

# KAUOHENG



## KH-313 SERIES OPERATION MANUAL

電腦橫編織機

KH

COMPUTERIZED FLAT KNITTING MACHINE

## **DEAR CUSTOMER :**

Welcome to be an owner of KH-313 series computerized flat knitting machine as Kao Heng endeavors to maintain a high standard of this machine, we also pleased for your cooperation to make the machine serve longer by reading this operator manual carefully before commencing your production.

Yours sincerely,

Kao Heng Precision Machinery Industrial Co., LTD.

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

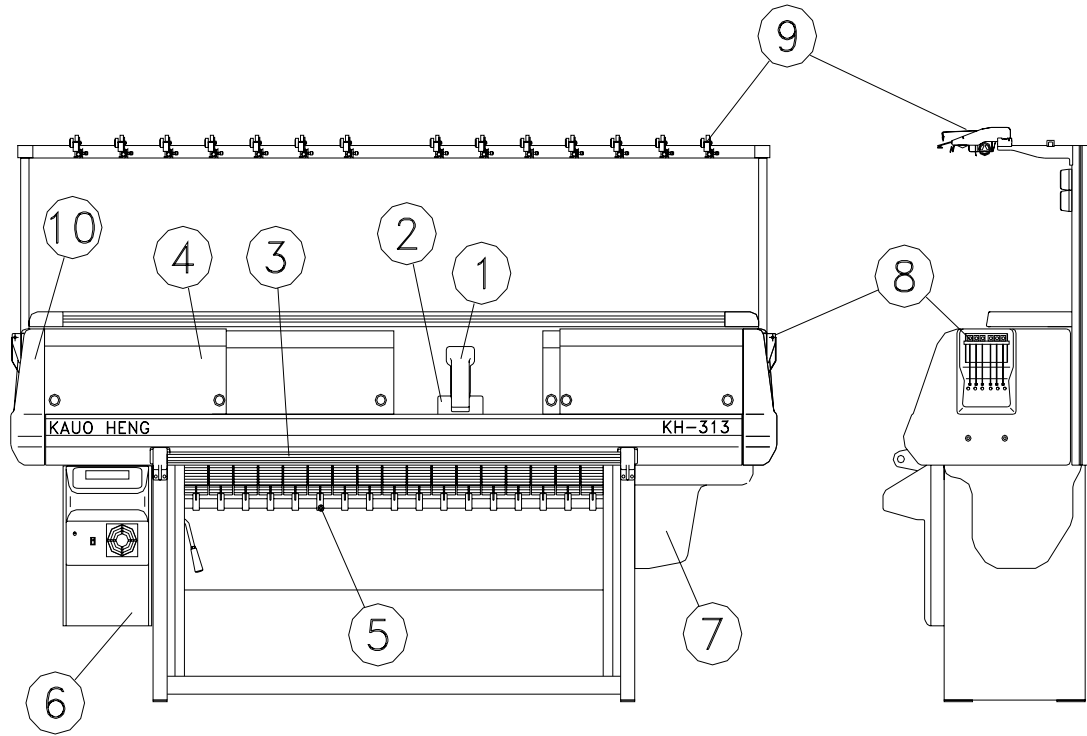
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# OVERVIEW OF KH-313 SERIES

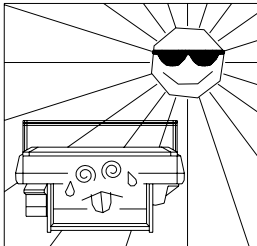


1. Yarn carrier selection
2. Carriage
3. Operation bar
4. Main cover
5. Fabric take-down roller
6. Controller
7. Main motor
8. Side tension
9. Top tension
10. Side cover

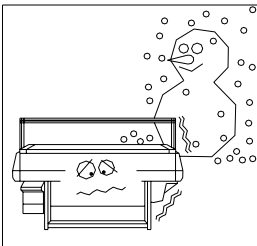
# 1. Points to observe

## ① Installation Environmental Conditions

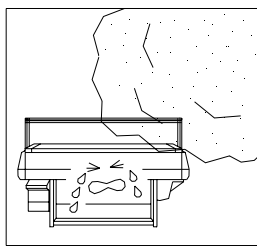
Please install the machine as below instructions in order to use this machine in the best condition for a long period of time.



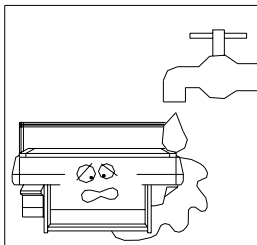
Do not install the machine at a place subject to direct sunshine and/or adjacent to a heat generation source such as a furnace/oven.



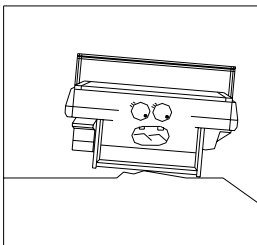
Do not install the machine at a place subject to rapid temperature changes.  
The temperature should be 0°C ~ 35°C inside the controller.



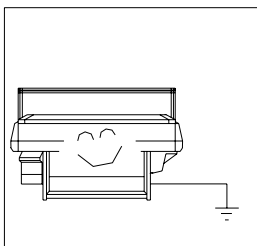
Do not install the machine at a place where there is a lot of dust and dirt, or a location affected by chemical gases, sea breeze etc.



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.

- ② Fig.1.1 illustrates the correct position of jacking while moving the machine. It is very important when moving the machine. The yarn carrier rail shall never be used to push the machine since it will distort the rail.

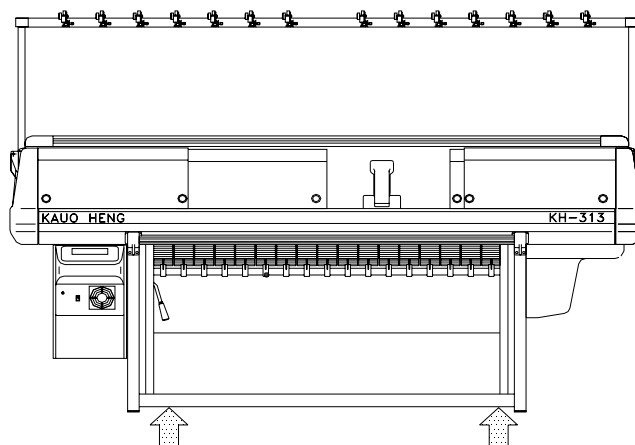


Fig.1.1 Correct position of jacking the machine

- ③ When connecting the electric power, attention must be paid to the correct voltage. And make sure the ground-wire connected.

## 2. Installation

- ① After unpacking and locating the machine in the factory, it must be leveled carefully with a spirit-level to avoid machine distortion in running. We recommend the machine to be leveled with rubber peddings for best result. Remove grease from the polished parts before starting to operate the machine. About the moving parts must be lubricated according to the following instruction.

Lubrication points	Lubricant	Frequency
Carriage	# 10 oil	Daily
Carrier rail	# 10 oil	Daily
Needle bed	# 10 oil	Daily
Driving parts	Hi-temp grease	Weekly

Table 2.1 Lubrication

- ② Raise the yarn stand till the end of the tubes is leveled with the base plate, tighten the screws and connect the plug of stop motion situated at the left rear end.

### 3. Operation

#### 3.1 Power switch

As Fig.3.1 front side of controller, easily find two switches. Filp upward is “ON” and downward is “OFF”.

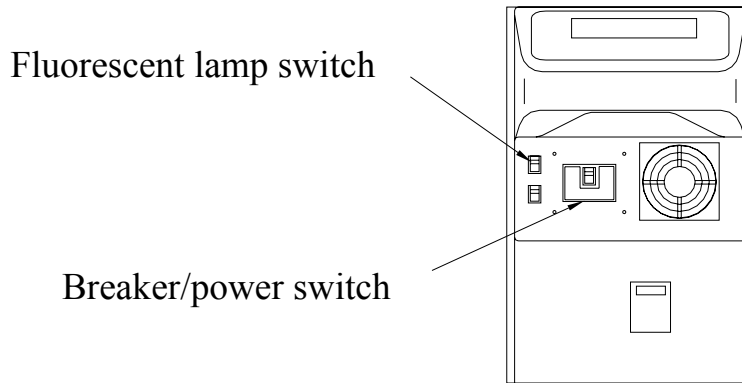


Fig.3.1 Front side of controller

#### 3.2 Operation bar

- ① Inching : When turning forward of the operation bar, machine operates slowly and stops when you loosen.
- ② Starting : When turning backward of the operation bar, machine starts. Machine starts from slow speed and runs in preset speed when reaching the first terminal sign.
- ③ Stop : When the machine is running, you can turn operation bar in any direction to stop machine.
- ④ Machine executes protection mode automatically when machine stops over 3 seconds. You must turn twice backward of the operation bar to start.

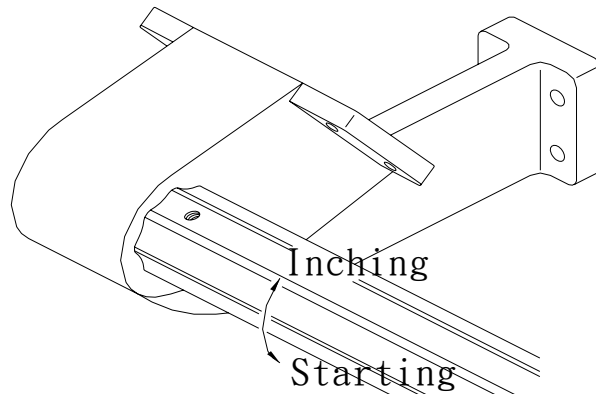


Fig.3.2 Starting operation bar

### 3.3 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.3.3. 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 easy moving, adjustment refers to Fig.3.4.

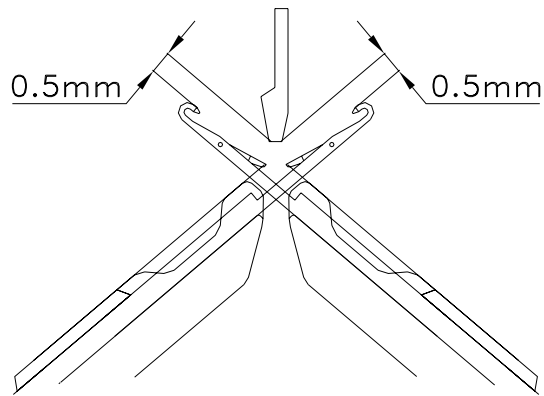
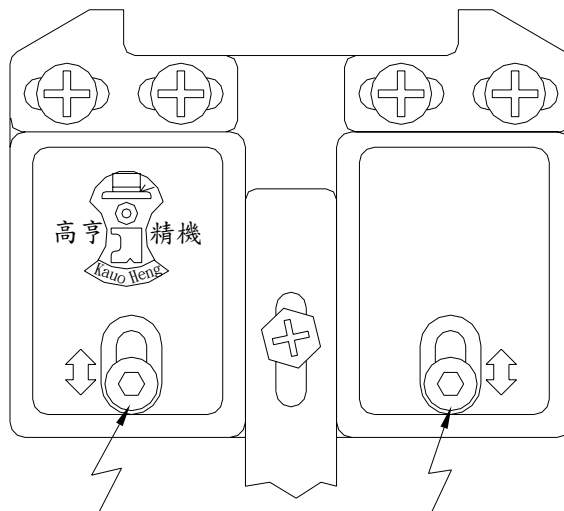


Fig.3.3 Position of yarn carrier



Loosen two screws to adjust up & down

Fig.3.4 Adjustment of carrier

### 3.4 Top tension

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 knit-ted.

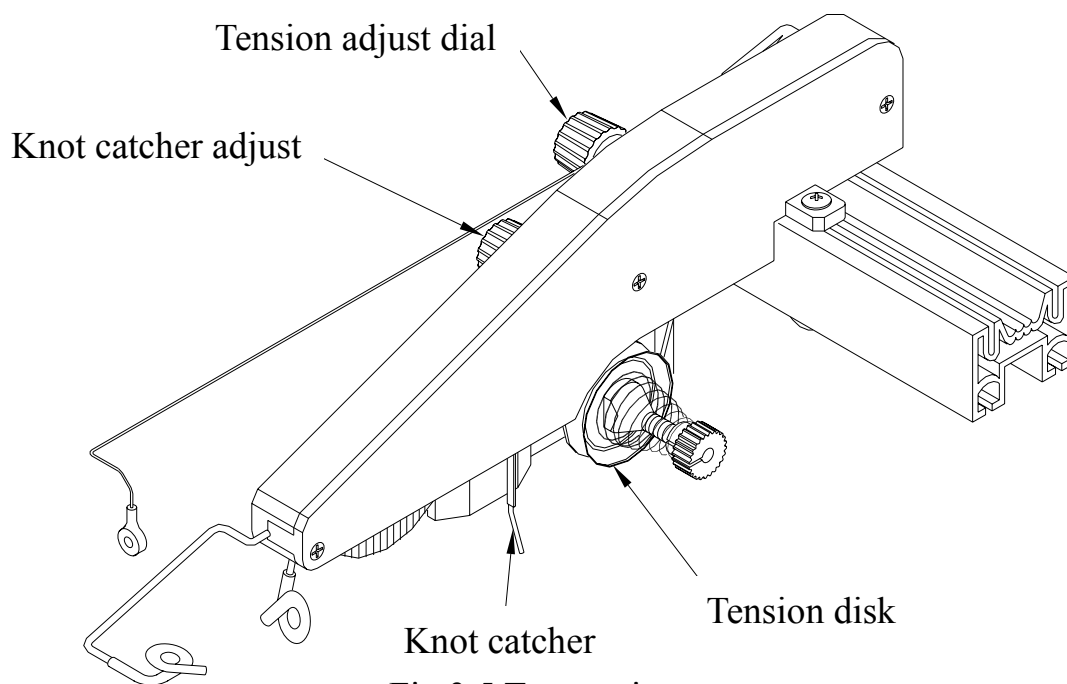


Fig.3.5 Top tension

### 3.5 The latch brush

Latch brush is important to prohibit the needle latch to close in knitting, the correct brusk setting is illustrated in Fig.3.6.

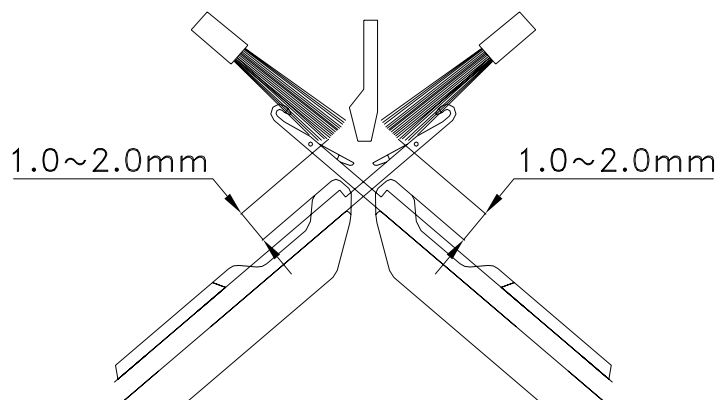


Fig.3.6 Correct position of brush



## 4. Clear 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 often refer to Fig.4.1.

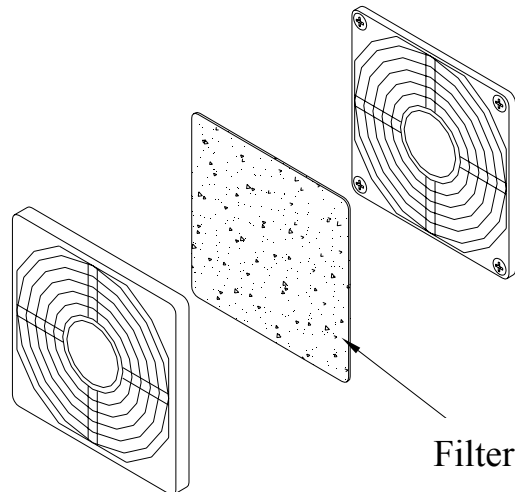


Fig.4.1 Cleaning filter

## 5. Needle bed

### 5.1 KH-313 needle bed

KH-313 the structure of front and rear needle bed is the same with regular needle high butt and low butt.

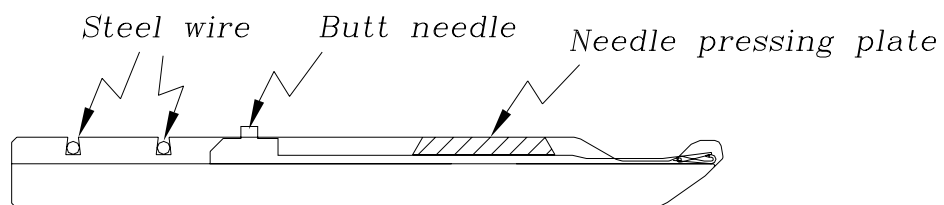
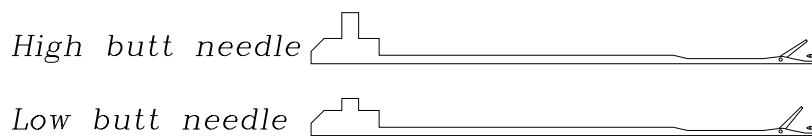


Fig.5.1 The structure of front & rear needle bed

For the knitting needles in unused you don't need to dismantle them. All you have to do is to push them in the unactive position. In Fig.5.2 take out the steel wire firstly, and push to the shown area and replace the steel wire.

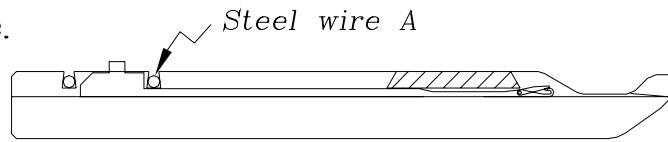


Fig.5.2 Unworked position

### 5.2 KH-313J&TJ needle bed

The structure of the front and rear needle bed is the same. KH-313J is with regular needles high butt and low butt. KH-313TJ is with transfer needles high butt and low butt. They both have one kind of jacks on front and rear needle beds.

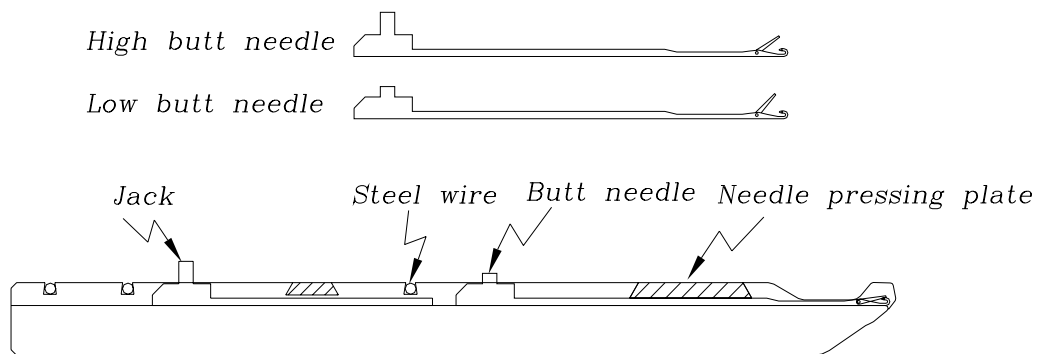


Fig.5.3 The structure of front & rear needle bed

The unused butt needles and jacks you jacks you just push them down to the unworked position. Of course you must pull out and back the steel wire A & B for procedure.

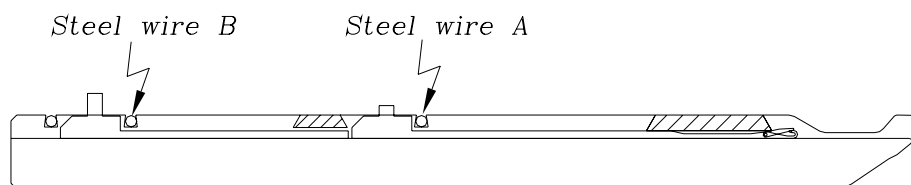


Fig.5.4 Unworked position

## 6. Cam plate distance

The distance between cam plate and needle bed is maximum 0.15 mm, Fig.6.1 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.

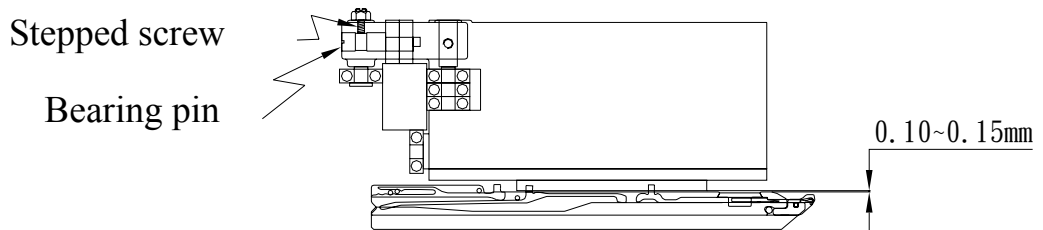


Fig.6.1 Adjust cam plate distance

## 7. 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 :

- ① Turn off the power firstly.
- ② Remove the side cover.
- ③ Disconnect the two plugs on back of carriage.
- ④ Remove the fitting screw and cap bolt on connecting plates as shown in Fig.7.1. Then pay attention to remove the carriage.
- ⑤ After replacing the carriage, it must be confirmed that the plugs, fitting screws and cap bolts are all completely connected, then start machine.

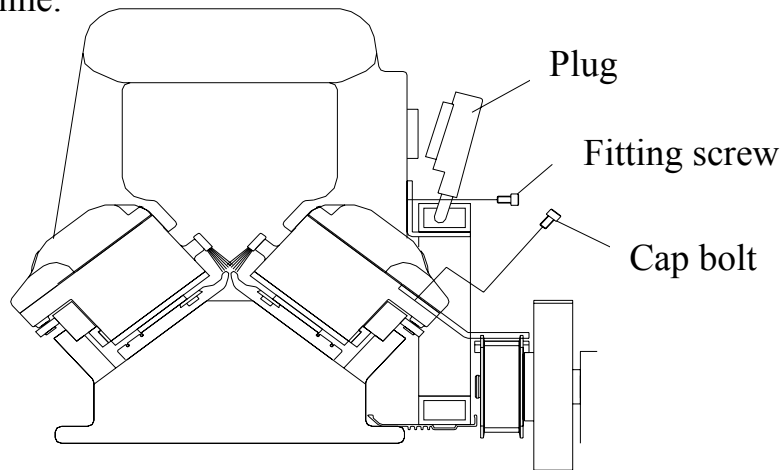


Fig.7.1 Remove the carriage

## 8. 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. There are two important things to adjust the take-down tension strength.

First method is the two speeds No.1 and No.2 as Fig.8.1 adjust each with turning knob and set the speed, the tension strength is larger and the speed is faster. You input the numeric in program to select the speed you want.

Second method is the roller. Each roller can be adjusted individually. The pressure of roller gets larger and the speed of fabric 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.

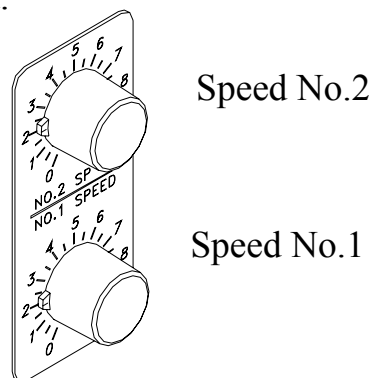


Fig.8.1 Micro adjustment of torque motor

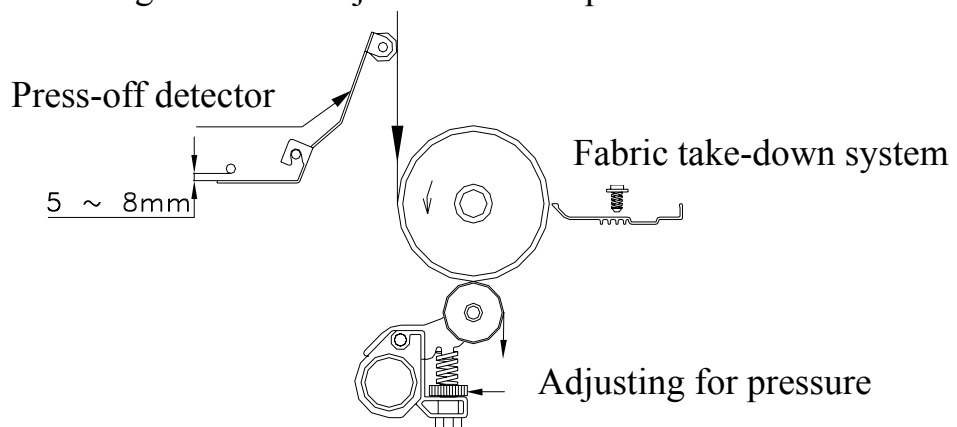


Fig.8.2 Fabric take-down system

## 9. Racking mechanism

- ① The rear bed can be racked five (5) pitches, 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.9.1.
- ② In editing instruction you can choose the left racking or the right racking by one pitch.
- ③ 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.

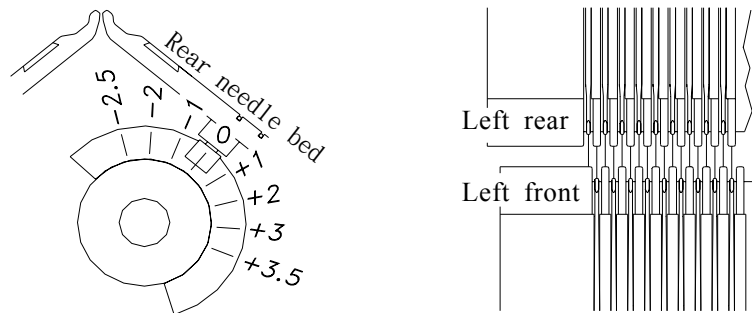


Fig.9.1 Initial position of needle bed

- ④ 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 tun, and make sure the racking mechanism is matched your programming.
  - ⊙ Needle position of transfer must be at the left  $-2.5$  and at the right  $+3.5$  of needle bed.
- ⑤ 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.9.2.

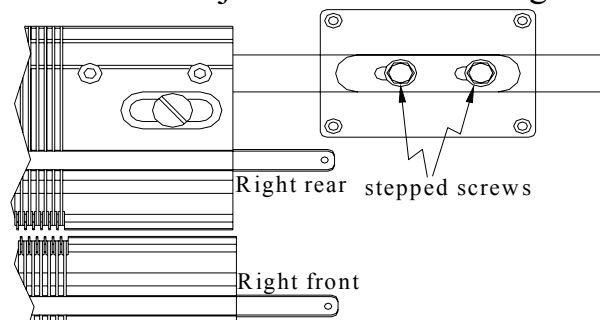


Fig.9.2 Adjusting the position of needle bed

## 10. KH-313 Cam system

KH-313 the cam system of front & rear needle bed is the same. Fig10.1 is overview of front & rear cam system.

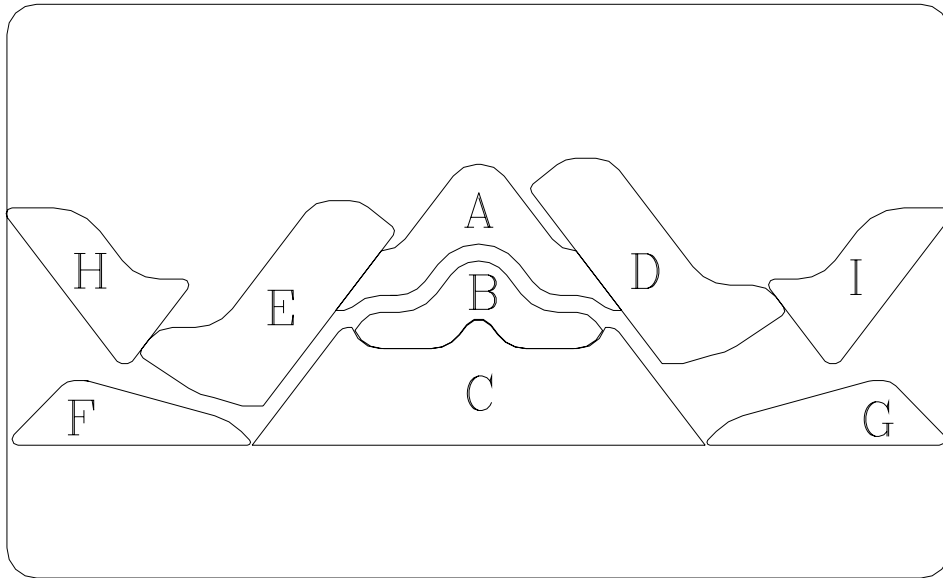


Fig.10.1 Front & rear cam system

- A Bridge cam
- B Needle clearing cam
- C Needle raising cam
- D Stitch cam
- E Stitch cam
- F Needle guide cam
- G Needle guide cam
- H Stitch guide cam
- I Stitch guide cam

## 11. KH-313 Cam action

In graphs show the usual kinds of cam active situation. “ARROW” means the carriage knitting direction. Cam of “slant-line” area is in half raising, and also the position of low butt needle “miss” and high butt needle “knit”. Cam of “cross-line” area is in raising position and all butt needles are without any action. Following figures are with drawing description according to action.

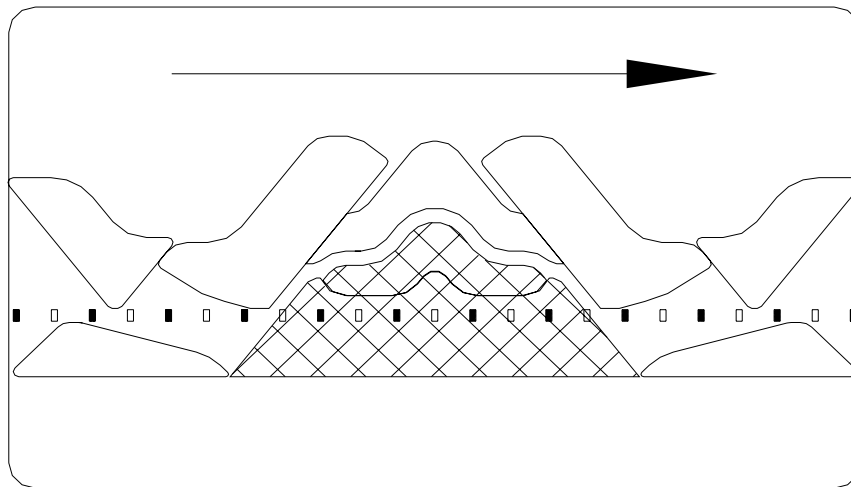


Fig.11.1 Command 0 : All butt needle MISS

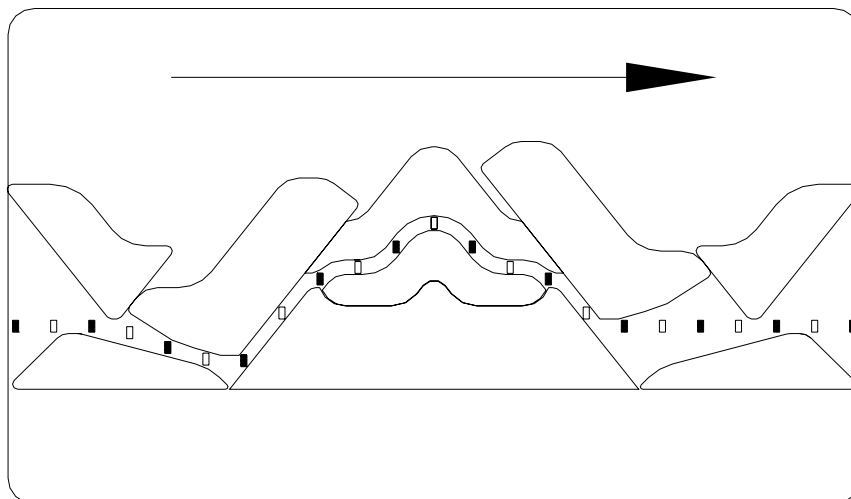
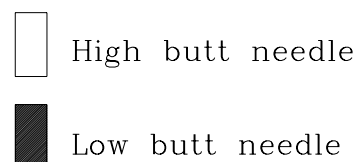


Fig.11.2 Command 1 : All butt needle KNIT



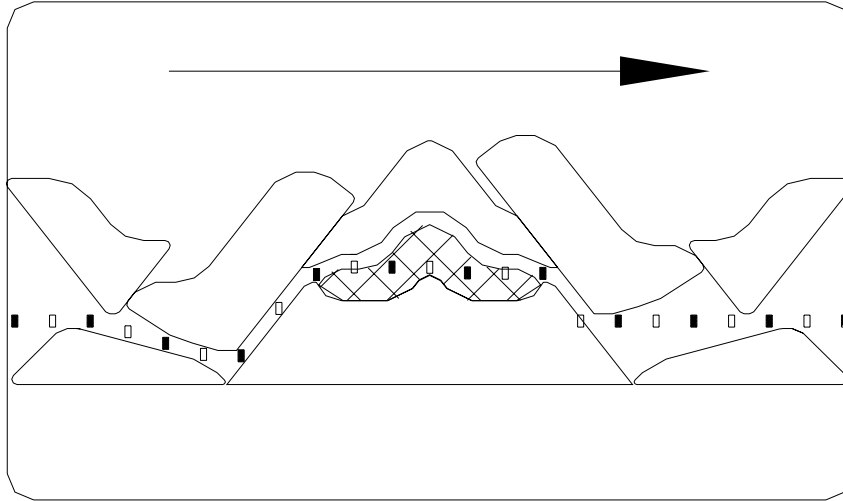


Fig.11.3 Command 2 : All butt needle TUCK

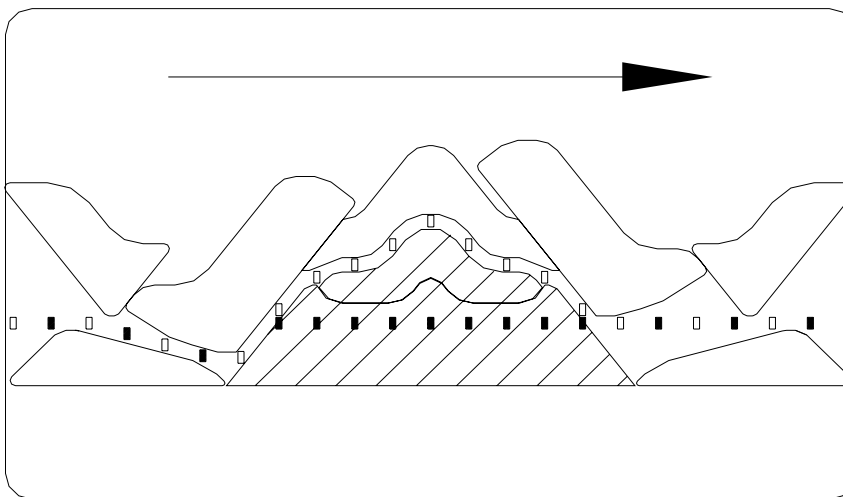




Fig.11.4 Command 3 : High butt needle KNIT

-  High butt needle
-  Low butt needle



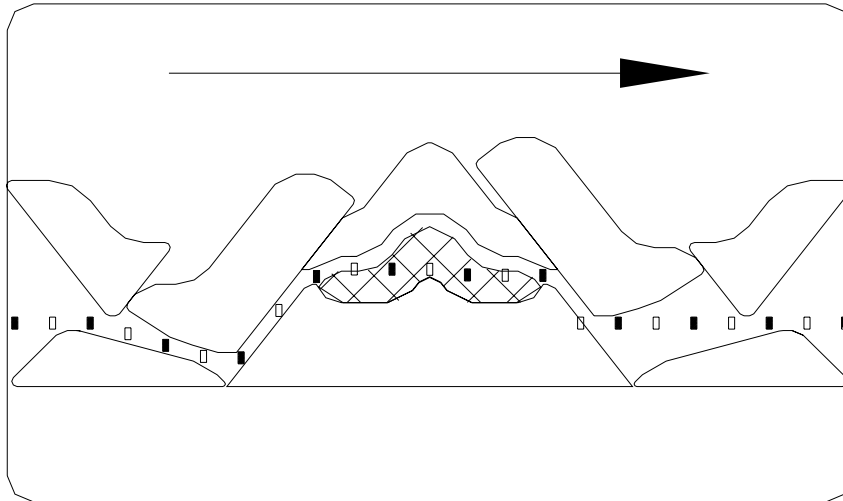


Fig.11.5 Command 4 : High butt needle KNIT

Low butt needle TUCK

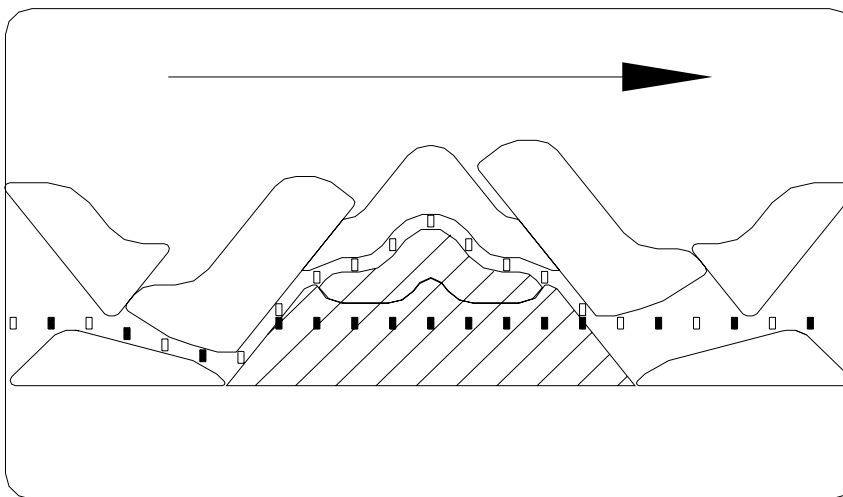




Fig.11.6 Command 5 : High butt needle TUCK

-  High butt needle
-  Low butt needle

## 12. KH-313J Cam system

KH-313J the cam system of front & rear needle bed is the same.

Fig12.1 is overview of front & rear cam system.

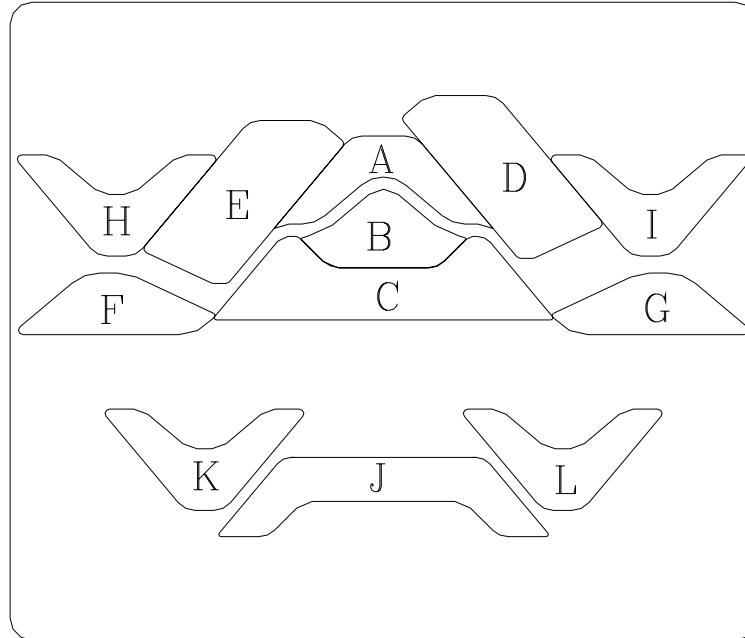


Fig.12.1 Front & rear cam system

- A Bridge cam
- B Needle clearing cam
- C Needle raising cam
- D Stitch cam
- E Stitch cam
- F Needle guide cam
- G Needle guide cam
- H Stitch guide cam
- I Stitch guide cam
- J Jack raising cam
- K Jack guide cam
- L Jack guide cam

### 13. KH-313J Cam action

In graphs show the usual kinds of cam active situation. "ARROW" means the carriage knitting direction. Cam of "slant-line" area is in half raising, and also the position of low butt needle "miss" and high butt needle "knit". Cam of "cross-line" area is in raising position and all butt needles are without any action. Following figures are with drawing description according to action.

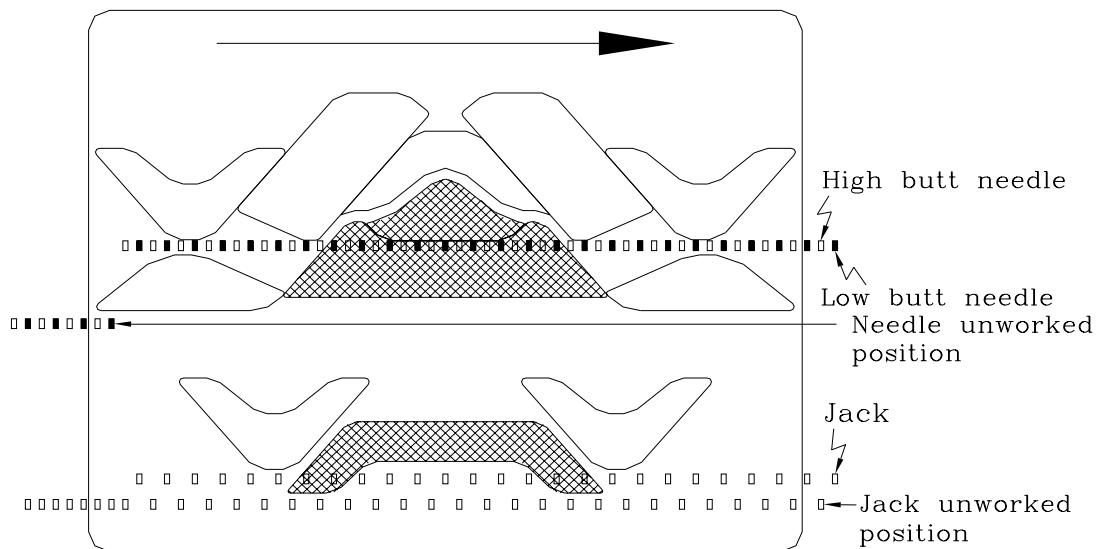


Fig.13.1 Command 0 : All butt needle MISS

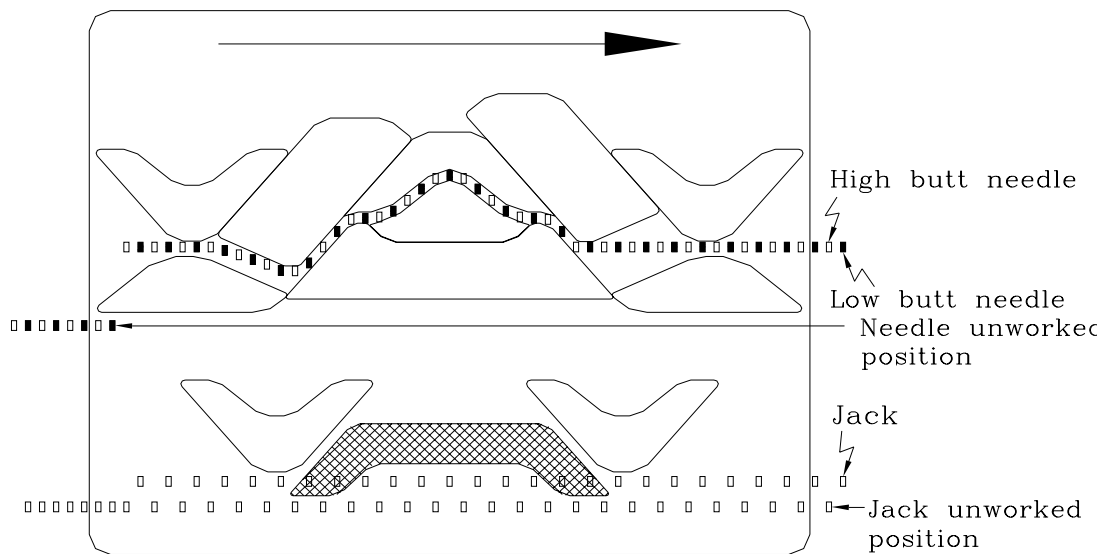


Fig.13.2 Command 1 : All butt needle KNIT

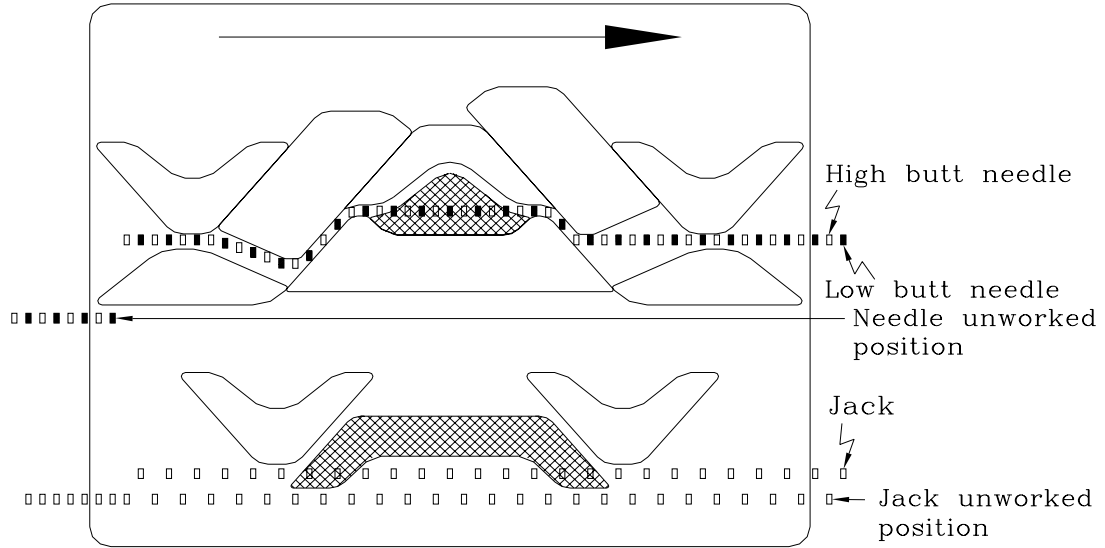


Fig.13.3 Command 2 : All butt needle TUCK

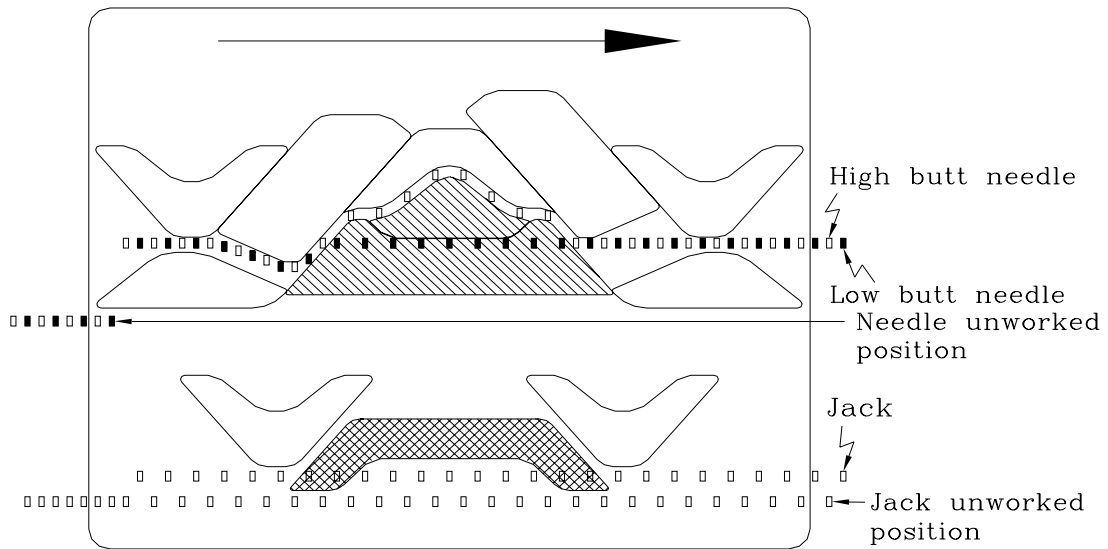


Fig.13.4 Command 3 : High butt needle KNIT

KH-313J

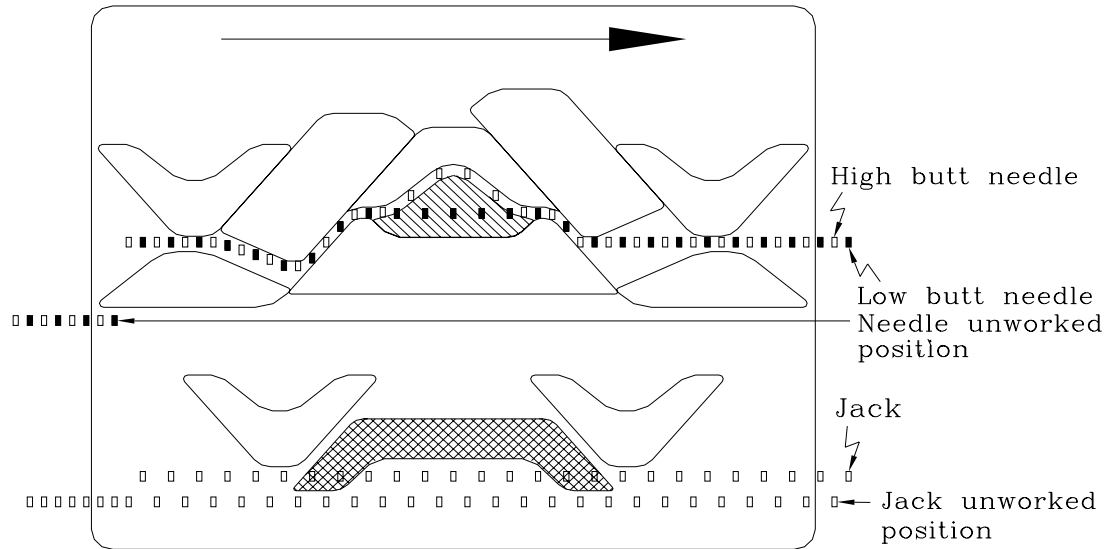


Fig.13.5 Command 4 : High butt needle KNIT

Low butt needle TUCK

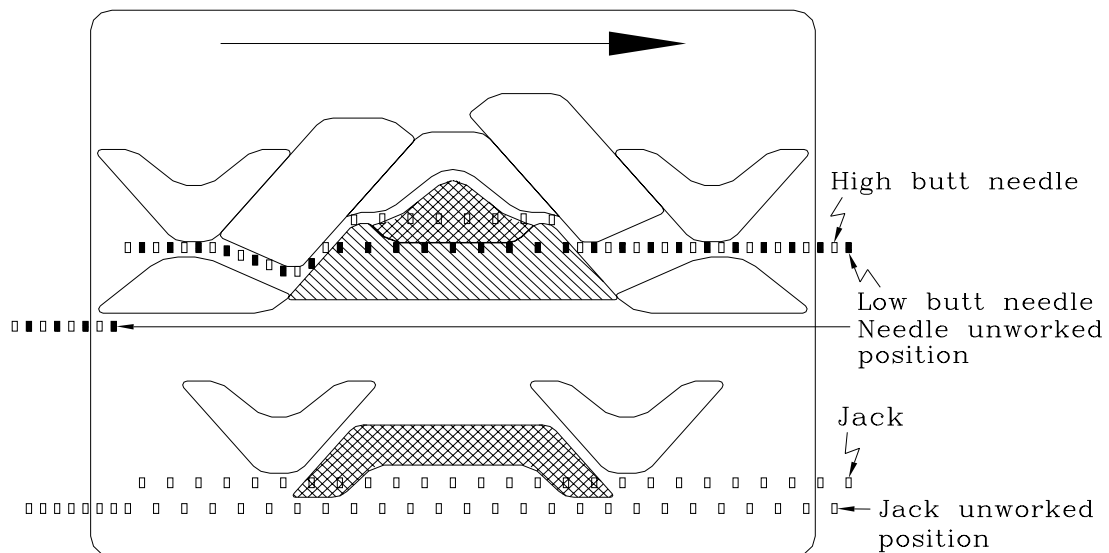


Fig.13.6 Command 5 : High butt needle TUCK

KH-313J

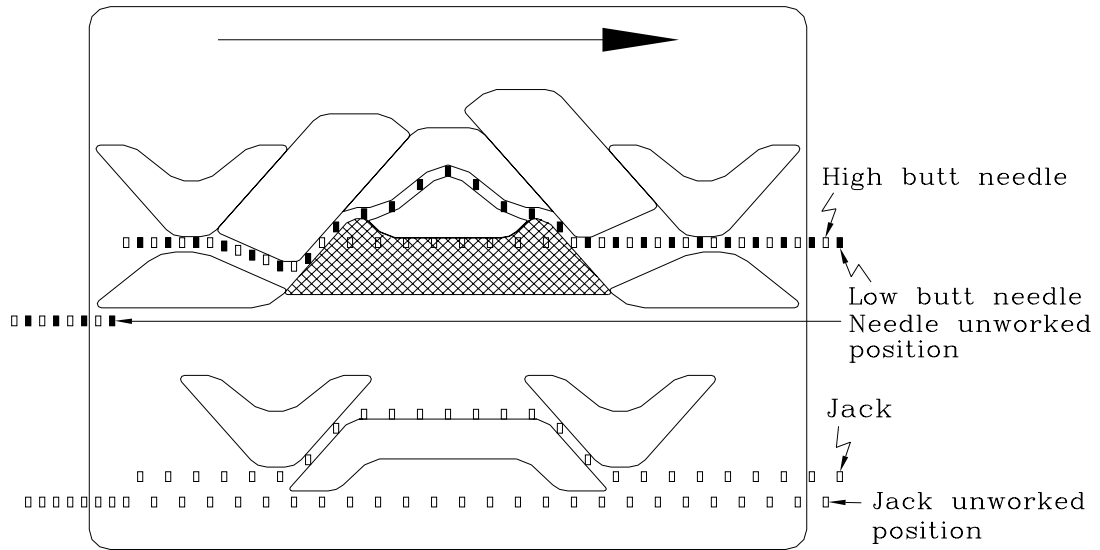


Fig.13.7 Command 6 : Jack KNIT

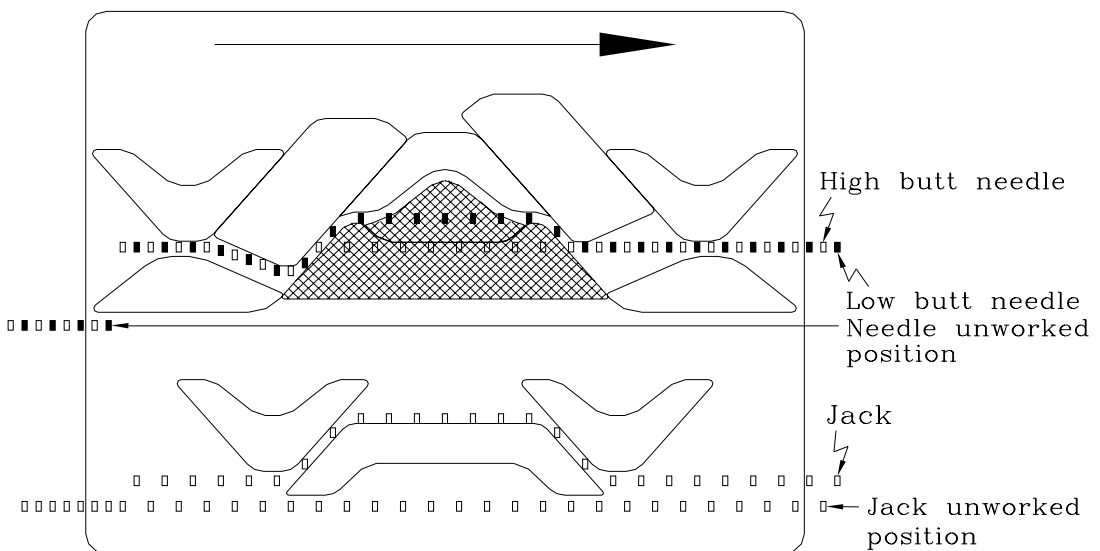


Fig.13.8 Command 7 : Jack TUCK

## 14. KH-313TJ Front cam system

Fig14.1 is overview of front cam system.

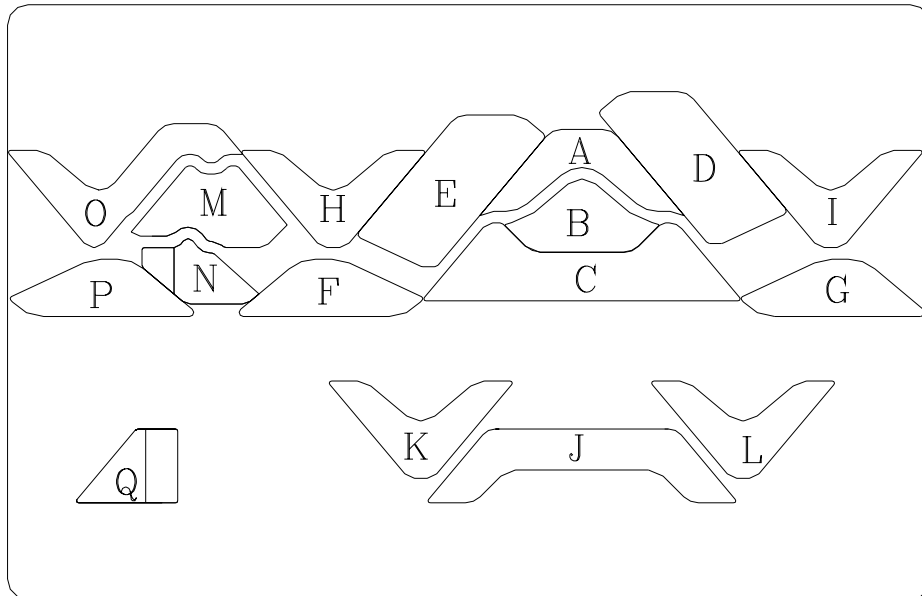


Fig.14.1 Front cam system

- A Bridge cam
- B Needle clearing cam
- C Needle raising cam
- D Stitch cam
- E Stitch cam
- F Needle guide cam
- G Needle guide cam
- H Stitch guide cam
- I Stitch guide cam
- J Jack raising cam
- K Jack guide cam
- L Jack guide cam
- M Transfer cam
- N Receive cam
- O Transfer guide cam
- P Needle guide cam
- Q Jack raising cam

## 15. KH-313TJ Rear cam system

Fig15.1 is overview of rear cam system.

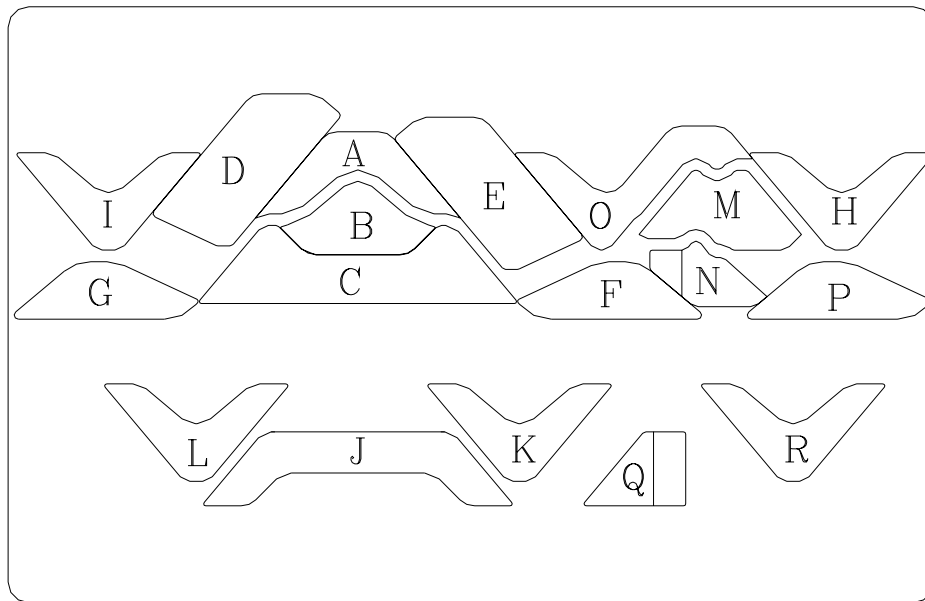


Fig.15.1 Rear cam system

- A Bridge cam
- B Needle clearing cam
- C Needle raising cam
- D Stitch cam
- E Stitch cam
- F Needle guide cam
- G Needle guide cam
- H Stitch guide cam
- I Stitch guide cam
- J Jack raising cam
- K Jack guide cam
- L Jack guide cam
- M Transfer cam
- N Receive cam
- O Transfer guide cam
- P Needle guide cam
- Q Jack raising cam
- R Jack guide cam





KH-313TJ

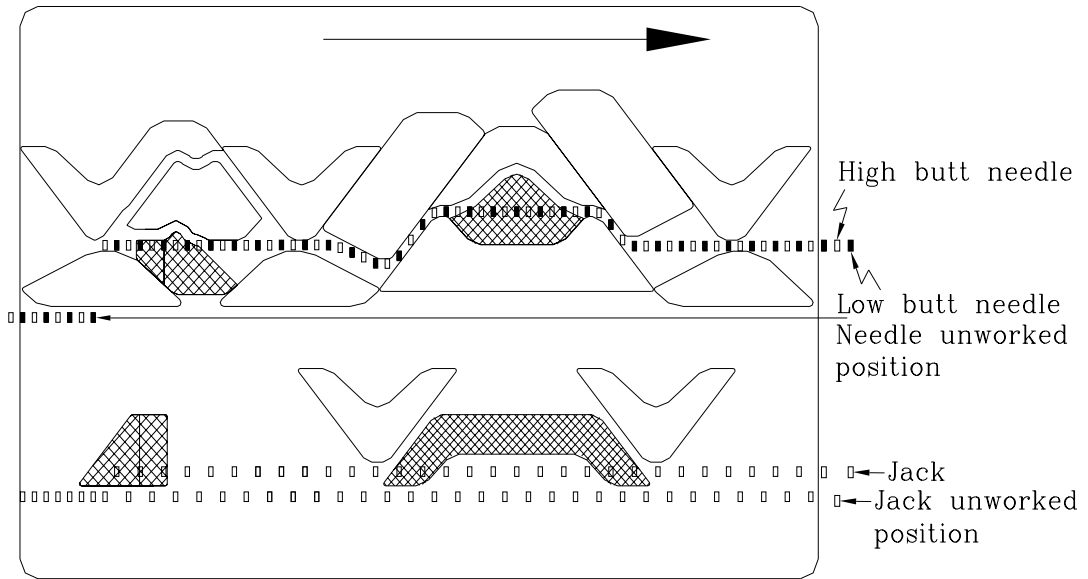


Fig.16.3 Command 2 : All butt needle TUCK

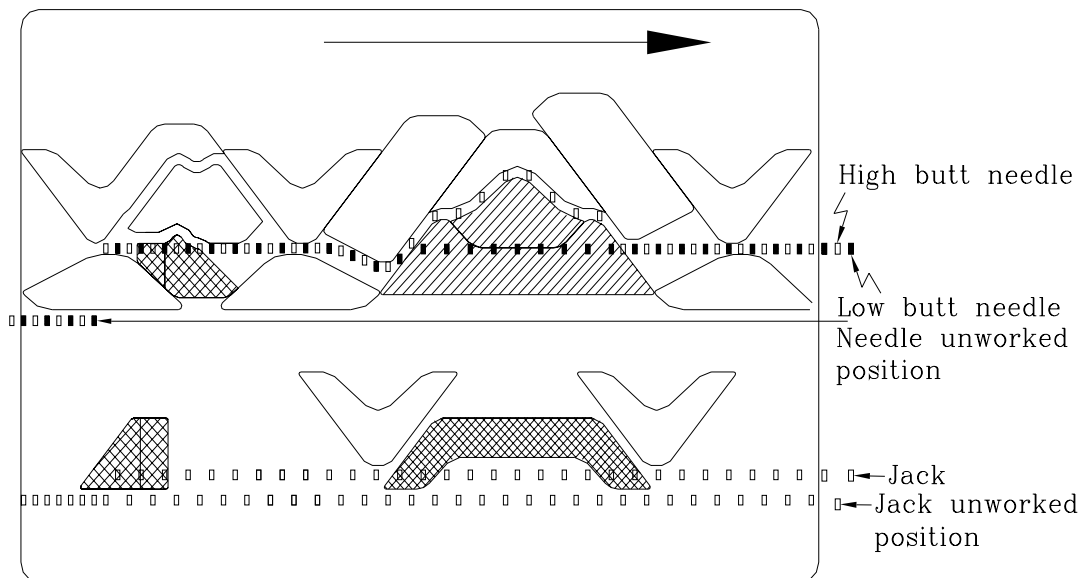


Fig.16.4 Command 3 : High butt needle KNIT

# KH-313TJ

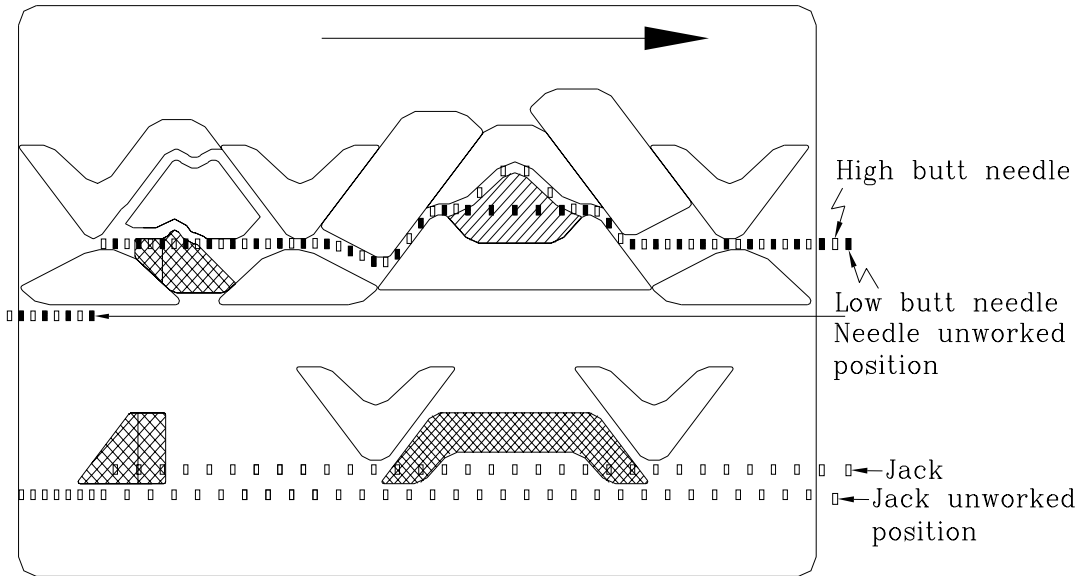


Fig.16.5 Command 4 : High butt needle KNIT

Low butt needle TUCK

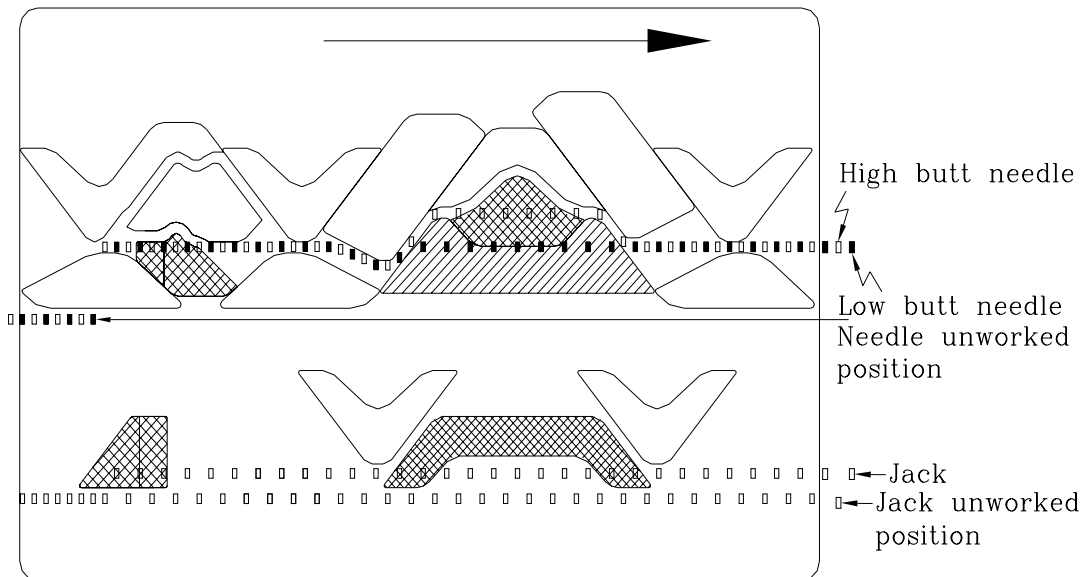


Fig.16.6 Command 5 : High butt needle TUCK

# KH-313TJ

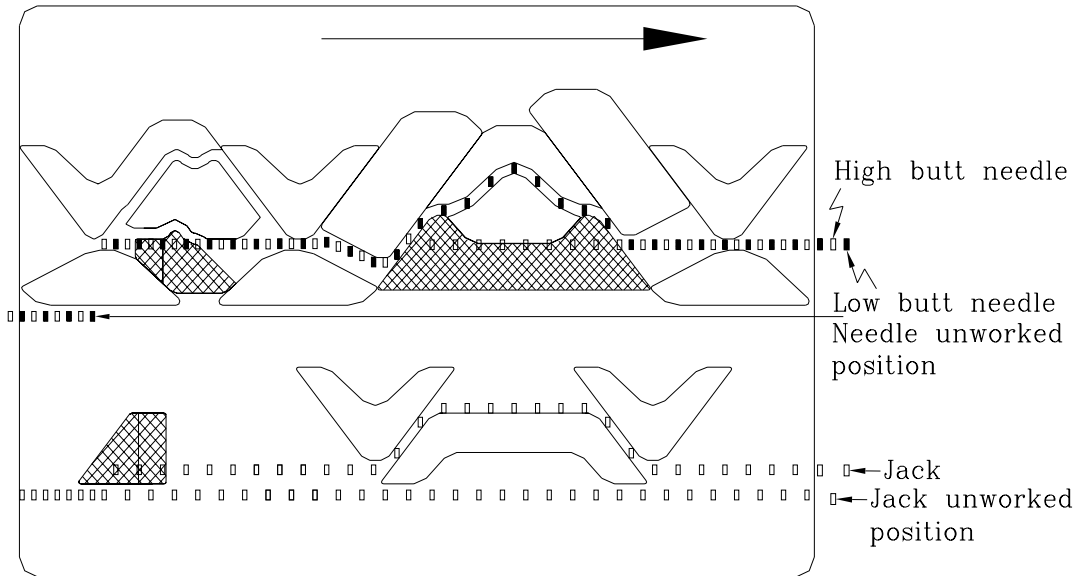


Fig.16.7 Command 6 : Jack KNIT

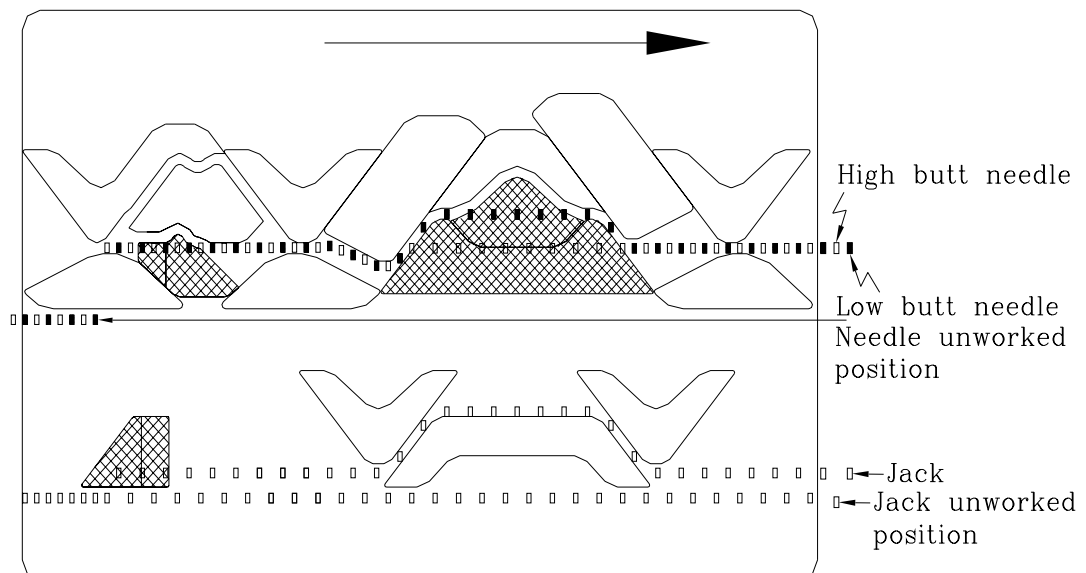


Fig.16.8 Command 7 : Jack TUCK

# KH-313TJ

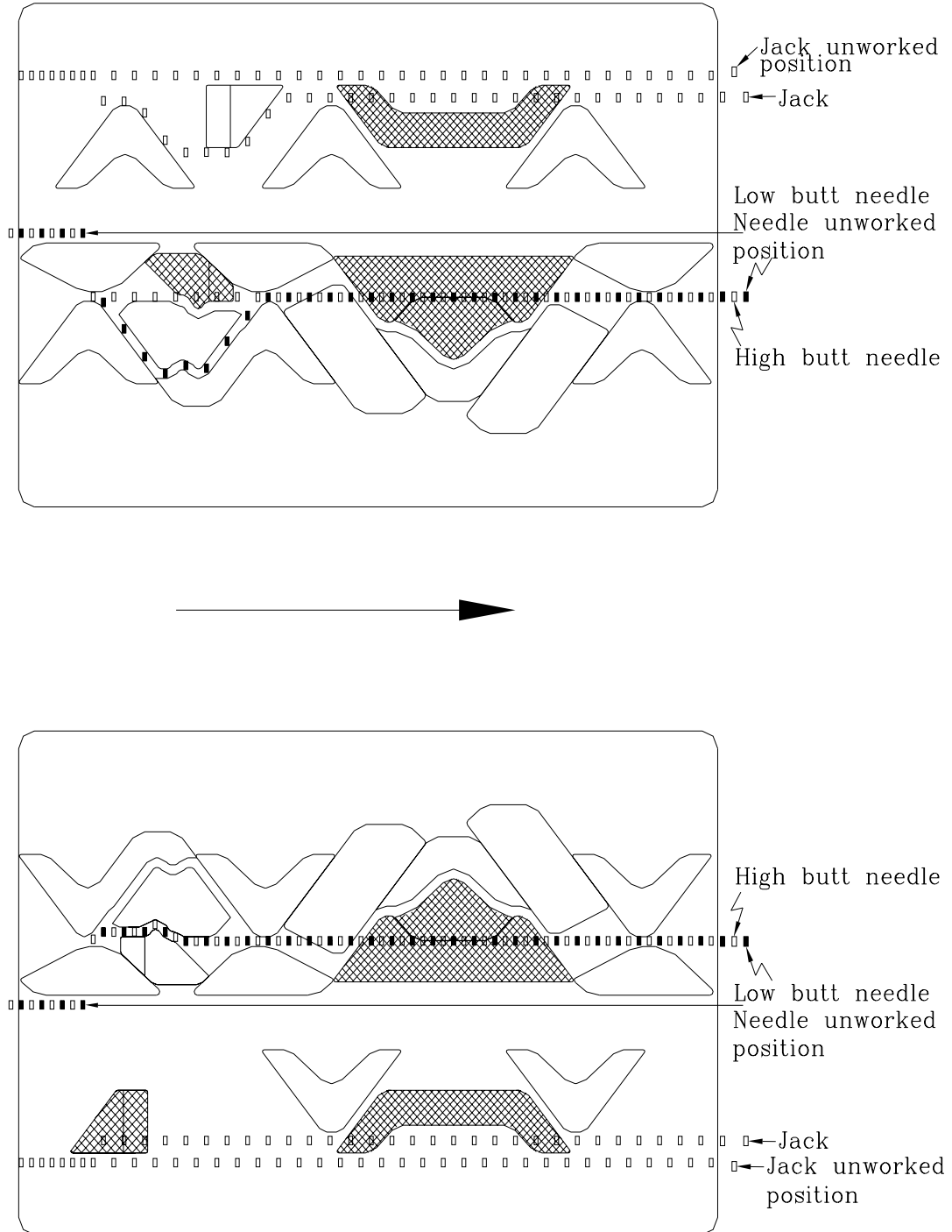


Fig. 16.9 Command 8 : Transfer of rear bed & receipt of front bed

# KH-313TJ

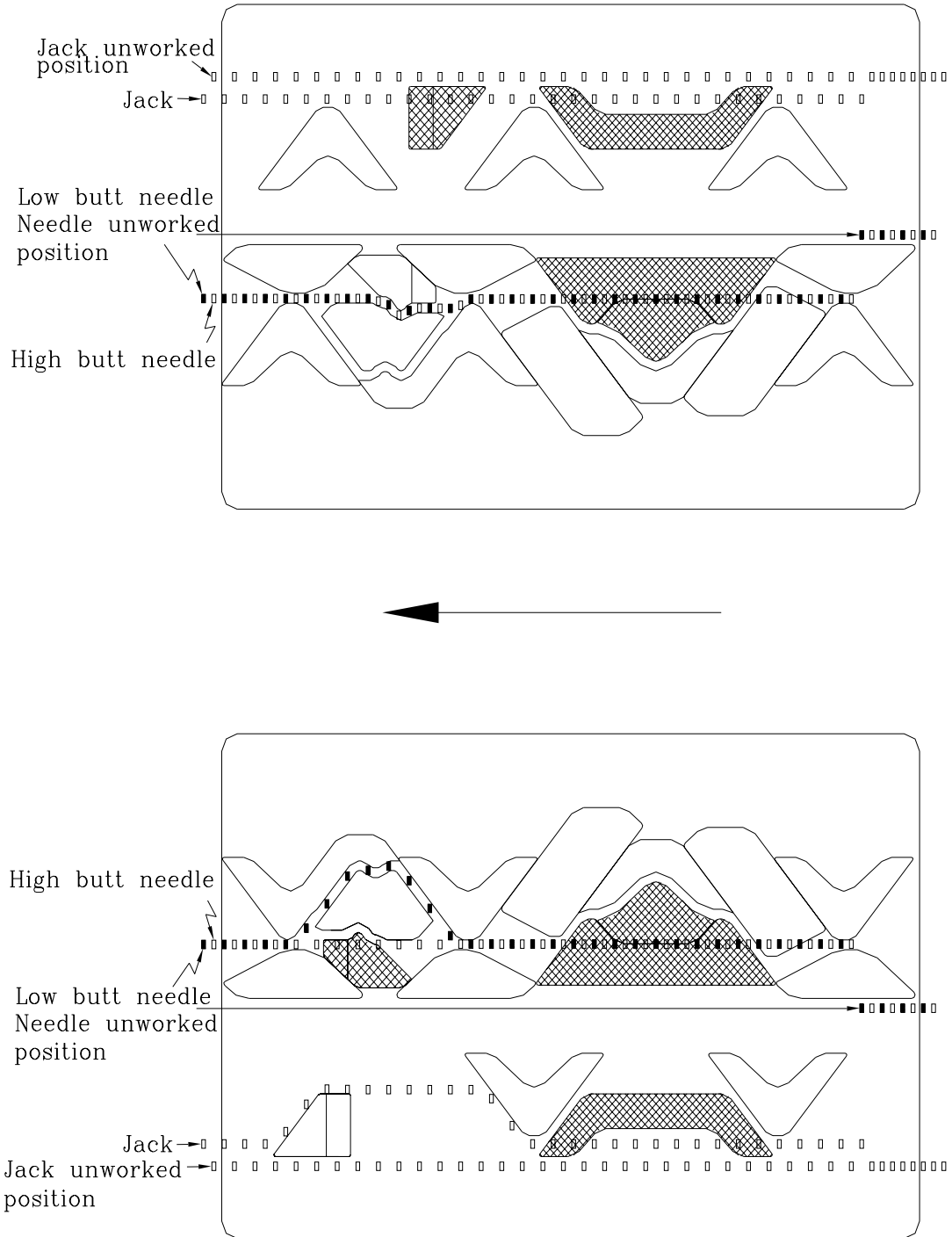
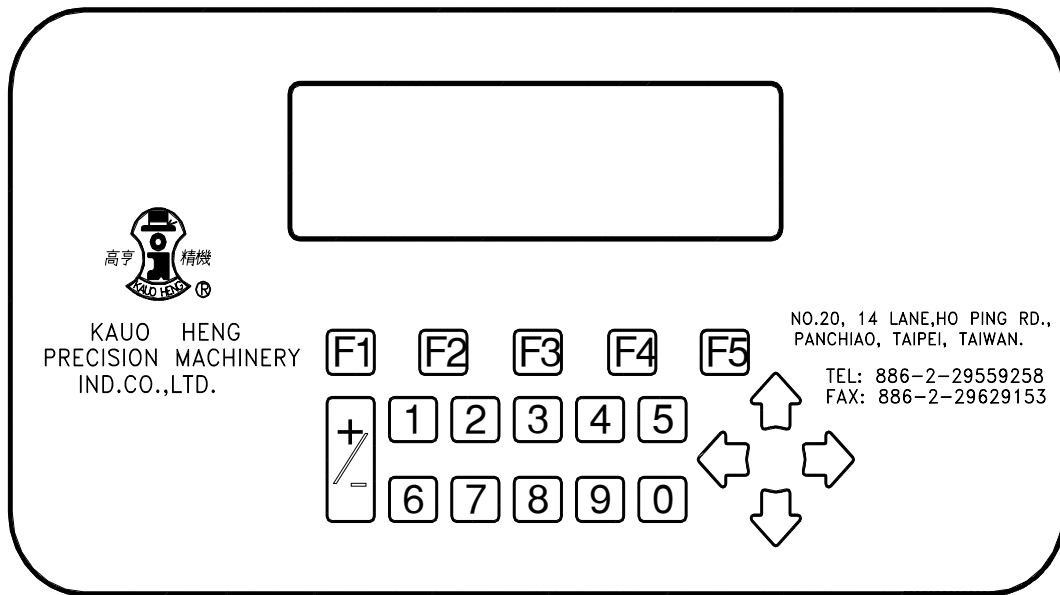


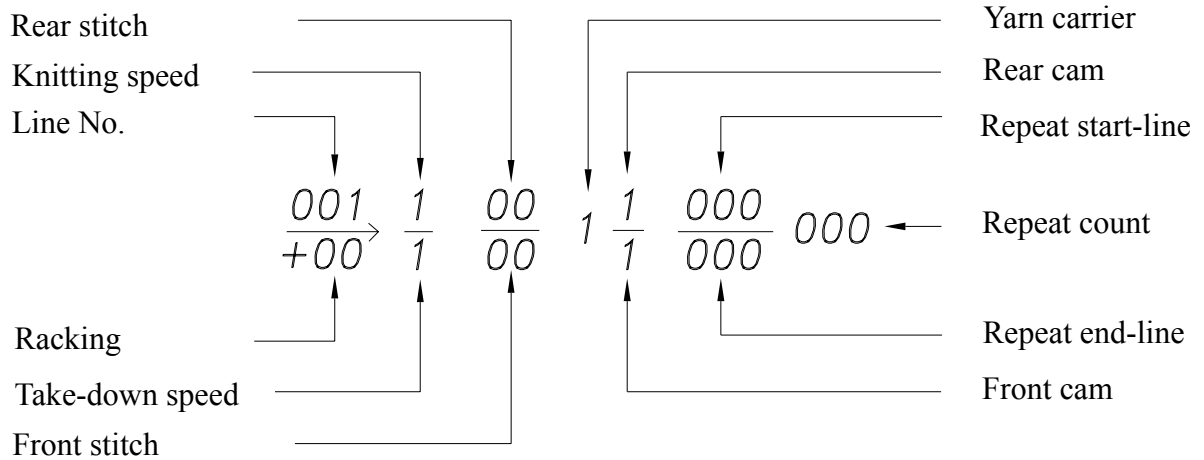
Fig.16.10 Command 8 : Transfer of front bed & receipt of rear bed

# INSTRUCTION MANUAL



0.START	_____	2-1
1.EDIT	_____	2-1
2.RUN	_____	2-6
3.FILE	_____	2-11
4.FUNCTION	_____	2-14
5.TEST	_____	2-15

# INSTRUCTION EXPLANATION



Yarn carrier	0. None yarn carrier 1~9		
Cam	<b>KH-313</b> 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit Low butt tuck 5. High butt tuck	<b>KH-313J</b> 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit Low butt tuck 5. High butt tuck 6. Jack knit 7. Jack tuck	<b>KH-313TJ</b> 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit Low butt tuck 5. High butt tuck 6. Jack knit 7. Jack tuck 8. Transfer
Knitting speed	0. Same as previous line 1. 1 (Slow) ~7 (Fast)		Line No.1 is not allowed "0"
Take-down speed	0. Same as previous line 1. No.1 speed 2. No.2 speed		Line No.1 is not allowed "0"
Racking	+ 10 Rack right 1 pitch - 10 Rack left 1 pitch		Face to the front of machine, you see the direction of movement of the rear bed.
Stitch	Setting from 0~99 (14G)		00 is zero (Tightest) Larger numeric gets longer loop.



## 0. START



Fig.0-1

When turning on the machine, it will appear this screen and display main menu after you press any key.

When you switch on the machine, then it displays **【MEMORY ERROR】** or **【FILE ERROR】**, you must switch off the machine and contact our agent or our service department.

There are five selections in main menu as Fig.0-2 illustrates and numeric corresponds to selection. Please directly press numeric key on keyboard then enter it.



Fig.0-2

## 1. EDIT

Press **1** in main menu, then display edit menu. There are five selections in edit menu as Fig.1-1 illustrates.

1. Open file    2. New file    3. Shift    4. Yarn carrier    5. Stitch



Fig.1-1

### 1.1 OPEN : Open file

Press **1** in edit menu, and then the screen displays as Fig.1-2.

PLS IN FILE-NAME: _				
SURE				EXIT

Fig.1-2

Remark : In screen there are five small squares, each one corresponds to **F1** ~ **F5** on keyboard, blank means out of function. For example, in Fig.1-2, **F1** is SURE, **F2** ~ **F4** are blank in no function, **F5** is EXIT. In other screen menu the operation will be the same.

In Fig.1-2, input the file name with numeric, and press **F1** : SURE ; then enter program to edit. When opening the file, input file name which is not existent. And the screen will appear Fig.1-3 warning screen, and then press **F1** to enter file or press **F5** to exit.

MIS-FILE NAME! RE-KEYIN FILE NAME!				
SURE				EXIT

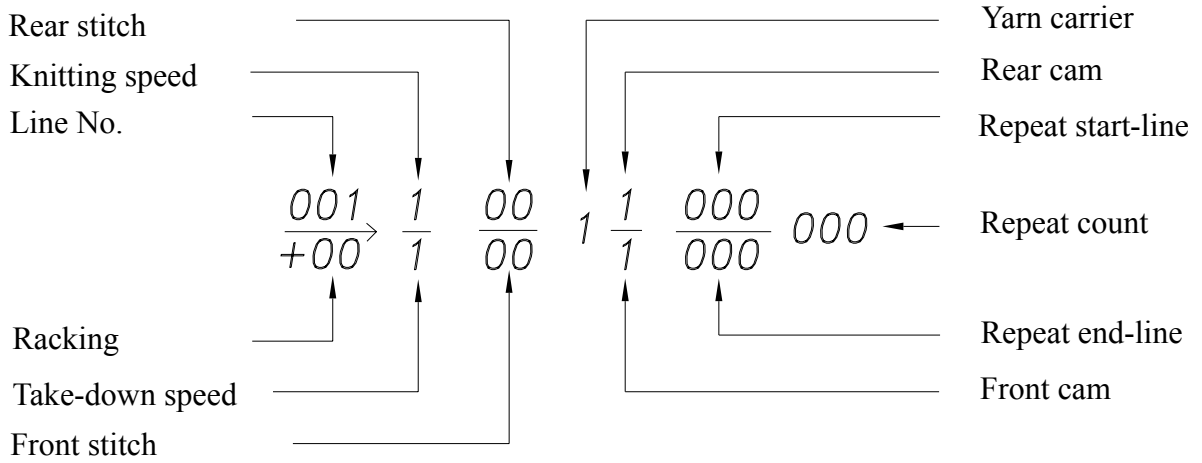
Fig.1-3

Edit screen appears two lines of instructions, cursor stops on the racking position, directly use numeric key and left, RIGHT key to edit instruction, or press UP, DOWN key change to other line. **+/-** key is for change of rack to left or right. Edit instruction, and please refer the instruction explanation.

001	3	45	1	1	000	000
+00	1	45	1	1	000	000
<hr/>						
002	0	45	1	1	000	000
+00	0	45	1	1	000	000
FILE	LINE	JUMP	DEL	EXIT		

Fig.1-4 Edit screen

# INSTRUCTION EXPLANATION



**F1** FILE : Insert a file.

NAME: _____ (FILE) NO: _____				
SURE				EXIT

Fig.1-5 Insert file

**F2** LINE : After current editing line inset a “ blank line ”, and the following lines are backward.

**F3** JUMP : This function is allowed jump to any line. If the input line No. is over total line, it will jump to the last line.

TO: _____ (JUMP)				
SURE				EXIT

Fig.1-6 Jump

**F4** DEL : Delete indicated lines.

FROM: _____				
TO: _____ (DEL)				
SURE				EXIT

Fig.1-7

**F5** EXIT : Press EXIT then the system will ask you to save this file, if it is not a new file, directly press **F1** SURE to use the same file name to save. The screen displays as Fig.1-9 then press

**F1** .

If you don't want to save, press **F5** twice to exit.

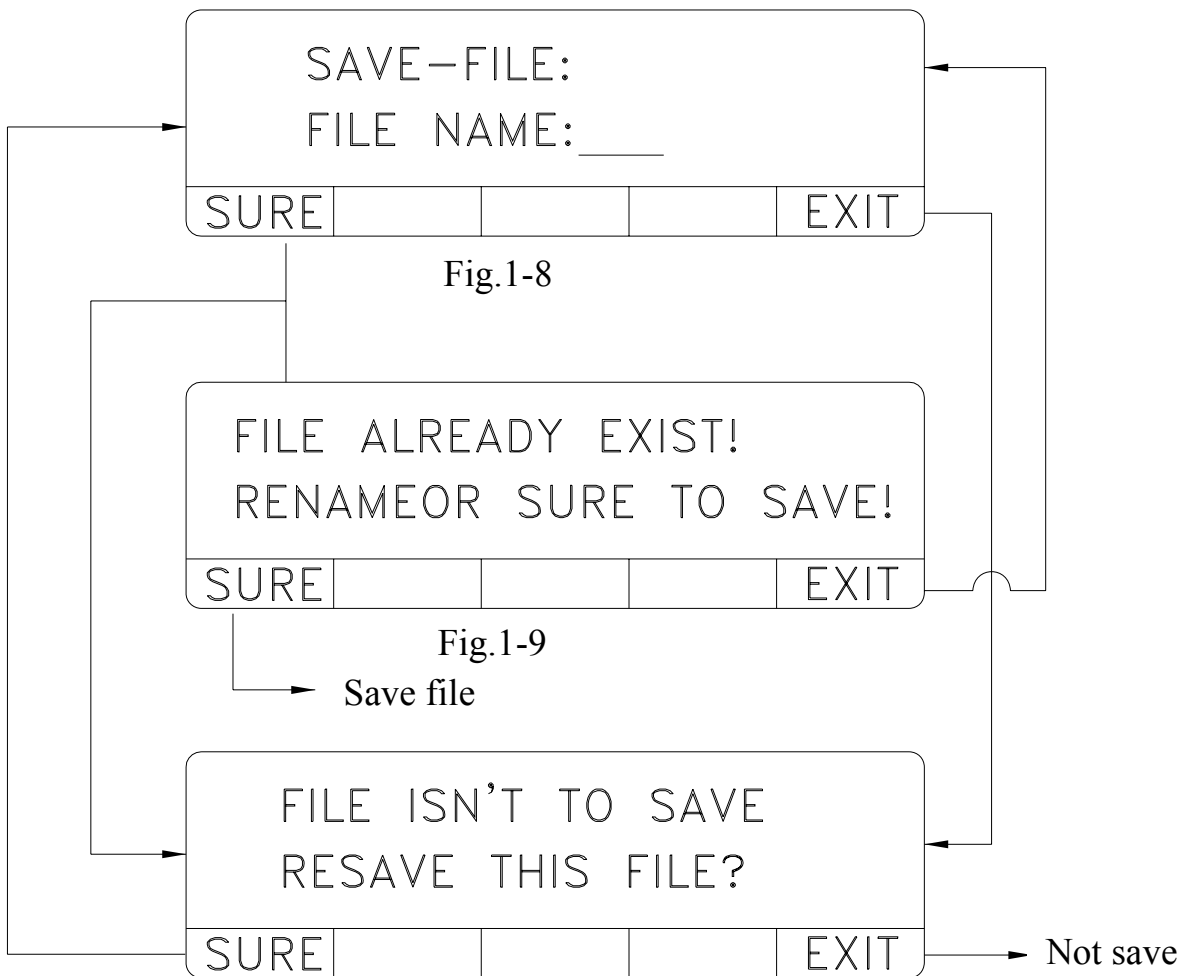


Fig.1-10

1.2 NEW : Open file

After you edit the first line, press **F2** to insert blank line and go on editing.

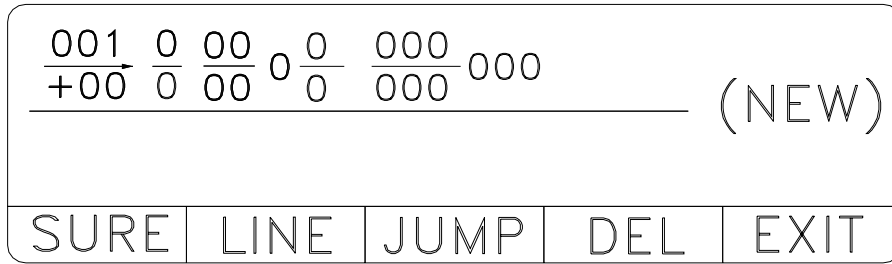


Fig.1-11

1.3 SHIFT : This function will copy left system to right system, or right system to left system, it contents of copy including cam, stitch, yarn carrier.



Fig.1-12 Shift

1.4 YARN : Quickly edit the working yarn carriers of any file.



Fig.1-13 Yarn

1.5 STITCH : Quickly edit the working stitch value of any file.

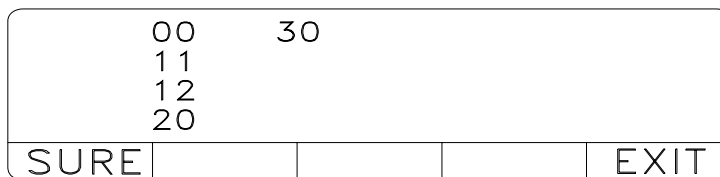


Fig.1-14 Stitch

If it has conversion error and the screen displays as Fig.1-15, press **F5** to exit.



Fig.1-15 Conversion error

## 2. RUN

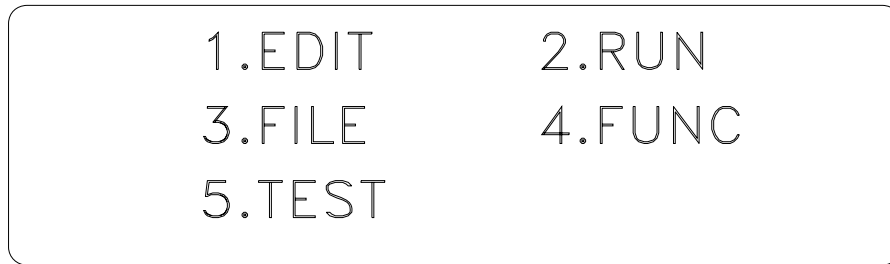


Fig.2-0

Press **2**

- ⊙ Enter RUN mode, if the stepping motor is not at home position, it displays warning **【STEP ERROR】**. You should go to the TEST mode, in STITCH function, you can test the stepping motor then come back to RUN mode.
- ⊙ Enter Run mode, if the carriage does not stop at the left limit position, it displays warning **【PLS MOVE CAM TO LEFT】**. You have to move the carriage to the left limit position and start.

# ERROR MESSAGE

After you finish inputting the instruction for the program that occurs incorrect action or wrong instruction to the function of machine, it will automatically appear ERROR message on RUN mode.

Error message table

Message	Explanation
Line not even	To edit a program, the total lines of program must be an even number. Otherwise the carriage does not return to the left side to proceed the next knitting piece.
Carrying feeder	It is an error that the carriage carries a yarn feeder when you set carriage in an empty action without yarn feeder.
None feeder (L)	When you set the action of knit, the carriage has to carry a yarn feeder.
None feeder (R)	
Rack error	Before ending the program, the needle bed must be racked back to the home position. In case the program racks one level to the right, it needs rack one level to the left back to the home position before ending.
Feeder 1 error	Before ending the program, the yarn feeder must return to home position, Otherwise it is impossible to proceed the next knitting piece.
Feeder 2 error	
Feeder 3 error	
Feeder 4 error	
Feeder 5 error	
Feeder 6 error	
Repeat error	Repeat must be set in even lines of amount, for example the start line is an odd and the end line must be an even, or from an even to an odd. ( From odd line to odd line or from even line to even line are unacceptable. )
Rack over speed	In racking, the maximum of knitting speed is No.4.
Start-ndl error	The number of start-needle must be smaller than the number of end-needle.
End-ndl error	The number of end-needle must be larger than the number of start-needle, or smaller than the number of total-needle.

Tab.2-1 Error message table

Please correct the error of edited program according to the error message of LCD display.

After finishing checking the system and confirming the program executive then the screen displays as Fig.2-1.

NAME: 001		T-RW: 0204	
YN-L: 103000		F-LN: 024	
T-PC: 9999		F-PC: 0025	
SURE			EXIT

Fig.2-1

Enter Fig.2-1, set the knitting file name, and then set T-PC (total pieces), F-PC (finished pieces), after setting press **F1** to enter Fig.2-2.

001	3	45	1	1	000	000
+00	1	45	1	1	000	000
002	0	45	1	1	000	000
+00	0	45	1	1	000	000
SURE	EDIT	1PC	HOME	EXIT		

Fig.2-2

- F1** RUN : Turn the operation bar for knitting.
- F2** EDIT : Edit stitch value and knitting speed. See Fig.2-3 and Fig.2-4 and Fig.2-5
- F3** 1 PC : Knit 1 piece and stop machine.
- F4** HOME : Give up the fabric on knitting. The method you turn the operation bar to stop machine, and press **F4** to make cam and stitch to home position, and then start the operation bar to make the carriage return to left beginning position.



**F5** EXIT :

1.STITCH      2.SPEED				
SURE				EXIT

Fig.2-3Edit stitch value & knitting speed

Press **1** enter Fig.2-4

Press **2** enter Fig.2-5

	00	30		
	11			
	12			
	20			
SURE				EXIT

Fig.2-4

Fig.2-4displays all the used stitch value of file. Directly move the cursor to the area of being changed, and press the numeric key to correct it. For example, in Fig.2-4the 12 is replaced by 15, then all the stitch value 12 is/are changed with 15 in this file.

SPEED-EXCHANGE				
LINE SPEED				
001	0	—	—	—
SURE				EXIT

Fig.2-5

Fig.2-5displays the exchange of knitting speed. Directly press the numeric key to change knitting speed, or press UP/DOWN key to the changed line and correct it.

Machine stop : If the fault signal ( auto-stop equipment ) is operated, it will display the fault signal as Fig.2-6 and corrective action refer to Table 2-2.

001	3	45	1	1	000	000	
+00	1	45	1	1	000	000	
002	0	45	1	1	000	000	(T-TSN)
+00	0	45	1	1	000	000	
SURE	EDIT	1PC	HOME	EXIT			

Fig.2-6

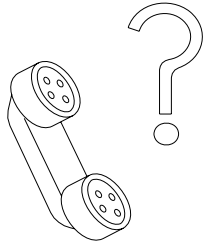
<b>SIGNAL</b>	<b>FAULT</b>	<b>CORRECTIVE ACTION</b>	<b>REMARK</b>
T-TSN	Yarn break Tension loose Yarn knot	After corrective action, turn the operation bar to clear, and restart the operation bar and go on knitting.	 <p>Pls contact our agent or service dept., if you still can't correct the fault.</p>
S-TSN	Yarn break Tension loose		
DETR	Needle break Fabric rise		
TK-DN	Fabric fall Fabric roll-up		
STOP	Safty cover is not closed.		
OVER	Motor rotates without signal of detector. Overload of inverter.	Switch off power and switch on after 5 sec. Switch off power to check power in correct then switch on.	
LEFT/ RIGHT	Carriage is stroke error.	Push the carriage out of limit sensor.	
STEP	Stepping motor error	Press <b>F4</b> HOME to return carriage to left limit position. Exit RUN mode and go to TEST mode to test stitch value and go back RUN.	
RACK	Racking error	Press <b>F4</b> HOME to return carriage to left limit position. Exit RUN mode and go to TEST mode to test racking and go back RUN.	

Table 2-2 Machine stop

### 3. FILE

1.DISP	3.DEL
3.COPY	4.TRANS
5.REVD	6.CLEAR

Fig.3-1

#### 3.1 DISP : Display

Move cursor to select the displayed file name, and press **F1** SURE the system will execute program once simultaneously, and display screen Fig.3-4. In Fig.3-4, column 1 displays file name and it's size of used memory. Column 2 displays the beginning position of yarn carrier on the left and the right. Column 3 displays T-RW ( total executive line ) and F-LN ( total file line ) . Please press **F5** or **F1** to come back to Fig.3-2 after confirmation.

<u>001</u>	002	020	005	
04 FILE		00483	BYTES	
		24349	BYTES	FREE
SURE				EXIT

Fig.3-2

<u>001</u>	3	45	1	1	000	000
+00	1	45	1	1	000	000
<u>002</u>	0	45	1	1	000	000
+00	0	45	1	1	000	000
SURE	EDIT	1PC	HOME	EXIT		

Fig.3-3

NAME:001	MEM:001			
YN-L:103000	YN-R:020400			
T-RW:006	F-LN:006			
SURE				EXIT

Fig.3-4

3.2 DEL : Delete the input file name, and press **F1** for sure. :

DEL-NAME:				
SURE				EXIT

Fig.3-5

3.3 COPY : Input source file name and target file name, and press **F1** for sure.

COPY:            TO:				
SURE				EXIT

Fig.3-6

3.4 TRANS : Transmits file to another machine, firstly confirm if the plug has been connected with connection cable on the back of controller.

TRANS:				
SURE				EXIT

Fig.3-7

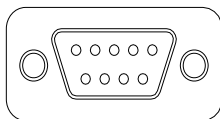


Fig.3-8

Plug for transmitted file on the back of controller.

3.5 REVD : Receive the transmitting file from another machine, firstly confirm if the plug has been connected with connection cable on the back of controller, and press **F1** for sure then start to receive.

REVD:				
SURE				EXIT

Fig.3-9

3.6 CLEAR : Clear all files.

DO YOU CLR:				
SURE				EXIT

DELETE ALL FILE !				
SURE				EXIT

DELETE ALL FILE : <u>555</u>				
SURE				EXIT

Fig.3-10

Enter code No : 555

## 4. FUNCTION

1. STITC	2. TYPE
3. BUZZ	4. MODE

Fig.4-1

4.1 STITC : Stitch parameters, directly adjust with numeric. ( Machine has two sets of stitch parameters ; one is for separation system and the other is for combination system. )

REAR			
LEFT	$\frac{30}{30} + \frac{30}{30}$	RIGHT	$\frac{30}{30} + \frac{30}{30}$
FRON			
SURE			EXIT

Fig.4-2

4.2 TYPE : Setting gauge and total needles, initial setting by manufacturer.

GAUGE:14			
T-NDL:1120			
SURE			EXIT

Fig.4-3

4.3 BUZZ : Setting buzzer function in action or not.

KEYBOARD:CLOSE			
ERROR:OPEN			
SURE	OPEN		CLOS EXIT

Fig.4-4

4.4 MODE : Setting display mode **F2** in English and **F4** in Chinese.

F2.ENGLISH			
F4.中文			
SURE			EXIT

Fig.4.5

## 5. TEST

1.RACK	2.MOTOR
3.SENSO	4.CAM
5.TK-DN	6.STITC

Fig.5-1

### 5.1 RACK :

◀ RACK LEFT ▶ RACK RIGHT NOTE! RACK-POSITION				
SURE				EXIT

Fig.5-2

### 5.2 MOTOR :

OPERATION BAR ↑ INCHING OPERTAION BAR ↓ RUN MAIN-MOTOR TEST				
SURE				EXIT

Fig.5-3

5.3 SENSO : Sensor. Test when they are switched on. Sensor with a small square appears in the front.

T-TSN	S-TSN	RIGHT	
<input type="checkbox"/> LEFT	TK-DN	OVER	
RACK	DETR	START	
INCH	MEM	COVER	
SURE			EXIT

Fig.5-4

T-TSN	Top tension	RACK	Racking
S-TSN	Side tension	DETR	Detector
RIGHT	Right limit sensor	START	Operation bar starting
LEFT	Left limit sensor	INCH	Operation bar inching
TK-DN	Fabric take-down	MEM	Memory error
OVER	Main motor overload	COVER	Safety cover

5.4 CAM : Move cursor to make the cam or the yarn feeder solenoid in action.

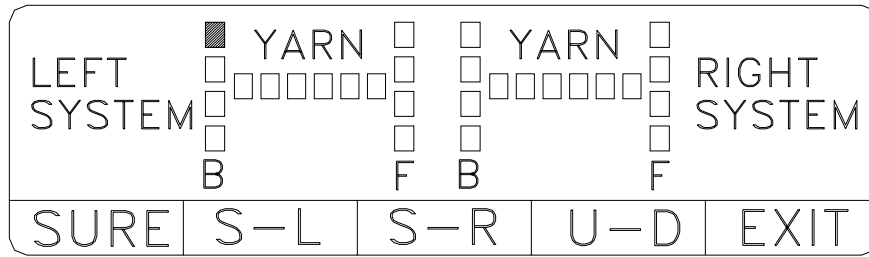


Fig.5-5

5.5 TK-DN : Setting the speed of fabric take-down, press ►◀key then turn the operation bar.

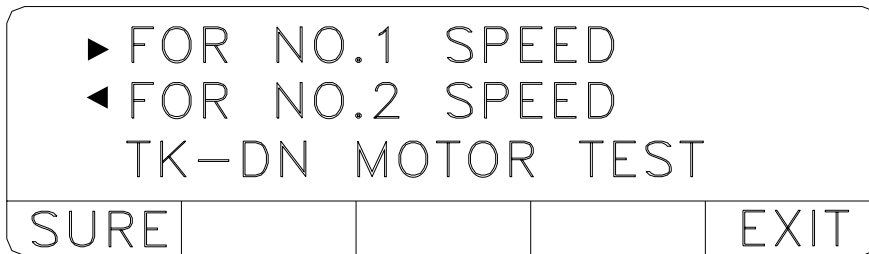


Fig.5-6

5.6 STITC : Stitch. Press **F1** ~ **F4** to test.

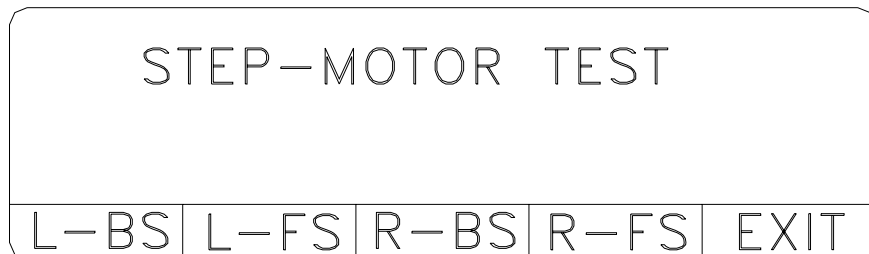


Fig.5-7

5.7 KEYBOARD : Test if it works or not then press **F5** to exit.

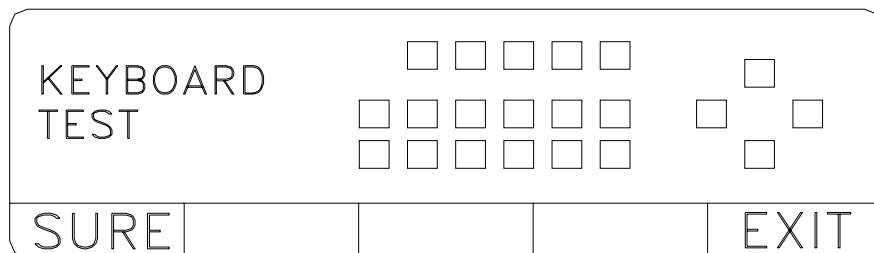


Fig.5-8



WELCOME TO KH-313

1.EDIT      2.RUN  
2.FILE      4.FUNC  
3.TEST

1.EDIT

1.OPEN      2.NEW  
3.SHIFT     4.YARN  
5.STITC

1.1.OPEN

PLS IN FILE-NAME :\_

SURE				EXIT
------	--	--	--	------

MIS-FILE NAME  
RE-KEYIN FILE NAME

SURE				EXIT
------	--	--	--	------

001	1	45	1	000	000
+00	2	45	1	000	000
002	1	45	1	000	000
+00	2	45	1	000	000
FILE	LINE	JUMP	DEL	EXIT	

FILE NOT FOUND  
OPEN NEW FILE

SURE				EXIT
------	--	--	--	------

1.2.NEW

001	1	45	1	000	000
+00	2	45	1	000	000
FILE	LINE	JUMP	DEL	EXIT	

1.3.SHIFT

PLS IN FILE-NAME: \_

SURE				EXIT
------	--	--	--	------

SYSTEM-EXCHANGE

SURE	L←	R	L→	EXIT
------	----	---	----	------

1.4.YARN

PLS IN FILE-NAME

SURE				EXIT
------	--	--	--	------

SAVE-FILE:  
FILE NAME: \_

SURE				EXIT
------	--	--	--	------

FILE ALREADY EXIST!  
RENAME OR SURE TO SAVE!

SURE				EXIT
------	--	--	--	------

FILE ISN'T TO SAVE  
RESAVE THIS FILE?

SURE				EXIT
------	--	--	--	------

CONVERSION IS ERROR  
RETRY!

SURE				EXIT
------	--	--	--	------

YARN-EXCHANGE  
YN-L:020400    YN-R:120000  
DIRECTLY EXCHANGE WITH CURSOR

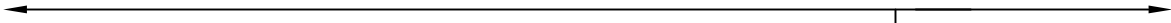
SURE				EXIT
------	--	--	--	------

1.5.STITC

PLS IN FILE-NAME

SURE				EXIT
------	--	--	--	------

00	30			
11				
12				
20				
SURE				EXIT



2.RUN

NAME: 001		T-RW: 0204	
YN-L: 103000		F-LN: 024	
T-PC: 9999		F-PC: 0025	
SURE			EXIT

001	1	45	1	000	000	
+00	2	45	1	000	000	
<hr/>						(T-TSN)
002	1	45	1	000	000	
+00	2	45	1	000	000	
RUN	EDIT	1	PC	HOME	EXIT	

001	1	45	1	000	000	
+00	2	45	1	000	000	
<hr/>						
002	1	45	1	000	000	
+00	2	45	1	000	000	
FILE	LINE	JUMP	DEL	EXIT		

DEL

FROM: \_\_\_\_\_ (DEL)

TO: \_\_\_\_\_

SURE			EXIT
------	--	--	------

JUMP

TO: \_\_\_\_\_ (JUMP)

SURE			EXIT
------	--	--	------

FILE

NAME: \_\_\_\_\_ (FILE)

NO: \_\_\_\_\_

SURE			EXIT
------	--	--	------

1.STITCH    2.SPEED

SURE			EXIT
------	--	--	------

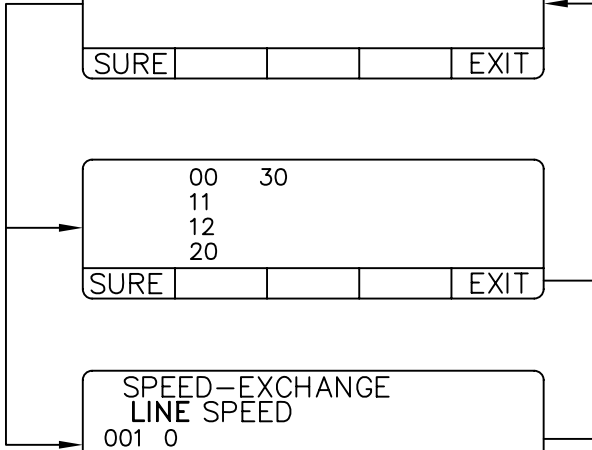
00	30		
11			
12			
20			
SURE			EXIT

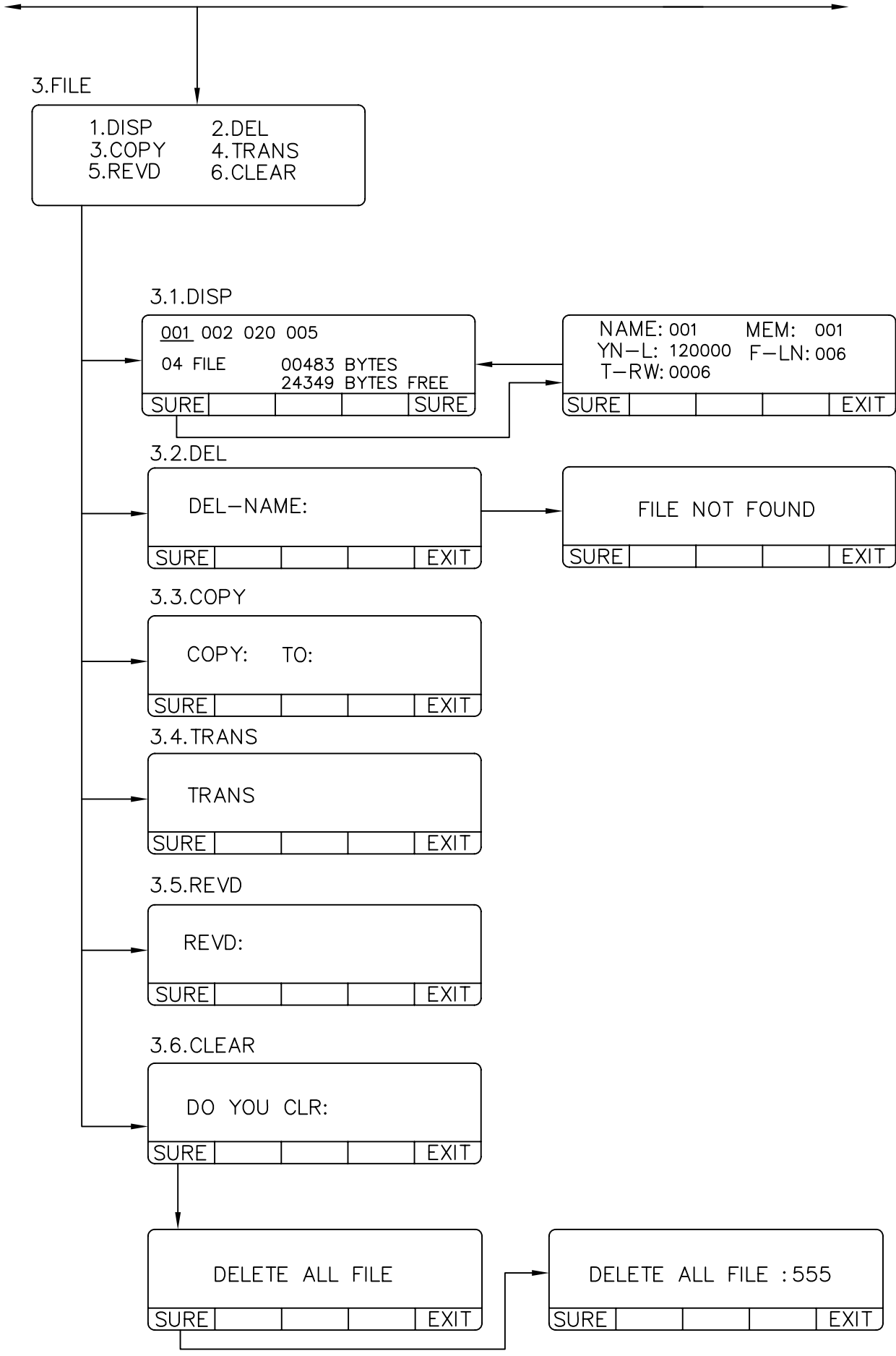
SPEED-EXCHANGE

LINE SPEED

001\_0\_ \_ \_ \_ \_

SURE			EXIT
------	--	--	------





3.FILE

1.DISP	2.DEL
3.COPY	4.TRANS
5.REVD	6.CLEAR

3.1.DISP

001	002	020	005
04 FILE		00483 BYTES	
		24349 BYTES FREE	
SURE			SURE

NAME: 001	MEM: 001		
YN-L: 120000	F-LN: 006		
T-RW: 0006			
SURE			EXIT

3.2.DEL

DEL-NAME:			
SURE			EXIT

FILE NOT FOUND			
SURE			EXIT

3.3.COPY

COPY: TO:			
SURE			EXIT

3.4.TRANS

TRANS			
SURE			EXIT

3.5.REVD

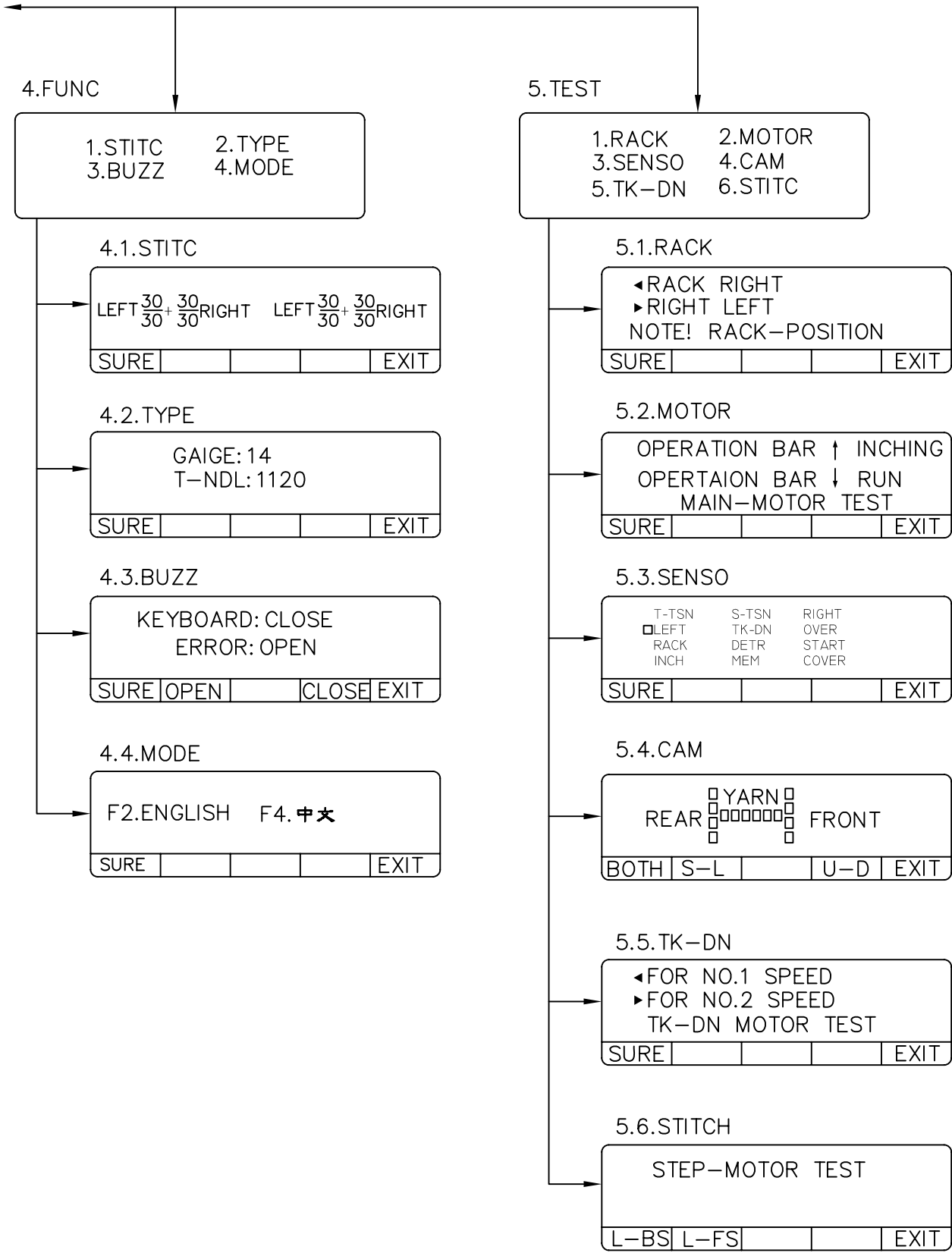
REVD:			
SURE			EXIT

3.6.CLEAR

DO YOU CLR:			
SURE			EXIT

DELETE ALL FILE			
SURE			EXIT

DELETE ALL FILE :555			
SURE			EXIT





**KAUO HENG PRECISION MACHINERY  
INDUSTRIAL CO., LTD.**

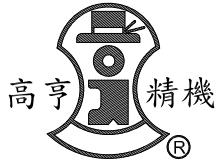
KH-313

FILE  
NAME

PAGE

Line No.	Knitting Speed	Rear Stitch	Yarn Carrier	Rear Cam	Repeat Start-Line	Repeat Count	Description
Rack	Take down Speed	Front Stitch		Front Cam	Repeat End-Line		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Line No.001 is not allowed "0" for knitting speed and take-down speed
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 2 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Rack : +10 Right 1 pitch -10 Left 1 pitch
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Knitting Speed : 0. Same as previous line 1(Slow) ~ 7(Fast)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Take-down Speed : 0. Same as previous line 1. No.1 speed 2. No.2 speed
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Yarn carrier : 0. None yarn carrier 1. No.1 yarn carrier 2. No.2 yarn carrier 3. No.3 yarn carrier 4. No.4 yarn carrier 5. No.5 yarn carrier 6. No.6 yarn carrier
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 6 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cam : 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit, low butt tuck 5. High butt tuck
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 8 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 9 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stitch: 00~99

FILE NAME	TOTAL EXECUTIVE LINE	
DATE	PRODUCTION	min./pc
Carriage must be on left side for starting.		



**KAUO HENG PRECISION MACHINERY  
INDUSTRIAL CO., LTD.**

KH-313J

FILE  
NAME

PAGE

Line No.	Knitting Speed	Rear Stitch	Yarn Carrier	Rear Cam	Repeat Start-Line	Repeat Count	Description
Rack	Take down Speed	Front Stitch		Front Cam	Repeat End-Line		
□ □ 1 →	□	□ □	□	□	□ □ □	□ □ □	Line No.001 is not allowed "0" for knitting speed and take-down speed
□ □ 2 ←	□	□ □	□	□	□ □ □	□ □ □	Rack : +10 Right 1 pitch -10 Left 1 pitch
□ □ 3 →	□	□ □	□	□	□ □ □	□ □ □	Knitting Speed : 0. Same as previous line 1(Slow) ~ 7(Fast)
□ □ 4 ←	□	□ □	□	□	□ □ □	□ □ □	Take-down Speed : 0. Same as previous line 1. No.1 speed 2. No.2 speed
□ □ 5 →	□	□ □	□	□	□ □ □	□ □ □	Yarn carrier : 0. None yarn carrier 1. No.1 yarn carrier 2. No.2 yarn carrier 3. No.3 yarn carrier 4. No.4 yarn carrier 5. No.5 yarn carrier 6. No.6 yarn carrier
□ □ 6 ←	□	□ □	□	□	□ □ □	□ □ □	
□ □ 7 →	□	□ □	□	□	□ □ □	□ □ □	Cam : 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit, low butt tuck 5. High butt tuck 6. Jack knit 7. Jack tuck
□ □ 8 ←	□	□ □	□	□	□ □ □	□ □ □	
□ □ 9 →	□	□ □	□	□	□ □ □	□ □ □	
□ □ 0 ←	□	□ □	□	□	□ □ □	□ □ □	Stitch: 00~99

FILE NAME	TOTAL EXECUTIVE LINE	
DATE	PRODUCTION	min./pc
Carriage must be on left side for starting.		



**KAUO HENG PRECISION MACHINERY  
INDUSTRIAL CO., LTD.**

KH-313TJ

FILE  
NAME

PAGE

Line No.	Knitting Speed	Rear Stitch	Yarn Carrier	Rear Cam	Repeat Start-Line	Repeat Count	Description
Rack	Take down Speed	Front Stitch		Front Cam	Repeat End-Line		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Line No.001 is not allowed "0" for knitting speed and take-down speed
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 2 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Rack : +10 Right 1 pitch -10 Left 1 pitch
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Knitting Speed : 0. Same as previous line 1(Slow) ~ 7(Fast)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Take-down Speed : 0. Same as previous line 1. No.1 speed 2. No.2 speed
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Yarn carrier : 0. None yarn carrier 1. No.1 yarn carrier 2. No.2 yarn carrier 3. No.3 yarn carrier 4. No.4 yarn carrier 5. No.5 yarn carrier 6. No.6 yarn carrier 7. No.1,2 yarn carrier 8. No.3,4 yarn carrier 9. No.5,6 yarn carrier
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 6 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cam : 0. Miss 1. Knit 2. Tuck 3. High butt knit 4. High butt knit, low butt tuck 5. High butt tuck 6. Jack knit 7. Jack tuck 8. Jack transfer
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stitch: 00~99
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 8 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 9 →	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 ←	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

FILE NAME	TOTAL EXECUTIVE LINE	
DATE	PRODUCTION	min./pc
Carriage must be on left side for starting.		