

CONTENTS

SAFETY INSTRUCTION	-----1
一:PRODUCT INTRODUCTION	-----1
1 OVERVIEW	
2 COMPONET	
3 PERFORMANCE AND PARAMETER	
4 APPLICATION	
二:INSTALLATION AND ADJUSTMENT OF PENSILE-TYPE	-----3
1 INSTALLATION OF SYNCHRO	
2 INSTALLATION OF MOTOR	
3 INSTALLATION OF CONTROL BOX	
4 INSTALLATION OF PEDAL	
5 CONNECTION OF SYSTEM	
6 ADJUSTMENT	
三:INSTALLATION AND ADJUSTMENT OF DIRECT-DRIVE TYPE	-----7
1 INSTALLATION OF MOTOR	
2 INSTALLATION OF CONTROL BOX	
3 INSTALLATION OF PEDAL	
4 CONNECTION OF SYSTEM	
5 ADJUSTMENT	
四:OPERATION INSTRUCTION OF CONTROL PANEL	-----11
五:OPERATIONAL REQUIREMENTS	-----13
六:MANTAINANCE AND GENERAL RECOVERY PROCESSING	-----13
七:SETTING OF CONTROL BOX	-----15

CAUTION :

**Please read instruction manual and completing instruction manual carefully before operation.
The Installation and operation must be operated under professional trained staff.**

SAFETY INSTRUCTION:

- 1: Please read this manual carefully before installation and adjustment.
- 2: Installation and operation must be operated under professional trained staff.
- 3: Confirm the power connected to the ground safety and keep in accordance with the voltage range and technical requirements in the nameplate.
- 4: Please leave your feet away from the pedal when power is turned on or off.
- 5: You must cut the power off under operation mentioned below:
 - A; install the machine
 - B; insert or pull out any plug in the control box
 - C; threading, changing needle and rotate the machine head.
 - D; machine maintenance and machine is in idle state.
- 6: The setting of control system and maintenance should be operated by trained staff.
- 7: There should be 5 seconds separate during changes of power
- 8: The system must be connected to the ground safety

一. PRODUCT INTRODUCTION

1. OVERVIEW

Energy-saving, cost-reducing and environment protecting is the core mission of 21st century. The JK-500/600/700 control system extensively apply for industrial sewing machine and apparel industry. This system has the advantages of energy saving, high efficiency, stable performance and reasonable price which win a good reputation since the system being launched. This system is the best replace for clutch motor which used widely in industrial sewing machine.

2. COMPONENT

The system is made us of controller and motor.

A; Controller: The controller is made us of speed governor and control box (as picture 1)



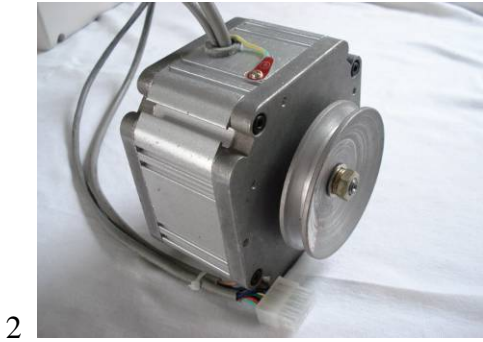
1

The chip of this controller apply the newest AVR SCM of ATMEL LIMITED, which can control the motor accurately with optimization algorithm. The power driver of motor apply power intelligentize driver module of Fairchild Semiconductor. This module has perfect performance on the protection to overvoltage, overcurrent and overheating. The struction of controller is perfect and efficient. Padel-driven speed governor is a part of motor speed controllor.

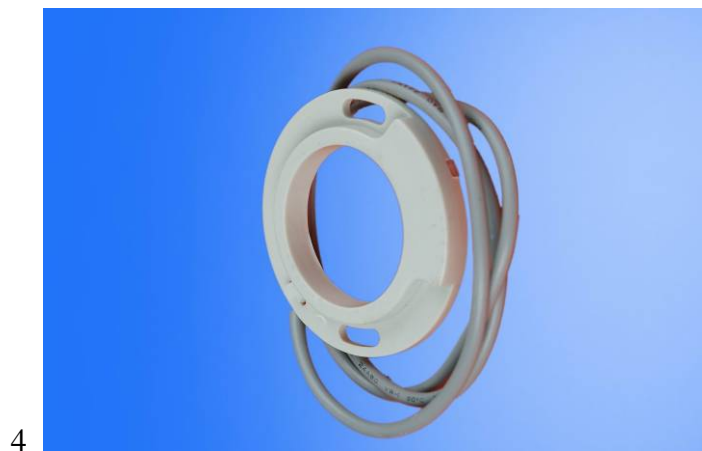
B; MOTOR

This motor apply mageneto AC motor structure, the rotor is made of permanent-magnet material which has the advantages of small volume, high power, energy saving, enviroment protecting and reliable. There is hall position sensor built within the motor.

The product have mounted type (as picture 2) and direct-drive type (as picture 3)



Accessories selection: Positioner, also called synchro and detector(as picture 4 showed), which has a function of provding signal to the controller for needle position. It suits for the type with function of needle position.



3. PERFORMANCE AND PARAMETER

PERFORMANCE AND PARAMETER FOR JK-500/600/700 MAGNETO SERVO SYSTEM

controller model	JK-500/600/700
model	Energy-saving Servo Motor
power voltage range	AC 220±10% V 50HZ
motor output	380W/550W
speed setting	4000rpm(pensile-type), 6000rpm (direct-drive type)
max speed	5000rpm(pensile-typ), 7000rpm (direct-drive type)
Maximum torque	380W /1N/M 550W / 1. 5 N/M
needle up/down	Optional (synchronized needed)
transistor protection	yes
package	Two sets in one carton
gross weight	13 KG
packing dimension	550×350×260

4. APPLICATION

- A; 380W Motor is applicable to ordinary lockstitch sewing machine, overlock sewing machine and those machines load light.
- B; 550W motor is applicable to ordinary heavy duty lockstitch sewing machine, double needle lockstitch sewing machine , heavy duty overlock sewing machine and interlock sewing machine.
- C; The customers should select proper power accroding to the concrete condition.

The electric power must be cut off in case of installation or dismantlement

二. INSTALLATION AND ADJUSTMENT OF PENSILE TYPE SYSTEM

1. Installation of synchro (non-positioning type can ignore this step) (as picture 5)



5

- A: Pull down the driver of machine head, and set the synchro into the mounting hole which being made **beforehand** (as picture 6 and 7)



6



7

B: Set the alnico in the fix position of driver according to the color mark, regard the first positioning screw of main shaft as fiducial (**counter-clockwise**).(as picture 8)



9



10



8

The right make is the installatioin position of upper needle position

C: Installation of driver. To adjust the position of drive in main shaft, and make the distance between alnico and synchro is 2-3mm. To rotate the driver back and forth in order to make sure the drive could rotate without friction. (as picture 9 and 10)

2. Installation of motor module (as picture 11)

- a; Set three lifting screws into the foreseen hole in the table of sewing machine, and fix the motor to the table. Adjust the postion of motor rack and make the motor belt puller in the same lever with hand wheel and belt of sewing machine.
- b; Adjustment of elasticity: press the belt with a force of one kg. It is ok if the belt concave-down one centimeters, if not, the belt need adjustment. Install the belt cover back.



11

3. Installation of control box

Cutting two holes of one centimeters deep with a $\phi 3$ drill in the right front of bottom table, the distance between them is 195mm, and then fix the control box tightly with wooden screw. Insert the plug of motor, synchro and speed controller into relevant socket, and then fix the packed cable conductor to the table which far away from belt. (as picture 12 and 13)



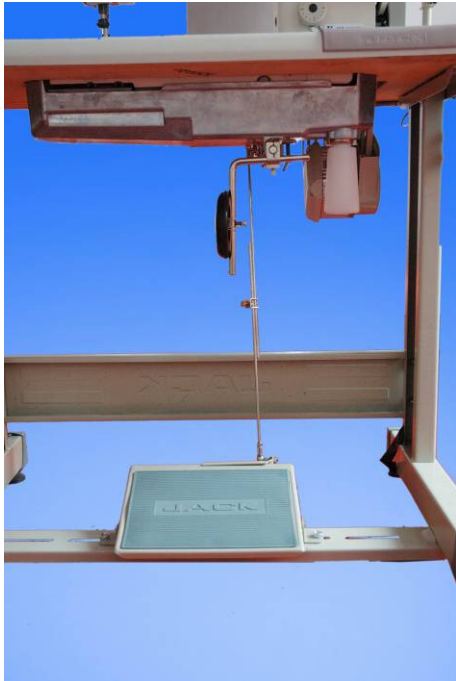
12



13

4. Installation of pedal (as picture 14 and 15)

Make sure the tension rod be perpendicular to the pedal. Adjust the angle of tension rod, keep the filter angle to the ground level as 15 degree.



14



15

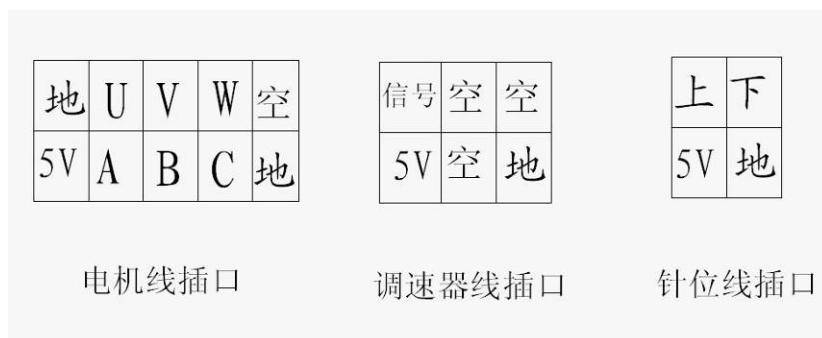
5. Connection of system (as picture 16)

Connect controller power supply wire into single phase 220V power supply system, which should have separately earthing device, and the control box must be connect to earth safely. Insert the plug of motor, speed controller and synchro into the socket behind the control box. When everything is ready, check if the connection stable again, and then adjust the position of plastic sheath in order to cover the plugs totally.



16

Connector definition behind of the control box



6. Adjustment

Adjustment of needle position (non-positioning type can ignore this step)
 Connect to the power, and turn up the mains switch of control box. Rotate the driver of sewing machine, when it stop at the up needle position, lighten the red luminotron in the synchro, adjust the position of alnico which have red mark, and then fix the screw. In a similar way, Rotate the driver of sewing machine, when it stop at the lower needle position, adjust the position of alnico which have blue mark, lighten the green luminotron in the synchro and then fix the screw.

三. INSTALLATION AND ADJUSTMENT OF DIRECT-DRIVE TYPE

Uninstall the hand wheel as belowed:



1. decompose the direct-drive motor, break it into forth and back cover, rotor, and stator. (as picture 17)



17



18

2. Make the main shaft cross the forth cover and keep it in the same lever which is perpendicular to the main shaft, and then fix the screw. (as picture 18)
3. Find the position of main shaft flat, make the flat towards up, then cover it to the end with rotor of motor, then positioning the screw in rotor shaft to the flat of main shaft and fix it. (as picture 19)
4. Install the stator to the fixed forward cover of motor (the rotor of motor have strong magnetism, so please be caution on operation in order to avoid hurt finger and damage the motor. Please keep caution to the position and direction of down-lead wire of stator before installation. The position of down-lead wire of stator is under the forward cover.) (as picture 20)



19



20

5. after the installation of stator, it needs to check the distance between stator and rotor. The standart distance should be 0.5mm per circle. There should be no any metal materials to be sucked in the distance. (as picture 21)
6. Piece on the forward and backward cover of motor, fix the screw. (as picture 22)



21



22

7. There is blue marked alnico installed near to the second fixing screw (**counter-clockwise**), and on the other alnico installation position should be red marked alnico.
8. Cover the motor shaft with hand wheel, and towards flat in the motor with first screw in the hand wheel then fix the screw. Please keep caution to the distance between alnico and sensor flat during installation, 2-3mm is proper. There should be no friction when rotating the hand wheel.(as picture 23and 24)



23



24

9. Installation of control box

Cutting two holes of one centimeters deep with a $\phi 3$ drill in the right front of bottom table, the distance between them is 195mm, and then fix the control box tightly with wooden screw. Insert the plug of motor, synchro and speed controller into relevant socke, and then fix the packed cable conductor to the table which far away from belt. (as picture 25 and 26)

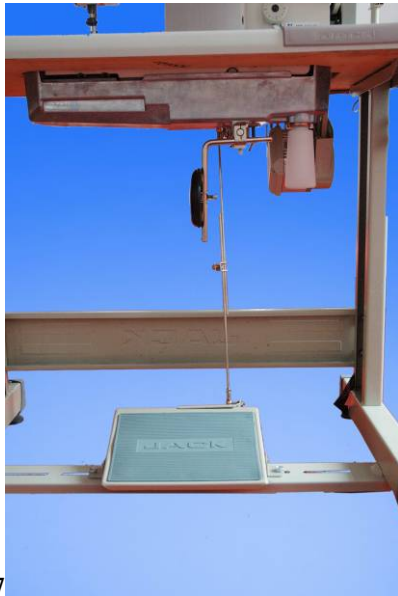


25



26

10. Make sure the tention rod be perpendicular to the pedal. Adjust the angel of tention rod, keep the filter angel to the ground lever as 15 degree.(as picture 27 and 28)



27



28

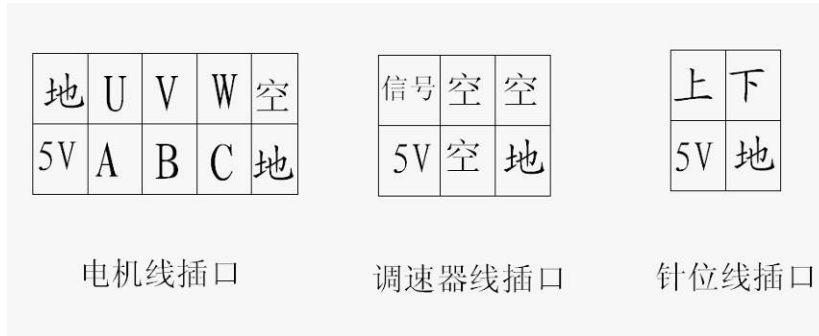
11. Connection of system

Connect controller power supply wire into single phase 220V power supply system, which should have separately earthing device, and the control box must be connect to earth safely. Insert the plug of motor, speed controller and synchro into the socket behind the control box. When everything is ready, check if the connection stable again, and then adjust the position of plastic sheath in order to cover the plugs totally.



29

Connector definition behind of the control box (as picture 29)



12. Adjustment of needle position (non-positioning type can ignore this step)

Connecting to the power, and turning up the mains switch of control box. Rotate the driver of sewing machine, when it stop at the up needle position, lighten the red luminotron in the synchro, adjust the position of alnico which have red mark, and then fix the screw. In a similar way, Rotate the driver of sewing machine, when it stop at the lower needle position, adjust the position of alnico which have blue mark, lighten the green luminotron in the synchro and then fix the screw.

四. OPERATION INSTRUCTION OF CONTROL PANEL





1. **WPS, the nixietube shows P**



图 32

2. **Press P, the nixietube shows V which is the speed setting interface.**
Then press S, you can adjust the speed from 1-9 which increase in a circle, the matching speed limitation from 500 to 4500 R/S (the concrete speed depend on the machine type)
3. **Press P again, function b is the rotating direction setting interface,**



Press S: It will be corotation when the nixietube shows 0 (the model is suitable for lockstitch sewing machine, and the point below the number will be lighten)

It will be inversion when the nixietube shows 1 (the model is suitable for overlock sewing machine, and the point below the number will go out)

4. Conservation of date

When all the parameter is setting ready, press P, the nixietube will show O and K separately when date is stored successfully, on the contrary, Er means the store failed. If the data cannot be stored, please turn the controller down, and then turn it up in a while. Re-operate from 1-4

5. System recovery function:

When the controller cannot work regularly, press S on the P interface till the nixietube shows O and K which could recover the system parameter to the leave factory setting.

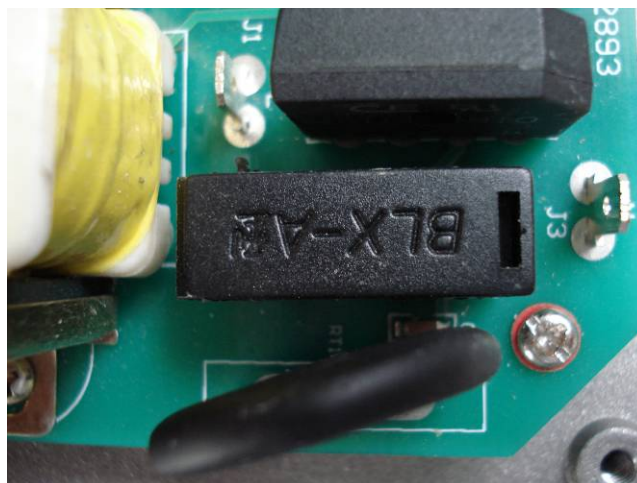
五 OPERATIONAL REQUIREMENTS

- 1; Please keep this system away from high magnetic fields and environmental radiation in order to avoid obstructions.
- 2; The operational temperature must be in the range of 5°C--45°C
- 3; Please don't use this product near to the origin of heat (heat, radiator)
- 4; Please don't use this product in overwet circumstances.
- 5; Please don't use this product near to corrosive liquids and explosion..
- 6; Keep ventilation to where the controller and motor stored.
- 7; Keep the power supply voltage steady.
- 8; There must be qualified connector to the ground in order to make sure safety.

六. MANTAINANCE AND GENERAL RECOVERY PROCESSING

If the machine went wrong, maintainance and repairment should be operated under professional trained person.

1. No reaction when the controller is turning up



34

Please check if the power plug connected to the socket tightly, or if the protective tube is burnt, if yes, change the protective tube. Open the cover of controller first, find the position of protective tube, take the burnt protective tube out and change a new one. The model of protective tube is 5A/250V ϕ 5mm \times 20mm

2. Controller is connected, but the motor doesn't work when pressing the pedal. Please check if the plug of speed adjustor, motor and motor signal wire is connected to the socket in controller right. Check if the speed adjustor is broken.
3. The rotate speed of motor sometimes fast and sometimes slow
Please check if the belt is too loose, and if the belt puller slipped, or the pedal and tension rod is loose.
4. The motor stopped duiring running
Please check if the machine load too heavy first or there is mechanical bug. Then check is the power socket and plug connected to the motor hall socket and plugs well. The same to the socket and plug of speed adjustor.
5. The motor will run without stop when the controller is turning on.
 - A; Check if the working model is setting at 0, if setting at other model without installation of synchro, the motor will run without stop.
 - B; Please check if the position of alnico within speed adjustor changed. The method is as belowed mentioned:
Open the plastic cover of speed adjustor, loose the fixed screw. Then adjust the position of swinging arm (picture 35 is the position oof swinging arm when working), make the alnico within swinging arm on the right up of hall, generally, the machine could stop. If not, adjust the position again by clockwise.



6. Nixietube alternate displays E1
This condition shows the motor has operational failure, please check if the sewing material is too heavy or the machine needs lubrication.
7. Nixietube alternate displays E2
This condition shows the motor is overcurrent or undervoltage, please check if the power supply voltage is normal, the normal poer supply voltage should be from 200V and 240V.
8. Nixietube alternate displays E3
You need to cut off the power and then turn it on again.
9. If the protective tube is burnt on boot-start, and the error still exist when change a new protective tube, please contact to distributor locally.
10. If there is any other error which not included above, please contact with distributor locally.

七. SETTING OF CONTROL BOX

- P is the user setting interface, F is the facotry setting interface.
- The way to cut over from P to F: Press botton F first, and then press P together with F, when the liquid cristal box shows F which means factory setting interface.
- There are two parameters under P interface.
 - V shows speed setting, from 0-9.
 - B show running direction setting, 0 means clockwise running, 1 means inverse hours running.
- There are seven parameters under interface F.
 - M is working model setting, 0 means ordinary, 1 means upper and lower needle positioning, 2 mean upper needle positioning.
 - L is speed limitation setting, from 0-9.
 - C is working current setting, from 0-9
 - N is start speed setting, from 0-9
 - U is the upper needle positioning setting, from 0-9

- D is the lower needle positioning setting, from 0-9
- A can store current parameter as windows default, press F, it will be succeed when show OK in the interface, if not, it will shows Er.
- Press P to store the setting finally.

Thanks for your using of the product of ZHEJIANG NEW JACK SEWING MACHINE CO., LTD, please let us know your opinion and suggestion to our product in order to get better service from us.

ZHEJIANG NEW JACK SEWING MACHINE CO., LTD
Telephone for after-sales service
800—8576858