

KAUOHENG

KH-212

OPERATION MANUAL



電腦橫編織機

KH

COMPUTERIZED FLAT KNITTING MACHINE



CONTENTS

I. OUTLINE

1.	Introduction of KH-212.....	1
2.	Specification.....	2
3.	Installation / Environmental conditions.....	3
4.	Transportation, movement and installation.....	4
5.	Installation Work.....	5
6.	Overall View.....	6
7.	Main units and names.....	7
8.	Front and rear cam system.....	16
9.	Cam action.....	17
10.	Cleaning.....	21
11.	Controller.....	22
12.	Operation Bar.....	23

II. OPERATION

◎	Main Menu.....	24
◎	Re-start Knitting.....	26
◎	Edit Main Control.....	28
◎	Edit Pattern.....	42
◎	Edit Piece Area.....	45
◎	Yarn Feeder Position.....	46
◎	Disk Execution.....	47
◎	Demo Execution.....	54
◎	Diagnostic.....	55
◎	System Setting.....	58
◎	Function Key.....	59
◎	Error message.....	60

I. OUTLINE

1. Introduction of KH-212

The KH-212 is a flat knitting machine, developed and manufactured in keeping with the following concepts.

- **Compact** ■ **Light-weight**
- **Space-saving** ■ **High-performance**
- **Efficient** ■ **Economical**

- One feature is the variable stroke steplessly in proportion to the knitting width, thereby eliminating wasteful motion.
- A large memory capacity is provided in order to produce variable knitting patterns.
- The most advanced techniques are adopted high speed USB Flash Drive and 3.5 inch floppy disk drive.
- The take-down device consists of main roller and sub roller. The sub-rollers under the needle beds gap stabilize knitting for better control of the fabric.
- The top tension with knot catcher. Lamps are equipped on the machine.

Kauo Heng Precision Machinery Industrial Co., Ltd.

Address : No. 20, Lane 14, Ho Ping Road, Panchiao, Taipei, Taiwan

TEL : + 886-2-29559258

FAX : + 886-2-29629153

http : // www.kauoheng.com.tw

E-mail : kauoheng@ms58.hinet.net

2. Specification

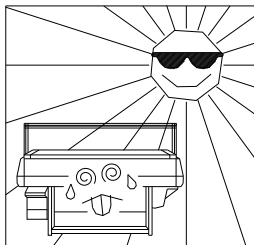
MODEL	KH-212
GAUGE	7G, 10G, 12G, 14G, 16G
KNITTING WIDTH	60" (152CM), 80"(203CM), 100" (254CM)
CAM SYSTEM	Tandem single cam system, twin carriage. Knitting system three-way technique.
KNITTING SPEED	Max 1.2 m/sec. Knitting speed varies according to gauge, yarn and knitting condition.
YARN CARRIERS	12 yarn carriers on 3 double rails.
NEEDLE SELECTION	Full jacquard selection via special solenoids.
TRANSFER	Simultaneous transfer, front or back, independent of carriage direction.
NEEDLE BED	Replaceable segment needle bed.
STITCH DENSITY	30 levels independent selection. Electronic control with stepping motor.
RACKING	Racked by servo motor and high precision ball screw system. Racking 1/2 pitch also available from any position.
FABRIC TAKE DOWN	Main roller / Sub roller: 32 levels changeable speed, automatically adjustable on each level.
STOP MOTION	Yarn break, knot, press off, needle break, shock, over torque, piece count, over run, program error etc.
DRIVE	AC servo motor, tooth shape driving belt, no oil needed. Variable adjustable programmable speed levels.
TOP TENSIONS	Electronic top tensions easy to thread the yarn through.
SAFETY COVER	Full safety cover for anti-noise and dust proofing. Emergency stop buttons.
OPERATION LAMP	Green: normal operation. Yellow: abnormal / manual stop.
FLUORESCENT LAMP	Inside safety cover and fabric take-down.

CONTROLLER

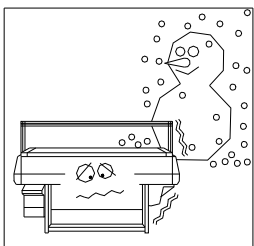
DATA INPUT	USB
OPERATION & DISPLAY	LCD display screen, Chinese and English versions available.
PATTERN MEMORY	1024 x 4096 huge memory
POWER	3 phase AC 220V 50 / 60 HZ

3. Installation / Environmental conditions

Please install the machine as below instructions, in order to use and keep this machine good working condition.

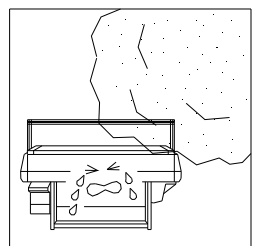


Do not install the machine at a place subject to direct sunshine and/or adjacent to a heat generation source such as a furnace/oven.

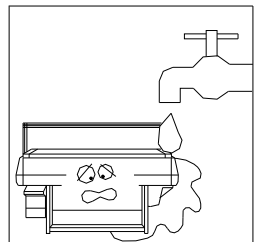


Do not install the machine at a place subject to rapid temperature changes.

The temperature should be 0°C ~ 35°C.

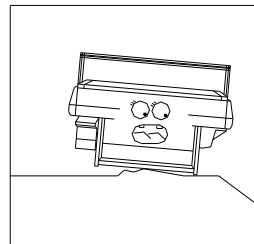


Do not install the machine at a place where there is a lot of dust and dirt, or a location affected by chemical gases, sea breeze etc.

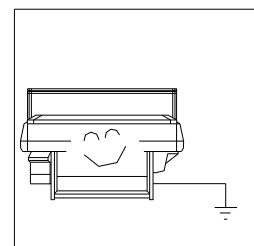


Do not install the machine at a place subject to excessive moisture.

The humidity should be 30 ~ 80%.



Do not install the machine on a slope or unstable place.

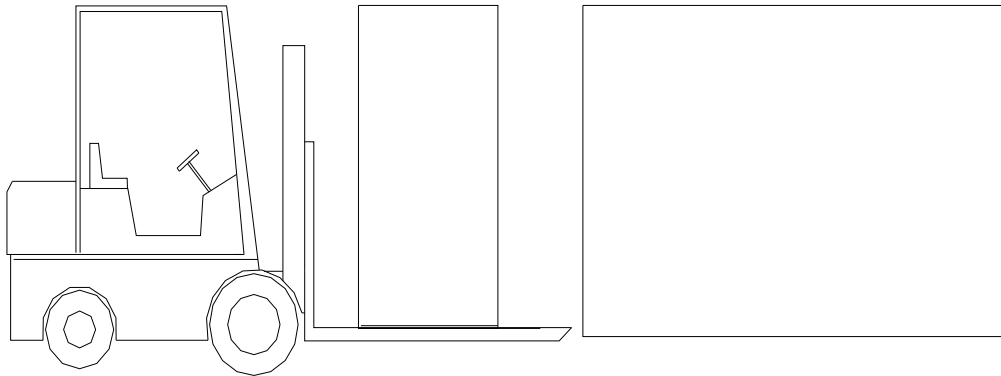


Please connect the electric power and make sure the ground wire is connected correctly.

4. Transportation, movement and installation

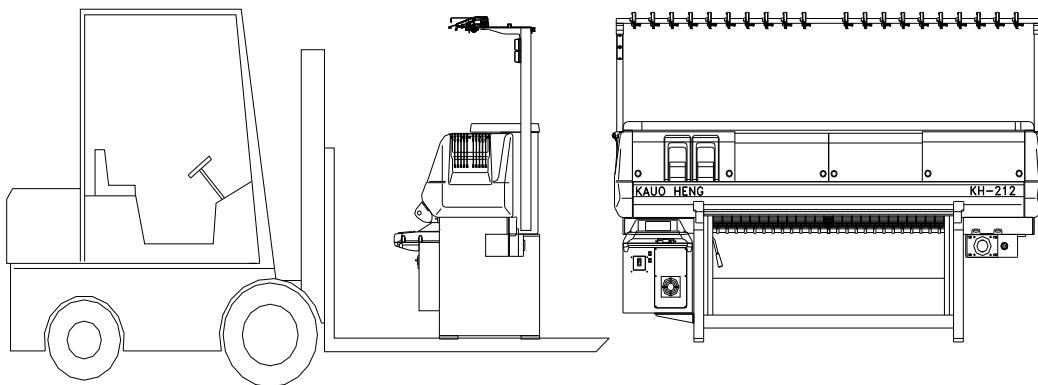
Transportation (package)

Weight : 1800 KGS (80")



Transportation (unpackage)

Weight : 1350 KGS (80")



5. Installation Work

a. The space required for the installation of the machine is as follows : To facilitate access to the machine to pull out the carriages, the distance from any object such as from a wall to the machine must be at least 400 mm.

b. Balance of machine

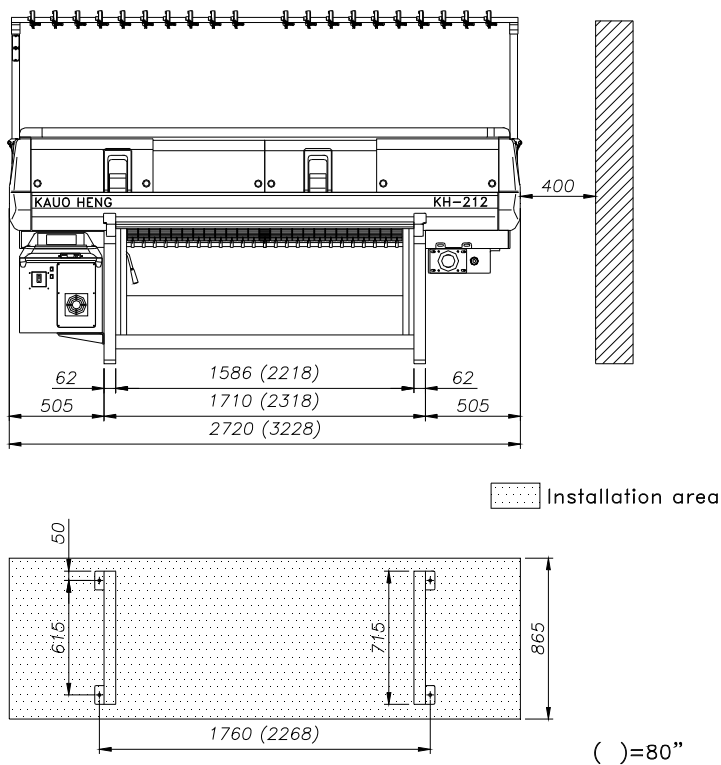
Install the machine and to adjust the machine level by using four balance pad and screw.

c. Power

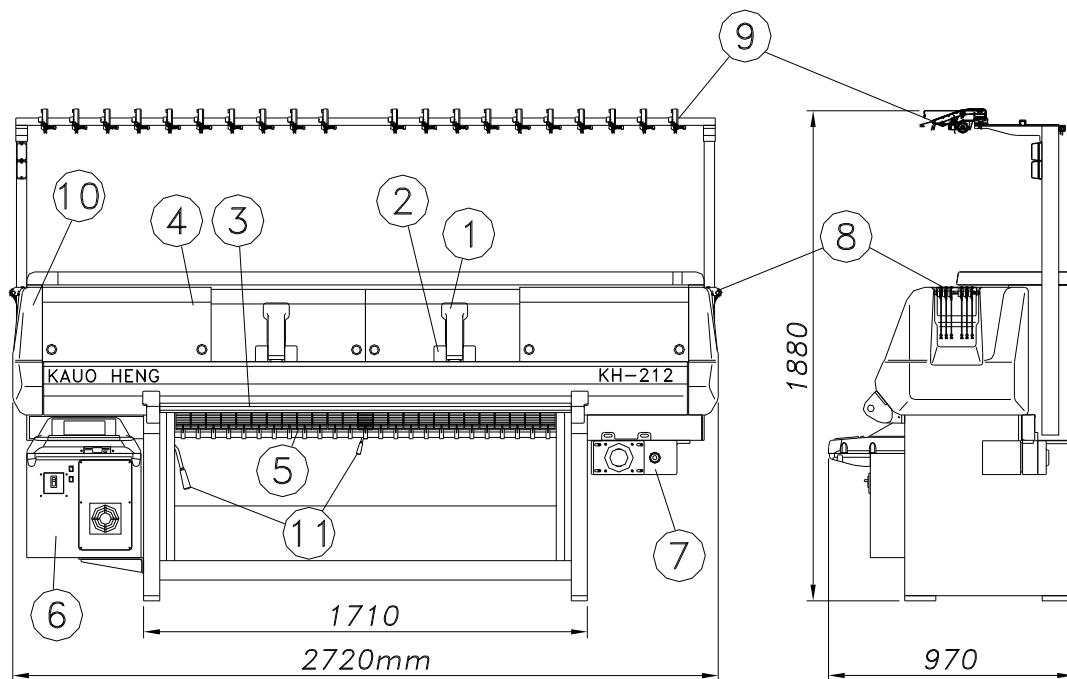
The excess / shortage of line voltage may have an adverse influence upon the successful running of the machine. First, measure the power source and voltage. Second, connect the machine power “ R.S.T.”, cable and earth “E” cable with terminal block.

NOTICE :

Customers are responsible for making sure that floors are structurally sound.



6. Overall View



- | | |
|----------------------------|---------------------------------|
| 1. Yarn carrier selection | 7. Main motor |
| 2. Carriage | 8. Side tension equipment |
| 3. Operation bar | 9. Top tension |
| 4. Main cover | 10. Side cover |
| 5. Fabric take-down roller | 11. Fabric take-down roller bar |
| 6. Controller | |

7. Main units and names

7.1 Top tension

- a. Electronic top tensions are easy to thread the yarn through. The large knot causes machine stop. The small knot causes slow speed then automatically resume at set speed.
- b. Top tension springs should have the correct tension, the opening of the knot-catcher must be set according to the yarn count that is being knitted.

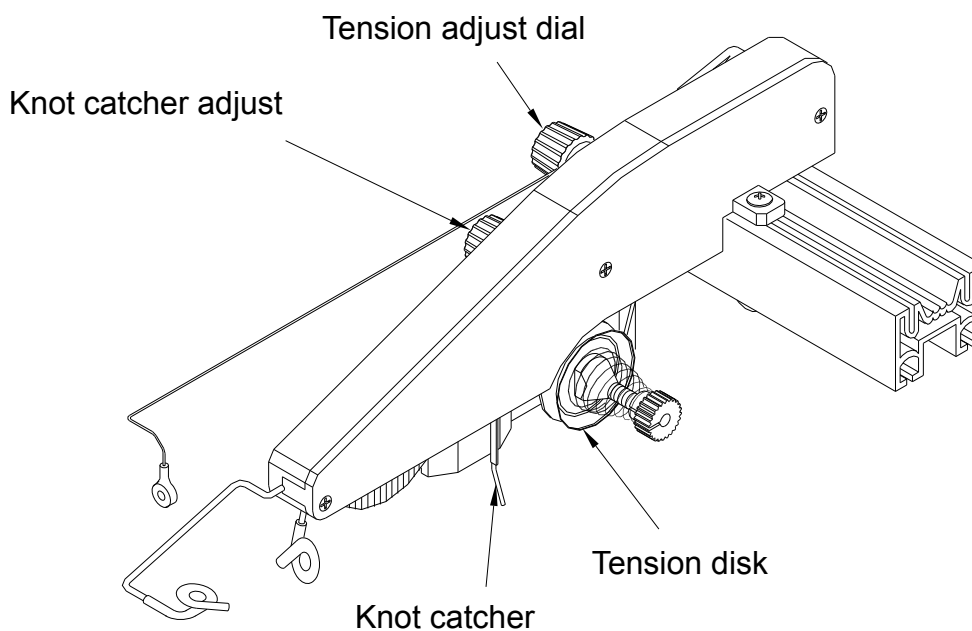


Fig.7.1.1 Top tension

7.2 Fabric take-down system

In principle of the take-down tension strength must be small and average.

The take-down system is controlled by torque motor.

Each roller can be adjusted individually. The pressure of roller gets larger and the speed of take-down gets faster.

To detect fabric falling or wraparound, there is equipped with a press-off detector in the front of roller and a fabric roll-up detector in the back of roller.

The machine will stop automatically when the fabric happens fall or wraparound.

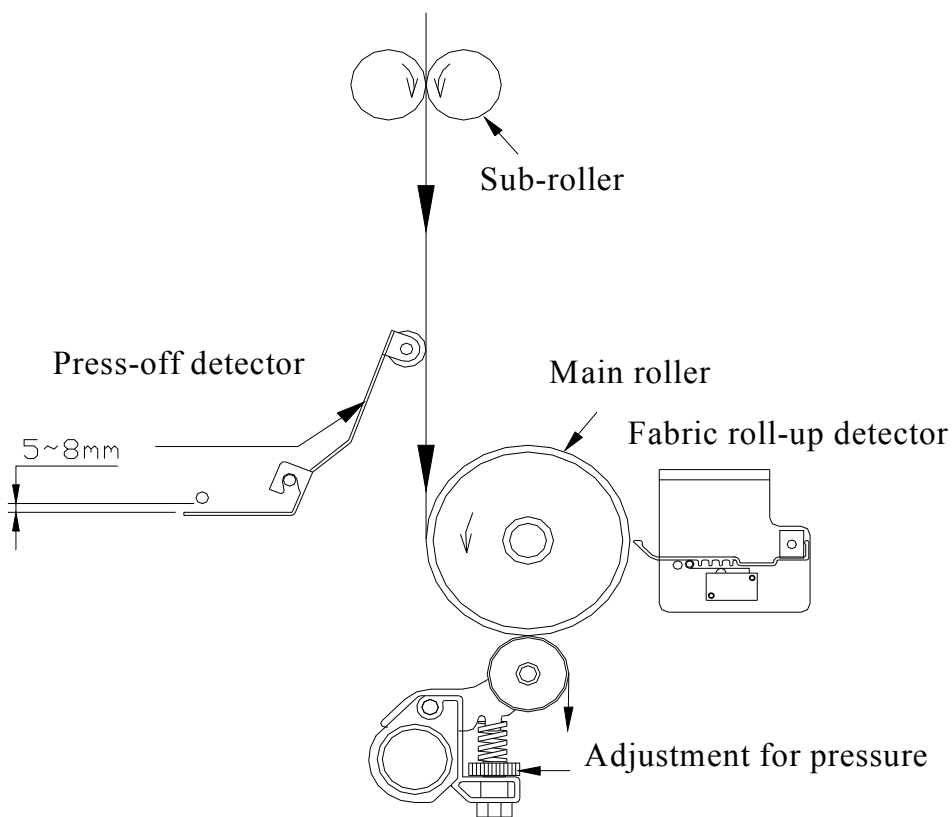


Fig.7.2.1 Fabric take-down system

7.3 Yarn feeder

The position of carrier is adjusted according to the desired knitting width, correctly make yarn feeder beside the end working needle by 10 mm. The yarn feeder must be in the central position between front and rear needles, also check its height refer to Fig.7.3.1. When work several yarn feeder in knitting, the position of carrier should be adjusted to make each yarn feeder not be overlapped, it avoids damage of the parts. The yarn carrier on rail must be adjusted in an easy movement, and adjustment refers to Fig.7.3.2.

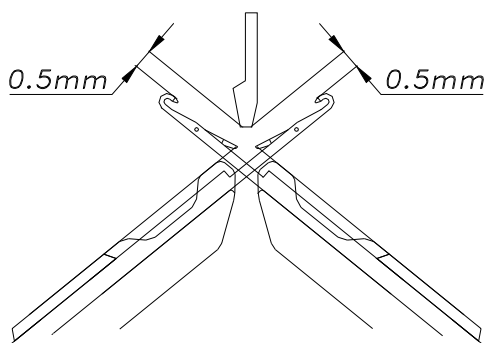
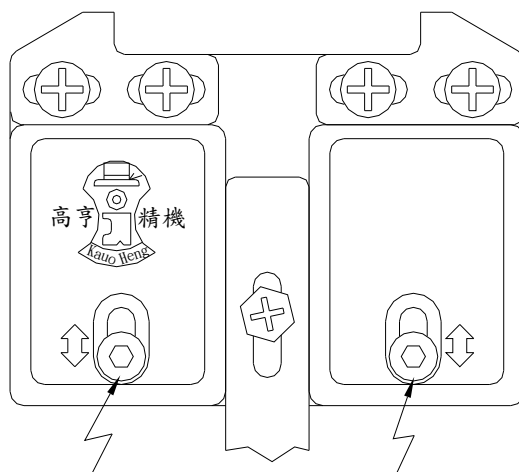


Fig.7.3.1 Position of yarn feeder



Loosen two screws to adjust up & down

Fig.7.3.2 Adjustment of carrier

7.4 The latch brush

The latch brush is important to open needle latch and prohibit the needle latch to close in knitting, and the correct brush setting is illustrated in Fig.7.4.1.

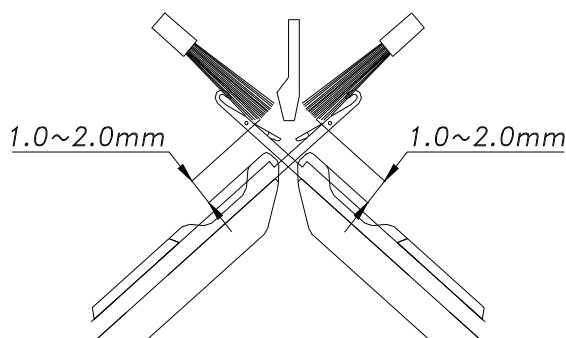


Fig.7.4.1 Correct position of brush

7.5 Cam plate distance

The distance between cam plate and needle bed is maximum 0.1mm, and Fig.7.5.1 shows how to check and adjust. Please check it by every 3 months, loosen the stepped screw and turn the bearing pin to adjust the distance, make sure to tighten the stepped screw after adjustment.

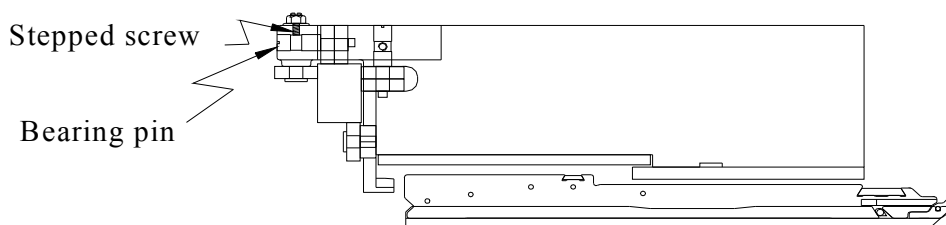


Fig.7.5.1 Adjust cam plate distance

7.6 Remove carriage

When it becomes necessary to remove the carriage, it can be removed from the left hand side or the right hand side. The procedures are as following:

- a. Turn off the power firstly.
- b. Remove the side cover.
- c. Disconnect the two plugs on back of carriage.
- d. Loosen the fitting screw and cap bolt on connecting plates as shown in Fig.7.6.1. Then pay attention to remove the carriage.
- e. After replacing the carriage, it must be confirmed that the plugs, fitting screws and cap bolts are all completely connected, then start machine.

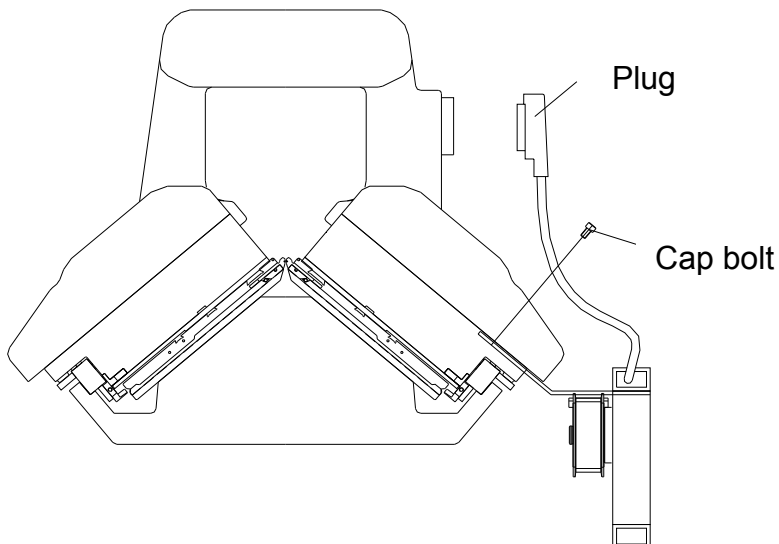


Fig.7.6.1 Remove the carriage

7.7 Carriage combination and separation

Two carriages, you can choose in use of combination or separation by yourself for different knitting production. Please operate combination or separation as follows:

- a. Turn off power.
- b. Fig.7.7.1 is a top overview of carriages.

When you need to change the interval between two carriages, look out the left carriage is fixed permanent, you must move the right carriage.

- c. Remove screw A and take off the connecting-pole, then remove 4 screws B and take off the connecting-block.

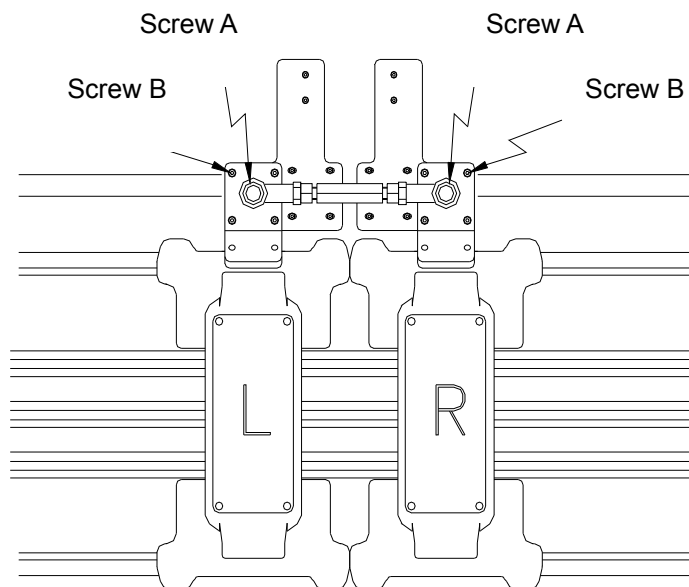


Fig 7.7.1 Combination & separation carriage

- d. In separation position, the connecting- pole must be replaced the longer one. Refer to Fig. 7.7.2 (The distance between the two fabrics should be over 12", from the middle of needle bed is each 6" to left and right side.)

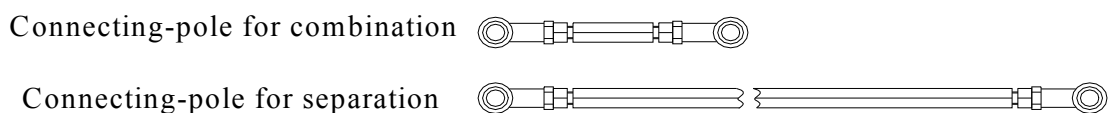


Fig 7.7.2

- e. Move the carriage to the marked position on belt, put on the connecting-pole and fix the connecting-block. Take care of the direction of connecting-block to fix. Refer to Fig. 7.7.3

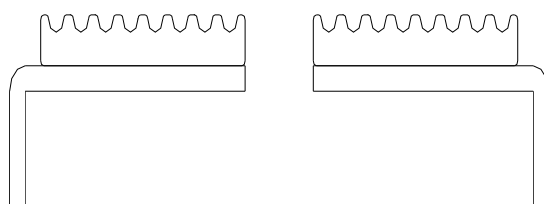


Fig 7.7.3

7.8 Replaceable segment needle bed

The replaceable segment needle bed is with the same transfer needle on front and rear bed also includes moveable sinker equipment.

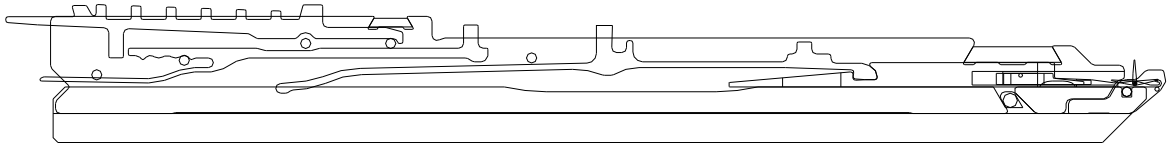


Fig.7.8.1 The Structure of front and rear needle beds

7.9 Racking mechanism

The rear bed can be racked four (4) inch(left right each 2 inches), the initial position"0". See the left selvedge of needle bed, the corresponding position that the first needle of rear is on the left hand side of the first needle of front. As shown in Fig.7.9.1.In editing instruction you can choose the left racking or the right racking by one pitch.

In each racking position the rear bed and the front bed must be kept in correct corresponding relation. You check it with pushing one front needle to tuck position, the hook of front needle and the knock-bit of rear bed should be at the same position.

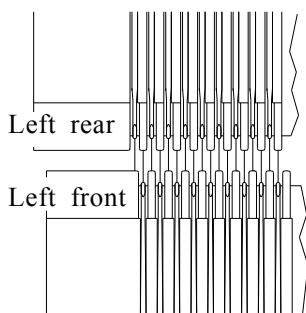


Fig.7.9.1 Initial position of needle bed

If there has racking instruction in programming, you must enter the test mode to rack the needle bed in the set position before you execute run, and make sure the racking mechanism is matched your programming.

If the corresponding position of needle bed is not proper, loosen the stepped screws and adjust the rear bed to correct position, then tighten the stepped screws after adjustment. Refer to Fig.7.9.2.

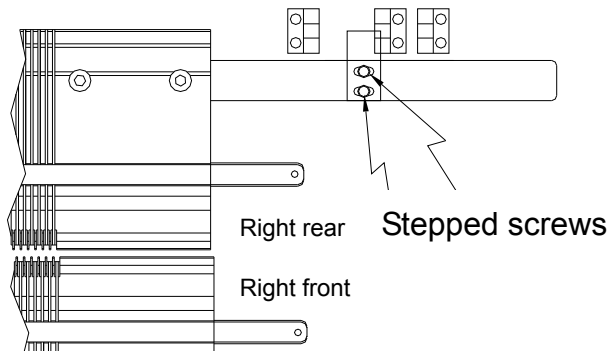
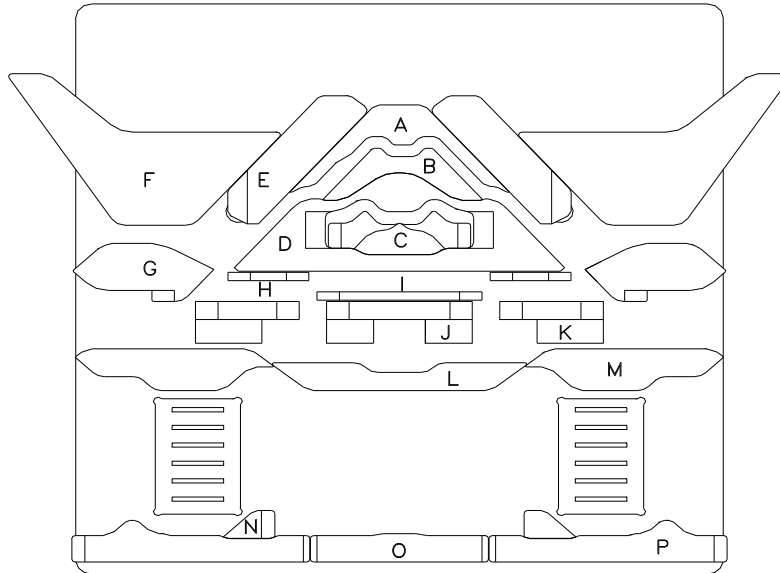


Fig.7.9.2 Adjusting the position of needle bed

8. Front and rear cam system

KH-212 the cam system of front and rear beds is the same.



- | | |
|-------------------------------|-------------------------------|
| A Transfer guide cam | I Tuck presser cam |
| B Transfer raising cam | J Presser cam |
| C Transfer receive cam | K Presser cam |
| D Needle raising cam | L Selector guide cam |
| E Stitch cam | M Selector guide cam |
| F Needle guide cam | N Selector raising cam |
| G Needle guide cam | O Selector guide cam |
| H Receive presser cam | P Selector guide cam |

9. CAM ACTION

In graphs show the usual kinds of cam active situation.

“ARROW” is the direction of carriage. “CROSS-LINE” is out of action

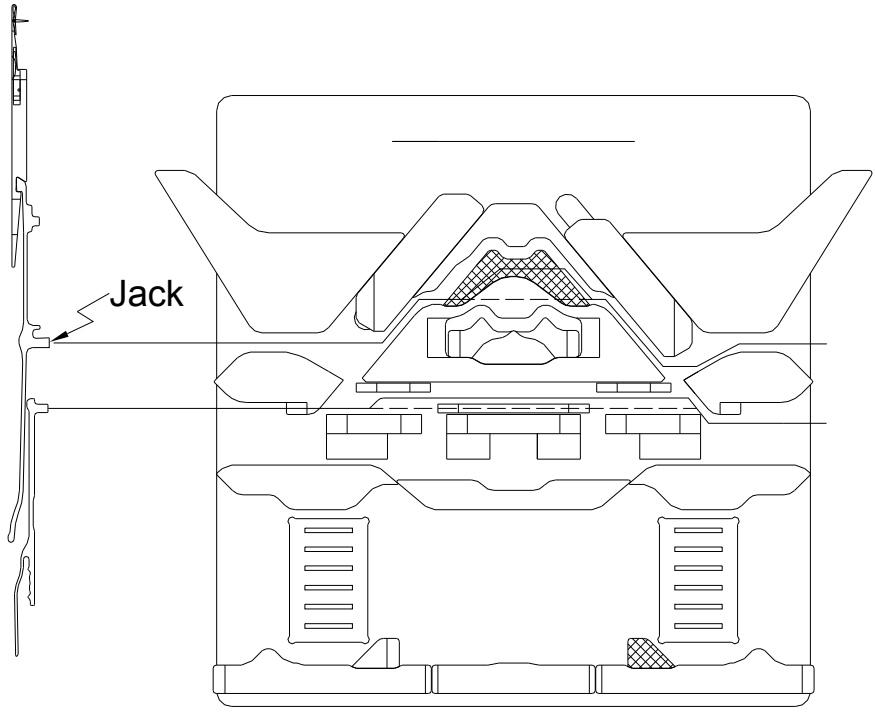


Fig 9.1 KNIT & TUCK

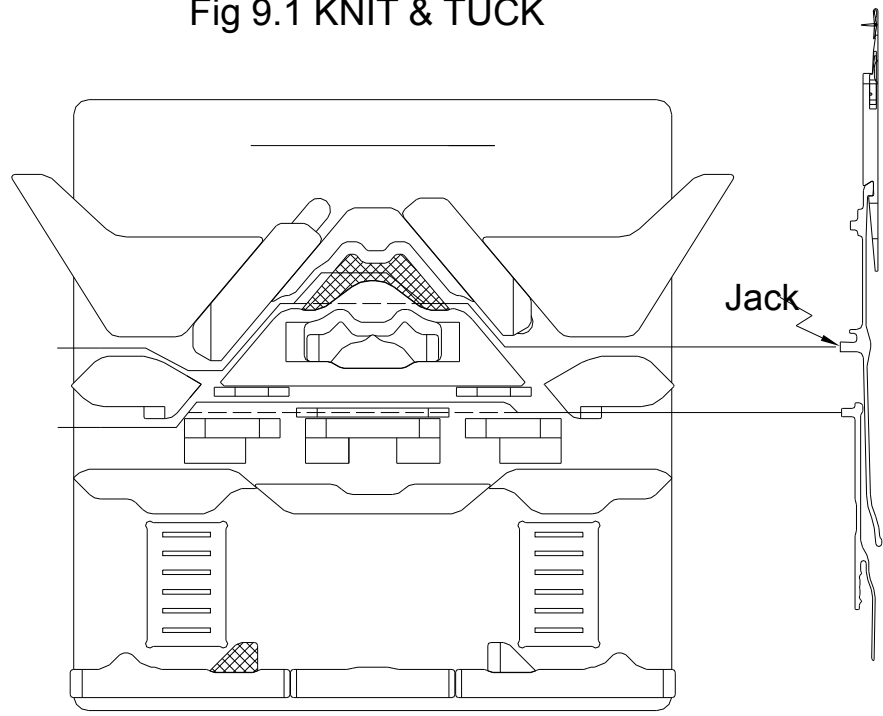


Fig 9.2 KNIT & TUCK

CAM ACTION

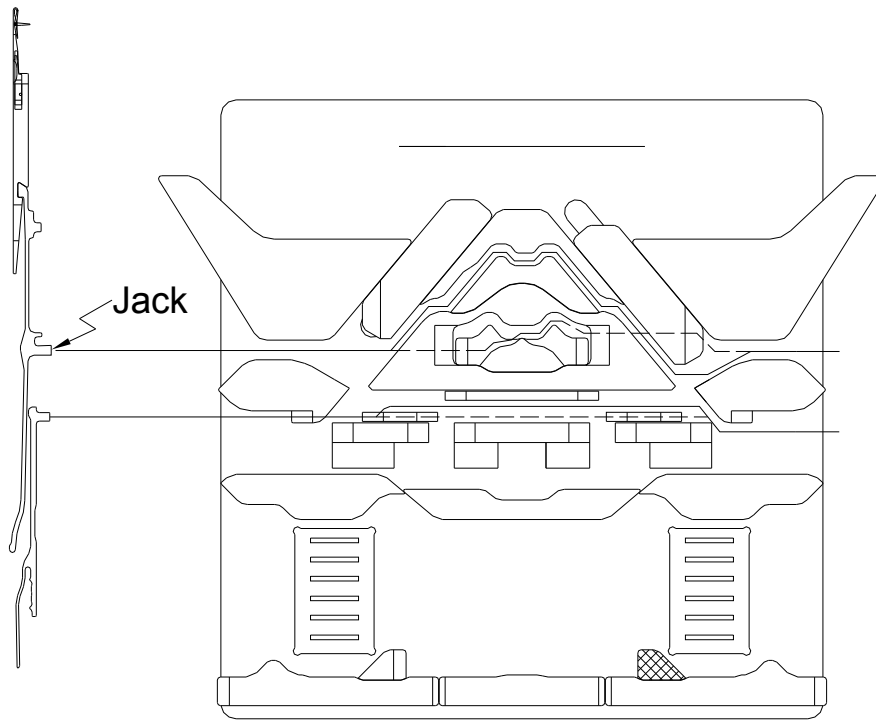


Fig 9.3 TRANSFER & RECEIPT

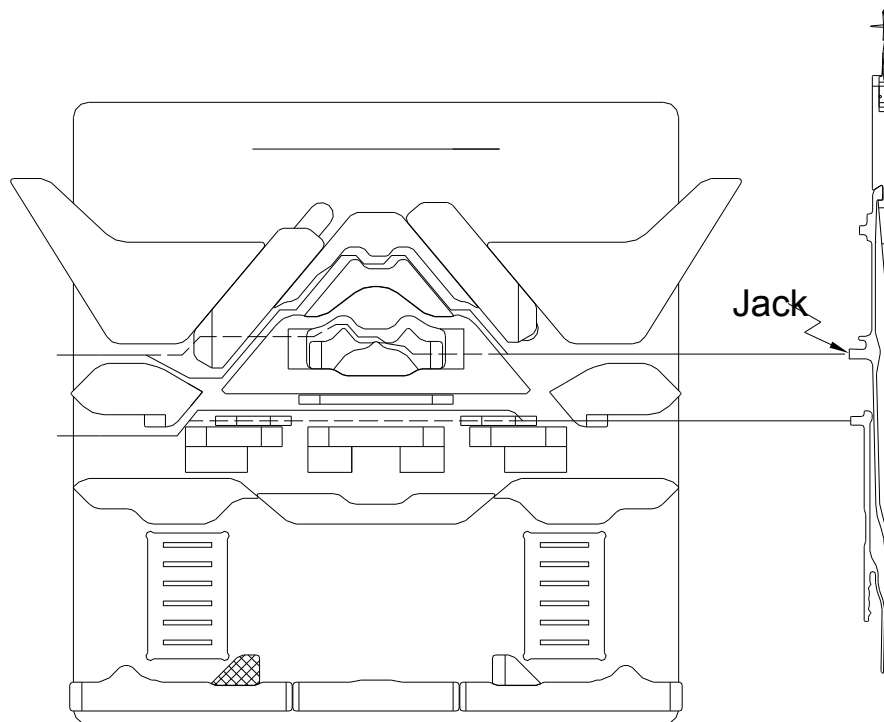


Fig 9.4 TRANSFER & RECEIPT

CAM ACTION

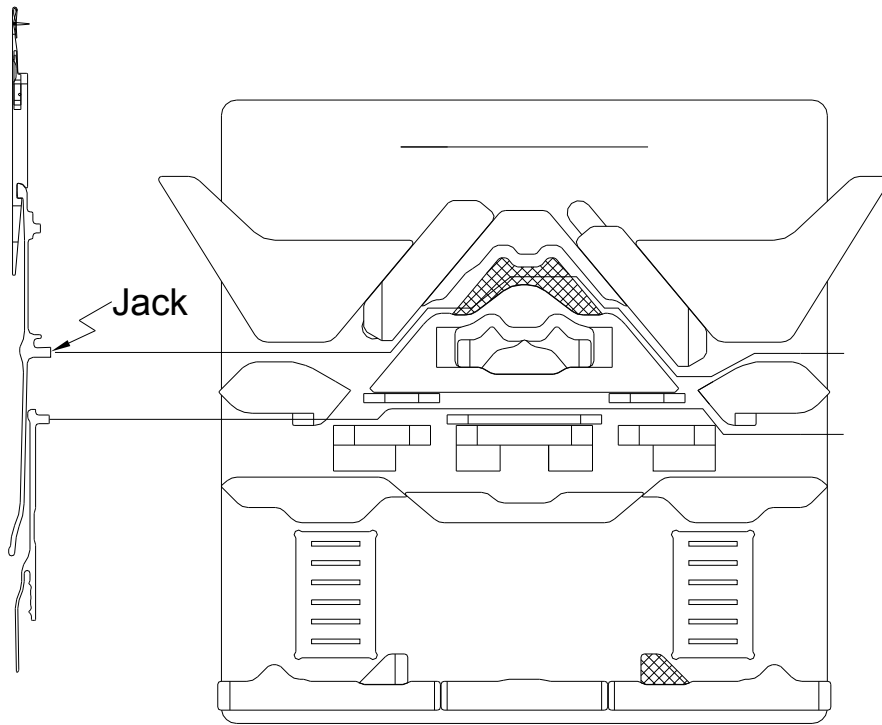


Fig 9.5 KNIT

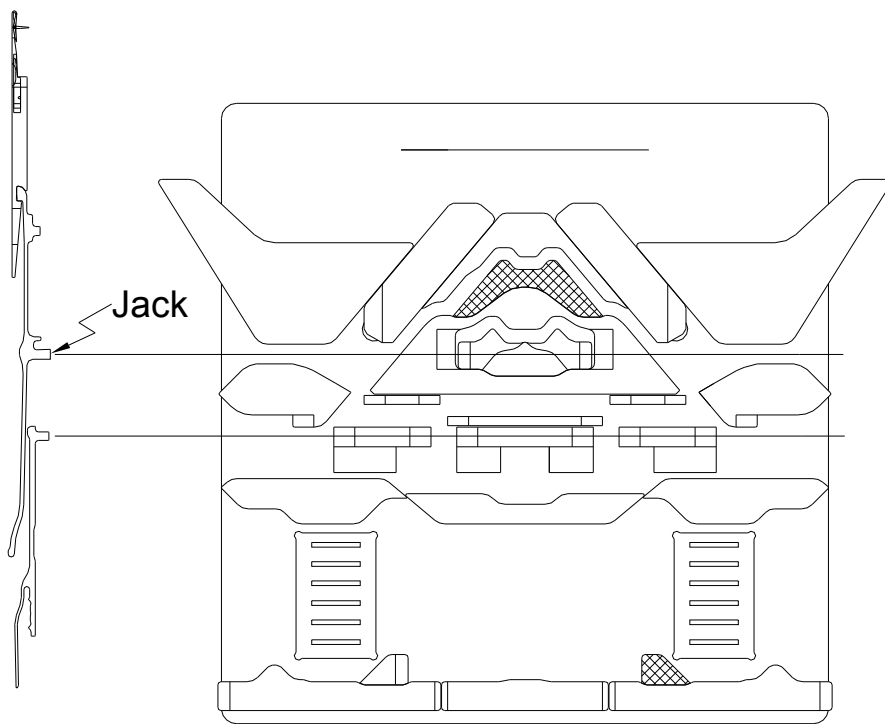


Fig 9.6 MISS

CAM ACTION

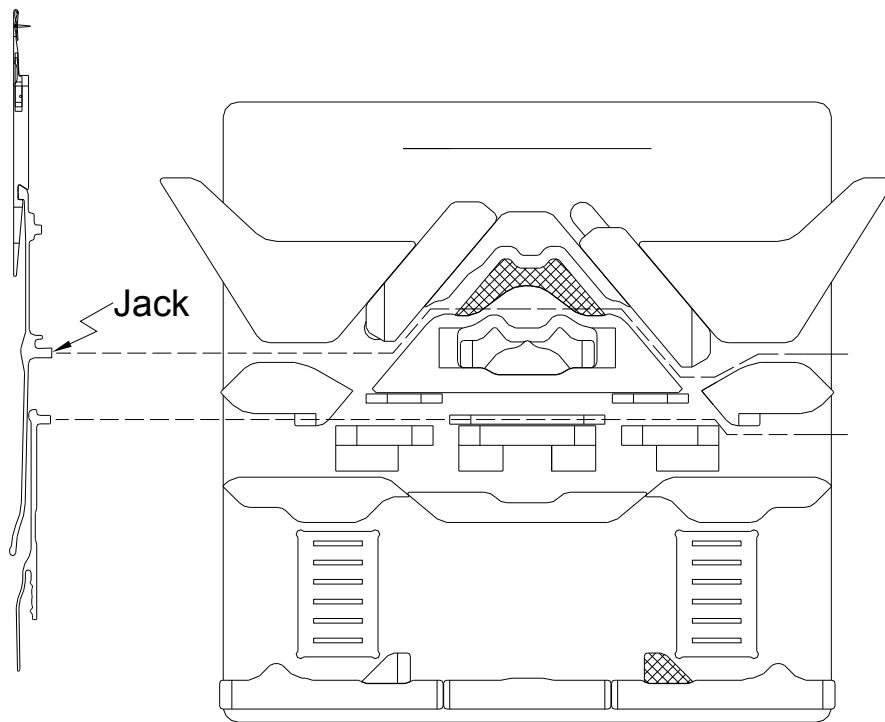


Fig 9.7 TUCK

10. Cleaning

Maintenance: daily

- a. Clean the yarn dust on the needle, sinker, yarn carrier, yarn carrier rail, carriage, latch brush and top tension and clean the filter.
- b. Clean up the needle bed daily and clean out the yarn dust on the needle bed.
- c. Clean out the yarn dust on the yarn carrier rail and oil the jack, select jack, selector and both sides of the carriage.
- d. Put on the cover. Cleaning Filter : Filters are equipped in the controller and in the parts of main motor, it prohibits dust to come inside. Please take out the filter and dust it off.

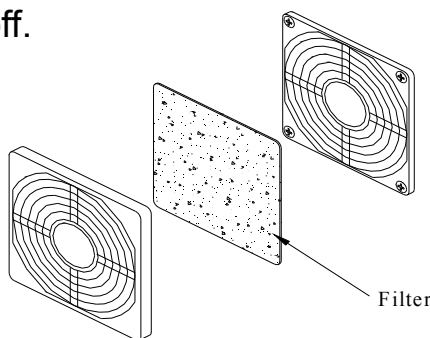


Fig.10.1

- e. After unpacking and locating the machine in the factory, it must be leveled carefully with a spirit-level to avoid machine distortion in running.

Where to oil	Interval
Carrier rails	Every 8 to 12 service hours
Carriage rails	Every 8 to 12 service hours
Carriage guide sliders (front and back)	Every 8 to 12 service hours
Needle bed (front and back), jack, select jack, and selectors	Every 8 to 12 service hours
Inside of carriage	Every month
Ball screw unit	Every month

11. Controller

As Fig.11.1 front side of controller, easily find two switches, one fluorescent Lamp switch and one breaker/power switch. Fig upward is “ON” and downward is “OFF”.

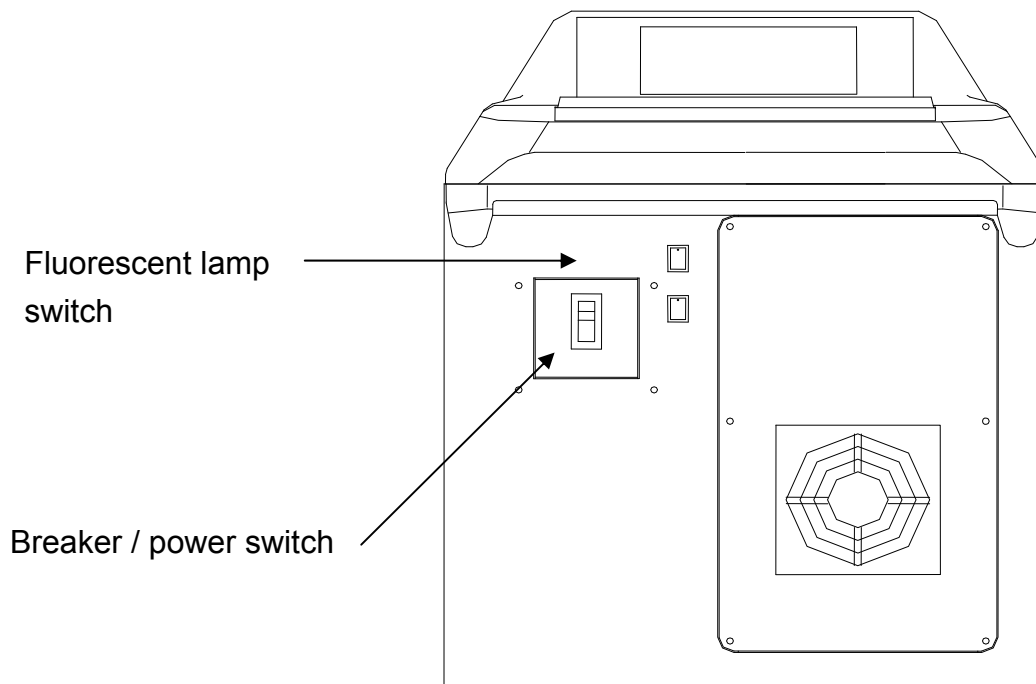


Fig 11.1 Control box

12. Operation Bar

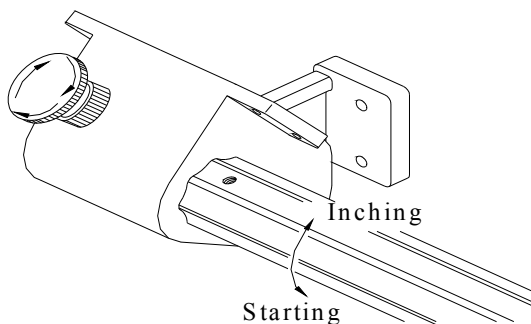


Fig.12.1 Inching and starting

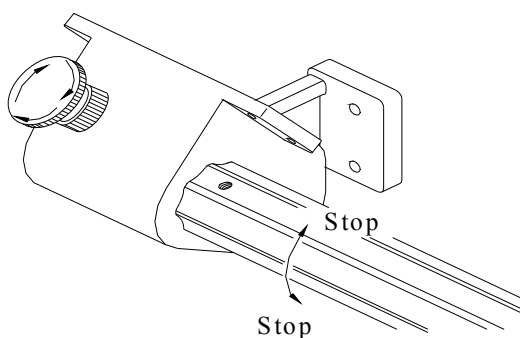


Fig.12.2 Stop

- a. Inching : When turn forward of the operation bar, machine operates slowly and stops when you loosen.
- b. Starting : When turn backward of the operation bar, machine starts. Machine starts from slow speed and runs in preset speed when reaching the first terminal sign.
- c. Stop : When the machine is running, and you can turn operation bar in any direction to stop machine.

II. OPERATION

◎ Main Menu

- a. Flip the breaker switch on the front side of the controller to ON. Then display MAIN MENU.
- b. Press ON green key to start servo motor.
- c. How select each required menu:

Use arrow key ↑ ↓ ← → to move cursor to the required menu, the press ENTER.

```

*****
**          KAUO   HENG          **
**          MAIN   MENU          **
*****

                                          V-2.18N6
1. Re-Start Knitting                    V-2.15N6
2. Continuous Execution
3. Edit Main Control
4. Edit Pattern
5. Edit Piece Area
6. Yarn Feeder Start Position
7. Disk Service
8. Demo Execution
9. Diagnostic Input
10. Diagnostic Output

```

■ Preparation for machine running

1. Switch on the power

↓

2. Press the green button ON (main servo motor)

↓

3. Move the carriage to the left / Yarn feeders return to zero position (1-8 four systems)

↓

4. Main menu → 1. Re-Start Knitting → Press key

↓

5. → Press key

5. Continuous knitting

↓

6. Start operation Bar

↓

Carriage is moving automatically to zero position.

↓

1st cam 5 sec to reset

↓

2nd cam 5 sec to reset

↓

Rack to the R0 position

↓

Knitting mode screen

◎ RE-START KNITTING

Move cursor to “1.Re-start knitting” and press **Enter** key.

Screen appears “Start operation bar”.

Turn the operation bar, in carriages the cam, stitch and racking etc.

Come to zero position automatically and appears “Knitting mode” Screen.

*** Knitting Mode ***		Step:1	→
Piece : 9999 / 0000	Course: 888 / -1		
Time : 00 : 00 : 00 / 00 : 00 : 00	NDL.POS: -59		
Shock :5	System-L	System-R	
Rear			
Front	→		
	K		K
Yarn 0	0		STOP
	PAT. ADRES	P.set	Stitch [0 0 / 0]
Rear	0	0	0 0
	→	→	→
Front	0	0	0 0
Speed [2] : 0.70	T.down [0] : 0 - 0	[0] : 0	[0] : 0
T.ADJ [1] : 0	Racking :	Piece [0]	
Y.Stop [1] : 0	Economy :		

■ Detail for knitting mode

1. Step : working step position
2. → : direction
3. Piece : Set piece / finished piece ※ press : 『 shift + number 』
4. Course : Total course / working course
5. Time : Total time / working time
6. NDL.POS : Needle reading position
7. Shock : Sensitivity of shock sensor Set value : 1(low)~9(high)
※ press : shift + number
8. System L, System R : 1+1 cam (separation)
System 1, System 2 : 2 cams (combination)
9. YARN FREEDER : Yarn feeder 1~6
10. PAT ADRES : Pattern courses
11. P. set : Pattern setting for front and rear beds
12. Stitch : Setting stitch value of fabric
13. Speed : Machine speed
14. T. down : T. down set / reverse, Sub. T. down set / open-close set
15. Turn ADJ : carriage return distance from the knitting area
16. Racking : Rack the needle bed
17. Piece : Set “0” : 1 pc, Set “1” : 1~8 pcs
18. Y. Stop : Yarn stop position
19. Single : Single cam working on left side or right side
20. Economy : JUMP course / repeat times / finished times

◎ **EDIT MAIN CONTROL**

Edit and change the programming data in the required knitting.

Move cursor to “3.Edit Main Control” and press Enter ↵ key.

It will enter “Control Data “screen.

** Control Data **		[]	Tab=
KeyFunc				
Step : 1		System – L		System – R
R ADRS	1	+	–	1 + –
E Knit				
A Tuck				
R Tran				
Yarn	1			1
F ADRS	1	+	–	1 + –
R Knit	3			3
N Tuck				
T Tran				
P.Set-R : 1 / 1	Racking : R0			Stitch : 2 /
P.Set-F :	Economy :			Speed :
Yarnstop : 1	Step : /			T.down : 2 / 2 / 2
TurnADJ : 1	Count :			Piece : 0

■ Explanation for edit main control

When edit new Main-program it must be in the step No.1 of main program and preset Racking and sub-program then can do exit.

P.set-R, P.set-F, Yarn Stop, Turn ADJ, Stitch, Speed, T.down / Sub.T.down and Piece etc. Total 8 sub-program

Attention: Piece preset 0, Racking preset R0, ADRS and others preset 1, after then edit by required data.

In main program has available 1 to 4096 steps for edit.

1. System - 1 and system - 2 :

Shown in screen when run combinative carriage for double system

2. System - L and System - R :

Shown in screen when run separate carriage for single system

3. ADRS : Select the course in the file in Edit Pattern

4. Knit : Select the code in the file in Edit Pattern

5. Tuck : Select the code in the file in Edit Pattern

6. Tran : Select the code in the file in Edit Pattern

7. Yarn : Set feeder No.1 to 6

8. P. set – R : In the Rear pattern setting data , range from 1 to 16

9. P.set – F : In the Front pattern setting data, range from 1 to 16

10. Yarn Stop : Set Yarn stop, range from 1 to 8

11. Turn ADJ : Set carriage return distance, range from 1 to 4

12. Racking : R is racked to the right side, L is racked to the left side

13. Economy : (a) Set JUMP for repeat. (b) Set END for end of program

14. Step : Jump to required step number for repeat, available repeat in single step

15. Count : How many time of repeat

16. Stitch : Set Stitch data, range from 1 to 30

17. Speed : Set Speed data, rang from 1 to 32

18. T.down / Sub.T.Down :

Set Take - down data/Sub take-down data, range from 1 to 32

19. Piece : Set “0” : 1 pc, Set “1” : 1~8 pcs

■ Tab Key Function

Show function key in edit main program.

Control Data Function Code :

***	Control Data Function Code	***
	F1 : Stitch Data	
	F2 : Speed Data	
	F3 : Pattern Set	
	F4 : Turn / Yarn Stop	
	F5 : Pattern Data	
	F6 : Jump to any step	
	F7 : Copy any step	
	F8 : N~N Step Delete	
	F9 : Step Clear	
	F10 : N~N Step Clear	
	Shift + F9 : Step Insert	
	Shift + F10 : Step Delete	
	Ctrl + → : Copy Left To Right	
	Ctrl + ← : Copy Right To Left	



■ Function key in editing of main program

F1 : Stitch data

Press **F1** key and screen is showing :

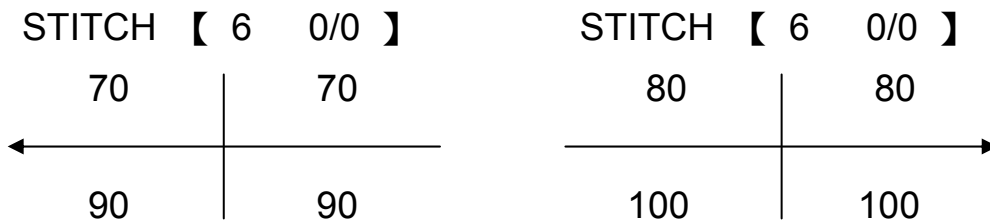
▼ Stitch Data :

("ALL" CAN NOT BE SET THE VALUE AS "0")

*** Stitch Data ***					[.STI]					
←	SYS -1		SYS -2			SYS-2		SYS-1		→
	FT	RR	FT	RR	ALL	FT	RR	FT	RR	
1 :	0	0	0	0	60	0	0	0	0	
2 :	0	0	0	0	65	0	0	0	0	
3 :	0	0	0	0	70	0	0	0	0	
4 :	0	0	0	0	75	0	0	0	0	
5 :	0	0	0	0	80	0	0	0	0	
6 :	90	70	90	70	X	100	80	100	80	
7 :	0	0	0	0	100	0	0	0	0	
8 :	0	0	0	0	110	0	0	0	0	
9 :	0	0	0	0		0	0	0	0	
10 :	0	0	0	0		0	0	0	0	

F9: ALL Clear +: Plus -:Minus

KNITTING MODE :



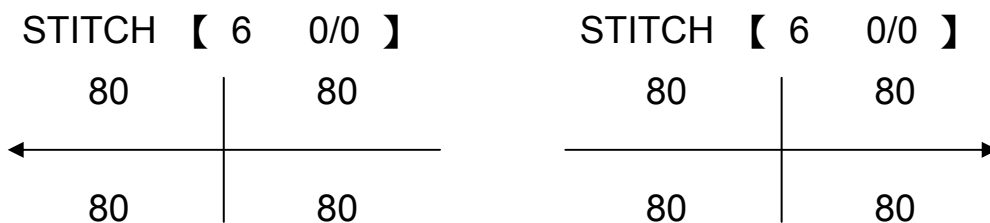
▼ Stitch data :

1. If set stitch value in ALL then value of left & right systems are same two of ALL.

*** Stitch Data ***					[.STI]					
←	SYS -1		SYS -2			SYS -1		SYS-2		→
	FT	RR	FT	RR	ALL	FT	RR	FT	RR	
1 :	0	0	0	0	60	0	0	0	0	
2 :	0	0	0	0	65	0	0	0	0	
3 :	0	0	0	0	70	0	0	0	0	
4 :	0	0	0	0	75	0	0	0	0	
5 :	0	0	0	0	80	0	0	0	0	
6 :	90	70	90	70	80	100	80	100	80	
7 :	0	0	0	0	100	0	0	0	0	
8 :	0	0	0	0	110	0	0	0	0	
9 :	0	0	0	0		0	0	0	0	
10 :	0	0	0	0		0	0	0	0	

F9: ALL Clear +: Plus -: Minus

KNITTING MODE :



2. Move cursor by arrow key o the required area to input or change.

3. Stitch value is from 0 to 220

4. F9 : clean all value + : increase value - : reduce value

5. Press ESC key to exit and return.

■ **F2** : Speed Data

Press **F2** key and screen is showing :

▼ Main speed / Take Down Speed / Sub Take down Speed :

```

***          Main Speed / Take Down          ***
          File Name : [          .ABS ]
--      Speed Data ( 1~120 )  --
1 : 80 12 : 1  23 : 1
2 : 70 13 : 1  24 : 1
3 : 1  14 : 1  25 : 1
4 : 1  15 : 1  26 : 1
5 : 1  16 : 1  27 : 1
6 : 1  17 : 1  28 : 1
7 : 1  18 : 1  29 : 1
8 : 1  19 : 1  30 : 1
9 : 1  20 : 1  31 : 1
10 : 1 21 : 1  32 : 1
11 : 1 22 : 1
F9 : ALL Clear

```

1. Move cursor by arrow key to the required area to input or change.
2. Main speed value is from 1 to 120.
- 3.F9 : clean all speed data and reset.
4. Speed data must be set.
5. Press Fn+ ↑ or Fn + ↓ to enter Sub Take Down screen
or Main Take Down screen
6. Press **ESC** to exit.

▼ Main Take Down screen :

```

***   Main Take Down   ***
                                File Name : [           .ABS ]
--  MainTakedown ( 0~99 )  Turn ( 0~99 )  --
1 : 30 / 35   12 : 0 /0   23 : 0 /0
2 : 40 /45   13 : 0 /0   24 : 0 /0
3 : 0 /0     14 : 0 /0   25 : 0 /0
4 : 0 /0     15 : 0 /0   26 : 0 /0
5 : 0 /0     16 : 0 /0   27 : 0 /0
6 : 0 /0     17 : 0 /0   28 : 0 /0
7 : 0 /0     18 : 0 /0   29 : 0 /0
8 : 0 /0     19 : 0 /0   30 : 0 /0
9 : 0 /0     20 : 0 /0   31 : 0 /0
10 : 0 /0    21 : 0 /0   32 : 0 /0
11 : 0 /0    22 : 0 /0
F9 : All Clear

```

1. Move cursor by arrow key to the required area to input or change.
2. Main Take down value 0~99 / Turn 0~99
3. F9 : clean all speed data and reset.
4. Press PgDn to enter Sub Take Down / Open Close, Auto Take Down screen
5. Press ESC to exit.

Press PgDn :

▼ Sub Take Down / Open Close screen :

*** Sub Take Down / Open Close ***					
File Name : [.ABS]		
-- SubTakedown (0~99)			S.T.D.Open (0~99) --		
1 : 65	12 : 0	23 : 0	1 : 60	12 : 0	23 : 0
2 : 70	13 : 0	24 : 0	2 : 60	13 : 0	24 : 0
3 : 0	14 : 0	25 : 0	3 : 0	14 : 0	25 : 0
4 : 0	15 : 0	26 : 0	4 : 0	15 : 0	26 : 0
5 : 0	16 : 0	27 : 0	5 : 0	16 : 0	27 : 0
6 : 0	17 : 0	28 : 0	6 : 0	17 : 0	28 : 0
7 : 0	18 : 0	29 : 0	7 : 0	18 : 0	29 : 0
8 : 0	19 : 0	30 : 0	8 : 0	19 : 0	30 : 0
9 : 0	20 : 0	31 : 0	9 : 0	20 : 0	31 : 0
10 : 0	21 : 0	32 : 0	10 : 0	21 : 0	32 : 0
11 : 0	22 : 0		11 : 0	22 : 0	
F9 : All Clear					

1. Move cursor by arrow key to the required area to input or change.
2. Sub Take down value 0~99
3. Open Close value 0~99
4. F9 : clean all speed data and reset.
5. Press PgDn to enter Auto Take Down screen
6. Press ESC to exit.

▼ Auto Take Down / Open Close screen :

*** Auto Take Down ***											
File Name : [.ABS]											
	Needle		Speed		M.T.D		S.T.D		Open		
No.	MIN	MAX	MIN	MAX	MN	MX	MN	MX	MN	MX	
33 : 0	-	0	1	-	1	0	-	0	0	-	0
34 : 0	-	0	1	-	1	0	-	0	0	-	0
35 : 0	-	0	1	-	1	0	-	0	0	-	0
36 : 0	-	0	1	-	1	0	-	0	0	-	0
37 : 0	-	0	1	-	1	0	-	0	0	-	0
38 : 0	-	0	1	-	1	0	-	0	0	-	0
39 : 0	-	0	1	-	1	0	-	0	0	-	0
40 : 0	-	0	1	-	1	0	-	0	0	-	0
F9 : All Clear											

1. **Needle** : MIN : Min. knitting width of needle
MAX : Max. knitting width of needle
2. **Speed** : MIN : Min. knitting width of speed
MAX : Max. knitting width of speed
3. **M.T.D** : MIN : Min. knitting width of M.T.D
MAX : Max. knitting width of M.T.D
4. **S.T.D** : MIN : Min. knitting width of S.T.D
MAX : Max. knitting width of S.T.D
5. **Open** : MIN : Min. knitting width of Open
MAX : Max. knitting width of Open

■ F3 : Pattern Set

Press **F3** key and screen is showing :

Pattern Setting :

NO.1	CODE	SET	RESET	START	END
1 :	INC	1	200	1	
2 :					
3 :					
4 :					
5 :					
6 :					
7 :					
8 :					
9 :					
10 :					
11 :					

*** Pattern Setting *** [.PST]

F1 : Inc F2 : Dec F3 : Rept F4 : Cont F9 : Clear

1. Use arrow key to move cursor to the required place for input or change.
2. F9 : All Clear
3. Press **ESC** key to exit.

▼ CODE : the content of pattern, set F1- F4

F1 Inc, Increment :

This places the pattern from the set needle to the reset needle, beginning with the Star Wale No. and continuing in order of Wale No.

F2 Dec, Decrement :

This places the pattern from the set needle to the reset Needle beginning with the Star wale No. and continuing in reverse order of Wale No.

F3 Rept , Repeat :

This repeats the contents from Repeat Start Needle No. to Repeat Finish Needle No. between the set needle and the reset needle.

F4 Cont, Continuance :

This places the pattern where the designated Start wale No. in the horizontal direction, continuing the pattern from the designated set needle to the rest needle.

SET : The needle No. of beginning on which the pattern is placed

RESET : The needle No. of ending on which the pattern is placed

START : In start wale No., indicate the optional wale No. of the pattern. The pattern is called up from here. END: In end wale No., indicate the optional wale No. of the pattern. The pattern is called up from here.

F9 Clear : Clear screen

■ **F4** : Turn ADJ

Press **F4** key and screen is showing :

Carriage return distance / Yarn feeder set position.

Carriage return distance		[.YRN]	
1 : 0	2 : 0	3 : 0	4 : 0		
Yarn feeder set position					
←	1 ST	2 ND	ALL	2 ND	1 ST →
6 : 0	0	6	0	0	
5 : 0	0	6	0	0	
4 : 0	0	6	0	0	
3 : 0	0	6	0	0	
2 : 0	0	6	0	0	
1 : 0	0	6	0	0	
F9 : All Clear		+ : Plus		- : Minus	

1. Use arrow key to move cursor to the required place for input or change.
2. Input or change the data.
- 3 Press **ESC** key, exit and return.

※ Carriage return distance have 4 ranges, the setting is to extend the return distance of carriage to the left side and to the right side.

※ Yarn feeder set position is to set the position of yarn feeder.

4. If set value in the place of ALL, their stitches values are main.

■ FUNCTION

F5 : Pattern Data

Press F5 key and be shown on screen.

F6 : Jump to any step

Input the required step No. to jump.

Shown on screen : Jump Step → ____

F7 : Copy any Step

Input the required step No. to copy.

Shown one screen : Copy step ____ ~ ____ → ____

F8 : Step delete

Input the required step No. to delete.

Shown on screen: Delete step ____ ~ ____

F9 : Step Clear

Clear this step on screen.

Shown on screen: Step clear (Y = Yes) ? __

F10 : N~N Step Clear

Clear all the required steps.

Shown on screen: Clear step ____ ~ ____

Shift + F9 : Step insert, input the required blank step.

Shift + F10 : Step delete, delete this step on screen.

Ctrl + → : Copy left to right

Ctrl + ← : Copy right to left

◎ EDIT PATTERN

Select 4. Edit pattern in main menu, press Enter key and be shown on screen.

X : 1	Y : 1	File Name :	[.DES]
Start :	1 , 1	End :	1 , 1	→
.....				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
. . . 1111111111112222221111111111112222221				
F 1 : Jump F 2 : CHG. F 3 : Start F 4 : Set F 5 : Copy				
F 6 : Move F 7 : InsW F 8 : DelW F 9 : InsC F10 : DelC				

Set symbol of Edit Pattern with 0~9 and A~F to represent pattern

■ Explanation for edit pattern

Key board operation and function as below.

1. EDIT NEW PROGRAM.
2. Press 2 key and be shown on screen.

Wale _____

Course _____

Y/N ?

If press N key and be shown on screen.

INPUT

Wale?

Press Enter key and be shown on
screen.

INPUT

Course ?

Exit and return to Edit Pattern screen.

▼ Key board operation and function as below.

F1 Jump : Input the required wale and course to jump.

F2 CHG : Change color, after present area (Start: X, Y; End: X, Y)

Press **F2** key to select the code for change. For example:

Input 4 in 1 of area, then all the 1 in area will be changes to 4.

F3 Start : In the required X, Y in preset area, press **F3** key for start point and press **F3** key for end point the finish set area.

F4 Set : Set the required area to change all of them to the same code.

F5 Copy : Copy the required area, the cursor position in the start point, input the time to copy.

F6 Move : Move the required area, the cursor position in the start point, press Enter key.

F7 InsW : Insert wale, increase one wale in X direction.

F8 DelW : Delete wale, delete one wale in X direction.

F9 InsC : Insert course, increase one course in Y direction.

F10 DelC : Delete course, delete one course in Y direction.

Fn + ← : Jump to the first wale.

Fn + → : Jump to the Last wale.

Ctrl + ↑ : Jump to up page.

Ctrl + ↓ : Jump to down page.

1 page : 40 x 9 points.

Finish edit, then press ESC key to exit and return.

◎ EDIT PIECE AREA

In main menu, select 5. Piece Area and press Enter key, screen be shown.

*** Piece Area (Auto) *** [.PCS]			
Piece	Start	End	Yarn
1 :			
2 :			
3 :			
4 :			
5 :			
6 :			
7 :			
8 :			
F9 : All Clear			

Piece Area (Auto) : can separate 1~4 fabrics.

Start : starting needle of each piece.

End : ending needle of each piece.

Yarn : yarn feeder number of each piece.

※Distance between pieces :

If use different yarn feeder number for two pieces, distance is 3"

If use same yarn feeder for two pieces, distance is 8"

◎ YARN FEEDER START POSTION

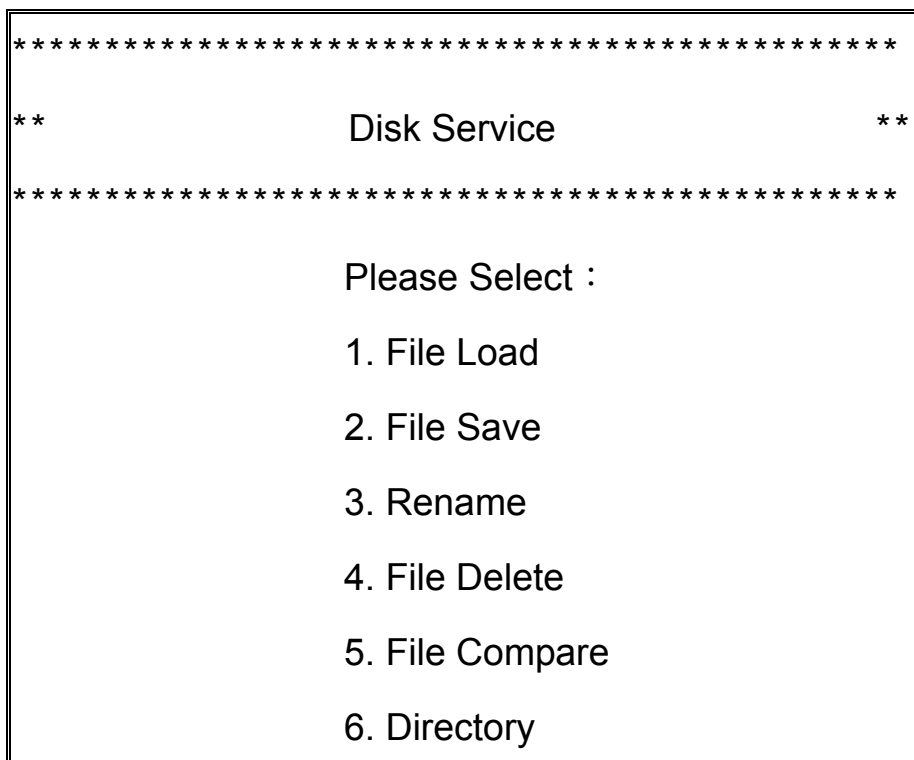
In main menu, select 6.Yarn feeder start position and press Enter key, screen be shown.

*** Yarn feeder stop point ***				
Page : 1		File Name : [.YRN]		
	LEFT SYSTEM		RIGHT SYSTEM	
	L	R	L	R
6 :	4	4	4	4
5 :	8	8	8	8
4 :	12	12	12	12
3 :	4	4	4	4
2 :	8	8	8	8
1 :	12	12	12	12
F9 : All Clear				

1. Range from 1 to 8, every range has feeder No.1~6, every range has left side and right side.
2. Input the needle distance on the left side and input the needle distance on the right side for stop position of feeder.
3. Here in we recommend the distance be 4~6 needles.
4. Available input 8 ranges with different needle distances for use of the main program.

◎ DISK SERVICE

In main menu select 7.Disk Service and press Enter key, screen be shown:



Insert the disk before operating, otherwise screen will display :

Drive not ready
Esc : Back disk menu
R : Retry

▼ File Load

Select 1.File Load by cursor and press Enter key, screen be shown :

***	File Load	***		Page : 1
KAUOHENG	.BMP	258K	T4	.PST 6K
KAUOHENG	.PXP	2K	T4	.CNT 2K
KAUOHENG	.OPT	60K	T4	.DES 30K
KAUOHENG	.PST	6K	C1	.PST 6K
KAUOHENG	.CNT	9K	C1	.CNT 9K
KAUOHENG	.DES	16K	C1	.DES 20K
KAUOHENG	.JPT	1K	C1	.JPT 1K
Input File :				
.				
.				
Total File				
.				
41				
.				
Free Space				
.				
95412K				
.				
F1 : Start				

1.F1 : Start

2. File name is maximum 8 Spaces.

3. File type : DES/ CNT / STI / PST /ABS / YRN

Input the file name only if do not need the required file type.

▼ File Save

Select 2.File Save by cursor and press Enter key, screen be shown :

*** File Save ***		Page : 1	
KAUOHENG .BMP	258K	T4	.PST 6K
KAUOHENG .PXP	2K	T4	.CNT 2K
KAUOHENG .OPT	60K	T4	.DES 30K
KAUOHENG .PST	6K	C1	.PST 6K
KAUOHENG .CNT	9K	C1	.CNT 9K
KAUOHENG .DES	16K	C1	.DES 20K
KAUOHENG .JPT	1K	C1	.JPT 1K
Input File :	.		
	.		
Total File	.		
41	.		
Free Space	.		
95412K	.		
F1 : start			

1. Input file name and press F1 key.
2. Total File: shown total how many files.
Free space: shown free memory of the disk.
3. File type : DES / CNT / STI / PST /ABS / YRN

▼Rename

Select 3. Rename by cursor and press Enter key, screen be shown :

***	File Rename	***		Page : 1
KAUOHENG	.BMP	258K	T4	.PST 6K
KAUOHENG	.PXP	2K	T4	.CNT 2K
KAUOHENG	.OPT	60K	T4	.DES 30K
KAUOHENG	.PST	6K	C1	.PST 6K
KAUOHENG	.CNT	9K	C1	.CNT 9K
KAUOHENG	.DES	16K	C1	.DES 20K
KAUOHENG	.JPT	1K	C1	.JPT 1K
Input File : KAUOHENG		.DES	88	.DES
Total File		.		
41		.		
Free Space		.		
95412K		.		
F1 : start				

1. Input file name . type , new name . type and press F1 key.

▼ File Delete

Select 4. File Delete by cursor and press Enter key, screen be shown :

*** File Delete ***				Page : 1	
KAUOHENG	.BMP	258K	T4	.PST	6K
KAUOHENG	.PXP	2K	T4	.CNT	2K
KAUOHENG	.OPT	60K	T4	.DES	30K
KAUOHENG	.PST	6K	C1	.PST	6K
KAUOHENG	.CNT	9K	C1	.CNT	9K
KAUOHENG	.DES	16K	C1	.DES	20K
KAUOHENG	.JPT	1K	C1	.JPT	1K
Input File : KAUOHENG .CNT					
Total File					
41					
Free Space					
95412K					
F1 : start					

Input the required file name to delete; file name . type press **F1** key to execute.

▼ File compare

Select 8.File Compare by cursor and press Enter key :

*** File Compare ***				Page : 1	
KAUOHENG	.BMP	258K	T4	.PST	6K
KAUOHENG	.PXP	2K	T4	.CNT	2K
KAUOHENG	.OPT	60K	T4	.DES	30K
KAUOHENG	.PST	6K	C1	.PST	6K
KAUOHENG	.CNT	9K	C1	.CNT	9K
KAUOHENG	.DES	16K	C1	.DES	20K
KAUOHENG	.JPT	1K	C1	.JPT	1K
Input File : KAUOHENG .CNT				88	.CNT
				88	.DES
Total File				88	.STI
41				88	.PST
Free Space				88	.YRN
95412K				88	.ABS
F1 : start					

Insert disk, input the file name to compare the file in machine is same exactly, press **F1** key.

▼ Directory

Select 6. Directory by cursor and press Enter key.

*** Directory ***		Page : 1	
KAUOHENG	.BMP 258K	T4	.PST 6K
KAUOHENG	.PXP 2K	T4	.CNT 2K
KAUOHENG	.OPT 60K	T4	.DES 30K
KAUOHENG	.PST 6K	C1	.PST 6K
KAUOHENG	.CNT 9K	C1	.CNT 9K
KAUOHENG	.DES 16K	C1	.DES 20K
KAUOHENG	.JPT 1K	C1	.JPT 1K
Total File			
41			
Free Space			
95412K			

Display all the file names in the disk.

◎ **DIAGNOSTIC INPUT**

In main menu, select 9. Diagnostic Input and press Enter key for test of input.

*** Diagnostic Input ***				
		System – 1	System - 2	
Stitch	Origin	Rear : `	Rear : `	
		Front : `	Front : `	
Cam	Origin	Rear : —	Rear : `	
		Front : `	Front : `	
Needle	Break	Rear : —	Rear : —	
		Front : —	Front : —	
MainServo				
Shock : —	Alarm : —			Fabric push : `
Start : —	Slow : —	Entangle : —		S.Tension-L- :
	—			
Cover : —	Drop : —	Tension : —		S.Tension-L :
	—			
Rack	L. over : —	ORG : `	R.over : —	Alarm : —
Needle	Right : `	ORG : —	CNT : 65477	Panel :
L.Over : —	L.Origin : —	R.Origin : —		R.Over : —
S : 00001	STOP : —	POWER : `	IN 1 : —	IN2 : —

◎ DIAGNOSTIC OUTPUT

Move cursor to “10 Re-start knitting “ and press Enter key.

Screen appears “Start operation bar”.

Turn the operation bar, in carriages the cam, stitch and racking etc.

*** Diagnostic Output ***			
	System -1		System -2
Stitch	Rear :		Rear :
	Front :		Front :
Cam	Rear :		Rear :
	Front :		Front :
Needle	Rear-L : -R :		Rear-L : -R :
Time : 10	Front-L : -R :		Front-L : -R :
	System 1 :		System 2 :
	Main Motor← :		→ :
	Rack Motor :		T.down :
Lamp	Red :		Green :
	Buzzer :		Sub.TD :
	MEM :	FDD :	D/A : Yarn feeder :
	F1 : 1Cam	F2 : 2 Cam	F3 : Cont F4 : Auto

※ Test active function

F1 : 1 cam, single carriage

F2 : 2 cam, two carriages

F3 : Cont, continuous test

F4 : Auto, automatic sequent test

■ REFERENCE

- Stitch : Key in 0~220 to test.
- Cam : Key in 0~4 to test.
- Needle : Key in 0~3 to test.
- Time : The speed of test to selection actuator.
- Yarn : Key in 0~6 to test.
- Main Motor : Speed test.
- Racking Motor : Key in racking value to test.
- Take-Down : Key in 0~99 to test.
- Sub-takedown : Key in 0~99 to test.
- Lamp : Key in 0(off), 1(on).
- Buzzer : Key in 0(off), 1(on).
- Yarn feeder : Key in 0 (off),1(on)

◎ SYSTEM SETTING

Key in 8 characters 『KAUOHENG』 in main menu to enter in the screen “System setting” .

*** System setting ***					
Language	: 1	T.down	: 0	Empty	: 120
Buzzer	: 1	Left Off	: 0	Right Off	: 0
Cover	: 0	TR Stitch	: 50	KeyTime	: 10
-----	: 0	-----	: 0	-----	: 0
-----	: 0	-----	: 0	-----	: 0
Stitch Adjust	→ 1 →		→ 2 →		
Rear	: 31	: 36	: 29	: 33	
Front	: 36	: 31	: 33	: 29	
Rack Adjust	T	K	+	-	Backlash
Left	: 66	: 50	: 50	: 50	: 0
Right	: 66	: 50	: 50	: 50	
F9 : All Clear					

◎ FUNCTION KEY

F1 : Stitch	F2 : Main speed / Take – Down Speed/ Sub T.down Speed
F3 : Pattern Set	F4 : Turn ADJ
F5 : Pattern Data	F6 : Jump to any step
F7 : Copy any Step	F8 : Step delete
F9 : Step Clear	F10 : N~N Step Clear
Shift + F9 : Step insert	Shift + F10 : Step delete
Ctrl + → : Copy left to right	Ctrl + ← : Copy right to left.
PgUp : Page up	↓PgDn : page down
Enter : next page	SPACE : Next selection
J : (Jump)	E : End
Tab : Function Key in main program	

In “EDIT PATTERN”

Shift + F9 : All Clear	
Shift + F10 : Edit new pattern / revise size of pattern	
Fn + ←Home : Jump to the first wale.	Fn + →End : Jump to the Last wale.
Ctrl + ↑ : Jump to up page.	Ctrl + ↓ : Jump to down page.
Ctrl + → : Jump to right page.	Ctrl + ← : Jump to left page.
Tab : Change direction of pattern set	0~9, A~F : Pattern symbol

While running

R : Clear error message	shift + number : PIECE
Caps Lock : 1 PIECE	shift + number : SHOCK
Pause Break : Enter in main menu while running	

ERROR MESSAGE TABLE

ERROR MESSAGE	SOLUTION
Main Servo Error :	Start servo-motor, green ON key, Clear the error signal.
Shock :	Check if needles in fault ,then press R key after solution.
Yarn Breakage :	Check if top-tension in fault, and adjust to correct position.
Side Tension R/L :	Check if side-tension in fault, and adjust to correct position.
Needle Detector SYS - ? R/F :	Check if detector in fault, and adjust to correct position.
Drop Out :	Check if fabric take 0down in fault, and adjust to correct position.
Fabric Push Off :	Check if the grip of roller tension in push position.
Entanglement :	Check if entanglement in fault, and adjust to correct position.
Operation Bar in Start Position :	Turn off power for 30 seconds, then restart.
Piece Count :	Press R key to clear error signal.
R/L Limit Position Error :	Push moving carriage to opposite direction.
Racking Servo Error :	Turn off power for 30 seconds, then restart.
Read Sensor Error :	Turn off power for 30 seconds, then restart.
Color Jacquard Program Position :	Check if Edit Main Control or Pattern Set in fault, and restart
Stop :	Release the red emergency button by turning .



高亨精機工業有限公司
KAUO HENG PRECISION MACHINERY
INDUSTRIAL CO., LTD.

台灣省台北縣板橋市和平路 14 巷 20 號
Address : No. 20, Lane 14, Ho Ping Road,
Panchiao, Taipei, Taiwan

TEL : + 886-2-29559258

FAX : + 886-2-29629153

http : // www.kauoheng.com.tw

E-mail : kauoheng@ms58.hinet.net