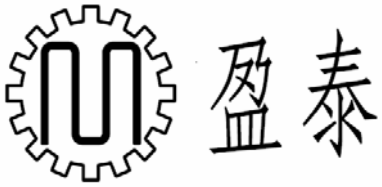

Smart Pro ES

安装操作指导手册

Instruction Manual for Installation Operation

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前言 Foreword

本手册指出和描述机器的各个部件及它们的功能和使用方法，此外，本手册和它的附件可作为使用这一复杂机器的技术指导，由于它本身的性能，需要合理的使用和维护它。

In the manual, we illustrate various machine parts, their functions and use method. Furthermore, the manual and annex can be taken as the technical direction for use of the complicated machine. Owing to its performance, the machine must be operated and maintained properly.

良好的安装和合理的使用机器，不但可以延长使用寿命和保证它的投资收益，而且可以达到产品性能、质量和安全性的需求标准。

Proper assembly and reasonable use of machine can not only prolong service life and guarantee the investment income, but also meet product performance, quality and safety demand standard.

本手册的目的在于说明该机器的使用要求，避免由于不适当的使用而对人员造成伤害和损坏设备。

The manual is to describe operating requirement of the machine, avoid personnel injury and equipment damage caused by improper use.

在本手册中提供的资料信息仅在出版时有效，科赛恩公司保留必要的改进机器的权利，并在今后随时对机器进行改进。因而可能不能立即编入本手册，恕不另行通知。

Material information in the manual is effective only at publishing. Cosine Corporation reserves necessary rights to modify machines at any time in the future. Any modification may not be recorded in the manual immediately or notified otherwise.

1 机器的概述和主要性能 1. Overview and Main Performance

1.1 机器的概述 Overview

盈泰 Smart Pro ES 系列电子提花无缝内衣针织机可用于生产内衣、外衣、泳衣、运动衣和保健织物等产品，针筒直径范围从 12″～19″。机器采用了 8 路压电陶瓷电子选针器，配备我公司专利技术的双伺服独立传动系统，独有的精密三角控制技术等，织出更加稳定、美观的产品。

Incortex Smart Pro ES series seamless knitting machines are applied to production of underwear, overdress, swim suit, sportswear, health fabrics, etc. with cylinder diameter from 12"～19". We adopt piezoelectric ceramic type 8-section electronic pattern devicess with double-servo independent transmission system and unique accurate control technology of stitch cam to produce more stable and artistic products.

1.2 机器的主要性能 Main performance

该机器有最新设计的电子系统和微处理器，搭配 16：9 的真彩液晶面板显示，可显示机器工作过程中的一些相关数据及操作信息等，主要性能如下：

The machine is equipped with newly designed electronic system and microprocessor. 16:9 true-color LCD displays some related data, operation message, etc. of the machine during operating. The machine has following major performances:

- 显示停机原因；
- Display of stop reason;
- 机器角度和当前针号；
- Machine angle and present needle number;
- 产量统计和织造效率统计；
- Output statistics and weaving efficiency statistics;
- 正在运行的程序和它所处的阶段；
- Operating program and existing phase;
- 速度参数；
- Speed parameter;
- 程序由本公司自带的全中文工艺动作编辑软件 Knitting Designer（支持导入*.sok 格式的工艺源文件）编译后，直接利用 USB 传送到机器上；

- ◆ After compiled by our own full Chinese technology action compilation software Knitting Designer (supporting technical source file with *.sok format admitted), programs are directly sent to machines with USB;
- ◆ 8 个 16 级选针器；
- ◆ Eight 16-section pattern devices;
- ◆ 理论最高转速： 120 转 / 分；（注：在实际生产过程中，为保证机器的使用寿命，以及保证可靠的生产效率，推荐最高转速为：90 转 / 分；
- ◆ Theoretically maximum speed: 120rpm; (note: during practical production process, in order to guarantee service life of machine and guarantee reliable production efficiency, recommended maximum speed: 90rpm;
- ◆ 织物排出由出布电子眼监控；
- ◆ Textile output is monitored by draw-out electronic eye;
- ◆ 每路有 7 个电动控制纱嘴；
- ◆ There are 7 electrically controlled yarn fingers in each section;
- ◆ 双伺服电机分别驱动针筒和哈夫盘，可全自动初始化机器零位和同步；
- ◆ Double servo motors respectively drive needle cylinder and dial unit to realize automatic resetting and synchronization;
- ◆ 程序控制润滑系统，并可循环使用；
- ◆ Program control lubrication system can be used circularly;
- ◆ 气动阀岛系统；
- ◆ Pneumatic valve terminal system;
- ◆ 8 只储纱式积极送纱器；
- ◆ Eight yarn storage type positively yarn feeders;
- ◆ 2 只橡筋输送器；
- ◆ Two elastic feeders;
- ◆ 48 只纱线传感器。
- ◆ 48 yarn sensors

1.3 机器的尺寸和重量 Machine dimensions and weight

◆外形尺寸（包括纱架），如下图所示：2600×3000×3000mm；

◆ Overall dimension (including cone holder creel), as shown in the figure below: 2,600 * 3,000 * 3,000mm;

◆机架外形尺寸：1150×1300×2080；

◆ Overall dimension of chassis: 1,150 * 1,300 * 2,080;

◆净重：600 Kg；

◆ Net weight: 600Kg;

◆毛重：750 Kg；

◆ Gross weight: 750 Kg

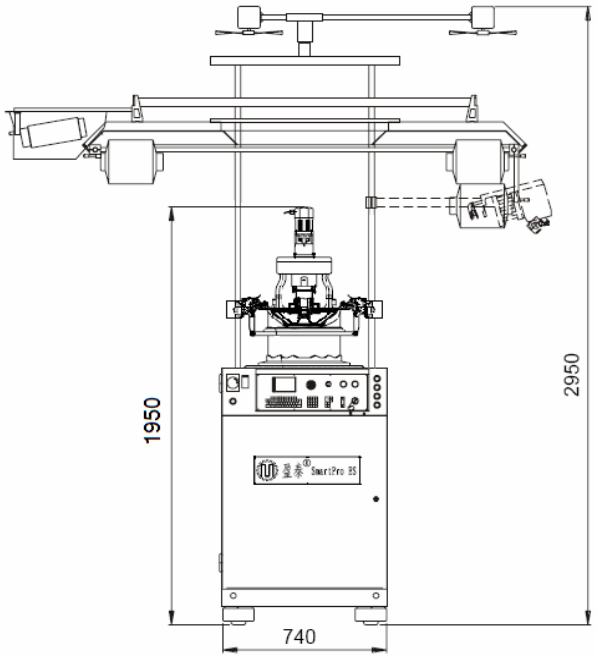


图 1-1(Fig. 1-1)

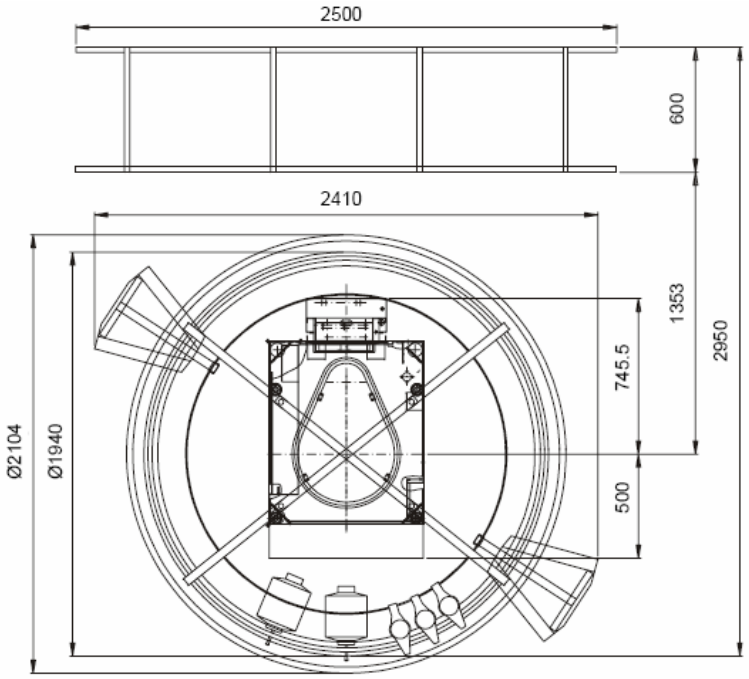


图 1-2(Fig.1-2)

1.4 厂房环境要求 Environmental requirement of factory building

盈泰机器是一种需要在特定环境里才能够正常织造运行的机器。工作环境的温度和湿度必须是恒定值。车间空气必须保持清洁、无尘，特别是不能有微小的悬浮砂尘，用来安装机器的地方应该足够的宽敞，便于检查和维护等一些常规操作。

Incortex Machine can be only operated normally in specific environment where temperature and humidity maintain constant. Air in workshops must be clean and dustless without any tiny suspended dust. Machine assembly field must be spacious enough to facilitate inspection, maintenance and other routine operations.

◆车间空间要求：除机器占用的面积外，还应该预留 25cm 的宽度。应该按机器的台数来增加安装区域。如果机器是按多列摆放的，必须确保列与列之间的空间可供手推装料车及其它工具在车间使用；

◆ Requirement on workshop space: Besides area occupied by machine, 25cm width must be reserved at the same time. Assembly region must be expanded based on machine number. If machines are arranged in rows, enough spaces between rows is ensured to facilitate use of trolley and other tools in workshop.

◆车间环境要求：空气必须整洁无灰尘，且要确保空气中没有任何悬浮的研磨颗粒（如：颜料等）。因为在吸风系统中，空气在机械零件间循环，在掺有悬浮的研磨颗粒的情况下，涂在零部件间的润滑油极有可能燃烧；

◆ Requirement on workshop environment: air must be clean without dust or any other suspended abrasive particles (such as: pigment, etc.). In inflow system, air circulates among machine parts. With suspended abrasive particles, lubricating oil among spare parts may burn;

◆车间地面要求：工业车间地面必须符合标准。简单的水泥地板至少要涂上一层工业漆；

◆ Requirement on workshop floor: in industrial workshop, ground must conform to standard. At least apply a coat of industrial paint on simple cement floor;

◆车间温度要求：机器周围环境温度必须控制在 30℃的恒温下；

◆ Requirement on workshop temperature: ambient temperature around machines must be controlled at constant temperature below 30℃;

◆车间湿度要求：最大不得超过 65%RH；

◆Requirement on workshop humidity: maximum temperature shall not exceed 65%RH;

◆车间风力要求：供给每台机器的压缩空气质量必须达到机器的要求，需要通过一系列的装置对空气进行处理，如图 1-3 所示。气流量需根据机器安装台数而定。

◆ Requirement on air force in workshop: Quality of compressed air supplied to each machine must meet machine requirements. A series of devices are required to process air, as shown in fig.1-3. Air flow is determined based on number of machines installed.

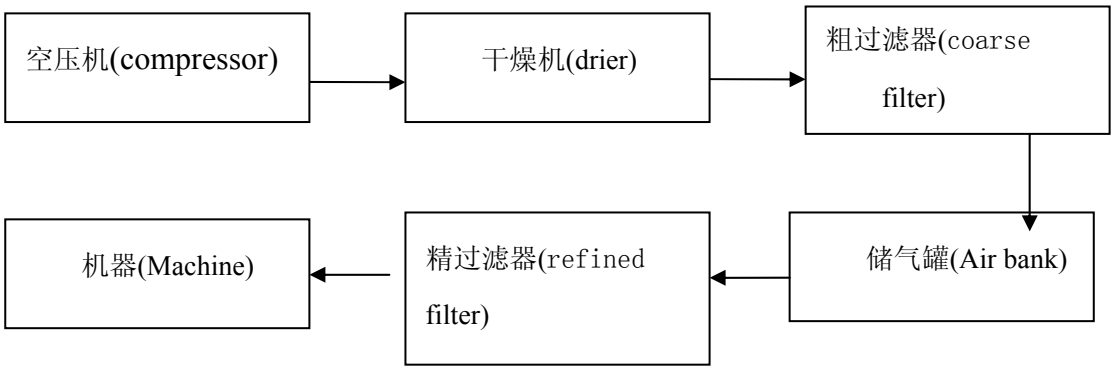


图 1－3(Fig.1-3)

储气罐输出空气压力：0.7MPa(7BAR)；

Output air pressure of air tank: 0.7MPa (7BAR);

湿度：0℃，即出口处输出的空气必须是干燥的；

Humidity: 0℃, namely air at outlet must be dry;

温度：20℃；

Temperature: 20℃;

每台机的空气消耗：50 升 / 分；

Air consumption of each machine: 50L/M;

◆车间吸风要求：

◆ Workshop inflow requirement:

总的空气消耗量计算公式是：

Calculation formula of total air consumption:

总的空气消耗量＝每台机的消耗量×n 台要安装的机器。

Total air consumption＝consumption of each machine * n machines to be installed.

机器的吸风规格：

Inflow specification of machine:

吸风口吸风力：800mm 水柱（内部直径为 10MM 的管）；

Inflow force of inlet scoop: 800mm water column (tube with 10mm interior diameter);

抗捻装置里的吸风力：800mm 水柱（内部直径为 10MM 的管）；

Inflow force of anti-twist device: 800mm water column (tube with 10mm interior diameter);

吸风口的空气量：约 6 立方米 / 分钟；

Air capacity of inlet scoop: about $6m^3$/minute;

抗捻装置里的吸风消耗量：约 4 立方米 / 分钟；

Inflow consumption in anti-twist device: about $4m^3$/minute;

◆车间用电要求：仔细检查电线的性能（最大功率：VA 和最大电流:A），是否与机器的需求相对应（每台机器的额定功率为：3KW，额定电压为：380V / 三相四线交流电）。要保证机器有良好的性能，电压波动一定要控制在±10%范围内，供电的频率就在 50HZ 和 60HZ 之间。

◆ Requirement on power consumption of workshop: Carefully inspect whether wire performance (maximum power: VA and maximum current: A) corresponds to machine demands (rated power of each machine: 3KW; rated voltage: 380V/three-phase four-wire AC power). As long as you guarantee that machines have good performance and voltage fluctuation is controlled at ±10% range, power supply frequency is between 50HZ and 60HZ.

！警告：

! Warning:

外部电压的较大幅度变化或电源缺相可能导致机器工况不稳造成永久性破坏;

Great variation amplitude of external voltage or open phase of power supply may cause unstable operating condition of machine and then permanent damage;

机器在上电前必须检查地线是否连接，否则可能导致触电事故。

Before power on machine, inspect whether ground wire is connected. Otherwise, it may cause electric shock accident.

◆新机工作要求：新机的开机速度为 50 转 / 分，以后每过一星期加 5 转。8 星期后即可达到通常的高速模式（90 转 / 分）。

◆ Requirement on operation of new machine: Starting speed of new machine is 50 rpm. Increase 5 revolutions after each week. Usual high-speed mode can be reached after 8 weeks (90rpm).

2 机器的交付和安装 Machine delivery and assembly

在安装和操作机器之前，请按照规定步聚进行：

Before machine assembly and operation, please observe specified steps:

2.1 机器的交付 Machine delivery

在机器交付时，下列器件是没有安装上的：废纱筒、纱架、出布口、储纱式积极送纱器、橡筋输送器等（具体器件及其数量以机器装箱清单为准）。

When the machine is consigned, the following parts are not assembled: the lint filter, the cone holder creel the stocking ejection box, the suction fans, suction fans, elastic feeder, etc. (for specific part and quantity, refer to packing list)

2.2 机器的箱装图 Packing diagram of machine

机器出厂时，打包装箱图，如图 2－1 所示。

Machines are packed based on fig.2-1 before delivery.

开箱时，注意要将机器放在安全平稳的地面上，防止机器倾倒。

To open a container, put the machine in a safe and stable ground to prevent machine dumping.

拆开包装箱，将包装箱内的随机物件取出，再拆下机器上的固定木板，用叉车的叉子伸入到机器底座的槽中，将机器平稳移出。

Open packing container and take out attached parts in packing container, remove fixed boards on machine. Insert forks of fork truck into groove of machine base to take out machine stably.

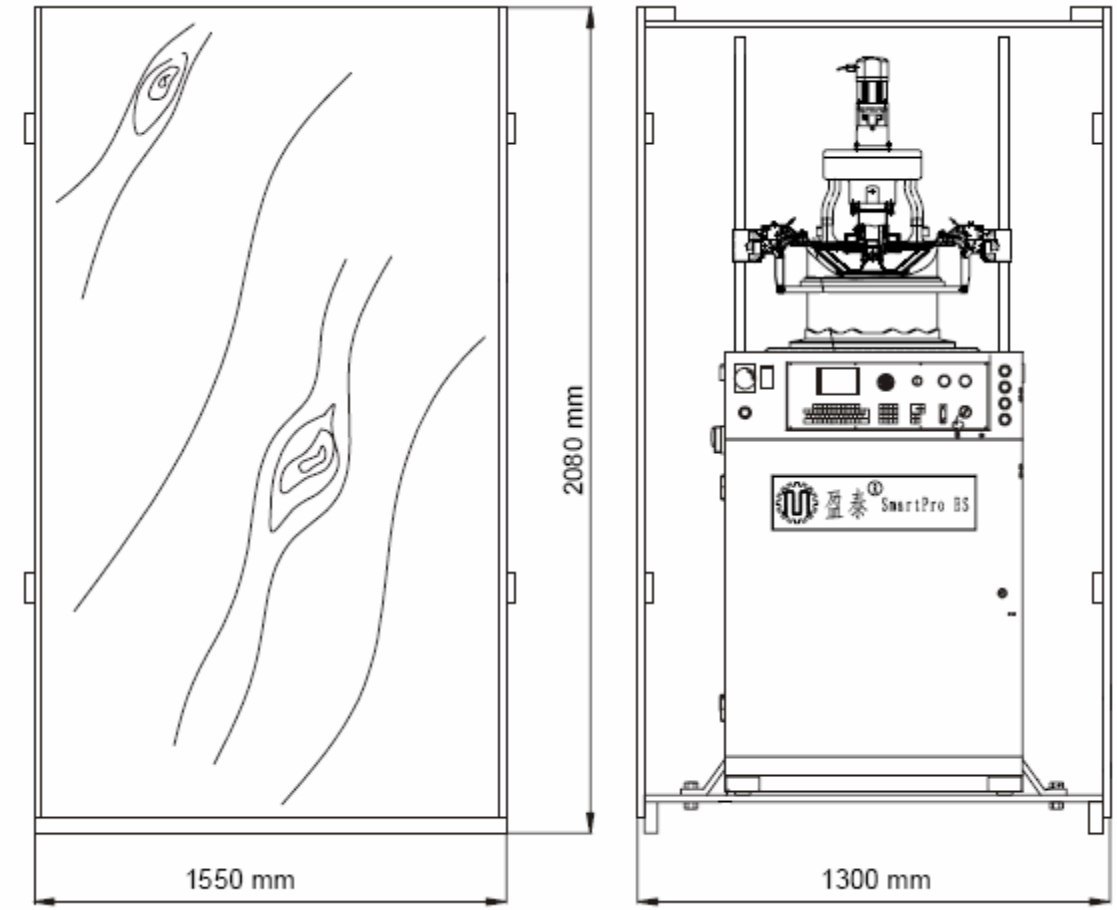


图 2－1(Fig.2-1)

2.3 废纱筒与出布口的安装 Assembly of lint filters and stocking ejection box

当机器打开包装以后，安装下列部件：废纱筒、出布口。如图 2－2 所示

Once the machine is unpacked, assemble the following units: lint filters, stocking ejection box.

See Fig. 2-2

注：A：废纱筒；　　B：出布口

Note: A: Lint filter; B: stocking ejection box

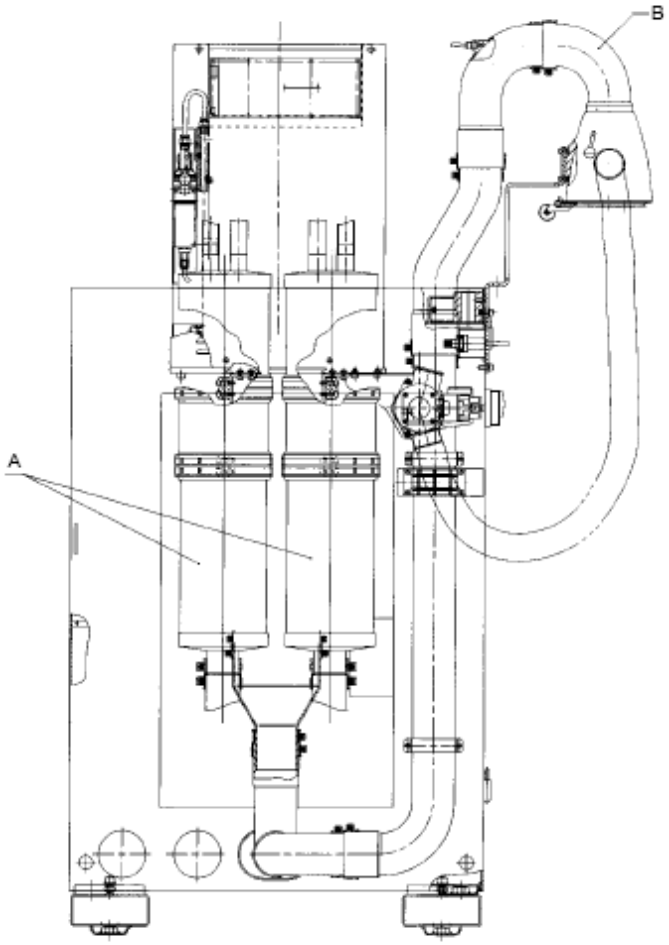


图 2－2(Fig.2-2)

2.3 纱架 Cone holder creel

纱架是由金属制成的架子，用于存放要织造的纱，该纱架同时可以放置备用纱。纱架放在机器的背后，用导纱管相连接，纱从其中通过，送至机器上，如图 2－3 所示：

The cone holder creel is that metal frame whose purpose is to hold the yarn cones feeding the needles while functioning. This type of creel is suitable for doubling. It is located behind the machine and connected with telescopic tubes through which the yarn passes. See diagram Fig.2-3:

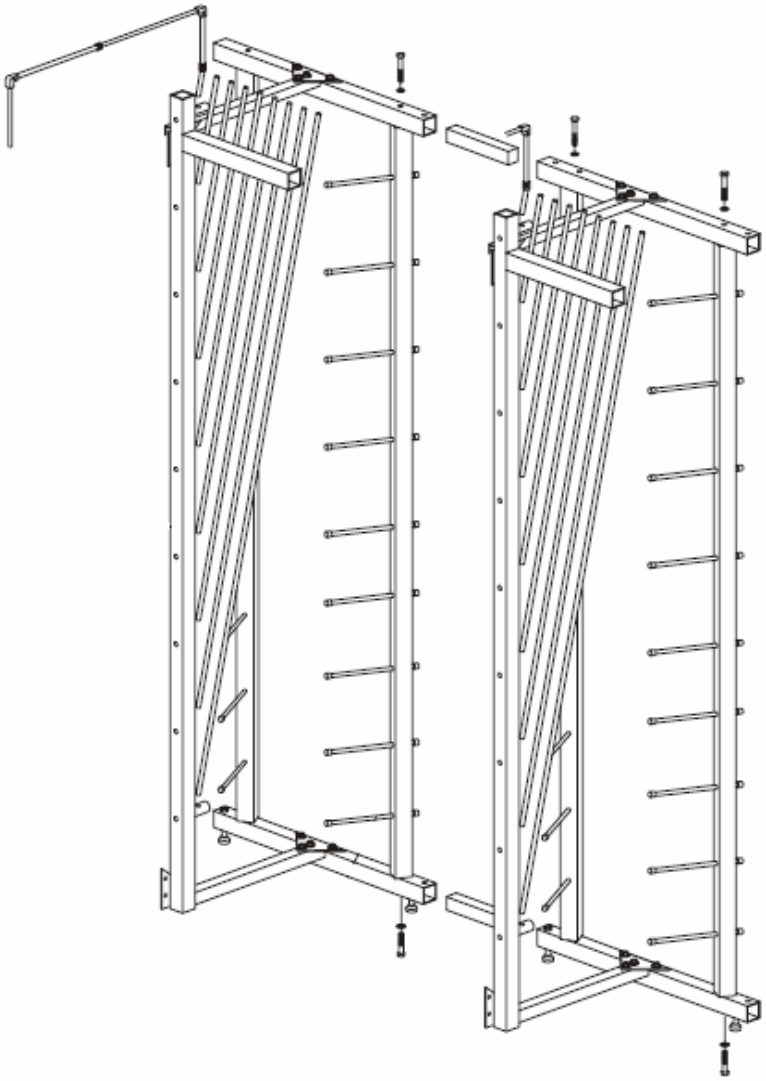


图 2－3(Fig.2-3)

2.4 用于送纱的纱架的安装 Assembly of cone holder creel for fine yarns

参见下图 2－4 所示，按照指定的参考尺寸，进行纱架的安装。

As shown in fig.2-4 below, install cone holder creel based on specified reference dimension.

纱架安装完毕后，在 1~8 路上，对应的位置处，装上储纱式积极送纱器，2 路和 6 路处，各装上一只橡筋输送器，以及在支架环上装上相应数量的导纱环。

After cone holder creel are installed, at corresponding position of section 1~8, install yarn suction fans. At section 2 and 6, respectively install an elastic feeder and corresponding quantity of guide rings on support rings.

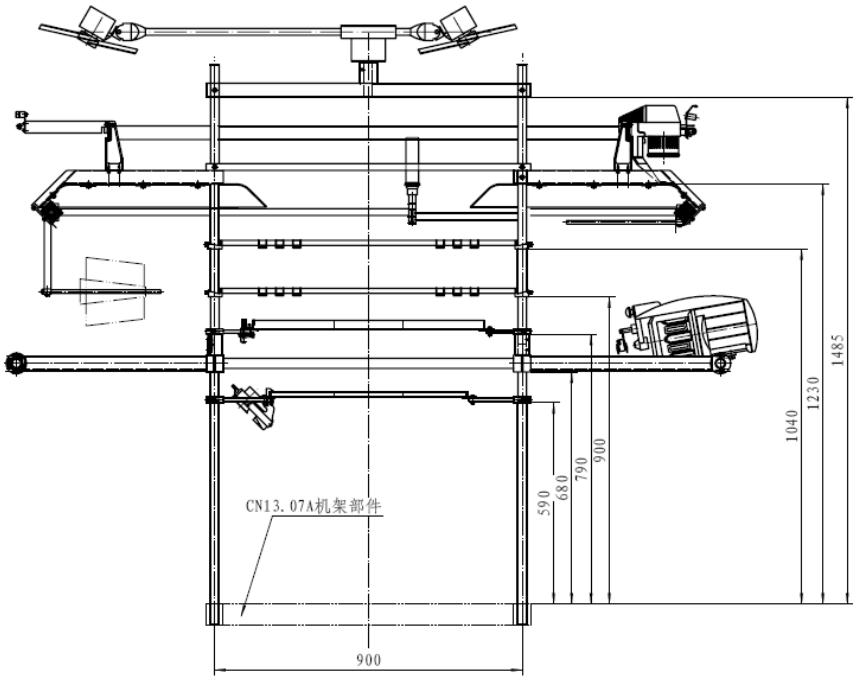


图 2－4(Fig.2-4)

2.5 连线 Connections

◆电器连接

◆ Electrical connections

将纱线传感器、橡筋输送器以及储纱式积极送纱器安装在纱架的相应位置上，并接到相对应的线路上。

Yarn sensor, elastic feeder and yarn storage positive yarn feeder are installed to

corresponding position of cone holder creel and then connected to corresponding circuits.

将储纱式积极送纱器电箱的电源线连接至机器左侧开关口处，其中黄色线为地线，可不作连接，其它电线按相对应的颜色进行连接，分别为 L1、L2、L3。

Connect power cord of electrical box of yarn storage positive yarn feeder to switch port at the left. Yellow ground wire may not be connected. Other wires are connected based on corresponding colors, respectively L1, L2 and L3.

将机器的总电源线连接至三相四线制的 380V 交流电源上，分别为 L1、L2、L3、N。要注意确保三相电的稳定性。

General power cords of machine are connected to 380V AC power supply of three-phase four-wire system, namely L1, L2, L3 and N. Guarantee stability of three-phase power.

所有电器线路连接好后，检查接到机器和风机上的电源性能，及风机转向，确保无误。

After circuits of all electric appliances are connected, inspect performance of power supply connected machine and fan and guarantee correct turning direction of fan.

◆纱线传感器的安装与编号

◆ Assembly and number of yarn sensor

将相应数量的纱线传感器安装在支架环上，连好对应的接线。

Install corresponding quantities of yarn sensor to support ring and connect corresponding wires.

纱线传感器编号：开机，通过面板操作，进入纱线传感器设置界面，对纱线传感器进行重新编号，在编号过程中，未编号的纱线传感器会绿灯闪烁，按下纱线传感器左侧的小按键，对纱线传感器进行编号，已成功编号的纱线传感器会由绿灯闪烁变为亮红灯。请按顺序对所有的纱线传感器进行编号。

Number of yarn sensor: turn on the machine and enter into setting interface of yarn sensor through panel operation to renumber yarn sensors. During numbering process, for unnumbered yarn sensors, corresponding green lights flicker. Press left small keys of yarn sensor to number yarn sensor. For numbered yarn sensors, red lights are on. Please number all yarn sensors in turn.

纱线传感器的运行状态：无纱线或有纱线穿过但纱线静止时，亮红灯；有纱线穿过且纱线是运动时，亮绿灯。

Operation mode of yarn sensor: if there is no yarn or if yarn is still during passing, the red light is on. If moving yarns pass, green light is on.

详细的面板操作请查看“面板操作”部分。

Detailed panel operation, please examine "panel operation" part.

◆压缩空气的连接

◆ Connection of compressed air

用 Φ10 的管连接机器的压力表和中心分配系统，检查压缩空气是否干燥，并将压力表调到 0.6MPa。

Use Φ10 tube to connect pressure gauge and central distribution system of the machine. Inspect whether compressed air is dry and adjust pressure gauge to 0.6MPa.

◆输入空气的连接（**吸风管道连接**）

◆Intake air connection

利用波纹管连接废纱筒和风阀到吸风系统或吸风机。如图 2－5 所示：

Connect the Lint filter and the partializing valve by means of a corrugated tube to either the central supply system or to the suction fan. See fig.2-5

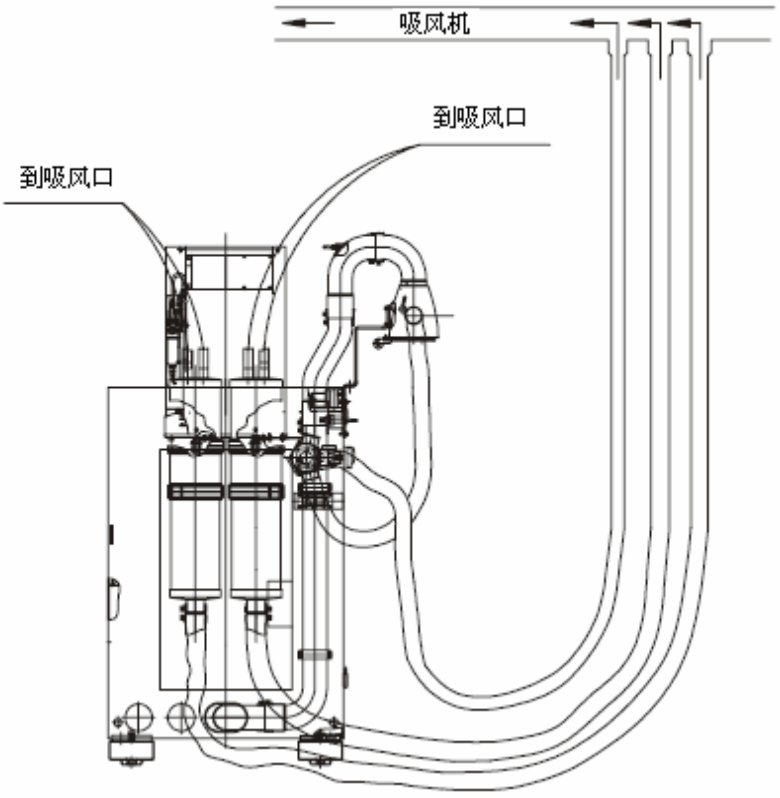


图 2－5(Fig.2-5)

3 润滑和气动控制 Lubrication and pneumatic controls

3.1 加油 Automatic lubrication

本机器装有自动加油装置和回油管。在下列情况下会自动停车：

The machine is equipped with an automatic oiler which recovers and recycles the lubricating oil continuously and automatically stops the machine in the following cases:

◆当油面低于最低线时；

◆When the level goes below the minimum.

◆加油回路中缺少压力时。

◆ In case of loss of pressure in the lubricating circuit**.**

压注系统加油

Oiling of injection system

本机自动加油采用的是压注系统进行加油，它是由气压泵将油输入到多路分配器，通过各条油管导出到机器的各个部件上，对机器进行加油润滑。在机器运转之前，要注意检查各个油管的畅通，切不可有堵塞现象，否则可能导致油管爆裂。

The oiler works with compressed air and it is located inside the base on the right side. Its main task is to provide the constant supply of lubricant to the most delicate and important parts of the machine.

在安装和使用自动加油系统时，应注意以下的操作：

As regards the maintenance of the automatic oiler, the following operations are required:

◆加油时应使用 Kluber Madol 172 Supreme 油，如不能提供该油品，我们建议使用同样性能的油；

◆ It is advisable to use Kluber ¨C Tex Syntheso M32.If this lubricant is not available, we recommend using an oil with the same characteristics.

◆注意油面的高度（不能超过油箱上的最高液面指示线）；

◆ Check of oil level and eventual topping (oil cannot exceed the maximal oil level indication line on oil tank);

◆定期清洁回用油的预过滤器：

◆ Cleaning of pre-filter at the entry of the recovered lubricant: this operation is to be carried out on a regular basis.

新机在磨合运行的前 3 个月里，会流出黑色带杂质的油，属正常现象，磨合完成后会出清油。

Within the first 3 months for running-in of a new machine, black oil with black impurities may flow out, which is normal. After running-in, clear oil flows out.

注意：

Note:

第一次使用 1 个月后，就及时更换滤网或用柴油清洗加高压空气吹净，以后每 3 个月清洗或更换一次；

1 month after the first use, replace filter screen or clean filter screen with diesel oil and high-pressure air. Afterwards, clean or replace filter screen at every 3 months.

第一次使用 3 个月后，用可挥发性溶剂（如乙醚等）清洁油箱，以后每年清洁一次。

After the machine operates for 3 months, clean oil tank with volatile solvent (such as aether, etc.) and then clean it annually afterwards.

！警告:

！Warning:

科赛恩公司对于未使用本手册所提到的或具有同样性能的油品所造成的损失不负任何责任。

Cosine is not responsible for any loss caused by use of oil not mentioned in the manual or oil without similar performance.

3.2 气动控制系统 Pneumatic control system

目前机器上所有装置的动作均由带有电磁阀的气动系统控制，为保证机器的准确动作，防止密封圈老化变形，应使用具有下列特性的压缩空气：

The operation of all the current machine devices is controlled by a pneumatic system with solenoid valves.To ensure proper operation of the machine and to prevent uneven wear of the gaskets, use dried compressed air having the following characteristics:

温度：从储气罐中出来的温度为 18～21 ℃

Temperature: Temperature as it comes from the dryer 18/21℃

湿度: 0℃

Humidity: 0℃

如更换活塞杆上的密封圈，需在气缸体内涂上蓖麻油脂。

When replacing gaskets on moving parts (sliders, yarn fingers, etc.), grease the gasket with:

后部阀岛系统的控制:

Control of solenoid valve system:

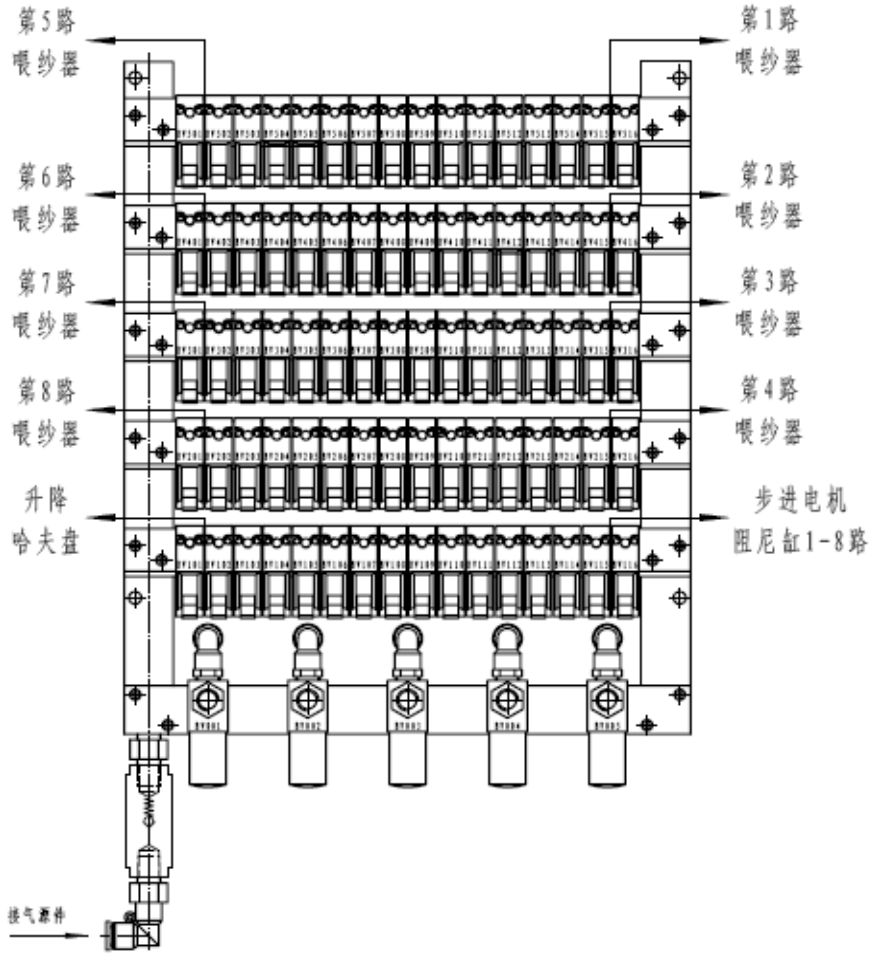


图 3－1(Fig.3-1)

哈夫盘多路接头接管图

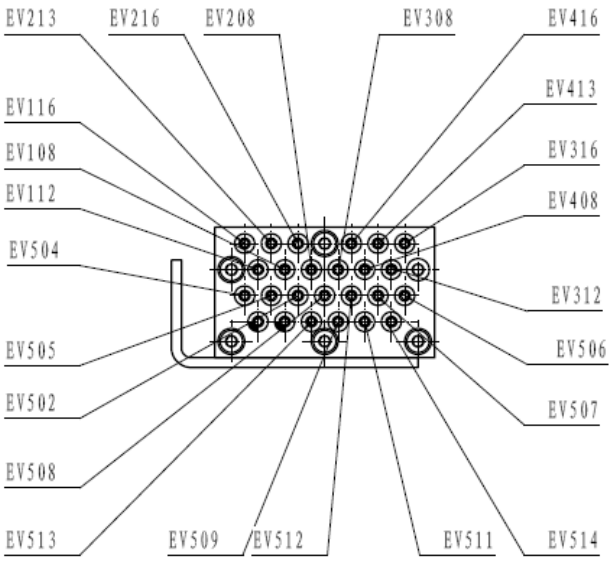


图 3－2(Fig.3-2)

说明： EV001

Note: EV001

EV002 织物吹风 4-5 路

EV002 Blower for keeping the garment down feed 4-5

EV003 片衣出口控制

EV003 Ejection blower

EV004 清洁吹风口 3-4 7-8

EV004 Air blows on feeds 3-4 7-8

EV005 清洁吹风口 1-2 5-6

EV005 Air blows on feeds 1-2 -5-6

EV101 升起长脚针 第 1 路

EV101 Lift long butt needle feed 1

EV102 集圈三角 第 1 路

EV102 Tuck cam feed 1

EV103 退圈三角 第 1 路

EV103 Clearing cam feed 1

EV104 成圈三角 B 位（高脚） 第 1 路

EV104 Stitch cam (high heel) feed 1

EV105	成圈三角 C 位（低脚）	第 1 路
Ev105	Position C of stitch cam (low heel)	feed 1
EV106	毛圈三角	第 1 路
EV106	Cam for terry sinkers	feed 1
EV107		
EV108	弹力纱夹子	第 1 路
EV108	Elastomer trapper	feed 1
EV109	升起长脚针	第 2 路
EV109	Lift long-butt needle	feed 2
EV110	集圈三角	第 2 路
EV110	Tuck cam	feed 2
EV111	退圈三角	第 2 路
EV111	clearing cam	feed 2
EV112		
EV113	断针探测器	第 2 路
EV113	Needle stop motion	feed 2
EV114	毛圈三角	第 2 路
EV114	Cam for terry sinkers	feed 2
EV115		
EV116	弹力纱夹子	第 2 路
EV116	Elastomer trapper	feed 2
EV201	升起长脚针	第 3 路
EV201	Lift long butt needle	feed 3
EV202	集圈三角	第 3 路
EV202	Tuck cam	feed 3
EV203	退圈三角	第 3 路
EV203	Clearing cam	feed 3
EV204	成圈三角 B 位（高脚）	第 3 路
EV204	Position B of stitch cam (high heel)	feed 3
EV205	成圈三角 C 位（低脚）	第 3 路
EV205	Position C of stitch cam (low heel)	feed 3
EV206	毛圈三角	第 3 路
EV206	Cam for terry sinkers	feed 3

EV207		
EV208	弹力纱夹子	第 3 路
EV208	Elastomer trapper	feed 3
EV209	升起长脚针	第 4 路
EV209	Lift ong-butt needle	feed 4
EV210	集圈三角	第 4 路
EV210	Tuck cam	feed 4
EV211	退圈三角	第 4 路
EV211	Clearing cam	feed 4
EV212		
EV213	橡筋夹子	第 2 路
EV213	Rubber trapper	feed 2
EV214	毛圈三角	第 4 路
EV214	Cam for terry sinkers	feed 4
EV215		
EV216	弹力纱夹子	第 4 路
EV216	Elastomer trapper	feed 4
EV301	升起长脚针	第 5 路
EV301	Lift long butt needle	feed 5
EV302	集圈三角	第 5 路
EV302	Tuck cam	feed 5
EV303	退圈三角	第 5 路
EV303	Clearing cam	feed 5
EV304	成圈三角 B 位（高脚）	第 5 路
EV304	Position B of stitch cam (high heel)	feed 5
EV305	成圈三角 C 位（低脚）	第 5 路
EV305	Position C of stitch cam (low heel)	feed 5
EV306	毛圈三角	第 5 路
EV306	Cam for terry sinkers	feed 5
EV307		
EV308	弹力纱夹子	第 5 路
EV308	Elastomer trapper	feed 5
EV309	升起长脚针	第 6 路

EV309	Lift long butt needle	feed 6
EV310	集圈三角	第 6 路
EV310	Tuck cam	feed 6
EV311	退圈三角	第 6 路
EV311	Clearing cam	feed 6
EV312		
EV313	断针探测器	第 6 路
EV313	Needle stop motion	feed 6
EV314	毛圈三角	第 6 路
EV314	Cam for terry sinkers	feed 6
EV315		
EV316	弹力纱夹子	第 6 路
EV316	Elastomer trapper	feed 6
EV401	升起长脚针	第 7 路
EV401	Lifting long-butt needle	feed 7
EV402	集圈三角	第 7 路
EV402	Tuck cam	feed 7
EV403	退圈三角	第 7 路
EV403	Clearing cam	feed 7
EV404	成圈三角 B 位（高脚）	第 7 路
EV404	Position B of stitch cam (high heel)	feed 7
EV405	成圈三角 C 位（低脚）	第 7 路
EV405	Position C of stitch cam (low heel)	feed 7
EV406	毛圈三角	第 7 路
EV406	Cam for terry sinkers	feed 7
EV407		
EV408	弹力纱夹子	第 7 路
EV408	Elastomer trapper	feed 7
EV409	升起长脚针	第 8 路
EV409	Lifting long butt needle	feed 8
EV410	集圈三角	第 8 路
EV410	Tuck cam	feed 8
EV411	退圈三角	第 8 路

EV411	Clearing cam	feed 8
EV412		
EV413	橡筋夹子	第 6 路
EV413	Rubber trapper	feed 6
EV414	毛圈三角	第 8 路
EV414	Cam for terry sinkers	feed 8
EV415		
EV416	弹力纱夹子	第 8 路
EV416	Elastomer trapper	feed 8
EV501	加油控制	
EV501	Oiling control	
EV502	哈夫盘上清针吹风	
EV502	dial jack air blowe on dial unit	
EV503	扎口变平针	
EV503	Transfer cam	
EV504	切纱器	第 2 路
EV504	Yarn cutter	feed 2
EV505	切纱器	第 4 路
EV505	Yarn cutter	feed 4
EV506	切纱器	第 6 路
EV506	Yarn cutter	feed 6
EV507	切纱器	第 8 路
EV507	Yarn cutter	feed 8
EV508	哈夫盘间隙控制	
EV508	Dial position of dial unit	
EV509	出长脚哈夫针	
EV509	High butt jack exit	
EV510	生克罩摆动控制	
EV510	Sinker cap oscillation control	
EV511	出短脚哈夫针	
EV511	Total jack 3 exit	
EV512	收进一点哈夫针	
EV512	Partial jack re-entry	

EV513 收长脚哈夫针

EV513 High butt jack re-entry

EV514 收短脚哈夫针

EV514 Total jack re-entry

EV515 Total jack 2 re-entry

EV516

总气动系统的控制:

Control of general pneumatic system:

参见图 3－3

Refer to fig.3-3

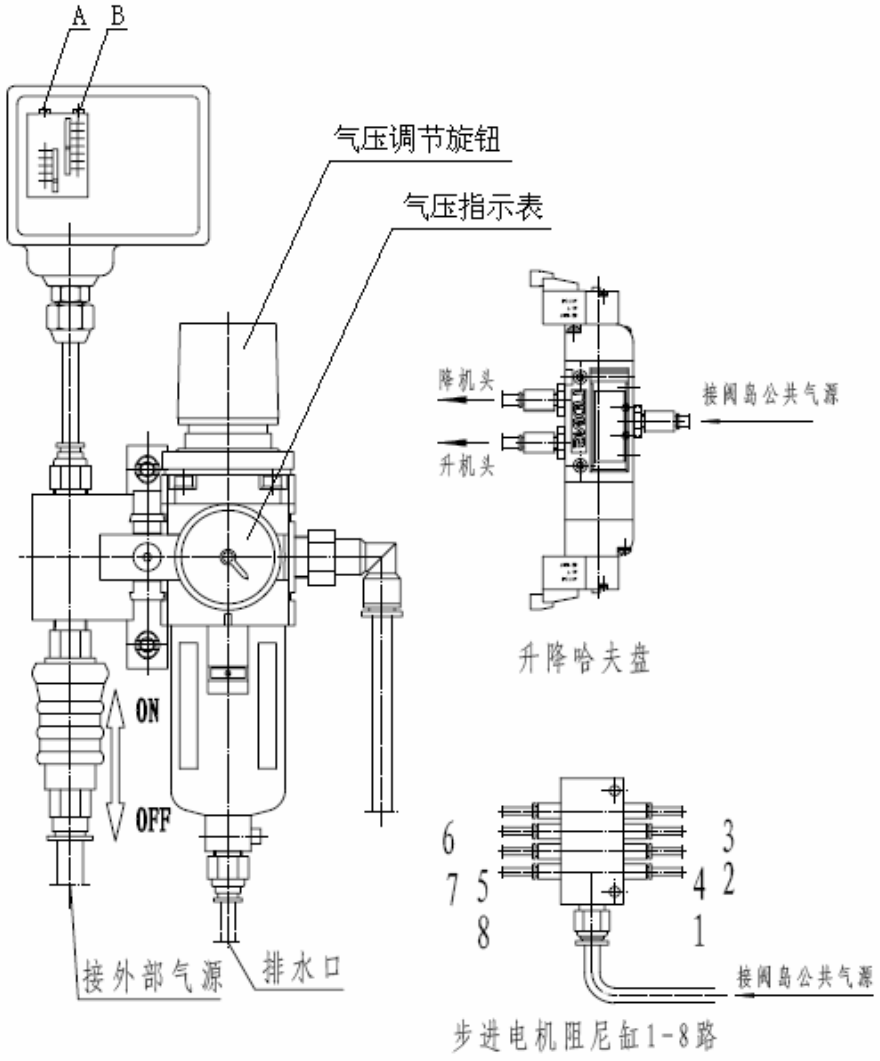


图 3－3(Fig.3-3)

注：

Note:

螺丝 A 和 B 是用来调节气压下限报警和气压上限报警，当气压低于气压下限报警值或气压上限报警值时，机器会报警并停止运转。（推荐调节气压下限报警值调为 0.4MPa，气压上限报警值调节为 0.7MPa。）

Screw A and B are used to adjust lower limit and upper limit alarm for air pressure. When air pressure is below lower alarm limit of air pressure or above higher alarm limit of air pressure, the machine shall give out alarm and stop operation (it is recommended to regulate the lower alarm limit as 0.4MPa and upper alarm limit as 0.7MPa).

气压指示表显示的是当前工作的气压值，可以通过气压调节旋钮来调节气压到工作所需要的气压值，一般工作气压为 0.6MPa。

Air pressure gauge displays present air pressure value. Regulate air pressure to required air pressure value through air pressure adjusting knob. General air pressure is 0.6MPa.

喂纱器电磁阀控制系统:

Solenoid valve control system of yarn feeder:

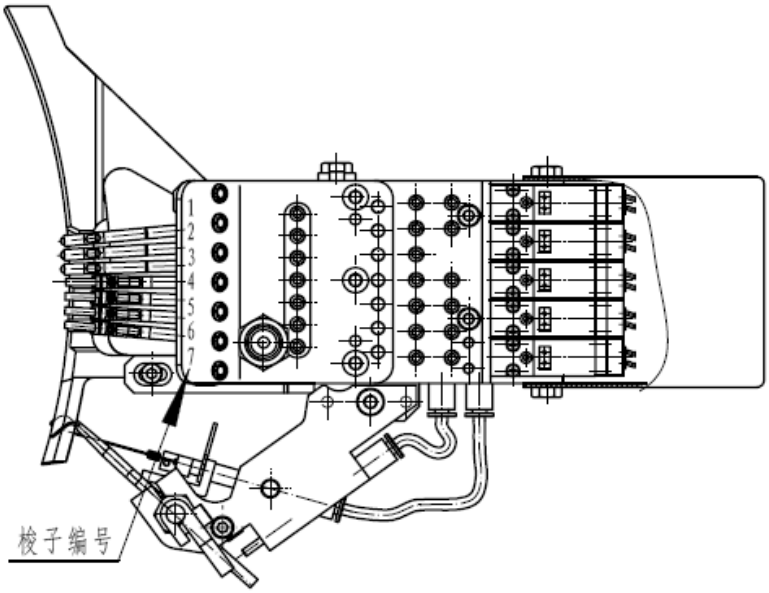
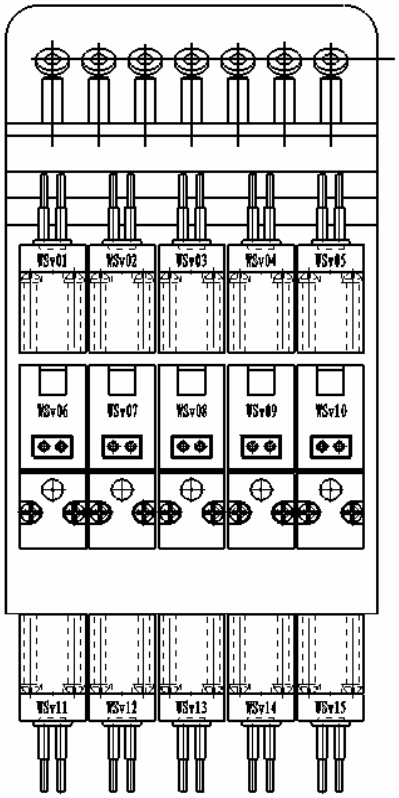


图 3－4

Fig.3-4



说明：

WEv01	7 号梭子 C 位
WEv02	5、6 号梭子 C 位
WEv03	4 号梭子 C 位
WEv04	2 号梭子 B 位
WEv05	1 号梭子 B 位
WEv06	7 号梭子 D 位
WEv07	6 号梭子 D 位
WEv08	4 号梭子 D 位
WEv09	2 号梭子 C 位
WEv10	1 号梭子 C 位
WEv11	探针舌器
WEv12	开针舌器
WEv13	5 号梭子 D 位
WEv14	3 号梭子 C 位
WEv15	

图 3－5 （Fig.3-5）

Note:
WEv01 Position C of yarn finger 7
WEv02 Position C of yarn finger 5 and 6
WEv03 Position C of yarn finger 4
WEv04 Position B of yarn finger 2
WEv05 Position B of yarn finger 1
WEv06 Position D of yarn finger 7
WEv07 Position D of yarn finger 6
WEv08 Position D of yarn finger 4
WEv09 Position C of yarn finger 2
WEv10 Position C of yarn finger 1
WEv11 Needle latch detector
WEv12 Needle latch opener
WEv13 Position D of yarn finger 5
WEv14 Position C of yarn finger 3
WEv15

4 机器的状态与调试 Machine State and Testing

4.1 提花片→织针→沉降片→哈夫针的安装

Assembly of pattern bit→needle→sinker→dial jack

提花片的安装:

Assembly of pattern bit:

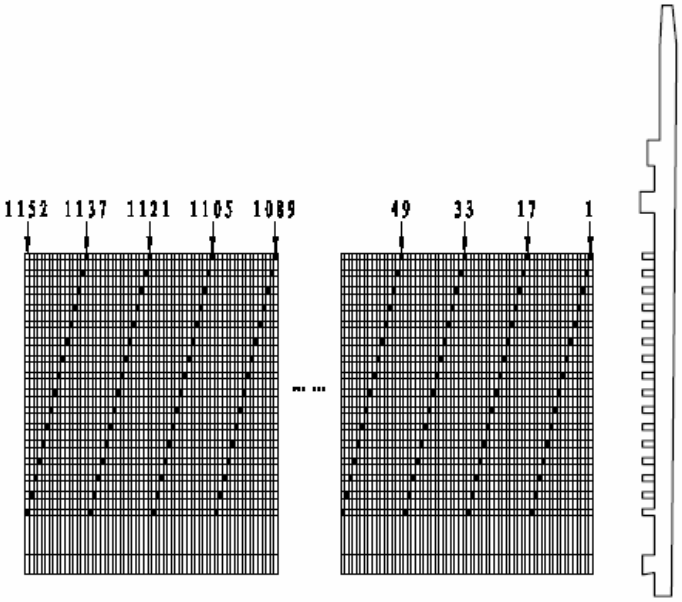


图 4－1（Fig.4-1）

提花片的安装，参见图 4－1，以 13″TOP1(机号 28)为例，每台机器上所需提花片共计 1152 枚，每 16 枚为一组，共计 72 组。以针桶上的记号槽为初始位置，安装的提花片，定义为第 1 枚提花片，同时，在这第一枚提花片片脚上作一个记号，依次按顺时针方向（注：针筒工作运转方向为逆时针方向），顺序安装下去，直至全部安装完毕。

For assembly of pattern bit, refer to fig.4-1. Take 13" TOP 1 (knitting gauge 28) as example, 1,152 pattern bits are required on each machine and 16 pattern bits compose a group. There are totally 72 groups. Take sign groove on needle cylinder as the initial position where the pattern bit installed is defined as the 1st one. At the same time, mark the 1st pattern bit at the foot and then install other bits at clockwise direction (note: cylinder operates at counterclockwise direction) in turn until all bits are installed.

织针的安装:

Assembly of knitting needle:

织针的安装，参见图 4－2，以 13″TOP1(机号 28)为例，每台机器上所需织针共计 1152 枚，其中织针分为高脚织针和低脚织针，如图所示，高脚织针所占的数目是全部织针的 1／4,计为 288 枚,安装区域如图中所示；低脚织针占 3／4,计为 864 枚，安装在剩下的位置上。

For assembly of knitting needle, refer to fig.4-2. Take 13" TOP1 (knitting gauge 28) as example, 1,152 knitting needles required on each machine are divided into high-butt knitting needles and low-butt knitting needles, as shown in the figure. 288 high-butt knitting needles occupying only 1/4 of all knitting needles are installed in the position shown in the figure. 864 low-butt knitting needles occupying 3/4 of all knitting needles are installed at remaining positions.

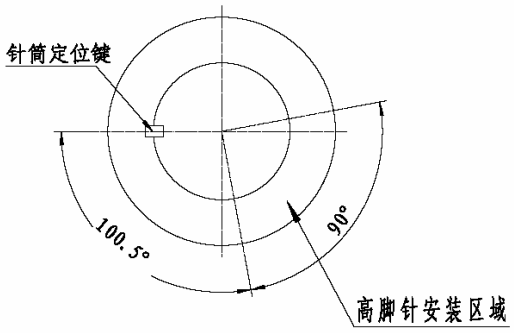


图 4－2（Fig.4-2）

沉降片的安装:

Assembly of sinker:

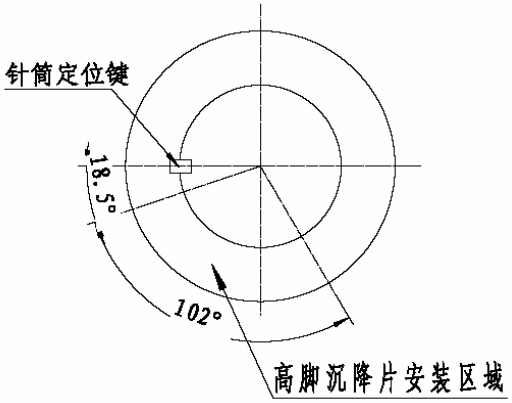


图 4－3（Fig.4-3）

沉降片的安装，参见图 4－3，以 13″TOP1 (机号 28)为例，每台机器上所需沉降片数共计 1152 枚，其中沉降片分为高脚沉降片和低脚沉降片，高脚沉降片在整个的 360º 圆周中占 102º 的角度区域范围，针数计为 326 枚，安装位置如图所示区域；其余部分安装低脚沉降片，针数记为 826。

For assembly of sinker, refer to fig.4-3. Take 13" TOP1 (knitting gauge 28) as example, 1,152 sinkers required on each machine are divided into high-butt sinkers and low-butt sinkers. In the whole 360° circle, 326 high-butt sinkers occupying 102° angle are installed as shown in the figure. 826 low-butt sinkers are installed in other area.

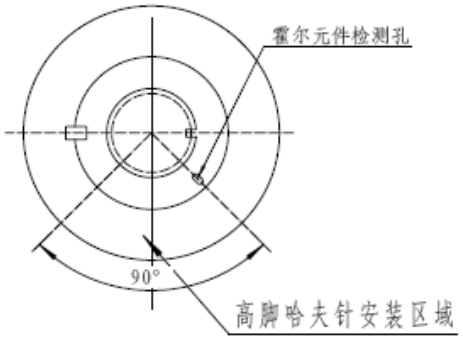


图 4－4 （Fig.4-4）

哈夫针的安装:

Assembly of dial jack:

哈夫针的安装，参见图 4－4，以 13″TOP1(机号 28)为例，每台机器上所需哈夫针数共计 576 枚，其中哈夫针分为高脚哈夫针和低脚哈夫针，高脚哈夫针在整个的 360º 圆周中占 90º 的角度区域范围，针数计为 144 枚，安装位置如图所示区域；其余部分安装低脚哈夫针，针数记为 432。

For assembly of dial jack, refer to fig.4-4. Take 13" TOP1 (knitting gauge 28) as example, 576 dial jacks totally required on each machine are divided into high-butt dial jacks and low-butt dial jacks. 144 high-butt dial jacks occupying 90° angle around the whole 360° range are installed as shown in the figure. 432 low-butt dial jacks are installed in other area.

！警告:

! Warning:

未按本手册规定装针，会导致三角在动作时，造成打针脚、断针等

If needles are not installed based on the manual, stitch beating, needle breakage, etc. may be caused during cam operation.

4.2 选针器的调节 Adjustment of pattern devices

参见图 4－5、图 4－6

Refer to fig.4-5 and 4-6.

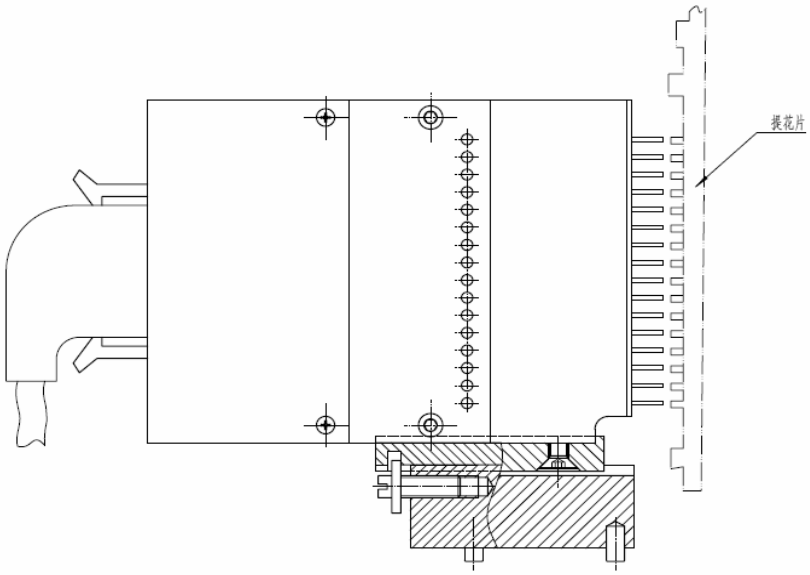


图 4－5（Fig.4-5）

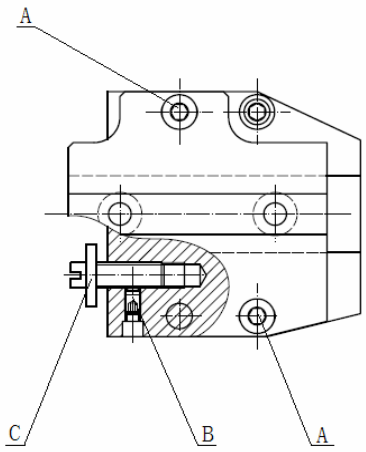


图 4－6（Fig.4-6）

1、进入测试模式下，进入选针器调整界面，在面板上控制选针器的刀头工作状态为OFF;

Under test pattern, enter into pattern devices adjustment interface and control bit operation state of pattern devices at OFF on panel.

With all the levers in “Work” position.

2、稍微拧松螺钉 A 和紧定螺钉 B，选针器不翘起仍保持水平状况，通过调节螺钉 C，来确定选针器压片的位置，以能压下提花片片脚，同时被压下的提花片与针筒也有适当间隙为宜;

Unscrew screw A and set screw B slightly, the pattern devices maintain horizontal state without upwarp. Adjust bolt C to determine position of selector tabletting. It is proper to press pattern bit foot and there is certain gap between pressed pattern bit and needle cylinder.

Loosen the two screws (A) and the dowel (B).By using the screw (C), align the pattern device levers profiles at a distance of 0.25 mm from the cylinder.

3、拧紧螺丝 A 和紧定螺丝 B。

Tighten screw A and set screw B.

4.3 密度三角的调节 Adjustment of stitch cams

参见图 4－7。

Refer to fig.4-7

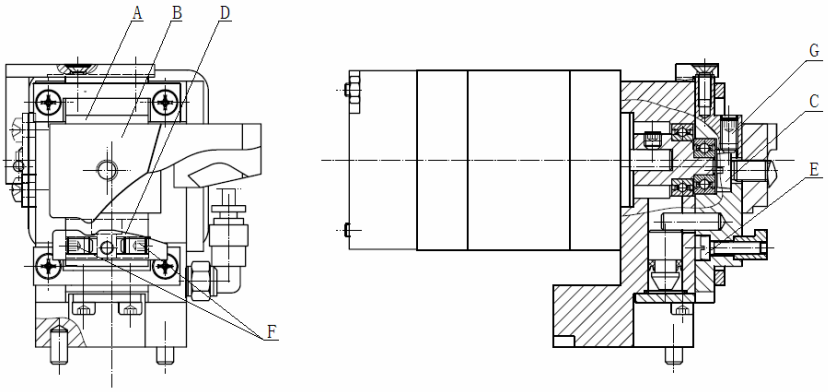


图 4－7（Fig.4-7）

上弯纱三角和下弯纱三角间隙的调节，调节就在工作台上，按下述步骤进行：

Adjustment of the needle passage between the stitch cams and the counter cams. Said adjustment is to be carried out at the workbench as follows:

1、从成圈系统组件上拆下上下活动座 A；

Disassemble the cam holder sliders (A) from support (B).

2、拧下上弯纱三角 B 的固定螺丝 C，沿着上下活动座，下移到与下弯纱三角 D 一起，拧松(但不要拧下来)下弯纱三角的固定螺丝 E，利用水平位置的两颗螺丝 F，调节下弯纱三角在水平方向上的位置，使上弯纱三角与下弯纱三角的弧度线平行配合，拧紧下弯纱三角的固定螺丝。

Loosen, but not completely, the stitch cam fastening screw (C) and, by ad-justing the vertical dowel (E), set the distance between the two cams at 2,8mm by means of the caliper。

3、拧回（但不要拧紧）上弯纱三角的固定螺丝，调节螺丝 G，用测径器或卡钳调节上弯纱三角与下弯纱三角的间距为 2.90～2.92mm(如图 4－8 所示)，拧紧上弯纱三角的固定螺丝 C。

Screw back (but do not screw down) fix screw of upper knitting cam and adjust screw G. Adjust the space to be 2.90～2.92mm between upper knitting cam and lower knitting cam with a calipers or caliper (as shown in fig.4-8). Screw down fix screw C of upper knitting cam.

4、用织针进行测试，当织针刚好可以顺利通过三角时，即合格，否则，请重新操作

第 2 步和第 3 步进行调节。

Perform test with a knitting needle. When knitting needles can pass the cam smoothly, adjustment is completed. Otherwise, please repeat step 2 and 3 for adjustment.

5、调节完成后，将上下活动座 A 装回到成圈系统组件上。

After adjustment is completed, install upper and lower sliding seat A back to knitting system assembly.

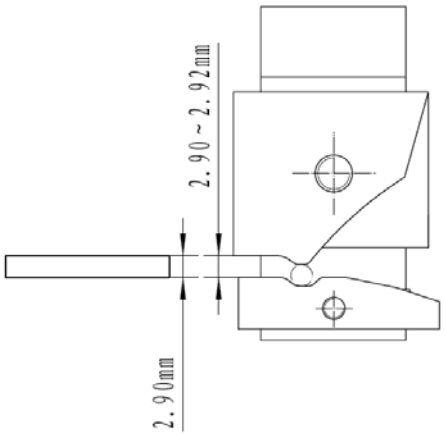


图 4－8（Fig.4-8）

4.4 集圈的调节 Adjustment of tuck

集圈的调节，要求将集圈固定在三角调节固定板上，如下面各个图所示用三角调节工装进行调节。

The adjustment of the cams requires that the unit be fixed to the M960450 plate and that the various adjustments be exe-cuted with the M960390 caliper as de-scribed in the figures.

集圈三角位置的调节:

Adjustment of tucked needle raising cam

参见图 4－9

Refer to fig.4-9

松开紧定螺丝 2，通过螺丝 1 调节集圈三角的高度,直到刚好擦到三角调节工装，拧紧紧定螺丝 2。（高度 36.5mm）

Height adjustment is to be carried out by unfastening dowel 2 and by adjusting 1 until the cam grazes against the caliper.Fasten dowel 2 (height 36.5)

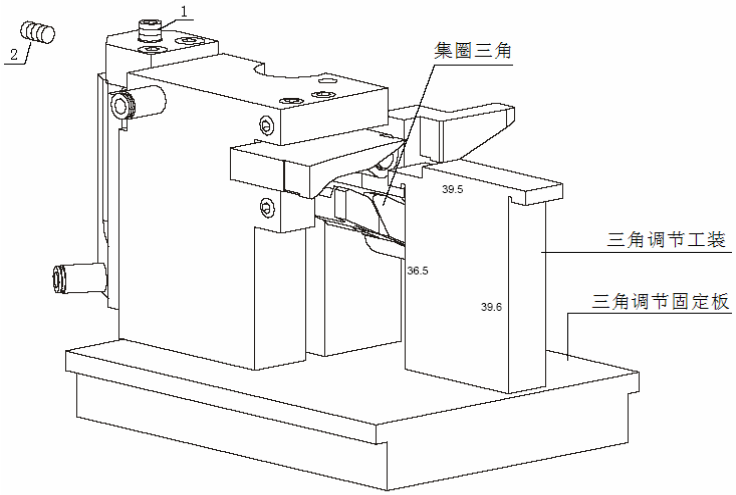


图 4－9（Fig.4-9）

压针三角位置的调节:

Adjustment of needle lowering cam

参见图 4－10

Refer to fig.4-10

松开紧定螺丝 1 和 2,通过螺丝 3 和 4 调节压针三角的高度，直到刚好擦到三角调节工装，拧紧紧定螺丝 1 和 2 。（高度 39.5mm）

Loosen dowels 1 and 2 and use dowels 3 and 4 to adjust the height.

Fasten dowels 1 and 2 (height 39.5)

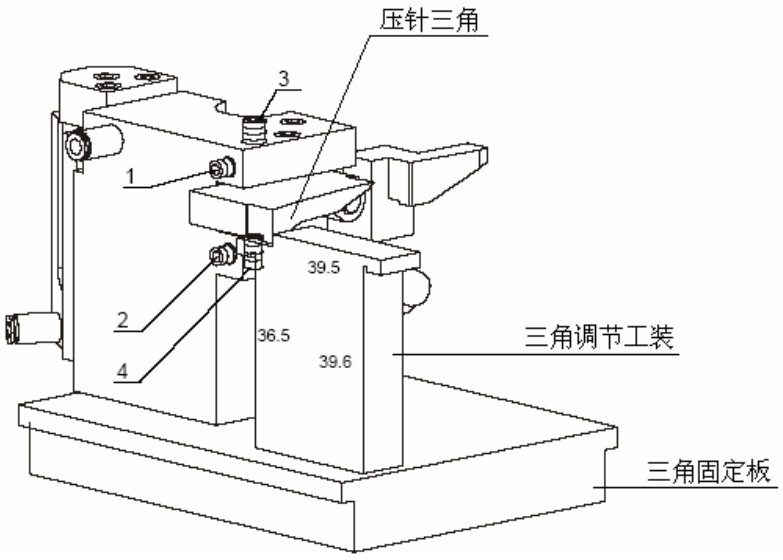


图 4－10（Fig.4-10）

退圈三角位置的调节:

Adjustment of clearing needle raising cam.

参见图 4－11

Refer to fig.4-11

松开紧定螺丝 2，通过螺丝 1 调节集圈三角的高度,直到刚好擦到三角调节工装，拧紧紧定螺丝 2。（高度 39.6mm）

Height adjustment is to be carried out by unfastening dowel 2 and by adjusting dowel 1 until the cam grazes against the caliper.Fasten dowel 2 (height 39.6)

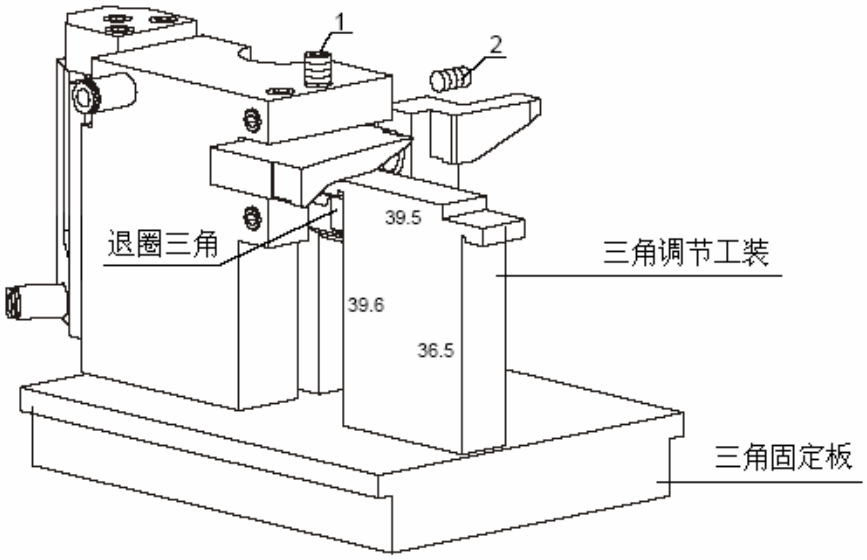


图 4－11(Fig.4-11)

4.5 扎口变平针三角位置的调节 Adjustment of cam for clearing dial

参见图 4－12

Refer to fig.4-12

将扎口变平针三角装置固定在三角固定板上，松开紧定螺丝 A，将三角向上摆起，通过螺丝 B 调节三角的高度，直到刚好擦到三角调节工装，拧紧紧定螺丝 A。

Mount the unit onto the M960270 plate and keep the cam lifted up, once the dowel (A) has been loosened. Use screw （B）until it grazes against the M960390 caliper (height 39.6). Block the dowel (A).

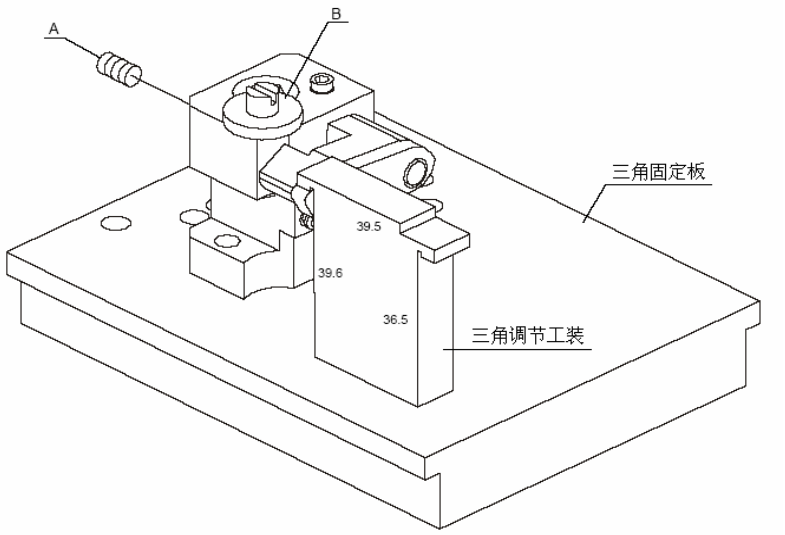


图 4－12(Fig.4-12)

4.6 护针板的调节 Adjustment of throat plate

深度调节:

Depth adjustment

参见图 4－13

Refer to fig.4-13

1、拧松螺丝 A；

Loosen screw A;

2、调节螺丝 B，使护针板下表面与沉降片座上表面之间的距离为 2.8~3.0 mm；

Adjust screw B to maintain 2.8 ~ 3.0 mm distance between upper surface of throat plate and upper surface of sinker block;

3、拧紧螺丝 A。

Tighten screw A

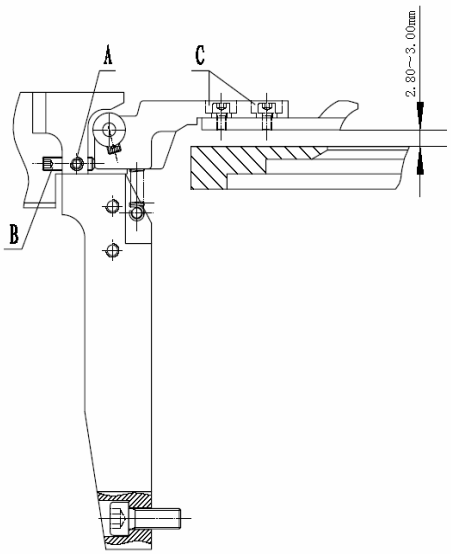


图 4－13（Fig.4-13）

高度调节:

Height adjustment:

参见图 4－14

Refer to fig.4-14

1、拧松螺丝 C；

Loosen screw C;

2、向针筒中心移动护针板，直到距离针杆整个长度方向 0.2mm；

Move throat plate to cylinder center until the distance to the overall length direction of needle bar is 0.2mm;

3、拧紧螺丝 C。Tighten screw C

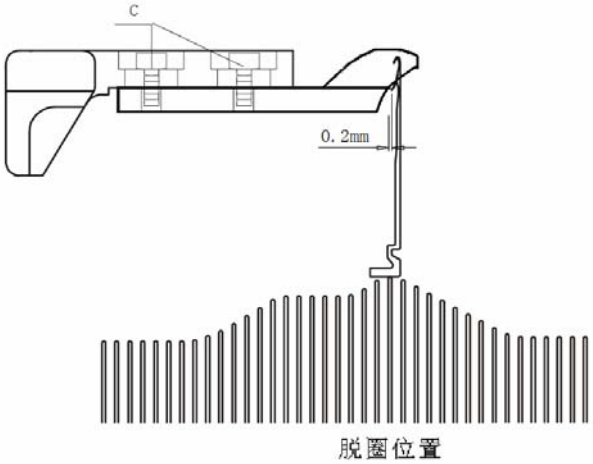


图 4－14（Fig.4-14）

4.7 纱嘴位置的调节 Adjustment of Yarn Fingers

本机器单个喂纱器上共有 7 个梭子，其中有 3 个直梭，4 个弯梭。其调节方法如下：

7 yarn fingers (3 straight yarn fingers and 4 bent yarn fingers) on single feeder of the machine are adjusted as below:

梭子座位置的调节:

Yarn finger unit adjustment, upper block

参见图 4－15

Refer to fig.4-15

1、拧松螺丝 A 和 B；Loosen screw A and B;

2、当纱嘴垫纱或不垫纱时，转动板子 C，使各直梭纱嘴距离针尖近且不打到针头上；Turn plate (C) until yarn finger n.1 with the ceramic tube is brought 0.1 mm. from the needle tip when the yarn finger rotates to feed or to re-move thread.

3、拧紧螺丝 A 和 B。 Tighten screws (A) and screws (B)

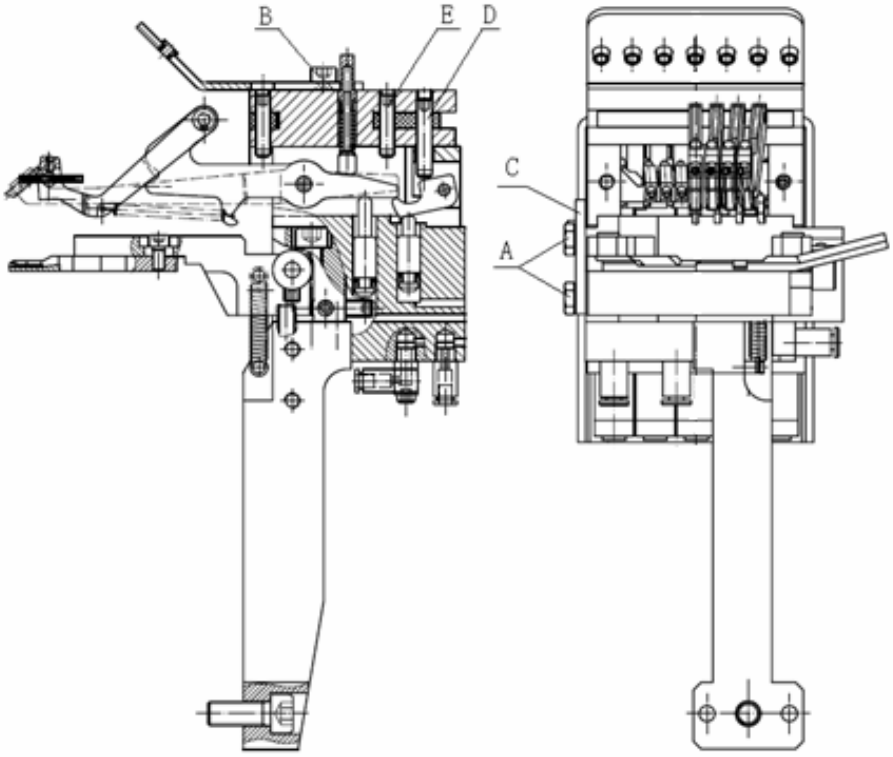


图 4－15（Fig.4-15）

直梭纱嘴位置的调节（以 1 号梭子为例）:

Straight yarn finger position adjustment (take No.1 yarn finger as example):

参见图 4－16

Refer to fig.4-16

1、进入测试模式下，点动模式下，将 1 号梭子位置打到 B 位置；

After having brought the yarn fingers to the feed position with the “auto-test” Control。

2、调节螺丝 D，使纱嘴与护针板台面间的距离为 2.0～3.0mm;

Use the dowel (D) to adjust height of the yarn finger from the box:

it must amount to 2.0~3.0mm for the ceramic tubes。

3、将梭子位置打到 C 位，调节螺丝 E，使纱嘴与护针扳台面轻轻触碰。set yarn finger to position C and adjust screw E so that yarn finger touches throat plate surface.

4、退出梭子回到初始位置 A 位。Withdraw yarn finger to original position A.

注：调节 2、3 号梭子纱嘴位置的方法与 1 号梭子纱嘴位置的调节方法一样，其中，3 号梭子的纱嘴位置只有 C 位，可省略以上步聚中的第 2 步。Note: the method to adjust position of No.2 and 3 yarn finger is same as No.1 yarn finger where, No.3 yarn finger is only at position C. Therefore, step 2 above can be omitted.

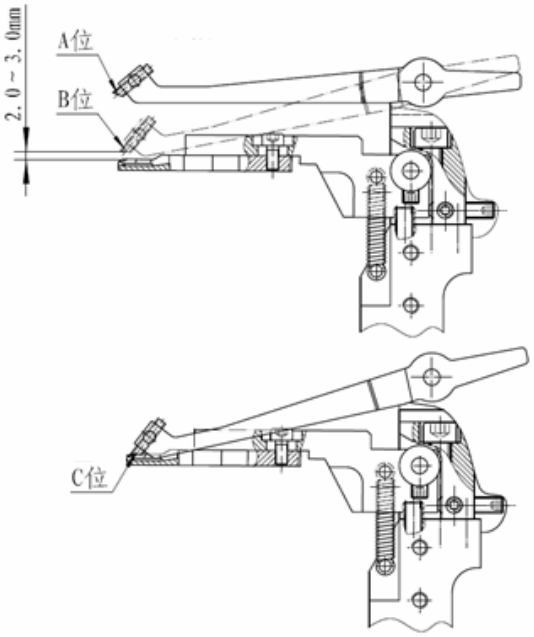


图 4－16（Fig.4-16）

弯梭纱嘴位置的调节（以 4 号梭子为例）:

Adjustment of bent yarn finger position (take No.4 yarn finger as example):

参见图 4－17

Refer to Fig.4-17

1、进入测试模式下，点动模式下，将 4 号梭子位置打到 C 位置；Enter into test mode and turn No.4 yarn finger to position C under inching mode;

2、调节螺丝 D，弯梭的前梭必须放在护针板台面上，位置如图所示；Adjust screw D and front yarn finger of bent yarn finger must be put onto throat plate surface as shown in the figure:

3、将梭子位置打到 D 位，调节螺丝 E，使弯梭达到如图所示的位置；Turn yarn finger to position D and adjust screw E so that bent yarn finger reach the position as shown in the figure;

4、拧松螺丝 F，调节瓷纱嘴的位置如图所示；Loosen screw F and adjust porcelain yarn finger to the position as shown in the figure;

5、拧紧螺丝 F，将弯梭退回到初始位置 A 位。Tighten screw F and withdraw bent yarn finger to initial position A.

注： 5、6、7 号梭子纱嘴位置的调节方式与 4 号梭子纱嘴位置的调节方法基本一致，其中，7 号梭子的纱嘴略有区别，7 号梭子所使用的是钢纱嘴和钢轴套，其纱嘴部分位置如图 4－18 所示。

Note: position adjustment method for No.5, 6 and 7 yarn finger is basically same as the method for No.4 yarn finger. Where, the position adjustment method for No.7 yarn finger is different from others slight. Because No.7 yarn finger uses steel yarn finger and steel shaft sleeve, the yarn finger position is shown in fig.4-18.

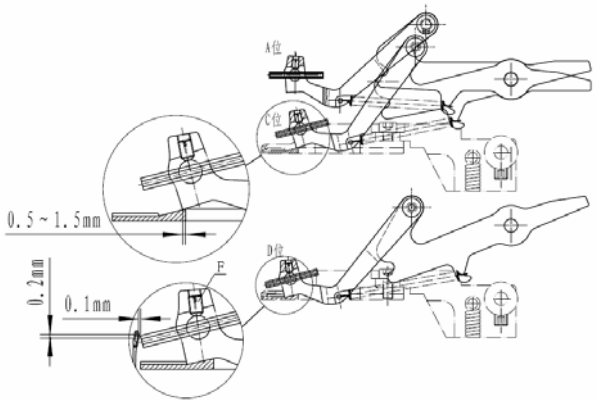


图 4－17（Fig.4-17）

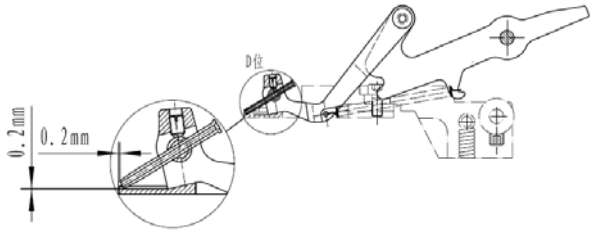


图 4－18（Fig.4-18）

注：每个梭子位置的调节均有相对就的螺丝进行调节，如图 4－19 所示，对各个螺丝进行编号，共有 13 个螺丝分别对梭子的位置进行调节，各螺丝的调节功能如下表所示。

Note: position of each yarn finger is adjusted by the nearby screw. Various screws are numbered as shown in fig.4-19. Yarn finger positions are respectively adjusted with 13 screws. Adjustment functions of various screws are shown in the table below.

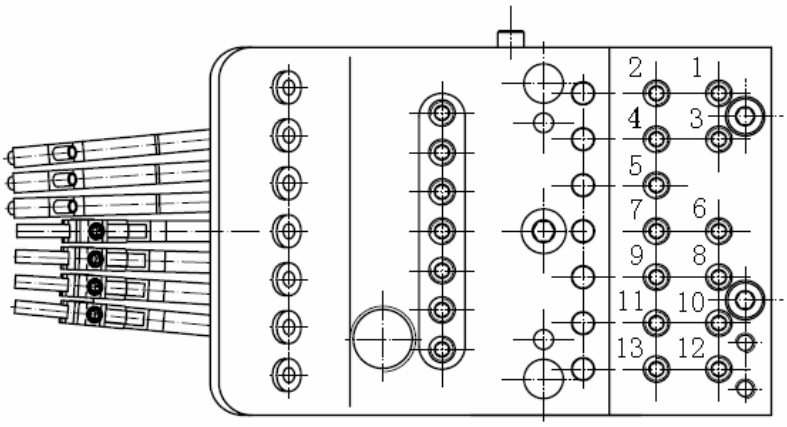


图 4－19（Fig.4-19）

说明：

Note:

1	1 号梭子 B 位
2	1 号梭子 C 位
3	2 号梭子 B 位
4	2 号梭子 C 位
5	3 号梭子 C 位
6	4 号梭子 C 位
7	4 号梭子 D 位
8	5 号梭子 C 位
9	5 号梭子 D 位
10	6 号梭子 C 位

11	6 号梭子 D 位
12	7 号梭子 C 位
13	7 号梭子 D 位

1	Position B of yarn finger 1
2	Position C of yarn finger 1
3	Position B of yarn finger 2
4	Position C of yarn finger 2
5	Position C of yarn finger 3
6	Position C of yarn finger 4
7	Position D of yarn finger 4
8	Position C of yarn finger 5
9	Position D of yarn finger 5
10	Position C of yarn finger 6
11	Position D of yarn finger 6
12	Position C of yarn finger 7
13	Position D of yarn finger 7

4.8 开针钩及探针的调节 Adjustment of latch opener and latch stops

开针钩的调节:

Adjustment of latch opener:

参见图 4－20、图 4－21、图 4－22

Refer to fig.4-20, 4-21 and 4-22

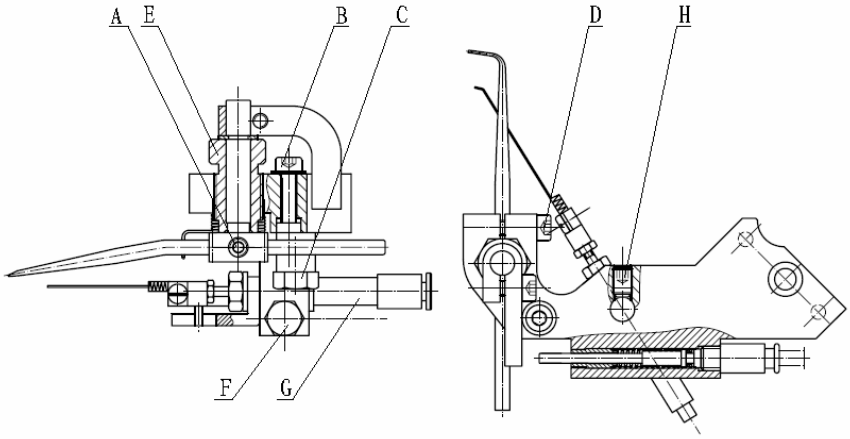


图 4－20（Fig.4-20）

当针舌没有完全打开（断针舌、脱纱或断纱），自停装置会使机器停下。

When needle latch is not opened totally (broken needle latch, dropped or broken yarn), automatic stop device shall make the machine stop.

注：确定提花片在工作位置（所有织针全织）的情况下进行调节。

Note: adjust pattern bit at operating position (all knitting needles are under operating state).

1、进入测试模式下，将所有织针选择到全织；

Enter AUTO-TEST mode and verify that the jacks are on their ring.

2、 松开螺丝 A，调节开针器伸入的深度，开针器的尖点伸入到由闭口针舌和针头形成的洞内，而不碰针，拧紧螺丝 A；

Now loosen the screw (A) and adjust the depth of the latch opener. The tip must enter into the eyelet formed by the closed blade without touching the needle. Tighten the screw (A).

3、 松开螺丝 B，调节偏心螺帽 C，将开针钩尖端调到靠近集圈针环的第 1 枚针的位置，

Position the latch opener tip near needle n.1 on the tuck stitch jack ring, activate the piston (C), loosen the screw (B) and turn the latch opener holder pin to regulate it properly. Then tighten the screw again.

4、 松开螺丝 D，利用调节螺杆 E 来调节开针钩尖端伸入到由闭口针舌和针头形成的洞眼之间距针尖下方 0.3mm 处，注意不要碰到针，拧紧螺丝 D；

Proceed by regulating the latch opener height: loosen the screw (D) and use screw (E) by positioning the latch opener tip into the eyelet formed by the closed blade at 0.3mm from the lower end of the dial. Pay attention that it does not touch the needle.Tighten the screw (D).

5、 按照以上 2、3、4 步步聚进行反复调节，将开针钩调到要求工作位置，保证机器运转过程中，开针钩能够顺利的打开针舌，且不碰到针。

Verify by manually rotating the cylinder that the needle blades open freely without any problem and without causing the vibration of the latch opener.

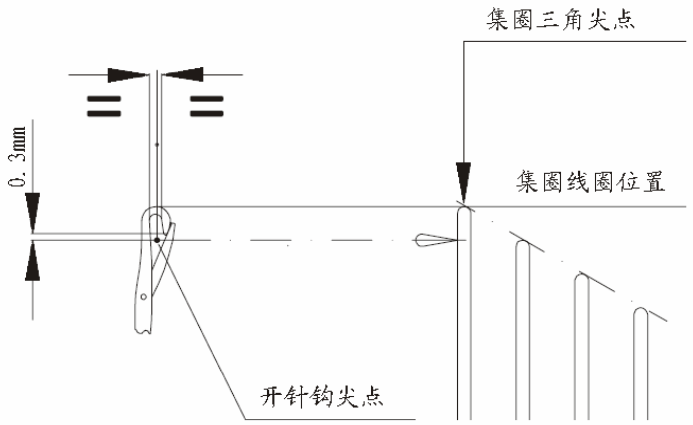


图 4－21（Fig.4-21）

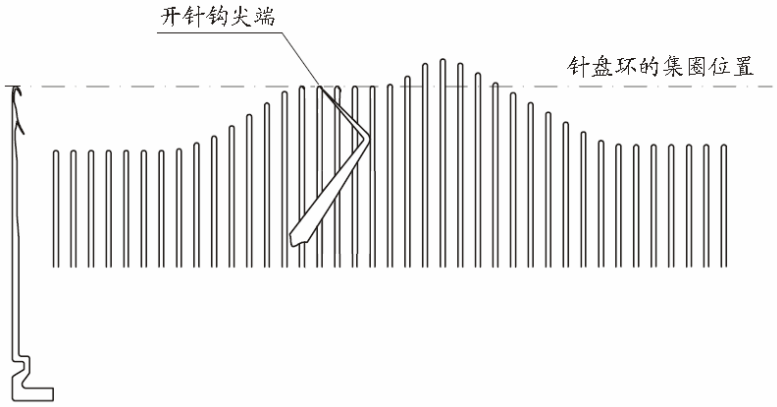


图 4－22（Fig.4-22）

探针的调节:

Adjustment Of Latch Stops

参见图 4－23

Refer to Fig.4-23

1、测试模式下，将探针打到工作位置； Turn latch stops to operating position under test mode;

2、 松开螺丝 F，移动气动装置 G，使探针探头距离舌针尖针 0.5mm，拧紧螺丝 F；

By loosening the screw (F) and moving the piston (G), position the piston dial at 0.5mm. from the needle dial.

3、 松开螺丝 H，调节探针组件，使探针探头距离舌针尖针下方 1.0mm，如图所示，拧紧螺丝 F；

Then fasten the screw (F) again, Verify that the stop point is at ~ 1mm from the latch opener point by using the dowel (C) to carry out this adjustment, if necessary.

4、 退出舌针工作位置。

De-energize the latch stops

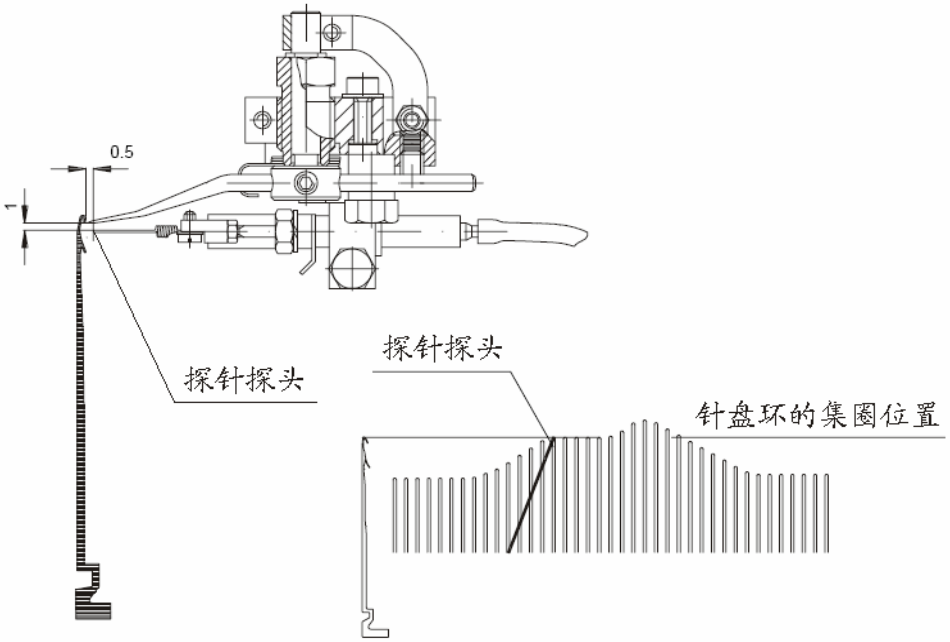


图 4－23（Fig.4-23）

4.9 生克罩的调节 Adjustment of sinker cap

生克罩偏心轮的调节:

Adjustment of sinker cap bearings

参见图 4－24

Refer to Fig.4-24

1、将生克罩安装在相应的生克罩调整工装 C 上；

Mount the dial caliper (C) on the inside of the sinker cap near the sinker cams seat.

2、 松松螺丝 A，转动偏心销 B，使偏心轮轻轻触碰到生克罩调整工装 C；

Turn the eccentric pins (B), after loosening the screws (A). The bearings must touch the caliper diameter without forcing them.

3、 拧紧螺丝 A； Tighten screw A;

4、 用手转到生克罩，并确定偏心轮也一起转动。

Turn the caliper by hand and verify that the bearings turn.

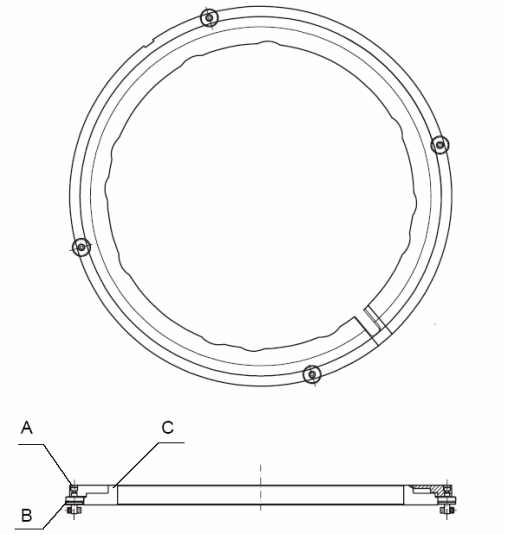


图 4－24（Fig.4-24）

可动的生克罩的角度调节:

Angular adjustment of the mobile sinker cap

沉降片三角位置：“平针织物”，参见图 4－25

Cover position: “plain fabric” refer to fig. 4-25

1、检查沉降片座气动控制装置 I 在“工作位置”；

Verify that the sinker cap control piston (I) is in work position.

2、 拧松螺母 A，利用螺丝 B 调节沉降片三角的最大凸出点接近在线圈压针三角的起针最高点，然后拧紧螺母 A。

Unscrew the nut (A) and, by using the screw (B), position the sinker cam with its maximum thrust point near the uppermost needle ascent point on the stitch counter cam.

Then tighten the nut (A).

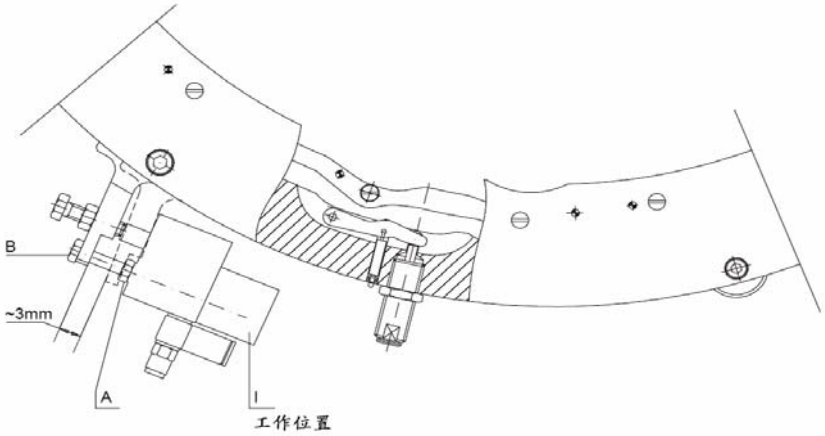


图 4－25（Fig.4-25）

沉降片三角位置：“毛圈织物”，参见图 4－26

Cover position: “terry” fabric, see fig. 4-26

1、检查沉降片座气动控制装置 I 在“不工作位置”；

Verify that the sinker cap control piston (I) is in rest position

2、 拧松螺母 C，利用螺丝 D 调节沉降片三角的最大凸出点的位置如图所示，然后拧紧螺母 C。

Unscrew the nut (C) and, by using the screw (D), position the sinker cam with its maximum thrust point as shown in Fig.4-26,Then tighten the nut (C).

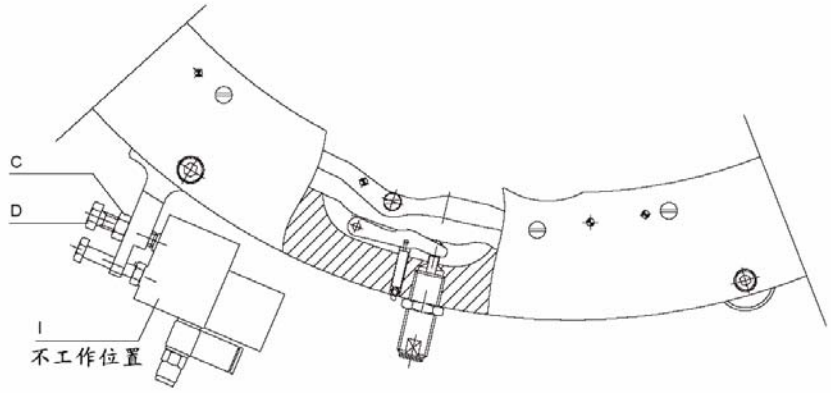


图 4－26（Fig.4-26）

4.10 断针自停器的调节 Adjustment of needle stop motion

参见图 4－27

Refer to fig.4-27

当针脚被撞断或由于吸风不足而使织物堆积时，这套装置会使机器停下；

The device stops the machine, should a needle butt break or should the knitted fabric gather excessively owing to poor suction.

调节过程如下：

To adjust it proceed as follows

1、换上一枚没有针脚的针，用点动将针推到如图所示的位置，然后利用调节螺丝 A 调节探针的深度，使探针的针尖伸出超过织针至少 1~1.5mm；当调好后，用好针换下坏针；

Remove one needle and insert a needle without butt; raise it manually to the height height indicated in Fig.4-27. Then adjust the depth of the rod using the adjusting screw (A), so that the rod tip passes the needle by at least 1~1.5mm.Once the adjustment is completed,replace the broken needle with a normal one.

2、 调节针杆的高度，利用螺丝 C 调节探针针尖与高脚沉降片片尖的间隙约为 0.5mm；

Adjust the height of the rod so that the distance between the rod and the sinker tip amounts to approximately 0.5mm. Use the screws (C) to carry out this adjustment.

3、 触击探针以检查自停装置是否有效，按下 F8 键清零。

Hit the rod to verify whether the stop device functions. Press the button F8 to reset.

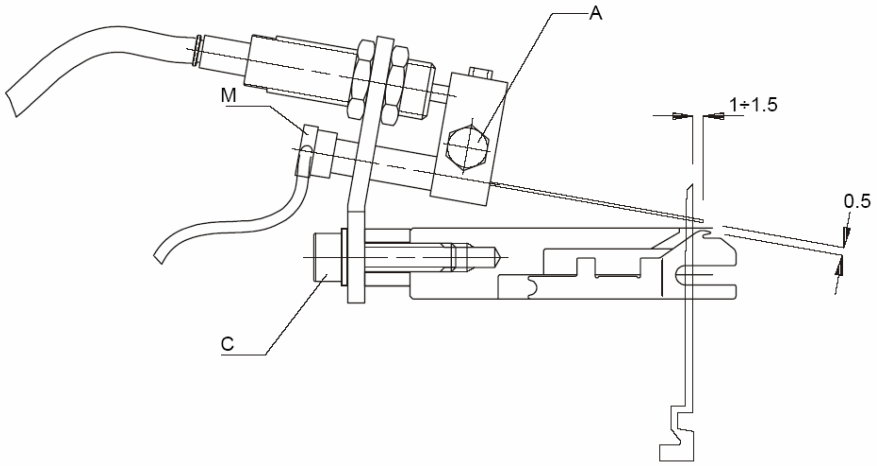


图 4－27（Fig.4-27）

4.11 哈夫盘装置的调节 Adjustment of dial unit

调节哈夫盘 A 位置:

Position adjustment of dial unit A:

哈夫盘 A 位的调节需要在织针全埋和出哈夫针的情况下进行调节。

dial unit A can be adjusted only when all knitting needles are embedded or out of dial jack.

调节过程如下：

Adjustment process is as follows:

参见图 4－28

Refer to fig. 4-28

1、进入测试模式，降下机头，将织针全埋，并且调出哈夫针； Enter into test mode and lower the dial to embed knitting needle completely, output dial jack;

2、 气动装置不动作，哈夫盘处于 A 位置； Pneumatic devices do not act and dial unit is at position A;

3、 松开螺母 A，通过调节螺丝 B，利用塞尺进行测量，使哈夫针与高脚沉降片上部的间隙为 0.20~0.30mm；

By unscrewing the nut (B), the position is regulated by means of the screw (C): 0.20 ~ 0.30mm between the dial jack and the sinker edge.

4、 拧紧螺母 A； Tighten nut A;

5、 收回哈夫针。 Take back dial jack.

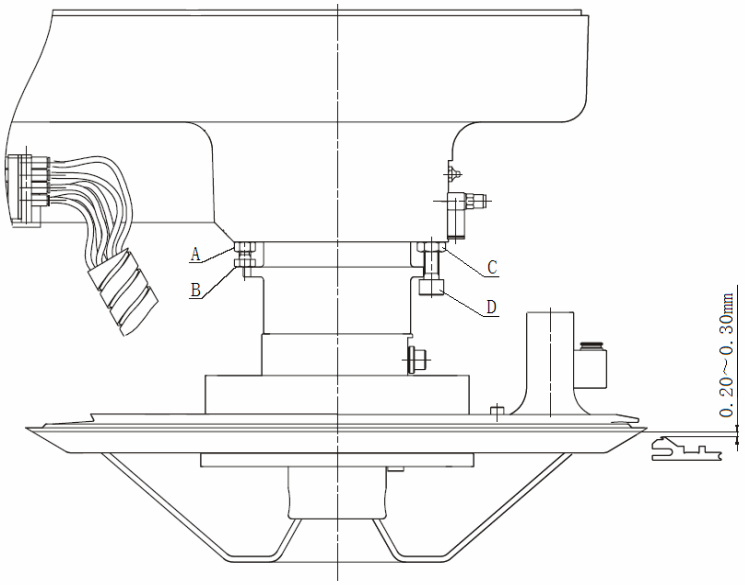


图 4－27（Fig.4-28）

调节哈夫盘 B 位置:

Position adjustment of dial unit B:

通过调节哈夫盘 B 位置，可得到最佳的剪切效果。

We can obtain optimal shearing effect by adjusting position of dial unit B

参见图 4－29

Refer to Fig.4-29

1、 测试模式下，升起机头； Lift the dial under test mode;

2、 气动装置保证哈夫盘在 B 位置； The pneumatic device is to maintain dial unit at position B;

3、 松开螺母 C，通过调节螺丝 D，使调节套与螺丝 B 间的间隙为 1.00mm。 Loosen nut C and maintain 1.00mm gap between regulating sleeve and screw B by adjusting screw D.

4、 拧紧螺母 C。 Tighten nut C

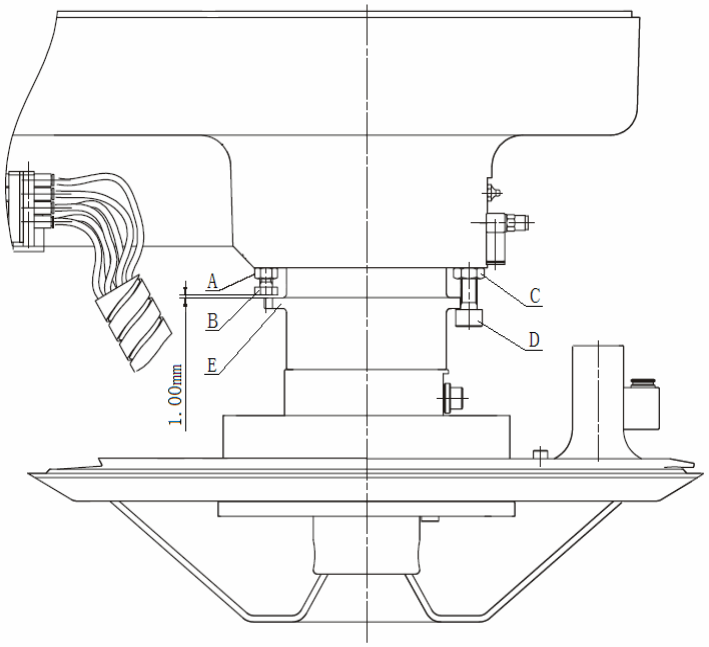


图 4－29（Fig.4-29）

切纱器的调节：

Adjustment of yarn cutter:

参见图 4－30

Refer to fig.4-30

切纱器切纱是由一把连续切到剪刀盘上的剪刀头来完成的。

The yarn cutter is composed of a blade pressing continuously against the dial saw.

当纱嘴退出工作时，进入到不工作位置，纱线从织针中“跑出”，由于机器转动，纱线插入到剪刀盘锯齿中，被拉到剪刀头处，切断。尾纱被吸入到吸废纱铜管组件中，吸入到废纱筒内。

Should the yarn finger “come out” and assume rest position, the thread comes out of the needles and is inserted between the saw teeth which, by turning, pulls the thread to the knife where it is then cut. The yarn residue is drawn into the air pipe and deposited in the collection filter.

1、拧松螺丝 A； Loosen screw A;

2、 调节剪刀头位置，使其伸出锯齿 0.1mm，以得到合适而又安全的切纱。

The proper and safe cutting of the thread is obtained by adjusting the yarn cutter so that it protrudes 0.1mm from the saw.

3、 拧紧螺丝 A。 Tighten screw A;

！警告：

！Warning:

一旦调节完成，应进行以下检查：

Once the adjustment is completed, carry out the following check:

a) 插 入一段纱在锯齿中；

Insert a piece of yarn between the saw teeth.

b) 慢车转动锯齿使其向剪刀头拉动纱线，检查切纱是否干净，如不是，检查剪刀头和锯齿是否有缺口；

Turn the saw so that the yarn is pulled towards the knife and check that it is cut cleanly. Should this not occur, verify whether the saw teeth or the knife blade are chipped.

c) 如需更换剪刀头：确保新剪刀头垂直正确压在剪刀盘锯齿台面上，如剪刀头倾斜，会加剧剪刀盘磨损。.

If the knife needs to be replaced: Verify that the new knife to be mounted fits properly

onto the saw plane.

注：慢车运行机器，确保剪刀头不会碰到织针。

Note: Turn the cylinder by hand a few times and check whether the knife touches the needles.

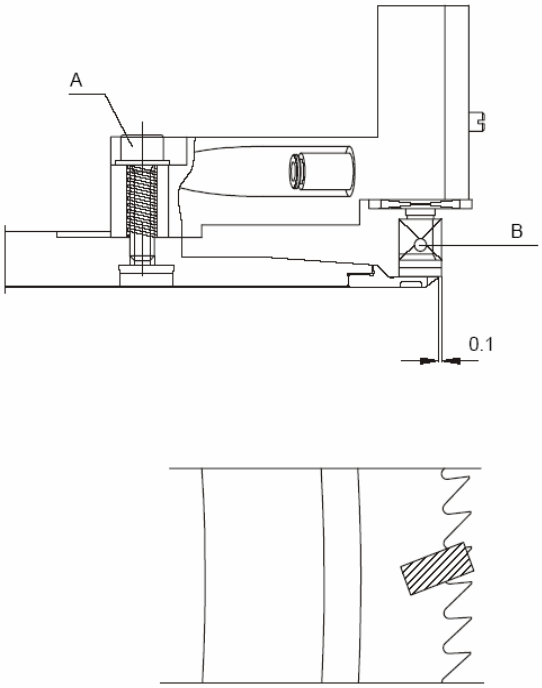


图 4－30（Fig.4-30）

开启针舌吹风口的调节:

Adjustment of latch opener blower.

参见图 4－31

Refer to fig.4-31

1、拧松螺丝 A； Loosen screw A;

2、 转动固定块 B，使喷嘴直接对准由提花片作用正在开始上升的针舌；

Turn the plate (B) so that the jet from the nozzle (C) is directed toward the needle latches which start the ascent phase activated by the jacks.

3、拧松螺丝 D，通过移动喷嘴 C 来调节喷嘴深度的高低；

The adjustment of the depth of the air jet is carried out by loosening the nut (D) and by turning the nozzle (C) to the required position.

4、 拧紧螺丝 D。 Tighten screw D;

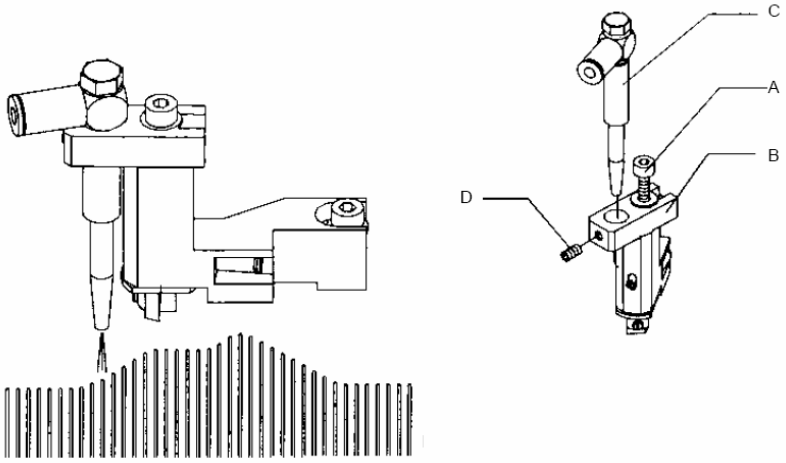


图 4－31（Fig.4-31）

4.12 哈夫盘的更换 Replacement of dial unit

参见图 4－32

Refer to fig.4-32

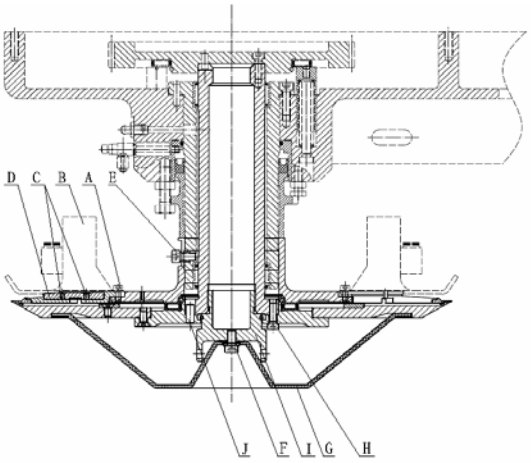


图 4－32（Fig.4-32）

哈夫针的更换:

Replacement of dial jacks

1、按下 F3 键结束当前编织。

Press the button F3 to set the end cycle.

2、 升起机头;

Lift the dial

3、 拧下螺丝 3 颗螺丝 A，拆下吸废纱铜管组件 B;

Unscrew three screws (A) and remove the casing (B).

4、 拧下螺丝 2 颗螺丝 C，拆下封盖 D，即可看见哈夫针，将坏掉的哈夫针更换掉；Loosen two screws C and remove closure D, you can see dial jacks. Replace broken dial jacks;

5、 更换好哈夫针后，按原路装回各个部件即可。 After dial jacks in good condition are replaced, install parts to original state.

哈夫盘的拆卸:

Disassembly of dial unit

1、按下 F3 键结束当前编织。 Press button F3 to finish present knitting.

2、 升起机头； Lift dial;

3、 拧紧螺丝 E，防止拆卸哈夫盘时，哈夫盘三角座掉下； Tighten screw E and prevent dial unit cam stand from dropping during removal of dial unit;

4、 拧下螺丝 F，取下罩 G Screw off F and take off cover G.

5、 拧下 4 螺丝 H; Loosen four screws H;

6、双手托住哈夫盘，慢慢拧下固定轴套 I，如此，即可将哈夫盘拆下。Hold dial unit with both hands and slowly unscrew fixed axis cover I. In this way, you can remove dial unit.

哈夫盘的安装:

Assembly of dial unit:

1、双手托住哈夫盘，对好固定轴套 I 的位置，轻轻将固定轴套 I 带紧； Hold dial unit with both hands and align it against position I on fixed axis cover. Lightly fasten fixed axis cover I.

2、 拧松螺丝 E，放下哈夫盘三角座，与哈夫盘合在一起； Loosen screw E, put down cam stand together with dial unit and;

3、 用手转动哈夫盘，注意圆柱销 J 的位置，将圆住销 J 与其对应的销孔位对好； Turn dial unit by hand and please pay attention to position of straight pin J. Align straight pin J against corresponding pin hole;

4、 拧紧固定轴套 I，装上 4 颗螺丝 H，并用力拧紧； Tighten fixed axis cover I and install four screws H and tighten it by force.

5、 装上罩 G，装上螺丝 F 并拧紧即可。 Install cover G, install and tighten screw F.

5 面板操作 Panel operation

5.1 操作面板简介 Overview of operating panel

面板指示灯说明:

Description of panel indicator light:

面板左侧有红、橙、绿三个灯，机器正常运行时三灯都不亮

At left of panel, there are red, orange and green lights. Three lights are not on when the machine is at normal operation.

正常停车：亮绿灯

Normal stop: green light is on

断纱停车：橙灯亮

Stop by broken yarn: orange light is on

故障停车：亮红灯

Failure stop: red light is on

面板通用按键说明：

Description of general buttons on panel:

参见图 5－1。

Refer to Fig.5-1.

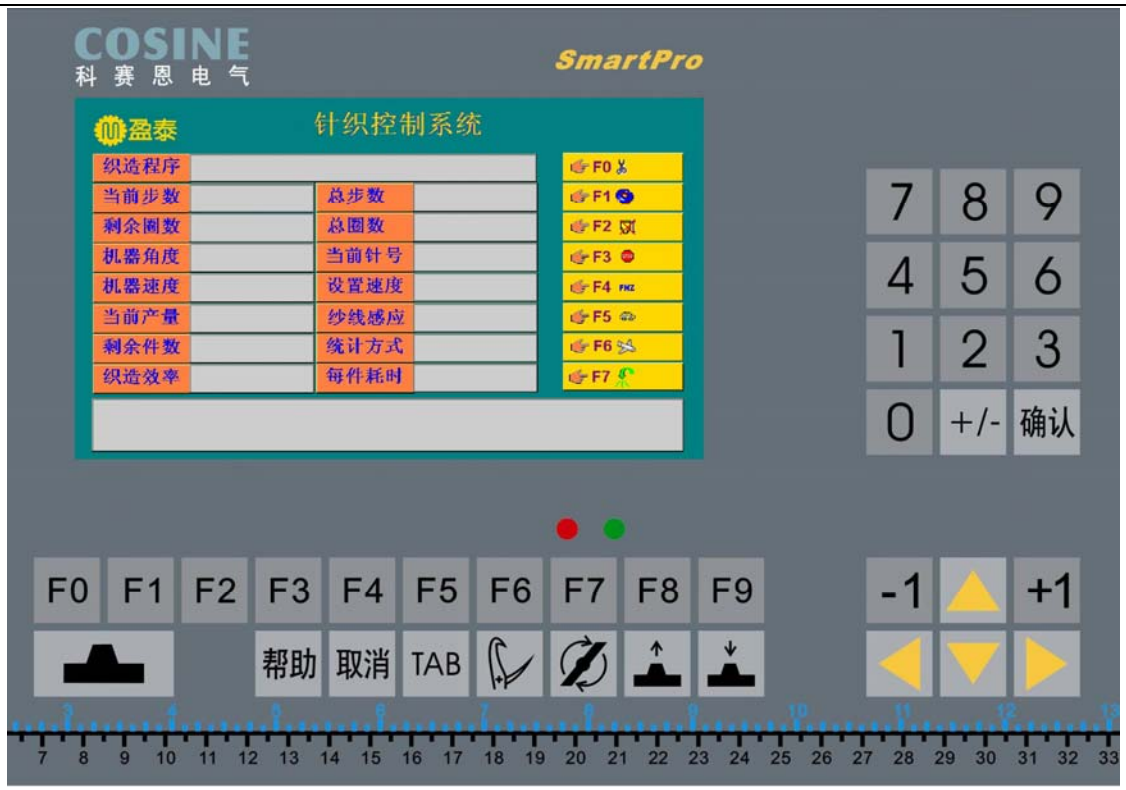


图 5- 1（Fig.5-1）

数字键“0～9”：修改数值时输入用，在测试页也可以当功能键使用

Number button "0~9": for entering at number modification. It can also be used as the function button at test page.

功能键“F0～F9”：在不同页面做不同功能使用

Function button "F0~F9": they have different purposes at different pages.

“+/-“键：输入数值时，做正负数切换使用

"+/-" button: switching between positive and negative numbers at number input

“确认”键：确认操作

"Enter" button: confirm operation

“取消”键：返回上一级页面或取消输入

"Cancel" button: return to previous page or cancel entering

“TAB”键：进入手动操作页

Button "TAB": enter into manual operation page

 —开针器键：按下此键，开针器在工作/不工作间切换

 —Needle opener: Press the button, needle openers changes between operation/no operation.

 —吸风马达按键：按下此键，吸风马达回归零位

 Suction motor: Press the button, suction motor returns to zero position

 ＋  长按住此两键：升起机头

 ＋  Press and hold these two keys: Lift dial

 ＋  长按住此两键：降下机头

 ＋  Press and hold these two keys: Lower dial

“—1”键：翻页键，向前翻页

“Button "-1": Page turn, turn page forwards

＋1”键：翻页键，向后翻页

Button "＋1": Page turn, turn page backwards

 光标左键：在有数值可修改页，此键有效，按下此键，光标向左移动。

 Left cursor: the button is effective only at the page with revisable value. Press the button and cursor moves leftwards.

 光 标右键：在有数值可修改页，此键有效，按下此键，光标向右移动。

 Right cursor: the button is effective only at the page with revisable value. Press the button and cursor moves rightwards.

 光标上键：在有数值可修改页，此键有效，按下此键，光标向上移动。

 Up cursor: the button is effective only at the page with revisable value. Press the

button and cursor moves upwards.

光标下键：在有数值可修改页，此键有效，按下此键，光标向下移动。

Down cursor: the button is effective only at the page with revisable value. Press the button and cursor moves downwards.

主窗口:

Main window:

给机器上电，先显示启动窗口，接着显示主窗口，如图 5－2 所示：

To turn on machine, display start window at first and then main window, as shown in fig.5-2:

图 5- 2（Fig.5-2）

主窗口显示项目有：

Items displayed in main window:

- 织造程序： 显示当前机器正在执行的花样程序的名称。这个名称不得多于 16 个英文字符（8 个汉字字符）。
- Weaving program: display name of pattern program under execution. The name cannot be more than 16 English characters (8 Chinese characters).
- 当前步数：显示的是当前机器执行到花样程序的第几步；
- Present step number: displaying step number of pattern program under execution;
- 总 步 数：显示当前程序的总步数
- Total step number: displaying total number of present program
- 剩余圈数：显示该步尚未完成的圈数。（一个花样程序是由若干步组成的，而每步里面又需要循环若干圈才能完成）；
- Remaining turn number: displaying turn number not completed in this step (one pattern program is composed of several steps. In each step, a program can be completed with several turns)
- 总 圈 数：当前步需要循环的圈数。
- Total turn number: turn number to be circulated in present step.
- 机器角度：显示当前机器的角度数，该参数只在机器停止或者慢车的时候才有效，正常开机的时候显示为开机前的数值。
- Machine angle: displaying present angle of machine. The parameter is only effective when machine stops or at idle. During normal start, it displays the number before start.
- 当前针号：显示当前机器零位对应的针数，该参数只在机器停止或者慢车的时候才有效，正常开机的时候显示为开机前的数值。
- Present needle number: displaying corresponding needle number at zero position of machine. The parameter is only effective at stop or idle of machine. During normal start, it displays the number before start.
- 机器速度：显示当前机器运转的实际速度，
- Machine speed: displaying practical operating speed of machine at present.
- 设置速度：显示此时程序设置的速度。
- Setting speed: displaying speed set in program at this time.
- 当前产量：显示已经生产的数量；
- Present output: displaying quantity produced;
- 尺寸大小：未定义 Size dimension: not defined

- 剩余件数：显示还要生产的数量；
- Remaining part: displaying quantity to be produced.
- 统计方式：未定义 Statistical mode: not defined
- 织造效率：织造出的成品所占总数的百分比。
- Weaving efficiency: percentage of woven products in total number
- 每件耗时：完整织出一件衣服所用的时间，单位为“秒”
- Time consumed for each part: time required for weaving of a clothes. Unit is "second".
- 故障显示区域：如果出现故障停车，在此区域将显示当前故障代码。
- Failure display region: if machine stops owing to fault, present failure code is displayed in the region.

主窗口各功能键的意义:

Meaning of various function keys in main window:

F0－程序归零，机器将中断当前正在执行的花样程序，回到花样程序零位，重新开始。（此键可以用来打掉废品。即发现断纱，断针等情况影响到布面时，为了不浪费纱线，直接按 F0 重新织造，而不用等织完所有工序。）F0 - program resetting. The machine interrupts pattern program under execution and return to pattern program zero position for restart. (The button can be used to knock down wastes, namely if cloth cover is affected owing to broken yarn, needle, etc., in order not to waste yarn, directly press F0 to continue to weave. It is unnecessary to complete all weaving program).

F1－ 固定程序运行，F1 起作用后，机器将固定当前的指令运行，停止执行下一步。但是在执行有速度改变或者循环指令之外的其他功能指令的步数时，该键无效。（一般此键用来预热机器。当机器很久未开，为了使针筒等部件达到比较固定的合适的工作温度，在正常织造之前就一定要预热机器。否则生产出来的产品会出现长短不一等情况。一般新机器要预热几个小时，甚至几天。）

It is for operation of fixed program. After F1 takes effect, the machine fixes at present command for operation and stop executing next step. However, at the step number function commands other than speed change or circulation command, the button is ineffective (generally, the button is used to preheat machine. When the machine is not turned on for long time, in order to guarantee that needle cylinder and other parts can reach fixed and proper operating temperature, before normal weaving, be sure to preheat machine. Otherwise, produced products have inconsistent length. In general condition, new machine must be preheated for several hours or days).

F2－跳出循环，按下该键后，机器将不执行步里面的循环圈数，每一步只运行一圈就转到下一步

F2- Rapid cycle: this button MINICYCLE that activates the eliminates all the step savers set in the different steps of the stocking program.

F3－ 在程序结束时停机，停在程序零位。正常生产时，按下该键后，织完一件产品后，机器将自动停止。如果 F0 和 F3 都按下，机器将在程序零位后自动停止。这个很有用，因为很多操作都要求在程序零位状态下才能完成。

F3- Stop machine at cycle end:this button enables the machine to be stopped when the last chain step is reached.

F4－ 该键起按下后，正常织造过程中，如果程序中设置了特殊位置停机的功能，运行至该步时，机器将停止。（在试做样品时该功能很有用。可以在某些特殊的步停机观察布面情况和机器状态等等。）

F4- Stop machine at a specific step: enables the machine to stop in the chain steps with function 14 programmed and with F4 inserted (function 14,programmed by Graphitron).

F5－低速运行，最大速度为 30 转/分。

F5- Minimum speed: maximum set machine speed is 30 rpm.

F6－ 中速运行，最大速度为 50 转/分。

F6- Average speed: average set machine speed is 50 rpm.

F7－ 织物吹气

F7- Stitch press blower: if pressed, activates the stitch press blower as long as it is held.

F8－ 清除故障，当机器出现故障停车，排出故障后需要手动按 F8 键后才可开车

F8- Erase error messages: if an error occurs the machine stops and displays a message on the screen that identifies the error. When the cause has been eliminated, strike this button to delete the message. Strike this button to delete WARNING messages, too.

其他按键：

Other keys:

F9－进入设置菜单页面

F9－Enter into setting menu page

“TAB”键－显示手动操作功能菜单。里面有一些挡车工常用的快捷操作按键。比如出剪刀，出线夹，开关风扇，升起纱嘴指勾等。

Button "TAB" - displaying manual operation function menu; In the menu, there are also some common shortcut operation keys for operating personnel, such as stretching out scissors,

terminal clamp, switch fan, lifting yarn finger finger hook, etc.

Button "TAB" - Displays MANUAL FUNCTIONS: strike this button to enter the MANUAL BUTTONS page on which the trimming knife trapper commands, etc. are displayed.

“帮助”键－显示伺服故障代码表。可查看相应报警的内容。

"Help" button - displaying servo failure code table. With the button, we can check corresponding alarm content.

“＋1”键－显示历史故障记录。可查看机器出现过的历史故障。继续按“确定”键可查看故障代码对应表，查看故障代码的对应说明。

"+1" button - displaying historical failure record; with the button, we can check historical failure of the machine. Continue to press button "enter" to check corresponding table of failure code and corresponding description of failure code.

5.2 设置菜单 Setting menu

参见图 5－3。

Refer to Fig.5-3

图 5- 3（Fig.5-3）

此页有如下菜单项

There are following menu items in the page

F0－文件管理：当前机器上存储的织造程序的调用、删除，U 盘上织造程序的传送。

F0－File management: calling and deletion of weaving programs stored in the machine. Transfer of weaving program in USB flash disk.

F1－产量统计：此机器产量的一个统计设置，具有换班功能

F1－Counter-Link: one statistical setting for the machine output The button has shift function.

F2－ 自动检测：机器上各传感器和电磁阀状态的查看和检测

F2－Execute autotest: observing and detecting state of sensor and solenoid valve on machine.

F3－循环设置：查看程序中设置循环圈数的设置。

F3－View step saves: observing circulation number setting in program

F4－速度设置：修改程序中的速度改变设置。

F4－Variate Speed: modifying speed change setting in program

F5－ 压针马达设置：修改压针马达的压针设置 Modify step motor: modify pressing setting in pressing motor

F6－密度设置：设置当前织造程序整体密度偏移和压针马达零位调整。 Lvdt init: set integral density offset and pressing motor zero adjustment at present weaving program.

F7－ 纱线传感器：设置纱线传感器地址、参数等 Modify yarn sensor: setting yarn sensor address, parameter, etc.

F8－ 初始化设置：设置机器基本信息和初始化机器零位 Initialization menu: setting basic machine information and initialized machine zero position

F9－日期时间：修改机器上日期和时间 Date time: change date and time in machine

其他：在设置菜单主页面，隐藏了进入/退出“测试模式”的功能（在自动检测页里，各检测项必须在“测试模式”下才能检测），在此页，连续按 3 次“＋1”键，页面弹出请输入进入测试模式密码，输入初始密码“1234”，程序进入“测试模式”（必须在**程序零位**才能进入测试模式，上电初始或 F3 自动停车都是在程序零位）；连续按 3 次“－1”键，退出“测试模式”

Others: in main page of setting menu, enter/exit "test mode" function (in automatic detection page, various detection items can be detected at "test mode") function is concealed. In this page, press button "+1" continuously for 3 times Please input test mode password in this page. After entering initial password "1234", the program enters into "test mode" (you can enter into test mode only at **program zero position**. Power on initialization or F3 automatic stop are at zero position of program. Continuously press button "-1" for three times and exit "test mode".

5.3 文件管理 File management

参见图 5－4。

Refer to fig.5-4.

图 5- 4（Fig.5-4）

左侧区域显示机器存储的程序信息列表。

Programming information list stored in the machine is displayed at left region.

此页有如下项目

Following items are displayed in this page

F0-调用：调用机器上存储的某个程序来执行，机器必须处于程序零位才能调用。

F0- Activate program: call certain program in machine for execution. A program can only be called only when machine is at zero position of machine.

F1-删除：删除机器上某个程序（输入程序序号）。注意：当前机器正在调用的程序不可以删除

F1- Delete: delete certain program in machine (enter program number). Note: program being called presently cannot be deleted.

F2-修改：未定义

F2- Modify: not defined

F3-上传：未定义

F3-Upload: not defined

F4-格式化：把机器上存储的程序全部删除。

F4-Format: delete all programs stored in machine.

F5- U 盘：读取 U 盘上后辍名为.cax 的程序文件（注意：此程序文件必须存放到 U 盘根目录下的 gzcosine 文件夹内），按下 F5 键（确定 U 盘已经插上），进入 U 盘文件页面。

F5- USB flash disk: read program files with suffix name .cax in SUB flash disk (note: the program file must be stored into gzcosine file folder under root directory of USB flash disk. Press button F5 (confirm that USB flash disk has been well connected), enter into file page of USB flash disk.

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

U 盘文件页面:

USB flash disk page:

参见图 5－5

Refer to fig.5-5

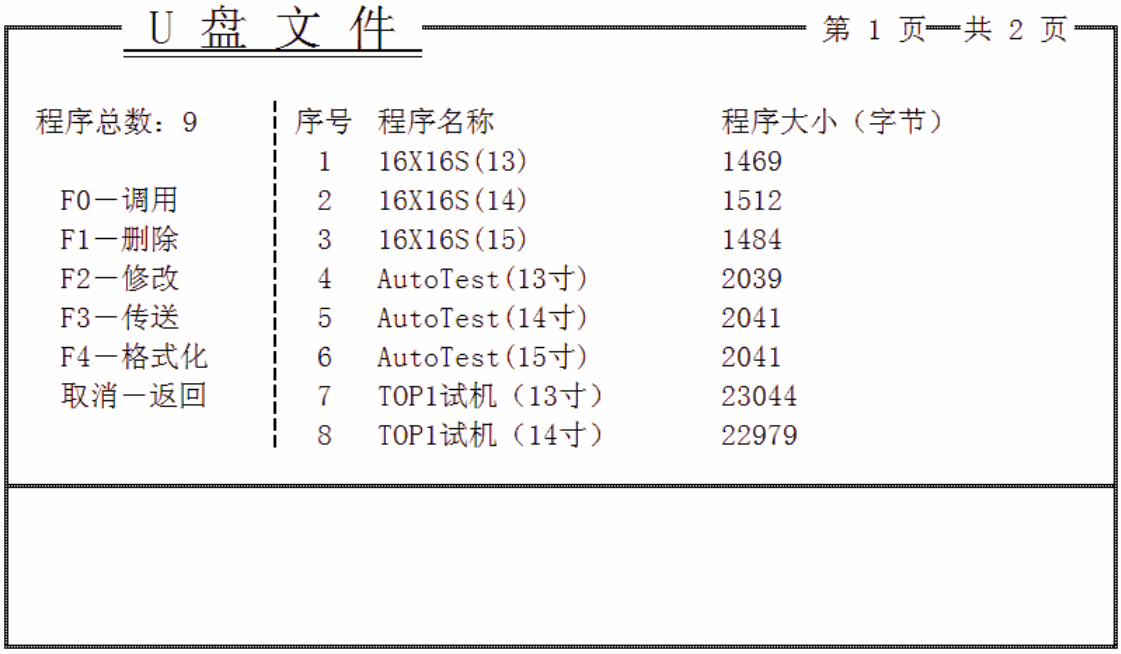


图 5- 5（Fig.5-5）

左侧区域列出了当前 U 盘上存储的织造程序列表。

At left region, list weaving program listing stored in present USB flash disk.

此页有如下项目

Following items are displayed in this page

F0-调用：未定义

F0-Calling: not defined

F1- 删除：选择 U 盘上某一个织造程序（输入程序序号），将其删除

F1-Deletion: select certain weaving program from USB flash disk (enter into program number) and delete it.

F2-修改：未定义

F2-Modification: not defined

F3-传送：选择 U 盘上某一个织造程序（输入程序序号）传送到机器。如果传送的是当前织造的程序，传送后必须重新调用

F3-Transmission: select certain weaving program from USB flash disk (enter into program number) and transmit it to machine. If present weaving program is transmitted, call the program again after transmission.

F4-格式化：未定义

F4-Formatting: not defined

按**“取消”键**返回至文件管理页面

Press **button "cancellation"** to return to file management page.

5.4 产量统计 Counter-p.linking

该项有 2 页，可通过按**“＋1”、“－1”键**进行翻页。

The item covers in two pages. Turn page through button **"+1"** and **"-1"**

第 1 页，参见图 5－6：

For page 1, refer to fig.5-6:

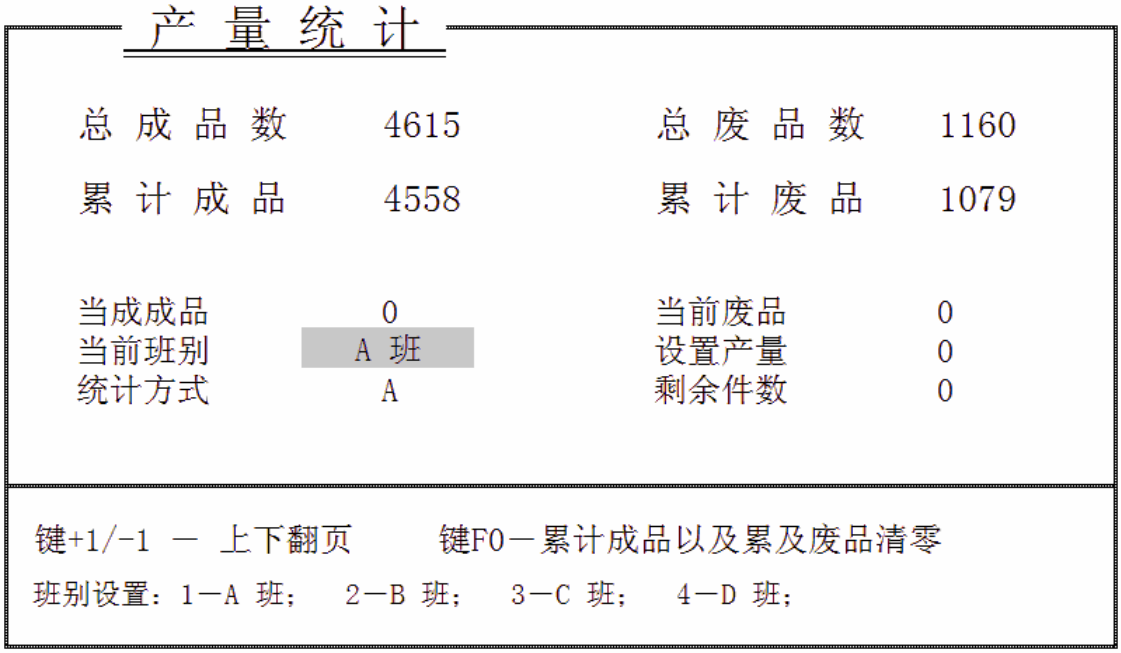


图 5- 6（Fig. 5-6）

此页有如下项目

Following items are displayed in this page

总成品数：本机出厂以来累计生产的成品总数，不可清除；

Totals Knitted: accumulated totals knitted produced after the machine is released. It cannot be cleared.

总废品数：本机出厂以来累计生产的废品总数，不可清除；

Totals Waste: total waste produced after the machine is released. It cannot be cleared.

累计成品：本次任务的成品总数，可以清除；

Shifts Counter: total finished products at this time. It can be cleared;

累计废品：本次任务的废品总数，可以清除；

Shifts Waste: total reject number at this time. It can be cleared;

当前班别：当前作业的班次，可以进行设置；

Shift: present operation shift which can be set;

设置产量：设置此次任务产量；

Programmed: set output at this job;

统计方式：未定义；

Operation: not defined

剩余件数：距离本次任务的产量还剩多少件；

Remains: how many parts are left at this job;

“F0”键：可将累计成品和累计废品清零；

Button "F0": clear accumulated finished product and accumulated rejects;

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

第 2 页，参见图 5－7：

For page 2, refer to fig. 5-7:

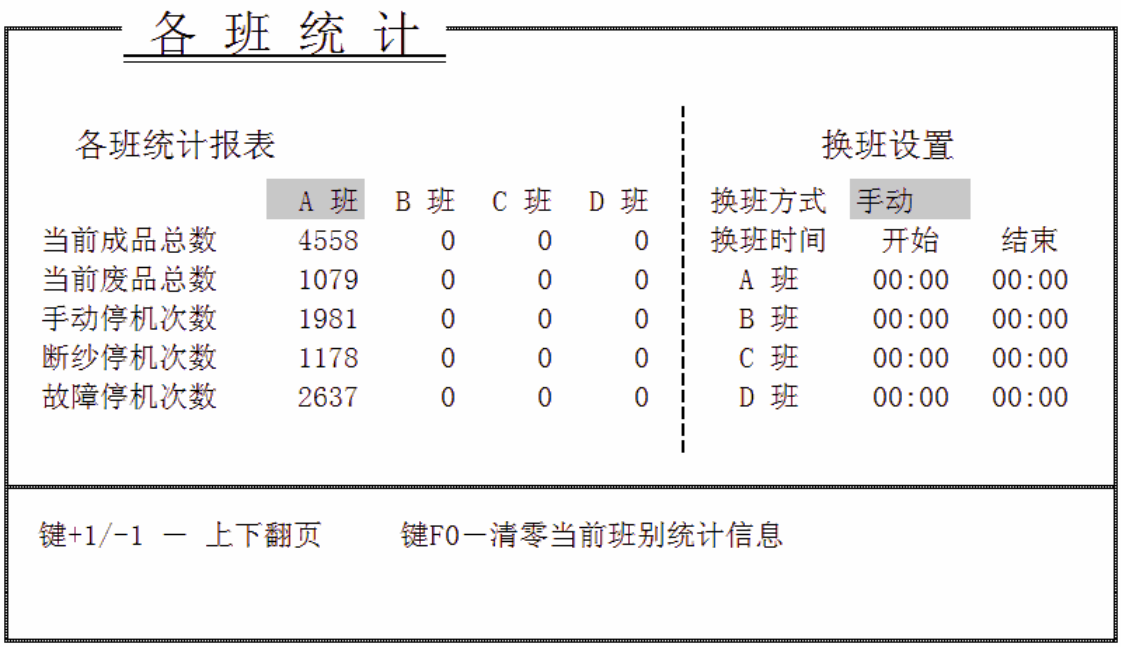


图 5- 7（Fig.5-7）

此页有如下项目

Following items are displayed in this page

各班统计表：统计各班的成品总数，废品总数、手动停机次数、断纱停机次数、故障停机次数

Statistical table of this shift: record total number of finished products, total number of rejects, manual stop times, yarn breakage times and failure stop times at each shift

换班设置：可以设置换班方式，有手动换班（输入“1”）和自动换班（输入“2”）两种，自动换班下可以设置每班的换班时间。

Setting for shift change: shift mode can be set. There are two modes, manual shift change

(enter into "1") and automatic shift change (enter into "2"). Under automatic shift change, shift change time at each shift can be set automatically.

“F0”键：可清除当前班别统计信息

Button "F0": clear statistical information of present shift

“＋1”、“－1”键：上、下翻页

Button "+1" and "-1": turn page upwards and downwards

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

5.5 自动检测 Automatic detection

参见图 5－8。

Refer to fig.5-8

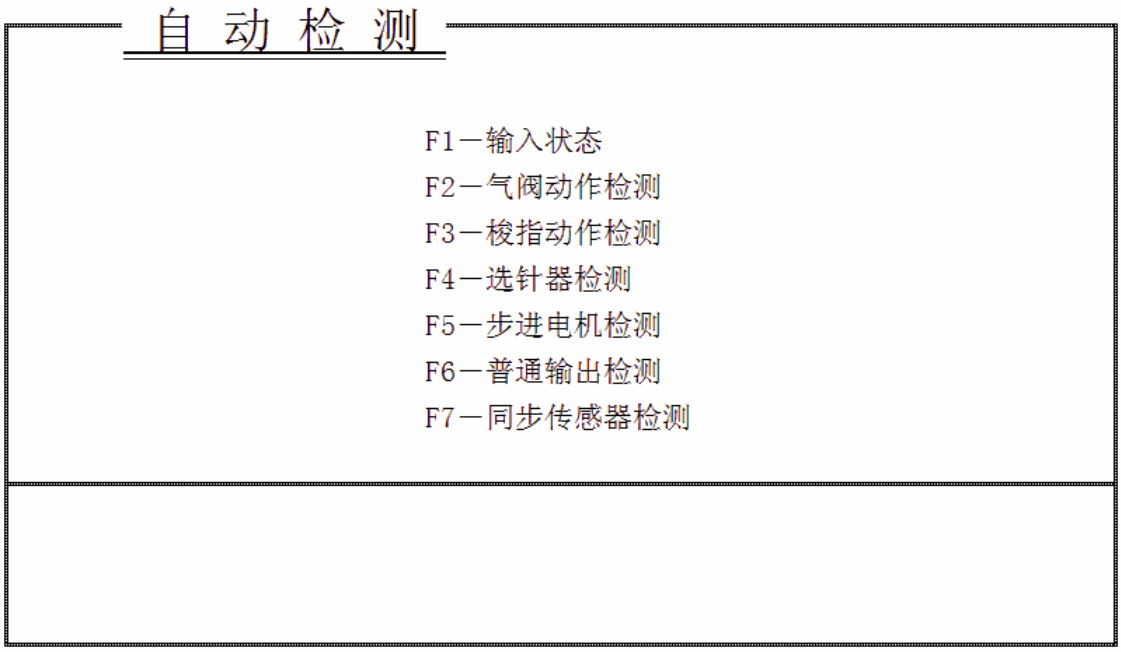


图 5- 8（Fig.5-8）

该菜单用于检测机器上的电子和机械装置。

The menu is used to detect electronic and mechanical device on machine.

此页有如下菜单项

There are following menu items in this page

F1-输入检测：查看机器上按钮和传感器的状态；

F1- Input's status: check state of button and sensor in machine;

F2-气阀动作检测：检测背部气阀及其对应动作（如三角位置、夹子动作等）；

F2- Valve autotest: detect air valve at the back and its corresponding actions (such as cam position, clip action, etc.)

F3-梭指动作检测：检测喂纱器电磁阀及对应的梭指动作；

F3-yarn finger autotest: detect yarn feeder solenoid valve and corresponding yarn finger action;

F4-选针器检测：检测选针器刀片的状态和对应位置；

F4- Actuator autotest: detect state and corresponding position of selector bit

F5-步进电机检测：检测 8 路步进电机和风阀电机的动作；

F5-Step motor autotest: detect action of 8-circuit step motor and air valve motor.

F6-普通输出检测：检测面板指示灯、伺服使能信号和橡筋输送器张力切换信号；

F6- Output autotest: detecting panel indicator light, servo enable signal and tension shift signal of elastic feeder;

F7-同步传感器检测：查看机器零位感应器的信号，显示的是数值，机器转一圈数值增 1，机器转几圈后，如果数值仍为 0，对应的零位传感器失效；

F7- Phase autotest: Check signal of machine zero position sensor, number is displayed. The number is increased by 1 after one revolution of machine. If the number is still 0 after machine operates for several turns, corresponding zero position sensors is ineffective;

按“**取消**”**键**返回至设置菜单主页面。

Press **button "Cancellation"** to return to home page of setting menu.

注：机器必须在程序零位的时候进入测试模式下，才能进行动作检测，否则只能查看到当前的状态。

Note: machine must enter into test mode when machine is at zero position to carry out action detection. Otherwise, only present state can be observed.

输入检测:

Input's status:

参见图 5－9。

Refer to fig.5-9

图 5- 9（Fig.5-9）

此项可以查看机器按钮及各传感器当前的状态。

In this item, you can check present state of machine button and various sensors.

该项共有 3 页，可通过按**“＋1”、“－1”键**进行翻页查看。详细内容，请参照机器上的显示。

There are totally 3 pages for the item. Pages can be turned through button **"+1"** and **"-1"** for view. For detailed content, please refer to display in machine.

按**“取消”键**返回至自动检测页面

Press **button "cancellation"** to return to automatic detection page.

气阀动作检测:

Air valve action detection:

参见图 5－10。

Refer to fig.5-10.

图 5- 10（Fig.5-10）

此页面可查看背部气阀的状态及其对应在机器上的动作，在测试模式下，能对其动作进行检测。测试模式下有“连续”和“点动”两种输出模式，连续是指动作不保留，检测时响应了检测动作，500ms 后恢复原位；点动则指保留检测动作。

In this page, you can view state of air valve at back and corresponding action in machine. Under test mode, air valve action can be detected and there are two output modes, "continuous" and "inching". Under "continuous" mode, action is not reserved and only detection action is responded at detection. The machine returns to original position after 500ms. Under inching mode, detection action is reserved.

如页面中显示：

As displayed in page:

键 2—集圈三角 （EV102）

Button 2 - tuck cam (EV102)

……..

每个按键后显示对应测试的动作名称，在之后对应的电磁阀名，当电磁阀名显示颜色为白色，表明此电磁阀处于非工作状态，显示为红色表示处于工作状态；按下按键，按键对应的电磁阀则在“工作/不工作”间切换

Corresponding test action name and corresponding solenoid valve name are displayed at back of each button. When solenoid valve name is displayed in white, it indicates the valve is not

at operating state. When solenoid valve name is displayed in red, it indicates the valve is in operation state. Press the button and corresponding solenoid valve change between "operating/not operating".

如：当在面板上按**数字“1”键**，此页对应路号的集圈三角进入/退出

For example: when **number "1"** is pressed on panel, tuck cam of corresponding path number in this page enter/exit.

按**“F9”键**可以改变输出模式。

Press button **"F9"** to change output mode.

附：联动模式(高级模式)：

Attachment: linkage mode (advanced mode):

此页隐藏了一个高级功能项：把测试模式切换到“联动模式”.。连续按 3 次“帮助键”，当前模式切换到“联动模式”

In this page, one advanced function item is concealed: switch to "linkage mode" from test mode. Press "button help" continuously for 3 times to swtich to "linkage mode" from present mode.

“联动模式”是指不断动作，即测试点每 500ms 取反一次，这一个功能是用在当某一个部件不是很灵活时，使用此功能让此部件不断动作以便让它动作顺畅。

"Linkage mode" means interrupted action, namely take a negative number for the test point at every 500ms. The function is used when certain part is not flexible. Use the function to make part act. In this way, the part can act smoothly.

如让“包芯纱夹”进入联动状态，先按**“F2 键”**让它进入工作状态，然后连按 3 次“**帮助键”**，包纱夹进入联动状态，不断打开-→关闭--→打开--→关闭…….

If you put "covering yarn clip" into linkage state, press "button **F2"** to enter into operation state and then press **"button help"** continuously for 3 times. Covering yarn clip enters into linkage state to open -→close -→ open -→close repeatedly.

按**“F9**”**键**退出“联动模式”

Press button **"F9"** to exit from "linkage mode".

此气阀检测项共 11 页，按**“＋1”、“－1”键**翻页查看，详细内容，请参照机器上的显示。

Air valve detection items cover 11 pages. Press button **"+1"** and **"-1"** to turn page for view. For detailed content, please refer to display in machine.

按**“取消”键**可返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

梭指动作检测:

Yarn finger autotest

参见图 5－11。

Refer to fig.5-11.

图 5- 11（Fig.5-11）

此页面可查看喂纱器上电磁阀的状态及对应梭指的动作，可以在测试模式下，对其动作进行检测，对于调节梭指位置时非常有用。同样的有“连续”和“点动”两种输出模式

In this page, you can examine state of solenoid valve on yarn feeder and action of corresponding yarn finger finger. To detect action under test mode is useful for adjustment of yarn finger finger position. Similarly, there are also two output modes, "continuous" and "inching".

如页面中显示：

As shown in page:

键 1－1 号梭指 B 位 （WS05）

Position B of button 1-1 yarn finger finger (WS05)

……..

每个按键后显示对应测试的动作名称，在之后对应的喂纱器电磁阀阀名，当电磁阀

名显示颜色为白色，表明此电磁阀处于非工作状态，显示为红色表示处于工作状态。按下按键，按键对应的喂纱器电磁阀则在“工作/不工作”间切换

Corresponding test action name and corresponding solenoid valve name of yarn feeder are displayed at back of each button. When solenoid valve name is displayed in white, it indicates the valve is not at operating state. When solenoid valve name is displayed in red, it indicates the valve is in operation state. Press the button and corresponding solenoid valve of yarn feeder change between "operating/not operating".

注：此页面下支持联动模式。

Note: linkage mode is supported in this page.

按**“F9”键**可在“连续”和“点动”两种测试模式间切换。

Press button **"F9"** to change between modes "continuous" and "inching".

此梭指动作检测项共 8 页，按**“＋1”、“－1”键**翻页查看，详细内容，请参照机器上的显示。

The yarn finger finger action detection item covers 8 pages in total. Press button **"+1"** and **"-1"** to turn page for view. For detailed content, please refer to display in machine.

按**“取消”键**返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

选针器检测:

Detection of pattern devices:

参见图 5－12。

Refer to fig.5-12.

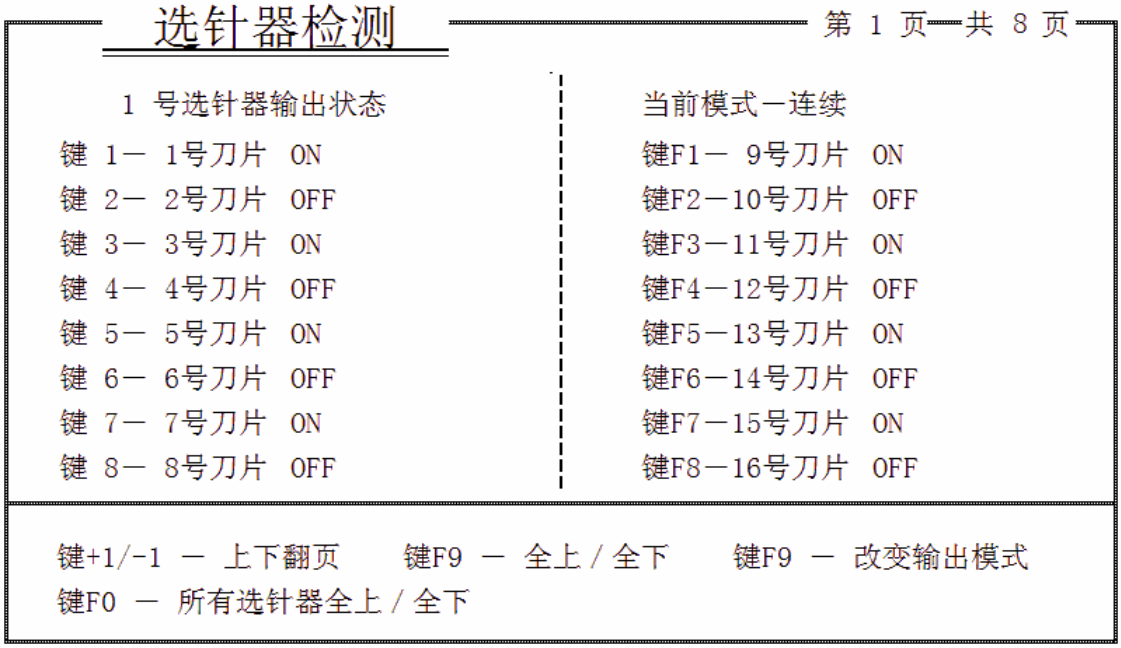


图 5- 12（Fig.5-12）

此页面可查看每个选针器每个刀片动作，此页可查看喂纱器上电磁阀的状态及对应梭指的动作，支持测试模式下，对其动作进行检测，在调整选针器位置时非常有用。同样的有“连续”和“点动”两种输出模式

In this page, you can examine action of each pattern devices and each cutter blade as well as state of solenoid valve on yarn feeder and action of corresponding yarn finger. To detect action under test mode is useful for adjustment of pattern devices position. Similarly, there are also two output modes, "continuous" and "inching".

如页面中显示：

As displayed in page:

键 1—1 号刀片 ON

Bit of button 1-1 ON

每个按键后显示对应测试的刀片，在之后对应刀片的状态，ON 表示此刀片对应织针出针；OFF 表示不出针；按下按键，刀片对应的织针则在“出针/不出针”间切换.

Corresponding tested bit and state of corresponding bit are displayed after each button. ON means stretching of corresponding knitting needle of the bit; OFF means no stretching of needle. Press the button, corresponding knitting needle of bit changes between "stretching of needle/no stretching of needle".

按**“F9”键**可在“连续”和“点动”两种测试模式间切换。

Press button **"F9"** to change between modes "continuous" and "inching".

按键"9"，当前选针器在"全出针/不出针"两状态间切换

Press button "9" to change pattern devices between "stretching of needle/no stretching of needle".

按键"F0"，所有选针器在"全出针/不出针"两状态间切换

Press button "F0" to change all pattern devicess between "stretching of needle/no stretching of needle".

此项共 8 页，按**"＋1"、"－1"键**翻页查看，详细内容，请参照机器上的显示。

The item covers 8 pages. Press button **"+1"** and **"-1"** to turn page for view. For detailed content, please refer to display in machine.

按**"取消"键**返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

步进电机检测:

Step motor autotest:

参见图 5－13。

Refer to fig.5-13:

步进电机检测

	检测	归零
第 1路密度控制步进电机	键 1	键F1
第 2路密度控制步进电机	键 2	键F2
第 3路密度控制步进电机	键 3	键F3
第 4路密度控制步进电机	键 4	键F4
第 5路密度控制步进电机	键 5	键F5
第 6路密度控制步进电机	键 6	键F6
第 7路密度控制步进电机	键 7	键F7
第 8路密度控制步进电机	键 8	键F8
吸风风量控制步进电机	键 9	键F9

键0 － 检测所有八路密度电机　　键F0－所有八路密度电机归零

图 5- 13（Fig.5-13）

此页面下可检测 8 路步进电机和风阀电机的动作是否灵活可靠。

In this page, you can detect whether 8-circuit step motor and air valve motor act flexibly and reliably.

功能键“F1～F8”：对应 1～8 路步进电机回归零位；

Function button "F1~F8": corresponding step motors from circuit 1 to 8 return to zero position;

功能键“F9”：吸风马达回归零位

Function button "F9": suction air motor returns to zero position

数字键“1～8”：分别检测 8 路步进电机，让步进电机转动，观察其转动的灵活性；

Numerical button "1~8": respectively detect 8 circuits of step motor to operate these motors and check the rotation flexibility.

数字键“9”：检测吸风马达，让马达转动，观察其转动的灵活性；

Numerical button "9": detect inflow motor and turn the motor to check the rotation flexibility.

功能键“F0”：8 路步进电机都回归零位；

Function button "F0": step motors of 8 circuits return to zero position;

“数字键 0”：同时测试 8 路步进电机

"Numerical button 0": simultaneously test 8 circuits of step motor

按**“取消”键**返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

普通输出检测：

Common output detection:

参见图 5－14：

Refer to fig.5-14:

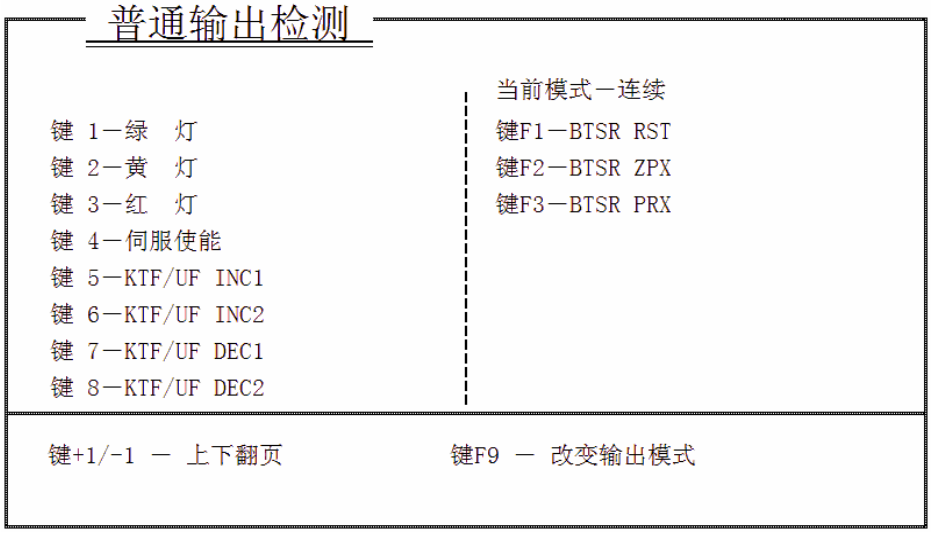


图 5- 14（Fig.5-14）

检测面板指示灯、伺服使能信号和橡筋输送器张力切换信号。

Detect panel indicator light, servo enable signal and tension shift signal of elastic feeder;

按下相应的按键可检测对应的信号输出是否正常。

Press corresponding button to detect whether corresponding signal outputs are normal

按**“取消”键**返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

同步传感器检测：

Detection of synchronous sensor:

参见图 5－15 Refer to Fig.5-15

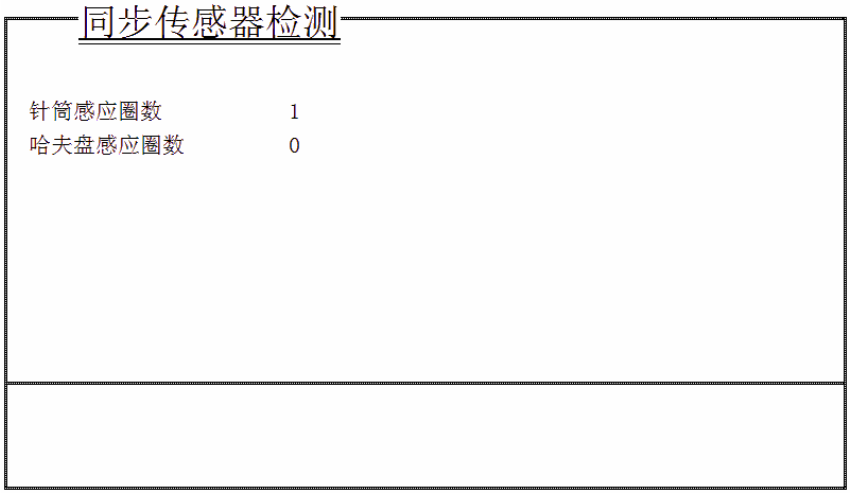


图 5- 15（Fig.5-15）

查看机器零位感应器的信号；显示的是数值，机器转一圈数值增 1，机器转几圈后，如果数值仍为 0，对应的零位传感器失效。

Check signal of machine zero position sensor, number is displayed. The number is increased by 1 after one revolution of machine. If the number is still 0 after machine operates for several turns, corresponding zero position sensor is ineffective;

按**“取消”键**返回自动检测页面

Press **button "cancellation"** to return to automatic detection page.

5.6 循环设置 View step saves

参见图 5－16

Refer to fig.5-16

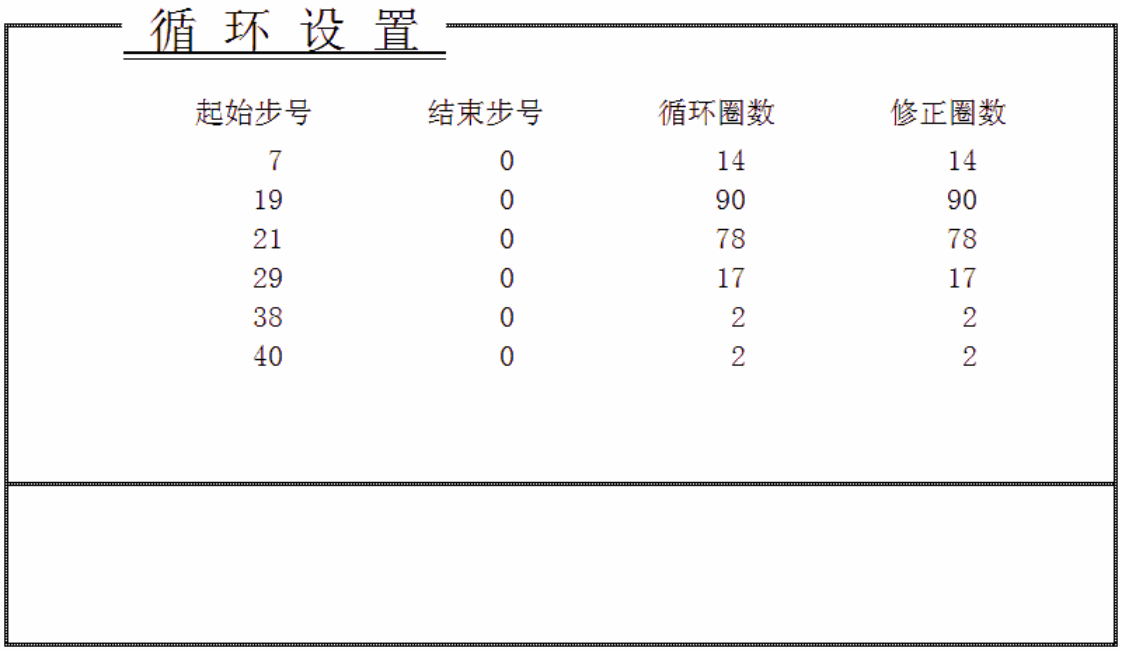


图 5- 16（Fig.5-16）

此项可查看程序中循环的圈数，不可以进行修改。

- 步号：显示程序中设置了循环的步号。
- Step number: display step number with circulation displayed in program.
- 结束步号：未定义。
- Finish step number: not defined
- 循环圈数：程序中设定的循环圈数
- Circulation number: circulation number set in program.

◆ 修正圈数：未定义。

◆ Modified circulation number: not defined

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

5.7 速度设置 Modify Speed

参见图 5－17。

Refer to fig.5-17

速 度 设 置　　第 1 页—共 3 页

步号	速度	圈数	修正速度	修正圈数
0	40	0	40	0
2	25	0	25	0
4	35	0	35	0
5	30	0	30	0
6	50	0	50	0
8	50	0	50	0
10	50	0	50	0
11	40	0	40	0

F8－保存新设置速度

图 5- 17（Fig.5-17）

此项可以修改程序中设置的速度改变值

In this item, we can modify speed change value in program

◆ 步号：显示的速度开始变化的步号，仅供查看。

◆ Step: the step number with speed change started is displayed for only check.

◆ 速度：程序中设定的速度值，仅供查看。

◆ Spd.Old: speed value set in program is only for view.

◆ 圈数：程序中设定的多少圈内达到设定的速度，仅供查看

◆ Rpm's old: the turn number for certain speed in program is only for view.

◆ 修正速度：设定速度的修改值，用来修改。

◆ Spd.**New**: set speed modification value for modification.

◆ 修正圈数：重新设定的多少圈内达到设定速度，用来修改。

◆ Rpm's New: turn number reset for certain set speed is used for modification.

注：修改后，即可起效，如果不重新保存，断电上电后恢复原速度，可按“F8”键保存新设置的速度，保存后，机器会停止运转，需重新上电

Note: the item is effective after modification. If the modified speed is not saved, the machine shall return to original speed after power failure and power on. Press "F8" to save new speed. Afterwards, machine stop operating and it is required to power on the machine again.

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

5.8 压针马达设置 Modify step motor

参见图 5－18。

Refer to fig.5-18

图 5- 18(Fig. 5-18)

◆ 步号：显示的压针马达动作的步号，仅供查看。

◆ Step: press motor action step number displayed is only for view.

◆ 原参数：程序中设定的值，仅供查看。

◆ Mov.pre: value set in program is only for view.

◆ 位置：程序中设定的值，仅供查看

◆ Position: value set in program is only for view.

- 角度：程序中设定的值，仅供查看
- Deg: value set in program is only for view.
- 新参数：新设定的修改值，用来修改。
- **Mov.New**: new modified value for modification
- 位置：新设定值，用来修改
- Position: new set value for modification
- 角度：新设定值，用来修改
- Deg: new set value for modification
- 路号：显示此压针马达是第几路的，仅供查看
- Path number: displaying path number of the press motor for view

必须在程序零位才可修改，修改后按下“F8”键保存后才起效。

It can only be modified at zero position of program. After modification, press button "F8" for storage to enable the modification.

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

5.9 密度设置 Density setting

该页面共有 2 页，可通过按“＋1/－1”键进行翻页。

This item covers two pages. Turn page through button "+1/-1".

第 1 页，参见图 5－19。

For page 1, refer to fig.5-19

图 5- 19(Fig.5-19)

此页有两种类型数据可修改。

In this page, two types of data can be modified.

注意：此页面不可用左右光标键移动光标，左右光标键在此页面中是修改数值的，左光标键将当前数值减 1，右光标键加 1；可用上下光标键移动光标。

Note: in this page, no left or right cursor button can be used for cursor moving. Left and right cursor button in this page is to modify value. Left cursor button is to subtract 1 from present value. Right cursor button is to add 1. Up-arrow and down-narrow can be used to move cursor.

- ◆ 密度偏移值：此功能调节当前织造程序中的所有压针马达设置的偏移量（只是对当前织造程序有效）必须在程序零位才可修改此密度偏移，按“F8”键保存后才起效（生成新的密度偏移数据并保存在织造程序中）
- ◆ Density offset value: the function is to adjust offset set for all press motor in present weaving program (it is only effective to present weaving program). The density offset can be modified only at zero position of program. Press button "F8" to enable the

modification (new density offset data is generated and stored in weaving program).

- 步进电机零位值：用于调节对控制密度三角的步进马达零位的初始调节。程序自动检测步进马达的零位，但是为了使得八个步进马达零位保持一致，引入了修正值.。
- Zero position value of step motor: it is used for adjustment of step motor zero position of control density cam. The program automatically detects zero position of step motor. However, in order to maintain consistent zero position for eight step motors, a correction value is introduced.

在调节产品克重时：把此 8 项值减小，克重减小；把此 8 项值增加，克重增加；

To adjust product gram weight: gram weight decreases with decrease of these eight values. Gram weight increases with increase of these eight values;

注意：在零位值调整好后（通过打纱速调整），每次增减克重时，此 8 项值增减值必须一致，以此保证零位

Note: after zero position value is adjusted (adjusted through yarn feeding speed). To change gram weight, these eight values must be changed accordingly to guarantee consistent zero position

第 2 页，参见图 5－20：

For page 2, refer to fig.5-20:

步进电机信息

编号	当前	目标	位置	Min	Max	方向	初始化
1	1027	1031	0	0	2105	0	F1
2	1066	1070	0	0	2183	0	F2
3	998	1006	0	0	2052	0	F3
4	984	989	0	0	2019	0	F4
5	1218	1223	0	0	2495	0	F5
6	1028	1034	0	0	2111	0	F6
7	946	938	0	0	1931	0	F7
8	1118	1121	0	0	2288	0	F8

F0－8路步进电机初始化

图 5- 20(Fig.5-20)

此页用于检测 8 路步进电机是否合格。通过修改相应的位置数值，可以观察压针三角的上下运动，当输入值相对增大时，压针三角向下移动；当输入值相对减小时，压针三角向上移动。例如，当前值为 0,当将 0 值修改为 60 时，压针三角会向下移动，当从 60 修改为-60 时，压针三角向上移动。且每次修改完位置值后，刷新页面，“当前”的数值与对应“位置”的数值相差应控制在 20 以内。

This page is used to detect whether 8-circuit step motors are qualified. Modify corresponding position value to check vertical motion of press cam. When the input value increases relatively, press cam moves downwards. When the input value decreases relatively, press cam moves upwards. For example, when present value is 0, if you change 0 to 60, press cam moves downwards. If you change 60 into -60, press cam moves upwards. Furthermore, after position value is changed, refresh the page, the difference between "present" value and corresponding "position" value shall also be controlled within 20.

注意：此页面不可用左右光标键移动光标，左右光标键在此页面中是修改数值的，左光标键将当前数值减 1，右光标键加 1；可用上下光标键移动光标。

Note: in this page, no left or right cursor button can be used for cursor moving. Left and right cursor button in this page is to modify value. Left cursor button is to subtract 1 from present value. Right cursor button is to add 1. up-arrow and down-arrow can be used to move cursor.

功能键“F1～F8”：对应 1～8 路步进电机进行初始化；

Function button "F1~F8": initialize corresponding step motors from circuit 1 to 8;

功能健“F0”：同时初始化 8 路步进电机。

Function button "F0": initialize step motors from circuit 1 to 8 at the same time.

按“**取消**”**键**返回至设置菜单主页面

Press **button "cancellation"** to return to home page of setting menu.

5.10 纱线传感器设置 Setting of yarn sensor

参见图 5－21

Refer to fig.5-21

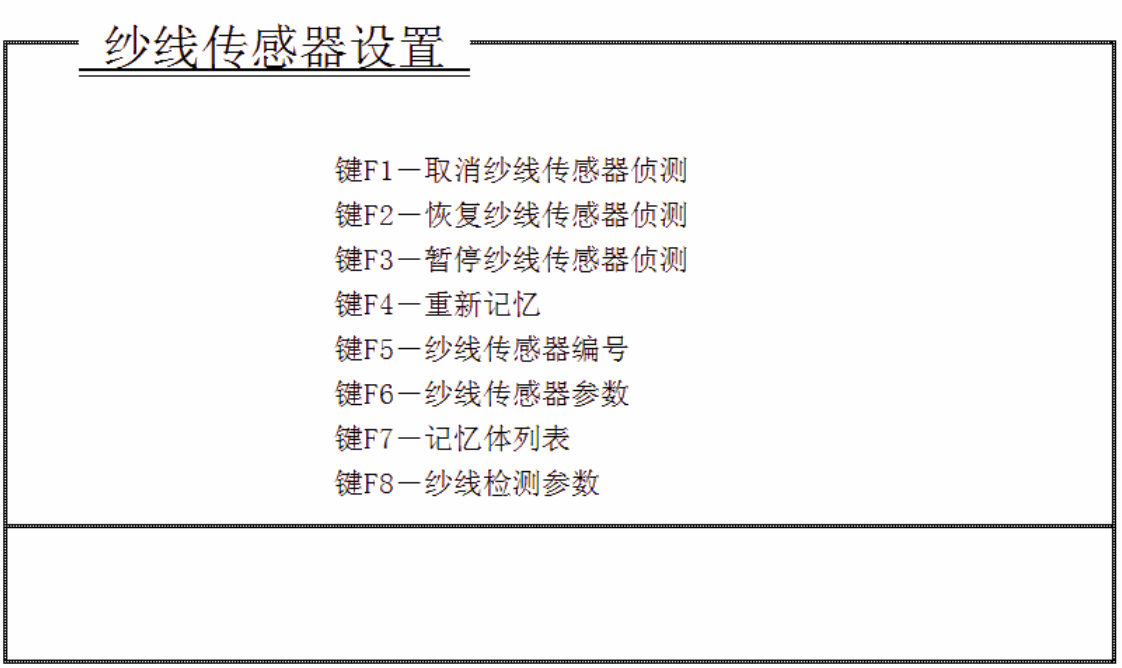


图 5- 21(Fig.5-21)

此页有如下菜单项

There are following menu items in this page

F1-取消纱线传感器侦测：取消纱线运行监控系统，直到手动恢复纱线侦测或断电后重启系统

Cancel yarn sensor detection: cancel yarn operation monitor system until yarn detection is restored manually or the system is restarted after power failure.

F2- 恢复纱线传感器侦测：重新启动纱线运行监控系统；

Restore detection of yarn sensor: restart yarn operation monitor system;

F3-暂停纱线传感器侦测：暂停纱线运行监控系统，直到下一织造开始重新开始监控

Stop detection by yarn sensor temporarily: stop yarn operation monitor system temporarily until next weaving, start monitor again.

F4-重新记忆：中断纱线运行监控系统，并且清除原有记忆数据，重新记忆当前编织程序的纱线状态。一个新的织造程序都应该重新记忆。

New storage: interrupt yarn operation monitor system and clear original data stored. Store yarn state at present program. A new weaving program must store data again.

F5- 纱线传感器编号：设置纱线传感器地址。

Number of yarn sensor: set address of yarn sensor.

F6-纱线传感器参数：设置纱线传感器参数。

Yarn sensor parameter: set yarn sensor parameter.

F7- 记忆体列表：显示已记忆的编织程序。

Memory bank list: display weaving program stored.

F8-纱线检测参数：可以设置记忆滤波参数、运行滤波参数

Yarn detection parameter: set filtering parameter stored and operate filtering parameter

纱线传感器编号:

Number of yarn sensor:

参见图 5－22

Refer to fig.5-22

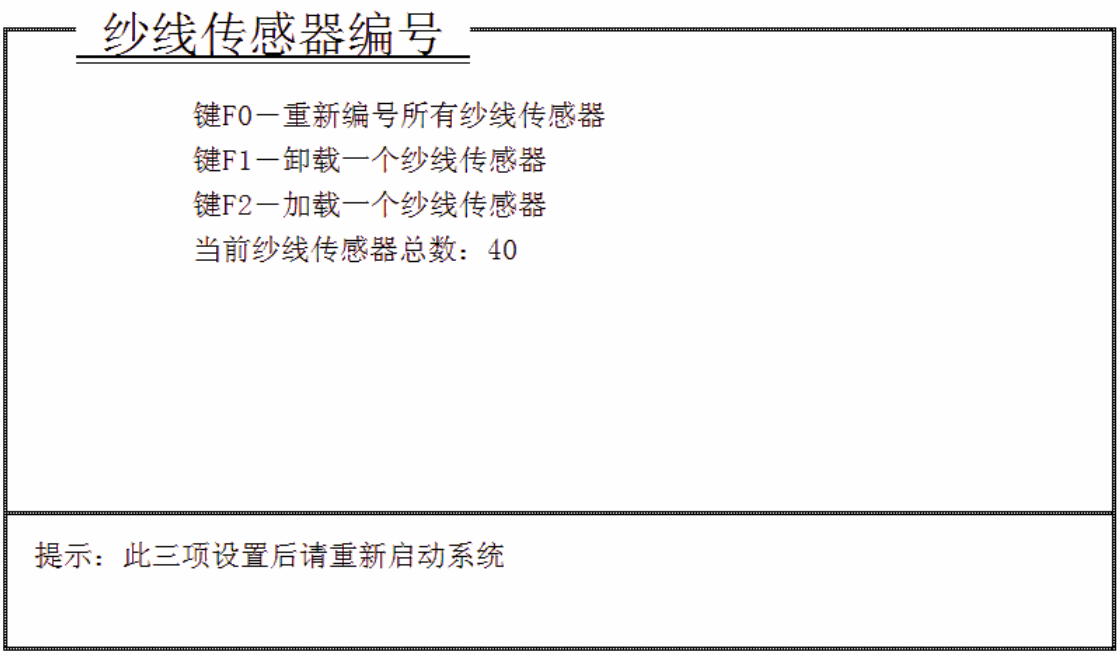


图 5- 22(Fig.5-22)

此页有如下设置项：

There are following setting items in this page:

F0－重新编号所有纱线传感器：按下 F0，输入需要编号（设置地址）的纱线传感器数目，纱线传感器进入设置地址状态（纱线传感器上绿灯在闪烁），按下纱线传感器上按键，可以对此纱线传感器设置地址（纱线传感由闪烁绿灯变为亮红灯，表明地址设置成功，设置的地址可以从液晶上看到），设置的地址从 1 开始，用此方法依次设置下去，设置地址

依次递增

Renumber all yarn sensors: press F0 and enter sensor number of yarn to be numbered (setting address). Yarn sensor enters into setting address state (green light on yarn sensor flickers). Press button on yarn sensor to set address of the yarn sensor (for yarn sensor, when green light flickers at first and then red light is on, address is successfully set. The set address can be seen from LCD). The set address starts from 1. Set other addresses in same method in ascending order.

F1－卸载一个纱线传感器：未定义

Unload a yarn sensor: not defined

F2－加载一个纱线传感器：未定义

Load a yarn sensor: not defined

注：一套系统最多可以添加 64 个纱线传感器

Note: in a set of system, 64 yarn sensors can be added at most.

纱线传感器参数设置:

Parameter setting of yarn sensor:

参见图 5－23

Refer to fig.5-23

纱线传感器参数　　第 1 页—共 5 页

编号	灵敏度	时间	滤波	断纱	未切纱	状态
1	3	100	10	6	6	0
2	3	100	10	6	6	0
3	3	100	10	6	6	0
4	3	100	10	6	6	0
5	3	100	10	6	6	0
6	3	100	10	6	6	0
7	3	100	10	6	6	0
8	3	100	10	6	6	0

F8－保存纱线传感器参数

F0－使所有纱线传感器参数和当前保持一致

图 5- 23(Fig.5-23)

可以设置单个纱线传感器灵敏度、时间、滤波、断纱检测参数、未切纱检测参数

Set sensitivity, time and filtering of single yarn sensor, broken yarn detection parameter, detection parameter of yarn not cut.

纱线传感器的正确运行状态：无纱线的传感器一直亮红灯；有纱线穿过的传感器当纱线运动时亮绿灯，纱线停止时亮红灯。

Correct operation state of yarn sensor: for sensor without yarn, red light is on all the time. For sensor with yarn passing by, green light is on when yarn operates and red light is on when yarn stops.

如果纱线运行状态错误（如无纱线的传感器亮绿灯、纱线停止了亮绿灯、有纱线运动的亮红灯、），需要调整以下参数

If yarn operation state is inaccurate (for sensor without yarn, if green light is on, the green light is also on when yarn stops and red light is on when yarn moves), it is required to adjust following parameters:

编号：纱线传感器的地址。

Number: address of yarn sensor.

灵敏度：默认值 3，可调整的范围：1～7

Sensitivity: default 3; adjustable range: 1~7

时间：默认值 100，可调整的范围:：0～2000

Time: default 100; adjustable range: 0~2,000

滤波：默认值 10，可调整范围：1～100

Filtering: default 10, adjustable range: 1~100

断纱检测参数：默认值设置为 6，即系统连续 6 次检测到此纱线传感器上断纱（记忆时此纱线传感器上纱线使用，此时检测到未使用），系统停车报警；

Broken yarn detection parameter: default is set as 6, namely when the system detects broken yarn (yarn in the sensor is used during storage. However, it is detected that the yarn is not used by this time) from the sensor for 6 times continuously, system stops and gives an alarm.

未切纱检测参数；默认值设置为 6，即系统连续 6 次检测到此纱线传感器上未切纱（记忆时此纱线传感器上纱线未使用，此时检测到使用），系统停车报警；

Uncut yarn detection parameter: default is set as 6, namely when the system detects uncut yarn (yarn in the sensor is not used during storage. However, it is detected that the yarn is used by this time) from the sensor for 6 times continuously, system stops and gives an alarm.

状态：用于查看此纱线传感器当前的状态，0 为纱线静止时的状态，1 为纱线运动时的状态。

State: it is used to view present state of yarn sensor. 0 means immobile state of yarn; 1 means operation state of yarn.

附：纱线运行状态错误时参数的参考调整方法：

Attachment: reference adjustment method for parameter when yarn operation state is inaccurate

如果无纱线的传感器亮绿灯或纱线静止的传感器也亮绿灯：此状况出现说明该传感器探测过于灵敏，调整的方法有：灵敏度调小，或把时间调小，或把滤波值调大；也可以同时调整这三项的两项或同时调整三项，直到把传感器调整到正确状态，如果一直无法调整到正确状态，请更换纱线传感器。

For sensor without yarn, if green light is on or when yarn maintain still, green light is also on: the state indicates that the sensor is too sensitive. Adjustment method: adjust sensitivity or time downwards, or adjust filtering value upwards. It is also feasible to adjust any two items or all these three items at the same time until the sensor is adjusted to accurate state. If the sensor cannot be adjusted to accurate state all the time, please replace yarn sensor.

如有纱线运动的传感器亮红灯，此状况说明该传感器探测不够灵敏，调整的方法有：灵敏度调大，或把时间调大，或把滤波值调小；也可以同时调整这三项的两项或同时调整三项

For sensor with moving yarn, if red light is on, the sensor is not sensitive enough. Adjustment method: adjust sensitivity or time upwards, or adjust filtering downwards. It is also feasible to adjust any two items or all these three items at the same time.

纱线记忆体列表:

Yarn memory bank list:

参见图 5－24

Refer to fig.5-24

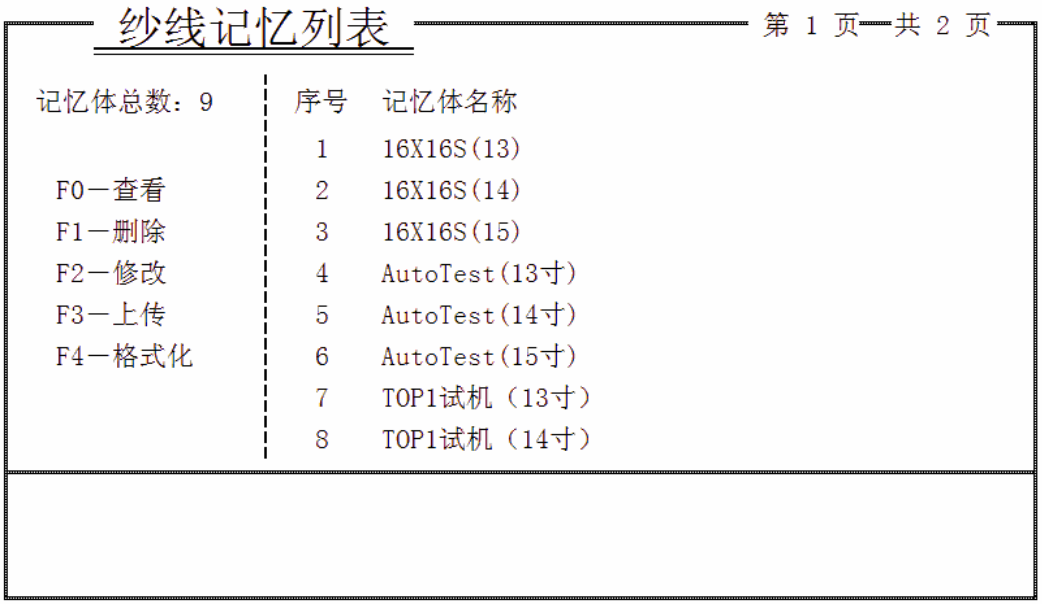


图 5- 24(Fig.5-24)

此页有如下项目：

There are following items in this page:

左侧区域显示机器已记忆的编织程序。

Left region displays weaving program stored.

F0-查看：可以查看每个纱线传感器上纱线在编织程序中某步的状态（0—未使用；1—使用），再结合编织程序，可以判断此记忆是否记忆正确。

Examination: examine state of yarn on each yarn sensor in certain step of weaving program (0- not used; 1- used). Afterwards, judge whether the storage is correct based on weaving program.

F1-删除：删除某个编织程序的记忆体 。

F1- Delete: delete memory bank of certain weaving program.

F2-修改：未定义。

F2- Modification: not defined.

F3-上传：未定义。

F3- Uploading: not defined

F4-格式化：把机器上存储的记忆体全部删除。

F4- Formatting: delete all memory bank stored in machine.

纱线检测参数:

Yarn detection parameter:

参见图 5－25

Refer to fig.5-25

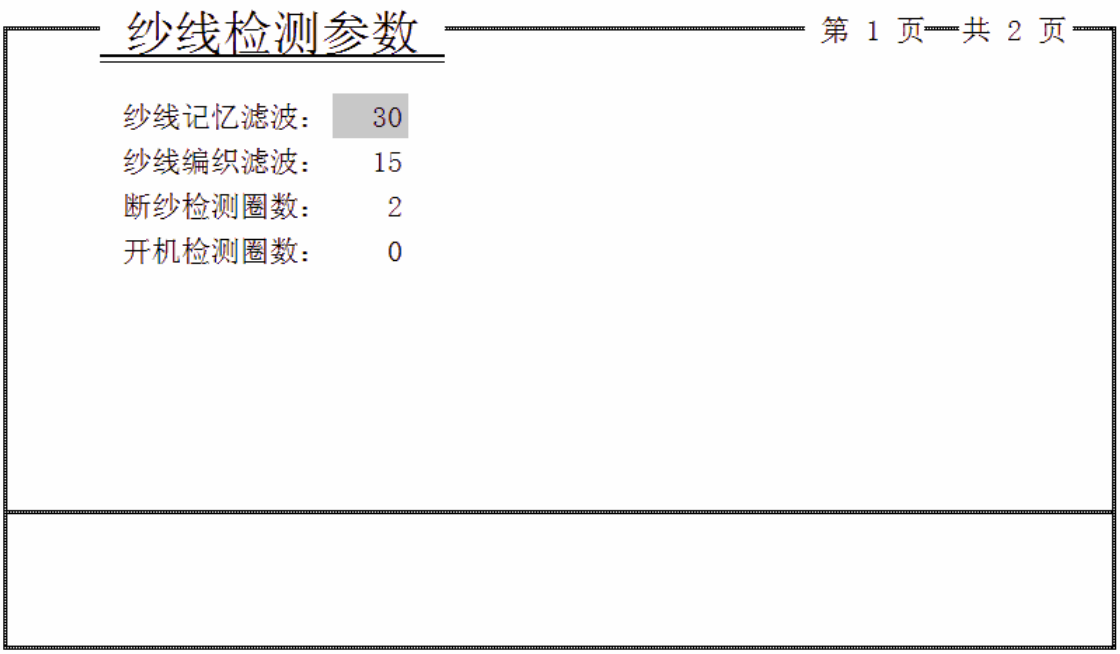


图 5- 25(Fig.5-25)

此页面有如下项目：

There are following items in this page:

纱线记忆滤波：调节记忆时，纱线感应器整体的灵敏度，默认值为 30，可调整的范围值为：30～80

Yarn memory filtering: during adjustment of memory, default for integral sensitivity of yarn sensor is 30. The adjustable range: 30~80

纱线编织滤波：编织时，查询纱线传感器状态值的周期，默认值为 15，可调整的范围值为：15～50

Yarn weaving filtering: during weaving, inquire state value period of yarn sensor. The default is 15. Adjustable range is 15~50.

断纱检测圈数：未定义

Turn number for broken yarn detection: not defined

开机检测圈数：未定义

Turn number for start detection: not defined

5.11 初始化设置 Initialization setting

此菜单项有三页，分别为初始化设置、选针设置偏移量和机器配置。

The menu item covers three pages, respectively initialization setting, needle selection setting offset and machine configuration.

初始化设置:

Initialization setting:

参见图 5－26

Refer to fig.5-26

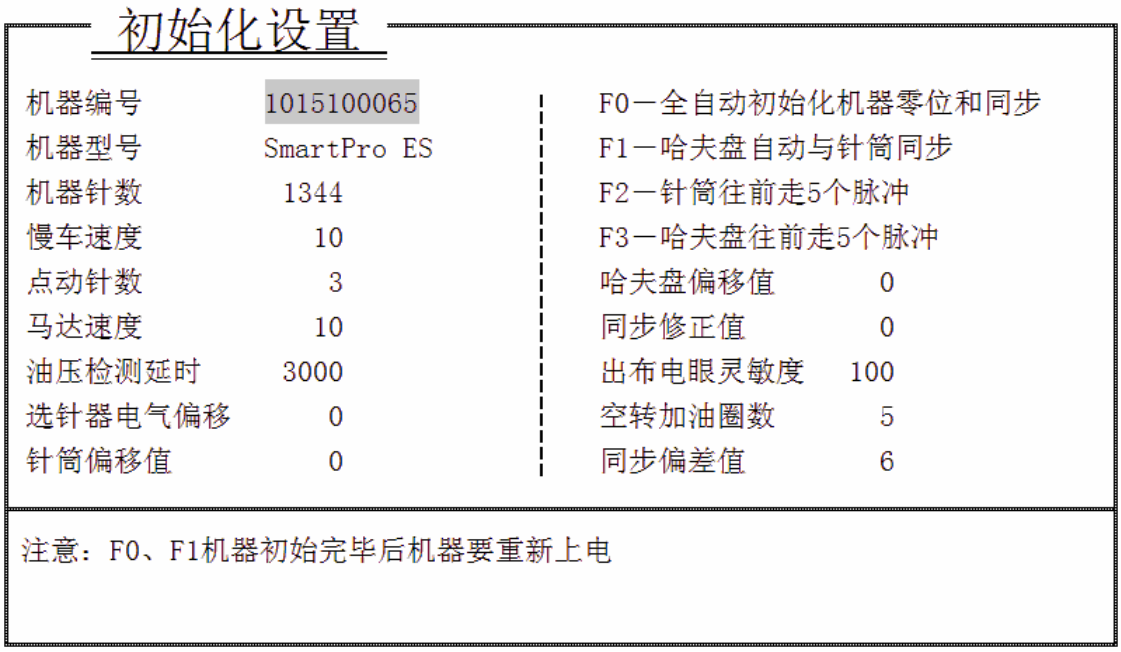


图 5- 26(Fig.5-26)

此页有如下项目

There are following items in the page:

- 机器编号：机器出厂的编号；
- Machine number: manufacturing No. of machine;
- 机器型号：机器出厂的型号；
- Machine type: manufacturing type of machine;
- 机器针数：此机的针数；
- Needle number of machine: number of needle included in the machine;
- 慢车速度：可以设置机器开慢车时的速度，默认值为 5 转 / 分钟；
- Idling speed: idling speed of machine can be set. Default is 5 rpm.

- 点动针数：可以设置每点动一次机器转动的针数，默认值为 3；
- Inching needle number: number of needle involved at each inching of machine. Default is 3.
- 马达速度：可以设置马达速度，默认值 10，可设置范围为 1～30；；
- Motor speed: set motor speed and default is 10. The setting range is 1～30;
- 油压检测延时：可以设置加油后检测油压值的延时值，默认值为 3000，单位为毫秒；
- Oil pressure detection and time delay: set delay value of oil pressure value after oiling. Default is 3,000 and unit is millisecond;
- 选针器电气偏移：设置选针刀片提前动作量。
- Electrical offset of pattern devices: set advancement action quantity of selection bit.

同时有如下功能：

There are following functions at the same time:

- F0－全自动初始化机器零位和同步。按下此键，机器运行 8 圈，此过程自动寻找机器零位。自动定机器零位完毕后，机器必须重新断电上电
- F0－Full automatic initialization and synchronization of machine zero position: press the button, machine operates for 8 turns. In the process, zero position of machine is sought automatically. After machine zero position is determined automatically, turn off and then turn on the machine.
- F1－哈夫盘自动与针筒同步。
- F1－dial unit is synchronous with needle cylinder automatically.
- F2－针筒向前走 5 个脉冲
- F2－Needle cylinder moves forwards by 5 impulses
- F3－哈夫盘向前走 5 个脉冲
- F3－dial unit moves forwards by 5 impulses
- 哈夫偏移值：未定义
- Hough offset value: not defined
- 同步修正值：调节哈夫针与织针之间的间隙。
- Synchronous correction value: adjust gap between dial jack and knitting needle.
- 出布电子眼灵敏度：可设置值为 0～150 级别，0 为最灵敏；
- Sensitivity of draw-out electronic eye: it can be set as 0~150. 0 means most sensitive;
- 空转加油圈数：在机器空转时，机器加油的频率，单位为圈数；
- Oiling turn at idling: machine oiling frequency during machine idling. The unit is turn;

◆ 同步偏差值：未定义

◆ Synchronous deviation value: not defined

选针设置偏移量:

Offset set for needle selection:

参见图 5－27

Refer to fig.5-27

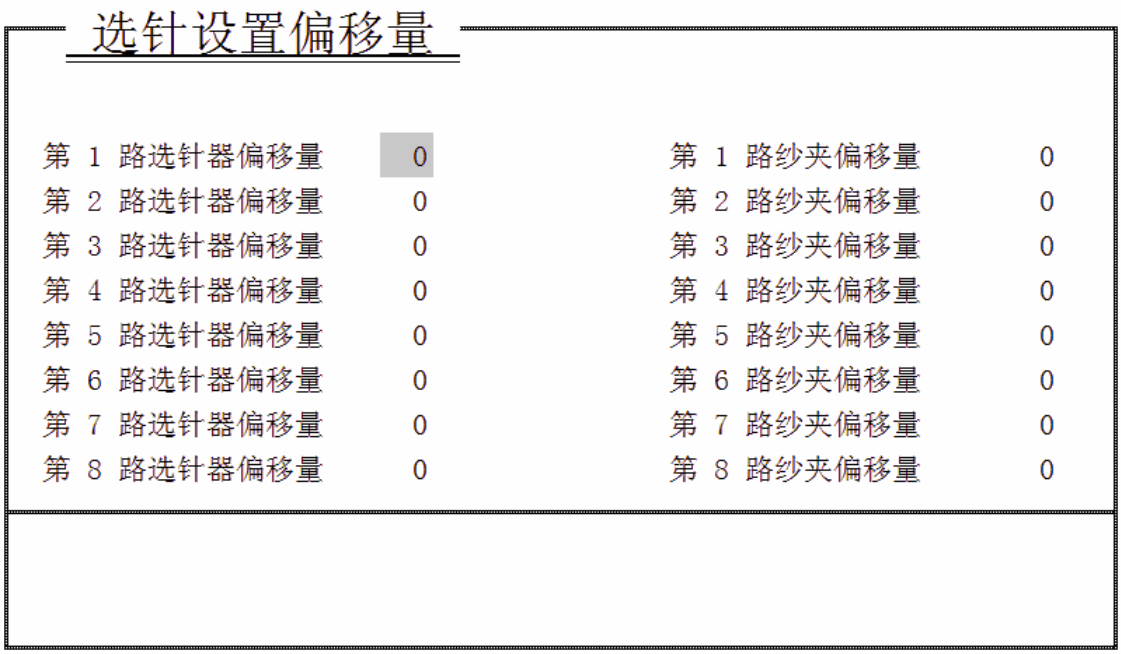


图 5- 27(Fig.5-27)

此页面用于调节每路选针器的选针刀片提前动作量和纱夹动作的角度偏移量。

This page is used to adjust advancement actuating quantity of needle selection bit at pattern devices of each path and angular offset of yarn clamping action.

机器配置:

Machine configuration:

参见图 5－28

Refer to fig.5-28

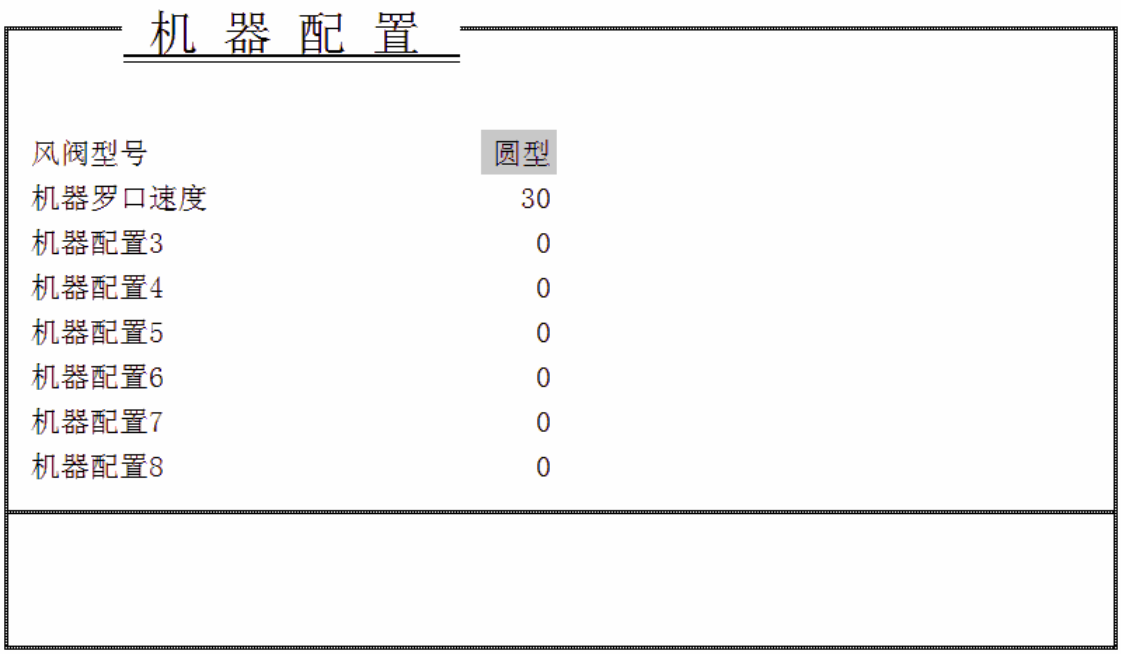


图 5- 28(Fig.5-28)

此页有如下项目

There are following items in the page:

风阀型号：根据所使用的风阀进行设置，有圆型和方型两种，1 为圆型，2 为方型。

Type of air valve: it is set based on used air valve. There are round and square air valves. 1 means round valve and 2 means square valve.

机器罗口速度：设置机器在编织罗口时的速度。

Machine ribbed stitch speed: set speed of machine at weaving of ribbed stitch.

机器配置 3：未定义

Machine configuration 3: not defined

机器配置 4：未定义

Machine configuration 4: not defined

机器配置 5：未定义

Machine configuration 5: not defined

机器配置 6：未定义

Machine configuration 6: not defined

机器配置 7：未定义

Machine configuration 7: not defined

机器配置 8：未定义

Machine configuration 8: not defined

5.12 日期时间 Date and time

参见图 5－29

Refer to fig.5-29

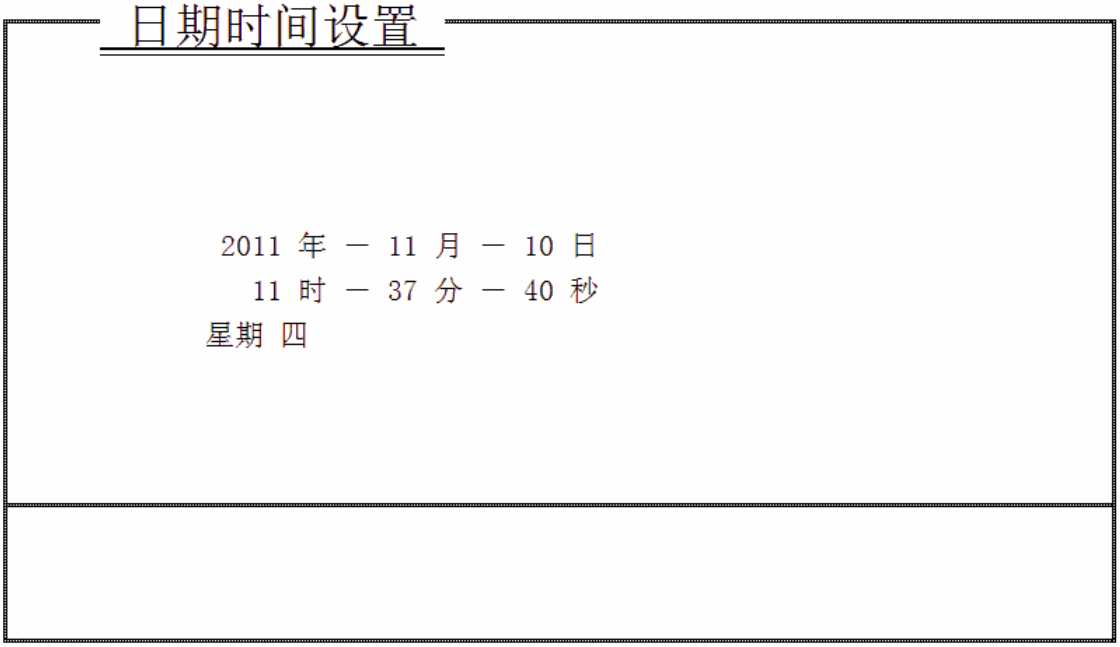


图 5- 29(Fig.5-29)

此页提供修改机器面板上当前日期和时间的功能。

In this page, there are present date and time modification function on machine panel.

6 电路原理 Circuit Principle

6.1 电路原理说明 Circuit principle description

本机器采用工业上的 3 相四线制供电，黄绿线为零线，另外三根为火线，没有顺序要求，必须接零线，否则机器不工作甚至跳闸烧坏电箱，三相电都接有空气开关、保险丝、滤波器。

The machine adopts industrial 3-phase and 4-wire system for power supply. Zero lines are in yellow and green. The other three lines are live lines. If there is no sequence requirement, zero lines must be connected. Otherwise, machine does not operate or machine trips out and makes electrical box damaged. Air switch, fuse and filter are connected for all three phases.

如图 6－1 所示，电路外围模块包括电源控制、液晶面板、子板、密度板、电机驱动板、纱线传感器、电机伺服控制器、落衣传感器控制、橡筋输送控制盒、储纬器电箱，这些模块统一由 CPUA 板协调控制，完成各种复杂的编织过程。

As shown in fig.6-1, peripheral modules of circuit include power supply control, liquid crystal panel, sub-panel, density plate, motor driving plate, yarn sensor, motor servo controller, drop sensor control, elastic transportation control box and electrical box for weft accumulator. These modules are coordinated and controlled uniformly by CPUA plate to complete various complicated weaving process.

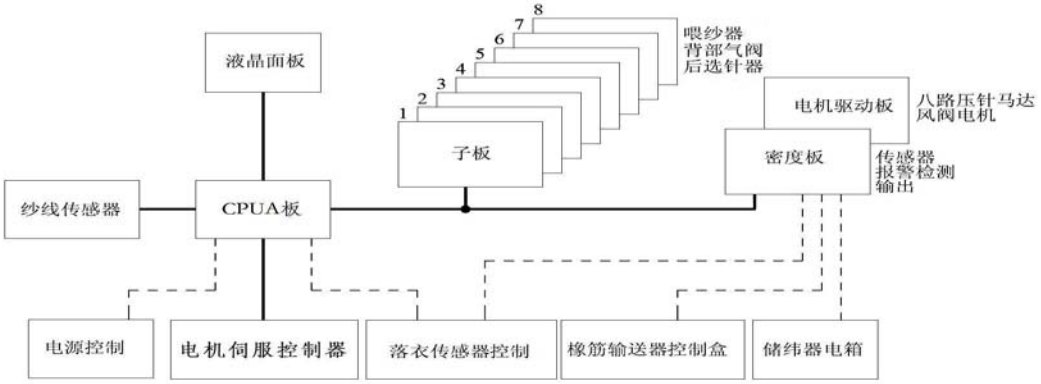


图 6－ 1(Fig.6-1)

6.2 主电箱正面电路结构 Front circuit structure of main electrical box

参见图 6－2

Refer to fig.6-2

主电箱中的电路板包括：1 块安装底板、1 块 CPU 板、8 块子板、1 块密度板、1 块电机驱动板。

Circuit boards in main electrical box include: one piece of assembly bottom plate, one piece of CPU plate, eight pieces of sub-panel, one piece of density plate and one piece of motor driving plate.

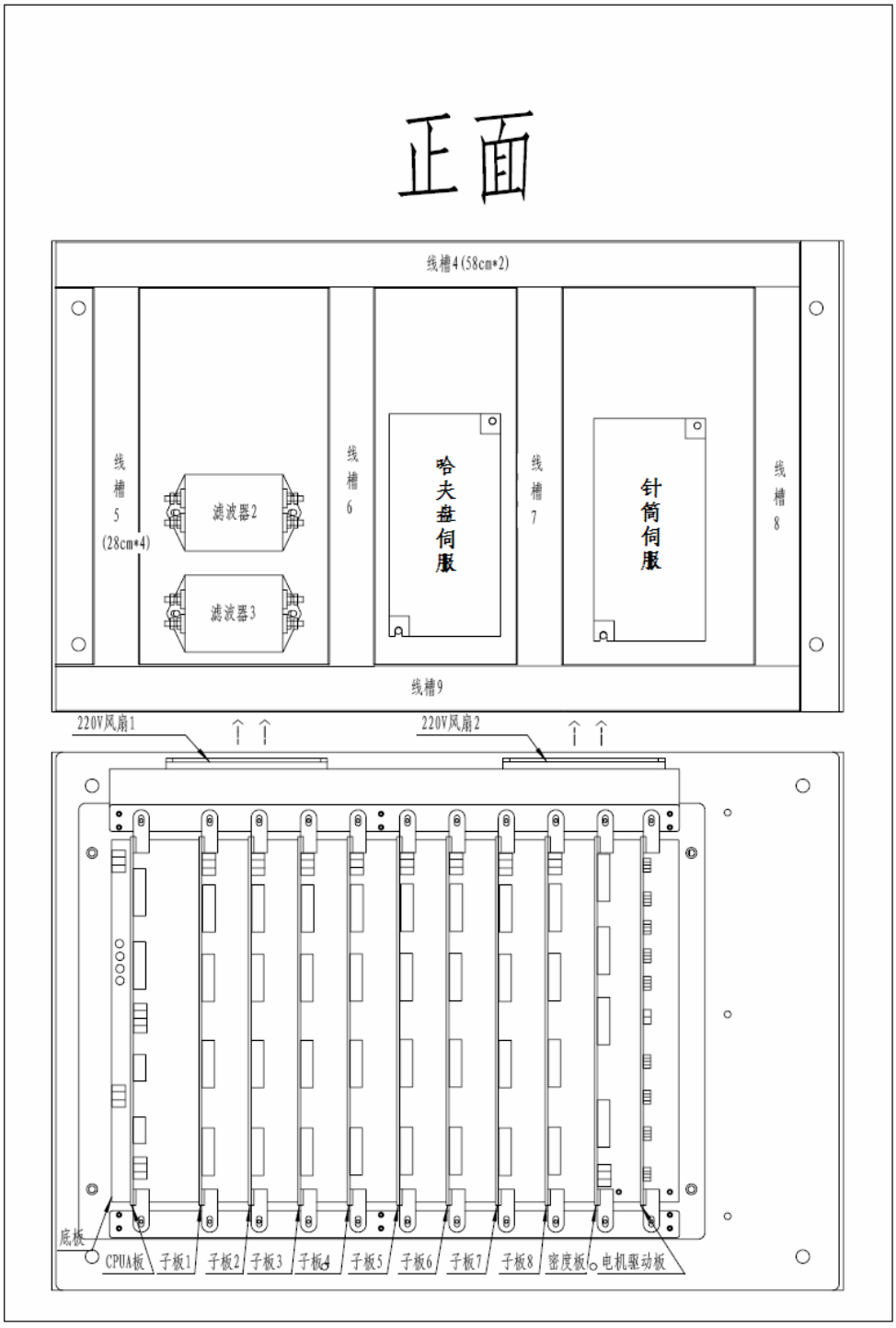


图 6－ 2(Fig.6-2)

CPUA 板:

CPUA board:

参见图 6－3

Refer to fig.6-3

CPUA 板控制着针筒与哈夫盘的运动、机器角度的检测、纱线传感器的控制、与液晶面板之间进行通信、控制其它板子的输入输出等等。是整个电路系统的核心部分。

CPUA plates control movement of needle cylinder and dial unit, detection of machine angle, control of yarn sensor, and communication with liquid crystal panel, input/output of other plates. It is key part of the whole circuit system.

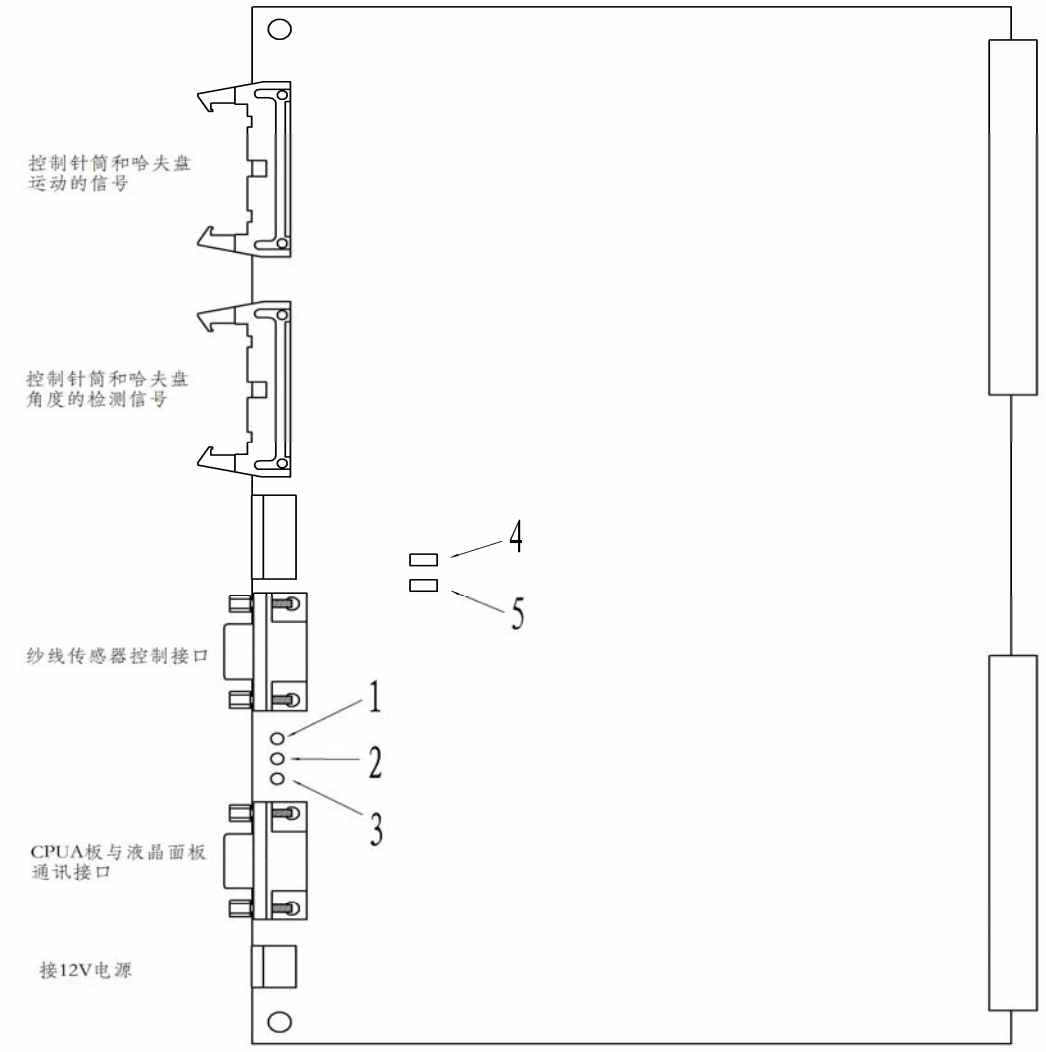


图 6－3(Fig.6-3)

编号	说明
1	电源指示灯，接通电源时该灯亮；
2	电路板出错指示灯，电路板内部出错时该灯亮（红色）；
3	工作指示灯，电路板正常工作时该灯以一定频率闪烁；
4	该灯亮时表示针筒电机伺服器使能；
5	该灯亮时表示哈夫盘电机伺服器使能。

Number	Description
1	Power indicator light is on when machine is turned on;
2	Circuit board error indicator light (red) is on in case of any error in circuit board;
3	Operating light flickers at certain frequency during normal operation of circuit board;
4	When the light is turned on, needle cylinder motor server is enabled.
5	When the light is turned on, dial unit motor server is enabled.

子板

Sub-panel

参见图 6－4

Refer to fig.6-4

机器中的 8 块子板，每一块控制着对应路编织系统，包括一个选针器、一个喂纱器、一组阀岛气阀。气阀板接口线先接到电缆转接板再分到各组气阀。

There are 8 sub-panels in the machine. Each sub-panel controls weaving system of each path, including a pattern devices, a yarn feeder and one group of valve terminal air valve. Interface line of air valve plate is connected to cable adapter plate and the various groups of air valves.

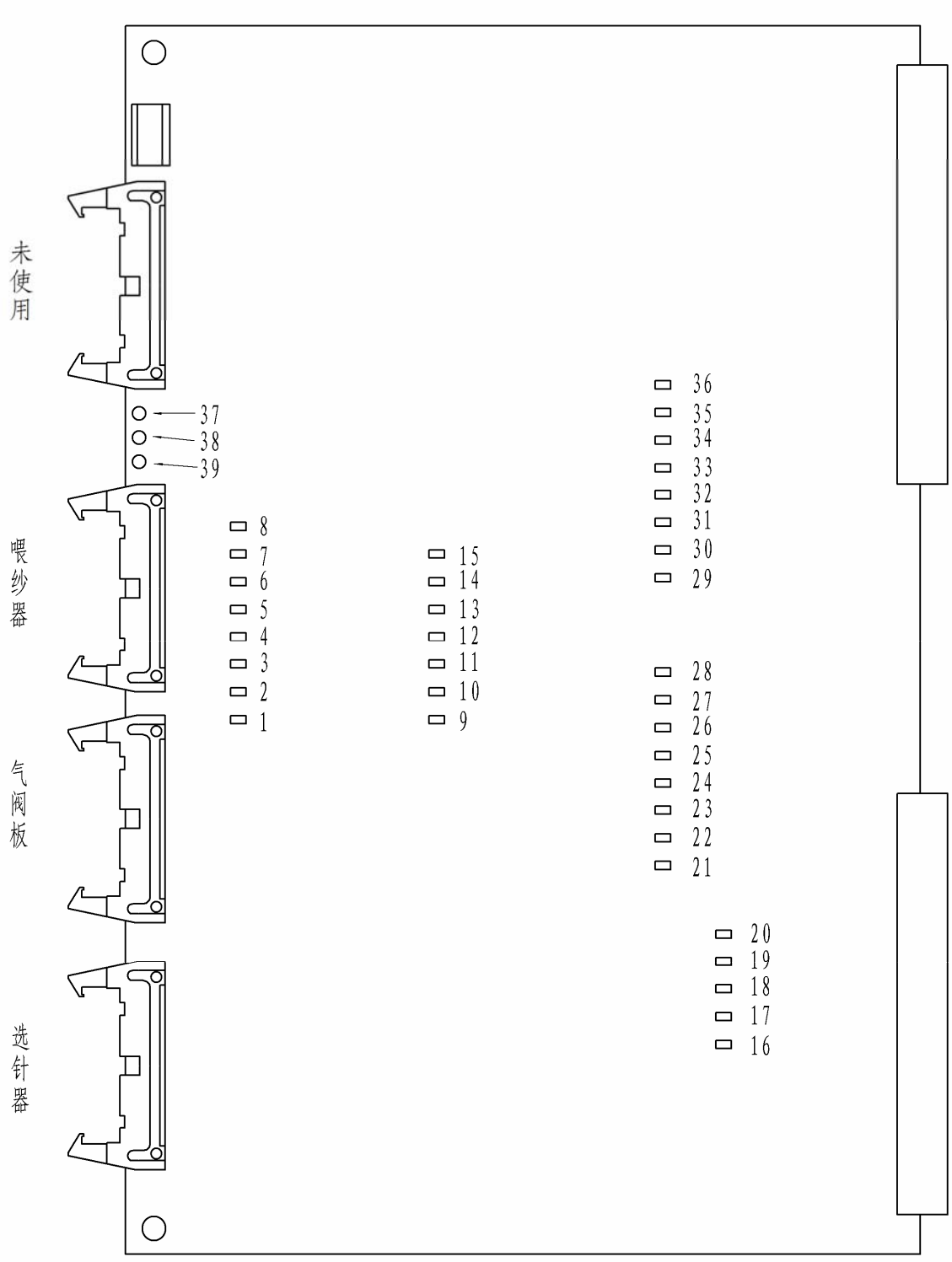


图 6－4

Fig.6-4

1～15 指示灯对应着该路喂纱器 01～15 号电磁阀的工作状态，例如第一块子板的指示灯 5 亮了，表示第一路喂纱器的 05 电磁阀处于工作状态。喂纱器上电磁阀的编号如图 6－5 所示：

Indicator lights 1～15 correspond to operation state of 01~15 solenoid valves of yarn feeder in the path. For example, if indicator light 5 of the first sub-panel is on, 05 solenoid valve of yarn feeder in the first path is at operation state. Solenoid valve number on yarn feeder is shown in fig.6-5.

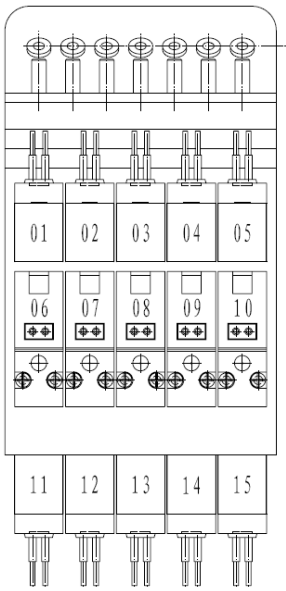


图 6－5(Fig.6-5)

21～36 共 16 个指示灯对应着该组阀岛气阀从左到右的 01～16 号 16 电磁阀的工作状态。当指示灯亮时，表示该电磁阀处于工作状态，反之，则处于不工作状态。

From 21~36, totally 16 indicator lights correspond to operation state of No. 01 to No. 16 solenoid valves in this group of valve terminal air valves. When the indicator light is on, the solenoid valve is at operation state. Otherwise, it is not at operation state.

说明：各组气阀从上到下为第 5、4、3、2、1、6 组气，从左到右为 01～16,其中第 6 组气阀只有 01～07。如图 6－6 所示。

Note: air valves from the top down are the 5th, 4th, 3rd, 2nd, 1st and 6th air valves and No.01~16 from left to right. Where, the 6th air valves are only from 01~07, as shown in fig.6-6.

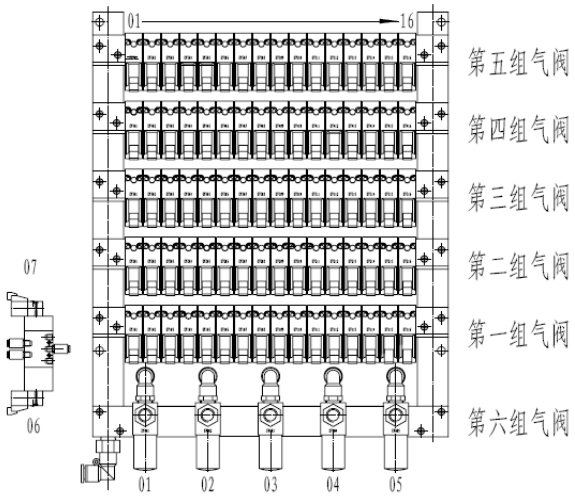


图 6－6(Fig.6-6)

编号	说明
16	无定义；
17	当该路探针舌传感器碰到针舌时，该指示灯亮，八块子板对应八路探针舌；
18	无定义；
19	无定义；
20	无定义；
37	电源指示灯，接通电源时该灯亮；
38	电路板出错指示灯，电路板内部出错时该灯亮（红色）；
39	工作指示灯，电路板正常工作时该灯以一定频率闪烁。

Number	Description
16	Not defined;
17	When needle latch detection sensor touches needle latch, the indicator light is on. 8 pieces of sub-panels correspond to eight paths of needle latch detector;
18	Not defined;
19	Not defined;
20	Not defined;
37	Power indicator light is on when machine is turned on;
38	Circuit board error indicator light (red) is on in case of any error in circuit board;
39	Operating light flickers at certain frequency during normal operation of circuit board

密度板

Density board

参见图 6－7

Refer to fig.6-7

主要作用在于控制压针马达的压针深度。

It is mainly used to control pressing depth of press motor.

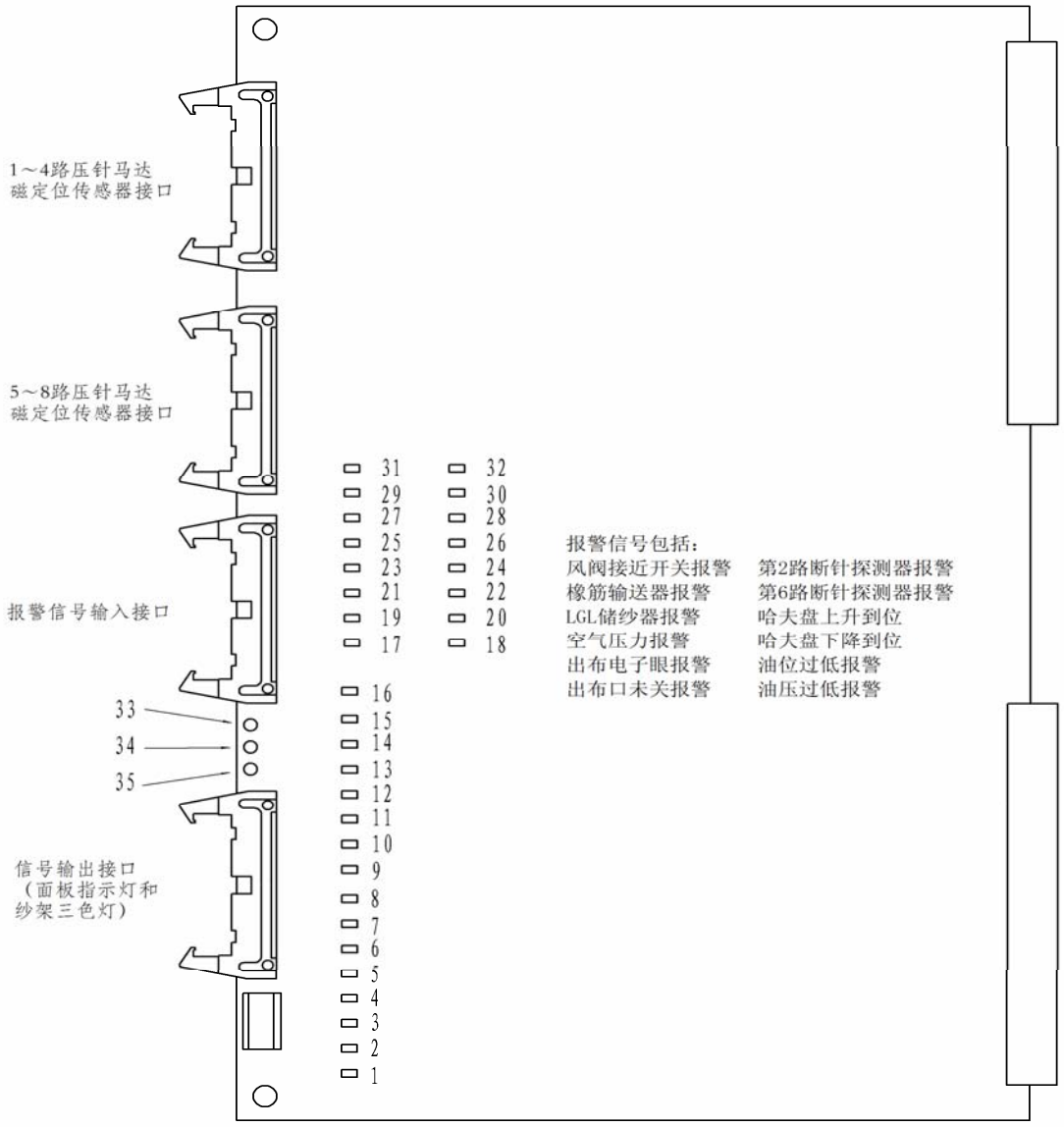


图 6－7(Fig.6-7)

编号	说明
1	对应面板和纱架机器状态指示灯中绿灯；
2	对应面板和纱架机器状态指示灯中黄灯；
3	对应面板和纱架机器状态指示灯中红灯；
3～16	未定义
17	检测到第 2 路断针探测信号时该灯亮；
18	检测到第 6 路断针探测信号时该灯亮；
19	机头上升到位时该灯亮；
20	机头下降到位时该灯亮；
21	出布口未关闭时该灯亮；
22	当油位过低，达到报警线时该灯亮；
23	机器每加一次油，该灯会闪烁一次；
24	未定义；
25	未定义；
26	风阀接近开关报警时该灯亮；
27	橡筋输送器报警时该灯亮；
28	未定义；
29	未定义；
30	LGL 储纬器报警时该灯亮；
31	空气压力超过限定范围值时该灯亮；
32	织物排除红外传感器信号指示，平常处于亮的状态，当有织物排出时短时间熄灭；
33	电源指示灯，接通电源时该灯亮；
34	电路板出错指示灯，电路板内部出错时该灯亮（红色）；
35	工作指示灯，电路板正常工作时该灯以一定频率闪烁。

Number	Description
1	Green indicator light of corresponding panel and cone holder creel machine

2	Yellow indicator light of corresponding panel and cone holder creel machine
3	Red indicator light of corresponding panel and cone holder creel machine
3～16	Not defined
17	The light is on when the 2nd needle breaking detection signal is detected.
18	The light is on when the 6th needle breaking detection signal is detected.
19	The light is on when dial ascends to right position;
20	The light is on when dial descends to right position;
21	The light is on when stocking ejection box is not closed;
22	The light is on when oil level is low and reaches the alarm line.
23	The light flickers when oil is filled to machine at each time;
24	Not defined;
25	Not defined;
26	The light is on when air valve proximity switch gives an alarm;
27	The light is on when elastic feeder gives an alarm;
28	Not defined;
29	Not defined;
30	The light is on when LGL weft accumulator gives an alarm;
31	When air pressure exceeds limited value, the light is on;
32	Infrared sensor signal indication for textile discharge is on generally. It is off for short time when textiles are discharged.
33	Power indicator light is on when machine is turned on;
34	Circuit board error indicator light (red) is on in case of any error in circuit board;
35	Operating light flickers at certain frequency during normal operation of circuit board

电机驱动板

Motor drive board

参见图 6－8

Refer to fig.6-8

主要作用在于驱动 8 路压针马达和一个风阀电机。

Main function is to drive 8-circuit press motor and one air valve motor.

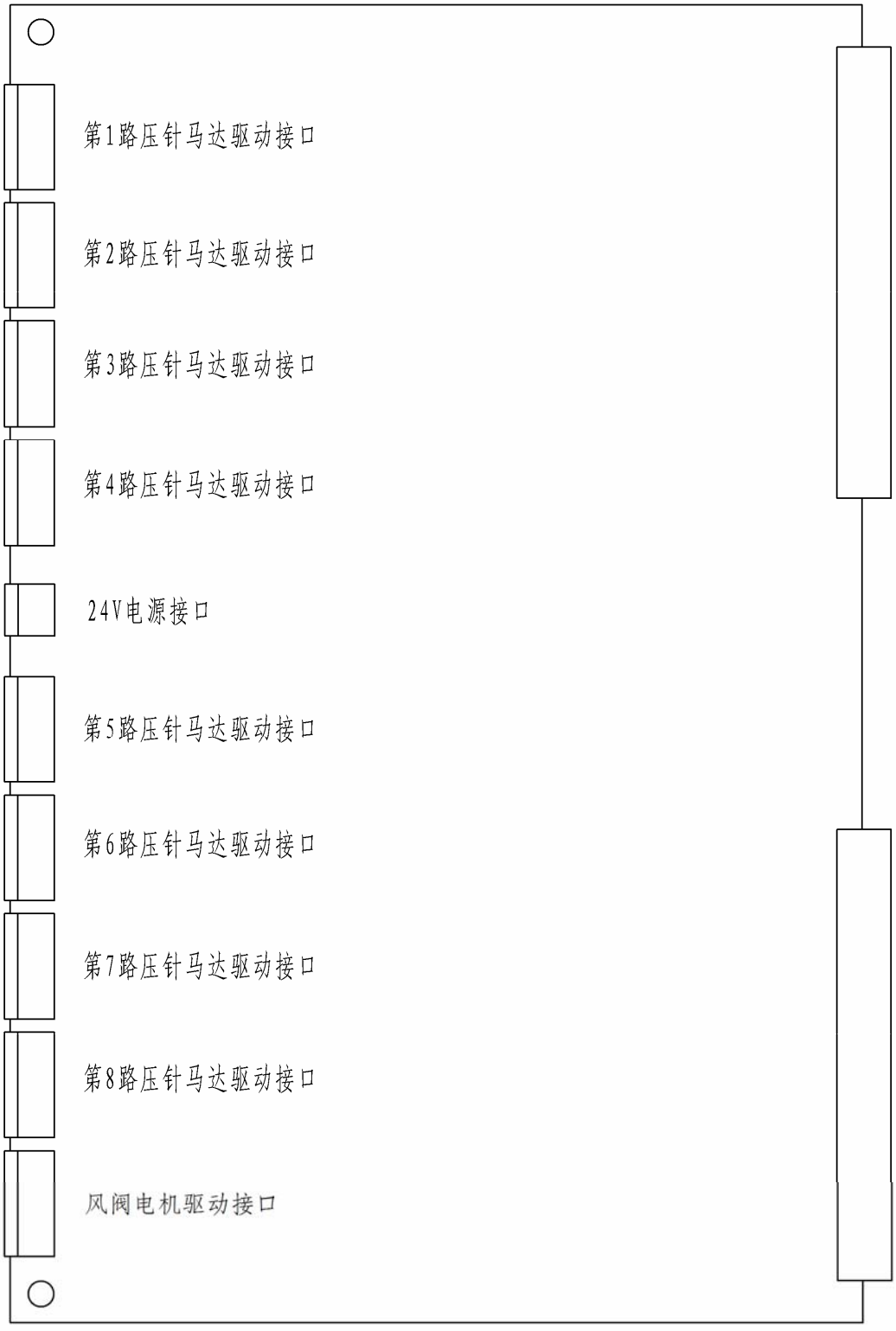


图 6－8(Fig.6-8)

6.3 主电箱背面电路结构 Circuit structure at back of main electrical box

参见图 6－9

Refer to fig.6-9

主电箱背面中有一块继电器板，主要是用于将主电箱正面电路上的一些信号转接到针筒伺服器、哈夫盘伺服器等部件上。

There is a relay board at back of main electrical box. It is mainly to transfer some signals on front circuit of main electrical box to needle cylinder server, dial unit server and other parts.

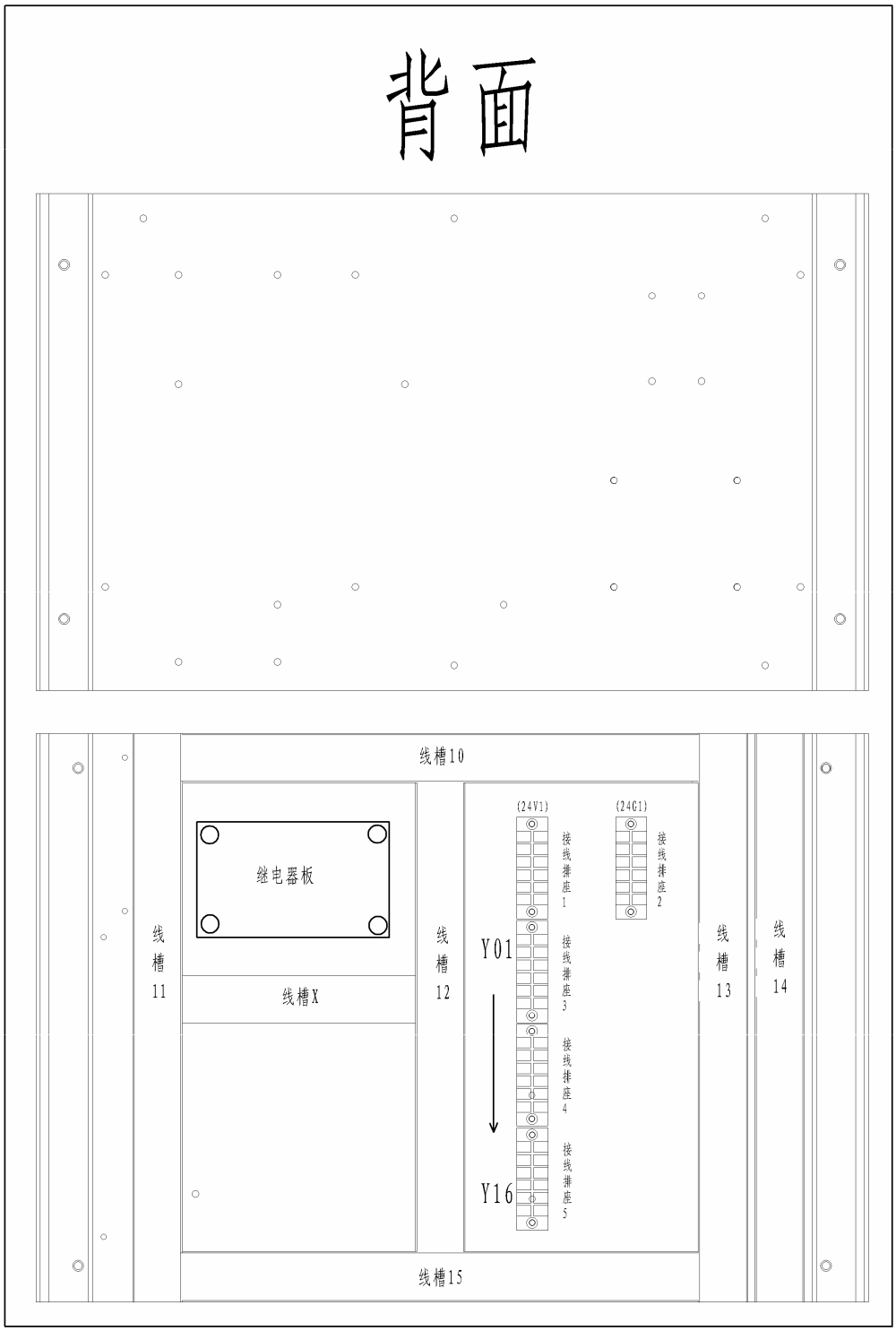


图 6－9(Fig. 6-9)

6.4 侧面电箱电路结构 Circuit structure of side electrical box

参见图 6－10

Refer to fig.6-10

侧面电箱主要是接进工业上的 3 相四线电源，然后将电源进行分配，输送到机器各个部位进行供电。

Side electrical box is mainly connected with industrial 3-phase 4-wire power supply. Afterwards, power is distributed and transported to various parts.

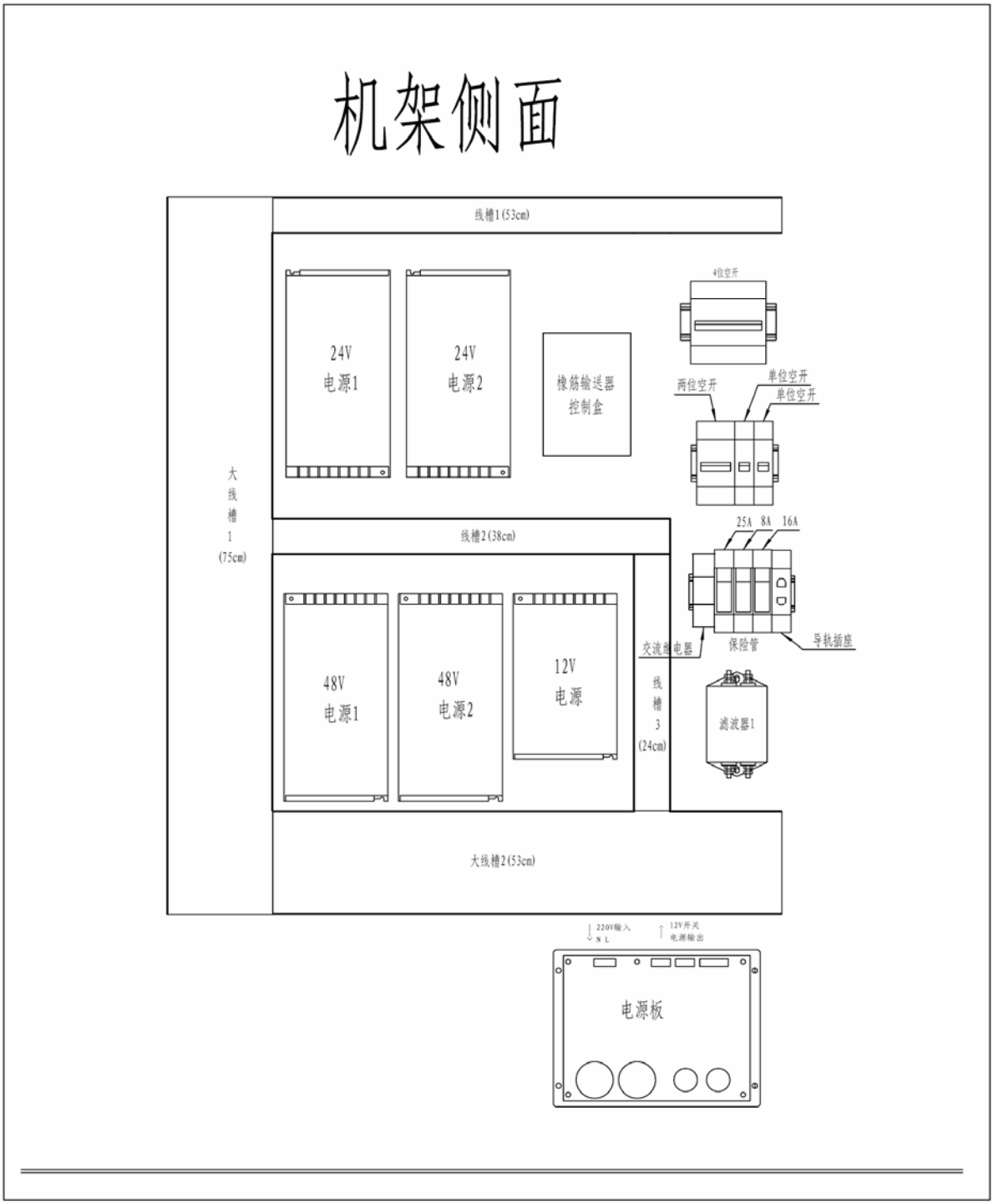


图 6－10(Fig.6-10)

6.5 后部阀岛电箱电路结构 Circuit structure of rear valve terminal electrical box

参见图 6－11

Refer to fig.6-11

后部阀岛电箱的电路主要是将主电箱中的子板和密度板中的一些控制信号和报警信息进行转接，以便分配到机器上的各个部位上，主要包括电缆转接板 A 和电缆转接板 B 两块板子。

Circuit of rear valve terminal electrical box is mainly to transfer some control signal and alarm messages in sub-panel and density plate of main electrical box and then distribute them to various parts of machine, mainly including adapter plate A and adapter plate B.

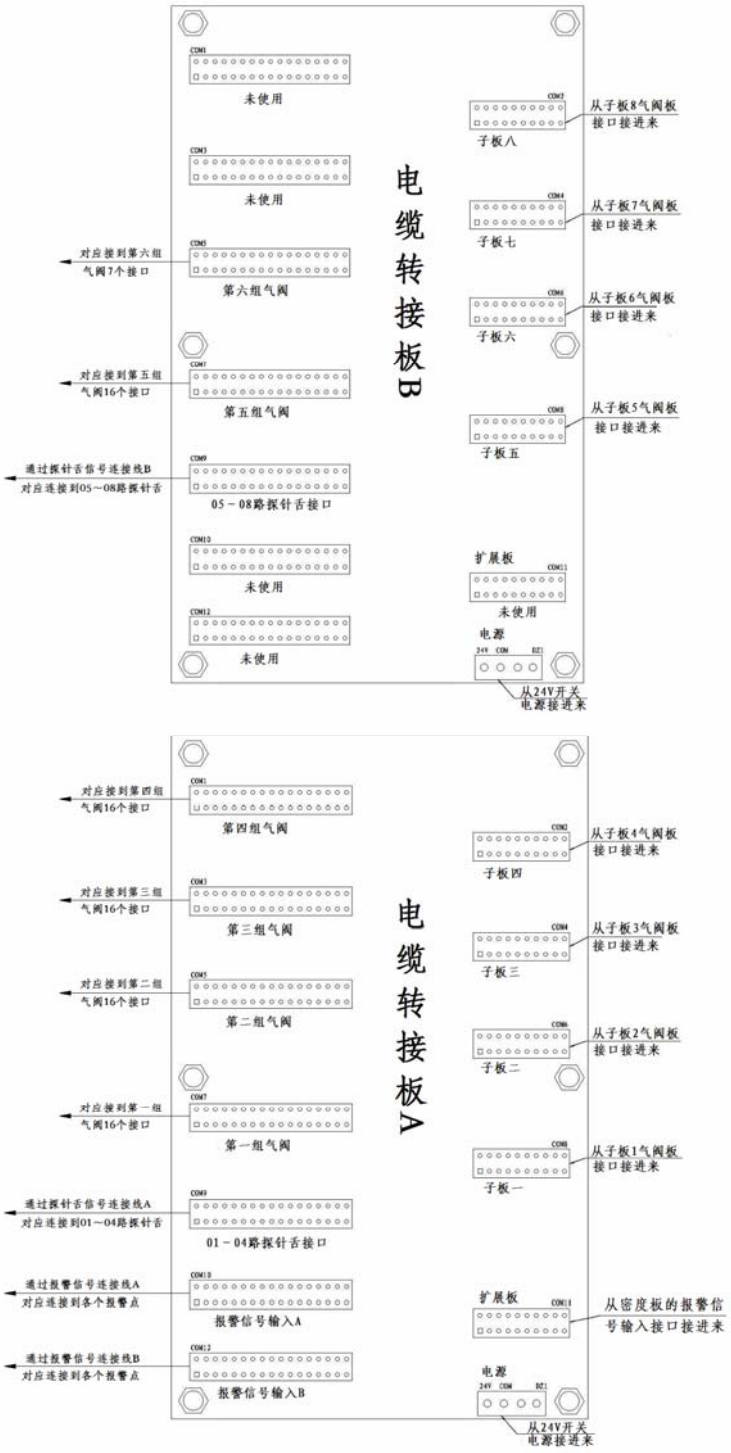


图 6－11(Fig.6-11)

附录 Appendix

SPIN 的设置 SPIN setting

SPIN 是一种进纱设备，其特点是具备出纱张力自动调节功能，在本机器上主要用于控制第 2、6 路橡筋的张力。

SPIN is a yarn feeding device. In the device, self-adjustment function of yarn discharge tension is mainly used to control elastic tension of the 2nd and 6th path.

在菜单设定界面下，按一下 “√”进入到参数编程菜单，通过按键“+”和“-”来控制光标的“向上”和“向下” 移动，选择要设置的参数，按一下“√”按键即可进入参数设置界面或者是对应的下一级子菜单。

Under menu setting interface, press "√" to enter into parameter programming menu. Press button "+" and "-" to control "upward" and "downward" movement of cursor. Select the parameter to be set and then press "√" to enter into parameter setting interface or corresponding sub-menu.

按一下“×”键可以反回到上一级菜单。

Press button "×" to return to previous menu.

主张力的设置:

Setting of main tension:

当选择“增加”和“减少”（“开启”）的输入之后，SPIN 使用此项线参数作为参考张力。

When you select "increase" and "decrease" ("turn on") input, SPIN uses the parameter as reference tension.

当进入到主张力的设置界面后，可通过按键“+”和“-”来设置此项线参数。

When we enter into setting interface of main tension, the line parameter can be set through button "+" and "-".

此处可以设定和输入的值为 0.5g～50g。默认设定为 2.0g。

Here, we can set and enter value 0.5g～50g. Default setting is 2.0g.

注：同时按下“+”和“-”按键可以设定增量操作者步进值。步进值范围为 0.1～1.0。

Note: at the same time, press "+" and "-" to set increment and operator stepping value. Step value range is 0.1～1.0.

次张力的设置:

Setting of secondary tension:

当没有选择“增加”和“减少”（“关闭”）的输入之后，SPIN 使用此项线参数作为参考张力。

When no "increase" or "decrease" ("turnoff") input is selected, SPIN uses the line parameter as reference tension.

当进入到主张力的设置界面后，可通过按键“+”和“-”来设置此项线参数。

When we enter into setting interface of main tension, the line parameter can be set through button "+" and "-".

此处可以设定和输入的值为“关闭”，或者为 0.5g～50g。默认设定为 1.5g。

Here, we can set and enter "turnoff" or 0.5g～50g. Default setting is 1.5g.

注：同时按下“+”和“-”按键可以设定增量操作者步进值。步进值范围为 0.1～1.0。

Note: at the same time, press "+" and "-" to set increment and operator stepping value. Step value range is 0.1～1.0.

浮动张力的设置:

Setting of floating tension:

此项参数是 SPIN 工作过程中允许的最大线张力变数。

The parameter is the maximal line tension variable permitted in SPIN operation process.

如果线张力超出选择的参考张力±浮动张力的数值数值范围，则表明线张力异常，会触发浮动张力报警。（如果“报警时间”被设定就“关闭”，此报警就不会发生。）

If line tension exceeds selected reference tension ± floating tension value range, line tension is abnormal and it shall trigger float tension alarm (if "alarm time" is set as "turnoff", no alarm is given out).

此处可以设定和输入的值为 0.1g～50g。默认设定为 0.5g。

Here, we can set and enter value 0.1g～50g. Default setting is 0.5g.

注：同时按下“+”和“-”按键可以设定增量操作者步进值。步进值范围为 0.1～1.0。

Note: at the same time, press "+" and "-" to set increment and operator stepping value. Step value range is 0.1～1.0.

报警时间的设置:

Alarm time setting:

为了生成浮动张力的报警，该项是针对线张力异常时所持续的时间设定的一个限度值。如果线张力异常所持续的时间超过了设置的报警时间，就会生成浮动张力报警。

In order to generate floating tension alarm, this item is a limit value for duration at

abnormity of line tension. In case of any line tension abnormity and the duration exceeds the set alarm time, floating tension alarm shall be generated.

例如：如果参考张力设定为 4g，浮动张力设定为 0.5g，报警时间设定为 2s，当张力值达到了 3.4g 或者 4.6g，并且持续时间超过了报警时间 2s，那么报警就被触发了。

For example, if reference tension is set as 4g and floating tension is set as 0.5g, alarm time is set as 2s, when tension value is 3.4g or 4.6g and duration exceeds alarm time, alarm is triggered.

此处可以设定和输入的值为“关闭”，或者为 0.1～10 秒。

Here, we can set and enter "turnoff" or 0.1～10s.

注：同时按下“+”和“-”按键可以设定增量操作者步进值。步进值范围为 0.1～1.0。

Note: at the same time, press "+" and "-" to set increment and operator stepping value. Step value range is 0.1～1.0

纱线硬度的设置:

Setting of yarn hardness:

当进入到“纱线硬度”设置界面后，通过按键“+”和“-”可选择相应的纱线硬度，按下“√”键确定即可。

When we enter into "yarn hardness" setting interface, Use button "+" and "-" to select corresponding yarn hardness and then press button "√".

此处提供了 5 种纱线硬度的选项，即：01－弹力的 1；02－弹力的 2（裸氨）； 03－钢硬的 1；04－钢硬的 2；05－钢硬的 3。

Here, we provide 5 yarn hardness options, namely: 01- elastic 1; 02- elastic 2 (naked ammonia); 03- steel hardness 1; 04- steel hardness 2; 05- steel hardness 3.

根据线类型和品质进行正确的选择。

Perform correct selection based on line type and quality.

归零:

Resetting:

此项参数用于对测量元件进行归零（或者矫正重置）

The parameter is used for reset measuring elements (or correction and resetting)

根据 SPIN 在机器上的位置，测量元件的归零点根据元件本身的重量而有所不同，要将元件重量重置到零，必须运行归零功能。

Based on position of SPIN on machine, measuring elements have different resetting points

based on their weights. To reset element weight, it is required to operate resetting function.

进行归零时，将测量元件可能接触到的纱线或其它部分去除，进入到归零操作界面下，按下“√”键，激活自动归零（或矫正重置）程序，从而将 SPIN 定位在要求的工作位置。

For resetting, remove yarn and other parts that measuring elements may contact and then enter into resetting operation interface. Press button "√" to activate automatic resetting (or correction resetting) program so as to locate SPIN at required operating position.

上述矫正步骤将近结束时，“好的”信息将以白底蓝字的形式在屏幕最下一行显示。如果没有按下其它按键，大约 25 秒钟后，系统将自动退回到上一操作界面。

When above correction steps are to finish, blue "good" information in white background is displayed at the bottom line. If no other keys are pressed, the system shall automatically return to previous operation interface automatically.

语言的设置:

Language setting:

在参数编程菜单下选择“实用（utility）”项，按一下“√”键进入到该项的子菜单中，同样可以通过按键“+”和“-”来控制光标的“向上”和“向下” 移动，选择其中的“语言（language）”一项，按一下“√”键即可以进入到语言选择界面，通过按键“+”和“-”可选择相应的语言，按下“√”键确定即可。

Under parameter programming menu, select " utility" item and press "√" to enter into submenu of the item. At the same time, we can use button "+" and "-" to control "up" and "down" movement of cursor. Select "language" and press "√" to enter into language selection interface. Press "+" and "-" to select corresponding language and then press "√" for confirmation.

此处有两处语言可以选择，即 English(英语) 00 和 Chinese(中文) 01。

Here, two languages can be selected, namely English 00 and Chinese.

注：更多详细设置，请参照配套的《SPIN使用手册》 。

Note: for more detailed setting, please refer to matched *SPIN Instruction Manual*.

机器故障代码说明及对应处理指导 Machine failure code description and corresponding troubleshooting instruction

AM001--广州科赛恩电气技术有限公司

AM001--Guangzhou Cosine Electrical Technology Co., Ltd .

AM002--机器序列号错误

AM002--Inaccurate serial number of machine

AM003--广州科赛恩电气技术有限公司

AM003-Guangzhou Cosine Electrical Technology Co., Ltd .

AM004--广州科赛恩电气技术有限公司

AM004--Guangzhou Cosine Electrical Technology Co., Ltd .

AM005--机器型号与软件版本不符

AM005--Machine type is inconsistent with software version

AM006--机器参数配置错误

AM006--Inaccurate configuration of machine parameter

AM007--主板软件数据校验错误

AM007--Error in motherboard software data check

AM008--主板 Flash 类型错误

AM008--Error in motherboard Flash type

处理： 以上故障（AM001～AM008）请联系厂家

Troubleshooting: in case of above failure (AM001~AM008), please contact manufacturer

AM009--主板记忆数据校验错误

AM009--Error in motherboard memory data check

处理： 请慢车按钮走一下机器，然后重新断电上电。如若还继续出现，请联系厂家。

Troubleshooting: press idling button to inch machine. Afterwards, turn on and turn off the machine. If the above problems still appear, please contact manufacturer.

AM010--针筒与哈夫盘不同步

AM010--Needle cylinder and dial unit are out of step.

处理： 请进入初始化页面重新同步（在主页按 F9 键，再按 F8 键进入初始化页面，按 F0 键可重新同步），重新同步后需重新断电上电。

Troubleshooting: please enter into initialization page for resynchronization (press F9 in homepage, press F8 to enter into initialization page and press F0 for resynchronization). After resynchronization, turn on and turn off the machine again.

AM011--针筒针数错误

AM011-- Error in cylinder and needle number

处理： 取消报警，继续开机，如若还继续出现，请联系厂家。

Troubleshooting: cancel alarm and continue to operate the machine. If the problem still appears, please contact manufacturer.

AM012--哈夫盘针数错误

AM012-- Needle number error in dial unit

处理： 取消报警，继续开机，如若还继续出现，请联系厂家。

Troubleshooting: cancel alarm and continue to operate the machine. If the problem still appears, please contact manufacturer.

AM013--针筒伺服报警

AM013-- Needle cylinder servo alarm

处理： 请重新断电上电，如若还继续出现，请联系厂家。

Troubleshooting: please turn off and then turn on the machine. If the problem still appears, please contact manufacturer.

AM014--哈夫盘伺服报警

AM014-- dial unit servo alarm

处理： 请重新断电上电，如若还继续出现，请联系厂家。

Troubleshooting: please turn off and then turn on the machine. If problems still appear, please contact manufacturer.

AM015--针筒与哈夫盘初始同步值错误

AM015-- Error in initial synchronization value of needle cylinder and dial unit

处理： 请进入初始化页面重新同步（参考“AM010”处理方法），如若还继续出现，请联系厂家。

Troubleshooting: please enter into initialization page for resynchronization (refer to "AM010" Troubleshooting). If the problem still appears, please contact manufacturer.

AM016--机器初始化数值错误

AM016-- Error in initialization value of machine

处理： 请进入初始化页面重新检查初始化数据（主要检查机器针数，选针器电气偏移值），如有错误，请修改，然后断电再上电。

Troubleshooting: please enter into initialization page to check initialization data again

(mainly inspect machine needle number and electrical offset value of pattern devices). Modify any error. Afterwards, turn off and then turn on the machine.

AM017--压针马达初始化数值错误

AM017-- Error in initialization value of press motor

处理： 请重新初始化压针马达数据(主页按“F9”进入菜单设置->再按“F6”进入压针马达设置页->按“+1”键进入马达初始化页面->按 F0 键初始化压针马达) ，如若还继续出现，请联系厂家。

Troubleshooting: please reinitialize press motor data (press "F9" in homepage to enter into menu setting→press "F6" to enter into press motor setting page→press "+1" to enter into motor initialization page→Press F0 to initialize press motor). If it still appears, please contact manufacturer.

AM018--掉电数值错误

AM018--Error in power failure

处理： 重新断电再上电。

Troubleshooting: turn off and turn on the machine again.

AM019--

AM020--

AM021--

AM022--

AM023--

AM024--

AM025--针筒针号计算错误

AM025-- Error in cylinder and needle number calculation

处理： 重新断电再上电，如再出现请联系厂家。

Troubleshooting: please turn off and then turn on the machine. If the problem still appears, please contact manufacturer.

AM026--

AM027--

AM028--

AM029--

AM030--

AM031--

AM032--

AM033--针筒编码器读取出错

AM033-- Error in reading of needle cylinder coder

AM034--针筒编码器掉电保存出错

AM034-- Error in power failure storage of needle cylinder coder

AM035--针筒编码器运转出错

AM035-- Error in operation of needle cylinder coder

AM036--针筒系统编码值越

AM036-- Error in coded value of needle cylinder system

AM037--针筒系统编码值记忆出错

AM037-- Error in memory of coded value of needle cylinder system

处理： 以上故障（AM033～AM037）请重新断电再上电，如再出现请联系厂家。

Troubleshooting: in case of above failures (AM033～AM037), please turn off and then turn on the machine. If these problems appear still, please contact manufacturer.

AM038--针筒系统编码值零位出错

AM038-- Error in zero position of coded value of needle cylinder system

处理： 在初始化页面重新初始化机器零位和同步（参考“AM010”处理方法）。

Troubleshooting: in initialization page, reinitialize zero position and synchronization of machine (refer to "AM010" Troubleshooting).

AM039--哈夫盘编码器读取出错

AM039-- Error in reading of dial unit coder

AM040--哈夫盘编码器掉电保存出错

AM040-- Error in power failure storage of dial unit coder

AM041--哈夫盘编码器运转出错

AM041-- Error in operation of dial unit coder

AM042--哈夫盘系统编码值越界

AM042-- Coded value of dial unit system is out of range

AM043--哈夫盘系统编码值记忆出错

AM043-- Error in coded value of dial unit system

处理： 以上故障（AM039～AM043）请重新断电再上电，如再出现请联系厂家。

Troubleshooting: in case of above failures (AM039～AM043), please turn off and then turn on the machine. If these problems appear still, please contact manufacturer.

AM044--哈夫盘系统编码值零位出错

AM044-- Error in zero position of coded value of dial unit system

处理： 在初始化页面重新初始化机器零位和同步（参考“AM010”处理方法）。

Troubleshooting: in initialization page, reinitialize zero position and synchronization of machine (refer to "AM010" Troubleshooting).

AM045--急停按钮被按下

AM045-- Scram button is pressed down

AM046--停车按钮被按下

AM046-- Stop button is pressed down

AM047--慢车按钮被按下

AM047-- Inching button is pressed down

AM048--快车按钮被按下

AM048-- Quick button is pressed down

处理： 以上故障（AM045～AM048）检查相应按钮是否被按下，如若按钮正常还出现以上错误，请联系厂家。

Troubleshooting: in case of above failures (AM045~AM048), please inspect whether corresponding button is pressed down. If the button is normal and above failures still appear, please contact manufacturer.

AM049--针筒零位初始化失败

AM049-- Failure in zero position initialization of needle cylinder

AM050--哈夫盘零位初始化失败

AM050-- Failure in zero position initialization of dial unit

AM051--哈夫盘定位传感器故障

AM051-- Failure in localization sensor of dial unit

处理： 以上故障（AM049～AM051）请联系厂家。

Troubleshooting: in case of above failures (AM001~AM008), please contact manufacturer

AM052--点动按钮被按下

AM052--Inching button is pressed down

处理： 检查该按钮是否被按下，如若该按钮正常还出现以上错误，请联系厂家。

Troubleshooting: inspect whether the button is pressed down. If the button is normal and above failures still appear, please contact manufacturer.

AM053--

AM054--

AM055--

AM056--

AM057--当前的织造工艺与机型不匹配

AM057-- Present weaving technology is inconsistent with machine type.

处理： 请检查机器初始化页面设置的机器针数是否正确或检查编织的工艺针数与机器针数是否相符。

Troubleshooting: please inspect whether machine needle number on machine initialization page is correct or whether technical needle number for weaving is consistent with needle number of machine.

AM058--

AM059--

AM060--

AM061--

AM062--

AM063--

AM064--

AM065--第 1 路针舌未打开

AM065-- Needle latch of the 1st section is not opened

AM066--第 2 路针舌未打开

AM066-- Needle latch of the feed 2 is not opened

AM067--第 3 路针舌未打开

AM067-- Needle latch of the feed 3 is not opened

AM068--第 4 路针舌未打开

AM068-- Needle latch of the feed 4 is not opened

AM069--第 5 路针舌未打开

AM069-- Needle latch of the feed 5 is not opened

AM070--第 6 路针舌未打开

AM070-- Needle latch of the feed 6 is not opened

AM071--第 7 路针舌未打开

AM071-- Needle latch of the feed 7 is not opened

AM072--第 8 路针舌未打开

AM072-- Needle latch of the feed 8 is not opened

处理： 以上故障（AM065～AM072），如若对应报警前一路的纱线未断而该报警频繁出现，说明该路探针舌或开针钩未调好（也有可能织造程序未编好），请重新

调整。

Troubleshooting: in case of above failures (AM065~AM072), if previous section of yarn of corresponding alarm is not broken and the alarm appears frequently, detector latch of this section or latch opener is not properly adjusted (or weaving program is not prepared), please readjust the program.

AM073--出布门未关

AM073-- Exit gate is not closed.

处理： 可能衣服堵在出布口，或者风门未能关闭。

Troubleshooting: maybe clothe jams at stocking ejection box or throttle is not closed.

如果此时衣服未堵在出布口，而且对应编织程序中此步风门应该关闭而实际未能关闭，可以做如下处理：在主页按下“风门键”  ，看吸风马达是否可以关闭，如果吸风马达未能关闭，可以打开吸风马达盖子，再按下“风门键”，观察吸风马达是否能转动。如果吸风马达未能转动，说明吸风马达被卡太紧，手动转动吸风马达，再按下风门键观察马达是否能转动，如果一直未能转动，请联系厂家。

If no clothes jams at the stocking ejection box at this time and in corresponding weaving program, the throttle should be closed, you can make following troubleshooting: in homepage, press "button throttle" to examine whether inflow motor can be turned off. If inflow motor is not closed, open cover of inflow motor and then press "button throttle" to check whether inflow motor can turn. If inflow motor cannot turn, inflow motor is stuck too tight, turn inflow motor manually, and press button throttle again to check whether the motor can turn. If not, please contact manufacturer.

如果吸风马达能转动，没有转到关闭位置，风门感应器松动了，请重新安装此感应器

If inflow motor can turn but not turn to the closed position, throttle sensor loosens, please install the sensor again.

AM074--出布电眼报警(织物未排出)

AM074-- Exit electrical eye alarms (textile is not discharged)

处理： 查看织物是否正常排出，如正常排出，请查看出布电子眼。

Troubleshooting: check whether textiles can be discharged normally. If yes, please check exit electronic eye.

AM075--开车机头没降下

AM075-- Power-on dial is not lowered

处理： 降下机头，开机运转，如还出现，请查看机头下降到位感应器。

Troubleshooting: lower dial and turn the machine on for operation. If the problem still appears, please check descending positioning sensor of dial.

AM076--机头位置传感器故障

AM076-- Failure in position sensor of dial

AM077--机头上升下降中

AM077-- During ascending and descending of dial

AM078--机头位置错误

AM078-- Error in dial position

处理： 以上故障（AM076 ～AM078），升起机头，重新降下，开机运转，如还出现，请检查机头上升到位感应器和机头下降到位感应器。

Troubleshooting: in case of above failures (AM076~AM078), raise dial and lower it again, turn on the machine. If these failures still appear, please inspect dial up to positioning sensor and dial down to positioning sensor.

AM079--油位过低

AM079-- Low oil level

处理： 如果一直出现，请加油，继续开机，如若还继续出现，请查看油位感应器。

Troubleshooting: if the problem appears all the time, please fill oil and turn on the machine again. If the problem still appears, please examine oil level sensor.

AM080--油压过低

AM080-- Low oil pressure

处理： 如果频繁出现，请检查气压或检查油压检测延时（此值在初始化页面）是否修改得过低（此值正常范围 1000～5000），修改此值到 5000，继续开机，如若还继续出现，请更换油压感应器。

Troubleshooting: if the problem appears frequently, please inspect air pressure or oil pressure detection delay (the value is in initialization page) is low (normal range of the value 1,000~5,000). Change the value to 5,000. Turn on the machine. If the problem still appears, please replace oil pressure sensor.

AM081--空气压力过低

AM081--Air pressure is too low

AM082--断针探测报警

AM082-- Broken needle detection alarm

AM083--储纱器报警

AM083-- Alarm of yarn storage device

AM084--SFE 报警

AM084-- SFE alarm

AM085--BTSR 报警

AM085-- BTSR alarm

AM086--橡筋输送器(KTF)1 报警

AM086-- Elastic feeder (KTF) 1 give an alarm

AM087--橡筋输送器(KTF)2 报警

AM087-- Elastic feeder (KTF) 2 is giving an alarm

处理： 以上故障（AM081～AM087），一般处理。

Troubleshooting: normal troubleshooting for above failure (AM081~AM087)

AM088--

AM089--第 1 路压针马达有卡点

AM089-- There is sticking point for the 1st section of press motor

AM090--第 2 路压针马达有卡点

AM090-- There is sticking point for the feed 2 of press motor

AM091--第 3 路压针马达有卡点

AM091-- There is sticking point for the feed 3 of press motor

AM092--第 4 路压针马达有卡点

AM092-- There is sticking point for the feed 4 of press motor

AM093--第 5 路压针马达有卡点

AM093-- There is sticking point for the feed 5 of press motor

AM094--第 6 路压针马达有卡点

AM094-- There is sticking point for the feed 6 of press motor

AM095--第 7 路压针马达有卡点

AM095-- There is sticking point for the feed 7 of press motor

AM096--第 8 路压针马达有卡点

AM096-- There is sticking point for the feed 8 of press motors

处理： 以上故障（AM089～AM096），请重新初始化对应的压针马达，如若还继续出现，请联系厂家。

Troubleshooting: in case of above failures (AM089~AM096), please reinitialize corresponding press motor. If these problems appear again, please contact manufacturer.

AM097--第 1 路压针马达报警

AM097-- Press motor alarm of the 1st section

AM098--第 2 路压针马达报警

AM098-- Press motor alarm of the feed 2

AM099--第 3 路压针马达报警

AM099-- Press motor alarm of the feed 3

AM100--第 4 路压针马达报警

AM100-- Press motor alarm of the feed 4

AM101--第 5 路压针马达报警

AM101-- Press motor alarm of the feed 5

AM102--第 6 路压针马达报警

AM102-- Press motor alarm of the feed 6

AM103--第 7 路压针马达报警

AM103-- Press motor alarm of the feed 7

AM104--第 8 路压针马达报警

AM104-- Press motor alarm of the feed 8

处理： 以上故障（AM097～AM104）:先检查该路压针马达设置是否超限(步进电机零位值与程序中设置的密度值之和不得超出-120～120 范围)，如未超出，打断当前编织继续开机，如若频繁出现，请联系厂家。

Troubleshooting: above failures (AM097~AM104): inspect whether press motor of this section exceed the limit (the sum between zero position value of step motor and density value set in program cannot exceed - 120～120). If not, interrupt present weaving and continue to start. If these problems appear frequently, please contact manufacturer.

AM105--风门报警

AM105--Throttle alarm

处理： 风门感应器松动或风门感应器故障。

Troubleshooting: throttle inducer is loose or throttle inducer is in failure

AM106--工艺文件存储数目错误

AM106-- Error in storage number of technical files

处理： 格式化机器工艺文件储存区，然后重新断电上电。

Troubleshooting: format technical file storage area of machine and then turn off and turn on the machine.

AM107--当前织造程序序号错误

AM107-- Error in present weaving program number

处理： 删除当前织造程序，然后重新下载。

Troubleshooting: delete present weaving program and download program again.

AM108--工艺文件存储区错误

AM108--Error in storage area of technical files

处理： 格式化机器工艺文件储存区(在文件管理页面格式化)。

Troubleshooting: format technical file storage area of machine (formatting at file management page)

AM109--当前织造程序校验错误

AM109-- Error in verification of present weaving program

处理： 删除当前织造程序，然后重新下载。

Troubleshooting: delete present weaving program and download program again.

AM110--当前织造程序校验错误

AM110-- Error in verification of present weaving program

处理： 删除当前织造程序，然后重新下载。

Troubleshooting: delete present weaving program and download program again.

AM111--当前织造程序解析错误

AM111-- Error in analysis of weaving program

处理： 重新下载当前织造程序，如若继续出现，请联系厂家。

Troubleshooting: please download present weaving program. If the problem still appears, please contact manufacturer.

AM112--当前无织造程序

AM112- Present weaving program

处理： 重新下载织造程序。

Troubleshooting: download weaving program again.

AM113--纱线感应文件存储数目溢出

AM113-- Spillage of yarn induction file storage number

处理： 记忆的织造程序太多，请删除一些未使用的记忆文件。

Troubleshooting: too much memorized weaving program, Please delete some unused

memory files.

AM114--纱线感应文件数据错误

AM114-- Data error of yarn induction file

处理： 格式化纱线感应文件。

Troubleshooting: format yarn induction file

AM115--当前织造程序未记忆

AM115-- Present weaving program is not memorized.

处理： 请重新记忆。

Troubleshooting: please memorize the program again.

AM116--织造程序记忆数据错误

AM116-- Error in memory data of weaving program

处理： 删除当前织造程序记忆文件，然后重新记忆。

Troubleshooting: delete memory file of present weaving program and memorize another program again.

AM117--纱线感应器未初始化

AM117--Yarn inducer is not initialized

AM118--纱线感应器参数错误

AM118-- Error in yarn inducer parameter

AM119--纱线感应器数目错误

AM119-- Error in yarn inducer number

处理： 以上故障（AM117 ～AM119），请重新编号纱线感应器。

Troubleshooting: in case of above failures (AM117~AM119), please renumber yarn inducer.

AM120--运行执行索引错误

AM120--Error in operation and execution index

处理： 打断当前编织程序(按 F0 键)。

Troubleshooting: interrupt present weaving program (press F0)

AM121--第 1 路步进马达初始化失败

AM121-- Initialization failure in step motor of the 1st section

AM122--第 2 路步进马达初始化失败

AM122-- Initialization failure in step motor of the feed 2

AM123--第 3 路步进马达初始化失败

AM123-- Initialization failure in step motor of the feed 3

AM124--第 4 路步进马达初始化失败

AM124-- Initialization failure in step motor of the feed 4

AM125--第 5 路步进马达初始化失败

AM125-- Initialization failure in step motor of the feed 5

AM126--第 6 路步进马达初始化失败

AM126-- Initialization failure in step motor of the feed 6

AM127--第 7 路步进马达初始化失败

AM127-- Initialization failure in step motor of the feed 7

AM128--第 8 路步进马达初始化失败

AM128-- Initialization failure in step motor of the feed 8

处理： 以上故障（AM121 ～AM128），请重新初始化压针马达，如若继续出现，请联系厂家。

Troubleshooting: in case of above failures (AM121~AM128), please reinitialize corresponding press motor. If these problems appear again, please contact manufacturer.

AM129--断纱报警：纱线传感器 1

AM129-- Breakage alarm: yarn sensor 1

AM130--断纱报警：纱线传感器 2

AM130--Breakage alarm: yarn sensor 2

AM191--断纱报警：纱线传感器 63

AM191-- Breakage alarm: yarn sensor 63

AM192--断纱报警：纱线传感器 64

AM192-- Breakage alarm: yarn sensor 64

处理： 以上故障（AM129～AM192），请查看相应编号的纱线感应器，如果感应器的感应指示灯显示正常，可通过查看该感应器的参数设置是否正常以判断该感应器是否出现了通迅故障，拔掉该感应器的接头，重新接上去，继续开机，如若还继续出现，请更换该感应器。

Troubleshooting: in case of above failures (AM129~AM192), please examine yarn inducer of corresponding number. If induction indicator light of inducer is displayed normally, examine whether parameter setting of the inducer is normal so as to judge whether there is any communication failure in the inducer. Unplug and then plug the inducer. Turn on the machine. If above problems still appear, please replace the inducer.

AM193--带纱报警：纱线传感器 1

AM193-- Yarn clamping alarm: yarn sensor 1

AM194--带纱报警：纱线传感器 2

AM194-- Yarn clamping alarm: yarn sensor 2

AM255--带纱报警：纱线传感器 63

AM255-- Yarn clamping alarm: yarn sensor 63

AM256--带纱报警：纱线传感器 64

AM256-- Yarn clamping alarm: yarn sensor 64

处理： 以上故障（AM193～AM256），请查看相应编号的纱线感应器，并与之对应的记忆体列表进行校对，如果是正常报警，请处理完相应带纱问题，继续开机，如果不是正常报警，请查看相应纱线感应器的参数设置是否正常，并进行修改，继续开机，如若还继续出现，请更换该感应器。

Troubleshooting: in case of above failures (AM193~AM256), please examine yarn inducer of corresponding number and check it with corresponding memory bank list. In case of normal alarm, please treat corresponding yarn clamping problem and then continue to turn on the machine. In case of abnormal alarm, please examine whether parameter setting of corresponding yarn inducer is normal and modify parameters if necessary. Turn on the machine again. If these problems still appear, please replace the inducer.