

i54 使用說明書 (SBL)

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EC 指令自我宣告書：

本公司在此宣告以下產品系列：
AC 伺服馬達—i54 系列

皆符合以下 EC 指令的規定：
-EC 低電壓指令 (2014/35/EU)
-EC 電磁兼容指令(2014/30/EU)
-EC 機械指令 (2006/42/EC)

及配合相關安全標準如下：
EN 60204-31：機械之電機設備之安全。
EN 12100：機械安全— 基本概念，設計的一般原則。

有毒物質限量指令自我宣告書：

本公司在此宣告以下產品系列：
AC 伺服馬達—i54 系列

皆符合以下指令的規定：
1. 歐盟 RoHS 指令 (2002/95/EC)
2. 中華人民共和國電子行業標準：電子信息產品
中有毒有害物質的限量要求 (SJ/T 11363-2006)

本公司產品本身(馬達,控制箱)或其包裝材料及附件(紙箱,螺絲配件包,說明書,貼紙,標籤,印刷品...等等)或其元件與原材料供應商皆依照歐盟 RoHS 指令及中華人民共和國電子行業標準的限量規定而符合以下所列之六種有害物質的限量要求：

有毒物質	限量要求
鉛 (Pb)	低於 240 ppm
汞 (Hg)	低於 800 ppm
鎘 (Cd)	低於 80 ppm
六價鉻 (Cr VI)	低於 800 ppm
多溴聯苯 (PBB)	低於 800 ppm
多溴二苯醚 (PBDE)	低於 800 ppm

* 基板的無鉛製程：總鉛含有濃度基準量 800 ppm 以下。
* 包裝材料：Pb+Hg+Cd+Cr VI 含有濃度基準總共合計 80 ppm 以下。

賀欣機械廠股份有限公司

廠長
李春長先生

1. 安全注意事項：

使用前請詳閱本手冊與所搭配的縫紉機說明書，並請注意下列事項

- 安裝及操作須由受過正確訓練的人員來執行，拆卸安裝動作前請先關閉電源拔掉插頭並等待 5 分鐘。
- 本驅動裝置僅適用於指定範圍的縫製機械，請勿移做其他用途。
- 電源電壓請遵照馬達與控制箱銘牌所標示之規格 $\pm 10\%$ 範圍內操作。

※注意：控制箱電壓規格如為 AC 220V 時，請勿插接到 AC 380V 的電源插座上，否則將出現異常且馬達將無法動作。此時請立即關閉電源開關，重新檢查電源，持續供應 380V 超過五分鐘以上，將可能燒損電源人力的保險絲及電解電容而危及人身安全。

- 請遠離高週磁波機器或電波發射器等，以免所產生的電磁波干擾本驅動裝置因而發生誤動作。
- 請不要在日光直接照射的場所、室外及室溫 45°C 以上或 5°C 以下的場所操作。
- 請不要在暖氣(電熱器)旁、有露水的場所及在相對濕度 30% 以下或 95% 以上的場所操作。
- 請不要在灰塵多的場所、具有腐蝕性物質的場所及有揮發性氣體的場所操作。
- 請注意不要被外物壓住或過度扭曲電源線。
- 為防止雜訊干擾或漏電事故，請做好接地工程。
- 在第一次開電後，請先以低速操作縫紉機並檢查轉動方向是否正確。
- 縫紉機運轉時，請不要去觸摸皮帶輪、天桿、針等會動作的部位。
- 所有可動作的部份，必須以所提供的防護裝置加以隔離，防止身體接觸並請勿在裝置內塞入其他物品。
- 修理及保養須由經過訓練的技術人員執行，而所有維修用的零件須由本公司提供或認可，方可使用。
- 請不要以不適當物體來敲擊或撞擊本產品裝置。

危險標示、注意標示

這個標示符號表示機器安裝時，如有錯誤恐會傷害到人體或機器會受到損壞，所以機器方面有危險性的地方會有此標示。

這個標示符號表示有高壓電，電氣方面有危險性的地方會有此標示。

保固期限

本產品保固期限為購買日期起一年內或出廠月份起 18 個月內。

保固內容

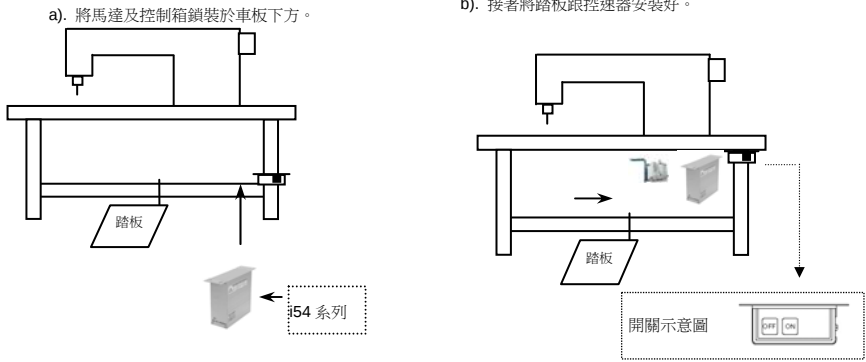
本產品在正常情況且無人為失誤的操作下，於保固期間無償的為客戶維修使能正常操作。但以下情況於保固期間將得以收取維修費用：

- 1.不當使用包括誤接高壓電源、將產品移做其它用途、自行拆卸、維修、更改、或不依規格範圍使用、進水進油及插入異物於本產品。
- 2.火災、地震、閃電、風災、水災、鹽蝕、潮濕、異常電壓及其它天災或不當場所造成之損害。
- 3.客戶購買後摔落本產品，或客戶自行運輸(或託付之運輸公司)所造成之損害。

*本產品於生產及測試上皆盡最大努力和嚴格控管使其達到高品質及高穩定的標準，但外部之電磁或靜電干擾或不穩定的供應電源，仍可能對本產品造成影響或損害，因此操作場所的接地系統一定要確實做好，並建議客戶安裝故障安全防護裝置(如漏電電驛)。

2. 安裝說明：

i54 的安裝方式



M5 馬達的安裝

注意：
安裝及調整前請確定已關掉電源開關及拔掉插頭以利人身安全。

拷克車的模式

a).馬達的安裝

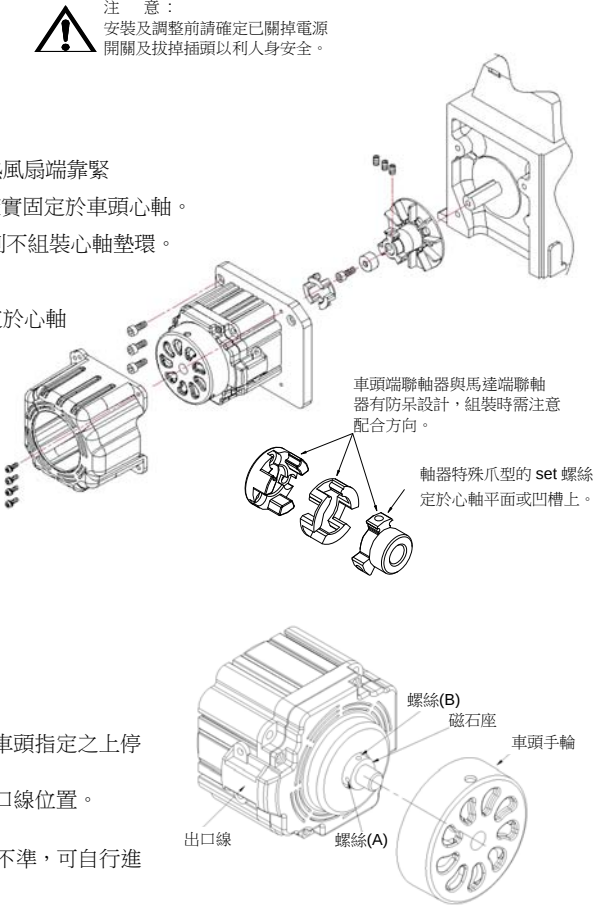
- 1.將車頭的散熱風扇及皮帶輪卸下。
- 2.將附件的聯軸器放入車頭心軸內，散熱風扇端靠緊心軸端面。並使用心軸墊環將聯軸器確實固定於車頭心軸。
注意：車頭心軸端面若無預留螺絲孔則不組裝心軸墊環。
- 3.固定聯軸器的 set 螺絲。
注意：聯軸器特殊爪型的 set 螺絲固定於心軸平面或凹槽上。
- 4.將 M5 馬達固定於車頭端面上。
注意：車頭端聯軸器與馬達端聯軸器有防呆設計，組裝時需注意配合方向。

5. 固定馬達隔熱罩。

b).定位調整

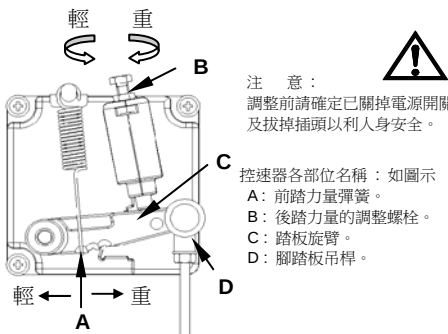
1. 請先取下車頭手輪。
2. 轉動心軸使天桿停在最高點位置(或車頭指定之上停針位置點)。
3. 轉動反光片座使螺絲(A)對準馬達出口線位置。

註：上述調整為標準調法，如覺得定位不準，可自行進行微調。



控制器的調整

	調整需求	調整結果
1	踏板前踏 力量的調整	當彈簧 A 愈向右側勾時，表示力量的愈重。 當彈簧 A 愈向左側勾時，表示力量的愈輕。
2	踏板後踏 力量的調整	當螺栓 B 愈向上時，則後踏力量愈輕。 當螺栓 B 愈向下時，則後踏力量愈重。
3	踏板行程 長短的調整	當吊桿 D 向右侧孔鎖裝時，表示行程較長。 當吊桿 D 向左侧孔鎖裝時，表示行程較短。



3. 控制面板按鍵說明：

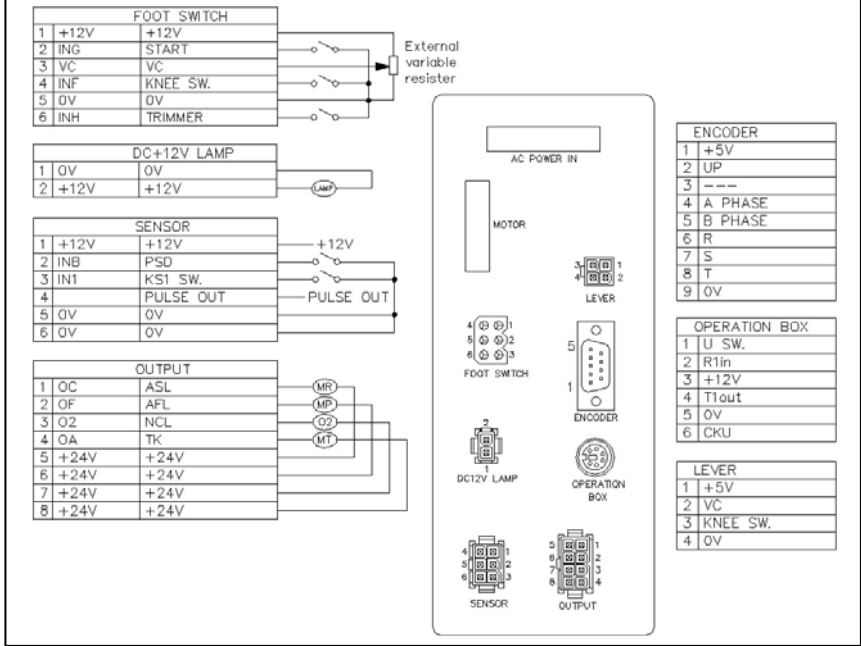


按鍵定義說明

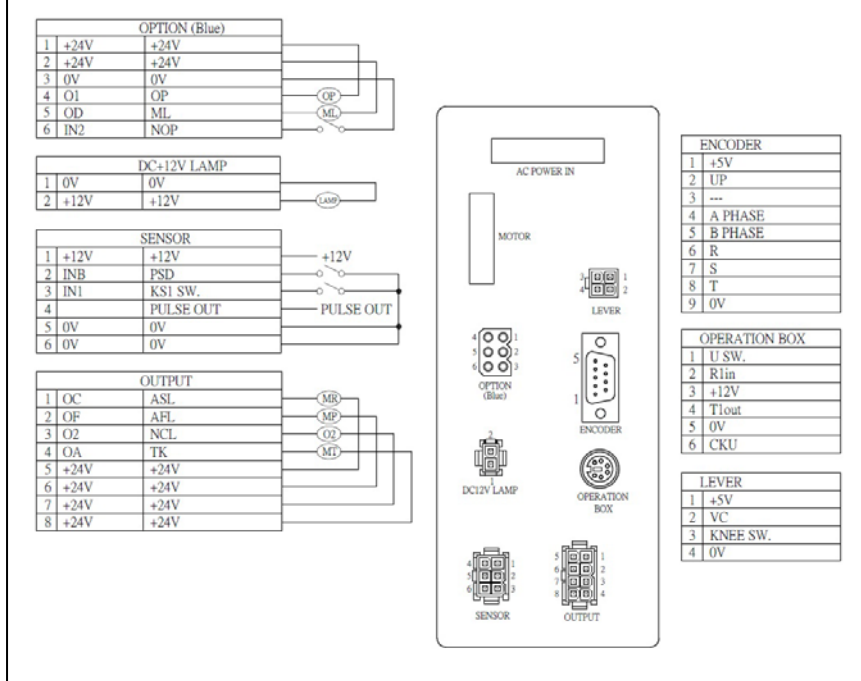
	長按兩秒進入參數設定(001~030) / 參數碼遞增功能鍵 按住開電進入參數 (031~064)		手動車縫，開啟、關閉設定功能鍵
	按住開電進入參數 (071~098) / 參數儲存鍵		電眼連動壓腳動作，開啟、關閉設定功能鍵
	數值遞增鍵		電眼功能，開啟、關閉設定功能鍵
	數值遞減鍵		針停位置，針上、針下設定功能鍵
	前吸風 / 前斬刀，功能開啟、關閉 按住開電進入參數 (101~111) / 參數碼遞增功能鍵		多功能接布，開啟、關閉設定功能鍵
	後吸風 / 後斬刀，功能開啟、關閉 參數碼遞增功能鍵		計件功能鍵
	全自動車縫，開啟、關閉設定功能鍵		電眼動作指示燈
	半自動車縫，開啟、關閉設定功能鍵		

3.1 端子座示意圖

Type A：



Type B：



4. 常用參數列表：

長按操作盒面板  2 秒

參數碼	參數定義	調整範圍	初始值	參數說明
001	HS	100~7500 rpm	5000	針車最高速度
002	LS	100~250rpm	200	針車最低速度
003	SLM	ON / OF	OF	慢速起縫模式選擇
004	S	100~500	400	起縫慢針速度
005	SLS	1~9	2	起縫慢針針數
006	SMP	A/M	M	後段吸風工序速度控制
007	ASE	0~70	10	結尾自動車縫針數
008	ASP	ON/OF	OF	結尾自動車縫轉速控制
009	AS	100~5000	4000	自動運轉速度
010	SEN	ON/OF	ON	電眼功能選擇
011	IBV	ON/OF	OF	上電眼動作準位選擇
012	CMS	0~99	3	電眼檢出確認針數
013	PSN	ON/OF	ON	無布馬達運轉(安全裝置)
014	SET	ON/OF	ON	工序完成結束模式選擇
015	STP	ON/OF	ON	工序自動重置功能
016	LIN	ON/OF	OF	多功能接布選擇
017	LM	ON/OF	ON	(L) 多功能鬆線
018	MSE	0~99	14	(d) 多功能電眼檢出針數
019	BSM	6~18	12	大小針模組選擇
020	BSN	22~42	32	大小針補正針數
021	AFP	100ms~5000ms	500	(TA) 壓腳抬起時間
022	FD	100ms~2500ms	100	(TB) 壓腳放下後延遲時間
023	AFL	ON/OF	OF	結尾後自動抬壓腳
024	FPT	100ms~9900ms	9900	自動押腳保持時間
025	AFT	100ms~5000ms	500	押腳自動下放時間
026	FASET	SAvE.no / SAvE.yES	SAvE.no	儲存出廠設定
027	FLOAD	LoAd.no / LoAd.yES	LoAd.no	恢復出廠設定
028	TVC	0~9	0	全後踏切線電位
029	HHC	ON/OF	OF	半後踏抬押腳功能選擇
030	FHC	ON/OF	OF	全後踏功能選擇

按住  鍵開電

參數碼	參數定義	調整範圍	初始值	參數說明
031	SAB	ON/OF	ON	前段吸風功能
032	FDS	0~30	0	前段吸風延遲針數
033	FSN	0~70	5	前吸風針數
034	SAE	ON/OF	ON	後段吸風功能
035	BDS	0~30	0	後段吸風延遲針數
036	RSN	0~70	2	後吸風針數
037	LFB	ON/OF	OF	前段鬆線功能
038	LFD	0~30	0	前段鬆線延遲動作針數
039	FLS	0~20	4	前鬆線針數
040	LFE	ON/OF	OF	後段鬆線功能
041	LPS	0~3	2	鬆線裝置提前關閉針數

參數碼	參數定義	調整範圍	初始值	參數說明
042	LSE	0~70	4	後段鬆線延遲動作針數
043	LES	0~70	0	後段鬆線動作針數
044	TCB	ON/OF	OF	前段斬刀功能
045	FKN	0~20	1	前斬刀動作次數
046	FDT	100ms~2000ms	100	前斬刀結束到前吸風結束間隔時間
047	FDN	0~99	0	(F) 電眼檢入到前斬刀開始間隔針數
048	TCE	ON/OF	ON	後段斬刀功能
049	RKN	1~20	1	後斬刀動作次數
050	RDT	100ms~2000ms	100	後斬刀結束到後吸風結束間隔時間
051	RDN	0~99	22	電眼檢出到後斬刀結束間隔針數
052	KCT	10ms~990ms	50	斬刀動作時間
053	KDT	10ms~990ms	50	斬刀間隔延遲時間
054	MTC	ON/OF	OF	手動切刀動作模式
055	KLM	ON/OF	OF	斬刀帶吸風功能
056	KST	0ms~990ms	200	斬刀動作提前吸風動作時間
057	KET	0ms~990ms	200	斬刀關閉後吸風延遲關閉時間設定
058	WSN	0~99	10	間接吸風間隔針數
059	WST	100ms~2500ms	200	間接吸風動作時間
060	FCS	OF/NS/WS	OF	全後踏取消未完成工序
061	ADT	100ms~2500ms	500	工序完成後吸風延遲動作時間
062	FSM	OF / A / M	OF	多段縫功能模式選擇
063	FS1	0~999	0	TK1,TK2 功能,針數設定
064	FS2	0~999	0	TK2 功能,針數設定

按住  鍵開電

參數碼	參數定義	調整範圍	初始值	參數說明
071	MAC	---	SBL	車頭碼選擇
072	MPD	1~160	75	馬達皮帶輪徑
073	SPD	1~160	75	車頭皮帶輪徑
074	PL	ON/OF	ON	皮帶輪比的計算模式開啟選擇
075	DIR	CW/CCW	CW	馬達轉向
076	DD	ON/OF	ON	馬達轉向符號選擇
077	NUD	UP/DN	UP	停針位置選擇
078	VDN	A	A	定位模式選擇
079	PTE	ON/OF	OF	自動定位模式選擇
080	PUA	0~359	0	上定位點角度設定
081	PDA	0~359	180	虛擬下停點,由上停信號開始點起
082	DVM	EFK/PEG	PEG	鬆線裝置類別(For SBL)
083	SFM	NC/NO	NO	安全開關模式選擇
084	ML	ON/OF	ON	馬達運轉信號輸出
085	FLW	ON/OF	OF	壓腳連動吸風控制功能
086	INB	NOP/PSD/OP/TK1	PSD	INB 入力功能
087	IN1	NOP/OP/TK	TK	IN1 入力功能
088	IN2	NOP/OP/KSA/ KSM/UT	UT	IN2 入力功能
089	OA	TK/OP/ML	TK	OA 出力功能

參數碼	參數定義	調整範圍	初始值	參數說明
090	OB	NCL/NCW/ ASL/ASW/MLL	NCL	OB 出力功能
091	OC	ASL/NCL/ASW/ML	ASL	OC 出力功能
092	OD	NCL/NCW/ML/ OP1/TOE	ML	OD 出力功能
093	O1	OP/TK	OP	O1 出力功能
094	O2	NCL/NCW/ ASL/ASW	NCW	O2 出力功能
095	TM1	1(0.1'S) ~ 250(25'S)	20	自動運轉 on 時間設定
096	TM2	1(0.1'S) ~ 250(25'S)	20	自動運轉 oF 時間設定
097	UTD	ON/OF	OF	自動運轉功能
098	VER	AKS-5.XX	---	軟體版本顯示
099	INL	S6/UT	UT	INL 入力功能

4.1. 快捷參數設定方法：

1		多功能接布，功能開啟、關閉設定功能鍵 長按兩秒進入 [C1 01] 設定接布片數 輕按選擇 [C1 xx ~ C5 xx] 循環
		數值遞增/遞減鍵
		數值儲存，離開設定頁面
2		壓腳功能開啟、關閉 長按兩秒進入 [021.AFP] 參數設定 輕按選擇 [021 ~ 085] 相關參數循環
		數值遞增/遞減鍵
		數值儲存，離開設定頁面
3		前吸風 / 前斬刀，功能開啟、關閉 長按兩秒進入 [032.FDS] 參數設定 輕按選擇 [032 ~ 059] 相關參數循環
		數值遞增/遞減鍵
		數值儲存，離開設定頁面
4		後吸風 / 後斬刀，功能開啟、關閉 長按兩秒進入 [035.BDS] 參數設定 輕按選擇 [035 ~ 051] 相關參數循環
		數值遞增/遞減鍵
		數值儲存，離開設定頁面

5		電眼功能開啟、關閉 長按兩秒進入 [006.SMP] 參數設定 輕按選擇 [006 ~ 015] 相關參數循環
		數值遞增/遞減鍵
		數值儲存，離開設定頁面
6		計件值顯示、不顯示 長按兩秒進入[TKN]
		數值遞增／遞減鍵；手動計件
		數值儲存離開設定頁面，長按兩秒計件值歸零

5. 簡易故障排除：

故障碼警示	出 現 時 機	狀 態 與 對 策
E4	1. 電源 ON 時，檢知到電源電壓過高。 2. 插錯使用之供應電源。	馬達將關閉成無動作狀態。 請檢查供應此控制箱之 AC 電源是否正確。
E7	1.馬達插頭配線接觸不良導致不轉。 2.定位器信號異常。 3.車頭機構鎖住或馬達皮帶輪異物捲入卡住。 4.加工物過厚，馬達扭力不足無法貫穿。	馬達將關閉成無動作狀態。 請檢查定位器信號是否異常。 請檢查車頭是否卡住或轉動困難。
EP	電源開啟時，控速器未在中立位置。	將控速器回復至中立位置即可操作。

6. 七段顯示器字體與實際數值對照表：

阿拉伯數字													
0	0	1	1	2	2	3	3	4	4	5	5	6	6
7	7	8	8	9	9	英文字母							
A	A	B	b	C	C	D	d	E	E	F	F	G	G
H	H	I	i	J	J	K	k	L	L	M	m	N	n
O	O	P	P	Q	Q	R	r	S	S	T	T	U	u
V	V	W	w	X	x	Y	y	Z	Z				

i54 USER’S MANUAL (SBL)

CONTENTS

- 1. Safety Precaution
- 2. Installation
- 3. Panel Key Functions
- 4. General Parameter List
- 5. Basic Troubleshooting
- 6. 7-Segment Display Characters Compare Table



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HSVPISU11-3

2018.05

EC Declaration of Conformity

We hereby declare that the following products:
AC servo motor—i54 series
are in conformity with the provision of the EC directives as following :
-EC Low Voltage Directive (2014/35/EU)
-EC Electromagnetic Compatibility Directive (2014/30/EU)
-EC Machinery Directive (2006/42/EC)

Applied harmonized standards :
EN 60204-31 : Electrical equipment of industrial machines. Particular requirements for sewing machines, sewing units and sewing system.
EN 12100 : Safety of machines.

Declaration of Conformity for Concentration Limits for Certain Hazardous Substances

We hereby declare that the following products:
AC servo motor—i54 series
are complies with the following directives and requirements:

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

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

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

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

H. S. Machinery. Co., Ltd.

Mr. C. C. Lee
Plant Manager

1. Safety Precaution :

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

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

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

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

Danger and caution signs



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



This symbol indicates electrical risks and warnings.

Limited Warranty

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

Warranty Detail

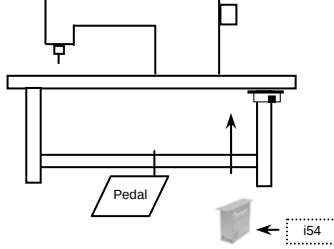
Any trouble found within warranty period under normal use condition in conformance with this manual, it will be repaired free of charge. Repair will be chargeable in the following cases even if within warranty period :

1. Inappropriate use include: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operate the product without the precaution, or operate the products out of its specification range. Insert odd objects or liquids into the product.
 2. Damage by fire, Earth quake, lighting, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.
 3. Dropping after purchase, or damage in transportation by customer himself. (or by customer's shipping agency)
- Note : We put our best effort and mind in testing and manufacturing for assuring the quality and reliable of this product. But it is possible this product can still be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected; therefore the grounding system of operate area must be well-connected to this product and it's also recommended to install a failsafe device. (such as residual current breaker).

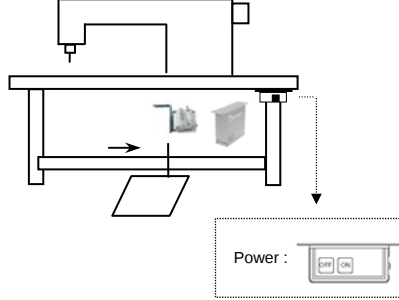
2. Installation :

i54 Installation

a). Install the motor and control box under the table



b). Install the pedal with speed control unit.



M5 Motor Installation

Overlock Mode

a). Motor Installation

1. Takes off the heat exhaust fan and pulley of sewing machine.
2. Puts coupling into shaft of sewing machine, heat exhaust fan

closes to shaft. Fix coupling in shaft by bushing.

Caution: in case the sewing machine dose not reserve screw hole.

3. Fix the set screw of coupling.

Warning : clamp sets crew of coupling must

fix in flat surface of

shaft or carve.

4. Fix M 5 motor on fan cover.

Warning: there is against dull design for

coupling of sewing and

motor, joint direction must

pay more attention on it.

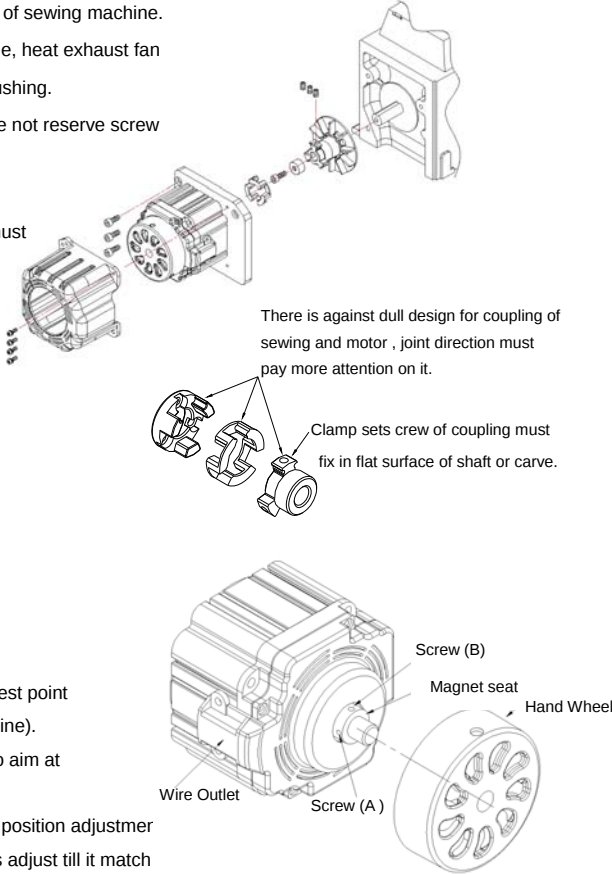
5. Fix fan cover of motor.

b). Adjust on position

1. Takes off hand wheel of sewing machine.
2. Turns the shaft gets the scale stop at highest point (or the point of up position in sewing machine).
3. Turn the encoder disc and the screw (A) to aim at

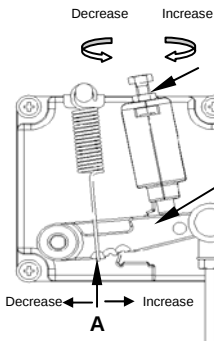
wire outlet of motor.

Remark: above description is a standard of position adjustmer if the position is not satisfy pleases adjust till it match your requirement.



Speed Control Unit Adjustment

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



Caution :

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

Components of speed control unit : see figure

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

3. Panel Key Functions :

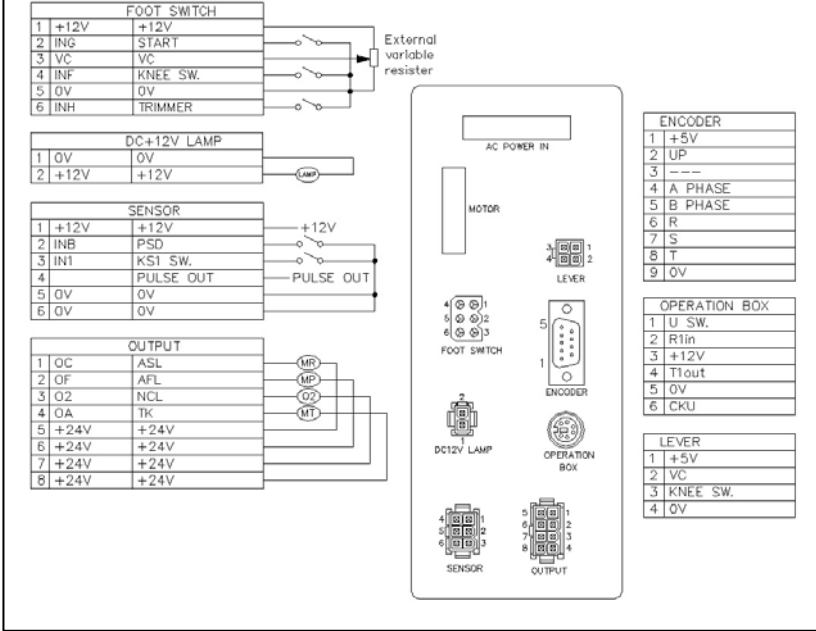


Description of key

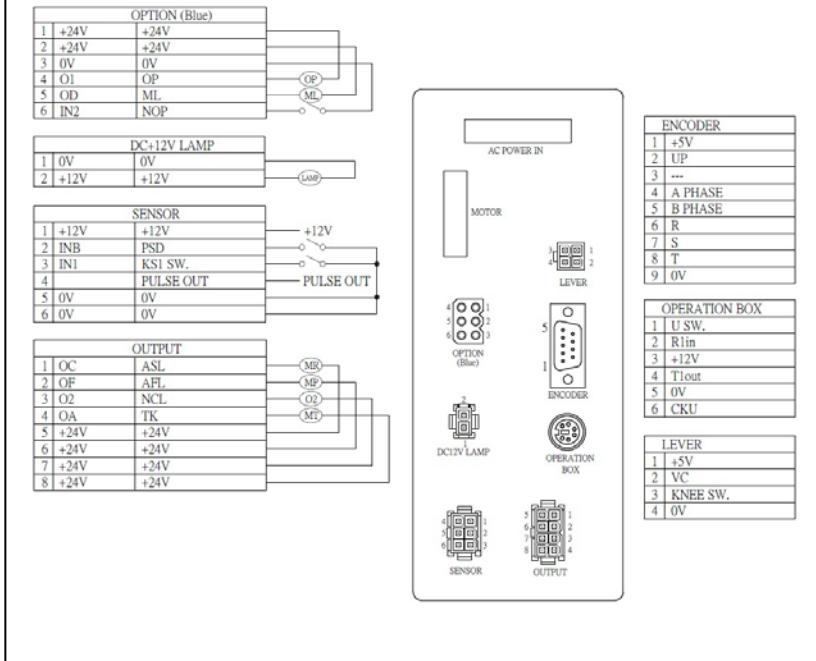
	Press and hold 2 seconds to enter parameter setting (001~030)/press parameter increment key and hold to enter parameter (031~064).		The key to act or close manual sewing.
	Hold and turn on the power at same time to enter parameter (071~098)/ parameter saving.		The key to act or close function for sensor and presser foot lifting act at same time.
	Display value increased.		The key to act or close the sensor.
	Display value decreased.		The key to act or close needle up/down.
	To act or close front air suction/front cutter.		To act or close multi fabric joint together.
	Press and turn on the power at same time to enter parameter (101~111)/parameter increment key.		Count
	To act or close rear air suction / rear cutter.		Parameter increment key.
	To act or close sewing full automatically.		Sensor LED light.
	To act or close semi sewing automatically.		

3.1 Connector Diagram

Type A :



Type B :



4. General Parameter List :



Press operation panel 2 seconds

Parameter NO.	Function Name	Range	Initial Value	Description
001	HS	100~7500 rpm	5000	Maximum sewing speed
002	LS	100~250rpm	200	Low speed
003	SLM	ON / OF	OF	Slow start
004	S	100~500	400	Slow start speed
005	SLS	1~9	2	Stitch of slow start
006	SMP	A/M	M	Speed for rear air suction step
007	ASE	0~70	10	Rear air suction
008	ASP	ON/OFF	OF	Speed for automatic sewing at end
009	AS	100~5000	4000	Speed of motor run at automatically
010	SEN	ON/OFF	ON	Selection of sensor
011	IBV	ON/OFF	OF	Selection for top sensor level
012	CMS	0~99	3	Stitch setting for sensor detection
013	PSN	ON/OFF	ON	Safety device
014	SET	ON/OFF	ON	Enter trimming sequence after left the sensor
015	STP	ON/OFF	ON	Step reset
016	LIN	ON/OFF	OF	Type selection for pedal
017	LM	ON/OFF	ON	(L) Multi tension release
018	MSE	0~99	14	(d) Multi sensor stitches detection
019	BSM	6~18	12	Stitch size module selection
020	BSN	22~42	32	Stitch correction
021	AFP	100ms~5000ms	500	(TA) Time for presser foot lifting activate
022	FD	100ms~2500ms	100	(TB)Delay time for foot lifter drop down
023	AFL	ON/OFF	OF	Foot lifting at motor stop
024	FPT	100ms~9900ms	9900	Full on time foot lifter
025	AFT	100ms~5000ms	500	Time setting for foot lifter drop down
026	FASET	SAvE.no / SAVe.yES	SAvE.no	Factory setting
027	FLOAD	LoAd.no / LoAd.yES	LoAd.no	Recovery to factory setting
028	TVC	0~9	0	Trimming potential at full hell back the pedal
029	HHC	ON/OFF	OF	Presser foot lifter selection at half hell back the pedal
030	FHC	ON/OFF	OF	Function selection at full heel back the pedal



Press and turn on the power

Parameter NO.	Function Name	Range	Initial Value	Description
031	SAB	ON/OFF	ON	Front air suction
032	FDS	0~30	0	Stitch for front air suction delay
033	FSN	0~70	5	Stitch setting for suction at start
034	SAE	ON/OFF	ON	Rear air suction
035	BDS	0~30	0	Stitch for rear air suction delay
036	RSN	0~70	2	Stitch setting for suction at end
037	LFB	ON/OFF	OF	Front thread releases
038	LFD	0~30	0	Stitch for front thread release delay
039	FLS	0~20	4	Stitch setting for thread release at start
040	LFE	ON/OFF	OF	Rear thread release
041	LPS	0~3	2	Stitch setting for thread release close earlier
042	LSE	0~70	4	Stitch setting at thread release delay at end
043	LES	0~70	0	Stitch for rear thread release
044	TCB	ON/OFF	OF	Front tape cutter

Parameter NO.	Function Name	Range	Initial Value	Description
045	FKN	0~20	1	Number of time for front tape cutter
046	FDT	100ms~2000ms	100	Interval time setting for front tape cutter stop to front air suction stop
047	FDN	0~99	0	Stitches between sensor detected and front tape cutter activated
048	TCE	ON/OFF	ON	Tape cutter for rear step
049	RKN	1~20	1	Number of time for rear tape cutter
050	RDT	100ms~2000ms	100	Interval time for rear tape cutter stop to air suction stop
051	RDN	0~99	22	stitches between sensor detected and rear tape cutter activated
052	KCT	10ms~990ms	50	Time setting for tape cutter
053	KDT	10ms~990ms	50	Tape cutter interval delay time
054	MTC	ON/OFF	OF	Manual tape cutter
055	KLM	ON/OFF	OF	Tape cutter link air suction
056	KST	0ms~990ms	200	Time setting for air suction before tape cutter activated
057	KET	0ms~990ms	200	Time setting for air suction stop after tape cutter activated
058	WSN	0~99	10	Interval stitch for indirect air suction
059	WST	100ms~2500ms	200	Time setting for indirect air suction
060	FCS	OF/NS/WS	OF	Heal bak to cancel unfinished step
061	ADT	100ms~2500ms	500	Delay time for air suction after the step finished
062	FSM	OF / A / M	OF	Militia-step function selection
063	FS1	0~999	0	TK,TK2 function selection / stitch setting
064	FS2	0~999	0	TK2 function selection / stitch setting



Press and turn on the power

Parameter NO.	Function Name	Range	Initial Value	Description
071	MAC	---	SBL	Selection of sewing machine code
072	MPD	1~160	75	Motor pulley
073	SPD	1~160	75	Machine pulley
074	PL	ON/OFF	ON	Selection of pulley ratio
075	DIR	CW/CCW	CW	Direction of motor
076	DD	ON/OFF	ON	Motor direction
077	NUD	UP/DN	UP	Selection of needle position
078	VDN	A	A	Selection of needle position
079	PTE	ON/OFF	OF	Selection of needle position automatically
080	PUA	0~359	0	Angle for needle up position
081	PDA	0~359	180	Virtual needle down
082	DVM	EFK/PEG	PEG	(For SBL) type of thread release
083	SFM	NC/NO	NO	Safety switch
084	ML	ON/OFF	ON	Motor run signal output
085	FLW	ON/OFF	OF	Function for foot lifter link air suction
086	INB	NOP/PSD/OP/TK1	PSD	INB input
087	IN1	NOP/OP/TK	TK	IN1 input
088	IN2	NOP/OP/KSA/ KSM/UT	UT	IN2 input
089	OA	TK/OP/ML	TK	OA output

Parameter NO.	Function Name	Range	Initial Value	Description
090	OB	NCL/NCW/ ASL/ASW/MLL	NCL	OB output
091	OC	ASL/NCL/ASW/ML	ASL	OC output
092	OD	NCL/NCW/ ML/OP1/TOE	ML	OD output
093	O1	OP/TK	OP	O1 output
094	O2	NCL/NCW/ASL/ASW	NCW	O2 output
095	TM1	1(0.1'S) ~ 250(25'S)	20	Time setting for motor run automatically at on
096	TM2	1(0.1'S) ~ 250(25'S)	20	Time setting for motor run automatically at off
097	UTD	ON/OFF	OF	Motor run automatically
098	VER	AKS-5.XX	---	Software version
099	INL	S6/UT	UT	INL input

4.1. Shortcut For Parameter Setting :

1		Key for act or close multi fabric joint together. Press and hold 2 seconds to enter [C1 01] to set how many pieces fabric to joint. Press lightly to select [C1 xx ~ C5 xx] circulation.
		Value increment / decreasing.
		Value saving, escape the display.
2		To act or close presser foot lifting. Press and hold 2 seconds to enter [021.AFP] parameter setting. Select {021~085} related parameter cycle by tap.
		Value increment / decreasing.
		Value saving, escape the display.
3		To act or close front air suction/front tape cutter. Press and hold 2 seconds to enter [032. FDS] parameter setting. Select {032~059} related parameter cycle by tap.
		Value increment / decreasing.
		Value saving, escape the display.
4		To act or close rear air suction/rear tape cutter. Press and hold 2 seconds to enter [035.BDS] parameter setting. Select {035~051} related parameter cycle by tap.
		Value increment / decreasing.
		Value saving, escape the display.

5		To act or close sensor. Press and hold 2 seconds to enter [006.SMP]. Select {006~015} related parameter cycle by tap.
		Value increment / decreasing.
		Value saving, escape the display.
6		Display count or not available [TKN]press and hold 2 seconds to enter TKN
		Incremental value/Diminished; by manual
		Value stored and escape , press and hold for 2 seconds to reset

5. Basic Troubleshooting :

Error code	Cause of the problem	Condition and solution
E.4	1. When power on, higher power voltage has been detected. 2. Connect to a wrong AC power source.	Motor and machine will be shutting down. Please check the AC power source.
E.7	1. Bad connection to the motor connector. 2. Synchronizer (sensor) signal error. 3. Machine locked or object stuck in the motor pulley. 4. Sewing material is too thick.	Motor and machine will be shutting down. Please check the synchronizer (sensor) and its signal. Please check machine head to see if any objects stuck in the motor pulley, or machine does not rotate smoothly.
E.P	Power on, speed control unit is not at neutral position.	Speed control unit return to neutral.

6. 7-Segment Display Characters Compare Table

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