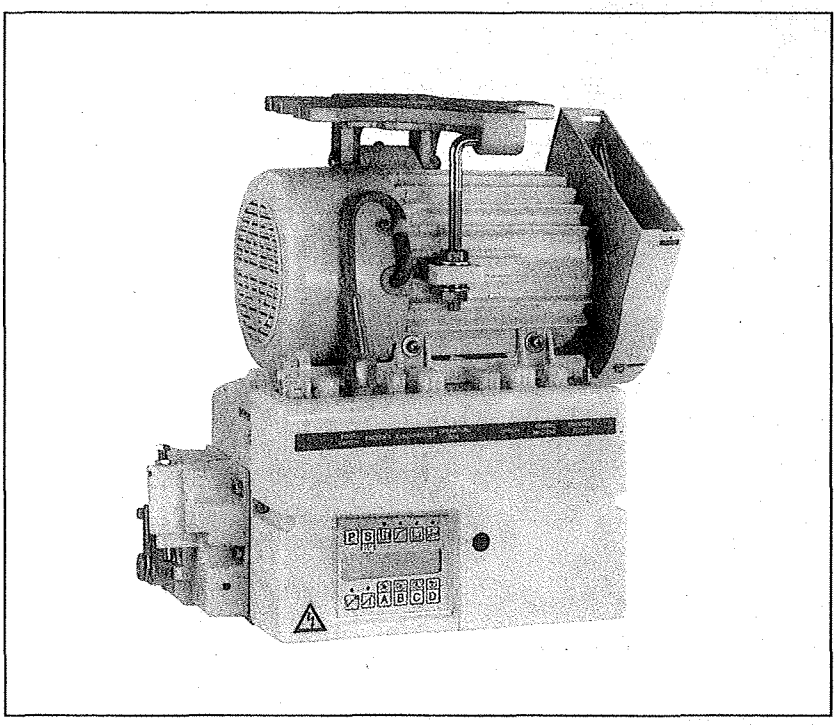
AC 伺 服 馬 達
AC SERVO MOTOR
AC MOTOR SERVO

使 用 說 明 書
OPERATION MANUAL
MANUAL DE LA OPERACIÓN

MODEL : HVP- 60 SERIES



中 國 語 | ENGLISH | ESPAÑOL

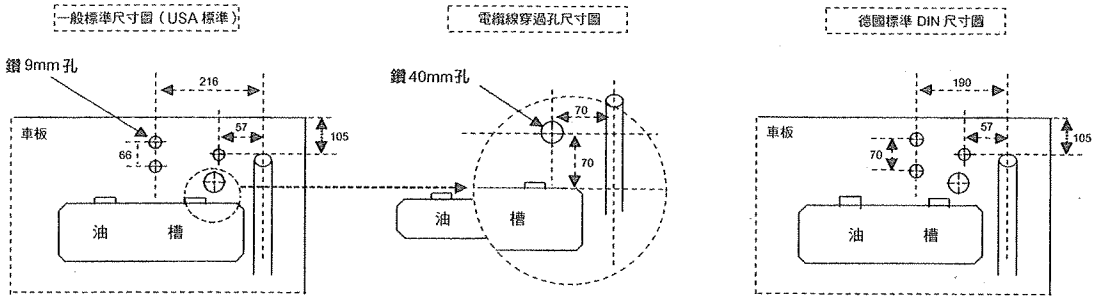
EEM60U04 2002.10

中國語

型式: HVP - 60 系列
CPU限用2.5版以上
目　　次

1.安　　裝:

1.1 馬達的安裝 ： 建議車板鑽孔尺寸圖 ：



如圖上示意圖，在車板上鉆上3個9mm與一個40mm的孔後，再將馬達安裝固定在車板下，這時要注意 ：

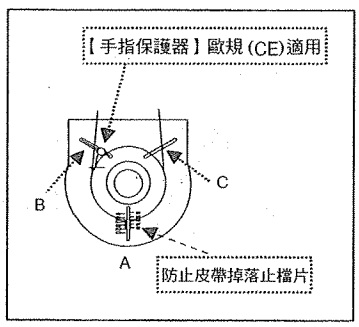
1).馬達的皮帶輪和縫紉機的皮帶輪必須絕對平行。

2).電纜線穿過車板後必須繞過馬達L形螺絲組以防止被皮帶磨擦。

1.2 皮帶蓋的安裝調整 ：

a. 調整皮帶止落檔片(A)由外往內推至頂到皮帶輪後，再依皮帶蓋上刻度退回5~10mm左右。

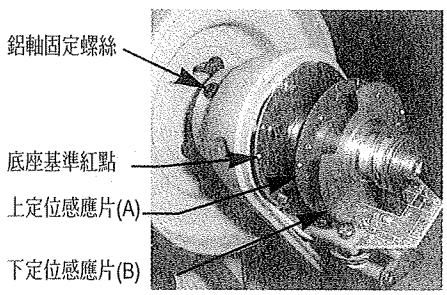
b. 出廠時【手指保護柱】均預裝在左側(B) 點處（平車型式轉向），如使用於三本車型式轉向時，須將【手指保護柱】由右圖所示的左側(B)點改移裝在右側(C)點處，並避免與皮帶輪和皮帶接觸。



1.3 定位器(同步器)的安裝與調整 ：

a. 定位器的安裝 ： 將定位器(同步器)套入車頭皮帶輪心軸或對接器(轉接頭)上。

b. 定位器的調整 ： 調整時請先鬆開上蓋殼固定螺絲，並取下定位器上蓋殼。



注意 ： 調整前請確定已關掉電源開關後，再執行如下動作：

∴ 以下範例說明：爲三本車機型的運轉方向，如用於平車機型時，請依車頭的運轉方向提前60°對準底座紅點。

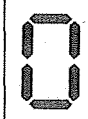
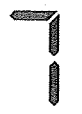
上定位停針設定 ：用手轉動車頭皮帶輪，使天枰停在最高點位置，再將上定位感應片(A)的紅點對準底座的基準紅點。

下定位停針設定 ：用手轉動車頭皮帶輪，使針停在最低點位置，再將下定位感應片(B)的藍點對準底座的基準紅點。

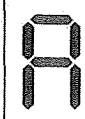
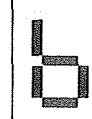
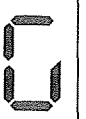
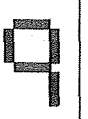
2. 基 本 操 作

2.1液晶顯示字體與實際數值字體對照表：

數字字體部份：

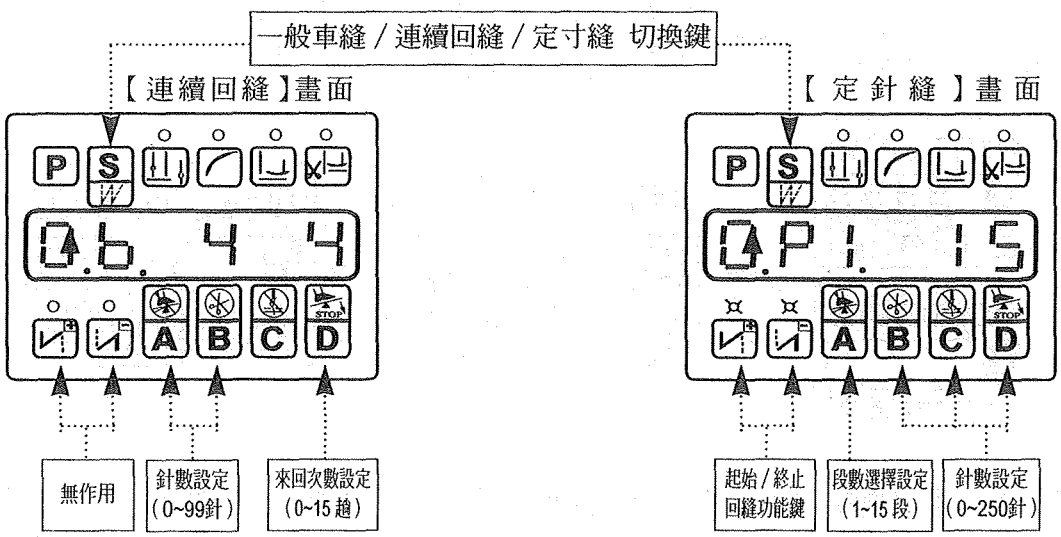
實際數值	0	1	2	3	4	5	6	7	8	9
液晶顯示										

英文字體部份：

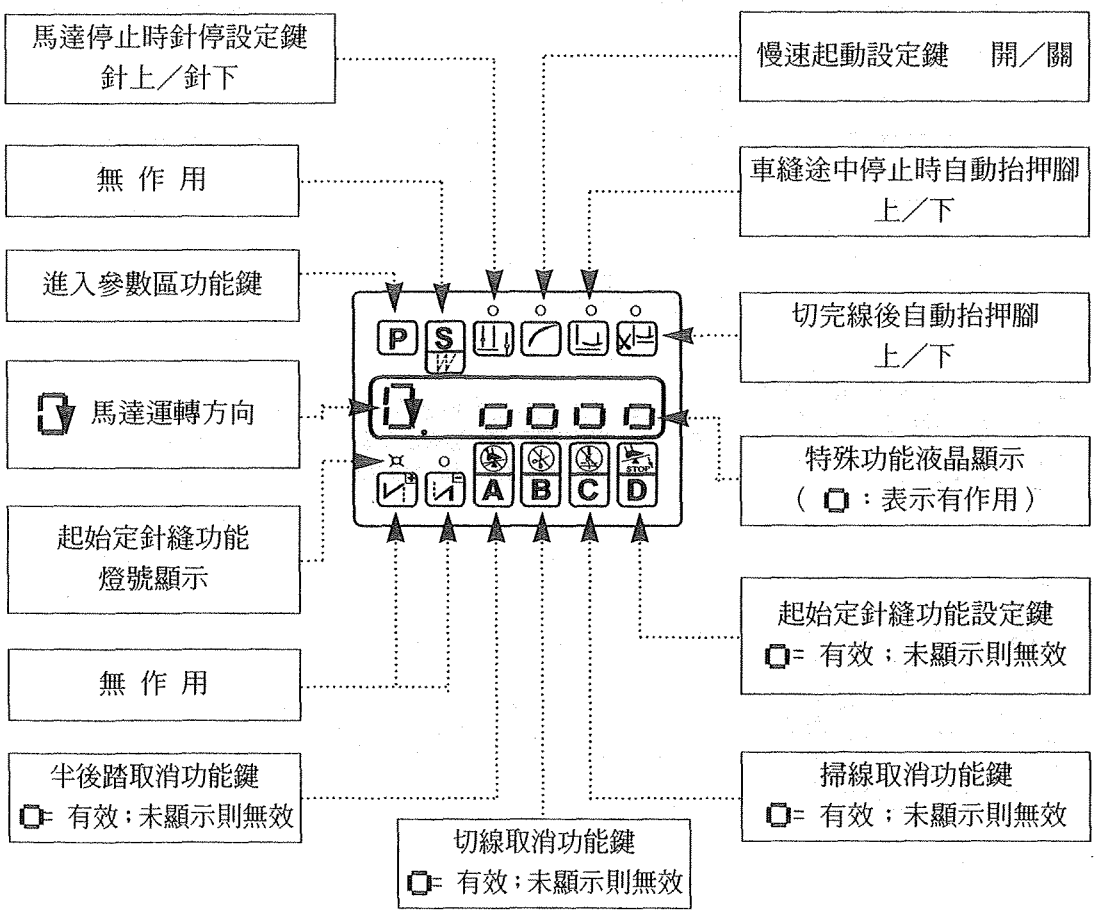
英文數字	A	B	C	D	E	F	G	H	I	J
液晶顯示										
英文數字	K	L	M	N	O	P	Q	R	S	T
液晶顯示										
英文數字	U	V	W	X	Y	Z				
液晶顯示										

2.2.3 在【一般模式 】進入【連續回縫與定寸縫】操作模式畫面區時，面板按鍵的功能與定義：

∴其餘未列述之功能鍵，請參照2.2.2項之說明：

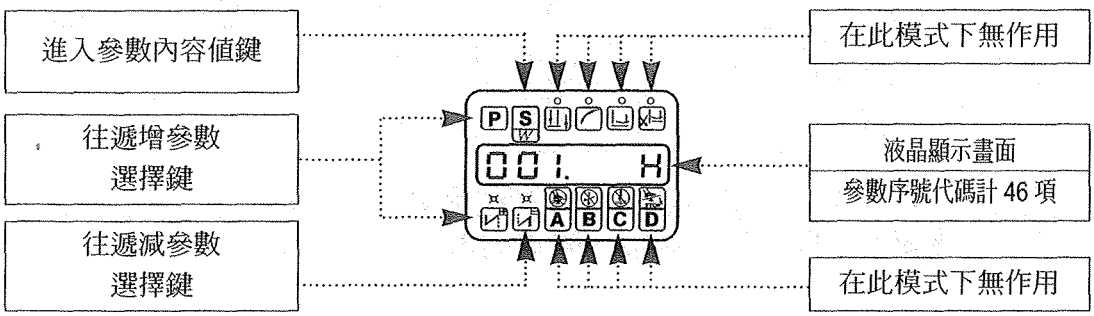


2.2.4 在【一般模式 】畫面區，三本車機型時面板按鍵的功能與定義：

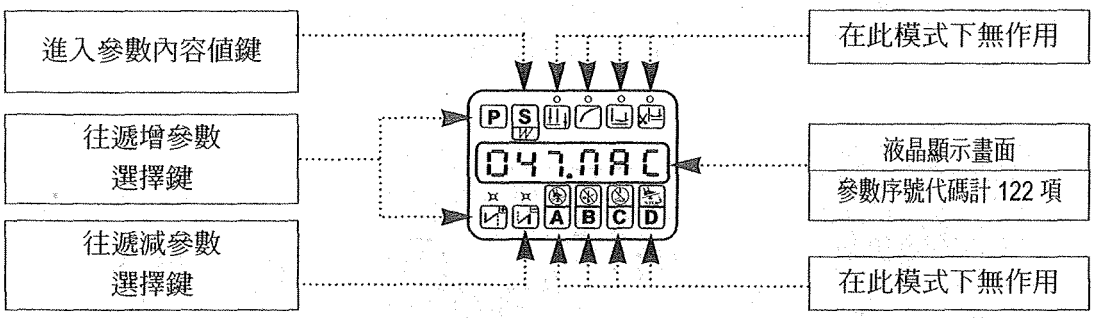


2.2.7 在【參數模式 A 與 B 】畫面區，面板按鍵的功能與定義：

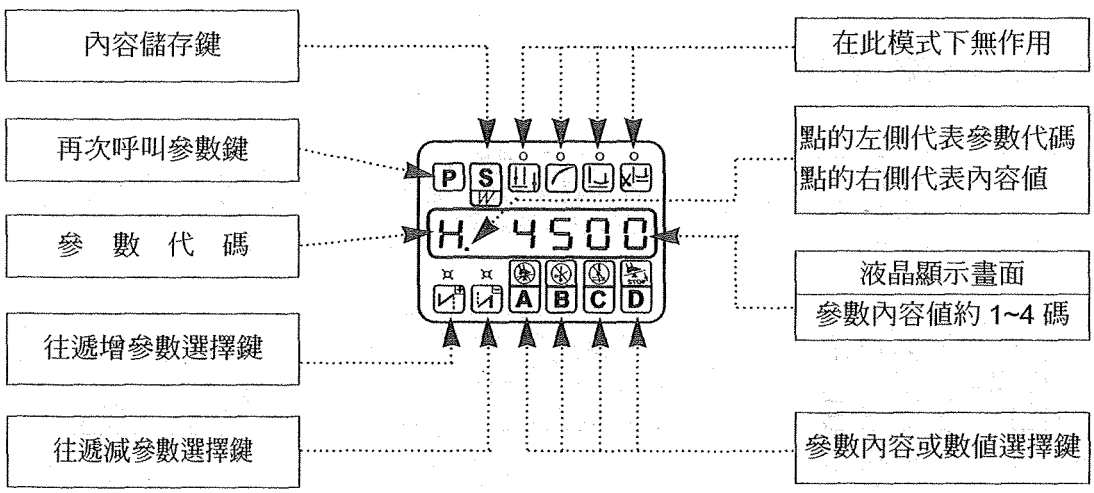
A. 進入【參數模式 A 】畫面區時，按鍵的功能定義：（如範例圖示）



B. 進入【參數模式 B 】畫面區時，按鍵的功能定義：（如範例圖示）



C. 進入【參數內容值】畫面區時，按鍵的功能定義：（如範例圖示）

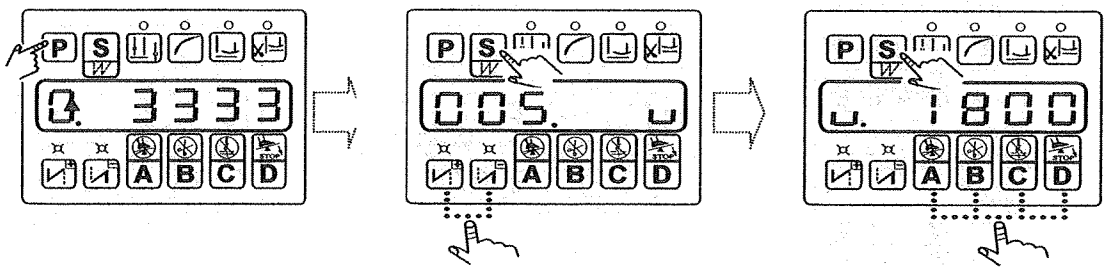


2.3.3 如何調整【終止回縫】速度：

a.在【一般模式】畫面區按一下 [P] 鍵，即可進入右側之【參數模式 A 】畫面區

b. 以 [▽] 或 [△] 鍵找出【005. V】參數後，並以 [S] 鍵進入參數內容區畫面

c. 再以 [A][B][C][D] 等鍵，調整終止回縫所須的速度
d. 調整後須按下 [S] 鍵儲存確認

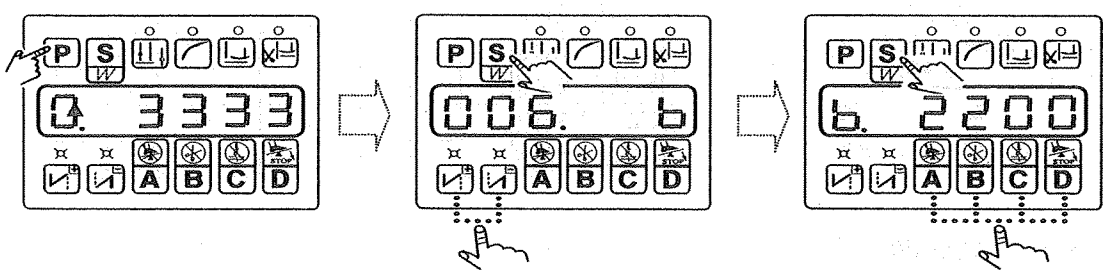


2.3.4 如何調整【連續回縫】速度：

a.在【一般模式】畫面區按一下 [P] 鍵，即可進入右側之【參數模式 A 】畫面區

b. 以 [▽] 或 [△] 鍵找出【006. B】參數後，並以 [S] 鍵進入參數內容區畫面

c. 再以 [A][B][C][D] 等鍵，調整連續回縫所須的速度
d. 調整後須按下 [S] 鍵儲存確認

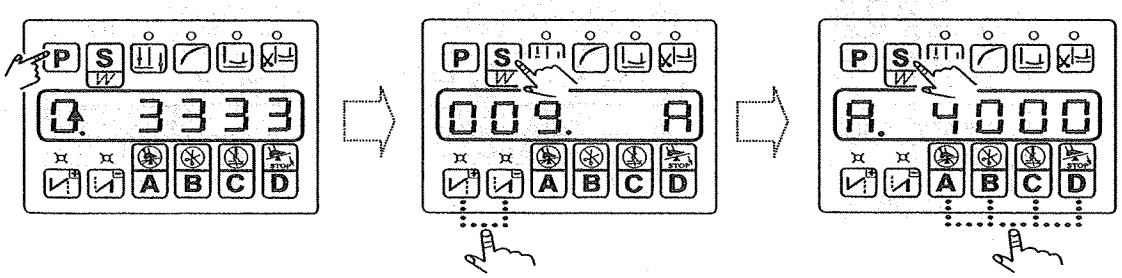


2.3.5 如何調整【定寸縫】速度：

a.在【一般模式】畫面區按一下 [P] 鍵，即可進入右側之【參數模式 A 】畫面區

b. 以 [▽] 或 [△] 找出鍵【009. A】參數後，並以 [S] 鍵進入參數內容區畫面

c. 再以 [A][B][C][D] 等鍵，調整定寸縫所須的速度
d. 調整後須按下 [S] 鍵儲存確認

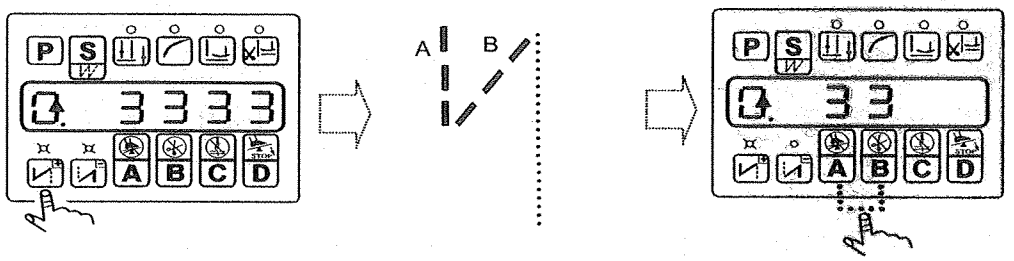


2.4 在平車機型時，常用的基本功能選擇設定：

2.4.1 如何設定【起始回縫 / 終止回縫】的功能：（有選購選針盒時，可由選針盒操作）

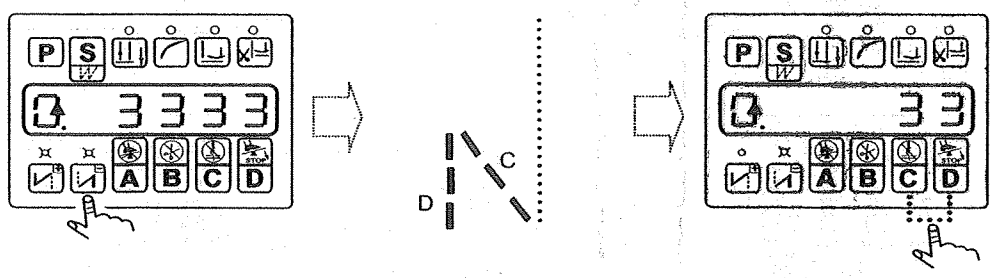
a.在【一般模式】畫面區，直接按一下 [↗] 鍵，可【開啓/關閉】起始回縫的功能

b.再依實際需要以 [A][B] 鍵調整起始回縫段內針數



c.在【一般模式】畫面區，直接按一下 [↗] 鍵，可【開啓/關閉】終止回縫的功能

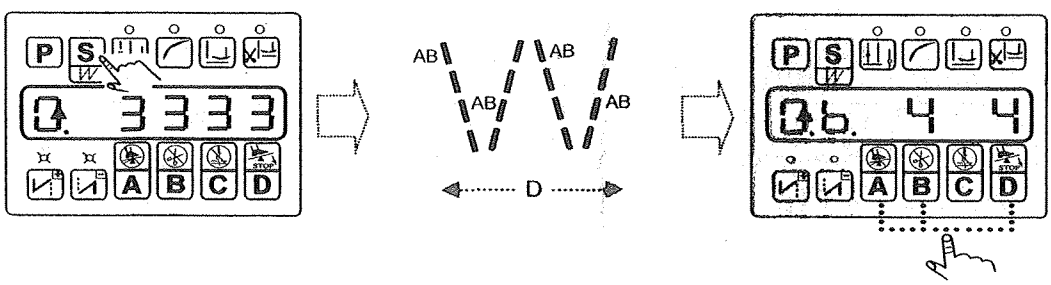
d.再依實際需要以 [C][D] 鍵調整終止回縫段內針數



2.4.2 如何設定【連續回縫】的功能：（有選購選針盒時，可由選針盒操作）

a.在【一般模式】畫面區直接按下 [S] 鍵，選取如右側之操作模式【0.6 4 4】畫面

b. 再以 [A][B] 鍵調整針數(0~99)針
以 [D] 鍵改變來回次數(0~15)趟
∴注意：如D鍵選設於0時爲無限次來回



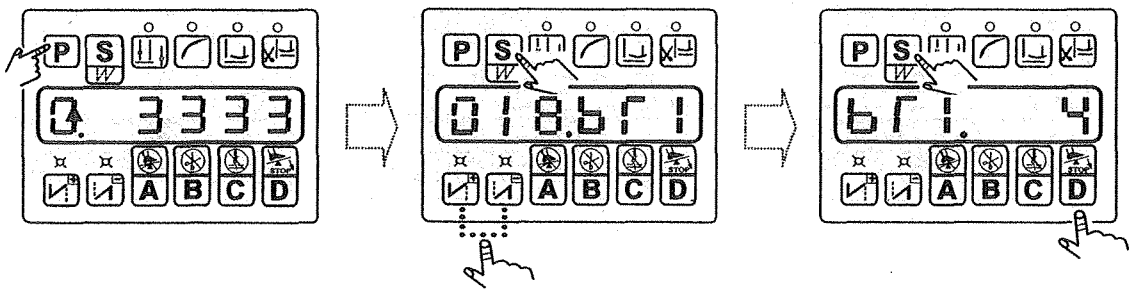
2.5 在平車機型時，調整自動回縫縫跡同步平齊的補償：

2.5.1 【起始回縫】補償部份：請注意:018.BT1與019.BT2的補償值因各車頭機型碼的不同，其出廠預設值亦會隨之不同

a.在【一般模式】畫面區按一下 P 鍵，即可進入右側之【參數模式 A】畫面區

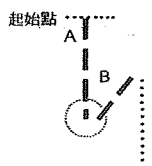
b. 以 ▲ 或 ▼ 鍵找出【018.BT1與019.BT2】，並以 S 鍵進入參數內容區畫面

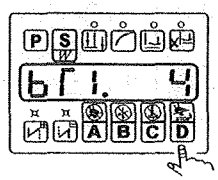
c. 以 D 鍵選擇出【BT1與BT2】適當的補償值
d. 調整後須按下 S 鍵儲存確認



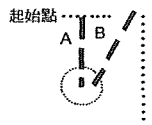
調整範例說明：假設起始回縫針數**A.B**段均設定在相同針數下**(A=3針、B=3針)**

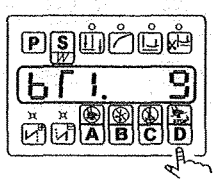
建議：請先將 **A** 段的補償值設定完成後，才繼續 **B** 段補償值的設定步驟。



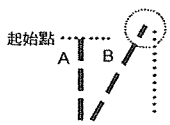


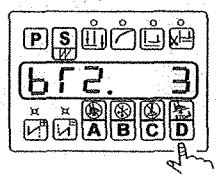
A段針數比設定針數值多出，造成B段針數無法回至起始點時：
調整【BT1】內容值由1~8作適當的調整



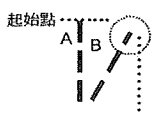


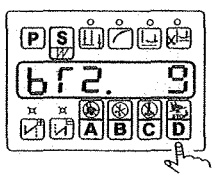
A段針數比設定針數值短少或折針，造成B段針超出起始點時：
調整【BT1】內容值由9~F作適當的調整





B段針數比設定針數值多出，造成超出起始點現像時：
調整【BT2】內容值由1~8作適當的調整

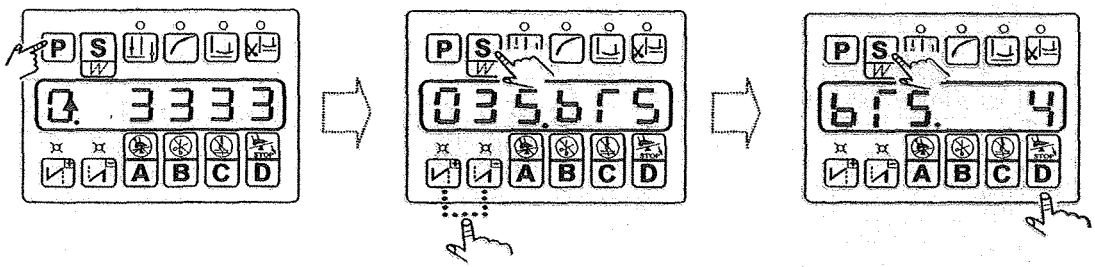




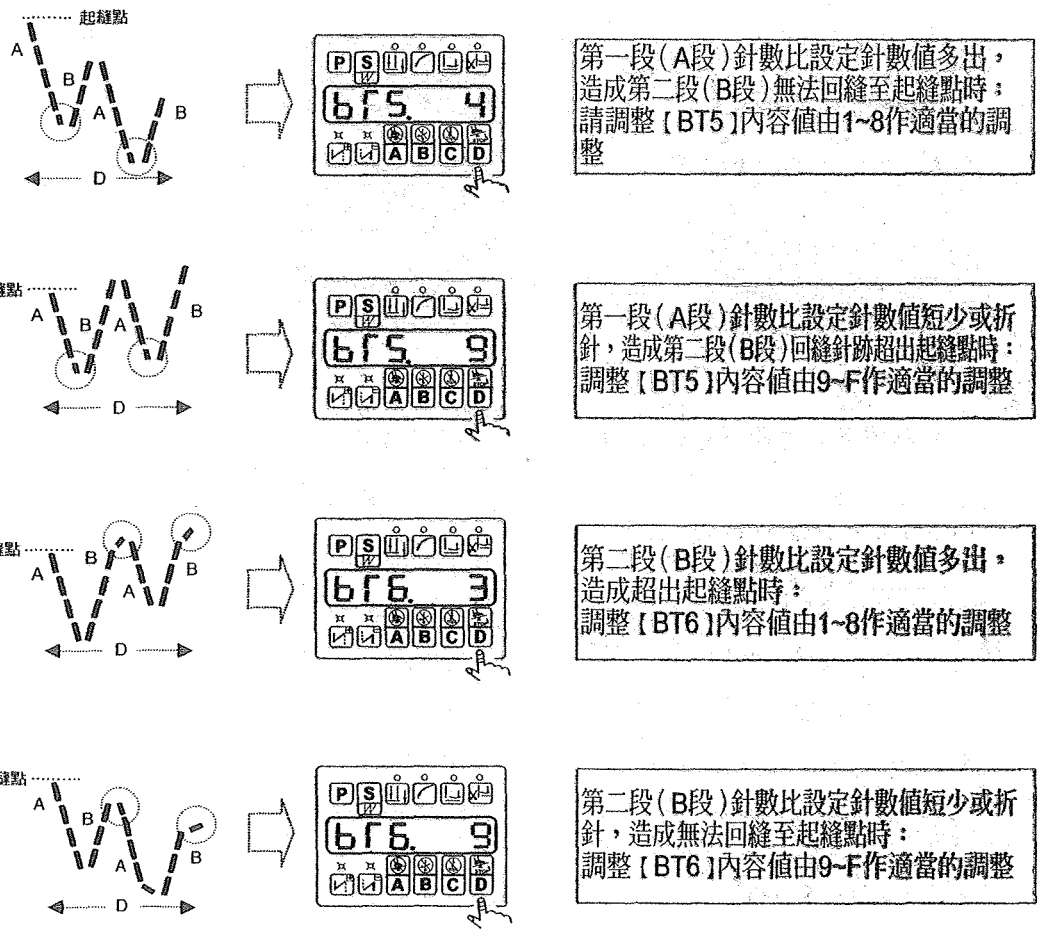
B段針數比設定針數值短少或折針，造成無法回至起始點時：
調整【BT2】內容值由9~F作適當的調整

2.5.3 【連續回縫】補償部份： 請注意:035.BT5與036.BT6的補償值因各車頭機型碼的不同，其出廠預設值亦會隨之不同

a.在【一般模式】畫面區按一下 P 鍵，即可進入右側之【參數模式A】畫面區 → b. 以 ▲ 或 ▼ 鍵找出補償參數值【035.BT5與036.BT6】，並以 S 鍵進入參數內容區畫面 → c. 以 D 鍵選擇出【BT5與BT6】適當的補償值
d. 調整後須按下 S 鍵儲存確認



調整範例說明：假設連續回縫針數 **A.B** 段均設定在 **4** 針，而來回次數 **D** 設定在 **4** 回下
建議：請先將第一、三段 **(A)** 段的補償值設定完成後才繼續第二、四段 **(B)** 段的補償值的設定步驟。



第一段(A段)針數比設定針數值多出，造成第二段(B段)無法回縫至起縫點時；請調整【BT5】內容值由1~8作適當的調整

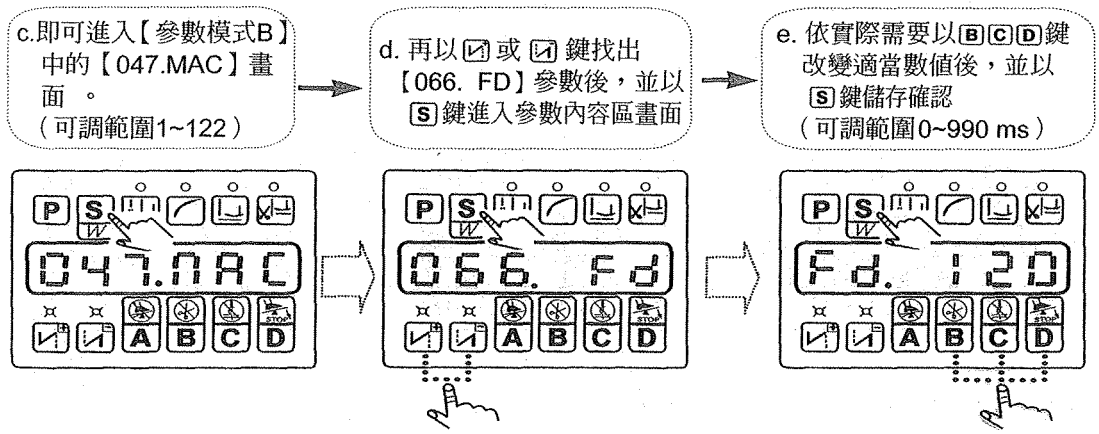
第一段(A段)針數比設定針數值短少或折針，造成第二段(B段)回縫針跡超出起縫點時：調整【BT5】內容值由9~F作適當的調整

第二段(B段)針數比設定針數值多出，造成超出起縫點時：調整【BT6】內容值由1~8作適當的調整

第二段(B段)針數比設定針數值短少或折針，造成無法回縫至起縫點時：調整【BT6】內容值由9~F作適當的調整

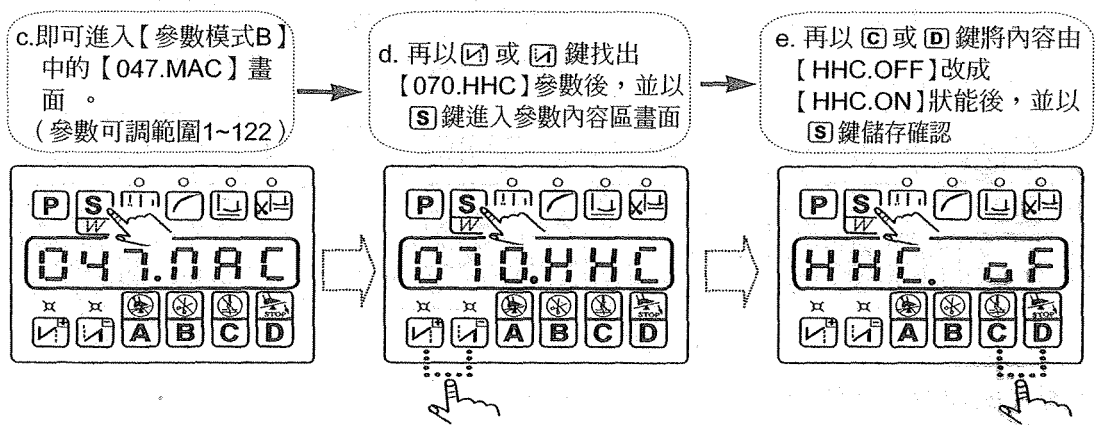
2.6.3 如何調整【延遲馬達起動，以配合押腳放下】之確認時間：

a，b：請參照2.2.6第a與b項的操作步驟進入【參數模式B】。



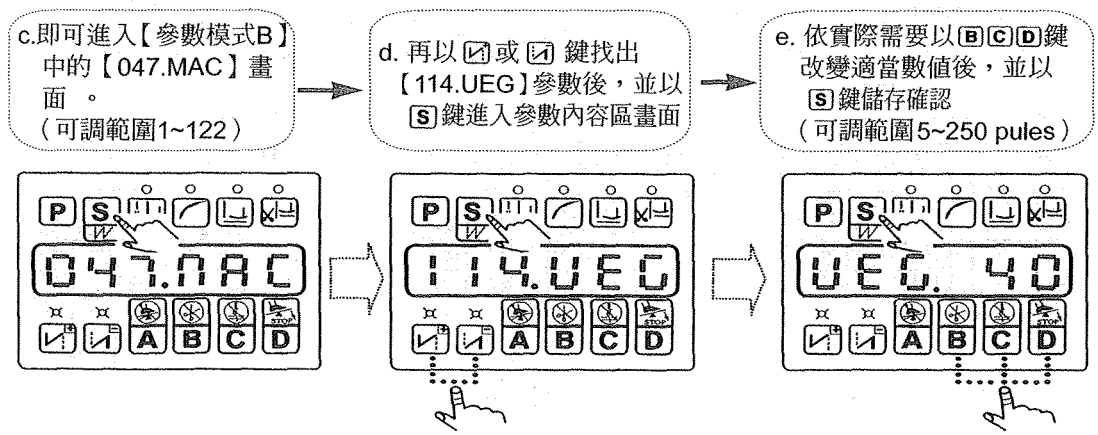
2.6.4 如何關閉【半後踏抬押腳動作】功能：

a，b：請參照2.2.6第a與b項的操作步驟進入【參數模式B】。



2.6.5 如何修正【上定位停針】位置時的角度調整（限用於裝置內藏式定位器機型）

a，b：請參照2.2.6第a與b項的操作步驟進入【參數模式B】。



2.7 參數內容表 ：

2.7.1 【 參數模式 A 】與【 參數模式 B 】共同參數內容表

出廠之初始值與A.B.C.D按鍵在各項參數時的操作定義：(以下初始值內容值爲馬達型號HVP-60-3-7W時的範例)

等級	參數項目內容	中文說明	範圍	初始值	設定鍵別	內容值名稱說明與備註
用戶級	[001. H]	最高轉速 (spm)	150~8000	4500	A,B,C,D	車縫時的最高轉速設定
	[002.PSL]	加速曲線調整 (%)	1~100%	80	C,D	控速器加速爬昇斜率設定 斜率值愈大，速度愈陡；斜率值愈小，速度愈緩
	[003.NUD]	針停定位選擇 UP:上 DN:下	UP / DN	DN	C,D	同按鍵面板上之快速功能鍵 UP:上停針 DN:下停針
	[004. N]	起始回縫速度 (spm)	100~6375	1800	A,B,C,D	前段回縫（起始回縫）時的速度設定
	[005. V]	終止回縫速度 (spm)	100~6375	1800	A,B,C,D	後段回縫（終止回縫）時的速度設定
	[006. B]	連續回縫速度 (spm)	100~6375	2200	A,B,C,D	連續回縫時的速度設定
	[007. S]	慢速起縫速度 (spm)	100~3000	400	A,B,C,D	慢速起縫時的速度設定
	[008. SLS]	慢速起縫針數（針）	0~99針	2	C,D	慢速起縫時的針數設定
	[009. A]	自動定寸縫速度 (spm)	300~6375	4000	A,B,C,D	定寸縫【037 SMP】設定在A狀態的速度設定 (或選針盒AUTO鍵有按下時的速度設定)
	[010.ACD]	定寸縫後自動執行終止回縫功能(不補針功能設定)	ON / OFF	ON	C,D	車縫途中停止，進行補針時機： 注意：【011 RVM】必須設定在B時，始有效 ON:不補針（定寸縫時，可自動連貫作CD功能） OFF:要補針（無法連貫執行CD功能）
	[011.RVM]	手按回縫時功能模式選擇	J / B	J	C,D	手按車頭回縫開關動作時機： J:JUKI方式（在車縫中或中途停止時均有動作） B:BROTHER方式（在車縫中始有動作）
	[012.SMS]	起始回縫運動模式選擇	A/M/SU/SD	A	D	起始回縫段，倒退電磁線圈動作時機： A:輕觸踏板，即自動執行起始回縫 M:受踏板控制，可任意停止 SU:針停上定位後，受【027. CT】時間控制始動作 SD:針停下定位後，受【027. CT】時間控制始動作
	[013.TYS]	起始回縫結束點操作模式選擇	CON/STP/TRM	CON	D	CON:起始回縫段完成後，自動連續下一段功能 STP:起始回縫段針數完成後自動停止 TRM:起始回縫段針數完成後自動進行切線動作
	[014.SBT]	起始回縫功能選擇	ON / OFF	ON	C,D	在無外加選針盒下始有效 ON:起始回縫功能開啓 OFF:起始回縫功能關閉
	[015.SBA]	起始回縫功能 A 段針數之設定	0~15針	3	C,D	在無外加選針盒下，且須【014 SBT】設定在ON狀態始有效 起始回縫A,B段的針數設定
	[016. SBB]	起始回縫功能 B 段針數之設定	0~15針	3	C,D	
	[017.SBN]	起始回縫功能來回次數之設定	0~4回	2	D	在無外加選針盒下，且須【014 SBT】設定在 ON 狀態始有效 起始回縫的來回次數設定
	[018.BT1]	起始回縫補償 1	提前動作：1.2.3.4.5.6.7.8 延遲動作：9.A.B.C.D.E.F	4	C,D	BT1,BT2=0 無效 BT1,BT2=1~8 提早動作時機 BT1,BT2=9~F 延遲動作時機
	[019.BT2]	起始回縫補償 2		3	C,D	
	[020.SME]	自動終止回縫運動模式選擇	A/SU/SD	A	D	終止回縫段，倒退電磁線圈動作時機： A:車縫後踏板全後踏，即自動執行起始回縫 SU:針停上定位後，受【027. CT】時間控制始動作 SD:針停下定位後，受【027. CT】時間控制始動作
	[021.EBT]	終止回縫功能選擇	ON / OFF	ON	C,D	在無外加選針盒之下始有效： ON:終止回縫功能開啓 OFF:終止回縫功能關閉
	[022.EBC]	終止回縫功能 C 段針數之設定	0~15針	3	C,D	在無外加選針盒之下，且須【021.EBT】設定在ON狀態始有效 終止回縫C,D段的針數設定
	[023.EBD]	終止回縫功能 D 段針數之設定	0~15針	3	C,D	
	[024.EBN]	終止回縫功能來回次數之設定	0~4回	2	D	在無外加選針盒之下，且須【021.EBT】設定在ON狀態始有效 終止回縫的來回次數設定

2.7.2【參數模式B】常用參數之列舉內容表(以下初始值內容爲馬達型號HVP-60-3/4-66時的範例)

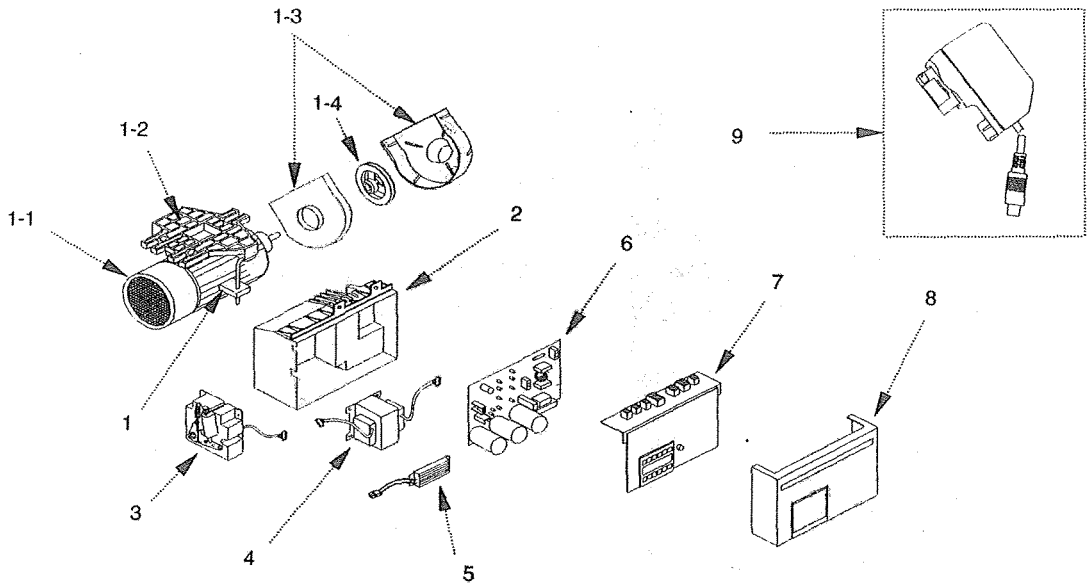
	參數項目內容	中文說明	範圍	初始值	設定鍵別	內容值名稱說明與備註
	[047.MAC]	縫紉機機型碼(車頭機型碼)	0~82	6	C,D	依訂購需求，於出廠時設定使用之車頭機型碼
	[049.SPD]	車頭皮帶輪之尺寸 (mm)	50~200	65	B,C,D	隨車頭機型碼之設定，已預置車頭皮帶輪尺寸
	[050.MPD]	馬達皮帶輪之尺寸 (mm)	50~150	100	B,C,D	隨車頭機型碼之設定，已預置馬達皮帶輪尺寸
	[054. BK]	馬達停止時，煞車鎖住功能	ON / OFF	OFF	C,D	ON:馬達停止時，煞車鎖住車頭 OFF:無作用
◎	[057.TRU]	切線後，反轉提針角度的功能選擇	ON / OFF	OFF	C,D	ON:切完線後，自動作反轉的功能(角度由058.TR8調整決定) OFF:無作用
◎	[058.TR8]	切線後，反轉提針角度的調整	1~255	0	B,C,D	切完線後，由針上算起以反向運轉作提針的角度調整
	[064. FO]	押腳全額初始出力的動作時間 (ms)	0~990	400	B,C,D	押腳開始動作時，全額出力的動作時間
	[065. FC]	押腳出力動作的週期信號 (%)	10~90	50	C,D	押腳動作時，以週期性省電輸出，避免押腳發燙
	[066. FD]	延遲馬達起動，保護押腳下放時間	0~990	120	B,C,D	踩下時延遲起動時間，以配合押腳放下之確認
	[070.HHC]	半後踏取消抬押腳功能	ON / OFF	OFF	C,D	ON:半後踏時，無抬押腳出力 OFF:半後踏時，有抬押腳出力
	[075.SFM]	安全開關信號型式	NC / NO	NC	C,D	NO:安全開關入力信號，必須保持常開狀態 OFF:安全開關入力信號，必須保持常閉狀態
☆	[078.TRM]	切線時序時，馬達運轉模式 (設定RK模式時，可作全後踏反轉功能，其反轉角度可由【116.DRU】決定，但自動關閉切線、掃線、倒退等功能)	LK / RK KA / KB	KA	D	LK:一般模式(平車切線方式) RK:找到下定位後，再以反方向轉至所設定之角度。 (設定此模式時，將自動取消切、掃線等動作) KA:三本車切線模式A KB:三本車切線模式B
	[082. T1]	切線動作前延遲的時間 (ms)	0~990	100	B,C,D	找到上定位後進至切線時序前所需的間距時間
	[083. T2]	切線動作時間 (ms)	0~990	200	B,C,D	切線時序所需的動作時間
	[086. L1]	鬆線動作前的延遲的時間 (ms)	0~990	340	B,C,D	找到上定位後進至鬆線時序前所需的間距時間
	[087. L2]	鬆線動作時間 (ms)	0~1500	80	A,B,C,D	鬆線時序的動作時間
	[092. W1]	撥/掃線動作前的延遲時間 (ms)	0~980	340	B,C,D	找到上定位後進至撥/掃線時序的間距時間
	[093. W2]	撥/掃線(或吹風)動作時間 (ms)	0~9990	80	A,B,C,D	撥/掃時序的動作時間
	[094. WF]	押腳動作前的延遲時間 (ms)	0~990	50	B,C,D	撥/掃動作完後進至抬押腳時序前的間距時間
	[114.UEG]	針上停止時的位置調整 (pules)	5~250	40	B,C,D	微調修正上定位停止時的角度位置(中心數值爲40) 數值減少時會提前停針，數值增加時會延遲停針
☆	[116.DRU]	由針下算起的反向轉動角度	1~255	180	B,C,D	當【078.TRM】設定RK時，由針下算起的反轉角度
	[121.ANU]	開電後自動找上定位	ON / OFF	ON	C,D	ON:開啓電源後，自動找到上定位信號後停止 OFF:無作用
	[122. HL]	車頭最高速度限制 (spm)	150~8000	4500	A,B,C,D	最高速度總限制 ∴【001、 H】速度值受此控制

備註：

此◎記號者：使用在平車機型，以作爲反轉提針之用途。

此☆記號者：使用在三本車無切線機型，於後踏時，車頭以反向運轉作爲順利取布之用途。

3.2 HVP-60 馬達元件組合圖與元件表 ：



編號	元件料號	品名	規格與備註	編號	元件料號	品名	規格與備註
1	2VP14431013J1	馬達本體組	100-200 V	7	2VP603087W001	端子座主基板組	HVP-60-3-7W
	2VP34432013J1	馬達本體組	200-240V		2VP60308BR001	端子座主基板組	HVP-60-3-BR
	2VP34432013J2	馬達本體組（歐規）	200-240V		2VP6030811001	端子座主基板組	HVP-60-3-11
1-1	315ECV030	馬達風蓋			2VP6030827001	端子座主基板組	HVP-60-3-27
1-2	2VPBTV01002	馬達腳座			2VP6030866001	端子座主基板組	HVP-60-3/4-66
1-3	2VPBGV040	皮帶蓋組（一般）	含底蓋與副蓋		2VP6030870001	端子座主基板組	HVP-60-3/4-70
	2VPBGV050	皮帶蓋組（歐規）	含底蓋與副蓋		2VP6030898001	端子座主基板組	HVP-60-3/4-98
1-4	2CL2PYB180V	皮帶輪	70mm		2VP60308LT001	端子座主基板組	HVP-60-3/4-LT
	2CL2PYB030V	皮帶輪	90mm				
	2CL2PYB050V	皮帶輪	100mm				
2	2VP60007001	控制箱底座		8	315MPB210	控制箱上蓋殼	
3	2VP60106001	二定位式控速器組	亞規（較輕）				
	2VP60106003	二定位式控速器組	歐規（較緊）				
4	321TFS250	變壓器	100-120 V	9	2VP115002900	定位器（8P）	#500-29
	321TFS230	變壓器	200-240 V		2VP115003000	定位器（7P）	#500-30
5	2VP60104101	回生電力電阻組	100-120 V				
	2VP60104201	回生電力電阻組	200-240V				
6	2VP60103101	電源板組	100-120V				
	2VP60103201	電源板組	200-240V				

Safety Instructions

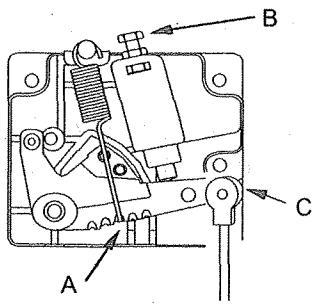
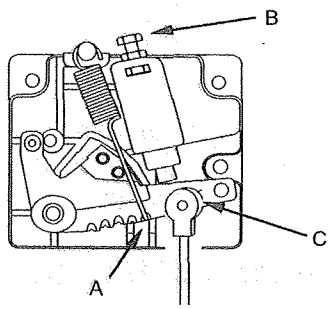
1. Users are asked to read this operating manual completely and carefully before installation or operation.
2. All the instructions marked with the signs  must be absolutely observed or executed; otherwise, bodily injuries might occur.
3. The motors should be installed and pre-operated by persons with oppropriate training only.
4. An extension cable with multi-outlet for power connection is not to be used.
5. When connecting power supply cords to power sources, it's necessary to make sure that the power voltage is lower than 250 VAC and matches the rated voltage indicated on the motor's name plate.
6. The earth wire of power cord must be connected to the system ground of the production plant by proper sizes of conductors and terminals. This connections should be fixed permanently.
7. All the moving portions must be guarded by the parts provided.
8. After first turning on the power, operate the sewing machine at low speed and check that the direction of rotation is correct.
9. Turn off the power prior to the following operations:
   1)Connecting or disconnecting any connectors on the control box.
   2) Threading needle.
   3) Raising the machine arms.
   4) Repairing or doing any mechanical adjustment.
   5)Machines rest.
10. Repairs and high level maintenance work may only be carried out by electronic technicians with appropriate training.
11. All the spare parts for repairing must be provided or approved by the manufacturer.

ENGLISH

ENGLISH

1.4 Regulating the force required to operate the foot pedal

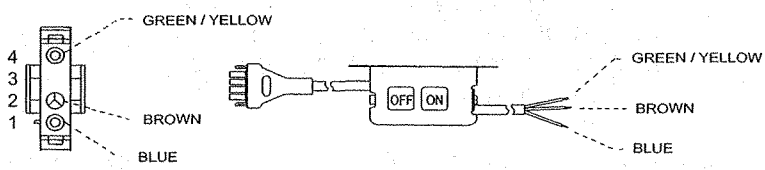
1.4.1 Downward force adjustment: Spring A
1.4.2 Heeling back force adjustment: Bolt B
1.4.3 Pedal stroke adjustment: Holes C
1.4.4 In case of connecting with an air switch on the pedal rod to activate a Venturi Device, please shift the position for A and C as shown below.

For General Application	For Venturi Device Attached
	

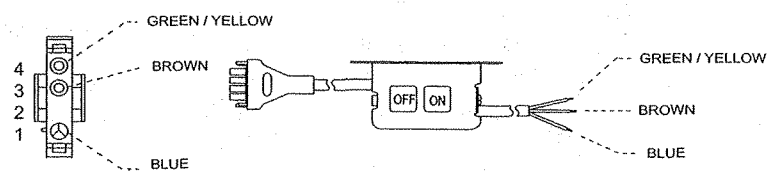
1.5 Power Connection

Attention: 1.For countries which power supply are not stable we would suggest that you should install a power stabilizer.
2.Check the name plate rating to ensure conformance to the line voltage.
3.Make sure that the power cords don't touch the V-belt while the machine is operating.

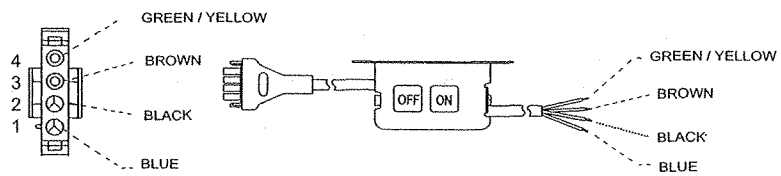
SINGLE PHASE 110V:



SINGLE PHASE 220V:



THREE PHASE 220V:

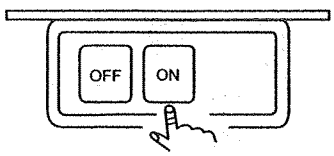


2.2 Operation mode V.S. Key Board

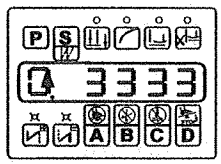
2.2.1 How to enter the【Normal Mode】:

The display is【Normal Mode】

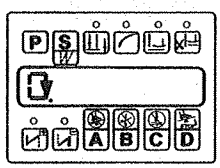
Ture on the power



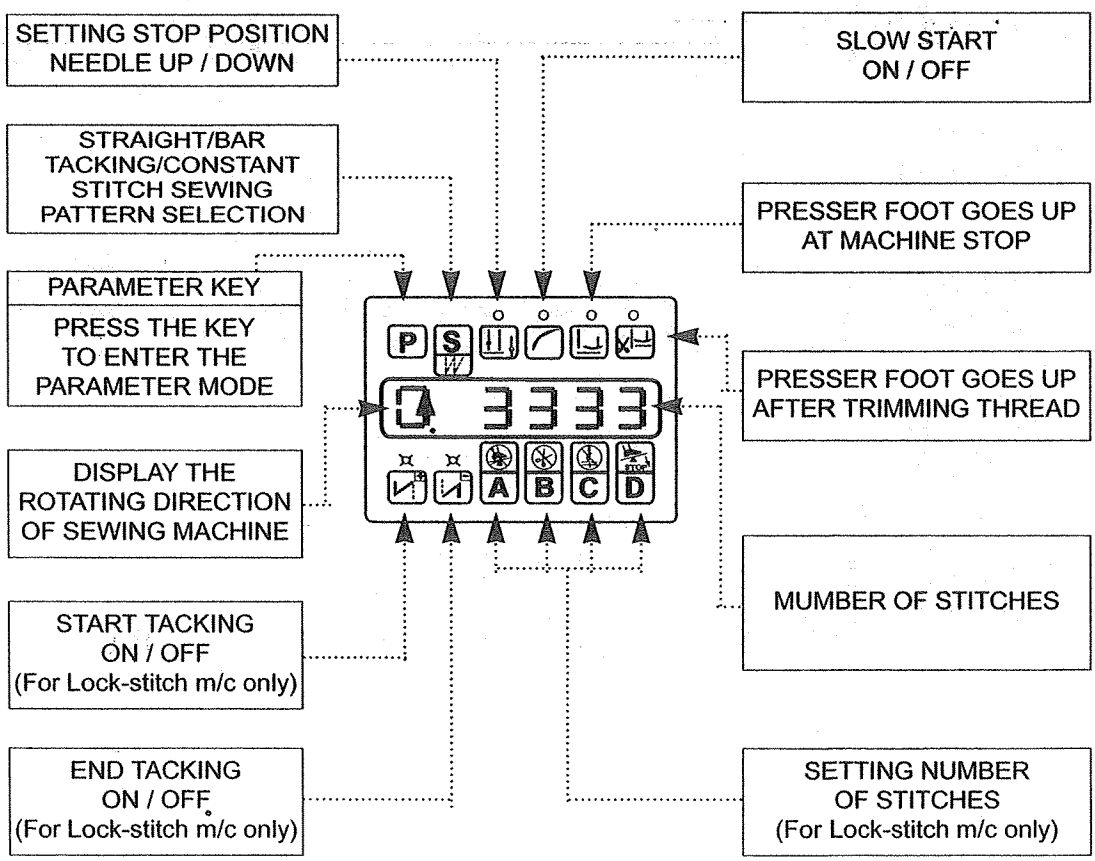
For Lock-stitch machine



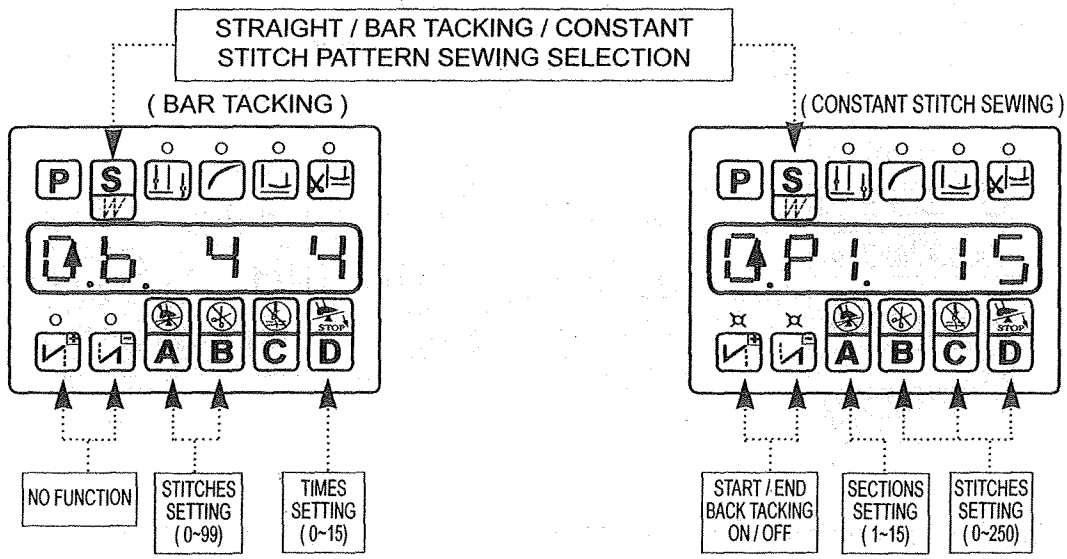
For Interlock-stitch machine



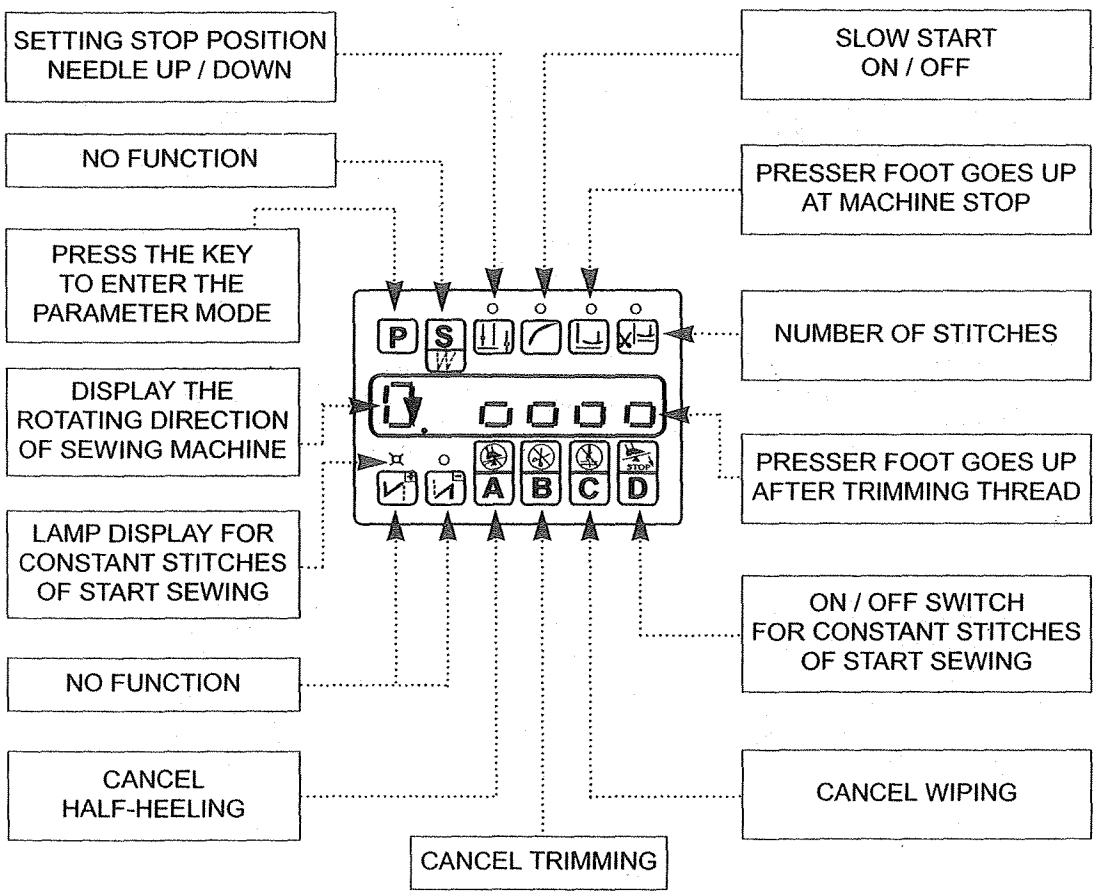
2.2.2 Key Functions in the【Normal Mode】for lock-stitch machines:



2.2.3 Key Functions in the BAR TACKING / CONSTANT STITCH sewing pattern:

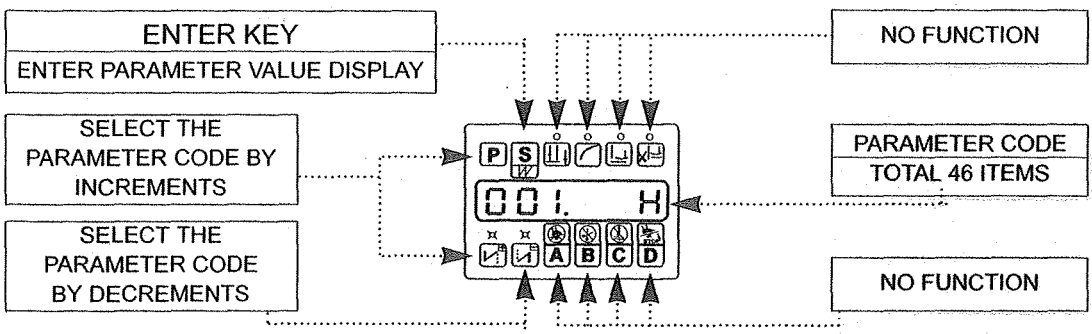


2.2.4 Key Functions in the【Normal Mode】for interlock-stitch machines:

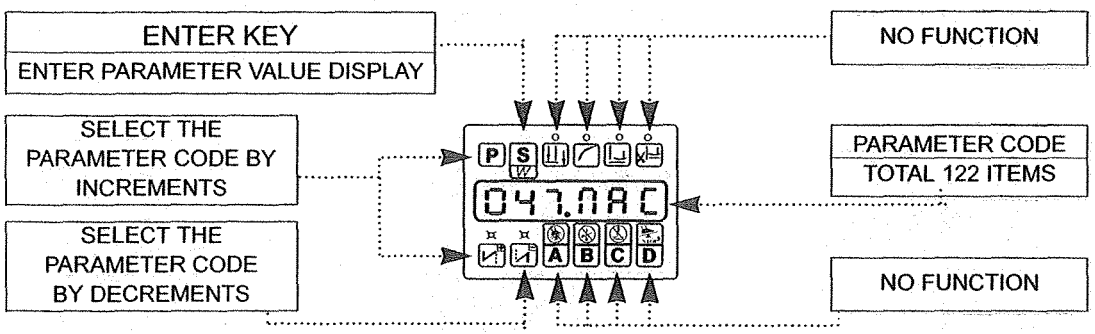


2.2.7 Key Functions in the 〖Parameter Mode A or B〗

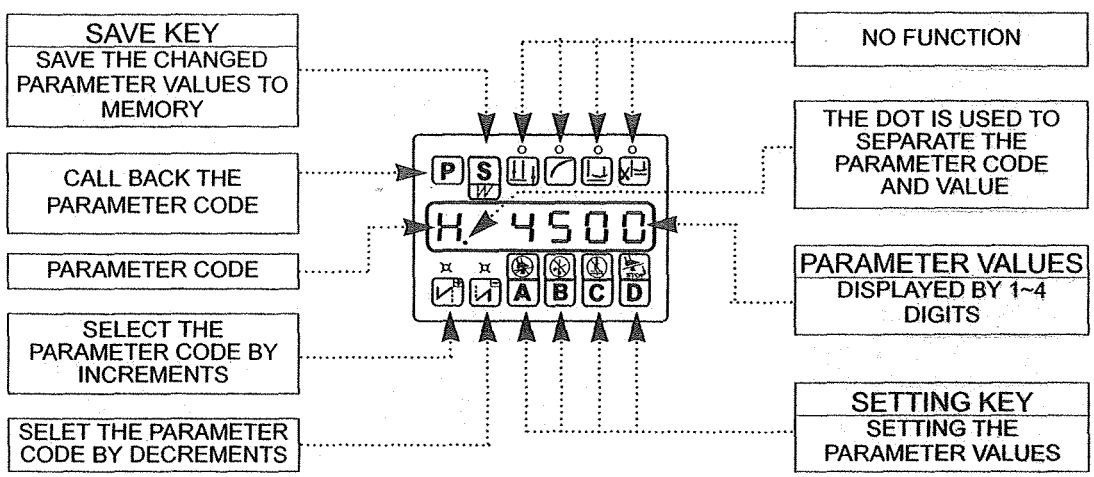
A. Key functions in 〖 Parameter Mode A〗display:



B. Key functions in 〖 Parameter Mode B〗display:



C. Key functions in the 〖 Parameter Value〗display:

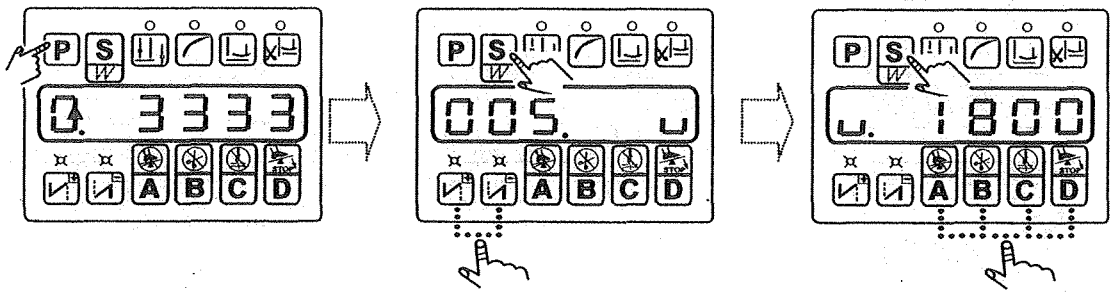


2.3.3 How to set the《End Tacking Speed》

a. Press the [P] key in the【Normal Mode】to enter the【Parameter Mode A】

b. Press the [▽] or [△] key to get【005.V】parameter and then press the [S] key to enter the【Parameter Value】

c. Press the [A][B][C][D] key to adjust the End Tacking Speed
d. Press the [S] key to save value.

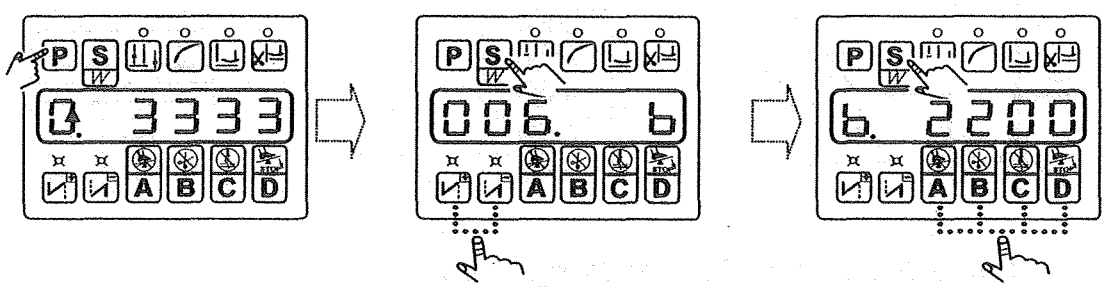


2.3.4 How to set the《Bar Tacking Speed》

a. Press the [P] key in the【Normal Mode】to enter the【Parameter Mode A】

b. Press the [▽] or [△] key to get【006.B】parameter and then press the [S] key to enter the【Parameter Value】

c. Press the [A][B][C][D] key to adjust the Bar Tacking Speed
d. Press the [S] key to save value.

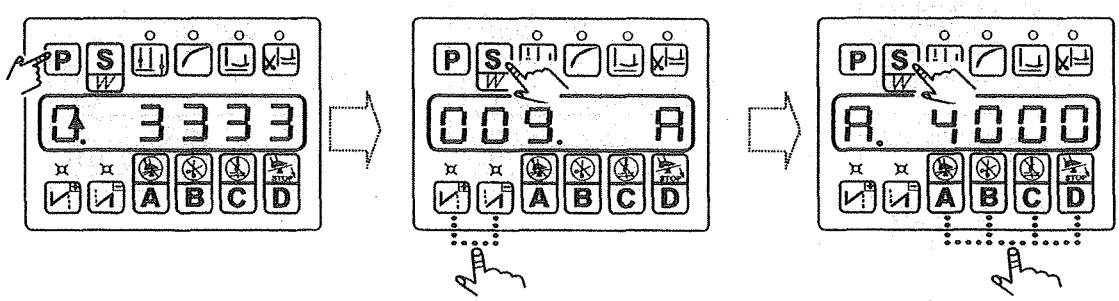


2.3.5 How to set the《Constant-Stitch Sewing Speed》

a. Press the [P] key in the【Normal Mode】to enter the【Parameter Mode A】

b. Press the [▽] or [△] key to get【009.A】parameter and then press the [S] key to enter the【Parameter Value】

c. Press the [A][B][C][D] key to adjust the Constant-Stitch Sewing Speed
d. Press the [S] key to save value

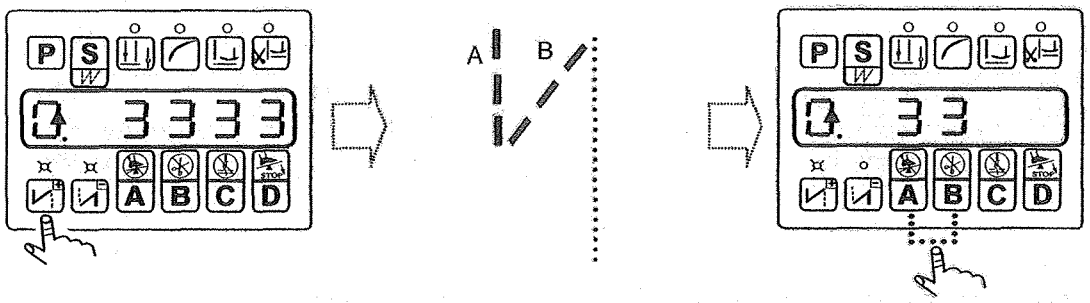


2.4 Basic Pattern Sewing for Lockstitch Machine

2.4.1 How to perform《START / END TACKING》 :

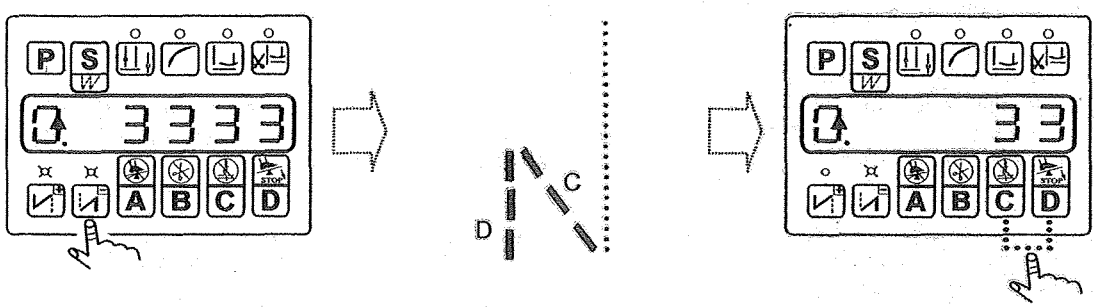
a. Press the key to select 《START TACKING》 in the 【Normal Mode】

b. Press the A B key to set the stitch number of A and B for 《START TACKING》



c. Press the key to select 《END TACKING》 in the 【Normal Mode】

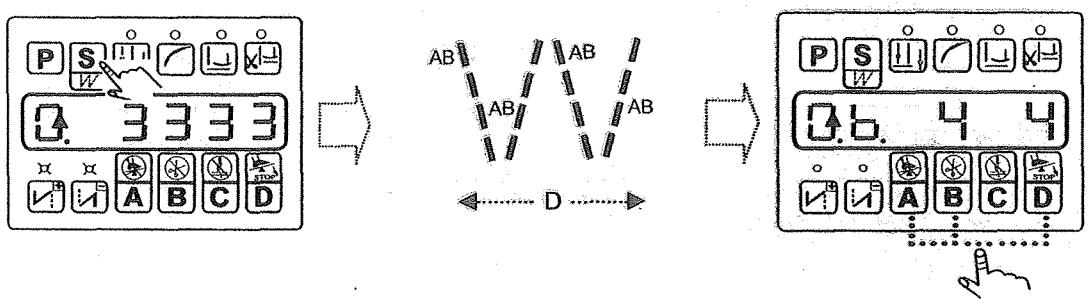
d. Press the C D key to set the stitch number of C and D for 《END TACKING》



2.4.2 How to perform《BAR TACKING》 :

a. Press the S key in the 【Normal Mode】 to enter the【Ab 4 4】Mode

b. Press the A B D key to set the stitch number of AB (0~99) and times of D (0~15)



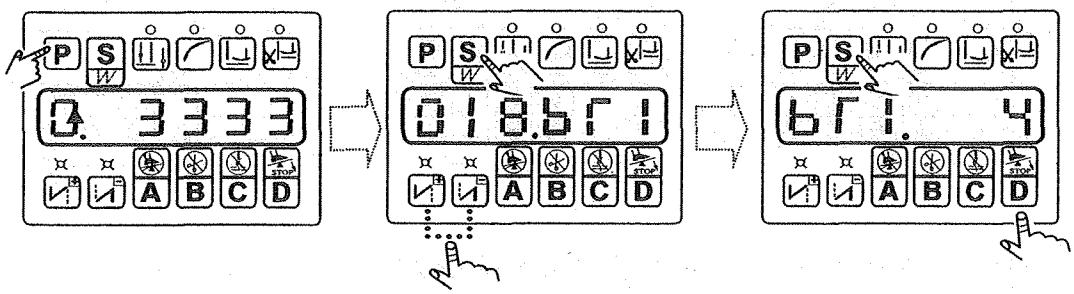
2.5 Stitch balance of Bar Tacking for Lockstitch Machine

2.5.1 Stitch balance for《Start Tacking》

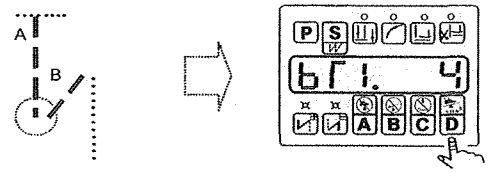
a. Press the [P] key in the【Normal Mode】to enter the【Parameter Mode A】

b. Press the [▽] or [△] key to get【018.BT1】or【019.BT2】parameter and then press the [S] key to enter the【Parameter Value】

c. Press the [D] key to select value 1~F as balance weight for BT 1 or BT2
d. Press the [S] key to save values

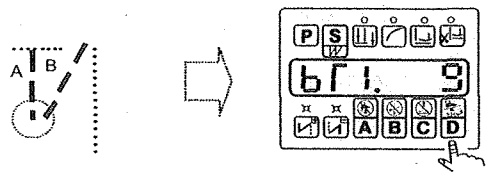


Example: Step 1 : Setting stitch numbers for Start Tacking A and B=3
Step 2 : Sewing the pattern in normal speed
Step 3 : If unbalanced situation is appeared please correct it as below:



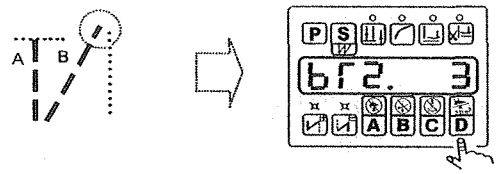
Case 1 : Longer A and Shorter B

Adjustment: Select a value in the range of 1~8 for BT1



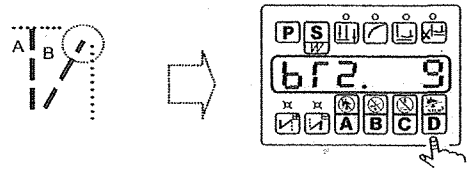
Case 2 : Shorter A and Normal B

Adjustment: Select a value in the range of 9~F for BT1



Case 3 : Normal A and Longer B

Adjustment: Select a value in the range of 1~8 for BT2



Case 4 : Normal A and Shorter B

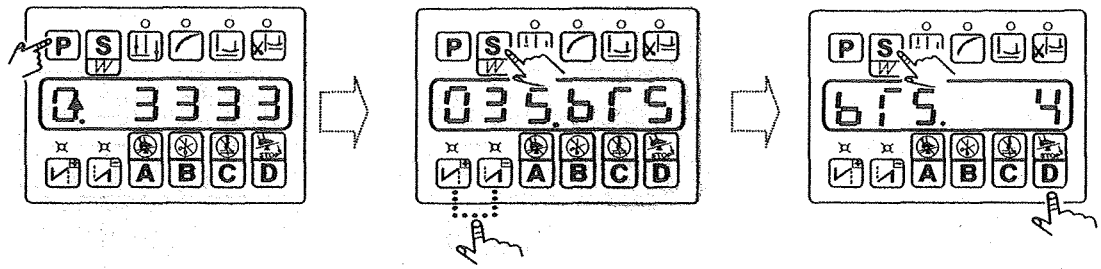
Adjustment: Select a value in the range of 9~F for BT2

2.5.3 Stitch balance for《Bar Tacking》

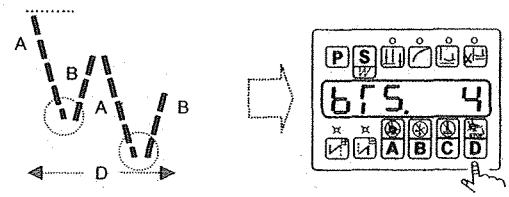
a. Press the [P] key in the【Normal Mode】to enter the【Parameter Mode A】

b. Press the [↑] or [↓] to get【035.BT5】or【036.BT6】parameter and then press the [S] key to enter the【Parameter Value】

c. Press the [D] key to select value 1~F as balance weight for BT 5 or BT6
d. Press the [S] key to save values

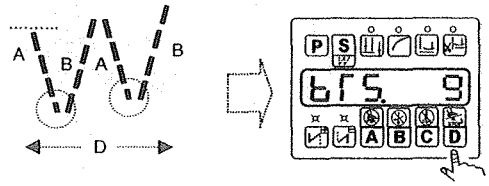


Example: Step 1 : Setting stitch numbers for Bar Tacking A=B=4 and D=4
Step 2 : Sewing the pattern in normal speed
Step 3 : If unbalanced situation is appeared please correct it as below:



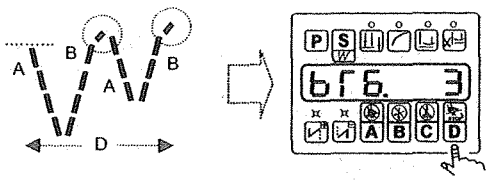
Case 1 : Longer A and Shorter B

Adjustment: Select a value in the range of 1~8 for BT5



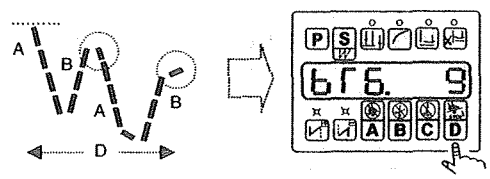
Case 2 : Shorter A and Normal B

Adjustment: Select a value in the range of 9~F for BT5



Case 3 : Normal A and Longer B

Adjustment: Select a value in the range of 1~8 for BT6



Case 4 : Normal A and Shorter B

Adjustment: Select a value in the range of 9~F for BT6

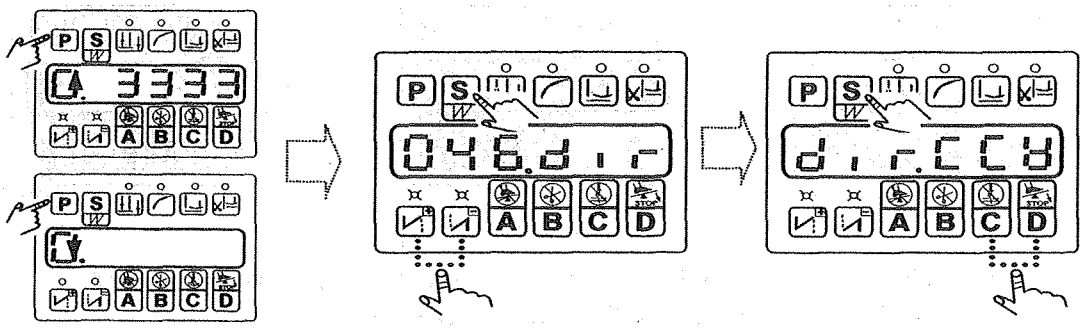
2.6 Basic parameter setting for Interlock Stitch Machine

2.6.1 How to set《Direction Of Motor Rotation》:

a. Press the [P] key in the 【Normal Mode】to enter 【ParameterMode A】

b. Press the [▲] or [▼] key get the parameter code【046.DIR】
c. Press the [S] key to enter 【Parameter Value】

d. Press the [C][D] key to change parameter value
e. Press the [S] key to save values

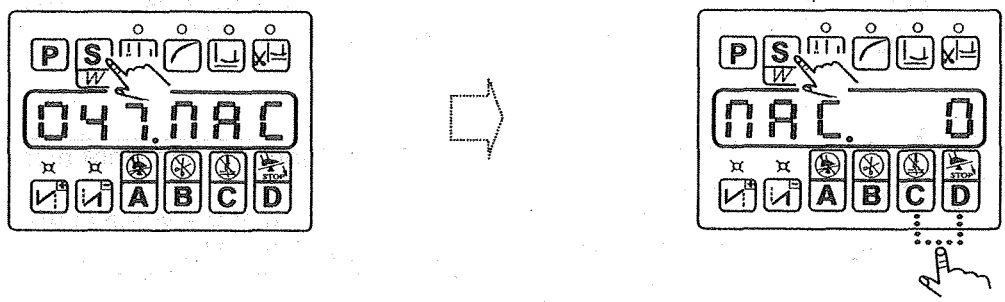


2.6.2 How to set《Machine Code》:

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the 【Parameter Mode B】

c. Press the [S] key to enter the【Parameter Value】

d. Press the [C][D] key to set Machine Code.



Basic Machine Codes List for Interlock Stitch machine:

Machine Brand	Available Code	Preset Code	Machine Brand	Available Code	Preset Code
BROTHER	3	3	SHING LING	31	31
DINO'S UT DEVICE	32~34	34	SHING RAY	31	31
GOLDEN WHEEL	76~79	76	SUNSHINE	29~31	31
KANSAI SPECIAL	69~72	69	UNION SPECIAL	37~39	38
KINGTEX	40~43	40	WOOSUN	29~31	31
PEGASUS	5~12	6	YAMATO	54~57	54
SIRUBA	20~23,56	21			

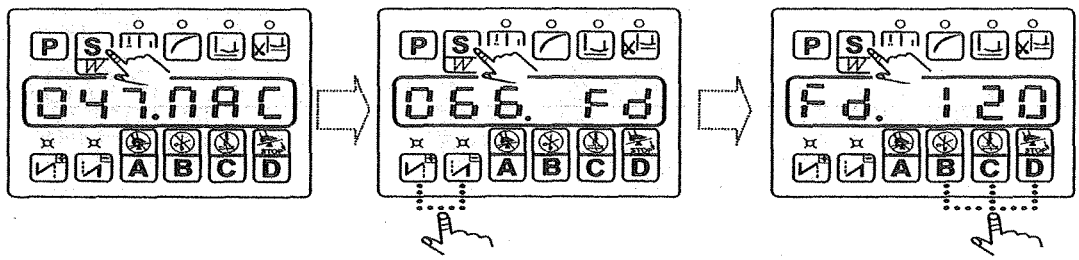
2.6.3 How to set《Running Delay Time》:

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▽ or △ key to get the parameter code【066. FD】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [B][C][D] key to set the needed value within the range of 10~990 ms
f. Press the [S] key to save values



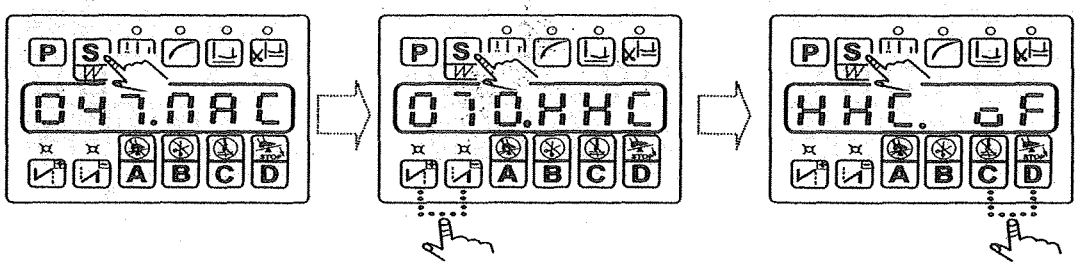
2.6.4 How to set《Half-Heeling Cancel》function for foot lifting

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▽ or △ key to get the parameter code【070.HHC】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [C][D] key to set the value【HHC. ON】for disable foot lifting by half-heeling pedal.
f. Press the [S] key to save values



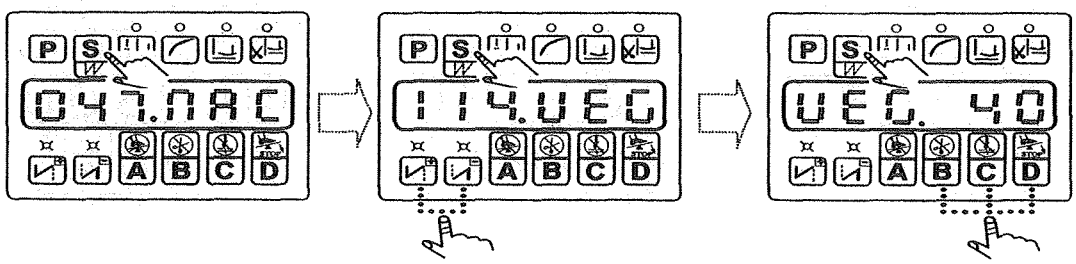
2.6.5 How to set《Fine Postitioning》for needle up position (For built-in synchronizer only)

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▽ or △ key to get the parameter code【114.UEG】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [B][C][D] key to set the needed value to get accurate needle up positioning
f. Press the [S] key to save values



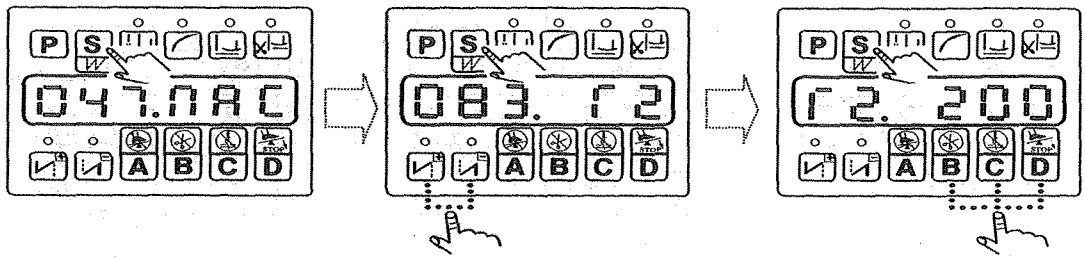
2.6.6 How to set《Trimming Time》:

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▲ or ▼ key to get the parameter code【083. T2】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [B][C][D] key to set the trimming time
f. Press the [S] key to save values



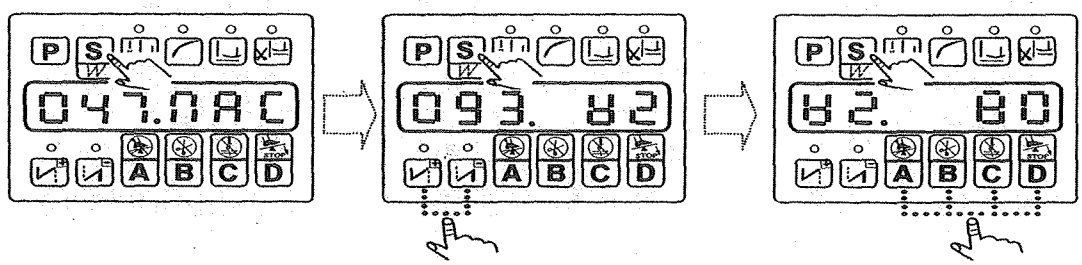
2.6.7 How to set《Wiping or Blowing Time》:

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▲ or ▼ key to get the parameter code【093. W2】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [A][B][C][D] key to set the wiping or blowing time
f. Press the [S] key to save values



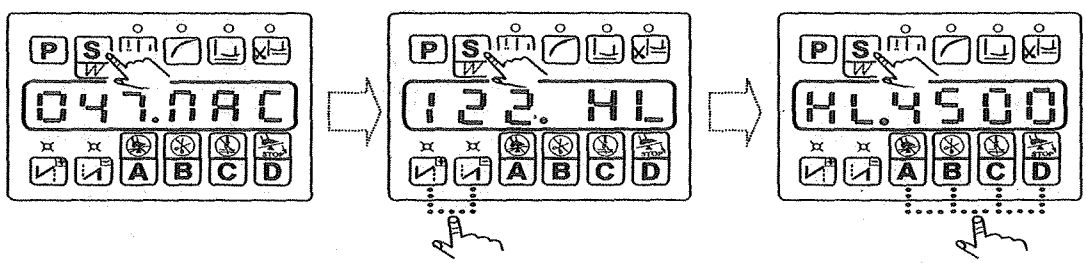
2.6.8 How to set《High Speed Limit》:

Step a. & b. : Doing the same steps of a and b of Item 2.2.6 to enter the【Parameter Mode B】

c. Press the ▲ or ▼ key to get the parameter code【122. HL】
d. Press the [S] key to enter the【Parameter Value】

→

e. Press the [A][B][C][D] key to set the needed high speed limitation
f. Press the [S] key to save values



2.7 Parameter Table:

2.7.1 Parameter in【 Parameter Mode A and B 】 → The values are pre-set for HVP-60-3-7W

PARAMETER CODE	PARAMETER FUNCTION	RANGE / UNIT	DEFAULT	KEY	DESCRIPTION
【001. H】	Maximum sewing speed (H)	150~8000spm	4500	A.B.C.D	Maximum speed adjustments.
【002.PSL】	Speed curve adjustment (PSL)	1~100%	80	C.D	The larger the value the faster to up speed.
【003. NUD】	Needle UP / DOWN (NUD)	UP / DN	DN	C.D	DN : Needle stops at down position UP :Needle stops at Up position
【004. N】	Start Back-Tacking speed (N)	100~6375 spm	1800	A.B.C.D	Start Back-Tacking speed adjustment.
【005. V】	End Back-Tacking speed (V)	100~6375 spm	1800	A.B.C.D	End Back-Tacking speed adjustment.
【006. B】	Bar-Tacking speed (B)	100~6375 spm	2200	A.B.C.D	Repeat Back-Tacking speed adjustment.
【007. S】	Soft start speed (S)	100~3000 spm	400	A.B.C.D	Slow start speed adjustment.
【008.SLS】	Stitch numbers for soft start (SLS)	0~99 Stitches	2	C.D	Slow start stitches setting.
【009. A】	Automatic Constant-Stitch sewing speed (A)	300~6375 spm	4000	A.B.C.D	Valid only at the【 037.SMP 】is set A.
【010.ACD】	Automatic sewing End Back-Tacking (ACD)	ON / OFF	ON	C.D	Valid only at the last seam of constant-stitch sewing
【011.RVM】	Back-Tacking Mode selection (RVM) J=JUKI,B=BROTHER	J / B	J	C.D	J mode :Active when motor stops or running B mode:Active only when motor running.
【012.SMS】	Mode selection for Start Back-Tacking (SMS)	A / M / SU / SD	A	D	A : One shot sewing. M : Control by pedal, can stop at middle way. SU:One shot sewing but motor stops at needle up by CT timer at the end of each seam. SD:One shot sewing but motor stops at needle down by CT timer at the end of each seam.
【013.TYS】	Mode selection at the end of Start Back-Tacking (TYS)	CON /STP / TRM	CON	D	CON: At the of end 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 End Back-Tacking finished.(Mini Back-Tacking)
【014.SBT】	Start Back-Tacking selection (SBT)	ON / OFF	ON	C.D	Valid only when the C-30 panel is disconnected.
【015.SBA】	Setting stitches A of Start Back-Tacking (SBA)	0~15 Stitches	3	C.D	
【016.SBB】	Setting stitches B of Start Back-Tacking (SBB)	0~15 Stitches	3	C.D	
【017.SBN】	Setting turns of Start Back-Tacking (SBN)	0~4 times	2	D	
【018.BT1】	Stitch balance for Start Back-Tacking 1 (BT1)	1/4,1/2,3/4,1.0,1 1/4, 1 1/2, 1 3/4, 2.0 stitches -1/4,-1/2,-3/4,-1.0,-1 1/4, --1 1/2, -1 3/4, stitches every 1/4 stitch adjusted	4	C.D	BT1=0 : Invalid BT1=1~8 Increase stitches of reverse seam BT1=9~F : Increase stitches of forward seam
【019.BT2】	Stitch balance for Start Back-Tacking 2 (BT2)		3	C.D	BT2=0 : Invalid BT2=1~8 Increase stitches of forward seam BT2=9~F : Increase stitches of reverse seam
【020.SME】	Mode selection for End Back-Tacking (SME)	A / SU / SD	A	D	A : One shot sewing. SU: One shot sewing but machine stops up position by CT timer at the end of each seam. SD: One shot sewing but machine stops down position by CT timer at the end of each seam.
【021.EBT】	End Back-Tacking selection (EBT)	ON / OFF	ON	C.D	Valid only when the C-30 panel is disconnected.
【022.EBC】	Setting stitches C of End Back-Tacking (EBC)	0~15 Stitches	3	C.D	
【023.EBD】	Setting stitches D of End Back-Tacking (EBD)	0~15 Stitches	3	C.D	
【024.EBN】	Setting turns of End Back-Tacking (EBN)	0~4 times	2	D	

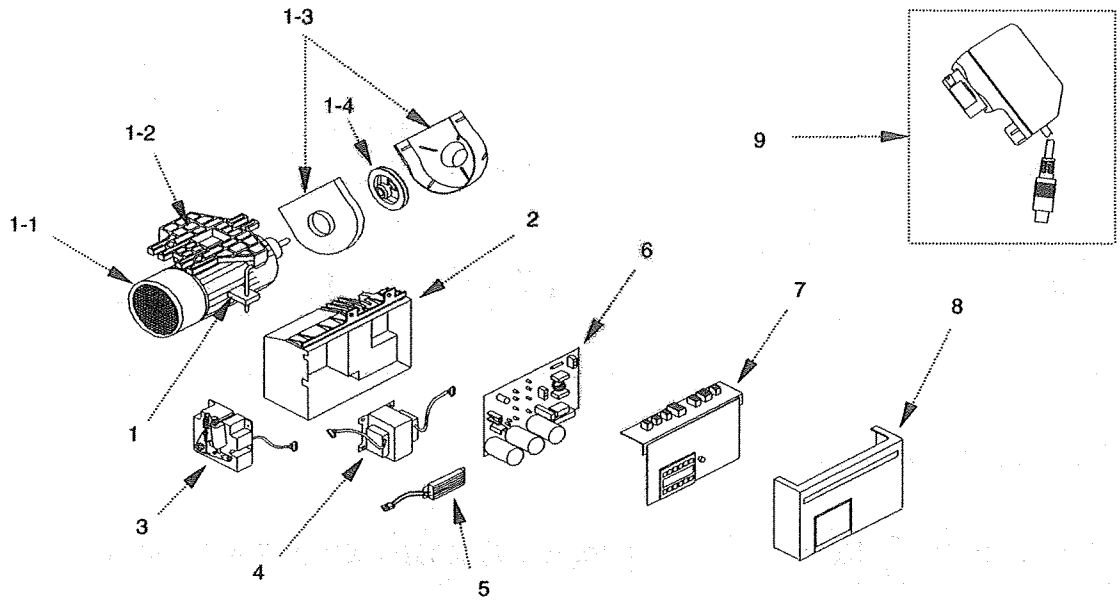
PARAMETER CODE	PARAMETER FUNCTION	RANGE / UNIT	DEFAULT	KEY	DESCRIPTION
【025.BT3】	Stitch balance for End Back-Tacking 3 (BT3)	1/4,1/2,3/4,1.0,1 1/4, 1 1/2, 1 3/4, 2.0 stitches -1/4,-1/2,-3/4,-1.0,-1 1/4, --1 1/2,-1 3/4, stitches every 1/4 stitch adjusted	2	C.D	BT3=0:Invalid, BT3=1~8:Increase stitches of forward seam BT3=9~F: Increase stitches of reverse seam
【026.BT4】	Stitch balance for End Back-Tacking 4 (BT4)		1	C.D	BT4=0:Invalid, BT4=1~8:Increase stitches of reverse seam BT4=9~F: Iicrease stitches of forward seam
【027. CT】	Setting time interruption at each section end of Back-Tacking(CT)	0~990 ms	50	B.C.D	Corner stop timer. Valid only at SMS,SME,SMB setting SU / SD.
【028.SB5】	15 stitches plus on Start / End Back-Tacking (SB5)	ON / OFF	OFF	C.D	Additional 15 stitches are added to the Start and End Back-Tacking stitches.
【029.SB9】	0~99 stitches plus on Start / End Back-Tacking (SB9)	0~99 stitches	0	C.D	Additional setting stitches are added to the Start and End Back-Tacking stitches.
【030.BCC】	Added 1 stitch to the C segment of End Back-Tacking (BCC)	ON / OFF	ON	C.D	ON: Valid, OFF: Invalid
【031.SMB】	Mode selection for Bar-Tacking (SMB)	A/M/SU/SD	A	D	A : One shot sewing. M : Control by pedal, can stop at middle way. SU:One shot sewing but motor stops at needle up by CT timer at end of each seam. SD:One shot sewing but motor stops at needle down by CT timer at end of each seam.
【032.BAR】	Bar-Tacking selection (BAR)	ON / OFF	OFF	C.D	ON: Perform, OFF: Not perform
【033.BRC】	Setting stitches of Bar-Tacking (BRC)	0~99 stitches	4	C.D	One setting for all seams
【034.BRN】	Setting seam times of Bar-Tacking (BRN) 0=(Infinited times)	0~15 Times	4	C.D	Setting the seam times of Bar-Tacking.
【035.BT5】	Stitch balance for Bar-Tacking 5 (BT5)	1/4,1/2,3/4,1.0,1 1/4, 1 1/2, 1 3/4, 2.0 stitches -1/4,-1/2,-3/4,-1.0,-1 1/4, --1 1/2,-1 3/4, stitches every 1/4 stitch adjusted	4	C.D	BT5=0:Invalid, BT5=1~8:Increase stitches of reverse seam BT5=9~F: Increase stitches of forward seam
【036.BT6】	Stitch balance for Bar-Tacking 6 (BT6)		3	C.D	BT6=0:Invalid, BT6=1~8:Increase stitches of forward seam BT6=9~F: Increase stitches of reverse seam
【037.SMP】	Mode selection for Constant-Stitch sewing (Path Sewing) (SMP)	A / M	M	C.D	A: One shot pattern sewing. M: Manual control by pedal or START signal (standing operation)
【038. PM】	Constant-Stitch sewing selection (PM)	ON / OFF	OFF	C.D	ON: Perform, OFF: Not perform
【039. PS】	Setting stitches for Section 1 of constant-stitch sewing	0~250 Stitches	15	B.C.D	Stitches setting of seam P1~PF Valid only when the Operation Panel C-30 is diconnected and [038. PM] set ON
	Setting stitches for Section 2 of constant-stitch sewing	0~250 Stitches	15	B.C.D	
	Setting stitches for Section 3 of constant-stitch sewing	0~250 Stitches	15	B.C.D	
	Setting stitches for Section 4 of constant-stitch sewing	0~250 Stitches	15	B.C.D	
	Setting stitches for Section 5~F	0~250 Stitches	0	B.C.D	
【040.WON】	Wiper function selection (WON)	ON / OFF	ON	C.D	ON : Perform, OFF: Not perform
【041. TM】	Timmer function selection (TM)	ON / OFF	ON	C.D	ON : Perform, OFF: Not perform
【042.FSM】	Presser Foot UP/DOWN at intermidiate stop (FSM)	UP / DN	DN	C.D	UP: At intermediate stop, presser foot goes up DN: At intermediate stop, presser foot keeps down
【043.FTM】	Presser Foot UP/DOWN after trimming (FTM)	UP / DN	DN	C.D	UP: After Trimming stop, presser foot goes up DN: After Trimming stop, presser foot keeps down
【044. PN】	Numbers of sewing piece (PN)	0~9999	0		Counting the products quantity.
【045. SP】	Sewing speed (SP)		0		Showing the current sewing speed.
【046.DIR】	Direction of motor rotation (DIR)	CW / CCW	CCW	C.D	CCW:Lockstitch, CW:Overlock,Interlock-stitch

2.7.2 Parameter in 【 Parameter Mode B 】 only → The values are pre-set for HVP-60-3/4-66

PARAMETER CODE	PARAMETER FUNCTION	RANGE / UNIT	DEFAULT	KEY	DESCRIPTION
【047.MAC】	Machine Code (MAC)	0~82	6	C.D	Machine code setting.
【049.SPD】	Machine's pulley dimension (SPD)	50~200mm	65	B.C.D	Setting machine pulley size.
【050.MPD】	Motor's pulley dimension (MPD)	50~150mm	100	B.C.D	Setting motor pulley size.
【054.BK】	Motor braked at normal stop (BK)	ON / OFF	OFF	C.D	ON: Motor stop with brake function.
【057.TRU】	The back angle when Motor finish the trimming sequence.(Lockstitch M / C only)	ON / OFF	OFF	C.D	Valid only when the LK mode is selected in the 【 078.TRM 】 ON:When motor finished the trimming cycle, enable the motor backward function.
【058.TR8】	Motor returned angles after trimming (TR8)	0~255 Degree	40	B.C.D	Valid when 【 057.TUR 】 set ON.
【064.FO】	Full-On time setting for Foot Lifter (FO)	0~990ms	400	B.C.D	Properly set the value to keep good performance of Foot Lifter is essencial.
【065.FC】	Duty-Cycle time setting for Foot Lifter (FC)	10~90%	50	C.D	Properly set the value to keep good performance of Foot Lifter is essencial.
【066.FD】	Running-Delay time setting (FD)	0~990ms	120	B.C.D	If Foot Lifter is installed, set 120 ms min.
【070.HHC】	Cancel Foot Lifting at Half-Heeling pedal (HHC)	ON / OFF	OFF	C.D	ON: Pedal half heeling without foot lifting function.
【075.SFM】	Emergency stop mode for Trimming protection (SFM) N.O.=1=Normal Opened. N.C.=0=Normal Closed	N.C. / N.O.	NC	C.D	Trimmer device protection for Interlock Stitch machine. Properly setting the value according to the machine brand and model.
【078.TRM】	•Motor running mode at trimming sequence (TRM) •Motor stops in turning back of CHINA-STITCH M/C	LK,RK,KA,KB	KA	D	LK: Trimming from needle down to up. RK: Turning back to up stop (For Non-UT device Interlock stitch machine) KA: Interlock Stitch machine trimming mode. KB: Special Interlock Stitch machine trimming mode.
【082.T1】	Delayed timing prior to trimmer engaged (T1)	0~990ms	100	B.C.D	Trimming sequence setting.
【083.T2】	Extended timing of trimming beyong up-stop (T2)	0~990ms	200		
【086.L1】	Delayed timing prior to tension release engaged (L1)	0~990ms	340	B.C.D	Tension release sequence setting.
【087.L2】	Extened timing of tension release beyong up-stop (L2)	0~1500ms	80	A.B.C.D	
【092.W1】	Delayed timing prior to wiper engaged (W1)	0~980ms	340	B.C.D	Time setting between needle up to wiper active.
【093.W2】	Setting timing of wiping (W2)	0~9990ms	80	A.B.C.D	Wiper sequence.
【094.WF】	Delayed timing prior to Foot Lifter engaged (WF)	0~990ms	50	B.C.D	Time setting between wiper active to presser foot active.
【114.UEG】	Stop angles in pulse from edge to up-stop (UEG)	5~250 Pules	40	B.C.D	Fine adjust the needle stops at up position. (40 is the central value)
【116.DRU】	Reverse angles through Needle down(DRU)	0~255 Degrees	180	B.C.D	Valid only when the RK mode is selected in the Parameter Code 【 078.TRM 】
【121.ANU】	Needle goes up as power turned on (ANU)	ON / OFF	ON	C.D	ON: Power turned on, needle goes up automatically.
【122. HL】	Maximum sewing speed limiter (HL)	150~8000spm	4500	A.B.C.D	The available high speed will be limited by this parameter value.

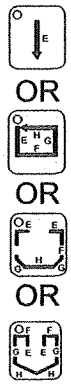
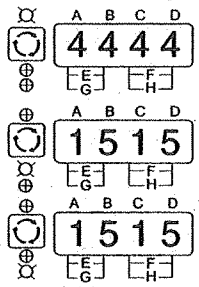
ENGLISH

3.2 Parts list



ENGLISH

REF.NO.	ORDER CODE	PART NAME	SPEC.	REF.NO.	ORDER CODE	PART NAME	SPEC.
1	2VP14431013J1	MOTOR ASSEMBLY	100-120 V	7	2VP603087W001	MAIN BOARD	HVP-60-3-7W
	2VP34432013J1	MOTOR ASSEMBLY	200-240V		2VP60308BR001	MAIN BOARD	HVP-60-3-BR
	2VP34432013J2	MOTOR ASSEMBLY	200-240V		2VP6030811001	MAIN BOARD	HVP-60-3-11
1-1	315ECV030	END COVER			2VP6030827001	MAIN BOARD	HVP-60-3-27
1-2	2VPBTV01002	MOUNTING BASE			2VP6030866001	MAIN BOARD	HVP-60-3/4-66
1-3	2VPBGV040	BELT COVER ASSEM.			2VP6030870001	MAIN BOARD	HVP-60-3/4-70
	2VPBGV050	BELT COVER ASSEM.			2VP6030898001	MAIN BOARD	HVP-60-3/4-98
1-4	2CL2PYB180V	PULLEY	70 mm		2VP60308LT001	MAIN BOARD	HVP-60-3/4-LT
	2CL2PYB030V	PULLEY	90 mm				
	2CL2PYB050V	PULLEY	100 mm				
2	2VP60007001	BOX HOUSING		8	315MPB210	BOX COVER	
3	2VP60106001	PEDAL UNIT	REGULAR				
	2VP60106003	PEDAL UNIT	CE TYPE				
4	321TFS250	TRANSFORMER	100-120 V	9	2VP115002900	SYNCHRONIZER	#500-29
	321TFS230	TRANSFORMER	200-240 V		2VP115003000	SYNCHRONIZER	#500-30
5	2VP60104101	CEMENT RESISTER	100-120 V				
	2VP60104201	CEMENT RESISTER	200-240V				
6	2VP60103101	POWER BOARD	100-120V				
	2VP60103201	POWER BOARD	200-240V				

Constant-stitch Sewing		1.As the treadle is toed down, Constant-stitch Sewing E,F,G or H performs section by section. 2.Once the treadle returns to neutral intermediately in any one section, the machine will stop immediately. When the treadle is toed 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 go trimming at the end of the last section E.F,G or H.
Stitch Setting Selection		A,B,C,D stitch setting are in range of 0 to 9, E,F,G,H stitch setting are in range of 0 to 99.  Means A=B=C=D=4 stitches. Means E=F=15 stitches. Means G=H=15 stitches.
Needle Up / Forward Stitch Correction		1.At the pattern of Free Sewing, one touch of the key will correct half-stitch. 2.At the Constant-stitch Sewing, if machine stops intermediately in one section, one touch of the key will raise the needle to up position, if machine stops at the end of section, one touch of the key will correct one stitch forward.
One-Shot-Sewing Selection		At the Constant-stitch Sewing, automatic sewing for each section is available by one shot to the pedal.
Trimming Selection		Setting the trimming function to be enable or disable.

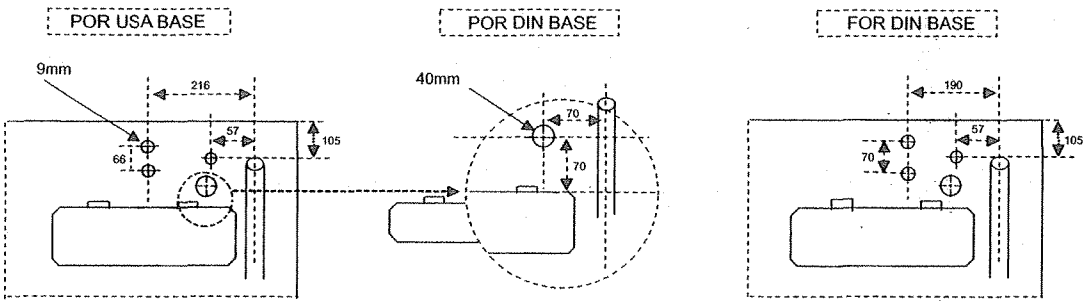
Modelo : Series HVP - 60
CPU Edición 2.5

Contenidos

ESPAÑOL

1. Instalación

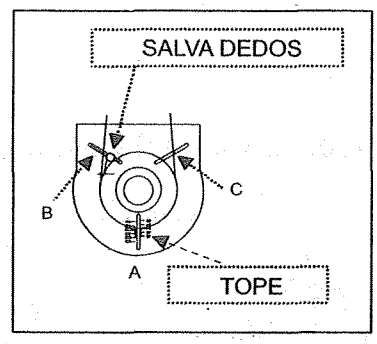
1.1 Instalación del Motor



1.1.1 Proforar 3(9mm) y 1(40mm) agujeros en tablero de costura como diagrama arriba.
1.1.2 El motor tiene que ser montado de forma que las poleas del motor y de la máquina de coser estén alineadas.

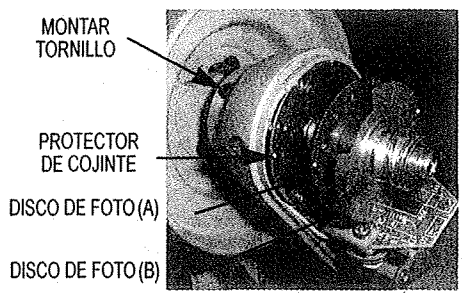
ESPAÑOL

1.2 Instalación del Protector de la Correa



1.2.1 Instalación de Protector de Correa en soporte.
1.2.2 Ajustar tope A sobre la tapa en la posición apropiada, al fin que la correa trapezoidal no pueda caer , aunque se deje suelta.
1.2.3 Para modelo CE,los salva dedos en ranura B (Máquina Pespunte) o ranura (Máquina Interlock puntada) tienen que ajustarse en su propia posición de 10mm de distancia de la V-correa.

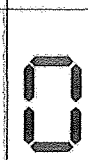
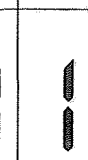
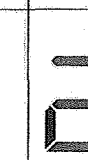
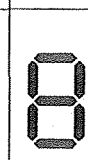
1.3 Instalación del Sincronizador

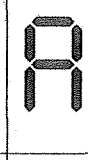
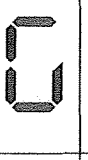
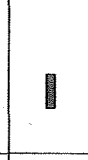
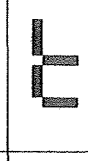
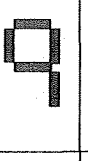
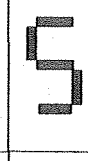
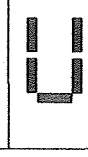


1.3.1 Montar el sincronizador en borde de la polea de la máquina y apretar el rotor por medio de los tornillos para evitar vibración cuando gira.
1.3.2 Ajuste posición:
a. Posición de Aguja Arriba:
Girar el volante hacia adelante , hasta posición de aguja arriba y girar el disco de foto A hasta que su marca roja coincida con la placa roja de la placa del protector del cojinete.
b. Posición de Aguja Abajo:
Girar el volante hacia adelante, hasta mecánica posición de aguja arriba y girar el disco de foto B hasta que su marca azul coincida con la marca roja de la placa del protector del cojinete.

2. Operación

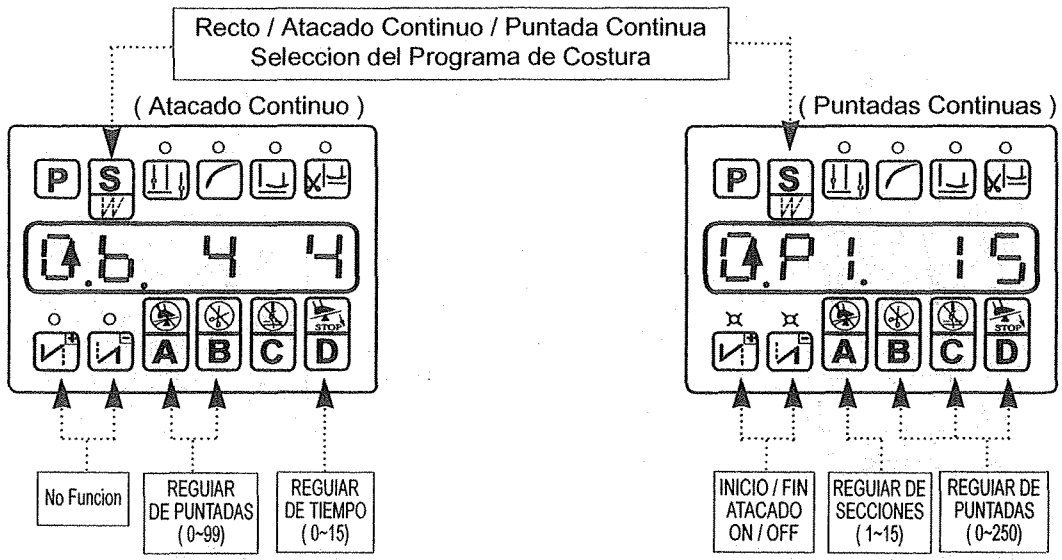
2.1 Visor digital en el teclado

NUMERO ARABIGO	0	1	2	3	4	5	6	7	8	9
VISOR DIGITAL										

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

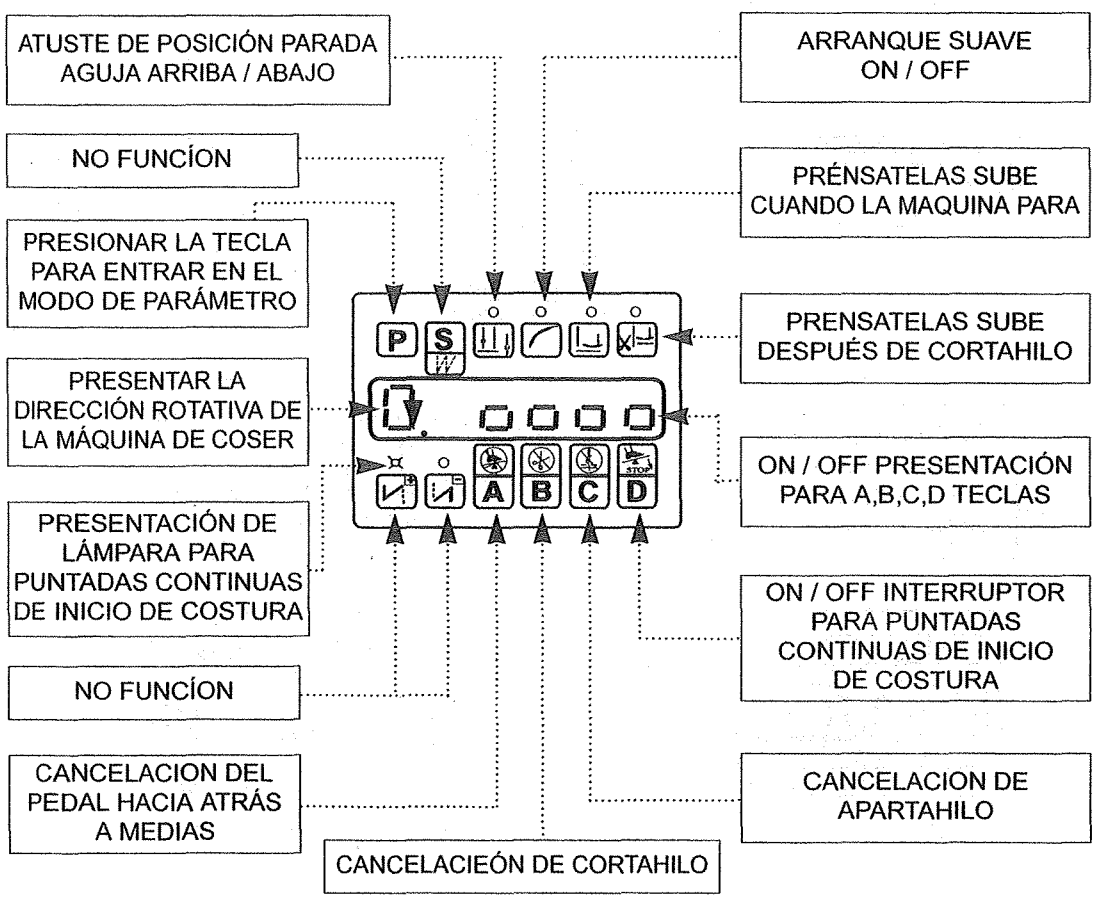
ESPAÑOL

2.2.3 Funciones del teclado en 【Atacado Continuo y Costura Continua de la Costura 】



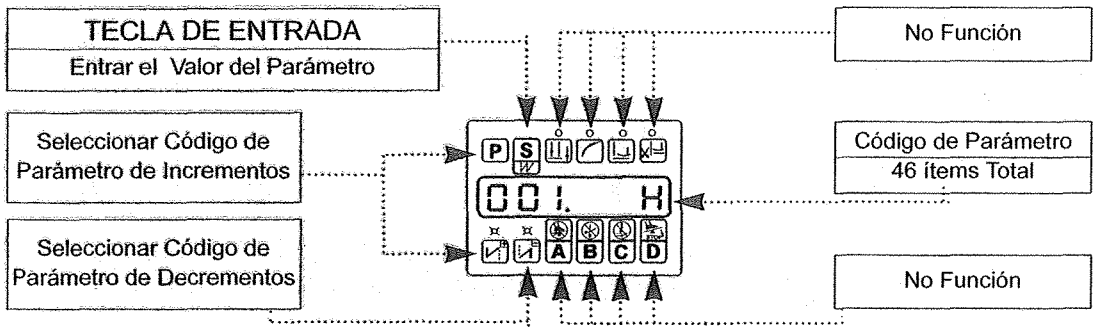
ESPAÑOL

2.2.4 Funciones de Tecla en el 【Modo Normal】para la máquina interlock:

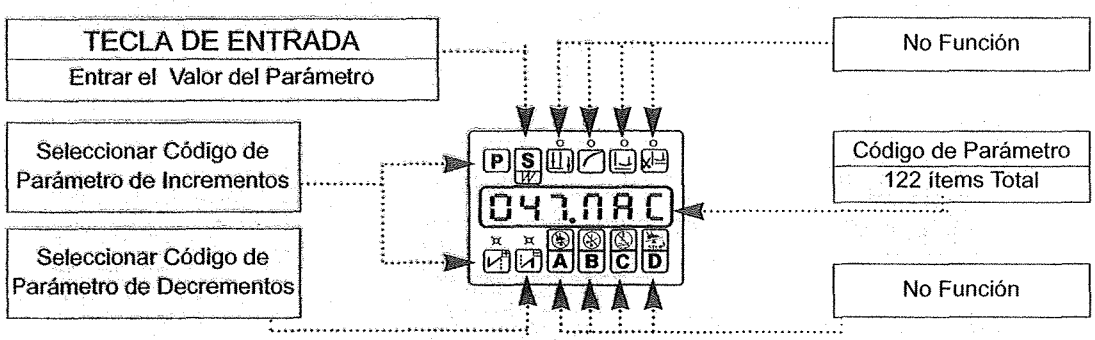


2.2.7 Funciones del teclado en el【Modo A o B de Parámetro】

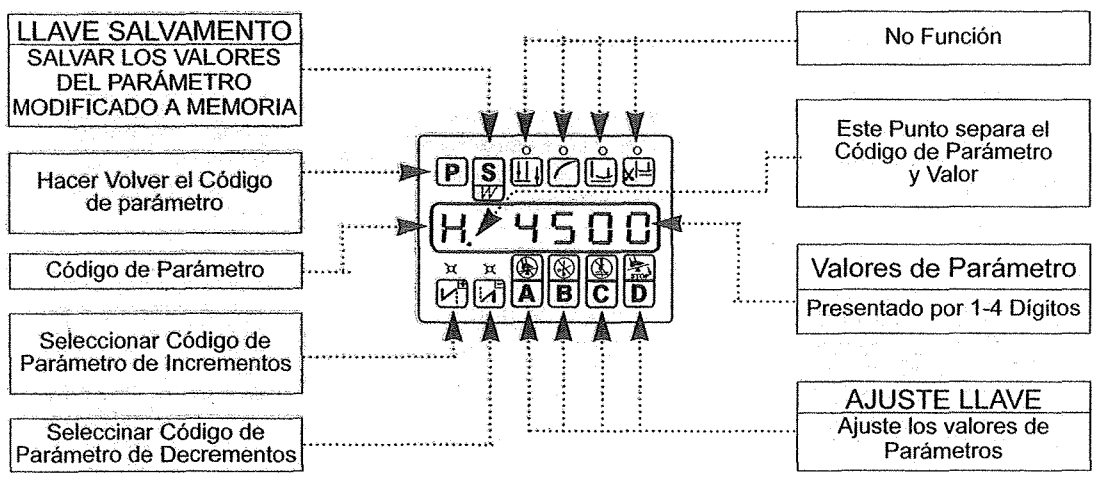
A. Presentación de los funciones de la tecla en 【Modo A de parámetro】



B. Presentación de los funciones de la tecla en 【Modo B de Parámetro】



C. Presentación de los funciones de la tecla en【Valor de Parámetro】



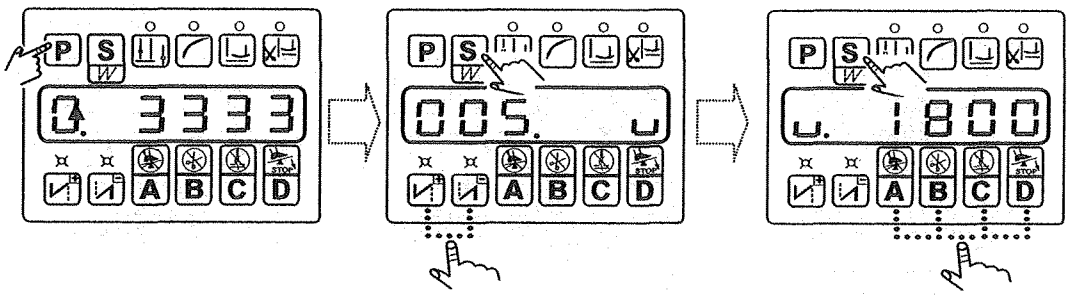
ESPAÑOL

2.3.3 Cómo regular la《Velocidad de Final del Atacado》

a. Presionar [P] para entrar el【Modo A de Parámetro】

b. Presionar [▲] o [▼] para obtener el parámetro【005.V】y pues presionar [S] entrar el【Valor de Parámetro】

c. Presionar [A][B][C][D] para ajustar la Velocidad de Final del Atacado
d. Presionar [S] para salvar el valor

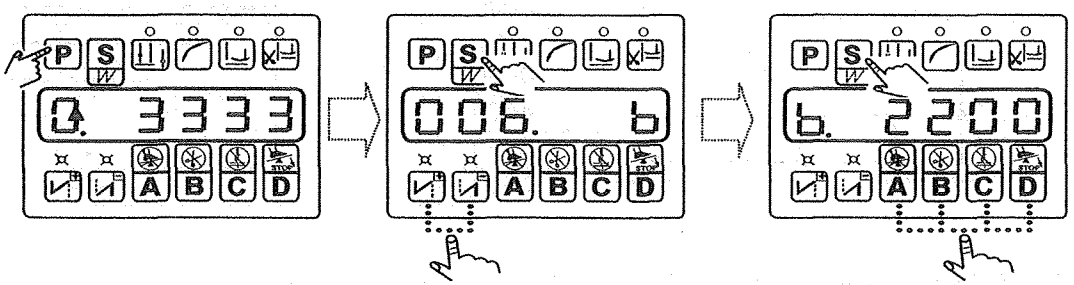


2.3.4 Cómo regular la《Velocidad del Atacado Continuo》

a. Presionar [P] para entrar el【Modo A de Parámetro】

b. Presionar [▲] o [▼] para obtener parámetro【006.B】y presionar [S] para entrar el【Valor de Parámetro】

c. Presionar [A][B][C][D] para ajustar la Velocidad de Atacado Continuo

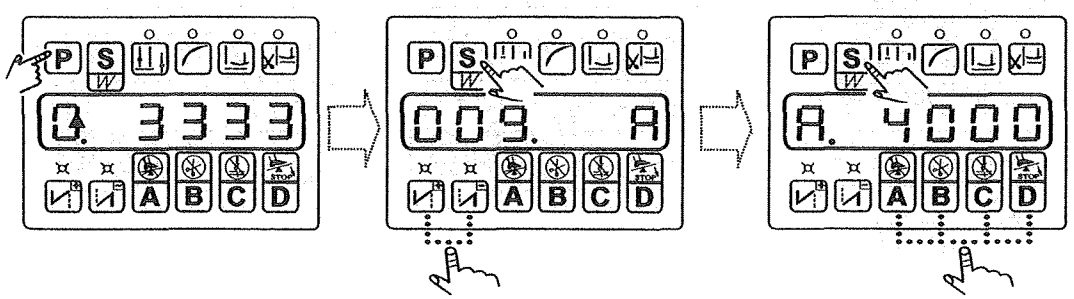


2.3.5 Cómo regular la《Velocidad de la Puntada Continua de la Costura》

a. Presionar [P] para entrar el【Modo A de Parámetro】

b. Presionar [▲] o [▼] para obtener el parámetro【009.A】y pues presionar [S] para entrar el【Valor de Parámetro】

c. Presionar [A][B][C][D] para ajustar la Velocidad de la Puntada Continua
d. Presionar [S] para salvar valor



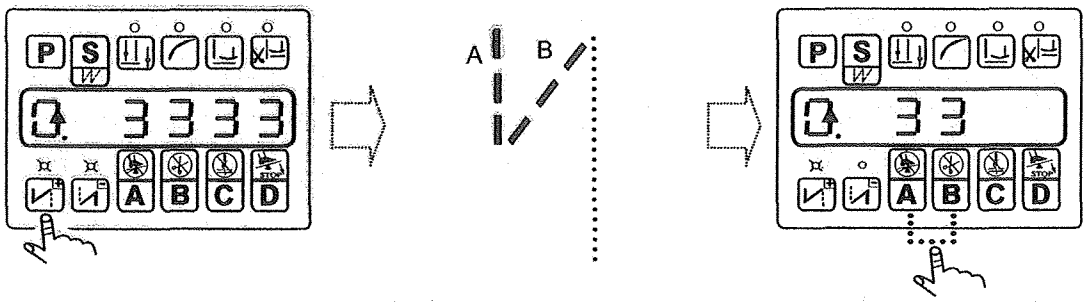
ESPAÑOL

2.4 Programa Básico de Costura para la Máquina Pespunte

2.4.1 Cómo ejecutar el《Inicio / Final de Atacado》 :

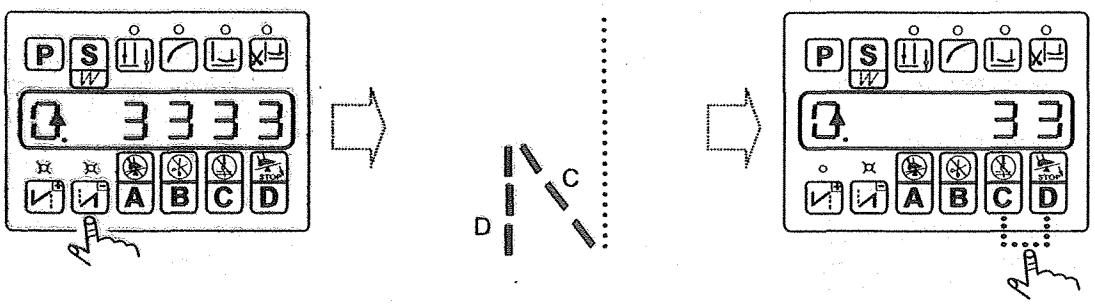
a. Presionar la [↗] para seleccionar《Inicio de Atacado》

b. Presionar la [A][B] para regular el número de puntada de A and B para《Inicio de Atacado》



a. Presionar la [↗] para seleccionar《Final de Atacado》

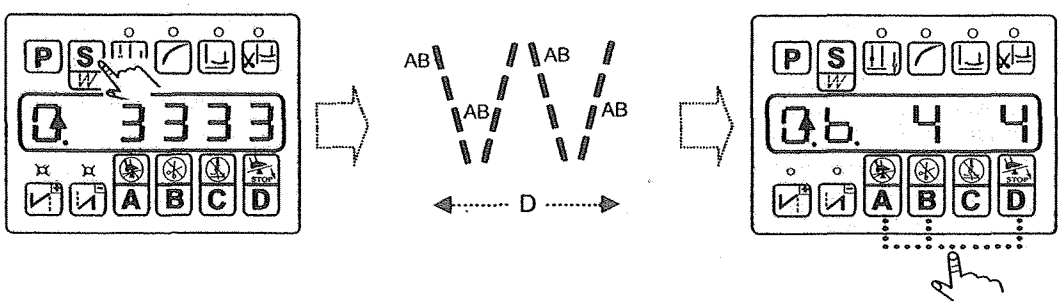
b. Presionar la [C][D] para regular el número de puntada de C y D para《Final de Atacado》



2.4.2 Cómo ejecutar el《Atacado Continuo》 :

a. Presionar [S] en el【Modo Normal】para seleccionar el【0b 4 4】

b.Presionar la [A][B][D] para regular el número de puntada de AB (0~99) y las veces de D (0~15)



ESPAÑOL

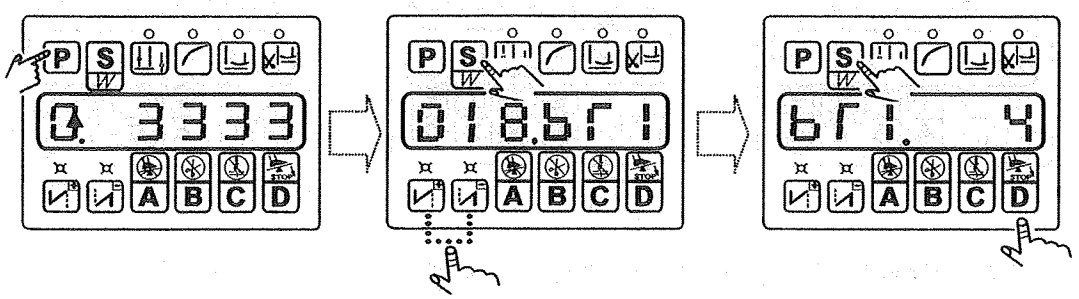
2.5 Compensación del Atacado para la Máquina Pespunte

2.5.1 compensación de puntada para《Inicio de Atacado》

a. Presionar [P] para entrar el【Modo A de Parámetro】

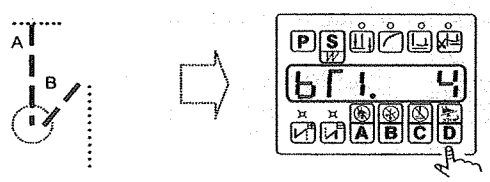
b. Presionar la [▲] o [▼] para obtener el parámetro【018.BT1】o【019.BT2】y pues presionar la [S]【Valor de Parámetro】

c. Presionar la [D] para seleccionar el valor 1~F de BT1 o BT2 como compensación
d. Presionar [S] para salvar valor



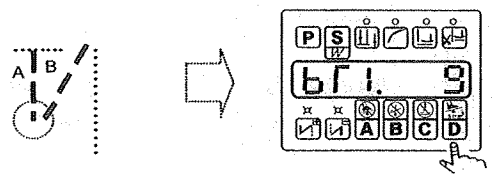
ESPAÑOL

Por ejemplo: Paso 1 : Regular el número de puntada para Inicio de Atacado A y B=3
Paso 2 : Coser el programa en la velocidad normal
Paso 3 : Si la situación desequilibrada se aparece, favor corregirla como siguientes:



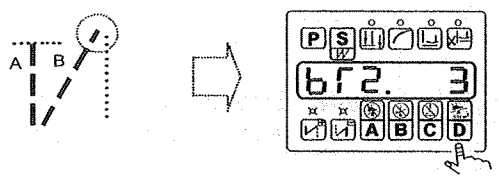
Caso 1 : A más largo y B más corto

Ajuste : Seleccionar un valor dentro de la gama de 1~8 para BT1



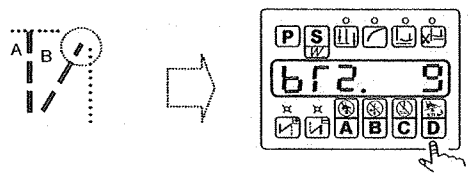
Caso 2 : A más Corto y B Normal

Ajuste : Seleccionar un valor dentro de la gama de 9~F para BT1



Caso 3 : A Normal y B más Largo

Ajuste : Seleccionar un valor dentro de la gama de 1~8 para BT2



Caso 4 : A Normal y B más Corto

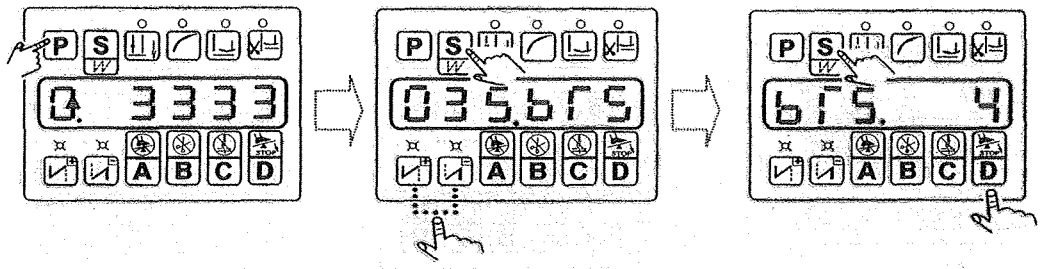
Ajuste : Seleccionar un valor dentro de la gama de 9~F para BT2

2.5.3 compensación de puntada para《Atacado Continuo》

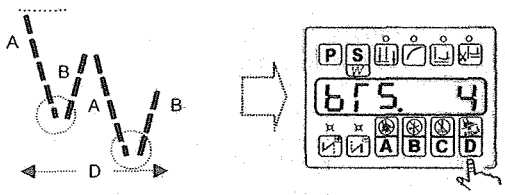
a. Presionar la [P] para entrar el【Modo A Parámetro】

b. Presionar la [▲] o [▼] para obtener parámetro【035.BT5】o【036.BT6】 y pues presionar [S] para entrar el【Valor de Parámetro】

c. Presionar la [D] para seleccionar el valor de 1~F de BT 5 or BT6 como compensación
d. Presionar [S] para salvar valor

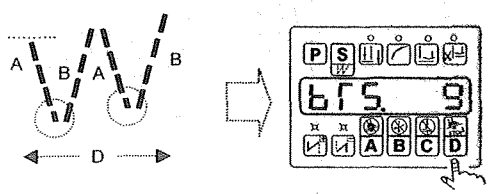


Por ejemplo: Paso 1 : Regular el número de puntada para Atacado Continuo A=B=4 y D=4
Paso 2 : Coser el programa en la velocidad normal
Paso 3 : Si la situación desequilibrada se aparece, favor corregirla como siguientes:



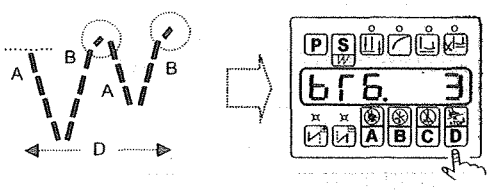
Caso 1 : A más largo y B más corto

Ajuste : Seleccionar un valor dentro de la gama de 1~8 para BT5



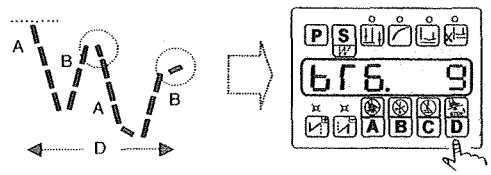
Caso 2 : A más Corto y B Normal

Ajuste : Seleccionar un valor dentro de la gama de 9~F para BT5



Caso 3 : A Normal y B más Largo

Ajuste : Seleccionar un valor dentro la gama de 1~8 para BT6



Caso 4 : A Normal y B Corto

Ajuste : Seleccionar un valor dentro de la gama de 9~F para BT6

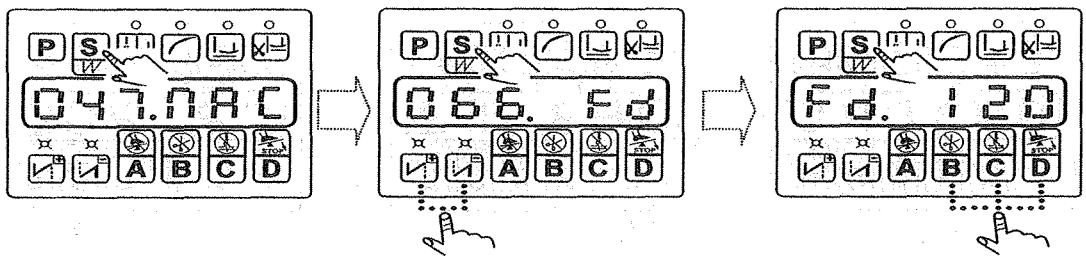
ESPAÑOL

2.6.3 Cómo regular el《Tiempo de Arranque Retrasado》:

Paso a. & b. : Hacer el mismo pasos de a y b de Item 2.2.6 para entrar el【Parámetro Modo B】

c. Presionar ▽ o △ tecla para conseguir código de parámetro【066. FD】
d. Presionar [S] tecla para entrar el【Valor de Parámetro】

e. Presionar [B][C][D] tecla para regular el valor dentro de gama 10~990 ms
f. Presionar [S] tecla para salvar el valor



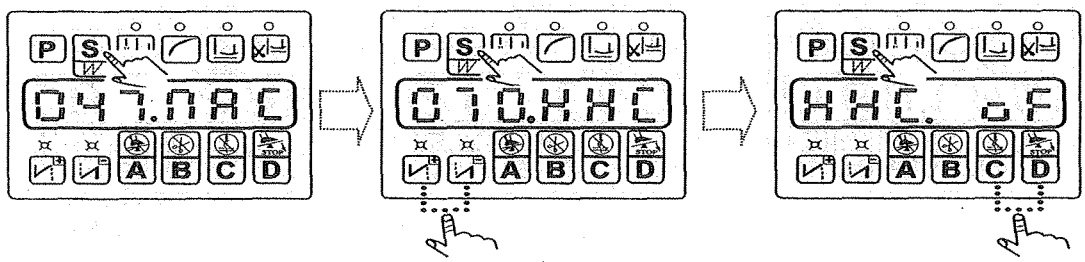
ESPAÑOL

2.6.4 Cómo regular la función de《Cancelación de lo que presiona el pedal hacia atrás a medias》para prénsatelas

Paso a. & b. : Hacer el mismo pasos de a y b de Item 2.2.6 para entrar el【Parámetro Modo B】

c. Presionar ▽ o △ tecla para conseguir código de parámetro【070.HHC】
d. Presionar [S] tecla para entrar el【Valor de Parámetro】

e. Presionar [C][D] tecla para regular el valor【HHC. ON】para inutillizar prénsatelas por medio del pedal hacia atrás a medias.
f. Presionar [S] tecla para salvar el valor.

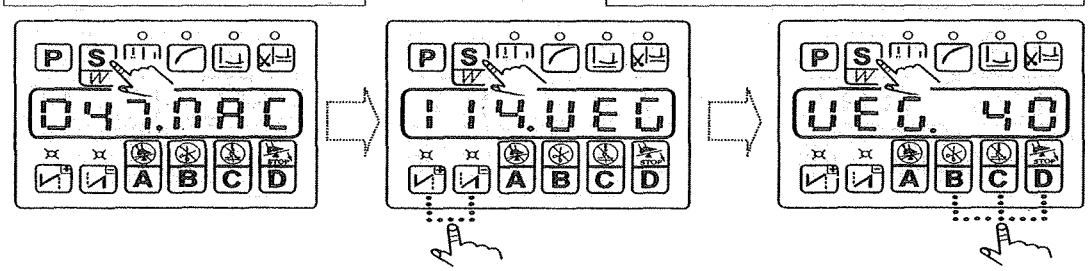


2.6.5 Cómo regular《Posición Fino》para la posición de aguja arriba (solo para sincronizador interior)

Paso a. & b. : Hacer el mismo pasos de a y b de Item 2.2.6 para entrar el【Parámetro Modo B】

c. Presionar ▽ o △ tecla para conseguir código de parámetro【114.UEG】
d. Presionar [S] tecla para entrar el【Valor de Parámetro】

e. Presionar [B][C][D] tecla para regular el valor para que consique exactamente la posición de aguja arriba.
f. Presionar [S] tecla para salvar el valor.



2.7 Tabla de Parámetro:

2.7.1 Parámetros en 【Modo A y B de parámetro】 → Los valores son preseleccionado para HVP-60-3-7W

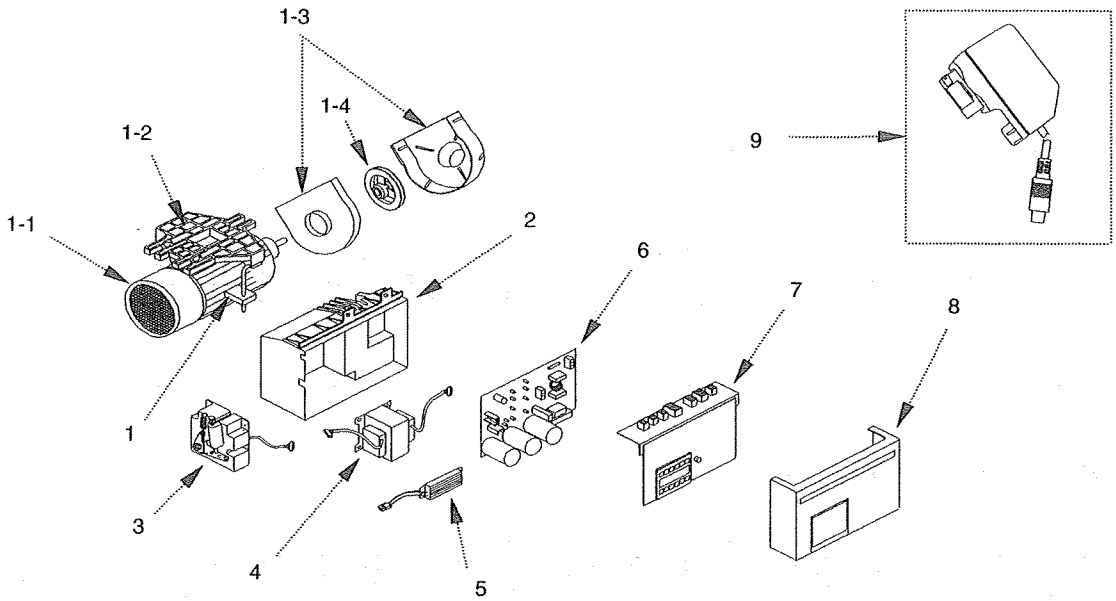
CÓDIGO DE PARÁMETRO	FUNCIÓN DE PARÁMETRO	EXTENSIÓN / UNIDAD	PRESELECCIÓN	TECLA	DESCRIPCIÓN
[001. H]	Velocidad máxima de costura (H)	150~8000spm	4500	A.B.C.D	Ajustes de la velocidad máxima.
[002.PSL]	Ajuste de la curva de la velocidad (PSL)	1~100%	80	C.D	Más largo el valor, más rápida la velocidad subida.
[003.NUD]	Aguja Arriba / Abajo (NUD)	UP/ DN	DN	C.D	DN : Aguja se para en la posición abaja UP : Aguja se para en la posición arriba
[004. N]	Velocidad del Inicio del Atacado (N)	100~6375 spm	1800	A.B.C.D	Ajuste de la velocidad del Inicio del Atacado.
[005. V]	Velocidad del Final del Atacado (V)	100~6375 spm	1800	A.B.C.D	Ajuste de la velocidad del Final del Atacado.
[006. B]	Velocidad del Atacado Continuo (B)	100~6375 spm	2200	A.B.C.D	Ajuste repetido de la velocidad del Atacado Continuo.
[007. S]	Velocidad del Inicio Suave (S)	100~3000 spm	400	A.B.C.D	Ajuste de la velocidad del Inicio Suave.
[008. SLS]	Números de puntada para Inicio Suave (SLS)	0~99 Puntadas	2	C.D	Regulacion de puntadas del Inicio Suave.
[009. A]	Velocidad de costura de Puntada Continua Automatica (A)	300~6375 spm	4000	A.B.C.D	Válido sólo en el [037.SMP] es seleccionado A.
[010.ACD]	Costura automática del Final del Atacado (ACD)	ON / OFF	ON	C.D	Váildo sólo en la ultima costura de puntada continua de la costura
[011.RVM]	Selección de modo para Atacado (RVM) J=JUKI,B=BROTHER	J / B	J	C.D	modo J :Activo cuando motor se para o está actuando. B modo :Activo sólo cuando motor está actuando.
[012.SMS]	Selección de modo para Inicio del Atacado (SMS)	A / M / SU / SD	A	D	A : Costura de una sección. (un tiro) M : Control por medio de pedal, puede pararse en mitad de camino. SU:Después de costura de un tiro, el motor se para en aguja arriba, y después de quedar el tiemop de CT, va a coser otra sección. SD:Después de costura de un tiro, el motor se para en aguja abajo, y después de quedar el tiempo de CT, va a coser otra sección.
[013.TYS]	Selección de modo en el final del inicio del Atacado (TYS)	CON /STP / TRM	CON	D	CON: En final del Inicio del Atacado, la máquina continua a coser si el pedal se presiona o signo START on (operación de pie) STP: En final del Inicio de Atacado, la maquina se para y tiene que empezar de nuevo por medio de mandamiento de pedal. TRM: Actua el ciclo de cortahilo, en cuanto el final del Atacado este completado (Mini-Atacado).
[014.SBT]	Selección del Inicio del Atacado (SBT)	ON / OFF	ON	C.D	Válido sólo cuando el Panel de C-30 es desconectado.
[015.SBA]	Selección de puntadas A del Inicio del Atacado (SBA)	0~15 Puntadas	3	C.D	
[016.SBB]	Selección de puntadas B del Inicio del Atacado (SBB)	0~15 Puntadas	3	C.D	
[017.SBN]	Selección de vueltas del Inicio del Atacado (SBN)	0~4 veces	2	D	
[018.BT1]	Puntada equilibrada para Inicio del Atacado 1 (BT1)	1/4,1/2,3/4,1.0,1 1/4, 1 1/2, 1 3/4, 2.0 puntadas -1/4,-1/2,-3/4,-1.0,-1 1/4, --1 1/2, -1 3/4, puntadas cada 1/4 puntada ajustada	4	C.D	BT1=0 :Inválido, BT1=1~8 : Aumentar las puntadas reversas BT1=9~F : Aumentar las puntadas delanteras
[019. BT2]	Puntada equilibrada para Inicio del Atacado 2 (BT2)		3	C.D	BT2=0 : Inválido, BT2=1~8 : Aumentar las puntadas delanteras BT2=9~F : Aumentar las puntadas reversas
[020.SME]	Selección de modo para Final del Atacado (SME)	A / SU / SD	A	D	A :Costura de una seccion. (un tiro) SU: después de costura de un tiro, el motor se para en aguja arriba, y después de quedar el tiempo de CT, va a coser otra sección. SD: Después de costura de un tiro, el motor se para en aguja abajo, y después de quedar el tiempo de CT, va a coser otra sección.
[021.EBT]	Selección del Final del Atacado (EBT)	ON / OFF	ON	C.D	Válido sólo cuando el Panel de C-30 es desconectado.
[022.EBC]	Selección de puntadas C del Final del Atacado (EBC)	0~15 Puntadas	3	C.D	
[023.EBD]	Selección de puntadas D del Final del Atacado (EBD)	0~15 Puntadas	3	C.D	
[024.EBN]	Selección de vueltas del Final del Atacado (EBN)	0~4 veces	2	D	

2.7.2 Parámetros en 〖 Modo B de Parámetro 〗solo ——► Los valores son preseleccionado para HVP-60-3/4-66

CÓDIGO DE PARAMETRO	FUNCIÓN DE PARÁMETRO	GAMA/ UNIDAD	PRESELECCIÓN	TECLA	DESCRIPCIÓN
[047.MAC]	Código de Máquina (MAC)	0~82	6	C.D	Regular el código de máquina.
[049.SPD]	Dimensión de polea de máquina (SPD)	50~200mm	65	B.C.D	Regular el tamaño de polea cle máquina.
[050.MPD]	Dimensión de polea de motor (MPD)	50~150mm	100	B.C.D	Regular el tamaño de polea de motor.
[054. BK]	Motor frena en la parada normal (BK)	ON / OFF	OFF	C.D	ON: Motor para con función de freno.
[057.TRU]	Seleccíon inverso de motor después del cortahilo (TRU) (Pespunte M / C sólo)	ON / OFF	OFF	C.D	Válido sólo cuando el modo LK es eleccionado en el 〖 078.TRM 〗 ON:Cuahdo el motor ha terminado cicle de cortahilo, el motor hace funcion inversa.
[058.TR8]	Ángular inversos de motor despúes de cortagilo (TR8)	0~255 Degree	40	B.C.D	Válido sólo cuando el 〖 057.TUR 〗es regulado ON.
[064. FO]	Regular el tiempo completo para prénsatelas (FO)	0~990ms	400	B.C.D	Regular apropiadamente el valor para mantener buena realización de prénsatelas.
[065. FC]	Regular el tierripo de Deber-Ciclo (Duty-Cycle) para prénsatelas (FC)	10~90%	50	C.D	Regular apropiadamente el valor para mantener buena realización de prénsatelas.
[066. FD]	Regular el tiempo de artanque retrasado (FD)	0~990ms	120	B.C.D	Si prénsatelas es instalado, regula 120 ms min.
[070.HHC]	Cancela prénsatelas cuando presiona el pedal hacia atrás a rriedias (HHC)	ON / OFF	OFF	C.D	ON: Presiona el pedal hacia atrás a medias sin función prénsatelas.
[075.SFM]	Modo de parada de emergencia para protección de cortagilo (SFM) N.O.=1=Abierto Normal. N.C.=0=Cerrado Normal	N.C. / N.O.	NC	C.D	Protección de dispositivo cle cortahilo para máquina Interlockstitch. Regular apropiadamente el valor depencle de marca y modelo de la máquina.
[078.TRM]	•Modo de operción motor en secuencia de cortagilo(TRM) •Motor para en la vuelta hacia atrás de CHAIN-STITCH M/C	LK,RK,KA,KB	KA	D	LK: Cortahilo descle aguja abaja a arriba. RK: Máquina Chainstitch retira ciclo muy fácil. (para sin-UT dispositivo M/C) KA: Modo de cortahilo de Máquina Coverstitch. KB: Modo de cortagilo de Máquina Coverstitch Especial.
[082. T1]	Tiempo retrasado antes de dedicarse el cortahilo (T1)	0~990ms	100	B.C.D	Regular la secuencia de cortahilo.
[083. T2]	Tiempo de operación del cortahilo (T2)	0~990ms	200		
[086. L1]	Tiempo retrasado antes de dedicarse la tensión aflojamiento (L1)	0~990ms	340	B.C.D	Regular la secuencia de la tensión aflojamiento.
[087. L2]	Tiempo de operación de la tensión aflojamiento (L2)	0~1500ms	80	A.B.C.D	
[092. W1]	Tiempo retrasado antes de declicarse el apartahilo (W1)	0~980ms	340	B.C.D	Regular el tiempo entre aguja arriba y apartahilo activo.
[093. W2]	Regular el tiempo de apartahilo (W2)	0~9990ms	80	A.B.C.D	Regular el tiempo de apartahilo activo.
[094. WF]	Tiempo retrasado antes de declicarse el prénsatelas (WF)	0~990ms	50	B.C.D	Regular el tiempo entre apartahilo activo y prénsatelas activo.
[114.UEG]	Impulsos del ángulo parada en aguja arriba (UEG)	5~250 Pules	40	B.C.D	Ajustar fino la posición parada del aguja arriba. (El valor central es 40.)
[116.DRU]	Ángulos Reversos a través de aguja abajo (DRU)	0~255 Degrees	180	B.C.D	Sólo válido cuando el RK es seleccionado en 〖 078.TRM 〗
[121.ANU]	La aguja va a la posición arriba después de dar la corriente (ANU)	ON / OFF	ON	C.D	ON: La aguja va a la posición arriba automáticamente cuando da la corriente.
[122. HL]	Velocidad limitada de la costura maxima (HL)	150~8000spm	4500	A.B.C.D	La velocidad alta disponible será limitada por el valor de parámetro.

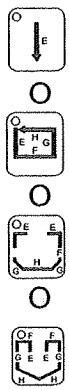
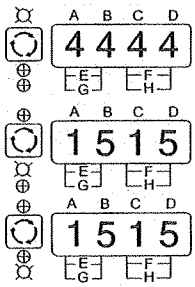
ESPAÑOL

3.2 Lista de Repuesto

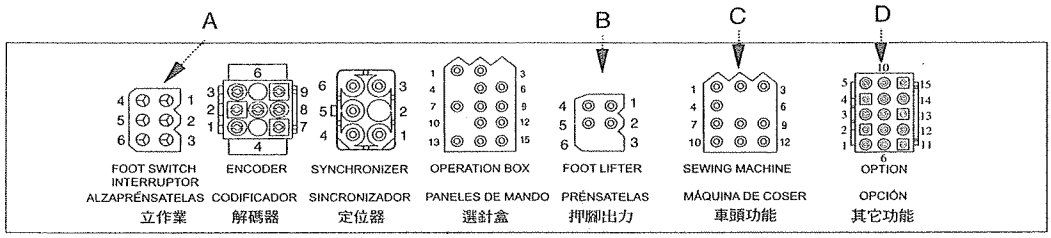


ESPAÑOL

REF.NO.	CÓDIGO DE ORDEN	NOMBRE DE REPUESTO	ESPEC.	REF.NO.	CÓDIGO DE ORDEN	NOMBRE DE REPUESTO	ESPEC.
1	2VP14431013J1	Ensamblaje de Motor	100-120 V	7	2VP603087W001	TABLA PRINCIPAL	HVP-60-3-7W
	2VP34432013J1	Ensamblaje de Motor	200-240V		2VP60308BR001	TABLA PRINCIPAL	HVP-60-3-BR
	2VP34432013J2	Ensamblaje de Motor	200-240V		2VP6030811001	TABLA PRINCIPAL	HVP-60-3-11
1-1	315ECV030	TAPA DE FONDO			2VP6030827001	TABLA PRINCIPAL	HVP-60-3-27
1-2	2VPBTV01002	BASE MONTADO			2VP6030866001	TABLA PRINCIPAL	HVP-60-3/4-66
1-3	2VPBGV040	Protector de Correa.			2VP6030870001	TABLA PRINCIPAL	HVP-60-3/4-70
1-3	2VPBGV050	Protector de Correa.			2VP6030898001	TABLA PRINCIPAL	HVP-60-3/4-98
1-4	2CL2PYB180V	V-CORREA	70 mm		2VP60308LT001	TABLA PRINCIPAL	HVP-60-3/4-LT
	2CL2PYB030V	V-CORREA	90 mm				
	2CL2PYB050V	V-CORREA	100 mm				
2	2VP60007001	Base de Caja de Control		8	315MPB210	Tapa de Caja de Control	
3	2VP60106001	UNIDAD DE PEDAL	REGULAR				
	2VP60106003	UNIDAD DE PEDAL	CE TYPE				
4	321TFS250	TRANSFORMADOR	100-120 V	9	2VP115002900	SINCRONIZADOR	#500-29
	321TFS230	TRANSFORMADOR	200-240 V		2VP115003000	SINCRONIZADOR	#500-30
5	2VP60104101	Resistor de Cemento	100-120 V				
	2VP60104201	Resistor de Cemento	200-240V				
6	2VP60103101	Tabla de Fuente Energía	100-120V				
	2VP60103201	Tabla de Fuente Energía	200-240V				

Costura de Puntada Continua		1.Al presionarse hacia adelante el pedal, la costura de puntada continua de E,F,G o H ejecuta sección a seccion. 2.En cuanto el pedal regrese a su punto neutro en algúna sección, la máquina se para inmediatamente. Al presionarse hacia adelante el pedal de nuevo, las puntadas equilibradas se ejecutan continuamente. 3.Si el parámetro【010.ACD】 es regulado ON, la máquina no parará y va a cortar el hilo automáticamente en el final de la última sección de E,F,G o H.
Selección de Ajuste de la Puntada		Ajuste de puntadas A,B,C,D es una gama de 0 ~ 9, Ajuste de puntadas E,F,G,H es una gama de 0 ~ 99.  Significado A=B=C=D=4 puntadas Significado E=F=15 puntadas Significado G=H=15 puntadas
Puntada de Corrección Delantero / Aguja Arriba		1.En el programa de Costura Libre, cada toca de la tecla corregirá mitad de puntada. 2.En la costura de puntada continua, si la máquina se para intermediamente en una sección, una toca de la tecla subirá la aguja a la posición arriba. Si la máquina se para en el final de una sección, cada toca de la tecla corregirá una puntada delantera.
Selección de Costura Automática		La costura automática de cada sección es disponible por medio de presionarse un tiro del pedal en las puntadas continuas
Selección del Cortahilo		Regular la función de cortahilo facilitado o no facilitado.

3. HVP-60-3/4-11(Y6):



A

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

B

FOOT LIFTER	
1	+30V
2	OV
3	—
4	A.F.L SOL.
5	KNEE SW.
6	—

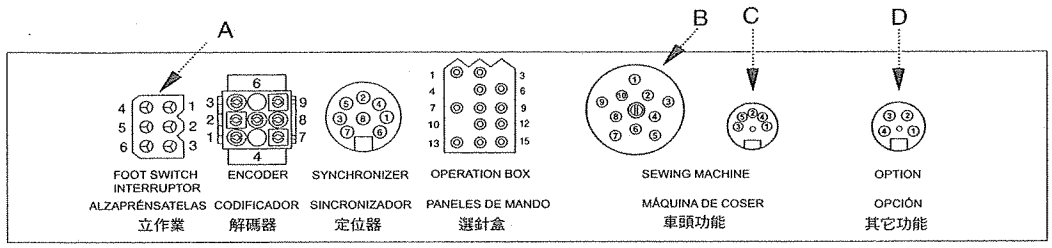
C

SEWING MACHINE	
1	EARTH
2	WIPER SOL.
3	+30V
4	TRIMMER SOL.
5	—
6	—
7	TENSION SOL.
8	+30V
9	REV. SW.
10	OV
11	+30V
12	REV. SOL.

D

OPTION	
5	NCL SOL.
10	+30V
15	OP SOL.
4	SAFETY SW.
9	BTL SW.
14	+5V
3	NEEDLE UP SW.
8	CKU
13	SH SW.
2	OP SW.
7	PSU
12	OV
1	+12V
6	P S D
11	OV

4. HVP-60-3-27:



A

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

B

SEWING MACHINE	
1	TENSION SOL.
2	—
3	WIPER SOL.
4	—
5	—
6	—
7	+24V
8	TRIMMER SOL.
9	REV. SOL.
10	A.F.L SOL.

C

SEWING MACHINE	
1	NEEDLE UP SW.
2	OV
3	BTL SW.
4	—
5	REV. SW

D

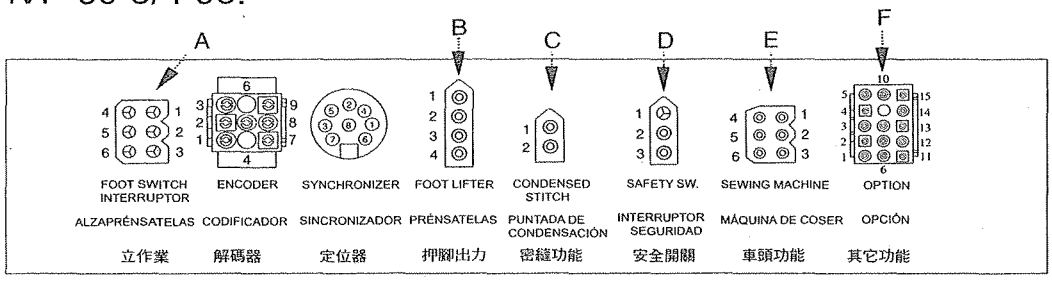
OPTION	
1	+12V
2	PSD
3	OV
4	—

中國語

ENGLISH

ESPAÑOL

7. HVP-60-3/4-98:



A

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

B

FOOT LIFTER	
1	OV
2	KNEE SW.
3	+24V
4	A.F.L SOL.

C

CONDENSED STITCH	
1	+24V
2	CONDENSED STITCH

D

SAFETY SW.	
1	+24V
2	SAFETY SW.
3	OV

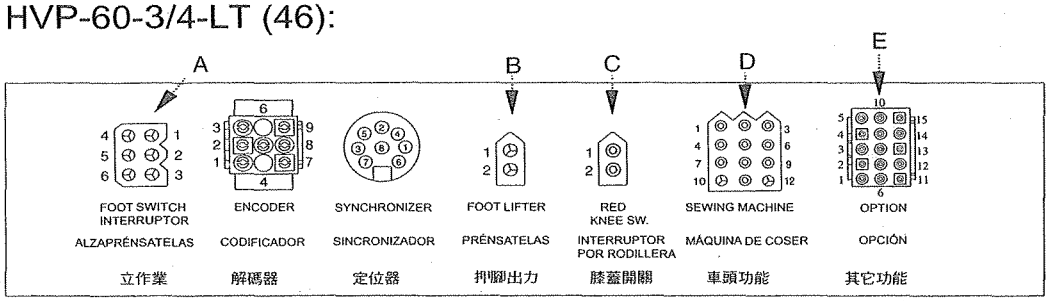
E

SEWING MACHINE	
1	+24V
2	TRIMMER SOL.
3	+24V
4	WIPER SOL.
5	+24V
6	NCL SOL.

F

OPTION	
5	NCL SOL.
10	+24V
15	OP SOL.
4	+24V
9	—
14	+5V
3	NEEDLE UP SW.
8	CKU
13	SH SW.
2	OP SW.
7	PSU
12	OV
1	+12V
6	P S D
11	OV

8. HVP-60-3/4-LT (46):



A

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

B

FOOT LIFTER	
1	+24V
2	A.F.L SOL.

C

KNEE SW.	
1	KNEE SW.
2	OV

D

SEWING MACHINE	
1	TRIMMER SOL.
2	+24V
3	+24V
4	WIPER SOL.
5	TENSION SOL.
6	+24V
7	A.F.L SOL.
8	+5V
9	+24V
10	OV
11	EARTH
12	SAFETY SW.

E

OPTION	
5	NCL SOL.
10	+24V
15	OP SOL.
4	+24V
9	CONDENSED STITCH
14	+5V
3	NEEDLE UP SW.
8	CKU
13	SH SW.
2	OP SW.
7	PSU
12	OV
1	+12V
6	P S D
11	OV