21X 套结钉扣机-液晶按键 K

2017-01

前　言

欢迎您使用本公司的特种缝纫机控制系统。

请您仔细阅读本操作手册，以确保正确的操作、使用特种缝纫机，请按照本手册内注明的方式进行操作，否则，如违规操作所造成损失本公司不承担责任。此外，请将本用户手册妥善保存在安全地点，以便随时查阅。若发生故障须由本公司指定的技术人员或专业人员进行维修。

Foreword

Thank you for using our Computerized Control System for Special Sewing Machine.

It is appreciated that you do read this manual carefully in order to operate the machine correctly and effectively. If the user operates the machine contrary to regulations herein, thus cause loss to user or third party, we will not take responsibility. Besides, you should keep this manual for future use. For any fault or problem of machine, please ask the professionals or the technicians authorized by us for repair service.

安全注意事项

1. 安全操作的标志及含义

本使用说明书及产品所使用的安全标志是为了让您正确安全的使用产品，防止您及其他人受到伤害。标志的图案和含义如下：

⚠ 危险	如果忽视此标记而进行错误的操作，会导致人员的重伤或死亡。
⚠ 注意	如果忽视此标记而进行错误的操作，会导致人员的受伤和设备的损坏。
	该符号表示“应注意事项”。三角中的图案表示必须要注意的内容。（例如左边的图案表示：“当心受伤”）
	该符号表示“禁止”
	该符号表示“必须”。圆圈中的图案表示必须要做的内容。（例如左边的图案表示“必须接地”）

2. 安全注意事项

⚠ 危险	
	打开控制箱时，先关闭电源开关并将电源插头从插座上拔下后，等待至少 5 分钟后，再打开控制箱盖。触摸带有高电压的区域会造成人员受伤。
⚠ 注意	
使用环境	
	应避免在强电气干扰源（如高频焊机）的附近使用本缝纫机。 强电气干扰源可能会影响缝纫机的正常操作。
	电源电压的波动应该在额定电压的±10%以内的环境下使用。 电压大幅度的波动会影响缝纫机的正常操作，需配备稳压器。
	环境温度应在 0℃~45℃的范围内使用。 低温或高温会影响缝纫机的正常操作。
	相对湿度应在 35%~85%的范围内，并且设备内不会形成结露的环境下使用。 干燥、潮湿或结露的环境会影响缝纫机的正确操作。
	压缩空气的供气量应大于缝纫机所要求的总耗气量。压缩空气的供气量不足会导致缝纫机的动作不正常。
	万一发生雷电暴风雨时，关闭电源开关，并将电源插头从插座上拔下。雷电可能会影响缝纫机的正确操作。
安装	
	请让受过培训的技术人员来安装缝纫机。
	安装完成前，请不要连接电源。 如果误按启动开关，缝纫机动作会导致受伤。

	缝纫机头倒下或竖起时，请用双手操作。不要用力压缝纫机。 如缝纫机失去平衡，缝纫机滑落到地上会造成受伤或机器损坏。
	必须接地。 接驳地线不牢固，是造成触电或误动作的原因。
	所有电缆应固定在离活动部件至少 25mm 以外处。另外，不要过度弯曲或用卡钉固定得过紧。会引起火灾或触电的危险。
	请在机头上安装安全罩壳。
缝纫	
	本缝纫机仅限于接受过安全操作培训的人员使用。
	本缝纫机不能用于除缝纫外的任何用途。
	使用缝纫机时必须戴上保护眼镜。 如果不戴保护眼镜，断针时机针折断部分可能会弹入眼睛造成伤害。
	发生下列情况时，请立即切断电源。否则误按下启动开关时，会导致受伤。 1.机针穿线时　　2.更换机针时　　3.缝纫机不使用或人离开缝纫机时
	缝纫过程中，不要触摸任何运动部件或将物件靠在运动部件上，因为这会导致人员受伤或缝纫机损坏。
	如果缝纫机操作中发生误动作，或听到异常的噪声或闻到异常的气味，应立即切断电源。然后请与购买商店或受过培训的技术人员联系。
	如果缝纫机出现故障，请与购买商店或受过培训的技术人员联系。
维护和检查	
	只有经过训练的技术人员才能进行缝纫机的维修、保养和检查。
	与电气有关的维修、保养和检查请及时与电控厂家的专业人员进行联系。
	发生下列情况时，请关闭电源并拔下电源插头。否则误按启动开关时，会导致受伤。 1. 检查、调整和维修　　2. 更换弯针、切刀等易损零部件
	在检查、调整和修理任何使用气动设备之前，请先断开气源，并等压力表指针下降到“0”为止。
	在必须接上电源开关和气源开关进行调整时，务必十分小心遵守所有的安全注意事项。
	未经授权而对缝纫机进行改装而引起的缝纫机损坏不在保修范围内。

Safety Matters for Attention

3. Signs & Definitions of Safety Marks

This Operation Manual and the Safety Marks printed on the products are to enable you to use this product correctly so as to be away from personal injury. The signs and definitions of Marks are shown in below:

Danger	The incorrect operation due to negligence will cause the serious personal injury or even death.
Caution	The incorrect operation due to negligence will cause the personal injury and the damage of mechanism.
	This kind of mark is “Matters for Attention”, and the figure inside the triangle is the content for attention. (Exp. The left figure is “Watch Your Hand!”)
	This kind of mark is “Forbidden”.
	This kind of mark means “Must”. The figure in the circle is the contents that have to be done. (Exp. The left figure is “Ground!”)

4. Safety Matters for Attention

Danger	
	For opening the control box, please turn off the power and take away the plug from socket firstly, and then wait for at least 5 minutes before opening the control box. Touching the part with high voltage will cause the person injury.
Caution	
Usage Environment	
	Try not to use this sewing machine near the sources of strong disturbance like high-frequency welding machine. The source of strong disturbance will affect the normal operation of the sewing machine.
	The voltage fluctuation shall be within 10% of the rated voltage. The large fluctuation of voltage will affect the normal operations of sewing machine, Therefore a voltage regulator is needed in that situation.
	Working temperature: 0℃~45℃. The operation of the sewing machine will be affacted by environment with temperature beyond the above range.
	Relative Humidity: 35%~85%(No dew inside the machine), or the operation of sewing machine will be affected.
	The supply of compressed gas shall be over the consumption required by the sewing machine. The insufficient supply of compressed gas will lead to the abnormal action of sewing machine.
	In case of thunder, lightning or storm, please turn off the power and pull plug out the socket. Because these will have influence on the operation of sewing machine.
Installation	

	Please ask the trained technicians to install the sewing machine.
	Don’t connect machine to power supply until the installation is finished. Otherwise the action of sewing machine may cause personal injury once the start switch is pressed at that situation by mistake.
	When you tilt or erect the head of sewing machine, please use both of your hand in that operation. And never press the sewing machine with strength. If the sewing machine loses its balance, it will fall into floor thus causes the personal injury or mechanical damage.
	Grounding is a must. If the grounding cable is not fixed, it may cause the electric-shock and mis-operation of machine
	The entire cables shall be fixed with a distance at 25mm away from the moving component at least. By the way, don’t excessively bend or tightly fixed the cable with nails or clamps, or it may cause the fire or electric shock.
	Please add security cover on the machine head.
Sewing	
	This sewing machine can only be used by the trained staff.
	This sewing machine has no other usages but the sewing.
	When operating the sewing machine, please remember to put on the glasses. Otherwise, the broken needle will cause the personal injury in case the needle is broken.
	At following circumstances, please cut off the power at once so as to avoid the personal injury caused by the mis-operation of start switch: 1.Threading on needles; 2. Replacement of needles; 3. The sewing machine is left unused or beyond supervision
	At working, don’t touch or lean anything on the moving components, because both of the above behaviors will cause the personal injury or the damage of the sewing machine.
	During working, if the mis-operation happens or the abnormal noise or smell is found at the sewing machine, user shall cut off the power at once, and then contact the trained technicians or the supplier of that machine for solution.
	For any trouble, please contact the trained technicians or the supplier of that machine.
Maintenance & Inspection	
	Only can the trained technicians perform the repair, maintenance and inspection of this sewing machine.
	For the repair, maintenance and inspection of the electrical component, please contact the professionals at the manufacturer of control system in time.
	At following circumstances, please cut off the power and pull off the plug at once so as to avoid the personal injury caused by the mis-operation of start switch:. 1.Repair, adjustment and inspection ; 2.Replacement of the component like curve needle, knife and so on

	Before the inspection, adjustment or repair of any gas-driven devices, user shall cut off the gas supply till the pressure indicator falls to 0.
	When adjusting the devices needing the power supply and gas supply, users can’ t be too careful to follow the entire Safety Matters for Attention.
	If the sewing machine damages due to the unauthorized modification, our company will not be responsible for it.

目录

Concents

1 概要说明

1.1 210/211 技术参数表

No.	机型 / 项目	210/211
1	用途	套结、钉扣
2	缝制范围	X(左右) 方向 40mm× Y(前后) 方向 30mm
3	最高缝纫速度	3200rpm
4	缝迹长度	0.1mm–12.7mm (0.1mm 单位)
5	送布	间接送布(脉冲马达 2 轴驱动方式)
6	针杆行程	41.2mm
7	机针	DP ×5 #14 (DP×5 #11(F,M), (DP×17#21 厚料))
8	抬压脚方式	脉冲马达
9	压脚上升量	标准 14mm, 最大 17mm(反转抬针时)
10	标准花样数	100 个
11	拨线方式	脉冲马达抬压脚连动
12	抓线装置	标准：通常 0
13	面线张力	手动夹线器/电子夹线器（MASC211）
14	旋梭	半旋转标准旋梭或半旋转倍旋梭
15	加油方式	旋转部：微量加油
16	机油	缝纫机油
17	润滑脂	缝纫机用润滑脂
18	数据记忆	Flash Memory
19	放大缩小功能	X 方向、Y 方向各自独立缩放 20%~200%（1%单位）
20	放大缩小方式	线迹长度增减方式
21	缝制速度限制	200-3200rpm(100rpm 单位)
22	花样选择功能	外部花样导入花样(100-199)
23	底线记数	上转/下转方式(0 –999999)
24	机械马达	500W 小型 AC 伺服马达(直接驱动方式)
25	外形尺寸	263mm×153mm×212mm
26	控制箱重量	约为 10 Kg
27	额定功率	600W
28	使用温度范围	0℃ - 45℃
29	使用湿度范围	35% - 85% （无结露）
30	电源电压	AC 220V ± 10%；50/60Hz

※最高缝制速度请根据缝制条件降低速度使用

※产品执行标准：QCYXDK0004—2016《工业缝纫机计算机控制系统》。

1.2 应用机型

210/211 电子套结(加固)钉扣机。

1.3 输入方式

采用按键输入方式。

1.4 显示方式

采用黑白点阵液晶屏和发光二极管显示方式。

1.5 面板布局

操作面板整体为长方形，分为两部分，显示部分为 1 个点阵液晶屏和 4 个发光二极管，操作部分为 17 个按键。参考操作说明控制面板图。

1.6 标准化

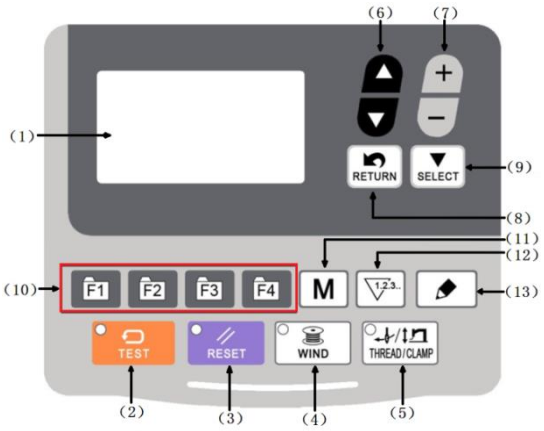
功能按键采用业界公认的图形标识，图形是国际化语言，各国用户都可以识别。

1.7 操作方式

功能键包括试缝键，复位键，绕线键，计数器键，编辑键，模式键，穿线/压脚高度设定键、项目选择键、加减键、返回键以及特殊功能键等。具体操作方法请参考第 2 节“操作说明”。

2 操作及调试

2.1 控制面板图示及说明



(1) 液晶显示屏

显示图案编号、形状等各种数据。

(2) 试缝键

在缝纫准备状态下（此时压脚在抬起位置）按此键可以进入花样单步试缝功能界面。

(3) 复位键

退出故障界面或将参数设定值返回到初始值时使用。

(4) 卷线键

按此键可以进入卷线（即卷绕底线）功能。

(5) 穿线/压脚高度设定键

提升、下降压脚。上升时，把针杆移动到原点；下降时，把针杆移动到右侧。按此键后再按  可以进入压脚高度设定功能。

(6) 项目选择键

切换花样号、菜单项或参数。

(7) 数据变更键

修改参数值，在试缝模式中单针移动送布等。

(8) 返回键

返回前一个画面。

(9) 选择键

进入当前选中的项目或在多个选项之间循环切换。

(10) 快速花样选择键（快速选择花样）

根据参数的设定值，可以快速选择设定的花样，在某些功能下有特殊作用。

(11) 模式键（M 键）

进入功能菜单界面。

(12) 计数器键

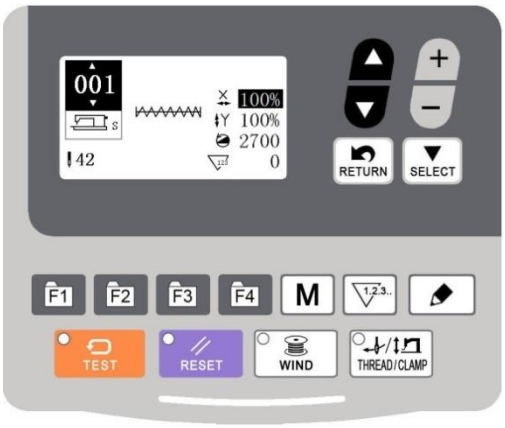
在缝纫模式编辑（未准备）状态下，按下后可以直接进入计数器设置模式。

(13) 编辑键

在缝纫原点检测待命状态或缝纫准备状态下按此键可以进入花样参数修改界面。在部分功能下有特殊作用。

2.2 基本操作

2.2.1 花样号的设定

打开电源开关。画面的左上方显示的是花样号，左下方显示的是花样针数，画面中间显示的是花样形状，画面右侧显示的是 X/Y 放大缩小率、缝制速度和缝纫计数值。 在此界面下按项目选择键可以修改花样号，按键可以修改选中的那项花样参数。	

2.2.2 花样参数的设定

在原点检测待命状态下或缝纫准备状态下按编辑键可以进入花样参数修改功能界面，在花样参数修改界面下按项目选择键或选择键SELECT可以切换参数项，按键可以修改选中项目的参数值，参数值修改后退出此界面即生效。

（1）修改 XY 两方向的缩放率后请确认花样不会超出压脚范围，否则可能会导致机针扎到压脚，发生断针，非常危险！

（2）缝纫速度的最大值受 K163 参数控制，其可设定的最大值不能超过 K163 参数的值。

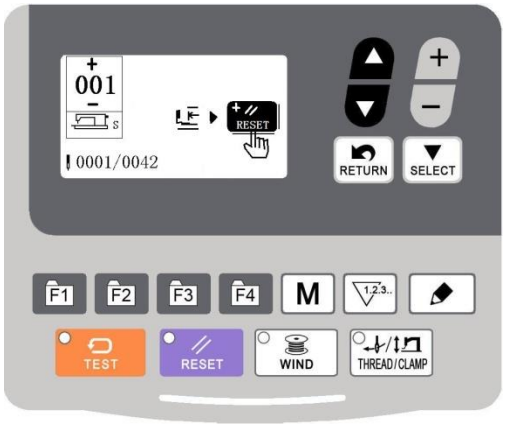
（3）面线张力值设定选项只有 K560 参数设定为 0 时（夹线电磁铁），且在 211 机型中才能显示。

2.2.3 花样形状的确认（试缝功能）

警告！

1. 选择花样后，在缝纫此花样前请一定先确认花样的形状。一旦花样超出了压脚范围，缝制途中机针就会扎到压脚，弄断机针。

2. 确认花样形状时，请注意如果在针杆下降的状态下按了键移动绣框，则针杆将先自动复位到停车位置之后压脚才移动。



1) 在缝纫准备状态下按试缝键TEST，试缝按键上的 LED 指示灯亮起。

2) 踩踏板到一档使压脚放下。

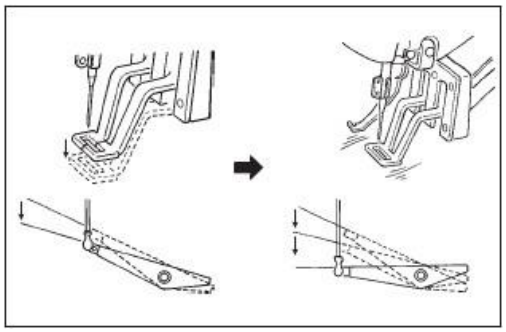
3) 按一下键可以使压脚沿花样设定向前移动一个针点，如果按住键不放则压脚会沿花样设定方向连续移动，直到最后一针。如果按住键，压脚按花样反方向移动。

4) 当压脚移动到花样中某一个落针点时，按下RESET键则可以使压脚返回到花样的起缝点，并且压脚抬起。

5) 用户按了返回键RETURN之后，在现在的位置的状态下显示缝制画面，压脚不抬起。

在此状态下，踩踏了踏板之后，可以从现在的位置进行缝制。

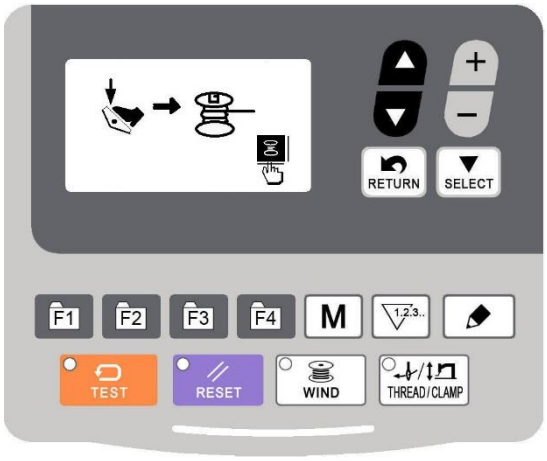
2.2.4 缝制

缝制： 1．把缝制品放到压脚部。 2．踩踏板开关至第一级，压脚下降；开关返回零档（初始位置）后，压脚上升。 3．踩踏板开关至第二级之后开始缝制。 4．缝制结束后，压脚上升返回到起始缝的位置。	

2.2.5 切换到其它花样

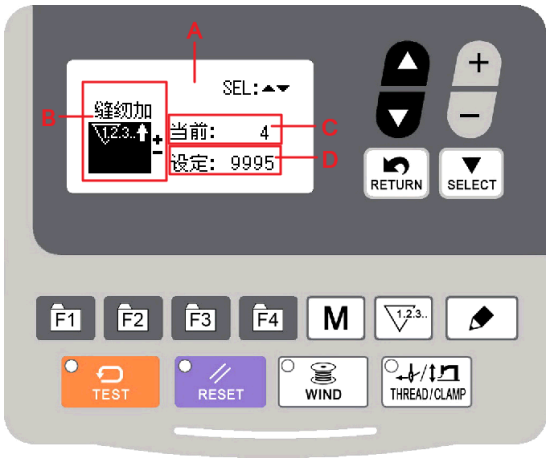
按项目选择键可以切换花样号，同时系统状态会自动切换到原点检测待命模式。与【2.2.1 项目数据设置】同样，可以设定 XY 放大缩小率、速度等。踩踏板到二档之后，系统会进入缝纫准备状态。选择花样后，请一定确认花样的形状。一旦花样远离压脚，缝制途中机针会碰到压脚，弄断机针。

2.2.6 卷绕底线

1)在原点检测待命模式下按绕线键 WIND 可以使系统进入绕线功能模式。 2)在绕线功能模式中踩踏板到二档则主轴电机转动，带动绕线机构进行绕线动作。 3)再次踩踏板或者按了复位键 RESET 之后，缝纫机停止。 4)按绕线键 WIND 后可以退出绕线功能界面。	

2.2.7 使用计数器的缝制

(1)计数器值的设定方法

<table>
<tr>
<td>1)进入计数器设定画面
在原点检测待命状态下或缝纫准备状态下按 M 模式键或计数器快捷键  可以进入缝纫计数设定功能。
计数器画面 A 被显示，缝制加计数成为可以设定。
2)计数器类别的选择
按项目选择键，切换计数器类别的图标 B。按数据变更键，从下列计数器类别中选择适当的计数器。</td>
<td> 
</td>
</tr>
<tr>
<td>3)计数器设定值的变更
按项目选择键，切换计数器设定值 C。按数据变更键，输入当前缝纫过的数值。
4)计数器现在值的变更
按项目选择键，切换计数器现在值 D。按复位键  之后，可以清除计数器途中的值。另外，用数据变更键  也可以对需要缝纫的目标值进行编辑。</td>
<td> 
</td>
</tr>
</table>

(2)计数器类别

B01 缝制加计数器

每进行 1 形状的缝制之后，现在值数字加 1。

现在值和设定计数器

B02 缝制减计数器

每进行 1 形状的缝制之后，现在值数字减 1。

现在值到达 0 之后，显示出减数计数器画面。

B03 循环加计数器

加算计数进行 1 个循环缝的各个现在值。现在值和设定值相等之后，显示出加数计数器画面。

B04 循环减计数器

减算计数进行 1 个循环缝的各个现在值。现在值到达 0 之后，显示出减数计数器画面。

B05 底线加计数器

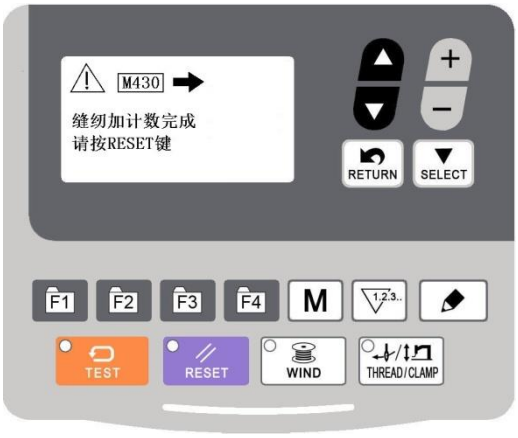
每缝制 10 针，在现在值的基础上进行加算。现在值和设定值相等之后，显示计数器加数画面。

B06 底线减计数器

每缝制 10 针，在现在值的基础上进行减算。现在值等于 0 之后，显示计数器加数画面。

B07 关闭计数器

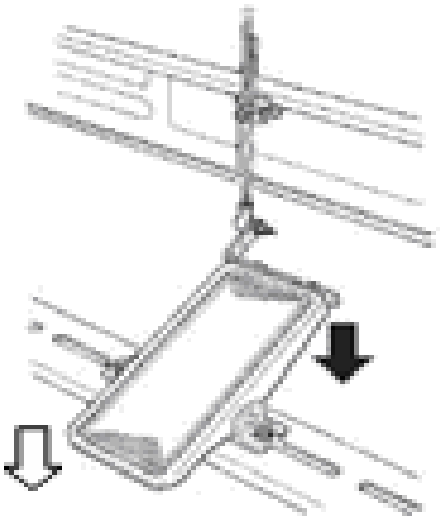
(3)计数值已满的解除方法

缝制作业中如果到达计数条件之后，则显示出计数完成报警画面。此时按复位键 RESET 之后，复位计数器，返回缝制模式，重新开始计数。	

2.2.8 暂停的使用方法

(1)踏板急停功能

脚踏板分为三档：1 档压脚下降；2 档正常缝制；3 档（脚跟向后反踩）为急停档。

1）在缝纫准备状态下，向前⬇踩脚踏板，压脚下降； 2）再次向前⬇踩脚踏板便开始缝制； 3）在缝制过程中，如果需要急停，您可以向图中的白色箭头方向踩一下脚踏板，机器进入急停，面板显示“E-002”。 4） 缝纫机停止，按 RESET 键后，解除异常，前进后退送布画面被显示出来。	

5)解除后的操作有以下 3 种

1. 踩踏板到二档重新开始缝制。

2. 按复位键  ，进行切线后，用数据变更键  调整位置，然后再踩踏板到二档开始缝制。

3. 按复位键  ，进行切线后，再次按复位键  则绣框运动至花样起缝点。

2.3 设置 P 花样与 C 花样

2.3.1 设置 P 花样

可以把电控系统内置的花样或者追加的外部花样（No.100~199）登记到 P01~P99 上。同时可设置 X/Y 扩大缩小率和最高转速限制。按 M 键进入功能菜单，选中“03 登记/删除 P 花样”，按  键进入登记/删除 P 花样功能界面。

在登记/删除 P 花样功能界面下按项目选择键  可以选择 P 花样号，按选择键  可以选中花样号、缩放率和缝纫速度选项，按数据变更键  可以修改当前选中的选项的值。

(2)登记内置花样或者外部追加花样为 P 花样

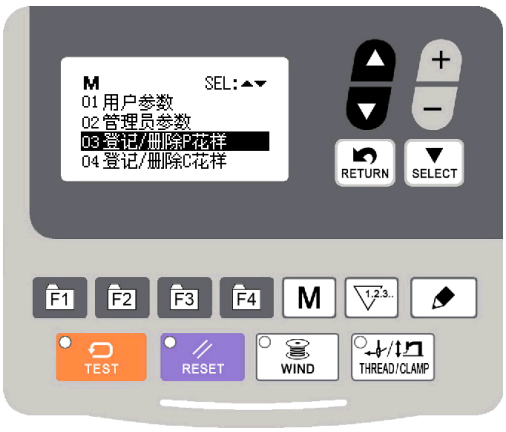
设定例：把内置 3 号花样的 X 扩大缩小 50%、最高速度限制 2,000sti/min 的设定登记到 P2。

1)打开电源，然后按模式键  。进入功能菜单。按项目选择键  ，把「03 登记/删除 P 花样」设定为选择状态。按选择键  ，进入 P 花样登记/删除功能界面。

2)按项目选择键  选择一个未登记任何内置花样或追加花样的 P 花样号（如：P01），按选择键  选中“花样号”选项，按数据变更键把花样号设定为 3。

3)缩放率和缝纫速度的设定与设定花样号的方法相同。

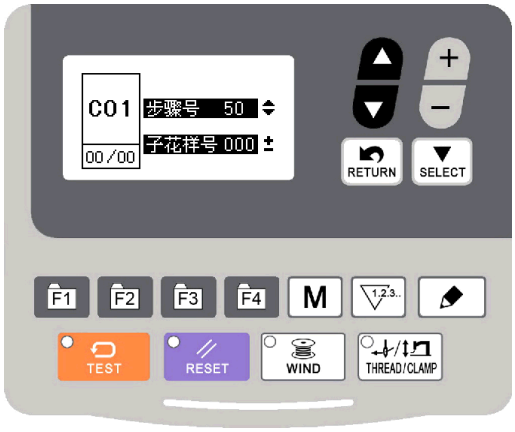
4)设定好需要设定的项目后按  键退出即可。



2.3.2 登记循环花样（C 花样）

本缝纫机可以顺次地缝制复数的循环缝制图案数据。
最多可以输入 99 个花样，缝制具有多个不同的图案的缝制物时可以使用。
另外，最多还可以登记 99 个花样数据。

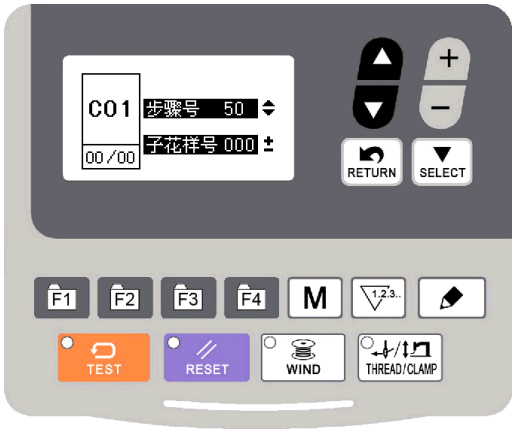
(1)循环数据的选择

<table>
<tr>
<td>1)进入循环花样登记功能
打开电源，按模式键[M]进入功能菜单，按项目选择键，把「04 登记/删除 C 花样」设定为选择状态。按选择键[SELECT]，进入 C 花样登记/删除功能界面。</td>
<td> 
</td>
</tr>
<tr>
<td>2)登记循环花样
按项目选择键选择一个未登记任何子花样的 C 花样号，之后按数据变更键[SELECT]
激活步骤号和子花样号区域，此时再按选择键可以修改步骤号，按数据变更键则可以修改子花样号，完成一个 C 花样登记后按[RETURN]键退出即可。
注意事项：选择步骤号要按顺序添加，否则 C 型花样不能生效</td>
<td> 
</td>
</tr>
</table>

3)进行缝制

在 C 花样原点检测待命状态下踩踏板到二档可以使系统进行找原点，之后绣框自动运动到第一个子花样的起缝点，压脚抬起，系统进入缝纫准备状态，此时再踩踏板到二档就开始缝纫，缝纫完成后绣框自动运动到下一个子花样起缝点，压脚抬起，系统再次进入缝纫准备状态。

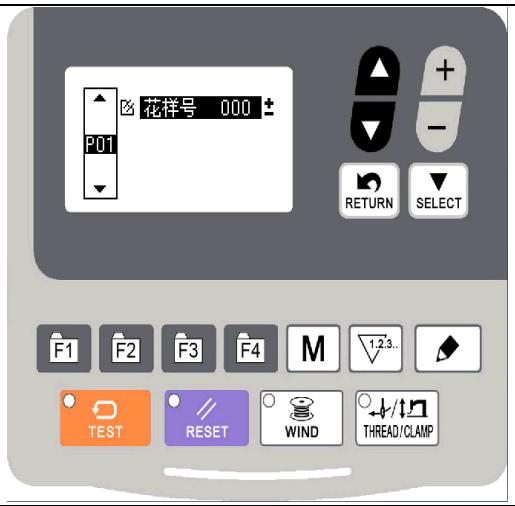
(2)循环缝花样的修改

1)进入登记/删除 C 花样功能 按 M 功能键进入菜单功能，选中“04 登记/删除 C 花样”功能，按选择键SELECT进入功能界面。 2)修改子花样 按选择键SELECT激活步骤号和子花样号编辑，再按项目选择键就可以修改步骤号，按数据变更键可以修改子花样号。修改完成后按RETURN直接退出即可。	

2.4 删除 P 花样和 C 花样

可以删除已登记的特定号码的 P 花样或者 C 花样，也可以删除所有登记的 P 花样或 C 花样。

2.4.1 删除 P 花样

1)按模式键M进入功能菜单，按项目选择键选中“03 登记/删除 P 花样”，再按选择键SELECT进入该模式。	
2)按数据变更键将想要删除的 P 花样的“花样号”设定为 0，这个 P 花样就被删除了，之后按RETURN键退出功能即可。	

2.4.2 删除 C 花样

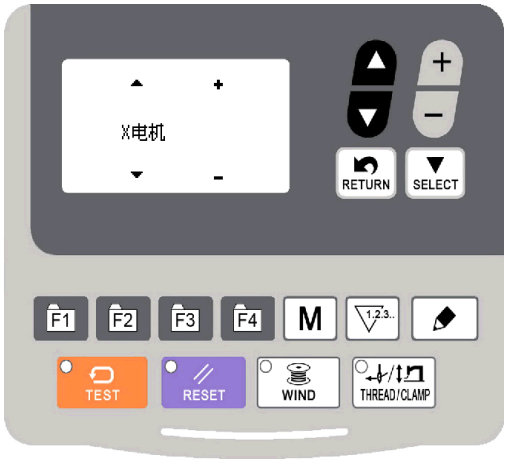
1)按模式键M进入功能菜单，按项目选择键选中“04 登记/删除 C 花样”，再按选择键SELECT进入该模式。

2)按选择键SELECT激活步骤号和子花样号编辑功能，再按数据变更键将想要删除的 C 花样的“1 号步骤”对应的“子花样号”设定为 0，这个 C 花样就被删除了，之后按RETURN键退出功能即可。

2.5 系统输出检测模式

通过启动该模式，可排查电控或机械故障。

1）在原点检测待命状态或缝纫准备状态下，按一下模式键M会进入菜单功能界面，之后通过按项目选择键选中“11 输出检测”，再按选择键SELECT可以进入输出检测功能。



2）按项目选择键可以变更功能检测项目，在不同的检测项目中，可以按对各项目进行检测，可以检测的功能如下表所示：

功能测试项目	功能
X 电机	通过按+ – 按键检测 X 电机是否可以正常顺时针或逆时针转动。
Y 电机	通过按+ – 按键检测 Y 电机是否可以正常顺时针或逆时针转动。
压脚电机	通过按+ – 按键检测压脚电机是否可以正常顺时针或逆时针转动。
抓线电机	通过按+– 按键检测抓线电机是否可以正常顺时针或逆时针转动。(在 211 机型中才能使用)
剪线电磁铁	通过按+ – 按键检测剪线电磁铁是否可以正常吸合释放。

张力电磁铁	通过按+ – 按键检测张力电磁铁是否可以正常吸合释放。 （在 211 机型中才能使用）
主轴电机	通过按 SELECT 或 RESET 键可以使主轴电机启动或停车。 通过按+ – 按键可以设定主轴转速。

3）各功能测试如果按返回键RETURN或模式键M的话，就会终止测试，返回到 2）的状态。

2.5.1 系统输入检测

1)能够检验操作控制盘按键、踏板开关、各种传感器等的输入状态。在菜单项功能选中“10 输入检测”时，按选择键SELECT进入。

2)在该模式中，按项目选择键切换输入检测项目，而检测信号的状态在屏幕右侧显示，输入检测功能可以检测断线信号、机头翻倒信号、急停信号、踏板信号以及主轴角度等。

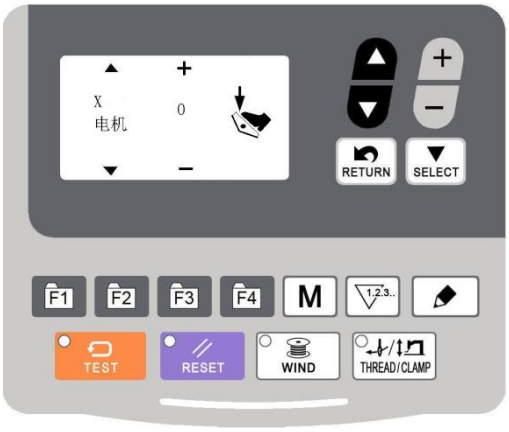
2.5.2 步进原点校正

步进原点校正功能可以对 X、Y、压脚或抓线步进电机的原点位置进行微调，在菜单项选中“12 步进原点校正”的情况下按选择键SELECT进入。

1)X 电机原点校正

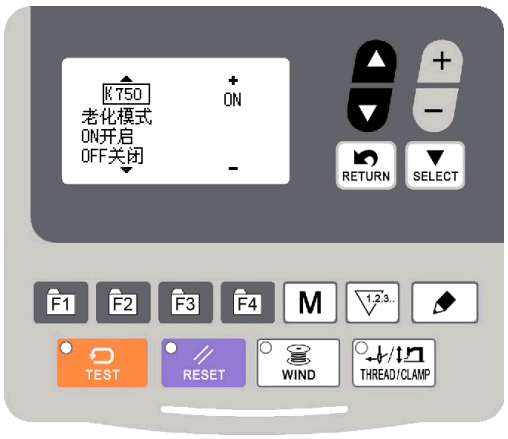
先踩踏板到二档，压脚落下，执行 X 原点检索，之后屏幕上会显示出 X 电机的当前校正值 C。

按+ – 键对 X 步进电机进行单步移动，同时校正值也会随之改变，观察压脚 X 方向（即左右方向）正中与机针针孔位置重合后，表示 X 电机原点位置校正完成，如果不再校正其它步进电机则直接按 RETURN 键返回上级菜单，如果还要继续校正其它步进电机则按项目选择键选择其它步进电机，其它三个步进电机的原点校正方法与 X 电机相同，不再赘述。



2.5.3 老化功能模式

在老化功能模式下可以对同一花样进行连续自动缝纫，进入老化功能模式的方法是在花样原点检测待命状态下长按M键 3 秒，之后选中“02 管理员参数”，修改 750 号参数值为 ON，按RETURN键返回到花样原点检测待命状态，踩踏板到二档使系统进入准备缝纫状态，再踩踏板到二档则系统就会自动连续缝纫花样。如果要退出老化功能模式请关闭电源。



1)老化间隔时间的设定

在“02 管理员参数”功能界面下选中 751 号参数，按数据变更键，设定两次运转的间隔时间。

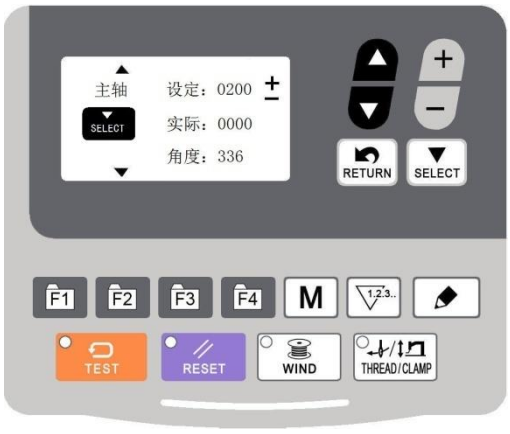
从 10 至 20ms 可以 100ms 为单位进行设定。（默认值 20ms）。

2.5.4 主轴电机检测

设定机器的转速，在设定的转速下仅驱动机器的主轴电机，显示实测的转速。

1)准备

按 M 键进入菜单功能，选中“11 输出检测”后按键进入主轴电机检测功能界面，屏幕上会显示出主轴电机的“设定转速”、“实际转速”和“主轴角度”。

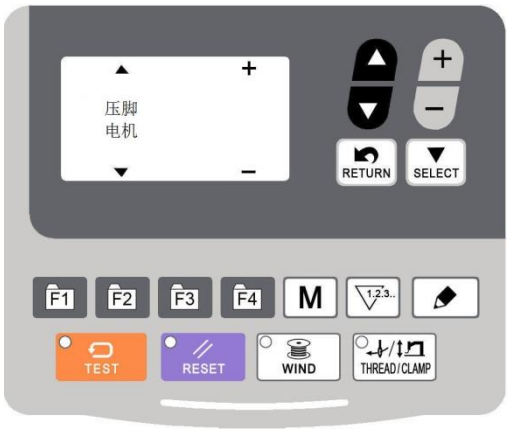


2)操作

按数据变更键，可以变更设定主轴的设定转速，然后按选择键SELECT，机器以设定的转速开始运转。如需再次变更设定转速，可以在运转过程中继续使用数据变更键设定转速值，然后按选择键SELECT，机器将以新设定的转速运转。如需停止运转，按复位键RESET或返回键RETURN。如需退出该模式，请在机器停止运转的情况下，按返回键RETURN。

2.5.5 压脚电机检测

此功能可以进行压脚电机的寸动操作，原点检索操作。

1)压脚电机运行测试 按 M 键进入菜单功能，选中“11 输出检测”后按  键进入“压脚电机”检测功能界面，在此界面下可以直接按数据变更键  对压脚电机执行单步移动测试，踩踏板到 2 档可以使压脚电机执行原点检索动作。 2)压脚电机位置模拟运行测试 在该模式中踩踏板到 2 档执行原点检索后，可以按编辑键  让电机在抬起、降下和中途拨线完成等几个工作位置模拟运行。	

2.5.6 面板检测

在该模式下，可以通过按编辑键  点亮面板上的所有 LED 灯，并让 LCD 液晶屏全屏显示，再次按编辑键  返回正常显示状态。

2.6 修改用户参数或管理员参数

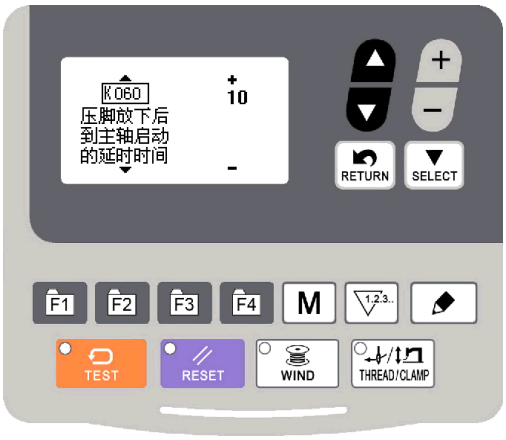
1)在缝纫原点检测待命模式或者缝纫准备模式下，按一下模式键  可进入功能菜单并显示出「01 用户参数」，如果要在功能菜单显示「02 管理员参数」则需在原点检测待命模式或缝纫准备模式长按模式键  不放，保持 3 秒。 2)进入参数修改功能界面 按项目选择键  ，选择「01 用户参数」或「02 管理员参数」。按选择键  进入相应的参数修改功能界面。	

3)选择参数号

按项目选择键，选择想要修改的参数号。

4)修改参数值

用数据变更键，可以变更参数值，参数的设定值变更后会直接生效，修改完设定值后按返回键就可以返回到上一级功能菜单。



2.6.1 用户参数表

参数号	功能	调整范围	初值	备注
U001	缝制完成后压脚或纽夹的上升方式	OFF，1，2	1	
U072	机头照明灯亮度控制	0～6	1	
U100	慢启动模式的设定方法	ON，OFF	OFF	
U200	试缝检测功能送布的方式	ON，OFF	OFF	
U402	缩放率的显示方式	ON，OFF	OFF	
U405	是否显示 C 花样	ON，OFF	ON	
U406	F 功能键切换花样号的方式	0～3	0	
U407	F1 功能键对应的花样号	ON，OFF	1	
U408	F2 功能键对应的花样号	ON，OFF	2	
U409	F3 功能键对应的花样号	ON，OFF	3	
U410	F4 功能键对应的花样号	ON，OFF	4	
U500	是否开启抓线功能	ON，OFF	OFF	
U596	是否开启机头翻倒检测功能	ON，OFF	OFF	

3 管理员参数设置

管理员参数有别于普通参数，一般禁止用户自行更改，这些参数提供给专业技术人员，供其调试时使用。

3.1 修改管理员参数

在原点检测待命模式或缝纫准备模式下长按模式键 M 持续按住 3 秒，听到蜂鸣器响声后，则功能菜单就能显示出「02 管理员参数」选项了。

管理员参数的修改方法与用户参数相同，具体操作方法可参考【2.6 修改用户参数和管理员参数】一节。

3.2 管理员参数表

参数号	设定内容	设定范围	初始值	设定单位
脚踏和纽扣夹相关（001～099）				
60	单踏板时有效：压脚下降后主轴启动的延时	0～3000ms	0	10
70	踏板类型 1：单踏板 2：双踏板	1～2	1	1
71	单踏板动作模式 70 号参数处于 1 时有效 1：1 档放压脚，2 档缝纫 2：1 档降一半，2 档降到最低并开始缝纫	1～2	1	1
72	双踏板动作模式 70 号参数处于 2 时有效 1：压脚开关 1 档放下压脚，起动开关起缝 2：压脚开关 1 档降到中间，2 档降到最低，起动开关起缝 3：踩下起动开关后放下压脚并开始缝纫	1～3	1	1
73	踏板行程回差微调 参数值越小，踩踏板降压脚灵敏度越高	0~15	0	1
电机（100～199）				
100	慢启动模式的设定方法 ON：按照各程序的慢启动设定 OFF：1-5 针的启动速度按照 151-155 存储开关的设定	ON，OFF	OFF	此参数只对 ASC211 有效。
150	主轴停止时反转抬针 ON：主轴停止时反转抬针 OFF：主轴停止时不反转抬针	ON，OFF	OFF	
151	缝纫开始第 1 针的速度 （100 号参数设为 OFF 时有效）	200~3200	套结:800 钉扣:400	100

参数号	设定内容	设定范围	初始值	设定单位
152	缝纫开始第 2 针的速度 （100 号参数设为 OFF 时有效）	200~3200	套 结 ：1200 钉扣:400	100
153	缝纫开始第 3 针的速度 （100 号参数设为 OFF 时有效）	200~3200	套 结 ：2500 钉扣:600	100
154	缝纫开始第 4 针的速度 （100 号参数设为 OFF 时有效）	200~3200	套结:3200 钉扣:900	100
155	缝纫开始第 5 针的速度 （100 号参数设为 OFF 时有效）	200~3200	套结:3200 钉扣:2700	100
156	缝纫结束前 5 针的速度	400~3200	套结:3200 钉扣:2700	100
157	缝纫结束前 4 针的速度	400~3200	套结:3200 钉扣:2700	100
158	缝纫结束前 3 针的速度	400~3200	套结:3200 钉扣:2700	100
159	缝纫结束前 2 针的速度	400~3200	套结:2400 钉扣:2000	100
163	最高缝纫速度	1200~3200	套结:3200 钉扣:2700	100
164	自动剪线功能 ON：禁用自动剪线功能 OFF：开启自动剪线功能	ON，OFF	OFF	
165	倒缝抬针停止位置（反转抬针角度调整） -：变高 +：变低	-20~20	0	1
171	停车后主轴是否锁定 ON：停车后主轴电机锁定	ON，OFF	OFF	此参数只对

参数号	设定内容	设定范围	初始值	设定单位
	OFF：停车后主轴电机不锁定。			ASC210 有效。
送料设备（200~299）				
200	1 针检测送布的方法 ON：踩一下踏板动一针 OFF：踩下踏板自动运动完成至最后一针	ON，OFF	OFF	
250	缝纫完成时有无原点检测 ON：有 OFF：无	ON，OFF	OFF	
252	断线检测针数设定（只针对有断线检测功能的机型）	0~8	0	
253	进入缝纫待命状态的方法 0：程序 No.显示灯闪烁时将脚踏板踩到第 2 档（双联动脚踏板则是踩启动开关） 1：程序 No.显示灯闪烁时摁 RESET（复位）键 2：程序 No.显示灯闪烁时摁专用外部输入开关（可选件输入）	0~2	0	1
260	改变全部送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
261	改变开始缝纫第 1 针时的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
262	改变开始缝纫第 2 针时的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
263	改变开始缝纫第 3 针时的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
264	改变缝纫结束前第 3 针的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
265	改变缝纫结束前第 2 针的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
266	改变缝纫结束前第 1 针的送布时间 -：送布时间提前 +：送布时间延迟	-30~30	0	1
267	全部送布时间（260 参数设定）从初使值开始变更时，要指定有效针数 OFF：无限制 1~99：超过缝纫开始时的指定针数，则返回到	OFF，1~99 针	OFF	1

参数号	设定内容	设定范围	初始值	设定单位
	标准传送时间			
268	改变全部送布时间的基准 0：传送开始基准 1：针杆上位基准 2：送布结束基准	0~2	1	1
269	气阀压脚延时	-80-80	0	1
270	断线检测是否有效 OFF：无效 ON：有效 *只有部分机型有此参数。	0：OFF 1：ON		0
271	压脚/纽夹的待机位置 ON：待机位置为区域中心 OFF：缝纫开始位置为待机位置	ON，OFF	OFF	
274	压脚下降速度 负向：压脚下降速度减慢 正向：压脚下降速度加快	-5~2	0	1
275	压脚上升速度 负向：压脚上升速度减慢 正向：压脚上升速度加快	-5~2	0	1
276	缝制结束时压脚上升速度 负向：压脚上升速度减慢 正向：压脚上升速度加快	-5~2	0	1
277	拨线方式选择 0：气阀 1：电机	0，1	1	1
278	压脚联动拨线操作脉冲数	-20~20	0	1
279	压脚控制方式 0：电机 1：气阀	0，1	0	1
280	反踩踏板或者按下急停按钮急停功能	ON，OFF	OFF	
281	XY 原点检索速度	0~100	0	1
操作面板设备（300~399）				
300	显示生产计数 ON：显示生产计数 OFF：显示底线计数	ON，OFF	OFF	
352	生产计数的计数位置 ON：使用循环程序单位 OFF：使用缝纫数据单位	ON，OFF	OFF	
353	底线计数的计数操作	ON，OFF	OFF	

参数号	设定内容	设定范围	初始值	设定单位
	ON：计数从开始缝纫时进行 OFF：计数从缝纫完成时进行			
程序设备（400~499）				
404	程序号 1~199 的显示 ON：程序号选择操作中用程序号 1~199 表示 OFF：程序号选择操作中不能选择 1~199（如果没有注册任何其它程序时则按 ON 的设定进行）	ON，OFF	ON	
405	C 花样程序号的显示 ON：可选择 OFF：不可选择 C 花样程序号	ON，OFF	ON	
458	X 正方向的缝纫区域限制	0.0~20.0mm	20	1
459	X 负方向的缝纫区域限制	-20.0~0.0mm	-20	1
460	Y 正方向的缝纫区域限制	0.0~15.0mm	15	1
461	Y 负方向的缝纫区域限制	-15.0~0.0mm	-15	1
462	剪线电磁铁吸合电流档位设定	0~45	0	1
465	缝纫图案的平行移动量设定	1~3（*1）	1	1
469	张力的设定 ON：设定所有程序共同的张力值 *无法进行统一补正操作 OFF：每次登录程序都需设定	ON，OFF	OFF	
470	每次登录程序设定压脚/纽扣夹的高度 ON：每次登录程序设定压脚/纽扣夹的高度 OFF：所有程序都是统一的压脚/纽扣夹的高度 *压脚/纽扣夹的高度是通过 No.471、472 的设定运转的	ON，OFF	OFF	
471	设定压脚的上升位置 （470 为 OFF 时有效）	10~17mm	14	1
472	两段压脚的设定	-30~30	0	1
装置设备（500~599）				
500	底线夹线功能设定 ON：有效 OFF：无效	ON，OFF	OFF	
551	缝纫开始时面线张力的打开 OFF：关闭 0~3：在指定的针数内打开	OFF，1~3 针	与机器型号有关	1
560	面线张力控制方式 0：使用夹线电磁铁控制（电子线张力） 1：使用松线电磁铁控制（手动线力）	0 或 1	与机器型号有关	1

参数号	设定内容	设定范围	初始值	设定单位
566	抓线装置是否安装 ON：已安装 OFF：未安装	ON，OFF	ON	
568	剪线线头长短调整 数值越大线头越长（只针对 430F 起作用）	-5~10	0	1
570	剪线电磁铁吸合电流使用调制技术控制 ON：使用（可降低剪线噪音） OFF：不使用（可增大剪线电磁铁吸合力）	ON，OFF	ON	
571	剪线电磁铁吸合电流调制时间	0~40	0	
572	急停后剪线 0：急停后不剪线 1：急停后手动剪线 2：急停后自动剪线	0~2	1	
573	剪线和面线张力电磁铁控制电压 ON：使用 33V（可增大剪线电磁铁吸合力） OFF：使用 24V	ON，OFF	OFF	
580	起始抓线角度补偿	-10~10 度	0	1
581	抓线的打开角度补偿	-10~10 度	0	1
582	缝纫开始时坚固面线张力 ON：有效 OFF：无效	ON，OFF	ON	
583	缝纫开始时面线张力紧固角度偏移	-5~2 度	-5	1
584	缝纫完成时面线张力开放角度偏移	0~17 度	4	5
585	缝纫开始时的紧固面线张力值（第 1 针线张力）	0~200	75	1
586	剪线电磁铁吸合时的电流（只 430D 适用） 减小此参数会使剪线电磁铁吸合时的电流变小，从而减小剪线声音。	-9~3	0	1
587	缝纫开始时的打开面线张力值	0~300	0	1
589	松线电磁铁的吸合电流	-30~50	0	1
590	切线时的线张力设定	0~200	75	1
591	剪线角度	-10~10	0	1
592	剪线速度	200~700（sti/min）	400	100
593	拨线速度变化	-3~3	0	1
594	机针停止位置	-10~10 度	0	1
595	剪线时的松线时间（只 430D 适用）	-40~40	0	1

参数号	设定内容	设定范围	初始值	设定单位
596	机头翻倒开关是否有效	ON，OFF	ON	
597	剪线电磁铁吸合时间补偿（只 430F 适用）	-30~30	0	1
597	剪线电磁铁电流档位开始下降的时间（只 430D 适用）	-30~20	0	1
598	剪线后的出销方式选则	-10~ON	ASC211：-1 ASC210：-4	1
599	剪线电磁铁电流下降到的档位（只 430D 适用）	0~5	0	1
错误处理设备（600~699）				
657	出现错误时蜂鸣器鸣响的时间设定 OFF：蜂鸣器不停止 2~30：指定时间后停止	OFF，2~30s	OFF	2
保养设备（700~799）				
750	连续运转模式 ON：踏板踩 2 档时开始缝纫 OFF：无效	ON，OFF	OFF	
751	连续运转循环时间（750 为 ON 时有效）	1000~3000ms	2000	10
756	绕线速度限制 ON：最高 2000sti/min OFF：无限制	ON，OFF	ON	
规格及对应布料（800~899）				
850	根据缝制的布料设定规格代码	3，5，K，F，BUTN	与机器型号有关	

注意：以上参数只供维修人员使用，用户不应轻易改动。

3.3 恢复出厂默认设置

当用户无意中修改了某些出厂时设置好的参数或者电控系统出现故障时，可以尝试使用“恢复出厂默认设置”功能，进行系统恢复。

注意：恢复出厂默认设置，用户以前设定的数据参数将会被覆盖，使用此功能时，请慎重考虑，如不清楚，应及时联系厂家技术人员，在其指导下进行操作。

具体操作步骤如下：

1. 系统开电后按模式键 M，然后按 键选中“09 恢复出厂设置”，然后按选择键 SELECT，进入恢复出厂设置功能，再按项目选择键 选择要恢复的项目，之后按确认键 SELECT，确认执行恢复操作。面板会先提示“正在执行请稍等!”表示正在执行恢复操作，此时不可以关闭电源。当经过一段时间恢复完成后面板会自动切换状态到原点检测待命状态。

2. **注意：在确认恢复操作后，系统进行恢复过程中，面板会提示“正在执行请稍等！”，如果断电，恢复过程将被迫中断，将不能完成恢复出厂默认设置，会导致操作失败。**

3.4 软件版本显示

在缝制原点检测待命状态下或缝纫准备状态下按M键，然后按▲或▼键选中“20 软件版本查询”。再按选择键SELECT进入软件版本查看界面。之后按▲或▼键选择需要查看的版本。软件版本按顺序显示如下：

主控程序: 机型-MC-厂家代号-版本号

操作面板程序：机型-LKD2-厂家代号-版本号

步进 1 程序：机型-MD1-厂家代号-版本号

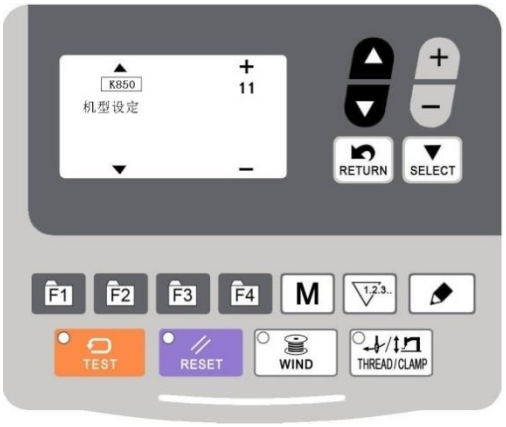
步进 2 程序：机型-MD2-厂家代号-版本号

3.5 查看运行总针数和清除加润滑油报警信息

当机器运行一段时间后，可能会出现“M-101 机器需要加润滑油了”提示信息，表示需要补充润滑油。在此种情况下，可以先按复位键RESET清除报警信息，然后按模式键M进入系统菜单，选择“22 加油报警功能”，按选择键SELECT进入此功能界面，再按复位键RESET就可以清除机器运行总针数，不再显示该提示信息了。

4 钉扣功能

4.1 钉扣功能设定

1、在原点检测待命状态或缝纫准备状态下长按 M 键 3 秒，进入功能菜单； 2、按▲▼键，选择“02 管理员参数”，按选择 SELECT 进入，再按▲▼键，选择 K850 号参数； 3、按数据变更键 +/−，将参数值变更为“11”，然后按返回键确认修改并退出。此时面板会先提示“正在切换机型，请稍等！”的信息，此时一定不要关闭电源。经过一段时间后面板会自动返回到功能菜单，表示机型切换完成，按返回键返回到原点检测待命状态；	

注意：机器的钉扣功能需要钉扣所需的专用压脚等辅助外设，有关这方面的详细信息请您与您的机械供应商或代理商联系。

注意:标准钉扣花样一览表见附录。

5 通过 U 盘升级花样

可支持 VDT 花样的单个导入(追加)：
(01)导入花样：导入(追加)花样，如果导入的花样号已经存在则进行覆盖；
(02)导出花样：导出所有外置花样到 USB 存储设备；
(03)删除花样：清除(格式化)面板追加的所有花样；

5.1 花样导入操作

电控可以使用U盘将VDT格式的花样输入到系统中，升级后的花样编号为100~199。也可以将电控中100~199号已经存在的花样导出到U盘中。	

1) 使用花样编辑软件制作 VDT 格式的花样文件，并命名为“XXX.VDT”（注：XXX 必需为 100~199 的花样号码，同时该号码也是升级后的花样号）。
2) 在 U 盘根目录下建立一个名为 DH_PAT 的文件夹，将步骤 1 中制作好的花样保存到 U 盘中的这个 DH_PAT 目录下，一次可以导入多个花样文件。
3) 在原点检测待命状态或缝纫准备状态下按模式键 M 进入系统菜单，按项目选择键 选中“06 外部花样管理”，再按选择键 SELECT 进入该模式。
4) 按项目选择键 选中“导入花样到电控”，并将存入花样的 U 盘插入到面板右侧的 USB 接口上。
5) 按选择键 SELECT，面板显示“操作执行中，请勿关机!”，开始执行花样导入操作。

   注意：在此步骤操作之前，请确认已经先将 U 盘插入面板 USB 接口，如若未插入 U 盘而执行该步骤操作，则无法进行升级操作，面板会提示“请确认 U 盘是否连接”，按 RETURN 键返回即可。
6) 当升级完毕后，面板显示“操作成功!”并自动回到导入花样模式界面，表示花样升级完成。

   注意：如果电控中已经存在 100~199 号升级的某些花样，也可以通过在 U 盘中存入命名编号与电控中已存在花样不同的花样文件，并按照上述操作进行花样追加；如果 U 盘中存入命名编号与电控中已存在花样相同的花样文件，则进行升级操作后，电控中那些编号相同的花样将被替换。

   另外，在第 4 步中，除了进行花样升级导入操作外，还可以选择“导出花样到 U 盘”或“删除导入电控的花样”分别进行相对应的操作。“导出花样到 U 盘”是将面板中已导入的花样备份到 U 盘中，而“删除导入电控的花样”是将所有 100~199 号花样全部删除。当单个花样大小超过 1000 针或 6000 个字节时，在导入花样操作时软件会自动过滤掉该花样。

6 附录 1

6.1 电控系统故障信息一览表

报错序号	信息描述
与开关相关的错误	
E002	缝纫过程中返踩踏板（只针对单踏板）急停。 按 RESET 键进入急停状态。 按 ENTER 键剪线，剪线后可以按上下实芯箭头单步动框。 按 RESET 键后踩踏板到二档可以继续缝纫。 此功能只有将 280 号参数设定为 ON 时才有效。
E010	急停开关未在正常位置 RESET 消除错误
E011	按了暂停开关 RESET 消除错误 按向下实芯键移动压脚可继续缝纫
E012	按了暂停开关 RESET 消除错误 踏板踩 2 档后进行原点检验
E016	电源接入时急停开关接触不良 关电后确认急停开关的连接正常
E025	电源接入时，脚跳踏板开关被踩到 2 档的位置。 切断电源，确认脚踏板开关。
E035	电源接入时，脚跳踏板开关被踩到 1 档的位置。 切断电源，确认脚踏板开关
E036	电源接入时，脚跳踏板开关被反踩到 3 档的位置或者踏板未连接。 切断电源，确认脚踏板开关
E050	电源接入后缝纫机头翻倒 切断电源，扶起机头。 确认机头翻倒开关位置正确，按下 RESET 键排除错误。
E051	缝纫启动过程中机头翻倒 确认机头翻倒开关位置正确，按下 RESET 键排除错误。
E052	进入缝纫准备状态时机头翻倒。 切断电源，扶起机头。 确认机头翻倒开关位置正确，按下 RESET 键排除错误。
E053	进入缝纫准备状态后机头翻倒。 切断电源，扶起机头。 确认机头翻倒开关位置正确，按下 RESET 键排除错误。
E054	缝纫机缝纫过程中机头翻倒。 切断电源，扶起机头。 确认机头翻倒开关位置正确，按下 RESET 键排除错误。

报错序号	信息描述
E065	电源接入时，面板有键处于摁下的状态，或者键接触不良。 切断电源，确认操作面板键。
与主轴电机相关的错误	
E100	出现加油报警通知后，若不添加润滑脂，继续使用一段时间后此显示会再次出现。添加润滑脂之后执行清除计数的操作。
E101	缝制针数累积到加油报警通知针数后，主控发送给面板的错误码，面板在收到这个错误码后，会提示机器需添加润滑油。
E110	上电后主轴电机找原点时机针不在正确位置，请手动旋转至合适位置后此故障会自动消失（此故障只对 430D 起作用）。
E111	上电后针杆位置异常 切断电源，确认缝纫机电机是否出现异常。
E121	剪刀位置异常。 切断电源，确认固定刀移动刀的刀刃部分是否受损。
E131	编码器故障或编码器未连接。
E132	主轴超速
E133	缝纫完成后缝纫主马达停止位置不正确。 切断电源
E135	电机运行异常
E136	IPM 频繁过流 1
E137	IPM 频繁过流 2
E138	电机堵转 1
E139	电机堵转 2 切断电源，确认机构运转正常，确认主轴电机电源线连接正确。
E140	停车过流
E141	电机过载
E142	母线电压异常
E143	异常电流
与传送设备相关的错误	
E200	无法检测 X 马达原点。X 马达不正常或者 X 编码器接触不良。 切断电源，确认 X 电机连接是否正常。
E201	X 脉冲马达校验错误。 切断电源，确认 X 送布方向是否异常。
E210	无法检测 Y 马达原点。Y 马达不正常或者 Y 编码器接触不良。 切断电源，确认 Y 电机连接是否正常。
E211	Y 脉冲马达校验错误。 切断电源，确认 Y 送布方向是否异常。
E217	步进软件版本错误

报错序号	信息描述
E218	步进驱动电源异常
E219	步进电机过流
E220	MD1 步进过流
E221	MD1 X 方向未走完
E222	MD1 Y 方向未走完
E223	MD2 步进过流
E224	MD2 X 方向未走完
E225	MD2 Y 方向未走完
与压紧设备相关的错误	
E300	无法进行压脚原点检测，抬压脚马达异常或者压紧编码器接触不良。 切断电源，确认压脚电机和编码器连接正确。
E302	开始缝纫时剪线梢所处位置不正确。 按 RESET 键恢复。
E303	剪线电磁铁吸合时间过长。
与通信及存储设备相关的错误	
E400	检测出操作面板和主控之间的连结通信错误。 切断电源，确认操作面板和主控的插头连接状况是否良好。
E401	步进驱动器通讯异常
E410	检测出主板和控电板主板之间的通信错误。 切断电源，再次接入电源。
E420	进行 U 盘数据读写时发现未插入 U 盘。 摁 RESET 键，排除错误。
E421	U 盘中的数据内容不正确，无法使用，或者无数据。 摁 RESET 键，排除错误。 确认 U 盘中是否存入该花样序号的数据。
E422	读取 U 盘信息时发生错误。 摁 RESET 键，排除错误。 确认 U 盘内的数据。
E424	U 盘内空间不足。 摁 RESET 键，排除错误。 使用其它 U 盘。
E425	写入 U 盘时发生错误。 摁 RESET 键，排除错误。请使用指定 U 盘。 确认是否是禁止写入，或者是否还有空间。
E427	注册在循环程序中的花样被删除。 摁 RESET 键，排除错误。重新注册循环程序，添加花样。
E428	设定在程序中的花样被删除。 摁 RESET 键，排除错误。

报错序号	信息描述
	重新设定程序，添加花样。
E430	花样数据无法存储到主板。 切断电源，并重新接入电源。
E450	机头板 EEPROM 读取错误。 切断电源，确认机头板的插头状况是否良好。
E474	内部存储已满无法复制。 摁 RESET 键排除错误。 清除不需要的添加花样。
与数据编辑设备相关的错误	
E500	做扩大设定之后，缝纫数据超过可以缝纫的区域。 摁 RESET 键，排除错误。 再次设定扩大缩放率或者缝纫区域。
E501	超过缝制区域
E502	做扩大设定之后，数据螺距超过最大螺距 12.7mm。 摁 RESET 键，排除错误。 从存储工具中重新读取程序数据，或者重新输入程序数据。
E510	程序数据出现异常。 摁 RESET 键，排除错误。 从存储工具中重新读取程序数据，或者重新输入程序数据。
E511	完成代码无法输入到程序数据中。 摁 RESET 键，排除错误。 重做输入完成代码的程序数据，或者变更读取程序的序号。
E512	超过可以使用的针数。 摁 RESET 键，排除错误。 变更读取程序的序号。
与装置相关的错误	
E600	发生面线断裂。 摁 RESET 键，排除错误。
E690	无法检出底线夹线马达的原点。底线夹线马达异常或者底线夹线马达编码器接触不良。 切断电源，清除针板底部的飞绒。
E692	底线夹线马达位置异常。 切断电源
与主板相关的错误	
E701	缝纫机主马达驱动电压异常上升。主电压（300V）过高。 切断电源，确认电压。
E702	缝纫机主马达驱动电压异常下降。主电压（300V）过低。 切断电源，确认电压。
E704	辅助设备电压（24V）过高 切断电源，确认输入电压。

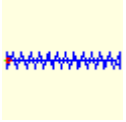
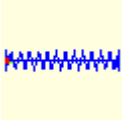
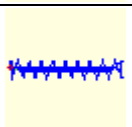
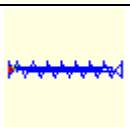
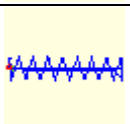
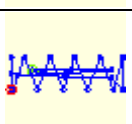
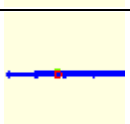
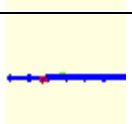
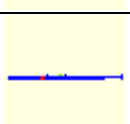
报错序号	信息描述
E705	辅助设备电压（24V）过低 切断电源，确认输入电压。
E706	辅助设备电压（24V）过流 切断电源，确认电控箱内风扇连接正确，确认电磁铁未短路。
E710	IPM 过压或过流 切断电源，确认缝纫机是否出现异常。
与版本升级相关的错误	
E888	主控与面板软件机型不符。 烧录匹配的主控和面板程序（同为 430D 或同为 430F）。
E889	主控与面板软件厂家不符。 烧录匹配的主控和面板程序（相同厂家版本）或按 RESET 键暂时清除错误。

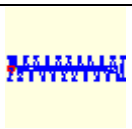
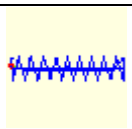
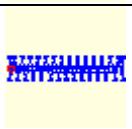
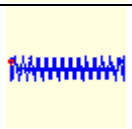
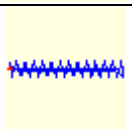
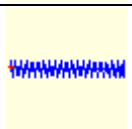
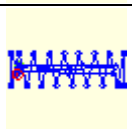
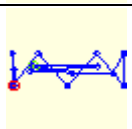
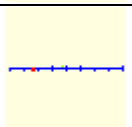
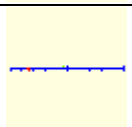
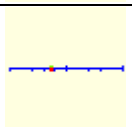
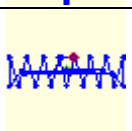
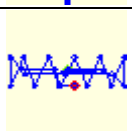
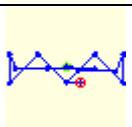
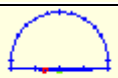
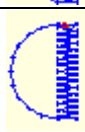
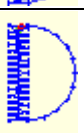
7.附录 2

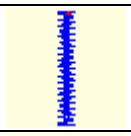
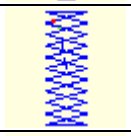
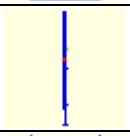
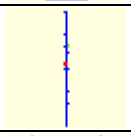
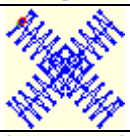
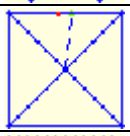
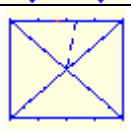
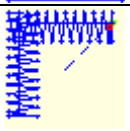
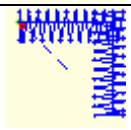
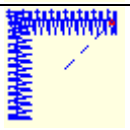
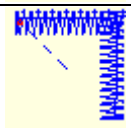
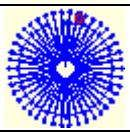
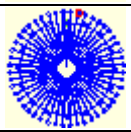
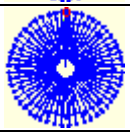
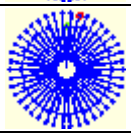
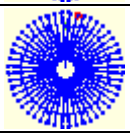
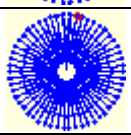
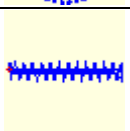
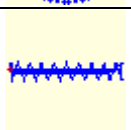
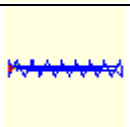
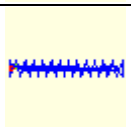
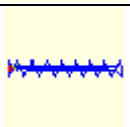
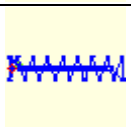
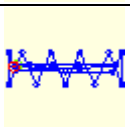
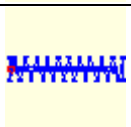
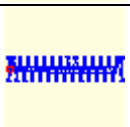
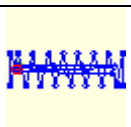
7.1 缝纫花样列表（KE-430D/KE-430F）

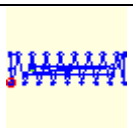
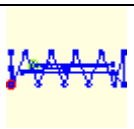
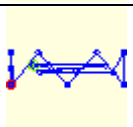
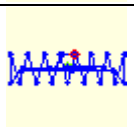
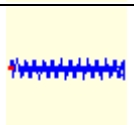
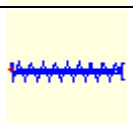
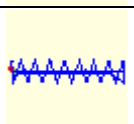
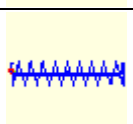
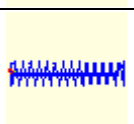
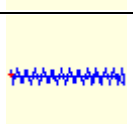
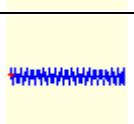
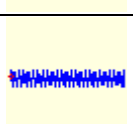
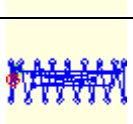
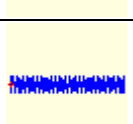
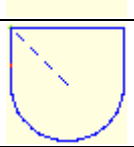
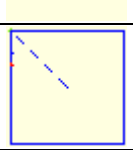
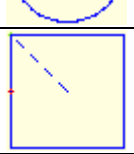
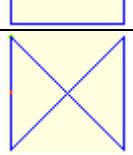
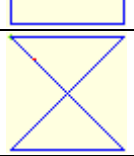
下面所示的缝纫花样已预先设置好，可以根据规格予以选择使用。（只要能够确认是在压脚、送布板的工作范围内，就可以选择使用任一种缝纫花样。）

请使用符合各种缝纫花样要求的压脚和送布板。缝纫尺寸为 100%缩放率时的长度。

NO.	缝纫图案	针数	长×宽 (mm)	NO.	缝纫图案	针数	长×宽 (mm)
1		41	16×2	2		41	20×3
3		34	19.8×3	4		30	16×2
5		28	10×2	6		29	16×3
7		27	8×2	8		20	7×2
9		20	6.9×2	10		20	10×0.3
11		27	10×0.3	12		27	20×0.3

13		34	10×2		14		34	15.9×3
15		41	10×2		16		42	16×3
17		41	24×3		18		55	24×3
19		63	24×3		20		27	7×2
21		34	7×2		22		13	6.9×2
23		34	25×0.3		24		41	25×0.3
25		44	25×0.3		26		27	3×10
27		34	3×10		28		18	0.3×10
29		20	0.3×10		30		27	0.3×10
31		27	8×2		32		21	8×2
33		14	8×2		34		34	12×7.2
35		57	12×7		36		56	7×12
37		56	7×12		38		52	7×10
39		52	7×10		40		31	3×16
41		35	3×16		42		43	3×20

43		67	3×24		44		45	9×15
45		69	9×25		46		26	0.3×20
47		43	0.4×25		48		69	10×10
49		92	10×10		50		83	16×16
51		104	30×26		52		59	11×11
53		59	11×11		54		77	15×15
55		77	15×15		56		105	9×9
57		115	9×9		58		126	9×9
59		103	10×10		60		113	10×10
61		123	10×10		62		41	20×3
63		34	19.8×3		64		29	16×2
65		42	16×2		66		31	16×2
67		29	10×2		68		21	7×2
69		35	10×2		70		41	10×2
71		28	7×2		72		35	7×2

73		28	8×2		74		21	7×2
75		14	7×2		76		28	8×2
77		22	8×2		78		42	20×3
79		35	19.8×3		80		30	16×3
81		35	15.9×3		82		43	16×3
83		42	24×3		84		56	24×3
85		64	24×3		86		20	6×2
87		27	6×2		88		34	6×2
89		89	24×3		90		42	30×30
91		44	30×30		92		28	30×30
93		36	30×30		94		35	30×30

***只有部分机型提供这些花样（90 号-94 号）**

7.2 缝纫花样列表（BE-438D/BE-438F）

下面所示的缝纫花样已预先设置好，可以根据规格予以选择使用。（只要能够确认是在压脚、送布板的工作范围内，就可以选择使用任一种缝纫花样。）

请使用符合各种缝纫花样要求的压脚和送布板。缝纫尺寸为 **100**%缩放率时的长度。

号码	纽孔数	花样	线数	包缝线	针数	尺寸（mm）

						X	Y
1	2		6	-	12	3.4	0
※154			6	-	12		
2			8	-	14		
※255			8	-	14		
3			10	-	16		
4			12	-	18		
※25			16	-	22		
※26			20	-	26		
※156			6	-	11	0	3.4
※37			6	-	12		
※323			10	-	16		
※38			12	-	18		
※39	3		5-5-5	-	21	2.6	2.4
※324			7-7-7	-	27		
※325			5-5-5	-	21		
※326			7-7-7	-	27		
※157	4		6-6	1	18	3.4	3.4
10			6-6	1	19		
※158			8-8	1	22		
11			8-8	1	23		
12			8-8	3	25		
13			10-10	1	27		
27			12-12	1	31		
※414			6-6	0	24		
※536			6-6	0	24		
※428			8-8	0	28	3.4	3.4
※5			8-8	0	28		

37							
※4 15			10-10	0	32		
※5 38			10-10	0	32		
※4 29			12-12	0	36		
※5 39			12-12	0	36		
※1 59			6-5	1	17		
16			6-5	1	18		
※1 60			8-7	1	21		
17			8-7	1	22		
30			10-9	1	26		
※1 61			6-6	1	18		
18			6-6	1	19		
※1 62			8-8	1	22		
19			8-8	1	23		
※1 63			10-10	1	26		
31			10-10	1	27		
45			12-12	1	31		
※4 20			6-6	0	24		
※5 40			6-6	0	24		
※4 32			8-8	0	28		
※5 41			8-8	0	28		
※4 33			10-10	0	32		
※5 42			10-10	0	32		
※1 64			6-6	1	18		
※3 21			6-6	1	19	2.4	3.4
※3 34			10-10	1	27		
※3※4			6-6	0	24		
							

22							
※3※5 43			6-6	0	24		
※3※4 35			10-10	0	32		
※3※5 44			10-10	0	32		
46			6-7	1	19	3.4	3.4
47			8-9	1	23		
48			10-11	1	27		
49			12-13	1	31		
65	4		6-6	1	19	2.8	2.8
66			8-8	1	23		
67			8-8	3	25		
68			10-10	1	26	2.6	2.6
69			12-12	1	31		

*1 用于小孔纽扣。

*2 使用程序前，请检查钮孔直径不小于 2mm。

*3 不可使用纽扣抬起弹簧。

*4 在完成一边缝纫后，纽扣夹就上升并进行拨线动作。为了将缝纫进行到底，在另一边的缝纫开始之前，请继续踩下脚踏开关；或在完成一边缝纫后，请再次踩下脚踏开关。

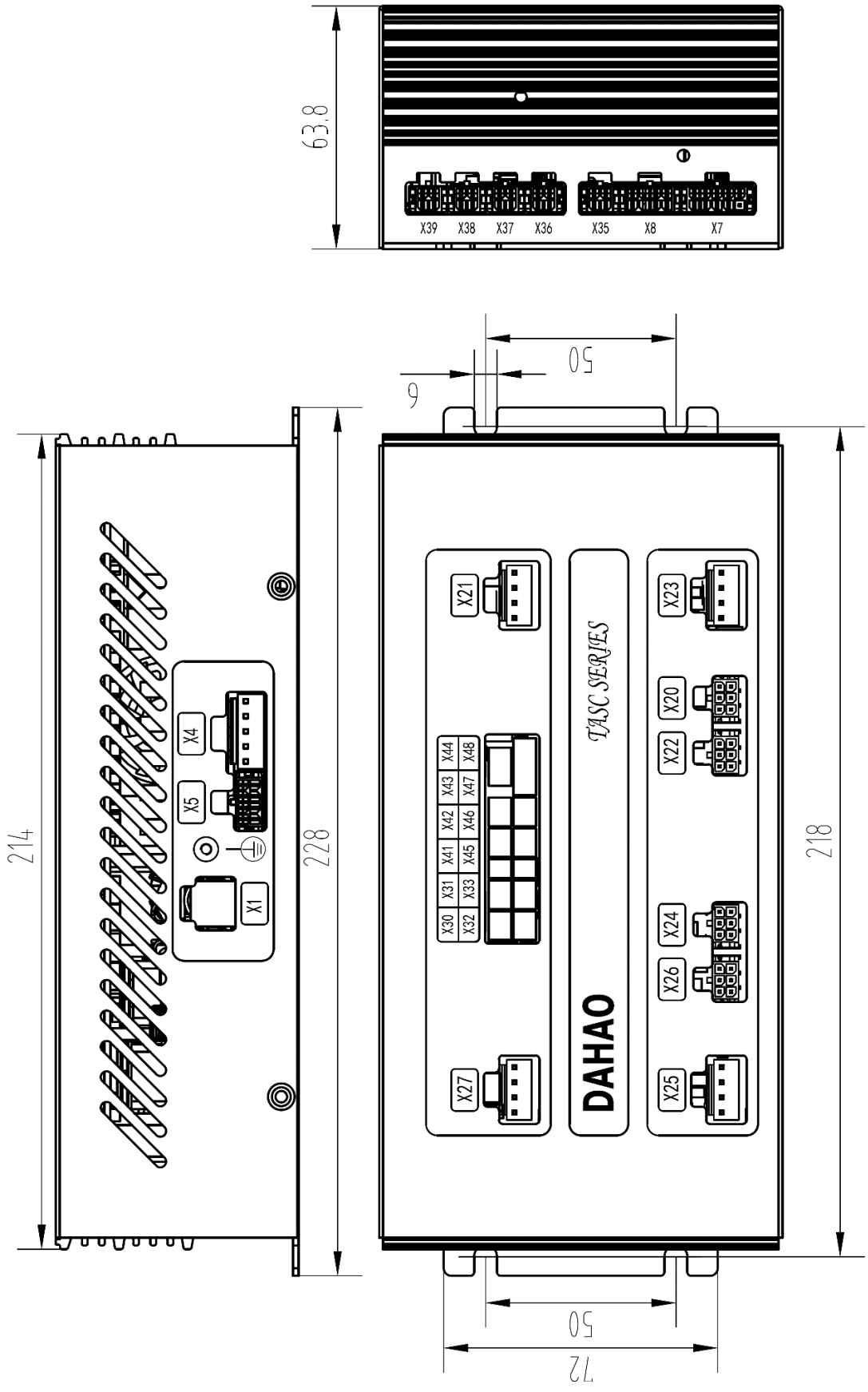
*5 在完成一边缝纫后，纽扣夹不上升而只进行拨线动作，并继续进行另一边的缝纫。

用于带柄钮扣					
号码	花样	线数	针数	尺寸（mm）	
				X	Y
50		6	12	3.4	0
51		8	14		
52		10	16		
53		12	18		

8 附录 3

8.1 操作箱安装尺寸

8.2 电控箱安装尺寸

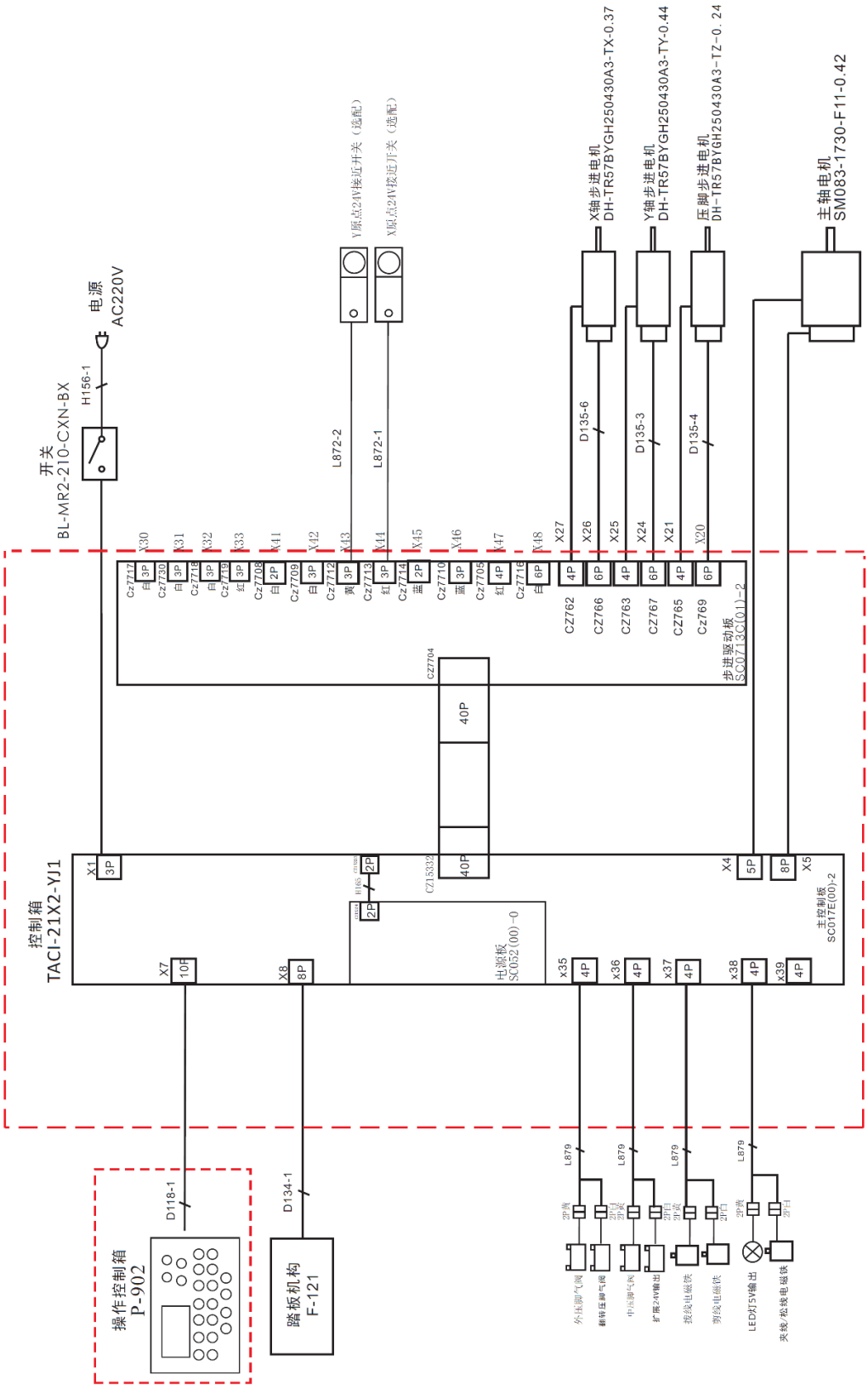


控制箱外部线缆连接

注：外部线缆插头上有对应的编号，请仔细查看后对应接插，参照示意图。

端口编号	端口名称	插头型号	端脚定义
X4	主轴电机电源接口	2114H-05	
X5	主轴电机编码器接口	CP3508S0010	
X7	操作头信号接口	43025-0001	
X8	脚踏板信号接口	CP3508S0010	
X20	步进电机编码器接口	CP3506S0010	
X21	步进电机动力线接口	2114H-04	
X22	步进电机编码器接口	CP3506S0010	
X23	步进电机动力线接口	2114H-04	
X24	步进电机编码器接口	CP3506S0010	
X25	步进电机动力线接口	2114H-04	
X26	步进电机编码器接口	CP3506S0010	
X27	步进电机动力线接口	2114H-04	
X30	气阀接口	1150940	1+24V,2NC,39820AIR4
X31	气阀接口	1150940	1+24V,2NC,39820AIR3
X32	气阀接口	1150940	1+24V,2NC,39820AIR2
X33	气阀接口	1150940	1+24V,2NC,39820AIR1
X35	气阀接口	CP3504S0010	1+24V/+27V,2+24V,3FK-OFF-OUT,4L-AIR-OUT
X36	气阀接口	CP3504S0010	1+24V,2+24V,3LM-AIR-OUT,4R-AIR-OUT
X37	电磁铁接口	CP3504S0010	1+27V,2+27V,3FL+,4FW+
X38	夹线磁铁接口	CP3504S0010	1ACT1+,2+5V/+24V,2+5V(花样机带RFID),3ACT1-,4GND
X39	1）24V 输出接口 2）RFID	CP3504S0010	124V+/RFIDA,2GND/RFIDB,324V+/RFIDZ,4GND/RFIDY
X41	断线检测接口	1150912	1PE,2TH-BRK-IN
X42	中压脚检测接口（预留）	1150940	1+5V/+24V,2IORG-IN,3GND
X43	Y 相电机检测接口	1150940	1+5V/+24V,2YORG-IN,3GND
X44	X 相电机检测接口	1150940	1+5V/+24V,2XORG-IN,3GND
X45	急停开关	1150912	1PAUSE-IN,2GND
X46	外压脚检测接口	1150940	1+5V,2PORG-IN,3GND
X47	剪线检测接口	1150971	1+5V,2PSENS-IN,3GND,4N/C
X48	备用检测接口（默认）/SPI 接口	1151032	1+5V//SPICLK/,2BYTEST-1-IN//SPISTE3/,3GND//SPISIMO/,4+5V/SPISOMI3,5BYTEST-2-IN/+5V,6GND

8.3 系统框图


电源
AC220V
H156-1
开关
BL-MR2-210-CXN-BX
Y原点24V接近开关（选配）
X原点24V接近开关（选配）
L872-2
L872-1
X轴步进电机
DH-TR57BYGH250430A3-TX-0.37
Y轴步进电机
DH-TR57BYGH250430A3-TY-0.44
压脚步进电机
DH-TR57BYGH250430A3-TZ-0.24
主轴电机
SM083-1730-F11-0.42
D135-6
D135-3
D135-4
步进驱动板
SC0713C(01)-2
CZ7004
40P
控制箱
TACI-21X2-YJ1
电源板
SC052(00)-0
主控制板
SC0117E(00)-2
操作控制箱
P-902
D118-1
D134-1
踏板机构
F-121
外压脚气阀
翻转压脚气阀
中压脚气阀
扩展24V输出
抬线电磁铁
剪线电磁铁
LED灯5V输出
夹线/松线电磁铁

21X

Bar-tacking and Button Sewing Machine(LCD Keys)

1 General Information

1. 1 Technical Parameters of 210/211

No.		210/211
1	Purpose	Bartacking / Button Lockstitch
2	Sewing Area	X(lateral) direction 40mm × Y(longitudinal) direction 30mm
3	Max. Sewing Speed	3200rpm
4	Stitch Length	0.1mm – 12.7mm (adjustable by 0.1mm)
5	Cloth Feed	Intermittent Feed(2-axis drive by pulse motor)
6	Needle Bar Stroke	41.2mm
7	Needle	DP ×5 #14 (DP×5 #11(F,M), (DP×17#21 thick cloth))
8	Type of Lifting Presser Foot	Driven by pulse motor
9	Height of Presser Foot	14mm (Standard), Max. 17mm
10	Total Number of Standard Patterns	100
11	Wiper Type	To work together with Presser Foot driven by Pulse Motor
12	Thread Catching Device	Standard : 0
13	Needle Thread Tension	Manual Thread Holding Device/Electrical Thread Tension Release (MASC211)
14	Shuttle	Standard Semi-rotary Hook or Semi-rotary Double Hook
15	Lubricating Method	Rotary Part: Lubricate with minimum amount
16	Lubricating Oil (Liquid)	Ordinary Sewing Machine Lubricating Oil (Liquid)
17	Grease	Ordinary Sewing Machine Grease
18	Data Memory	Flash Memory
19	Scaling Function	20%~200%(by 1%) in X direction and Y direction respectively
20	Scaling Method	By increasing/decreasing the stitch length
21	Max. Sewing Speed Limitation	200-3200rpm (by 100rpm)
22	Pattern Selection	Importing External Patterns (100-199)
23	Bobbin Thread Counter	Up/Down Type (0 – 999999)
24	Sewing Machine Motor	500W Compact AC Servomotor (Direct Drive)
25	Dimensions	263mm×153mm×212mm
26	Weight	10 Kg
27	Rated Power	600W
28	Temperature Range	0℃ - 45℃
29	Humidity Range	35% - 85% （No Dew Condensation）
30	Line Voltage	AC 220V ±10%; 50-60Hz

※ Please reduce the max. sewing speed in accordance with the sewing conditions.

※ Effective standard for product: QCYXDK004—2016 “Computerized Control System for Industrial Sewing Machine”

1.2 Application Machine Type

210/211 electronic bar-tacking and button sewing machine

1.3 Input Mode

Use keys to input.

1.4 Display Method

Use black and white lattice LCD and LED to display all the information.

1.5 Panel Layout

The quadrate Panel can be divided into two parts, the display part and the operation part. The display part consists of 1 lattice LCD and 4 LEDs and the operation part consists of 17 keys. Refer to the picture of the panel.

1.6 Standardization

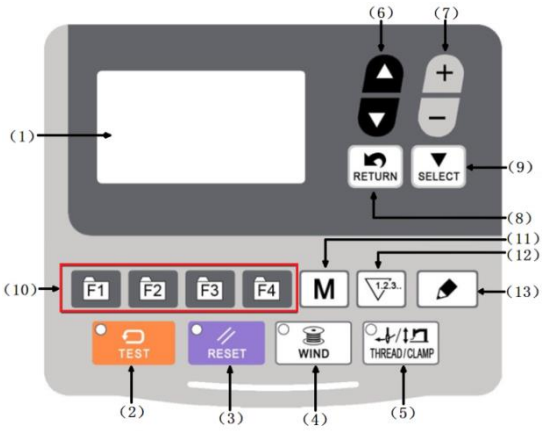
The function keys use standard images recognizable and popular within the industry. Image is an international language that can be understood by any nation.

1.7 Operation Mode

Function keys include READY key, RESET key, MODE key, WINDING key, COUNTER key, EDIT key, THREADING/PRESSER FOOT HEIGHT key, SELECTION key, UP/DOWN key, RETURN key and other keys for special functions. See operation instruction for detailed operating methods.

2 Operation and Debugging

2.1 Instructions of Operation Panel



(14) LCD

Display pattern number, shape and various other data.

(15) Test

To press this key under sewing ready status (with presser foot at upper position) is to enter pattern trial sewing function interface.

(16) Reset

This key is used for canceling error or returning the set value to the initial value.

(17) Wind

This key is used for winding (bobbin thread).

(18) Threading/Clamp

Lift up or lower down the presser foot. When presser foot goes up, move the needle bar to the origin; and, when presser foot goes down, move the needle bar to the right side. Then, press  to enter the function of presser foot height setting.

(19) Item Selection

This key is used to select among various pattern types, menu items or parameters.

(20) Data Modification

This key is used to modify the parameter value. Under trial sewing mode, this key is used to move single needle and feed cloth.

(21) Return

Return to the previous interface.

(22) Select

This key is used to enter the selected item or make cyclic shift among various items.

(23) Pattern Shortcut (select pattern fast)

According to the set value of parameters, these keys can be used to make quick selection of patterns or for some special purposes.

(24) Mode (M Key)

Enter the function menu interface.

(25) Counter

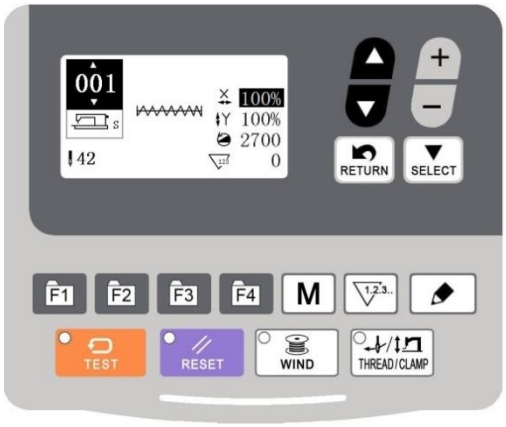
Under sewing editing mode (unready for sewing), press it to enter counter setting mode directly.

(26) Edit

Under sewing origin detection standby status or sewing ready status, this key is used to enter the interface for editing pattern parameters. For certain functions, this key can be used for special purposes.

2. 2 Basic Operations

2. 2. 1 Pattern Number Setting

Open power swtich. On the left upper side of the screen will be displayed the pattern No., stitch number on the left lower side, pattern shape in the middle, and X/Y scale rate, sewing speed and counter value on the right side. Under this interface, press  to modify pattern No., and press  to change the selected pattern parameter.	

2. 2. 2 Pattern Parameter Settings

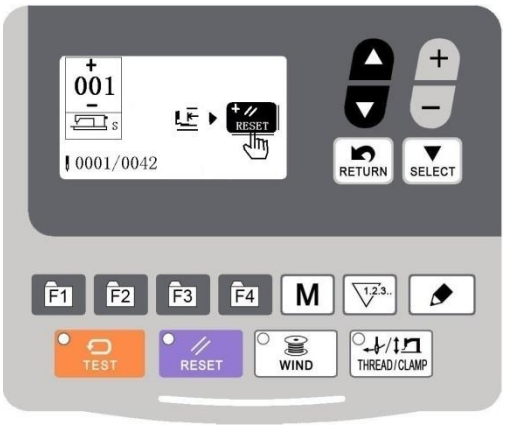
Under origin detection standby status or sewing ready status, press  to enter the interface for pattern parameter modification, where user can press  or  to change the parameter and press  to modify the selected parameter. After modification, to quit the interface is to make effective the modification. (1) During modification of XY scale rate, please make sure the pattern is within the range of the presser foot. Otherwise, the needle may clash with the presser foot and break, which is very dangerous! (2) The maximum sewing speed is controlled by parameter K163 and shall be no higher than the set value of K163. (3) The setting of needle thread tension can only be displayed by machine type 211 when parameter K560 is set as 0.	

2. 2. 3 Confirmation of Pattern Shape (Test Function)

Warning!

1. After selecting patterns, user must check the pattern shape before sewing. Once the pattern is beyond the range of the presser foot, the needle would clash with the presser foot and break during sewing, which is very dangerous.

2. When checking the pattern shape, if user presses  **to move the frame when the needle bar is down, the needle bar will return to the stop position first before the presser foot starts to move.**



6) Under sewing ready status, press  and the LED indicator on this button will light up.

7) Step pedal to level 1 to lower down the presser foot.

8) Press  to move on stitch forward along with the pattern shape, and holding pressing  will make the presser foot continue moving until the last stitch of the pattern. To press  is to move backward.

9) When presser foot is moved to certain stitch position, press  to make the presser foot return to the sewing start point and then lift up.

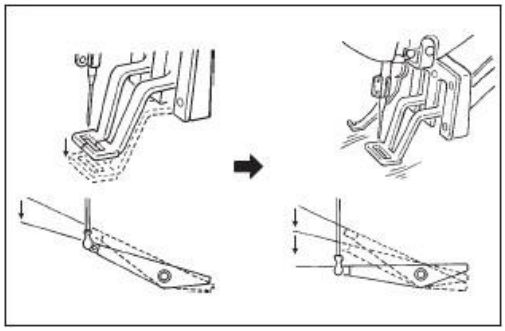
10) After pressing  , the sewing interface will be displayed under the status of the present position and the presser foot will not lift up.

Under this condition, step pedal to start sewing from the present position.

2. 2. 4 Sewing

Sewing:

5. Put sewing material under presser foot.
6. Step pedal to level 1 to lower the presser foot and release the pedal to lift the presser foot.
7. Step pedal to level 2 to start sewing.
8. At sewing end, presser foot will lift and return to sewing start.

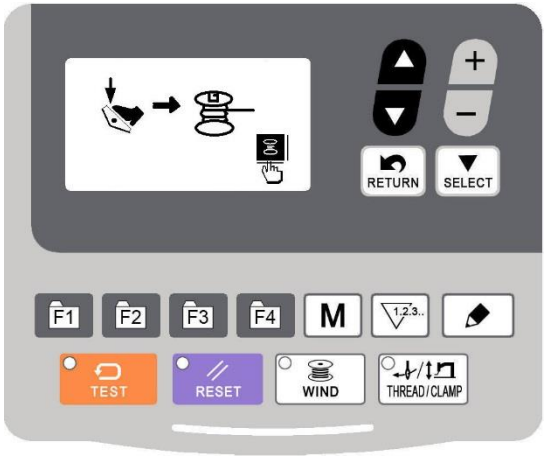


2. 2. 5 Change to Other Pattern

Press  to change pattern No., and at the same time the control system will be automatically shifted into origin detection standby mode. XY scale rate, speed, etc. can be set in the same way as [2.2.1 item data setting]. Step pedal to level 2 and the control system will enter sewing ready status. Please confirm the pattern

shape after pattern selection, in case the pattern is away from presser foot and needle will collide with presser foot and break during sewing.

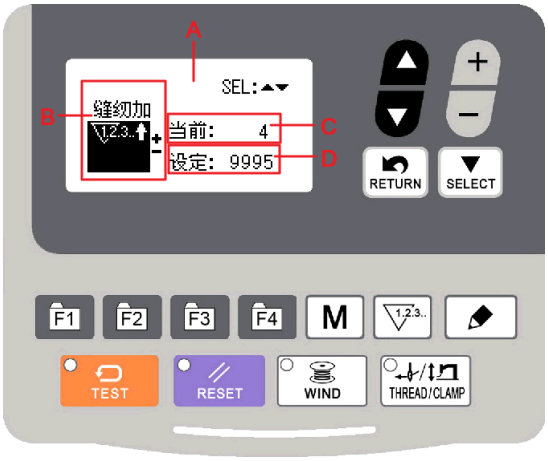
2. 2. 6 Bobbin Thread Winding

5) Under origin detection standby mode, press WIND to enter winding function mode 6) Under winding function mode, step pedal to level 2 and the main shaft motor will rotate and drive the winding device to wind. 7) Step pedal again or press RESET to stop the sewing machine. 8) Press WIND again to quit the winding function interface.	

2. 2. 7 Sewing with Counter

(3) Counter Setting Method

5) Enter counter setting interface Under origin detection standby status or sewing ready status, press M mode key or to enter sewing counter interface. Counter interface A will be displayed, where counter value can be set. 6) Select counter type Press to shift the counter type (B) and press to select proper counter.	

7) Change counter value Press  to change the set value of the counter (C) and press  to input the present sewing value. 8) Change the present counter value Press  to change the present value of the counter (D) and press  to clear the counter value. In addition, press  to edit the present value.	

(4) Counter Type

B01 Sewing Plus Counter

The present value will add 1 after sewing 1 shape.

Present value and set value

B02 Sewing Minus Counter

The present value will deduce 1 after sewing 1 shape.

When present value reaches 0, minus counter interface will be displayed.

B03 Cyclic Plus Counter

Calculate present value of 1 cyclic sewing by adding number. When present value equals with set value, counter interface will be displayed.

B04 Cyclic Minus Counter

Calculate present value of 1 cyclic sewing by deducing number. When present value reaches 0, counter interface will be displayed.

B05 Bobbin Thread Plus Counter

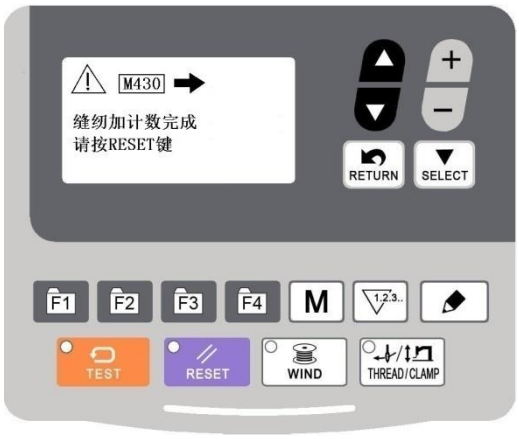
Add to the present value after every 10 stitches. When present value equals set value, counter interface will be displayed.

B06 Bobbin Thread Minus Counter

Deduce the present value after every 10 stitches. When present value reaches 0, counter interface will be displayed.

B07 Close Counter

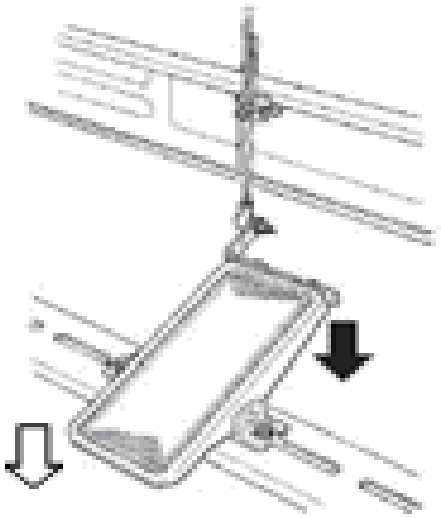
(5) Counter Release

When the counter value is exhausted, counter interface will be displayed. Press RESET key to reset the counter and then the counter will start counting again.	

2. 2. 8 Pause

Emergency Stop by Pedal

Pedal has three levels: level 1 to lower the presser foot, level 2 to start sewing and level 3 (to step backward with heel) for emergency stop.

1） Under sewing ready status, step the pedal forward ⬇ to lower the presser foot; 2） Step the pedal forward again⬇ to start sewing; 3） During sewing, user can step the pedal backward to stop the machine emergently and the operation panel will display “E-002”. 4） When sewing machine stops, press RESET to release the error and the cloth feeding interface will be displayed. 5） 3 kinds of operations after release 1. Step pedal to level 2 to restart sewing; 2. Press RESET and press + − to adjust position after thread trimming. Then, step pedal to level 2 to start sewing. 3. Press RESET and after thread trimming press RESET again to move the frame to the pattern sewing start.	

2. 3 Settings of P Pattern and C Pattern

2. 3. 1 Settings of P Pattern

User can register patterns stored in memory or imported from external device (No.100-199) to P01-P99 and at the same time set up X/Y scale rate and maximum rotation speed of these patterns. Press M key to enter function list, where user can select "03 register/delete P patter" and press SELECT to enter the corresponding interface.

Under such interface, press ▲▼ to select P pattern number and press SELECT to select pattern number, scale rate and sewing speed, where user can press + − to change the value of the selected item.

Example: register memory pattern No.3 to P2, with X scale rate being 50% and maximum speed being 2,000 sti/min.

5) Turn on the power and then press M to enter function menu. Press ▲▼ to select "03 register/delete P pattern" and press SELECT to enter the corresponding function interface. 6) Press ▲▼ to selected an unregistered P pattern number (e.g. P01), press SELECT to select pattern number and set it as 3 by data modification key. 7) The settings of scale rate and sewing speed are the same as the settings of pattern number 8) After settings, press RETURN to quit.	

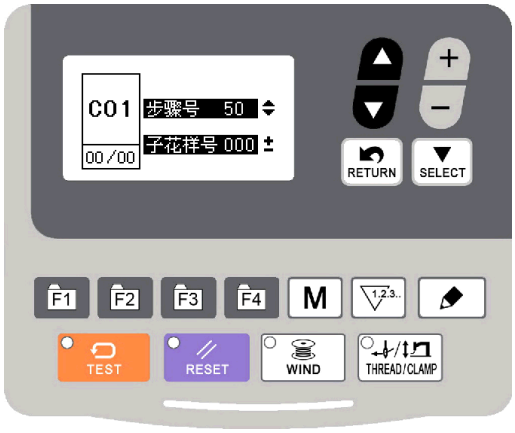
2. 3. 2 Register Cyclic Pattern (C Pattern)

This machine can be used to sew several patterns in order cyclically.

Up to 99 patterns can be inputted. It can be used to sew materials with various different patterns.

In addition, 99 data of group sewing can be registered.

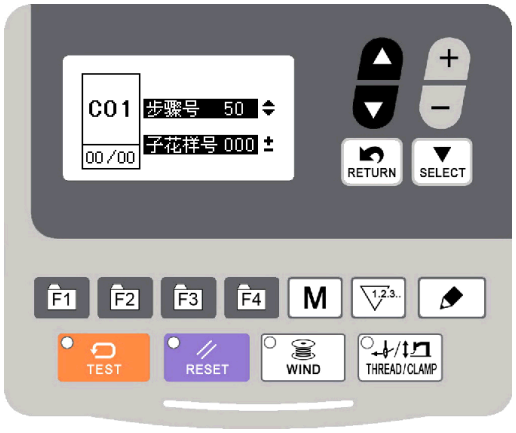
(6) Cyclic Data Selection

4) Enter cyclic pattern registration function Turn on power, press M to enter function menu, press ▲▼ to set 「04 register/delete C patter」 under selection, and then press SELECT to enter the corresponding function interface.	
5) Register cyclic pattern Press ▲▼ to select an unregistered C pattern number and then press SELECT to activate the step number and the sub-pattern number functions. Press ▲▼ to change the step number and press +/− to change the sub-pattern number. After finishing one C pattern, press RETURN to quit. **Note: the step number shall be increased in order; otherwise the C pattern will not become effective.**	

6) Conduct sewing

Under the origin detection standby status of C pattern, step pedal to level 2 to search origin, where the frame will move automatically to the sewing start of the first sub-pattern, the presser foot will lift up and the system will enter sewing ready status. At this time, step pedal to level 2 to start sewing and after finishing sewing one sub-pattern, the frame will move automatically to the sewing start of the next sub-pattern. The presser foot will lift up and the system will enter sewing ready status again.

(7) Cyclic Pattern Modification

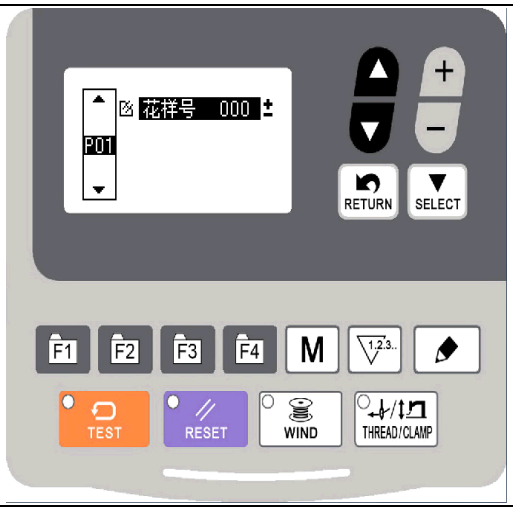
1) Enter cyclic pattern registration function Press M key to enter function menu, select 「04 register/delete C patter」, and then press SELECT to enter the corresponding function interface. 2) Modify sub-pattern Press SELECT to activate step number and sub-pattern number, then press ▲▼ to change the step number	

and press  to change the sub-pattern number. After modification, press  to quit.	

2.4 Delete P Pattern and C Pattern

User can delete certain or all registered P patterns or C patterns.

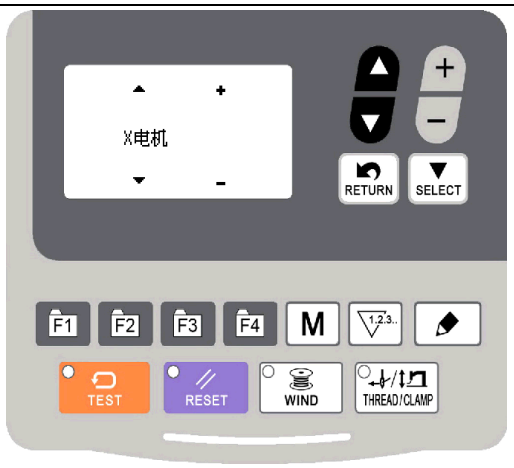
2.4.1 Delete P Pattern

3) Press  to enter function menu, press  to select “03 register/delete P pattern” and press  to enter this mode.	
4) Press  to the pattern number to be deleted and set it as 0 to delete it. Then press  to quit.	

2.4.2 Delete C Pattern

3) Press M to enter function menu, press ▲▼ to select "04 register/delete C pattern" and press SELECT to enter this mode. 4) Press SELECT to activate step number and sub-pattern number and press + − to set the sub-pattern number of step number 01 as 0 to delete this C pattern. Then, press RETURN to quit.	

2.5 System Input Test

This mode can help check faults of the control system and the machine. 4）Under origin detection standby status or sewing ready status, press M to enter menu function interface, then press ▲▼ to select "11 output test", and then press SELECT to enter the output test function.	

5）Press ▲▼ to change test item, and for each test item, press + − to make the test. Functions for test are as follows:

Test Item	Function
X Motor	Press + - keys to test whether X motor can rotate normally clockwise or anti-clockwise.
Y Motor	Press + - keys to test whether Y motor can rotate normally clockwise or anti-clockwise.
Presser Foot Motor	Press + - keys to test whether presser foot motor can rotate normally clockwise or anti-clockwise.
Thread Catching Motor	Press + - keys to test whether thread catching motor can rotate normally clockwise or anti-clockwise (only for 211).
Thread Trimming Solenoid	Press + - keys to test whether thread trimming solenoid can work normally.

Thread Tension Solenoid	Press + - keys to test whether thread tension solenoid can work normally (only for 211).
Main Shaft Motor	Press SELECT or RESET to activate or stop the main shaft motor. Press + - keys to set the rotation speed of the main shaft.

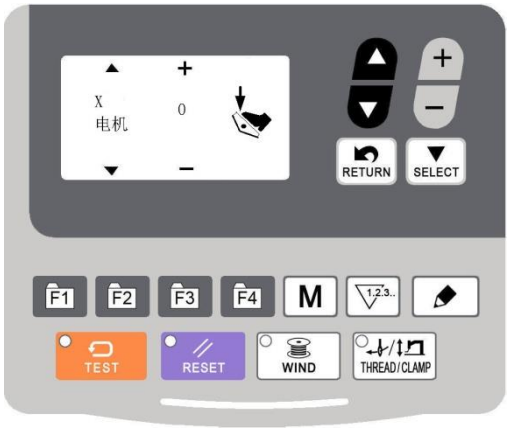
6）Press RETURN or M to terminate test and return to the status of step 2).

2. 5. 1 System Input Test

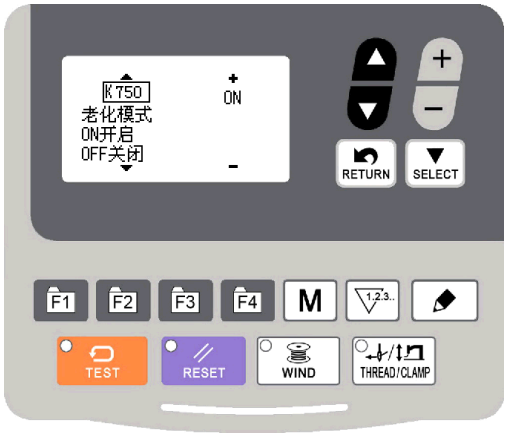
3) This function is used to test the input status of panel keys, pedal switch and various sensors. Select “10 System Input Test” and press SELECT to enter. 4) Under this mode, press ▲▼ to change test item and the status of the test signal is displayed at the right side of the screen. This function can be used to test thread breakage signal, head tilt signal, emergency stop signal, pedal signal and main shaft angle.	

2. 5. 2 Stepping Origin Adjustment

This function can be used to adjust the origin of X, Y, presser foot or thread catching motor. Select “12 stepping origin adjustment” in the menu and press SELECT to enter.

2) X motor origin adjustment Step pedal to level 2 first. The presser foot will lower down and X origin detection will be made. Then, the current adjustment value (C) will be displayed on the screen. Press + − to move X stepping motor step by step. The adjustment value will change accordingly. Observe the center of the presser foot and the position of needle hole. When they overlap, the adjustment is finished. If no other stepping motor needs adjusting, press RETURN key to return to the previous menu. If other stepping motor needs adjusting also, press ▲▼ to select other stepping motor. The adjusting method is the same.	

2. 5. 3 Aging Mode

Under aging mode, the machine will repeat sewing the same pattern. Hold pressing M for 3 seconds under the origin detection standby status, then select “02 administrator parameters” and change parameter No.750 as ON. Press RETURN to return to origin detection standby status. Step pedal to level 2 to make the machine enter sewing ready status. Step pedal to level 2 again to make the machine repeat sewing the same pattern. Turn off the power to quit the aging mode.	

2) Setting of Aging Interval Time

Under the function interface of “02 administrator parameters”, select parameter No.751, and then press to set the interval time between two operations.

Range: 10-20ms (by increment of 1ms), default: 20ms.

2. 5. 4 Main Shaft Motor Test

Set the rotation speed of the machine, and then drive the main motor of the machine to display the actual rotation speed under the set rotation speed.

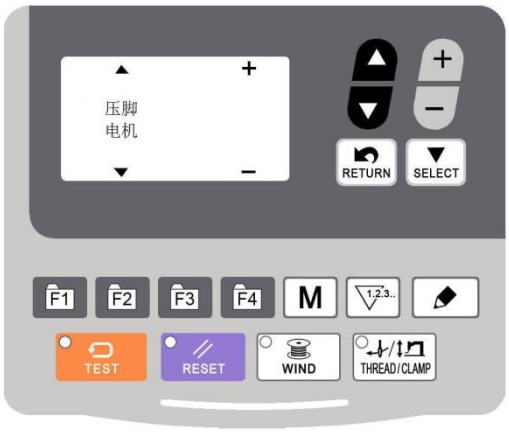
3) Preparation Press M key to enter menu function, where user shall select “11 output test” and press to enter main shaft motor test interface. The screen will display the “set rotation speed”, “actual rotation speed” and “main shaft angle” of the main shaft motor.	

4) Operation

Press to change the set rotation speed of the main shaft, and then press SELECT to operate the machine at the set rotation speed. If the set rotation speed needs changing, user can continue pressing during the operation to set the rotation speed and then press SELECT again to operate the machine at the new set rotation speed. Press RESET to stop the machine. After machine stops, press RETURN key to quit.

2. 5. 5 Presser Foot Motor Test

This function can be used to make the inching operation of the presser foot motor and the origin detection operation.

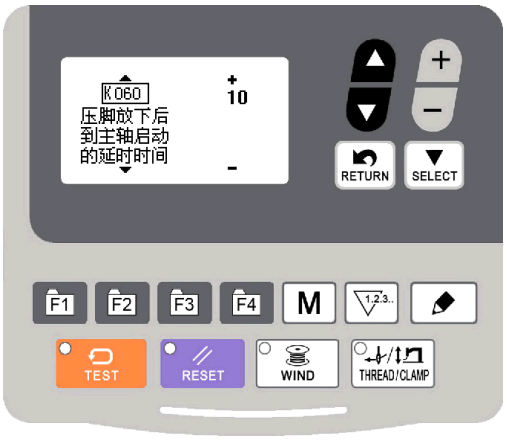
3) Presser Foot Motor Running Test Press M key to enter menu function, where user can select “11 output test” and press ▲▼ to enter the test interface of presser foot motor. Under this test interface, press + − to make single step movement test and step pedal to level 2 to make origin detection. 4) Simulation Operation Test of Presser Foot Motor Under this mode, step pedal to level 2 to execute origin detection, and then press ✎ key to make simulation operation of the motor at various work positions such as lifting up, lowering down and thread wiping in the midway.	

2. 5. 6 Panel Test

Under this test, press ✎ to light up all LED lights on the panel and the full screen of LCD, and press ✎ key to return to normal display status.

2. 6 Modification of User or Administrator Parameters

5) Under origin detection standby status or sewing ready status, press M to enter menu function and display “01 user parameters”, or hold pressing M for 3 seconds to display “02 administrator parameters”. 6) Enter parameter modification interface Press ▲▼ to select “01 user parameters” or “02 administrator parameters” and press SELECT to enter corresponding modification interface.	

7) Select parameter number Press  to select the parameter number to be modified. 8) Change the parameter value Press  to change the value. The set value will become effective directly after modification. After modification, pres RETURN key to return to the previous menu.	

2.6.1 User Parameter List

No.	Function	Range	Default	Remarks
U001	Lifting method of presser foot or button clamp after sewing	OFF, 1, 2	1	
U072	Lightness of head light	0～6	1	
U100	Setting method of slow start mode	ON, OFF	OFF	
U200	Cloth feeding method under test sewing function	ON, OFF	OFF	
U402	Display of scale rate	ON, OFF	OFF	
U405	Display of C pattern	ON, OFF	ON	
U406	Method of using function keys to switch pattern number	0～3	0	
U407	Corresponding pattern number for F1	ON, OFF	1	
U408	Corresponding pattern number for F2	ON, OFF	2	
U409	Corresponding pattern number for F3	ON, OFF	3	
U410	Corresponding pattern number for F4	ON, OFF	4	
U500	Whether to activate thread catching function	ON, OFF	OFF	
U596	Whether to activate head overturn test function	ON, OFF	OFF	

3 Settings of Administrator Parameters

Administrator parameters are different from normal parameters and usually are not allowed to change by users. These parameters are for technicians to debug the machine.

3.1 Modification of Administrator Parameters

Under origin detection standby mode or sewing ready mode, hold pressing M for 3 seconds until buzz sound is heard, and then "02 administrator parameters" will be displayed on the function menu.

The modification method of administrator parameters is the same with that of user parameters, please refer to section 2.6.

3.2 Administrator Parameter List

No.	Setting Content	Setting Range	Default Value	Setting unit
Related to pedal and button clamp (001-099)				
60	Effective for single pedal: start delay of main shaft after lowering of presser foot	0～3000ms	0	10
70	Pedal type: 1: single pedal 2: double pedal	1～2	1	1
71	Action mode of single pedal: Effective when parameter No. 70 is set as 1 1: level 1 to lower presser foot, level 2 to sew 2: level 1 to lower presser foot halfway, level 2 to lower it to bottom and start sewing	1～2	1	1
72	Action mode of double pedal: Effective when parameter No. 70 is set as 2 1: level 1 of presser foot switch to lower presser foot, start switch to start sewing 2: level 1 of presser foot switch to lower presser foot halfway, level 2 to lower it to bottom, and start switch to start sewing 3: step start switch to lower presser foot and start sewing	1～3	1	1
73	Pedal stroke return difference adjustment The smaller the value is, the more sensitive the pedal is.	0~15	0	1
Motor (100-199)				
100	Setting method of slow start mode: ON: set according to each program OFF: the start speed of 1-5 stitches is set according to the memory switch 151-155	ON, OFF	OFF	Effective only for ASC211

No.	Setting Content	Setting Range	Default Value	Setting unit
150	Needle lift by reversal when main shaft stops ON: YES OFF: NO	ON, OFF	OFF	
151	The speed of 1st stitch after sewing start (effective when parameter No.100 is set as OFF)	200~3200	Bar-tacking: 800 Button-sewing: 400	100
152	The speed of 2nd stitch after sewing start (effective when parameter No.100 is set as OFF)	200~3200	Bar-tacking: 1200 Button-sewing: 400	100
153	The speed of 3rd stitch after sewing start (effective when parameter No.100 is set as OFF)	200~3200	Bar-tacking: 2500 Button-sewing: 600	100
154	The speed of 4th stitch after sewing start (effective when parameter No.100 is set as OFF)	200~3200	Bar-tacking: 3200 Button-sewing: 900	100
155	The speed of 5th stitch after sewing start (effective when parameter No.100 is set as OFF)	200~3200	Bar-tacking: 3200 Button-sewing: 2700	100
156	The speed of last 5th stitch before sewing end	400~3200	Bar-tacking: 3200 Button-sewing: 2700	100
157	The speed of last 4th stitch before sewing end	400~3200	Bar-tacking: 3200 Button-sewing: 2700	100
158	The speed of last 3rd stitch before sewing end	400~3200	Bar-tacking: 3200 Button-sewing: 2700	100
159	The speed of last 2nd stitch before sewing end	400~3200	Bar-tacking: 2400 Button-sewing: 2000	100
163	Max. Sewing Speed	1200~3200	Bar-tacking: 3200 Button-sewing:	100

No.	Setting Content	Setting Range	Default Value	Setting unit
			2700	
164	Auto thread trimming function: ON: prohibited OFF: activated	ON, OFF	OFF	
165	Backstitch needle lift and stop position (adjustment of needle lift angle by reversal) -: higher +: lower	-20~20	0	1
171	Main shaft lock after machine stop ON: locked OFF: not locked	ON, OFF	OFF	Effective only for ASC210
Cloth Feeding Device (200-299)				
200	Cloth feeding test method by 1 stitch ON: step pedal to move one stitch OFF: step pedal to finish until the last stitch	ON, OFF	OFF	
250	Origin detection after sewing ON: yes OFF: no	ON, OFF	OFF	
252	Stitch number for thread breakage detection (only for machine with thread breakage detection function)	0~8	0	
253	Method to enter sewing ready status 0: when program No. indicator flickers, step pedal to level 2 (for double pedal, step start switch) 1: when program No. indicator flickers, press RESET key 2: when program No. indicator flickers, press special external import device (optional)	0~2	0	1
260	Change all cloth feeding time -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
261	Change cloth feeding time for 1st stitch at sewing start -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
262	Change cloth feeding time for 2nd stitch at sewing start -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
263	Change cloth feeding time for 3rd stitch at sewing start -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
264	Change cloth feeding time for the last 3rd stitch before sewing end -: cloth feeding time goes ahead	-30~30	0	1

No.	Setting Content	Setting Range	Default Value	Setting unit
	+: cloth feeding time goes delayed			
265	Change cloth feeding time for the last 2nd stitch before sewing end -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
266	Change cloth feeding time for the last stitch before sewing end -: cloth feeding time goes ahead +: cloth feeding time goes delayed	-30~30	0	1
267	Number of effective stitches designated when the default value of all cloth feeding time are changed OFF: limitless 1~99: after sewing the designated number of stitches, go back to the standard cloth feeding time	OFF, 1~99 stitches	OFF	1
268	Criterion for changing all cloth feeding time 0: feeding start 1: needle bar upper position 2: feeding end	0~2	1	1
269	Delay of air valve presser foot	-80-80	0	1
270	Whether thread breakage detection is effective OFF: ineffective ON: effective *only for certain machine types	0: OFF 1: ON		0
271	Standby position of resser foot/button clamp ON: in the center of the area OFF: at the sewing start position	ON, OFF	OFF	
274	Presser foot lowering speed Negative: slower Positive: faster	-5~2	0	1
275	Presser foot lifting speed Negative: slower Positive: faster	-5~2	0	1
276	Presser foot lifting speed at sewing end Negative: slower Positive: faster	-5~2	0	1
277	Thread wiping mode 0: air valve 1: motor	0，1	1	1
278	Presser foot-wiper linkage action impulse number	-20~20	0	1
279	Presser foot control method	0，1	0	1

No.	Setting Content	Setting Range	Default Value	Setting unit
	0: motor 1: air valve			
280	Step pedal backward or press emergency stop button	ON, OFF	OFF	
281	XY origin detection speed	0~100	0	1
Operation Panel (300-399)				
300	Display production number ON: display production number OFF: display bobbin thread number	ON, OFF	OFF	
352	Counting position of production number ON: use cyclic program unit OFF: use sewing data unit	ON, OFF	OFF	
353	Counting of bobbin thread ON: from sewing start OFF: from sewing end	ON, OFF	OFF	
Program Equipment (400~499)				
404	Display of program number 1~199 ON: use program number 1-199 to select program OFF: 1-199 cannot be used to select program number (if no program is registered, press ON to set)	ON, OFF	ON	
405	Display of C pattern program number ON: yes OFF: no	ON, OFF	ON	
458	Sewing area limitation at X positive direction	0.0~20.0mm	20	1
459	Sewing area limitation at X negative direction	-20.0~0.0mm	-20	1
460	Sewing area limitation at Y positive direction	0.0~15.0mm	15	1
461	Sewing area limitation at Y negative direction	-15.0~0.0mm	-15	1
462	Trimming solenoid attracting current level	0~45	0	1
465	Parallel transport of sewing pattern	1~3（*1）	1	1
469	Tension setting ON: tension value for all program *unable to make uniform correction OFF: to set whenever to login program	ON, OFF	OFF	
470	Set height of presser foot/button clamp whenever to login program ON: to set whenever to login program OFF: set uniform height for all program *Height of presser foot/button clamp is set by parameter No.471 and 472.	ON, OFF	OFF	

No.	Setting Content	Setting Range	Default Value	Setting unit
471	Set lifting position of presser foot (effective when parameter No.470 is set as OFF)	10~17mm	14	1
472	Setting of two-stage presser foot	-30~30	0	1
Device Equipment (500~599)				
500	Bobbin thread holding function setting ON: effective OFF: ineffective	ON, OFF	OFF	
551	Upper thread tension release at sewing start OFF: closed 0-3: open within set number of stitches	OFF, 1~3 stitches	Related to machine type	1
560	Upper thread tension control 0: via thread holding solenoid (electric) 1: via thread loosing solenoid (manual)	0 或 1	Related to machine type	1
566	Installation of thread catching device ON: installed OFF: uninstalled	ON, OFF	ON	
568	Adjustment of thread residue The larger the value is, the longer the thread residue is.	-5~10	0	1
570	Control of thread trimming solenoid attracting current via modulation technique ON: use (reduce trimming noise) OFF: not use (increase trimming solenoid attraction force)	ON, OFF	ON	
571	Modulation time of thread trimming solenoid attracting current	0~40	0	
572	Trimming after emergency stop 0: no 1: manual 2: automatic	0~2	1	
573	Voltage for thread trimming and upper thread tension solenoid control ON: 33V (increase trimming solenoid attraction force) OFF: 24V	ON, OFF	OFF	
580	Thread catching angle compensation at start	-10~10 °	0	1
581	Thread catching opening angle compensation	-10~10 °	0	1
582	Upper thread tension increased at sewing start ON: effective OFF: ineffective	ON, OFF	ON	
583	Upper thread tension increasing angle deviation at sewing start	-5~2 °	-5	1
584	Upper thread tension releasing angle deviation after	0~17 °	4	5

No.	Setting Content	Setting Range	Default Value	Setting unit
	sewing			
585	Upper thread fastening tension value at sewing start (1st stitch)	0~200	75	1
586	Thread trimming solenoid attraction current (only applicable to 430D) To decrease this parameter will reduce the attraction current and therefore reduce the trimming noise.	-9~3	0	1
587	Upper thread loosing tension value at sewing start	0~300	0	1
589	Thread loosing solenoid attraction current	-30~50	0	1
590	Thread tension setting at trimming	0~200	75	1
591	Trimming angle	-10~10	0	1
592	Trimming speed	200~700 （sti/min）	400	100
593	Thread wiping speed	-3~3	0	1
594	Needle stop position	-10~10 °	0	1
595	Thread loosing time at trimming (only applicable to 430D)	-40~40	0	1
596	Whether head turnover switch is valid	ON, OFF	ON	
597	Trimming solenoid attraction time compensation (only applicable to 430D)	-30~30	0	1
597	Time for trimming solenoid attraction current going down (only applicable to 430D)	-30~20	0	1
598	Trimming action angle selection	-10~ON	ASC211: -1 ASC210: -4	1
599	Level of trimming solenoid attraction current going down (only applicable to 430D)	0~5	0	1
Error Handling Equipment (600~699)				
657	Setting of buzz sound in case of error OFF: continue 2-30: stop after set time	OFF，2~30s	OFF	2
Equipment Maintenance (700~799)				
750	Continuous running mode ON: step pedal to level 2 to start sewing OFF: invalid	ON, OFF	OFF	
751	Cycling time of continuous running (effective when parameter No.750 is set ON)	1000~3000ms	2000	10
756	Winding speed limitation ON: Max. 2000sti/min	ON, OFF	ON	

No.	Setting Content	Setting Range	Default Value	Setting unit
	OFF: limitless			
Specifications and Corresponding Cloth (800~899)				
850	Set specification code according to the sewing cloth	3, 5, K, F, BUTN	Related to machine type	

Note: the above parameters are for the use of repairers only and user should not change them without caution.

3.3 Restore Default Settings

If the user changes some parameters by mistake, which are properly set at delivery, the function of "restore default settings" can be used to restore the system.

Note: At restoring the default settings, the entire parameters that are set by user before will be covered. Therefore, please take caution in using this function. If necessary, please contact the technicians of the manufacturer, and operate the machine with the instruction from the professionals.

The specific operation procedure is as follows:

Press M after power on, then press ▼ to select "09 restore default settings" and then press SELECT to enter the function. Press ▲▼ to select the item to be restored and then press SELECT to confirm and execute the operation. The panel will hint "executing, please do not turn off the machine", which means the recovery operation is undergoing and the power supply shall not be shut down. After completing the restoring operation, the panel will automatically return to origin detection standby status.

Note: During the restoring process, if the power supply is shut down by accident, the restoring process has to be aborted and the restoring operation will fail.

3.4 Software Version Display

Under origin detection standby status or sewing ready status, press M and then press ▲ or ▼ to select "20 software version inquiry", and press SELECT to enter the inquiry interface, to display the software version in the following order:

Main control: machine type-MC-manufacturer code-version number

Operation panel: machine type- LKD2-manufacturer code-version number

Stepping 1: machine type- MD1-manufacturer code-version number

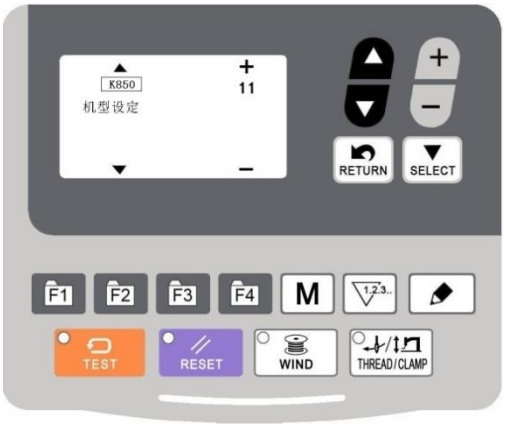
Stepping 2: machine type- MD2-manufacturer code-version number

3.5 Check Total Number of Stitches and Clear Lubricating Alarm

After the machine runs for a period of time, the system may hint "M-101 machine needs lubricating", which means lubricating is needed. Under this situtation, press RESET first to clear the lubricating alarm, and then press M to enter system menu. Select "22 lubricating alarm function" and press SELECT to enter. Then press RESET to clear the total number of stitches, to stop displaying the same message.

4 Button Sewing Function

4. 1 Button Sewing Function Setting

1. Under origin detection standby status or sewing ready status, hold pressing M for 3 seconds, to enter function menu; 2. Press ▲▼ to select “02 administrator parameters”, press SELECT to enter, and press ▲▼ again to select parameter No.K850; 3. Press + − to change the value into “11”, and then press RETURN to confirm and quit. At this time, the panel will hint “please wait” and user must not cut off power supply. After a while, the panel will automatically return to the function menu, which means the operation is successful, and user can press RETURN key to return to origin detection standby status.	

Note: the button sewing function of the machine requires special presser foot and other auxiliary external devices. For more information, please contact your machine manufacturer or its agents.

Note: please refer to appendix for the list of standard button sewing patterns.

5 Update Pattern Data by USB Disk

Support import (addition) of single VDT pattern:

(1) Import pattern: import (add) pattern, and cover the pattern of the same number with imported pattern;

(2) Export pattern: export all external patterns to USB storage device;

(3) Delete pattern: clear (format) the panel's storage area for external patterns;

5.1 Import Pattern

User can import VDT format patterns to the control system via U disk, with the updated pattern number from 101 to 200. User can also export existing patterns numbered 101~200 that are stored in the control system to U disk.	

7) Use pattern-editing software to make pattern file in VDT format and name it by "XXX.VDT". (Note: XXX shall be a number between 101~200 which at the same time is the updated pattern number.)

8) Create a new file folder named DH_PAT under the root directory of U disk, and save the pattern made at the previous step under the directory of DH-PAT (many patterns can be imported at one time).

9) Under origin detection standby status or sewing ready status, press M to enter system menu, press ▲▼ to select "06 External Pattern Management" and press SELECT to enter.

10) Press ▲▼ to select "import pattern to control system" and insert the U disk containing patterns to the USB interface at the right side of the panel.

11) Press SELECT and the panel will hint "operation executing, please do not turn off the power", which means the patterns are being imported.

Note: before this operation, please confirm that U disk has been connected to USB interface; if not, this update operation cannot be done and the panel will hint "please check the U disk". At this time, press RETURN to return.

12) After the update, the panel will display "Operation succeeded!" and the system will automatically return to the interface for importing patterns.

Note: if there are already patterns numbered 100~199 in the panel, patterns named with different numbers can be added to the system via U disk following the above operations; if the pattern numbers in the U disk are the same with those in the panel, the patterns with the same number in the panel will be replaced.

In addition, apart from the pattern update import operation, user can also select the function to export patterns to U disk or delete imported patterns. To export patterns to U disk means to back up imported patterns in U disk, while to delete imported patterns means to delete all imported patterns numbered 100~199.

If the size of single pattern goes beyond 1000 stitches or 6 kb, such pattern will be filtered out by the software automatically when imported.

6 Appendix 1

6.1 Control System Error List

Code	Description
Errors related to switch	
E002	Step pedal (for single pedal only) for emergency stop during sewing. Press RESET to enter emergency stop status. Press ENTER to trim thread and then press solid arrows to move frame. Press RESET and then step pedal to level 2 to continue sewing. This function is valid only when parameter No.280 is set as ON.
E010	Emergency stop switch is not at proper position. Press RESET to clear error.
E011	Pause switch is pressed. Press RESET to clear error. Press solid arrow down to move the presser foot and continue sewing.
E012	Pause switch is pressed. Press RESET to clear error. Step pedal to level 2 to make origin test.
E016	Emergency stop switch is of bad contact after power on. Turn off the power and check the connection of emergency stop switch.
E025	Pedal has been stepped to level 2 when power on. Turn off the power and check the pedal switch.
E035	Pedal has been stepped to level 1 when power on. Turn off the power and check the pedal switch.
E036	Pedal has been stepped to level 3 or pedal is not connected when power on. Turn off the power and check the pedal switch.
E050	Sewing machine head is tilted when power on. Turn off the power and erect the head. Check the position of the head turnover switch and press RESET to clear error.

Code	Description
E051	Head is tilted when sewing is started. Check the position of the head turnover switch and press RESET to clear error.
E052	Head is tilted under sewing ready status. Turn off the power and erect the head. Check the position of the head turnover switch and press RESET to clear error.
E053	Head is tilted when sewing is ready. Turn off the power and erect the head. Check the position of the head turnover switch and press RESET to clear error.
E054	Head is tilted during sewing. Turn off the power and erect the head. Check the position of the head turnover switch and press RESET to clear error.
E065	When power on, some key on the panel stays pressed or is of bad contact. Turn off the power and check the operation panel.
Errors related to main shaft motor	
E100	In case of lubricating alarm, if no grease is added, the alarm will come up again after a while. Please add grease and clear the counter.
E101	When the total number of stitches activates the lubricating alarm, the main control will send error code to the panel and after receiving the error code, the panel will hint that the machine need grease.
E110	If the needle is not at the proper position when the main shaft motor searches origin after power on, please manually turn it to proper position to release the error (only for 430D only).
E111	Needle bar position abnormal after power on Turn off the power and check the motor.
E121	Knife position abnormal Turn off the power and check the blade of fixed knife and moving knife.
E131	Encoder fault or disconnection
E132	Main shaft over-speed
E133	Main motor stops at the wrong position after sewing. Turn off the power.
E135	Motor runs abnormally.
E136	IPM frequent over-current 1
E137	IPM frequent over-current 2
E138	Motor stalling 1
E139	Motor stalling 2 Turn off the power and check the device structure and the cable connection of the main shaft motor
E140	Stop over-current
E141	Motor over-load

Code	Description
E142	Busbar voltage abnormal
E143	Abnormal current
Errors related to transmission equipment	
E200	Origin of X motor is not detected. X motor is abnormal or X encoder is disconnected. Turn off the power and check the connection of X motor.
E201	X pulse motor check error Turn off the power and check the cloth-feeding at X direction.
E210	Origin of Y motor is not detected. Y motor is abnormal or X encoder is disconnected. Turn off the power and check the connection of Y motor.
E211	Y pulse motor check error Turn off the power and check the cloth-feeding at Y direction.
E217	Stepping software version error
E218	Stepping drive power supply error
E219	Stepping motor over-current
E220	MD1 stepping over-current
E221	MD1 X direction unfinished
E222	MD1 Y direction unfinished
E223	MD2 stepping over-current
E224	MD2 X direction unfinished
E225	MD2 Y direction unfinished
Errors related to clamp equipment	
E300	Origin of presser foot cannot be detected. There may be problem with presser foot motor or connection of clamp encoder. Turn off the power and check the connection between presser foot motor and encoder.
E302	Position of thread trimming tip is wrong at sewing. Press RESET to recover.
E303	Response time of thread trimming solenoid is too long.
Errors related to communication and storage equipment	
E400	Communication error between operation panel and main control is detected. Turn off the power and check the plug connection between operation panel and main control.
E401	Stepping drive communication error
E410	Communication error between main board and electricity control board is detected. Turn off the power and power on again.
E420	U disk is not found when reading U disk. Press RESET to clear error.

Code	Description
E421	Data content of the U disk is wrong, unable to use or no data is found. Press RESET to clear error. Make sure pattern data has been stored in the U disk.
E422	There is error when reading U disk. Press RESET to clear error. Check the data of U disk.
E424	U disk is full. Press RESET to clear error. Use other U disks.
E425	There is error when writing in U disk. Press RESET to clear error. Please use designated U disk. Check whether U disk is prohibited to write in or there is any space.
E427	Pattern registered in cyclic pattern is deleted. Press RESET to clear error. Add new pattern to re-register the cyclic pattern.
E428	Pattern set in the program is deleted. Press RESET to clear error. Add pattern to re-set the program.
E430	Pattern data cannot be stored to main board. Turn off the power and power on again.
E450	Head board EEPROM reads error. Turn off the power and check the plug connection of the head board.
E474	Memory is full and it’s unable to make copy. Press RESET to clear error. Delete patterns not needed.
Errors related to data editing equipment	
E500	Sewing data is beyond the sewing area. Press RESET to clear error. Set the scale rate or the sewing area again.
E501	Beyond sewing area
E502	Thread pitch is beyond the maximum 12.7mm. Press RESET to clear error. Reload program data from storage device or re-input program data.
E510	Program data is abnormal. Press RESET to clear error. Reload program data from storage device or re-input program data.
E511	Completion code cannot be inputted into program data. Press RESET to clear error. Remake the program data of the completion code or change the serial number of the program to be read.
E512	Beyond permitted number of stitches. Press RESET to clear error.

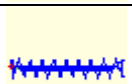
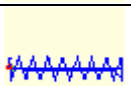
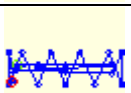
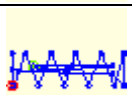
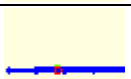
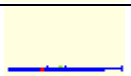
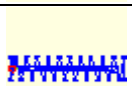
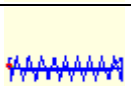
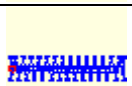
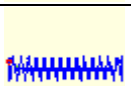
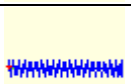
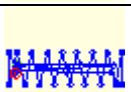
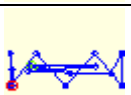
Code	Description
	Change the serial number of the program to be read.
Errors related to devices	
E600	Needle thread breaks. Press RESET to clear error.
E690	Origin of bobbin thread holding motor cannot be detected. There is error with bobbin thread holding motor or disconnection of bobbin thread holding motor encoder. Turn off the power and clear the bottom of the needle plate.
E692	Position of bobbin thread holding motor is abnormal. Turn off the power.
Errors related to main board	
E701	Voltage of main motor drive becomes extremely high. Main voltage (300V) is too high. Turn off the power and check the voltage.
E702	Voltage of main motor drive becomes extremely low. Main voltage (300V) is too low. Turn off the power and check the voltage.
E704	Voltage of auxiliary equipment (24V) is too high. Turn off the power and check the input voltage.
E705	Voltage of auxiliary equipment (24V) is too low. Turn off the power and check the input voltage.
E706	Voltage of auxiliary equipment (24V) is over-current. Turn off the power and check the connection of fun within the control box and make sure there is no short circuit with the solenoid.
E710	IPM over-voltage or over-current Turn off the power and check the sewing machine.
Errors related to version upgrade	
E888	Main control and panel software don’t match. Burn matched program (both are 430D or 430F).
E889	Main control and panel software don’t match. Burn matched program (both are of the same manufacturer) or press RESET to clear the error.

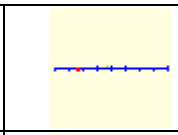
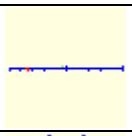
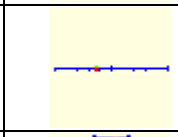
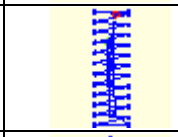
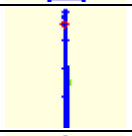
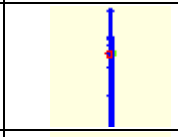
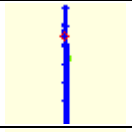
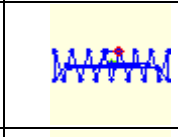
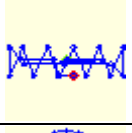
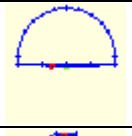
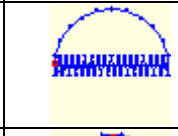
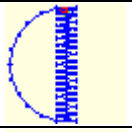
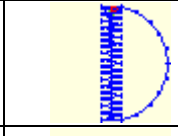
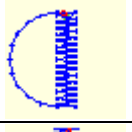
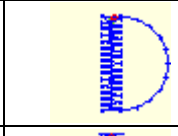
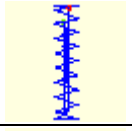
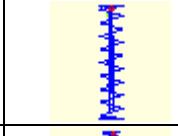
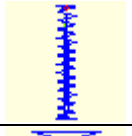
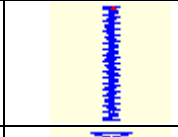
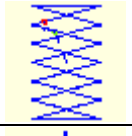
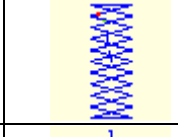
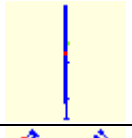
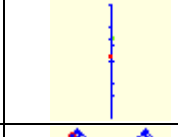
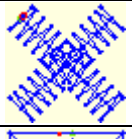
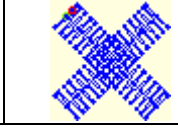
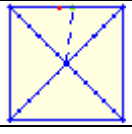
7 Appendix 2

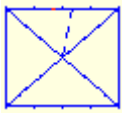
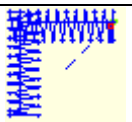
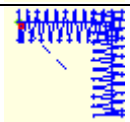
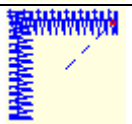
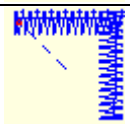
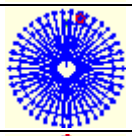
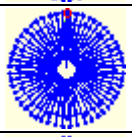
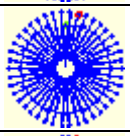
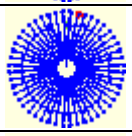
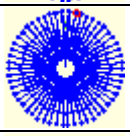
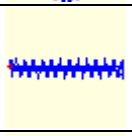
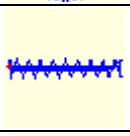
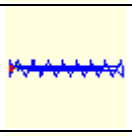
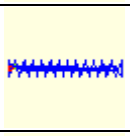
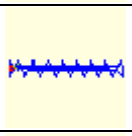
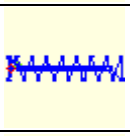
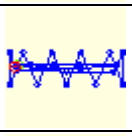
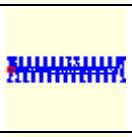
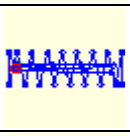
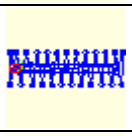
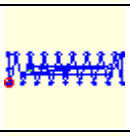
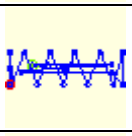
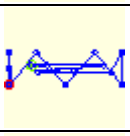
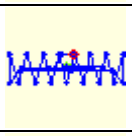
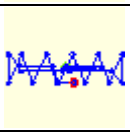
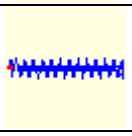
7. 1 Sewing Pattern List (KE-430D/KE-430F)

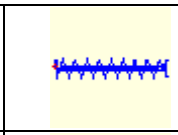
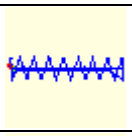
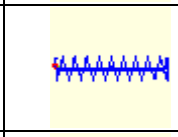
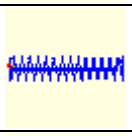
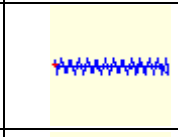
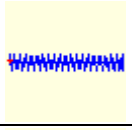
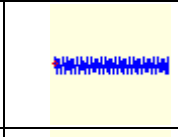
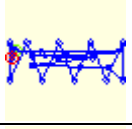
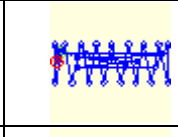
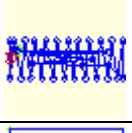
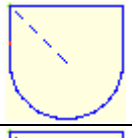
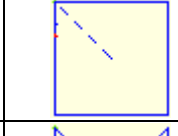
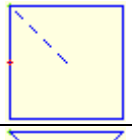
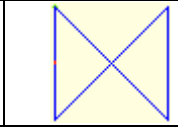
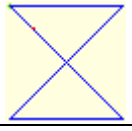
The following patterns are pre-set for users to select according to specifications. (If the work range of the presser foot and the cloth feeding plate can be confirmed, user can select any of the following sewing patterns.)

Please use the proper presser foot and cloth feeding plate. The sewing size is length under the scaling of 100%.

NO.	Pattern	Stitches	L×W (mm)	NO.	Pattern	Stitches	L×W (mm)
1		41	16×2	2		41	20×3
3		34	19.8×3	4		30	16×2
5		28	10×2	6		29	16×3
7		27	8×2	8		20	7×2
9		20	6.9×2	10		20	10×0.3
11		27	10×0.3	12		27	20×0.3
13		34	10×2	14		34	15.9×3
15		41	10×2	16		42	16×3
17		41	24×3	18		55	24×3
19		63	24×3	20		27	7×2
21		34	7×2	22		13	6.9×2

23		34	25×0.3		24		41	25×0.3
25		44	25×0.3		26		27	3×10
27		34	3×10		28		18	0.3×10
29		20	0.3×10		30		27	0.3×10
31		27	8×2		32		21	8×2
33		14	8×2		34		34	12×7.2
35		57	12×7		36		56	7×12
37		56	7×12		38		52	7×10
39		52	7×10		40		31	3×16
41		35	3×16		42		43	3×20
43		67	3×24		44		45	9×15
45		69	9×25		46		26	0.3×20
47		43	0.4×25		48		69	10×10
49		92	10×10		50		83	16×16

51		104	30×26		52		59	11×11
53		59	11×11		54		77	15×15
55		77	15×15		56		105	9×9
57		115	9×9		58		126	9×9
59		103	10×10		60		113	10×10
61		123	10×10		62		41	20×3
63		34	19.8×3		64		29	16×2
65		42	16×2		66		31	16×2
67		29	10×2		68		21	7×2
69		35	10×2		70		41	10×2
71		28	7×2		72		35	7×2
73		28	8×2		74		21	7×2
75		14	7×2		76		28	8×2
77		22	8×2		78		42	20×3

79		35	19.8×3		80		30	16×3
81		35	15.9×3		82		43	16×3
83		42	24×3		84		56	24×3
85		64	24×3		86		20	6×2
87		27	6×2		88		34	6×2
89		89	24×3		90		42	30×30
91		44	30×30		92		28	30×30
93		36	30×30		94		35	30×30

*These patterns (90-94) are only available for certain machine types.

7. 2 Sewing Pattern List (BE-438D/BE-438F)

The following patterns are pre-set for users to select according to specifications. (If the work range of the presser foot and the cloth feeding plate can be confirmed, user can select any of the following sewing patterns.)

Please use the proper presser foot and cloth feeding plate. The sewing size is length under the scaling of 100%.

No.	Button Hole Number	Pattern	Line Number	Over-seam Line	Stitch Number	Size (mm)	
						X	Y
1	2		6	-	12	3.4	0
※1 54			6	-	12		
2			8	-	14		
※2 55			8	-	14		
3			10	-	16		
4			12	-	18		
※2			16	-	22		

5							
※2 6			20	-	26		
※1 56			6	-	11		
※3 7			6	-	12	0	3.4
※3 23			10	-	16		
※3 8			12	-	18		
※3 9			5-5-5	-	21		
※3 24	3		7-7-7	-	27		
※3 25			5-5-5	-	21	2.6	2.4
※3 26			7-7-7	-	27		
※1 57			6-6	1	18		
10			6-6	1	19		
※1 58			8-8	1	22		
11			8-8	1	23		
12			8-8	3	25	3.4	3.4
13			10-10	1	27		
27			12-12	1	31		
※4 14			6-6	0	24		
※5 36	4		6-6	0	24		
※4 28			8-8	0	28		
※5 37			8-8	0	28		
※4 15			10-10	0	32	3.4	3.4
※5 38			10-10	0	32		
※4 29			12-12	0	36		
※5			12-12	0	36		

39							
※1 59			6-5	1	17		
16			6-5	1	18		
※1 60			8-7	1	21		
17			8-7	1	22		
30			10-9	1	26		
※1 61			6-6	1	18		
18			6-6	1	19		
※1 62			8-8	1	22		
19			8-8	1	23		
※1 63			10-10	1	26		
31			10-10	1	27		
45			12-12	1	31		
※4 20			6-6	0	24		
※5 40			6-6	0	24		
※4 32			8-8	0	28		
※5 41			8-8	0	28		
※4 33			10-10	0	32		
※5 42			10-10	0	32		
※1 64			6-6	1	18		
※3 21			6-6	1	19		
※3 34			10-10	1	27		
※3※4 22			6-6	0	24	2.4	3.4
※3※5 43			6-6	0	24		
※3※4 35			10-10	0	32		
※3※5			10-10	0	32		

44							
46			6-7	1	19		
47			8-9	1	23	3.4	3.4
48			10-11	1	27		
49			12-13	1	31		
65			6-6	1	19		
66			8-8	1	23	2.8	2.8
67	4		8-8	3	25		
68			10-10	1	26	2.6	2.6
69			12-12	1	31		

*1 Used for small buttons

*2 Buttonhole's diameter shall be no less than 2mm.

*3 Button shall not be used to lift spring.

*4 After finishing sewing one side, the button clamp will lift and the wiper will act. In order to continuing sewing the other side, user need step the pedal again.

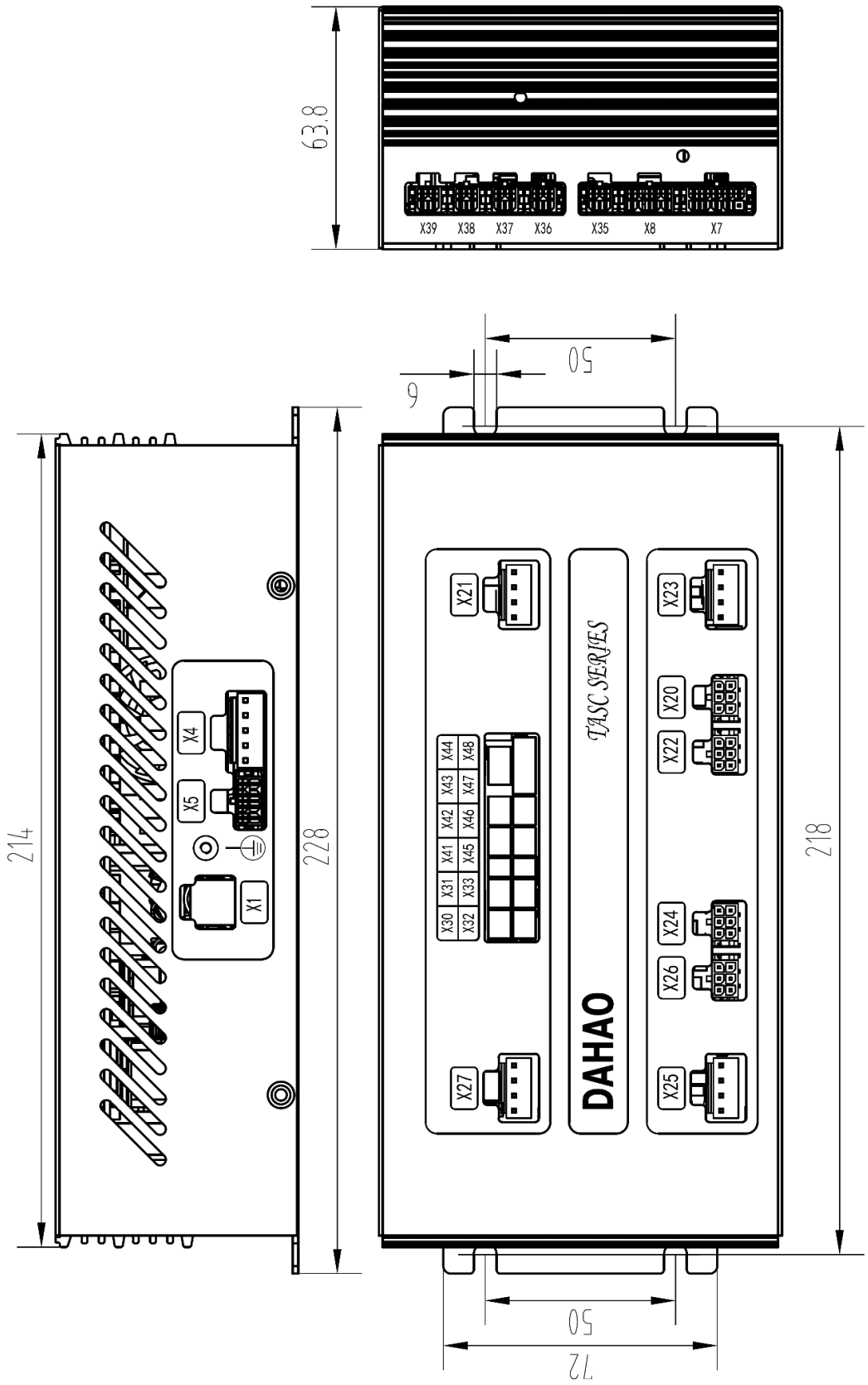
*5 If the button clamp doesn't lift and only the wiper acts after sewing one side, the sewing machine will continue sewing the other side.

Used for buttons with handles					
No.	Pattern	Line Number	Stitch Number	Size (mm)	
				X	Y
50		6	12		
51		8	14	3.4	0
52		10	16		
53		12	18		

8 Appendix 3

8. 1 Installation Size of Operation Panel

8. 2 Installation Size of Control Box



External Cable Connection of the Control Box

Note: all external cable plugs have corresponding code on them, please check carefully before connection.

Port No.	Port Name	Plug Type	Port Pin Definition
X4	Main shaft motor power supply port	2114H-05	
X5	Main shaft motor encoder port	CP3508S0010	
X7	Operational panel signal port	43025-0001	
X8	Pedal signal port	CP3508S0010	
X20	Stepping motor encoder port	CP3506S0010	
X21	Stepping motor power supply port	2114H-04	
X22	Stepping motor encoder port	CP3506S0010	
X23	Stepping motor power supply port	2114H-04	
X24	Stepping motor encoder port	CP3506S0010	
X25	Stepping motor power supply port	2114H-04	
X26	Stepping motor encoder port	CP3506S0010	
X27	Stepping motor power supply port	2114H-04	
X30	Air valve port	1150940	1+24V,2NC,39820AIR4
X31	Air valve port	1150940	1+24V,2NC,39820AIR3
X32	Air valve port	1150940	1+24V,2NC,39820AIR2
X33	Air valve port	1150940	1+24V,2NC,39820AIR1
X35	Air valve port	CP3504S0010	1+24V/+27V,2+24V,3FK-OFF-OUT,4L-AIR-OUT
X36	Air valve port	CP3504S0010	1+24V,2+24V,3LM-AIR-OUT,4R-AIR-OUT
X37	Solenoid port	CP3504S0010	1+27V,2+27V,3FL+,4FW+
X38	Thread holding solenoid port	CP3504S0010	1ACT1+,2+5V/+24V,2+5V(Pattern Machine with RFID),3ACT1-,4GND
X39	1) 24V output port 2) RFID	CP3504S0010	124V+/RFIDA,2GND/RFIDB,324V+/RFIDZ,4GND/RFIDY
X41	Thread breakage detection port	1150912	1PE,2TH-BRK-IN
X42	Intermediate presser foot detection port (reserved)	1150940	1+5V/+24V,2IORG-IN,3GND
X43	Y-phase motor detection port	1150940	1+5V/+24V,2YORG-IN,3GND
X44	X-phase motor detection port	1150940	1+5V/+24V,2XORG-IN,3GND
X45	Emergency stop	1150912	1PAUSE-IN,2GND
X46	External presser foot detection port	1150940	1+5V,2PORG-IN,3GND
X47	Thread trimming detection port	1150971	1+5V,2PSENS-IN,3GND,4N/C
X48	Standby detection port (default)/SPI port	1151032	1+5V//SPICLK/,2BYTEST-1-IN//SPISTE3/,3GND//SPISIMO/,4+5V/ SPISOMI3,5BYTEST-2-IN/+5V,6GND

8. 3 System Diagram