ShengTian Brand

SGE668C Type

Automatic Widening Flat Knitting Machine Frame

Instructions

JiangSu ShengTian Industry Co.,Ltd

The People's Republic of China

Preface

Thanks you for your purchasing and using automatic widening flat knitting machine frame of ShengTian Brand .Please pay attention to this instruction before setting up and using it in order to use the machine even more efficiently.

This machine will produce induced electricity because of using frequency converter to adjust the speed, so please pay attention to put to earth.

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Catalogue

Ⅰ. **Main usage and feature**

This frame is controlled by computer program, which can be assembled with hand driven flat knitting machine with different brand to automatically knit woolen sweater assemblies, sleeve, pants, wraps, cap and some other fabrics.

This machine has the following functions: automatic widening, automatic expanding when automatic widening, automatic shortening when hand narrowing, automatic changing speed, automatic changing double colors, hand changing eight colors, automatic stopping for coarse knot and ending out, automatic counting for stop, protection function for power failure. And the automatic roll-up device can be assembled according to the customers' demands.

According to the different materials and the different knitting width, six kinds o speed can be chosen, and when the frame head is converting, it can automatically and progressively reduce speed and reverse, so the impulse force becomes weaker to make the machine's running be even more stable.

If the machine can be used, to the greatest extent, it can lighten the workers' labour intensity, improve the labour productive force, and improve the products quality and the rate of products' defects.

Ⅱ. **Main Specification and Parameters**

1. Width of Machine:36"~42"   44"~52"   56"
2. Machine Gauge (Needle Pitch): 3.5G, 5G, 7G, 9G, 10G, 12G, 14G, 16G
3. Knitting Speed: Six kinds of speed can be chosen from speed 1 to speed 6.
4. Power Supply Demand: AC220V±8%   50HZ
5. Driving Motor Power: 370W
6. Batching Motor Power: 45W

Ⅲ. **Installation and Adjustment of the Machine**

Please read the instruction carefully before installment and install the machine from bottom to top according to the resolution diagram in the instruction. The statement about some parts that needed to be adjusted in the course of installment is as follows:

1.   Adjustment of the Height of the Frame

The height of the frame can be adjusted in order to fit for the different demands of different areas and different factories. So users can fix the height of the frame according to needs when installing it. When put the side frame at the bottom of adjusting foot, the height of the frame is the lowest which is 850mm, please move the side frame upward to adjust the height that there are three-scale height 910mm, 970mm and 1030mm. When the height is confirmed, please lock set screws.

2.   Adjustment of Winding Roller

When drawing and knitting with bottom board drag weight, drag weight and winding roller are interfered each other so that it will affect the normal knitting. So the winding roller of this machine is movable. Loosen the three fix screws at the two sides of the slide plates so the whole moving roller can be moved. When not using the batching, please push it inside and lock the fix screws; when automatic batching, pull outside and then lock the ix screws.

3. Adjustment after putting the flat knitting machine and the frame together

After completing the installment of the frame, please assemble the hand driven flat knitting machine on the frame. When installing, please put the four rubber washers on the four feet of the flat knitting machine, then life up the machine, and then put it on the frame and aim the four M10 screws on the machine at the holes on the frame. After put the machine on the frame well, please measure the distances from the two sides of guide rail of the machine to the cogged belt and the distances must be equal. After adjusting the distances well, please lock the four M10 screws. When locking the screws, please pay close attention to make the locking force for the four screws be even in order to avoid frame head's deformation. After locking the screws, please push the frame head by hand to check if the frame head can run smoothly. If you find it is not smooth, please immediately loosen the locking screws, and then adjust the screws one by one to make the frame head run smoothly.

4. Installment and adjustment of widening guide rail

After installing the flat machine on the frame and adjusting well, the widening device may be installed. Please lock the widening guide rail on the frame with the screw, then carefully adjust the position of widening device up and down, forward and backward. And adjust the position of the widening pawl above the widening device. That is the widening pawl must be above the butt; the distance between the terrace of the widening pawl and the butt keeps 0.2-0.3mm; the widening guide rail must be parallel with the machine and you'd better calibrate each widening device in the different positions. The three points mentioned above must be carefully adjusted well; otherwise it will be the accuracy of widening.

5. Adjustment of Frame Head Inductor

The frame head inductor is the key to define the running of the frame head, so it must be adjusted to the good position when installing the machine. The center inductor should aim at zero position of feeler center of the hand flat knitting machine.

Ⅳ. Operation ways

1. Keyboard

1) | numbers | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9:

2) | functions | F1、±/0.5:   changing between positive and negative, and 0.5 Button.

3) | cancel | enter | : cancel or conduct the operation.

4) ←、→ | Left, right arrow button | : page up or page down.

5) ↑、↓ | up, down arrow button | : cursor move up or down in that page.

2.   functions
When power on, "ShengTian brand auto widening Machine" will be displayed on the

screen, then press any key to enter the main menu. ST0512-V1.54 is the software serial number.

ShengTian brand auto widening machine ST0512-V1.54	F1: F-WF XXXLAA000000 1. Operation 4.testing 2. Program editing 5. Card operation 3. parameters

2.1 Main Menu

The operation for different functions.

1) Operation: it's the mode menu for weaving. You have to enter operation menu before you start weaving. Here you can start or stop the machine, control the engine to start or stop, and command the needle inserter to add or reduce the needles.

2) Craft: it's the mode menu for weaving where we input the sweater craft. It is the core of our operation.

3) Parameters: you can set and adjust the parameters to control the machine operation.

4) Check: a primary checking for all kinds of electronic input and output.(note: after the testing, restart before operation)

5) File: it is to copy craft between machines. It can save, read and delete data from computer memory to external storage and the reverse.

6) Craft x: craft choice. You can choose from 16 preset crafts to weave or edit. When cursor is moved to craft X, press "Enter" and the following will be displayed:

INS-PG A0	
ALLS 0.0 INS-PG B0	
PROG 0 INS-PG C0	
CH-G 0 INS-PG D0	

Others: the name the chosen craft, number 1-9 indicate Front M, Front L, Back S, Back M, Back L, Arm M, Arm L respectively. ALLS, PROG, CH-G and INS-PG display are data in this craft.

3. Operation

3.1 Operation Menu

   This menu indicates the basic data in this craft.

PG X	SD X	NO-ADD →	
AL AAAA/BBBB	ST X GE XX		
NM AAA.A/BBB.B	BK AAA BBB		
RP AAA/BBB	FD AAA BBB		

PG X: indicates the program currently used.

SD X: indicates the current weaving speed.

NO-ADD: indicates the weaving mode including NO-ADD, ADDFST, and ADDAFT.

AL: indicates the total number. AAAA is the total number and BBBB is the number has been woven,

NM: AAA.A indicates the number set by the current craft, and BBB.B is the number woven.

RP: AAA is the RP set by the current craft and BBB is the RP has been performed.

→: indicates the direction of the operation, ← is left, → is right.

ST: X indicates the current stop status. √ is stop at the ends, ⊥ is stop in the middle.

GE: XX is the color changing information. X indicates no color changing, √ indicates automatic color changing and number 1-12 is the gauge number to be chosen from.

FD: AAA is the needle number to be added to or deducted from the left side of the front needle board, if AAA is positive then to be added, if negative to be deducted; and BBB is the needle number to be added to or deducted from the right side of the front needle board.

BK: AAA is the needle number to be added to or deducted from the left side of the back needle board, if AAA is positive then to be added, if negative to be deducted; and BBB is the needle number to be added to or deducted from the right side of the back needle board.

Note 1: if you want to stop operation and get to the main menu, you can press Cancel after the machine stops. The screen will display the exit information, if you choose "exit without save", the machine will perform as if all the operation has been finished. If you choose "save and exit" then the machine will save the current operation data, you can resume your operation next time.

Note 2: when the machine stops, press cancel to enter the skip menu, you can press number button or arrow button to change the number, and then press enter to get back to operation. Then the machine will operate from the line number set previously. (Note: the direction of the operation should be in accordance with the arrow button, and you should push the head to pass the middle manually then press Start to start the operation)

Note 3: if the power goes off during operation, the machine will save current operation data. When the power recovers, you can choose to resume or return to main menu. If you choose to resume, then the machine goes directly to operation status and from the broken line. (Note: it is highly recommended that the head be pushed over the middle point manually before pressing the start button)

3.2 Program editing menu

The editing and input of weaving craft is the corn of operation

```
WIDE  XXX      XXX
NLBD  XXX
SP-W  AA*BB    NDTOBD
      FD  CC
```
Display2-A

```
PG X  T1  NUMSXXX.X
LFO  0        RHO  0
RPTS  XXXX    STOP X
CH-G X        SPD  X
```
Display2-B

```
1INS-PG 5COLL  9STOP
2DE-PG  6REPEAT
3DE-AL  7HYP-PG
4CH-G   8 SP-W
```
Display2-C

```
ALLS 0.0 HYP-PG A   0
PROG  0  HPY-PG B   0
CH-G  0  HPY-PG C   0
         HPY-PG D   0
```
Display2-D

```
     【CH-GEDIT】
PG  X        ALLS
GAUS  XX
NUMS        DEND
```
Display2-E

```
PG   XXXX
      COLL  XXX  XXX
```
Display2-F

```
      【REPEAT】
HEAD  X      ENDS  X
REPT   XXXX
             DEND
```
Display2-G

```
SP-W  AA*BB   NDTOBD
      FD  CC
```
Display2-H

```
      【STOPEDIT】
PG  X          ALLS
STOP  X
NUMS        DEND
```
Display2-I

2-A:

1) WIDE: the starting width of the needle, press F2 to change the positive
or negative(the left number should be smaller than the right one).

2) BLBD: the type of the board used, including A-BD, F-BD, and B-BD. You
can use the number button to choose the needle board: "1" is A-BD, "2"
is F-BD, and "3" is B-BD.

3) SP-W: AA is the front value and BB is the back value. You can change the value
by pressing the corresponding number button.

4) NDTOBD: SP-W modes include NDTOBD and NDTOND, you can choose any of them pressing
number button "1" or "2".

5) FD CC : is the starting arrangement of the needles. FD and BK are two choices
to indicate whether the last needle is on the front board or the back board. 0 is
the needle number. If there is cross inserting needles without SP-W, 0 shows
the first inserting needle is on the back board, 1 shows on the front board.

2-B: press→ to enter display B from A

1) PG X: the number of the program being editing .

2) T1: the current weaving mode, including NO-ADD, and ADDAFT. You can press
number button 1,2, and 3 to choose.

3) NUMS: the numbers needle to be woven in this craft.

4) LF 0: to add or deduct the needle number on the left of the needle board

by pressing | ±/0.5 |, (note: when you are adding or deducting needles, you can press | ↑ | to move the cursor to the word LF and then press number button 1to choose the cross inserting mode and 2 to choose the normal mode.

5)   RT 0: to add or deduct the needle number on the right of the needle board.

6)   RPTS: how many time need to be repeated in this craft.

7)   STOP: whether there should be stop in this craft, × is no stop, √ is common

Stop, and ⊥ is stop in the middle. Press number buttons 1,2,3 to choose,1 is no stop, displaying ×; 2 is stop at ends, displaying √; 3 is stop in the middle, displaying ⊥.

8)   CH-G: whether there is color changing in this craft. You can change by pressing number buttons. 1 is no changing, displaying ×; 2 is automatic changing, displaying √

9)   SPD: the speed in this craft.

2-C: press F1 to move from Display B to Display C, and press the corresponding number Button to choose

1) INS-PG: to insert one program before the current one and thus postpone the following programs.

2) DE-PG: this is to delete the current program.

3) DE-AL: this is to delete all the programs saved in the machine.

4) CH-GEDIT: this is to choose CH-G editing and enter display E.

5) COLL: this is to enter display E to edit.

6) REPEAT: this is to enter display G to edit.

7) HYP-PG: this is to insert a collateral program and enter display B, operate the same way as the main program.

8) SP-W: you can edit different SP-W modes in one program.

9) STOP: this is an independent STOP page, can be synchronized with the main program.

2-D: press F1 in Display A to enter Display D

1) ALLS: the total number needed to be woven in this program.

2) PROG: the programs constitute the craft.

3) CH-G:whether there is color changing in the program.

4) HYP-PG A0,B0,C0,D0: the collateral hyp-pg.

2-E:CH-GEDIT

1) GAUS: if you change color manually, you can press number buttons 1-14 to choose if you want it to be done automatically, you can press 0 and then choose √.

2) NUMS: the number of roll when color changing is needed.

(Note: press ⬚F1⬚ in CH-GEDIT page to function page, and the operation is of the same way as the main program.)

2-F: COLL Editing Page

1) COLL XXX: the starting width of the collar, you can change by pressing the button of ⬚±/0.5⬚

2) Note: when the right collar is symmetric with the left collar, only the width and speed are needle to input for the right collar, and then choose NOADD, NUMS 1, and RPTS 1, the computer will automatically copy the left COLL to the right.

2-G: REPEAT Editing Page

1) HEAD: this is the starting program to be repeated.

2) ENDS: this is the finishing program to be repeated.

3) RPTS: how many time needed to be repeated.

2-H: SP-W Editing Page

It is the same as the main program. When editing is finishing, the program enables several

different special weaving in one piece.

2-I STOP Editing Page

The setting enables stop at any roll, synchronized with the main program from the first roll.

3.3 Parameters Setting

```
┌─────────────────────────────────┐
│        【PARA-SET】              │
│  NLBD XXG CH 1 XXX CH 2 XXX      │
│  ROLL.0  DEWIDEAD  XXX           │
│  BREAKSET  LIMITSET  DEFAULT     │
│                                 │
└─────────────────────────────────┘
```

1) NLBD: 9 different needle boards: 1.5G, 3.5G, 5G, 7G, 9G, 10G, 12G, 14G, and 16G; press ⬚→, ←⬚ to choose.

2) CH 1: the position of the automatic color changing machine.

3) CH 2: the position of the hand color changing head.

4) ROLL: the rotating speed of the rolling.

5) DEWIDEAD: this is the distance of the head moved after the machine stops.

6) BREAKSET: it is the parameter of the stop position. Press enter to the BREAKSET page.

Number 1-6 are different speed. The values are to control the distance between the head and the

furthest needle when it turns around (that is the larger the value, the farther the distance).

7) LIMITSET: this is to set the weaving speed limit, press enter to the automatic decelerating

page.

(1) WIDE 50   SPD 2

When the starting width is less than 50 needles, the highest speed is 2.

(2) WIDE 140   SPD 3

When the starting width is less than 140 needles, the highest speed is 3.

(3) WIDE 220   SPD 4

When the starting width is less than 220 needles, the highest speed is 4.

(4) WIDE 300   SPD 5

When the starting width is less than 300 needles, the highest speed is 5.

(5) DIST: this is to adjust the real position of the shuttle when the head turns around
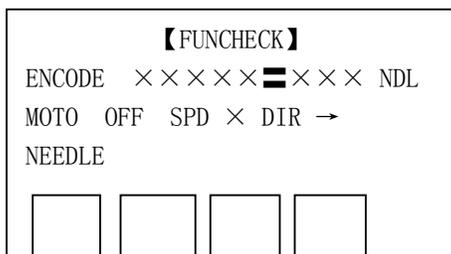
(with the value set, the shuttle will add corresponding needles when the head turns around).

(6) M-ST: this is to adjust the position where the head decelerates when stop in the operation

(the larger the value, the slower the stop process).

(7) DEFAULT: this is to recover all the original parameters.

3.4 Checking

```
┌─────────────────────────────┐      ┌─────────────────────────────┐
│       【FUNCHECK】           │      │  STAR-BTN        ROLL-BTN   │
│ ENCODE  ×××××▇×××  NDL      │      │  SPOT-BTN        ANTE-ERR   │
│ MOTO  OFF  SPD × DIR →       │      │  STOP-BTN        LIMIT-ERR  │
│ NEEDLE                       │      │                             │
│                              │      │                             │
│ ┌──┐┌──┐┌──┐┌──┐             │      │                             │
│ │  ││  ││  ││  │             │      │                             │
│ └──┘└──┘└──┘└──┘             │      │                             │
└─────────────────────────────┘      └─────────────────────────────┘
```

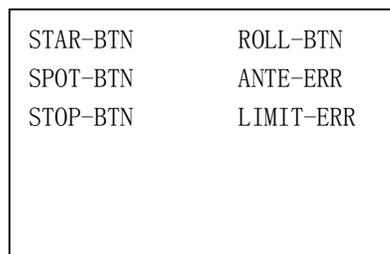　　　Display 4-A   Display 4-B

4-A: Main Function Checking Page

1) ENCODE: the count in the encoder will change if you push the head, and it will return to zero whenever the head pass the middle induct . The count value is positive when the head is at the right of the middle induct , and negative at the left.

2) MOTO: press [F1] to start or stop the motor, and the number button 1-6 can change the speed and the arrow button shows the direction.

3) NEEDLE: press 1-4 to choose the corresponding needle inserter. 1 is the "front right" needle inserter, 2 is the "back right" one, 3 is the "front right" one and 4 is the "back left" one.
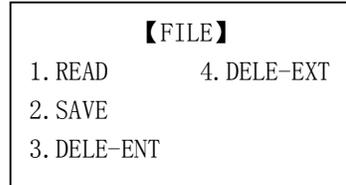
(Note: the cursor should be moved to the corresponding word to control the motor and needle inserter.)

4-B　Press enter in the main check menu to enter the assistant check page 4-B. Press the corresponding button to perform the corresponding checking, the cursor is a black block in this page.

3.5 File

```
【FILE】
1. READ        4. DELE-EXT
2. SAVE
3. DELE-ENT
```

1) READ: this is the copy the craft program from the external storage to the computer memory.

It is only in the computer memory that the program can be edited.

2) SAVE: this is to copy the craft program from the computer memory to the external storage.

3) DELE-ENT: this is to delete the 16 crafts for good from the computer memory.

4) DELE-EXT: this is to delete any of the craft in the external storage.

1.　READ

Press 1 in the FILE page to enter the READ page, and you can save the pattern in the external storage to the computer.

Instruction: when the READ page is displayed, press ┌→ ←┐ to choose the pattern number to be copied and the pattern number in the computer memory, and then press enter to confirm the operation. When the screen displays ”OK”, the craft has been copied to the computer memory. Press cancel to exit.

2.　　　　　　　　　　　　　　　　　　　SAVE

Press 2 in the FILE page to enter the SAVE page , and you can copy the crafts in the computer memory to the external storage and later be used in other equipments.

Instruction s: operate in the same way as READ program. Up to 32 crafts can be saved in the external storage.

3.　　　　　　　　　　　　　　　　　　DELE-EXT

Press 3 in the FILE page to enter the DELE-EXT page, and the patterns in the external storage can be deleted.

Instructions: press ┌→ ←┐ to choose the pattern number to be deleted in the DELE-EXT page, and then press enter to delete. Press exit to finish the operation.

Note: if you press 0 then all the 32 crafts in the external storage will be deleted.

Appendix 1: Errors and solutions

error	cause	solution
Head doesn't turn around in processing	1) whether the program is restored 2) proximity switcher poor contact or damage 3) encoder switcher poor contact or damage 4) transducer damage 5) WIDE set is inaccurate	restore Re-plug or replace Re-plug or replace replace reset
Unsmooth turn-around	The parameters of distance, speed, and stop position do not match The accelerating and decelerating time in the transducer do not match	Reset the parameters Reset the parameters
Wrong needle inserting	Program error Partial block of the needle inserter needle distortion or block electromagnet of the needle inserter poor contact or damage	reset repair and lubricate replace re-plug or replace
Power motor error	Head over-load Transducer V/F parameters do not match Transducer damage	Repair and lubricate Reset the parameters replace
Blank screen	Not bright enough The faucet of the screen error Screen damage	Turn up the brightness button Re-plug the faucet replace
The machine can not start	Self-protection of the transducer Button poor contact or damage Motor poor contactor damage Motherboard of the electric box damage	Power off for I minute before reboot Re-plug or replace Re-plug or replace Replace

Appendix 2: interfaces

Plug and socket at the back of the control box (downward)
Encoder interfaces

Earth (black)
Signal A (red)
Signal B (green)
VCC (white)

Main Control Interfaces

Spot switcher	Start switcher
Switcher Commonality end	Stop switcher
Antenna signal	Antenna Light
Inducer 12V	Antenna earth
Inducer GND	Inducer signal

Needle inserter interface

Needle Inserter Right Rear	Needle Inserter Right Rear
Needle Inserter Right Front	Needle Inserter Right Front
Needle Inserter Left Front	Needle Inserter Left Front
Needle Inserter Left Rear	Needle Inserter Left Rear

ROLL Motor Interface

220VAC1
220VAC1
220VAC2
220VAC2

Appendix 3: Programming Samples

Programming for arm (the gray-cloth for the arm is weft plain stitch) :
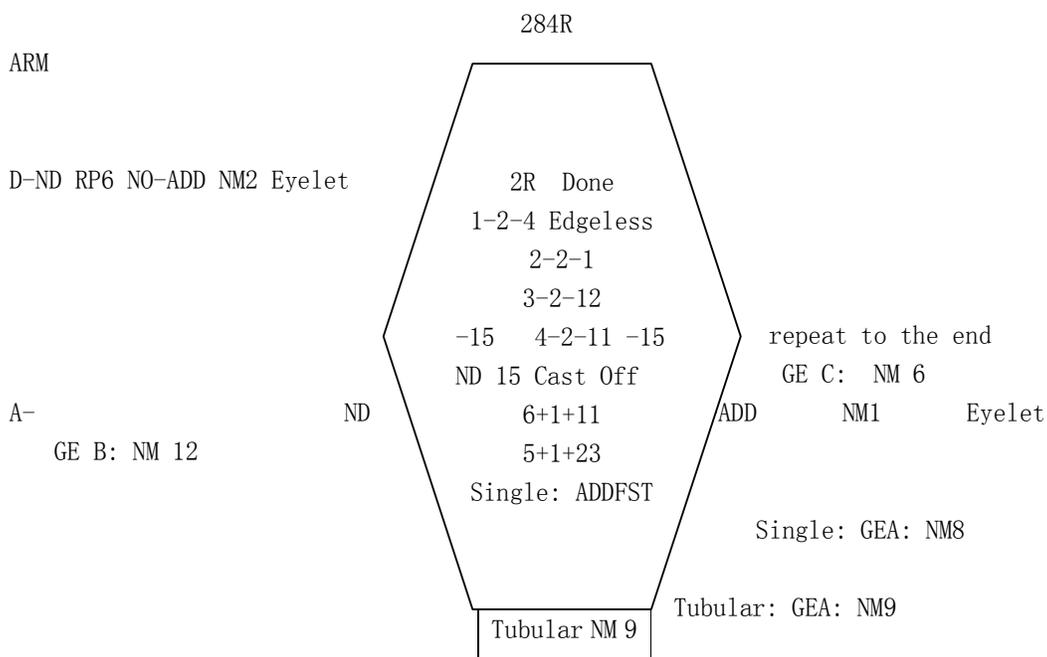Hand arrange the needles and the set the comb, turn the cylinder(no programming needed).
Program 000 can be run at the end. Press left and right arrow button to change program and up
And down arrow to move the cursor. Values should be filled in according to different crafts.
Every program should be ended with the finish button.
F2 button is used to change the positive and negative position and the half roll.
Press Cancel button to exit the program mode.

284R

ARM

D-ND RP6 NO-ADD NM2 Eyelet

2R   Done
1-2-4 Edgeless
2-2-1
3-2-12
-15   4-2-11 -15   repeat to the end
ND 15 Cast Off   GE C: NM 6

A-   ND   6+1+11   ADD   NM1   Eyelet
   GE B: NM 12   5+1+23
                            Single: ADDFST
                                          Single: GEA: NM8

                                     Tubular: GEA: NM9
Tubular NM 9

Arm: 276 plain stitches

Main Program

WIDE 276 NDLS RH − LF +	WIDE−138 +138 NLBD A−BD SP−W AA*BB FD CC	PG6 ADDFST NUMS4.0 LF−2 −2 RH−2 −2 RPTS11 STOP √	4-2-11
Drill after 8.5	PG1 NO−ADD NUMS 8.5 LF0 0 RH0 0 RPTS1 STOP √ CH−GX SPD3	PGb7 ADDAFT NUMS3 LF−2 −2 RH−2 −2 RPTS12 STOP √ CH−GX SPD3	HYP-PRG inserted
Turn over after 0.	PG2 NO−ADD NUMS0.5 LF0 0 RH0 0 RPTS1 STOP √ CH−GX SPD3	PG8 ADDFST NUMS2.0 LF−2 −2 RH−2 −2 RPTS1 STOP √ CH−GX SPD3	2-2-1
HYP− PRG inserted	PGa3 ADDFST NUMS5 LF+1 +1 RH+1 +1 RPTS23 STOP× CH−GX SPD3	PG9 ADDFST NUMS1.0 LF−2 −2 RH−2 −2 RPTS4 STOP √ CH−GX SPD3	
6+1+11	PG4 ADDAFT NUMS6.0 LF+1 +1 RH+1 +1 RPTS11 STOP× CH−GX SPD3	PG10 NO−ADD NUMS2.0 RPTS1 STOP× CH−GX SPD3 DEND	2 rolls, with end mark
	PG5 ADDAFT NUMS15 LF−15 −15 RH−15 −15 RPTS1 STOP √ CH−GX SPD3		

HYP−PG A   HYP−PG B

HYP−PG A	HYP−PG B
PG A1 NO−ADD NUMS86 LF0 0 RH0 0 RPTS1 STOP √ CH−GX SPD3 DEND	PG B1 NO−ADD NUMS20 LF0 0 RH0 0 RPTS1 STOP √ CH−GX SPD3 DEND

HYP−PG A is inserted in PG 3, synchronized with program 3.
HYP−PG b is inserted in PG 7, synchronized with program 7.

CH-G Edit

【CH-GEDIT】	【CH-GEDIT】	【CH-GEDIT】
PG 1	PG 3	PG 5
GAUS 2	GAUS 1	HEAD 2　　　ENDs4
NUMS 17.0	NUMS 6.0	RPTS12　　　DEND
【CH-GEDIT】	【CH-GEDIT】	
PG 2	PG 4	
GAUS 3	GAUS 2	
NUMS 12.0	NUMS 8.0	

PG1 GAUS2 NUMS17: after 17 rolls change to gauze No.2

PG2 GAUS3 NUMS12: after 12 rolls change to gauze No.3

PG3 GAUS1 NUMS6: after 6 rolls change to gauzeNo.1

PG4 GAUS2 NUMS8: after 8 rolls change to gauzeNo.2

【press F1 to enter the function menu and choose REPEAT 】

HEAD2 ENDS4 RPTS12: repeat 12 time from program 2 to program 4.