching one stitch backward only. G : Backward running for [133. CHS] setting stitches. H : Stitch changeover + Tension on + Sewing suppression + O5 BTL Lamp blinks . ON : Always enable. OFF : Enable only at intermediate stop .
	125	USM	Function for the needle up switch	A/B/C/D/E/F/G/H	B	Maximum voltage display only.
	126	USA	Mode selection for [125. USM]	ON/OFF	ON	Minimum voltage display only.
	127	MAV	Maximum voltage hold		----	Display the current voltage.
	128	MIV	Minimum voltage hold		----	Over voltage setting
	129	PV	Current voltage display		----	Low voltage setting
	130	OVD	Over voltage setting	310 - 315	315V	
	131	LVD	Low voltage setting	70 - 160	70V	
	132	UPG	User program saving	0 - 4	0	Save the user's parameter setting into memory blocks for later use. Setting procedure: 1.Press [S] key + POWER ON LCD display [123. FASET] 2.Press [P] key 9 times LCD display [132. UPG] 3.Press [S] key LCD display [UPG. 0] 4.Press [D] key to select a block number from [UPG. 0] ~ [UPG. 4] . 5.Press [A] key to save the program. Note : To recall the program, go to the memory block in [UPG. 0] ~ [UPG. 4] , use [C] key to call it back and then press [S] key to confirm and save.
	133	CHS	Function and stitches setting for Angle-Stitch device (Pegasus W582)	1 - 99 stitches	5	Valid only when [047. MAC] = ' 10 ' (For W582 angle stitch) and [011. RVM] = ' B ' . When half heeling the pedal, the needle goes up , pressing down the pedal, this function works. The ' CHS ' speed is set by [004. N] . Full heeling back : Same as interlock stitch machine function output.
	134	KLK	SBT/EBT Key Lock selection	ON/OFF	OFF	ON : The A.B.C.D keys will be locked and defined to specific functions as follow : A key : Cancel foot lifting after at half- heeling pedal . B key : Cancel trimmer function at full heeling pedal. C key : Cancel wiper function at full heeling pedal. D key : Start constant stitch setting OFF : Unlocked. C-200 can turn off both start / end back-tacking key to enter the special functions (see C-200 user manual)
	135	TOT	Auto-running full time setting	1 - 168 Hrs	1	Auto-running full time setting. when [138. UTD] = ON valid.
	136	TM1	Auto-running on cycle time setting	(1-250)x0.1S 1-250 ms	20	Auto-running on cycle time setting. when [138. UTD] = ON valid. when [160.O5] is setting TF the value is output delay time (x10ms)
137	TM2	Auto-running off cycle time setting	(1-250)x0.1S 1-250 ms	20	Auto-running off cycle time setting. when [138. UTD] = ON valid. when [160.O5] is setting TF the value is output delay time (x10ms)	
138	UTD	Auto-running test selection	ON/OFF	OFF	ON : Enable. OFF : Disable.	
139	PSL	Speed curve adjustments	1 - 100%	85	The larger the value the faster to up speed	
140	OSE	Outside setting the [102. SE] parameter	ON/OFF	OFF	Setting the parameter [102. SE] from C-300 operation box . ON : Enable. OFF : Disable.	

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
S + P O W E R .. O N	141	BC3 Added 1 stitch to the second C segment of double End Back-Tacking	ON/OFF	OFF	Valid only when the double End Back-Tacking is performed. ON : Enable provided the parameter 【030. BCC】 = ON . OFF : Disable.
	142	EFK EFKA pedal unit function	ON/OFF	OFF	See the connection diagram . ON : Enable. EB301 (Pin 8 / A) Connected to the Control Box (Pin 7 / LEVER) EB301 (Pin 6 / B) Connected to the Control Box (Pin 2 / LEVER) EB301 (Pin 4 / C) Connected to the Control Box (Pin 8 / LEVER) EB301 (Pin 7 / D) Connected to the Control Box (Pin 4 / LEVER) EB301 (Pin 1 / 0V) Connected to the Control Box (Pin 9 / LEVER) OFF : Disable.
	143	AT Automatic standing operation	ON/OFF	OFF	Automatic standing operation can be done. ON : Enable. OFF : Disable.
	144	IN1 IN1=IO1/NOP/S4/CRL/IO2/RST/SST /STK input sw switchover (HVP-20 Not support)	IO1/NOP/S4/CRL/ IO2/RST/SST/STK	IO1	Define the input function of IN1. IO1 : Control OT1 output of 【157.O1】 NOP : No function. S4 : Motor is running with 【001. H】 speed setting. CRL : Should be set when 【225. CER】 = ON . IO2 : No function. RST : Reset step counter , should be set when 【047. MAC】 = 15,16,17,112 . SST : Short stitch function . STK : input by stitch length .
	145	IN2 IN2=USR/U/NOP/BTL/BTC/ST1/S7 input sw switchover	USR/U/NOP/BTL/ BTC/ST1/S7	U	Define the input function of IN2. USR : Up the needle by the angle of 【058. TR8】 when this switch pushed on. U : Needle up function of 【125. USM】 . NOP : No function. BTL : Back-tacking suppression / recall switch for SBT/ EBT only. BTC : Back-tacking suppression + O5 BTL Lamp On / cancel for SBT/ EBT only.. ST1 : Inching one stitch only. S7 : An input signal for reverse sewing .
	146	IN3 IN3=WL/HT Pedal half toe control. (HVP-20 Not support)	WL/HT	HT	Define the Pedal half toe function of IN3. WL : Disable. HT : Enable.
	147	INA INA=BCR/PSU/NOP/SPL input sw switchover (HVP-20 Not support)	BCR/PSU/NOP/SPL	PSU	Define the input function of INA. BCR : An input signal for selecting ON / OFF of motor start with a reverse angle. Valid only when 【125. USM】 =OFF. PSU : An input signal for emergency stop at up position. NOP : No function. SPL : An input signal for speed limited by low speed of 【060. L】 .
	148	INC INC=IO1/IO2/S0/SH/NOP/IO3 input sw switchover (HVP-20 Not support)	SH/IO1/IO2/S0/NOP/ O3	NOP	Define the input function of INC. IO1 : No function. IO2 : No function. S0 : An input signal for speed change limited by low speed of 【060. L】 . SH : A one-shot signal for speed change limited by 【009. A】 . NOP : No function. IO3 : No function.
149	IND IND=TL/ES/NOP input sw switchover (HVP-20 Not support)	TL/ES/NOP	ES	Define the input function of IND. TL : An input signal for trimmer output cancel . ES : An input signal for emergency stop . NOP : No function.	

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description	
POWER .. ON	S +	150 INE	INE=S7/IO1/IO2/CW/IO3/U/BTL/BTC/ST1 input sw swtchover	S7/IO1/IO2/CW/IO3 U/BTL/BTC/ST1	S7	Define the input function of INE. S7 : An input signal for reverse sewing . IO1 : No function. IO2 : An input signal for reverse one stitch when motor stop and reverse sewing . NOTE : The 【010. ACD】 =off and 【011. RVM】 =B must be set. CW : Reverse run signal. IO3 : An input signal for Inching one stitch only when motor stop and reverse sewing . NOTE : The 【010. ACD】 =off and 【011. RVM】 =B must be set. U : Needle up function of 【125. USM】 . BTL : Back-tacking suppression / recall switch for SBT/ EBT only. BTC : Back-tacking suppression + O5 BTL Lamp On /cancel for SBT/ EBT only.. ST1 : Inching one stitch only.
		151 INF	INF=HP/F input sw swtchover	HP/F	F	Define the input function of INF. HP : An input signal for high lift of walking foot. F : An input signal for knee switch.
		152 INI	INI=CRS/FAW input sw swtchover (HVP-20 Not support)	FAW/CRS	CRS	Define the input function of INI. CRS : An input signal for counter reset .Note : Valid only when 【042. CUD】 =U,D,US,DS,UT,DT,UTS,DTS . FAW : A signal for bobbin thread detector.
		153 INK	INK=HP/F/CRR input sw swtchover (HVP-20 Not support)	F/HP/CRR	HP	Define the input function of INK. HP : An input signal for high lift of walking foot. F : An input signal for knee switch. CRR : Should be set when 【225.CER】 = ON .
		154 OA	OA=TM/KS1 output swtchover	TM/KS1	TM	Define the output function of OA. TM : Trimmer output. KS1 : Tape cutter output.
		155 OB	OB=WP/ML/FK/KS1/NCL output swtchover	WP/ML/FK/KS1/NCL	FK	Define the output function of OB. WP : Wiper output. ML : Tension release output. FK : Thread nipper output. Related parameter : 【234.FAR】 , 【235.FKL】. KS1 : No function. NCL : Needle cooling output.
		156 OD	OD=ML/KS1/KS2/KS3/KS4/NCL output swtchover	ML/KS1/KS2/KS3/ KS4/NCL	ML	Define the output function of OD. ML : Tension release output. KS1 : No function. KS2 : No function. KS3 : No function. KS4 : Must be selected when 【204. BL】 = ON or 【205. BAF】 = 1, 2. NCL : Needle cooling output.
157 O1	O1=OT1/KS1/PUL/CSL/CK/KS2/UC/ PO1/PO2/P12/TM output swtchover (HVP-20 Not support)	OT1/KS1/PUL/CSL/ CK/KS2/UC/ PO1/PO2/P12/TM	OT1	Define the output function of O1. OT1 : Output by flip-flop control ,according to each input specifications while inputs IO1 are ON. KS1 : No function. PUL : Puller output. CSL : Must be selected when 【225. CER】 = ON . CK : Needle down pulse width output . Related parameter : 【206. CK1】 【207. CK2】 KS2 : Should be set when 【205. BAF】 =1, 2. UC : Output is turned ON if at needle up position when the sewing machine is stopped. PO1 : Needle down pulse width output . PO2 : Needle up pulse width output . P12 : Needle down , needle up pulse width output . TM : Trimmer output.		


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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
POWER .. ON	158	O3=HP/KS1/KS2/CK/KS3/CSR/KS4 output switchover (HVP-20 Not support)	HP/KS1/KS2/CK/KS3/ CSR/KS4	HP	Define the output function of O3. HP : Output for high lift for walking foot. KS1 : Must be selected when 【205. BAF】 = 1, 2. KS2 : No function. CK : Needle down pulse width output . Related parameter : 【206. CK1】 【207. CK2】 KS3 : No function. CSR : Must be selected when 【225. CER】 = ON . KS4 : Trimming output function .
	159	O4=OT4/BUZ/PO1/PO2/P12 output switchover (HVP-20 Not support)	OT4/BUZ/PO1/PO2/P 12	OT4	Define the output function of O4. OT4 : Reserve output. BUZ : Buzzer output is turned On when the 【042. CUD】 =US,DS,UTS,DTS and the count becomes end. RESET : When the counter reset by pushing the "A" key at panel of controller or by 【152. INI】 =CRS input signal. PO1 : Needle down pulse width output . PO2 : Needle up pulse width output . P12 : Needle down , needle up pulse width output .
	160	O5=OT5/HPL/PO1/PO2/KS1/TF/P12/BTL/BUZ output switchover	OT5/HPL/PO1/PO2/ KS1/TF/P12/BTL/BUZ	HPL	Define the output function of O5. OT5 : Reserve output. HPL : HP_LED output. PO1 : Needle down pulse width output . PO2 : Needle up pulse width output . KS1 : No function. TF : Trimming function output . P12 : Needle down , needle up pulse width output . BTL : BTL_LED output. BUZ : Buzzer output is turned On when the 【042. CUD】 =US,DS,UTS,DTS and the count becomes end. RESET : When the counter reset by pushing the "A" key at panel of controller or by 【152. INI】 =CRS input signal.
	161	O6=STL/OT6/PO1/PO2/KS1/TB/P12 output switchover (HVP-20 Not support)	OT6/STL/PO1/PO2/ KS1/TB/P12	STL	Define the output function of O6. STL : STL_LED output. OT6 : Output is turned ON for chain stitch bottom/lamp, when the pedal full heeling back or sewing machine running. PO1 : Needle down pulse width output . PO2 : Needle up pulse width output . KS1 : No function. TB : Trimming function output . P12 : Needle down , needle up pulse width output .
	162	O7=BTL/UC output switchover (HVP-20 Not support)	BTL/UC	BTL	Define the output function of O7. BTL : BTL_LED output. UC : Output is turned ON if at needle up position when the sewing machine is stopped.
	163	BD SRM return operation stable timer	70 - 990	70	Stable timer for motor return operation.
	164	MXI Maximum current limiter	5 - 22A	10	Maximum current limiter setting. Note : To avoid damage, adjustment should be done by engineer only.
	165	WKT Weak braking torque scale	1 - 5	2	Weak braking torque scale setting.
	166	ACT Acceleration time	60 - 990 ms	150	The time for accelerating machine to high speed from the pedal toed down or when the external run signal (S1) is turned ON.
	167	DCT Deceleration time	60 - 990 ms	120	The time for the decelerating machine to stop from the pedal returned to neutral or when the external run signal (S1) is turned OFF .
168	HKP Motor's holding torque gain adj.	5 - 400	30	To reduce noise, the motor holding torque can be lowered down.	
169	LKP Low speed gain	5 - 400	40	Low speed gain LKP adjustment.	
170	KP Gain kp	5 - 150	30	Gain KP adjustment	
171	KI Gain ki	100 - 3000	1000	Gain KI adjustment	
172	KS Gain ks	1 - 40	5	Gain KS adjustment	
173	QSK Quick stop counter	30 - 999	50	Note : Don't adjust.	
174	QSP Quick stop speed	50 - 500	200	Note : Don't adjust.	
175	HV Heavy duty	ON/OFF	OFF	Heavy duty function setting ON : Enable. OFF : Disable.	

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description						
POWER - ON	176	VDN	Positioning by index (reference) point	OFF/A/B/C	B	Positioning mode selection. OFF : Needle up and down is adjusted by external synchronizer, and needle bar upper dead point is adjusted by 【183.PUB】 A : Needle up is adjusted by 【179.PUA】 , and needle down is adjusted by 【181.PDA】 . B : Needle up is adjusted by 【179.PUA】 , needle down is adjusted by 【181.PDA】 and needle bar upper dead point is adjusted by 【183.PUB】 . C : When pedal control, needle up is adjusted by 【179.PUA】 , needle down is adjusted by 【184.PDB】 , 【185.PDC】 ; if U switch operation in half stitch control; then, can stop the motor at 【179.PUA】 , 【181.PDA】 【184.PDB】 , 【185.PDC】 . this function for handle stitch machine only.					
						177	SIN	Single positioning signal synchronizer	ON/OFF	OFF	Defined one signal for two positioning function. Note : Valid only when 【176.VDN】 =off . ON : Enable. A single positioning signal synchronizer is used. OFF : Disable. A regular synchronizer is used.
						178	NU	Define the UP positioning signal mode H/L	H/L	L	Valid only when 【177. SIN】 =ON + 【176. VDN】 = OFF. H: Input logic H active for needle up, and input logic L active for needle down. L: Input logic H active for needle down, and input logic L active for needle up.
	179	PUA	Virtual up A position edge angle	0 - 359 degrees	338	【176. VDN】 =MODE "A","B","C" valid (from index point).					
	180	PUW	Virtual up A position ON angle	10 - 70 degrees	40	【176. VDN】 =MODE "A","B","C" valid (pulse width).					
	181	PDA	Virtual down A position edge angle	0 - 359 degrees	62	【176. VDN】 =MODE "A","B","C" valid (from index point).					
	182	PDW	Virtual down A position ON angle	10 - 70 degrees	40	【176. VDN】 =MODE "A","B","C" valid (pulse width).					
	183	PUB	Virtual up B position edge angle	0 - 359 degrees	338	【176. VDN】 =MODE "B" , "Off" valid (needle upper dead point).					
	184	PDB	Virtual down B position edge angle	0 - 359 degrees	90	【176. VDN】 =MODE "C" valid only					
	185	PDC	Virtual down C position edge angle	0 - 359 degrees	270	【176. VDN】 =MODE "C" valid only					
	186	MS	Walking foot lifting maximum speed	200 - 5000 spm	3500	Walking foot maximum speed limiter					
	187	WS	Walking foot lifting minimum speed	200 - 4800 spm	2000	The speed of HP solenoid on					
	188	MIN	Minimum stroke value of potentiometer for walking foot lifting .	0 - 255	---	Min. stroke adjusted by the potentiometer at machine head.					
	189	MAX	Maximum stroke value of potentiometer for walking foot lifting .	0 - 255	---	Max. stroke adjusted by the potentiometer at machine head.					
	190	B2	DB2000 speed limiter	400 - 5000 spm	2000	B2 speed limiter setting					
	191	B3	DB3000 speed limiter	500 - 5000 spm	3000	B3 speed limiter setting					
	192	PTE	Positioning teaching mode	ON/OFF	ON	Positioning teaching mode selection. ON : Must be selected when 【176. VDN】 = A,B,C. OFF : Invalid.					
	193	RFC	Backtacking output chopping duty-cycle	10 - 100 %	40	Only valid when [063. FTP] set at 「M」 mode. For solenoid's switching power adjustment. Note : Wrongly adjustment will cause the solenoid unable to lift or over-heating.					
	194	SB1	Single Start back-tacking function	ON/OFF	ON	ON : Enable. (Valid only with C300 operation panel selected double start back tacking, C60 invalid) OFF : Disable.					
	195	EB1	Single End back-tacking function	ON/OFF	ON	ON : Enable. (Valid only with C300 operation panel selected double end back tacking, C60 invalid) OFF : Disable.					
	196	SLP	Stitch length selection after power on	ON/OFF	ON	ON : Normal stitch length. OFF : Long stitch length.					
	197	T6	Delayed timing prior to trimmer engaged	0 - 990 ms	0	Valid for 【079. LTM】 = T4/TK/TS/T7 and [158. O3] = KS4.					
	198	T7	Trimming time	0 - 990 ms	0	Valid for 【079. LTM】 = T1/T3/T4/TK/TS/T7 and [158. O3] = KS4.					
	199	O2	O2=NCL/CK output switchover (HVP-20 Not support)	NCL/CK	NCL	Define the output function of O2. NCL : Needle cooling output. CK : Needle down pulse width output .					
	200	IN4	IN4=DB2/SPV/NOP/S5/WL input sw switchover (HVP-20 Not support)	DB2/SPV/NOP/S5/WL	DB2	Define the input function of IN4. DB2 : Motor is running by 【190. B2】 speed. SPV : Speed limited by VHP input. Speed curve controlled by 【186. MS】 , 【187. WS】 【188. MIN】 【189. MAX】 . NOP : No function. S5 : Motor is running by medium speed 【059. M】 . WL : Wiper output cancel switch.					

HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N

Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
 + P O W E R .. O N	201	IAV INA = PSU logical signal invert	ON/OFF	OFF	INA input logic signal invert ON : The input logic of each Input signal PSU is reversed. OFF : The input logic of each Input signal PSU is normal.
	202	IBV INB = PSD logic signal invert	ON/OFF	OFF	INB input logic signal invert ON : The input logic of each Input signal PSD is reversed. OFF : The input logic of each Input signal PSD is normal.
	203	ICV INC logic signal invert	ON/OFF	OFF	INC input logic signal invert ON : The input logic of each Input INC signal is reversed. OFF : The input logic of each Input INC signal is normal.
	204	BL BL controller interface control	ON/OFF	OFF	BL controller interface control function selection. ON : Enable for Pegazus BL controller function . NOTE: Valid only when 【156. OD】 =KS4. OFF : Disable.
	205	BAF Mode selection for hemming guide device	OFF,1,2	OFF	For the hemming guide device of USA Bottoms Associates Inc. OFF : Normal sewing mode. 1 : For manual mode hemming guide device. 2 : For auto mode hemming guide device.
	206	CK1 CK output ON delay angle	0 - 250 degrees	0	CK output on delay angle setting. Valid only when 【157. O1】 or 【158. O3】 or 【199. O2】 = CK .
	207	CK2 CK output OFF angle	0 - 250 degrees	10	CK output off angle setting. Valid only when 【157. O1】 or 【158. O3】 or 【199. O2】 = CK .

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Key	Parameters Code	Parameters Function	Range	Pre.setting	Description	
POWER : : O N	208	VER	Software Version	-	DA-1.0N	
	209	IDX	Define the source of Index (reference) point	UP/DN	UP	Define the source of Index point is from needle up signal or needle down signal. UP : The reference index point is from the needle up signal . DN : The reference index point is from the needle down signal.
	210	FK1	Thread Nipper start angle	0 - 359 degrees	0	FK output start angle setting. Valid only when 【155. OB】 = FK .
	211	FK2	Thread Nipper end angle	0 - 359 degrees	0	FK output end angle setting. Valid only when 【155. OB】 = FK .
	212	THP	The timing prior to HP speed	80 - 500 ms	100	Setting the timing prior to HP speed.
	213	CHP	Setting the number of stitches for HP function	0 - 255 stitches	0	Setting the number of stitches for HP function of walking foot . 0 : Function disable. 1 ~ 255 : Enable. Valid only when 【062. HPM】 =ALT.
	214	FNK	Functions of the output "needle cooling"	0,1,2	0	Needle cooling output mode selection. 0 : Normal needle cooling function. 1 : Needle cooling operates when sewing speed exceeds the setting value of 【216. NK】 . 2 : Under edge trimmer.
	215	T5	Setting the needle cooling delay time	0 - 2550 ms	2500	Setting the needle cooling delay time from motor stops
	216	NK	Setting the needle cooling operating point of speed	40 - 6000 spm	40	Needle cooling will operate when sewing speed exceeds this setting value. Valid only when 【214. FNK】 =1.
	217	FLK	Lift roller function	0,1,2,3	0	Lift roller output mode selection. 0 : Roller works independently. 1 : Roller works with foot lifter and back tacking. 2 : Roller works with foot lifter. 3 : Roller works with back tacking.
	218	STR	Tension release output function	0,1,2	0	Tension release output mode selection. 0 : Tension R. output depends on the timing of 【080. LLM】 only. 1 : Tension R. operates with foot lifting after motor stop. 2 : Tension R. operates with foot lifting after trimming or power on.
	219	IN5	IN5=DB3/NOP/S5B input sw mode switchover (HVP-20 Not support)	DB3/NOP/S5B	DB3	Define the input function of IN5. DB3 : Motor is running by 【191. B3】 speed. NOP : No function. S5B : Motor is running by bar tacking 【006. B】 speed.
	220	INB	INB=NOP/PSD/SPB/IO1 input sw mode switchover (HVP-20 Not support)	NOP/PSD/SPB/IO1	PSD	Define the input function of INB. NOP : No function. PSD : Emergency stop for down position. SPB : Speed limited by end bar tacking 【005. V】 speed. IO1 : Must be selected when 【047. MAC】 = 15 or 16 or 17 or 112 .
	221	INJ	INJ=NOP/BTL/HP/U/S1/BTC/ST1/S7 input sw mode switchover	NOP/BTL/HP/U/S1/ BTC/ST1/S7	BTL	Define the input function of INJ. NOP : No function. BTL : Back-tacking suppression / recall switch for SBT/ EBT only. HP : The switch for high lift for walking foot. U : Needle up switch. (by 【125. USM】 setting). S1 : Motor is running by VC, if 【143. AT】 =ON; then running by 【009. A】 speed. BTC : Back-tacking suppression + O5 BTL Lamp On / cancel for SBT/ EBT only.. ST1 : Inching one stitch only. S7 : An input signal for reverse sewing .
	222	TOF	Trimmer protection function ON / OFF	ON/OFF	OFF	Trimmer protection function selection when the machine pulley was moved out of the range of 【224.TOA】 . ON : 【223. S2P】 function valid. OFF : 【223. S2P】 function invalid.
	223	S2P	Selecting the trimmer protection mode when 【222. TOF】 = ON	NO/PS	NO	Operation mode selection. Valid only when 【222. TOF】 =ON. NO : Operate foot lifting only, without up needle and thread trimming. PS : Operate foot lifting and up needle only, without thread trimming
	224	TOA	Setting the range for thread trimmer protection when 【222. TOF】 = ON	5 - 40 degrees	10	Setting the range for thread trimmer protection when 【222. TOF】 = ON
225	CER	Corner Function ON / OFF	ON/OFF	OFF	Corner Function selection. ON : Enable. The related setting includes 【144. IN1】 【153. INK】 【157. O1】 【158. O3】 【160. O5】 【161. O6】 Related parameter : 【037. SMP】 【062. HPM】 【097.TK3】 【226. CTW】 【229. KHP】 【237. FHP】 【238. SFO】 【239. SFC】 OFF : Disable.	
226	CTW	Stitches prior to the roller is lowered.	0 - 255 stitches	10	Stitches setting.	
227	PLC	ON/OFF switch for 【226. CTW】	ON/OFF	OFF	ON : 【226. CTW】 enable. OFF : 【226. CTW】 disable.	

HVP -20 Parameters List for DA-281 (MAC. 73)--version 1.0 N







Key	Parameters Code	Parameters Function	Range	Pre.setting	Description
POWER ON	228	FBM Forward_backward_motion control function.	ON/OFF	OFF	Forward_backward_motion control Function selection. ON : Enable the function of 【150. INE】 = CW , Reverse run will be enabled while the signal ON. OFF : Disable.
	229	KHP Setting the number of stitches for HP function.	0 - 255 stitches	0	When 【230. KLC】 =ON. Setting the number of stitches for the walking foot operation. 0 : Function disable. 1 ~ 255 : Stitches setting. Valid only (1). when 【062. HPM】 =ALT. 【230. KLC】 =ON . (2). when 【062. HPM】 =MON. 【230. KLC】 =OFF , 【154. O1】 =KS1 , 【014. SBT】 =ON by tape cutter stitches
	230	KLC To operate HP function by half heeling pedal.	ON/OFF	OFF	ON : Enable. OFF : Disable.
	231	FLC To operate HP function by the knee switch.	ON/OFF	OFF	ON : Enable. When 【151. INF】 = F OFF : Disable.
	232	DBA Manual backtack with speed limitation DB3000.	ON/OFF	OFF	ON : Speed limited by 【191. B3】 setting. OFF : Function disable.
	233	KNA Knee switch control function.	ON/OFF	OFF	Knee switch control selection. ON : The knee switch can be activated during sewing.(Used for blind stitch machine) OFF : The knee switch can be activated at sewing stop only.
	234	FAR Trimming stitch forwards or backwards.	0/1/2/3	2	0 : Trimming stitch forwards with wiper function. 1 : Trimming stitch backwards with wiper function. 2 : Trimming stitch forwards with thread clamp function. 3 : Trimming stitch backwards with thread clamp function.
	235	FKL Thread clamp function Related parameter : 【155.OB】=FK , 【210.FK1】 , 【211.FK2】	0 ~ 11	2	0 : Thread clamp off (Note : NFL = sewing foot lifting) 1 : Thread clamp functions with parameters 【210. FK1】 , 【211. FK2】 setting angle. (without NFL) 2 : Preset values : fk on = 108 , fk off = 268 (degrees) (without NFL) 3 : Preset values : fk on = 108 , fk off = 268 , nfl on = 97 , nfl off = 154 (degrees) (with NFL) 4 : Preset values : fk on = 44 , fk off = 268 , nfl on = 44 , nfl off = 154 (degrees) (with NFL) 5 : NOP 6 : NOP 7 : NOP 8 : NOP 9 : NOP 10 : NOP 11 : NOP
	236	SEL Machine code Subcode Select	0/1	0	Default Setting = 0 , Other SubCode See the Sample Setting Page.
	237	FHP Setting the number of stitches for HP function.	0 - 255 stitches	0	Setting the number of stitches for the walking foot operation. 0 : Function disable. 1 ~ 255 : Stitches setting. Valid only (1). when 【062. HPM】 =ALT. 【153. INK】 =HP. 【151. INF】 =HP. (INF must be connected to knee switch) (2). when 【062. HPM】 =MON. 【231. FLC】 =OFF , 【154. O1】 =KS1 , 【021. EBT】 =ON or 【099. SEN】 = ON by tape cutter stitches counter.
	238	SFO Full-On time setting .	0 - 990 ms	350	For solenoid pulling torque adjustment.
	239	SFC Duty cycle time setting .	10 - 90%	25	For solenoid's switching power adjustment.
	240	MTC Manual Tape Cutter operation mode . (Pegasus AT function)	ON/OFF	OFF	ON : anytime. OFF : edge sensor is uncovered.
	241	FTC Sensor function , If sewing machine run after sensor covered at the start seam.	ON/OFF	OFF	ON : Start cutter always valid. OFF : Start cutter is canceled .
242	IDC Password Function	ON/OFF	OFF	ON : Enable. OFF : Disable.	
243	MTP Motor Driver mode Selection.	SK,DA,PK	DA	Motor driver mode selection. SK : For Seiko machine serial. DA : For Standard Version & Durkopp serial. PK : For Pegasus Machine serial.	

7-Segment Display Characters Compare Chart

Arabic Numerals

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

English Alphabet

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