Compact-Type Intelligent Electro Pattern Sewing Machine TC131-0705

Operation Instruction

Ver 1.1
Jul. 2010

Preface

Thank you for purchasing compact-type intelligent pattern sewing machine of our company. To bring the excellent performance into full play and ensure safety of customer and the equipment, please read the instruction carefully before use.

As an attachment to the machine, please keep the instruction well after use for the convenience of equipment examination and maintenance for the future.

If your have any doubt or special requirement on operation of the pattern sewing machine, please contact offices or agencies of the Company at any time, or contact after-sale service center of the Company directly.

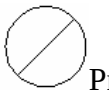
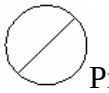
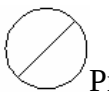
The Instruction content is subject to changes without prior notice.

Contents

1. Safety Instruction

1.1 Basic safety

When using the product, to avoid danger of fire, electric shock or casualties, the following basic safety precautions shall be followed all the time:

 Caution	Do not attempt to maintain or debug electric component by yourself, or the equipment performance will be reduced, to cause instability of the system, enlarge scope of failure or even lead to human injury or property loss. The maintenance and debugging shall be done by professional technician assigned by the supplier.
 Danger	When the product is in working process, do not open the case cover. Some parts in the case may have lethal high-voltage to cause inadvertent personal injury.
 Warning	Make sure the power (pull out power plug of the machine from the power socket) is cut off when you have to open the case cover, and then the case cover can be opened only in five minutes after power-cut.
 Prohibition	Prohibit electrical equipment working in environment with moist, dust, corrosive gas or flammable and explosive gas, or it may cause electric shock or fire.
 Prohibition	Prohibit insulation test to input and output circuit of the controller or it may directly cause damage to electric equipment.
 Warning	Using any spare parts not provided or recommended by the Company may cause fire, electric shock or severe damage.
 Caution	Please strictly follow all requirements and warnings marked in the product, so as to guarantee personnel and property safety.
 Caution	The circuit board may be destroyed by electrostatic interaction; non-professional technician is not allowed to disassemble circuit board.
 Prohibition	Prohibit splicing overloaded electric instrument on power socket or wiring terminal of the controller.

1.2 Wiring safety

1. Any error or defect of wiring may directly have an impact on reliability and

stability of the system or cause electric shock or equipment damage, thus treatment and operation shall be done carefully.

2. Make sure all connecting wires (signal wire or power wire) are insulated well and have no sheath damage.

3. All cables shall be rationally fixed, cables can never be forced, cables shall be processed when passing through sharp surfaces as structural holes, etc., so as to prevent cable damage by improving insulation intensity via a wire sheath.

1.3 Insulation of electric components and electrical equipment

During the installation or operation process of electric moving parts, make sure good insulation between the internal circuit and the package at any time. Main axis motor, stepper motor, power switch and various electromagnets are included.

1.4 Connection of power wire

1. Use multimeter to measure and confirm power type, which shall be consistent with nominal value on the product nameplate, zone with power network fluctuation exceeding ±15% of the nominal voltage value must adopt AC stabilized supply with grounding function and power over 1KW.

2. In order to guarantee safe use of the product, do not select to use the power supply with intermittence high power load (elevator, working machinery, etc.)

3. Erect the power wire at safe position.

4. Make sure plug the power socket tightly with correct plugging position and direction.

1.5 Grounding

To prevent physical injury accident or fire due to electric leakage and make sure the electro pattern sewing machine, the controller shell must be grounded reliably. The grounding resistance shall be less than 10 ohm.

1.6 Discard precautions

When treating discarded pattern sewing machine controller, pay attention that:

1. Electrolytic capacitor: Explosion may occur when the internal electrolytic capacitor is burning.

2. Plastic: Harmful or toxic gas may be produced when the internal plastic and rubber component are burning, please be careful when burning.

3. Clear-out: Please dispose of the discarded pattern sewing machine controller as industrial wastes.

2. Product Characteristics and Performance Index

2.1 Product characteristics

1. By adopting the AC servo control technology, the main axis motor has high positioning accuracy and reliable and stable performance.
2. By adopting subdivision technology to drive, the operation of stepper motor is more stable and the sewing quality is greatly improved.
3. By selecting advanced middle and large scale integrated circuit and adopting multi-CPU control mode, the main controller has greatly improved reliability of the system.
4. By adopting advanced multi-axis motion control algorithm software, stable five-axis linkage is realized.
5. Organization and production of the product under ISO 9000 quality system has reliable quality.

2.2 Performance index

Stitch mode	Local stitch
Sewing speed	400～2700rpm
Sewing dimension	70×50mm
Stitch length	0.1～12.7mm
Cloth-feed driving mode	Pulse motor drive
Max. number of stitches	Storage up to 400,000 stitches
Range of presser foot lift quantity	10～17mm
No. of cycle program	10
Preset pattern	3 sewing patterns have been set
Range of lower thread counter	0～9999
Range of Production counter	0～9，999，999
Controller overall dimension	340×300×170mm (length × width × height)
Temperature range of working environment	5℃～40℃
Environment humidity	≤85RH, no condensation
Altitude	≤1500m; please use by lowering speed if ＞ 1500m.
Power supply source	Rated voltage of AC220V±15%, rated power of 50/60Hz
Power of main shaft motor	450W
Static power of machine	≤50W
Dynamic power of machine	≤200W

3. Power on/Power off

Check before power on:

1. Make sure normal installation of machine head switch assembly and stable installation of motors of different parts.
2. Make sure all wires of the controller and machine head are connected firmly and plugging positions are correct; confirm normal power connection; all wiring shall be intact.

Check on power on process

Press ON key (as shown in Fig3- 1) to connect power supply to provide power for machine. Operational keypad PROGRAM No. display area and menu display shows [131] and [0705] (as shown in Fig3- 2) respectively, several seconds later, operation panel, PROGRAM No. display area and menu display shows [1] and [1800] respectively, the main axis motor will return to the origin automatically, the presser foot lifter motor will return to origin, then the Y axis and X axis will return to the origin, hence the take-up-lever is at the highest point, the main axis motor is locked, and the presser foot frame is pressed, but the middle presser foot is lifted. Menu display will display [1] and flash, operation panel TYPICAL indicator light will be on (in green for a long time), the SPEED indicator light will be on (in red color for a long time) (as shown in Fig3- 3).

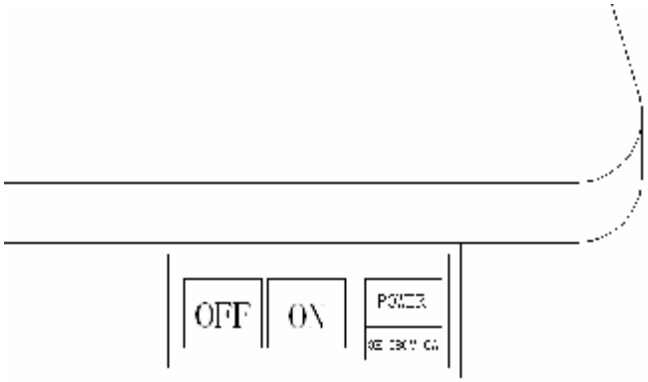


Fig 3- 1

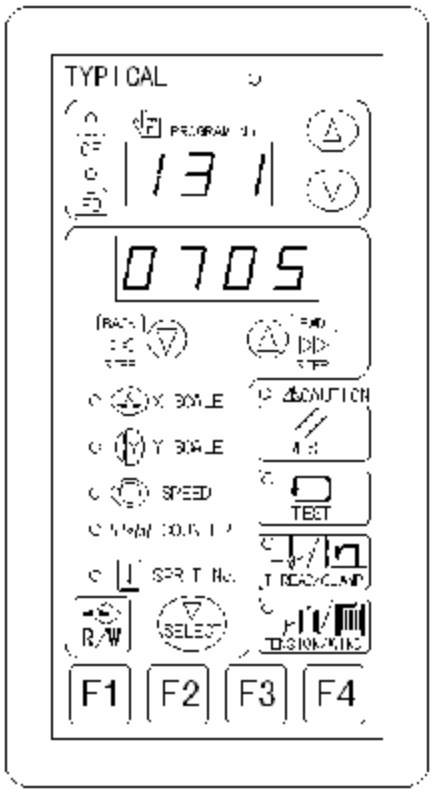


Fig 3- 2

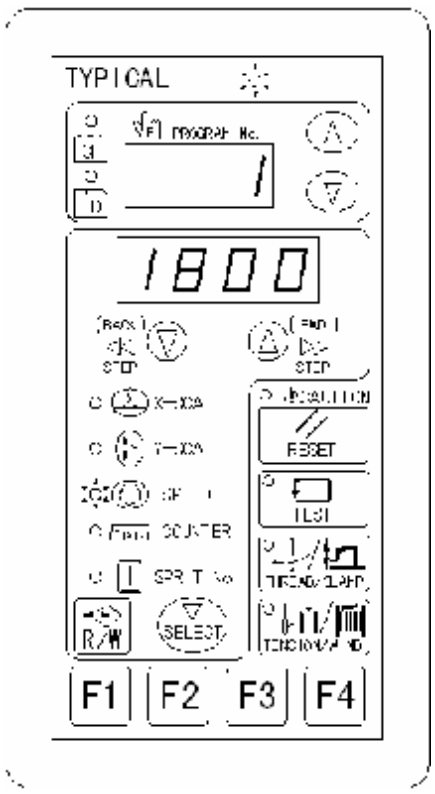


Fig 3- 3

(In the operation panel layout, if ✦ is marked around indicator light, it means the light is under long–time lighting or flashing state).

Power off:

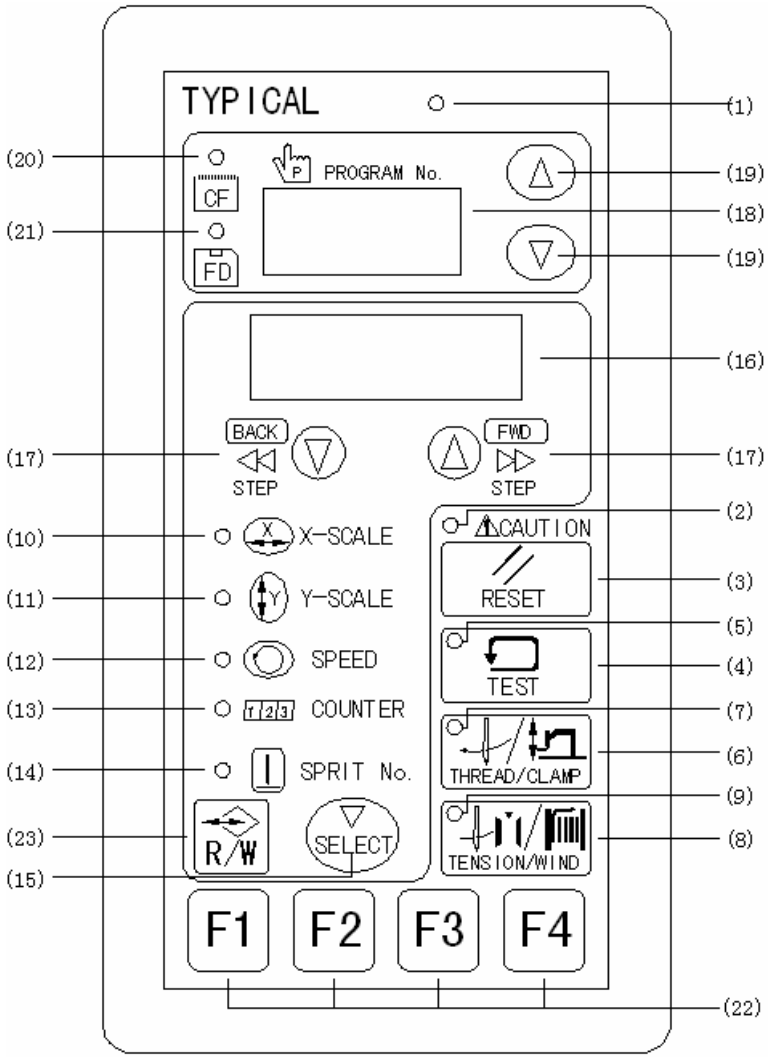
Press OFF key (position as shown in Fig3- 1) to directly close down the power. Hence characters and indicator lights displayed on the operation panel all go out, the machine head part has no any motion.

During the power on/off process, if what occurred is the same as the above mentioned description, it means the machine starting/up/ closing down is normal.

Note: the machine can be started only in 1 minute after power off each time.

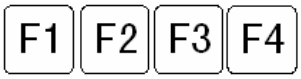
4. Keypad Introduction and Basic Operation

4.1 Keypad introduction

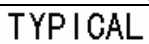
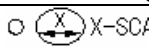
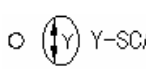
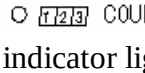


Introduction of keys:

No.	Key	Function
(3)		Fault removal, reset and zero clearing;
(4)		Function combination key, matched with other keys; save set-point values and return key;
(6)		Enter threading mode or presser foot frame height set-up mode with this key;
(8)		Use this key for winding lower thread;

(15)		Used to switch to menu (horizontal or vertical scale, sewing speed, counter, cycle program view);
(17)		Use this key to change value displayed on menu display area (16);
(19)		Use this key to change value displayed on PROGRAM No. display area (18);
(22)		Used to set and select user program and cycle program; arrow key during drafting;
(23)		Use this key to read or delete self-designed patterns in SD card.

Introduction of indicator lights:

No.	Indicator light	Function
(1)	 indicator light	Light is on when power supply is connected;
(2)	 indicator light	Light is on when error occurs;
(5)	 key indicator light	Light is on when pressing TEST key;
(7)	 key indicator light	Light is on when pressing THREAD/CLAMP key;
(9)	 key indicator light	Light is on when pressing TENSION/WIND key;
(10)	 indicator light	Light is on when switching the SELECT (15) key at horizontal scale;
(11)	 indicator light	Light is on when SELECT (15) key is switched to vertical scale;
(12)	 indicator light	Light is on when SELECT (15) key is switched to sewing speed;
(13)	 indicator light	illuminate when SELECT (15) key is switched to lower thread counter/production counter;
(14)	 indicator light	illuminate when SELECT (15) key is switched to cycle program view;
(16)	menu display area	Used to display set-point value of menu, contents and error codes of storage switch, etc.;
(18)	PROGRAM No. display area	Display program No.;

(20)	CF indicator light	Light is on when using SD card to read customer self-designed patterns;
(21)	FD indicator light	Not used.

4.2 Pattern selection

Default set-up of the sewing pattern is No.1 pattern at ex-factory.

1. Press ON key to connect power supply and provide power for machines, until operation panel display and menu display show [1] and [1800] respectively, with [1] under flashing state (as shown in Fig. 4-1)

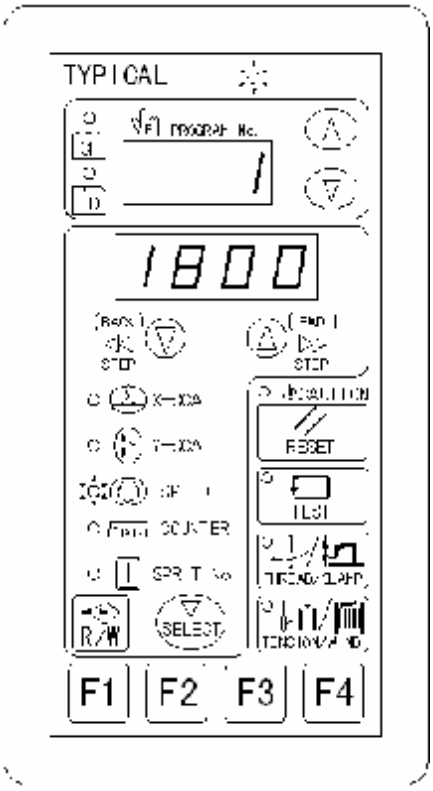


Fig. 4-1

2. Press ▽ or △ key, to select pattern, PORGRAM No. display displays the selected pattern.
Note: Three patterns are attached with at ex-factory of machine.

4.3 Set-up of sewing speed

Default set-up of the sewing speed is 1800 (rpm).

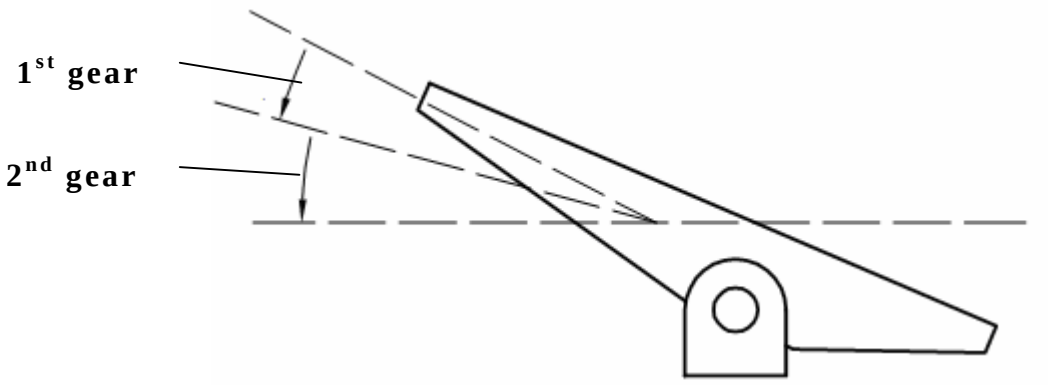
1. After the needed pattern is selected, press BACK STEP ▽ or △ FWD STEP key to set up sewing speed. Value of sewing speed displayed on the menu display area refers to the current selected speed.

Note: Set-up range of speed: 400～2700 (rpm), the highest default speed is 2500

（rpm）.

4.4 Pattern confirmation and sewing

1. After the sewing pattern is selected and sewing speed is set up, tread the pedal switch to 2nd gear to confirm the pattern, the presser foot frame will be lifted and moved to the sewing-start point of selected pattern, pattern number [1] displayed on PROGRAM No. display area will stop flashing.
2. Put cloth under the presser foot frame, tread the pedal switch to 1st gear, the presser foot frame will be pressed down, then release the pedal switch, the presser foot frame will be lifted; tread the pedal switch to 2nd gear, the machine can begin to complete the pattern sewing automatically, and then the presser foot frame will return to original position and be automatically lifted.
3. After the completion of sewing, cloth can be changed; then continue the next sewing according to description in step 2.



Treadle Pedal Schematic Diagram

4.5 Winding

1. Press and hold TENSION/WIND key, and then tread the pedal switch to 2nd gear, the machine will start automatic winding. The SPEED indicator light on the operation panel goes out, the TENSION/WIND key indicator light is on, the pattern number is under non-flashing state; the presser foot frame and middle presser foot frame will be pressed down. During the winding process, only the main axis motor is rotating with a speed of 1800rpm, other motors are not moving.
2. Now you can release the TENSION/WIND key, the TENSION/WIND key indicator light will be on continuously, tread the pedal switch to 2nd gear, and do not release it, to continue winding.
3. Until winding is completed, release the treadle pedal, the winding will stop, the main axis will return to zero, the middle presser foot will be lifted, the TENSION/WIND

key indicator light goes out, the SPEED indicator light is on, the pattern number returns to the flashing state before winding.

4.6 Threading mode and presser foot frame height set-up mode

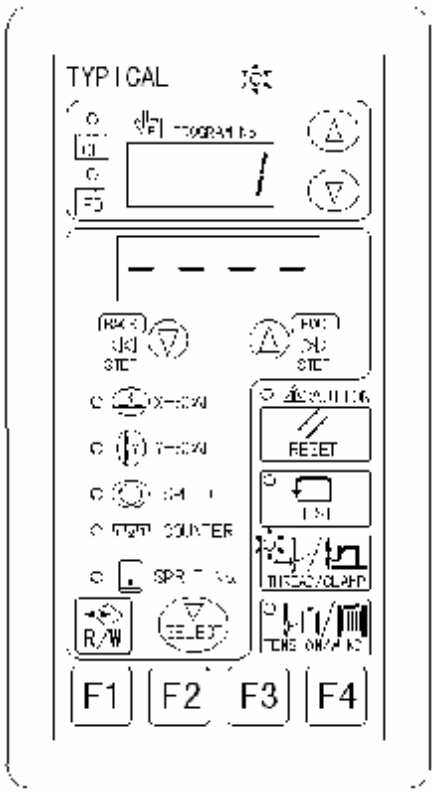


Fig. 4-2

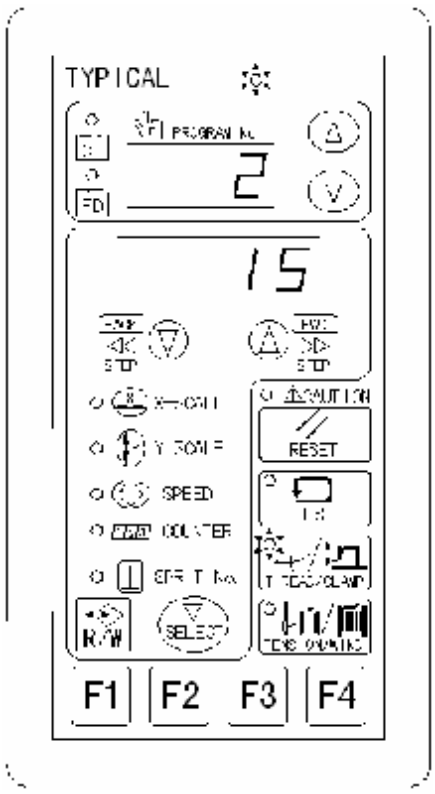


Fig. 4-3

Default set-up of the presser foot frame is 15 (mm) at ex-factory.

1. Press THREAD/CLAMP key to enter threading mode (as shown in Fig. 4-2). Then the SPEED light goes out, the THREAD/CLAMP key indicator light is on; loosing electromagnet is actuated, the presser foot frame and the middle presser foot are pressed down, the main axis motor is unlocked, thus the main axis motor is rotated by hand-wheel. Now the threading motion can be performed.

2. After the completion of threading motion, press THREAD/CLAMP key again to exit the treading mode. The THREAD/CLAMP key indicator light goes out, the SPEED indicator light is on; the presser foot frame and the middle presser foot will be lifted.

3. If it exceeds 5 minutes after entering the threading mode, the controller will exit the treading mode automatically, so as to avoid burning to the loosing electromagnet.

Note: During the threading process, prohibit others to press any key on the

operation panel, so as to avoid human injury or machine damage; if the threading process can not be completed within 5 minutes, exit the treading mode and enter again, and then continue the treading motion.

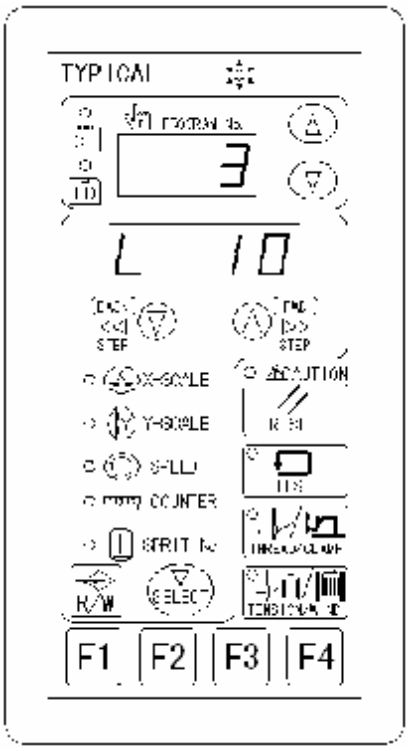


Fig. 4-4

4. Under the threading mode, press △ to switch to the presser foot frame height set-up mode (see Fig. 4-3), and press △ key to switch to the middle presser foot frame height set-up mode (see Fig. 4-4), then the ○ SPEED light goes out, the THREAD/CLAMP key indicator light is on, the value displayed on the menu display area refers to the lifted height of the current presser foot frame or middle presser foot frame, the loosing magnet is released, the presser foot frame and the middle presser foot are lifted.

5. Press BACK STEP ▽ or △ FWD STEP key to reset the height of presser foot frame and middle presser foot frame, value displayed on the menu display area will change also. Every time when pressing BACK STEP ▽ or △ FWD STEP key, the presser foot frame or presser foot frame will raise or lower 1 (mm), set-up range of the presser foot frame height is 10～17 (mm), set-up range of the middle presser foot frame height: 1～17 (mm).

Note: the height of middle presser foot frame is always lower than that of presser foot, for example: if the presser foot height is 17, the max. Height of middle presser foot frame is 16.

6. After the set-up is completed, press 

key to exit the height set-up mode of presser foot frame or middle presser foot frame.

5. User Advanced Operation

5.1 User parameter list

No.	Set-point value	Function	Initial value
001	Presser foot frame motion after completion of automatic processing.		ON
	ON	Automatic lifting.	
	OFF	Continuous press-down. (not available for single pedal system)	
002	Trimming after completion of automatic processing.		ON
	ON	Automatic trimming.	
	OFF	Trimming forbidden.	
003	Return to (secondary) origin or sewing-start point after completion of automatic processing.		OFF
	ON	Return to (secondary) origin.	
	OFF	Return to sewing-start point.	
005	Origin presser foot frame motion.		ON
	ON	Presser foot frame is pressed down after returning to origin.	
	OFF	Presser foot frame is lifted after returning to origin.	
010	Selection of middle presser foot		OFF
	ON	Height set-up of middle presser foot is available	
	OFF	Middle presser foot set-up is not available	
100	Slow start		OFF
	ON	Start according to the speed that: the first needle of 400 rpm, the second needle of 400 rpm, the third needle of 600 rpm, the fourth needle of 800 rpm and the fifth needle of 1200 rpm.	
	OFF	When starting sewing with speed of 1～5 needles, start according to the set-up of advanced parameter of 151～155.	
300	Counter display		OFF
	ON	Production counters display.	
	OFF	Lower thread counter display.	

401	Cycle program.		OFF
	ON	Cycle program valid.	
	OFF	Cycle program invalid.	
402	Scale display mode		OFF
	ON	Displayed on mm.	
	OFF	Displayed on %.	
403	Sewing range limitation.		ON
	ON	Sewing range limitation valid.	
	OFF	Sewing range limitation invalid.	

5.1.1 001# Parameter function description

By changing set-point value of the 001# parameter, motion of the presser foot frame can be changed after the sewing is completed.

1. When the 001# parameter is set at ON, the presser foot will be automatically lifted after the sewing is completed;
2. When the 001# parameter is set at OFF, the presser foot will be continuously pressed down after the sewing is completed;

Note: When the 001# parameter is set at OFF, for the single-pedal system, the presser foot will be automatically lifted after the sewing is completed.

5.1.2 002# Parameter function description

By changing set-point value of the 002# parameter, motion of the trimming electromagnet can be changed when the sewing is completed.

1. When the 002# parameter is set at ON, the trimming electromagnet will automatically actuate and trim automatically when the sewing is completed;
2. When the 002# parameter is set at OFF, the trimming electromagnet will not continuously actuate and not trim when the sewing is completed;

5.1.3 003# Parameter function description

By changing set-point value of the 003# parameter, the presser foot frame can be selected to return to (secondary) origin or sewing-start point when the sewing is completed.

1. When the 003# parameter is set at ON, the presser foot frame will return to (secondary) origin position when the sewing is completed, the selection of origin and secondary origin shall be determined by 004# parameter.
2. When the 003# parameter is set at OFF, the presser foot frame will return to the sewing-start point position when the sewing is completed.

5.1.4 005# Parameter function description

By changing set-point value of the 005# parameter, whether the presser foot frame

shall be lifted or pressed down can be selected during power on:

1. When the 005# parameter is set at ON, the presser foot frame will be pressed down after power on;
2. When the 005# parameter is set at OFF, the presser foot frame will be lifted after power on.

5.1.5 010# Parameter function description

By changing set-point value of the 010# parameter, whether the middle presser foot function is on or off can be selected:

1. When the 010# parameter is set at ON, the middle presser foot function is on, then the height of middle presser foot can be adjusted;
2. When the 010# parameter is set at OFF, the middle presser foot function is invalid.

5.1.6 100# Parameter function description

By changing set-point value of the 100# parameter, the acceleration process can be selected at the start of sewing;

1. When the 100# parameter is set at ON, at the start of sewing, the power on speed of the front 5 needle will be: 400 rpm of the first needle, 400 rpm of the second needle, 600 rpm of the third needle, 800 rpm of the fourth needle and 1200 rpm of the fifth needle;
2. When the 100# parameter is set at OFF, at the start of sewing, the power on speed of the 1～5 needles will conform to set-up of senior parameters 151～155.

5.1.7 300# Parameter function description

By changing set-point value of the 300# parameter, it can be selected to display production count or lower thread count on the count display interface:

1. When the 300# parameter is set at ON, production count will be displayed on the count display interface;

When the 300# parameter is set at OFF, lower thread count will be displayed on the count display interface.

5.1.8 401# Parameter function description

By changing set-point value of the 401# parameter, whether the cycle program is valid can be selected:

1. When the 401# parameter is set at ON, the cycle program is valid;

Note: Now cycle program can be set, after the set-up is completed, by pressing  or  key to find the set cycle program in PROGRAM No. display area and start sewing.

2. When the 401# parameter is set at OFF, the cycle program is invalid.

Note: Now cycle program can be set, but the set cycle program can not be found on

PROGRAM No. display area. As long as the 401# parameter is set at ON, all cycle programs set up will be displayed.

5.1.9 402# Parameter function description

By changing set-point value of the 402# parameter, it can be selected to display the scale display mode in mm or in %:

1. When the 402# parameter is set at ON, check on the X/Y scale, all will be displayed in mm;

Note: Now, value displayed on the menu display area refers to overall length of the entire pattern in the X/Y direction;

2. When the 402# parameter is set at OFF, check on the X/Y scale, all will be displayed on %.

Note: Now, original size of the entire pattern will be regarded as 100%.

5.1.10 403# Parameter function description

By changing set-point value of the 403# parameter, the situation that sewing patterning out of the presser foot frame range can be effectively controlled:

1. When the 403# parameter is set at ON, the sewing range limitation is valid;

Note: Now, if the size of sewing pattern is out of the presser foot frame range, it will alarm E.501.

2. When the 403# parameter is set at OFF, the sewing range limitation is invalid.

Note: Now, even if the size of sewing pattern is out of the presser foot frame range, it will not alarm, you can continue sewing. However, accident such as needle break may occur.

5.2 User parameter set-up method

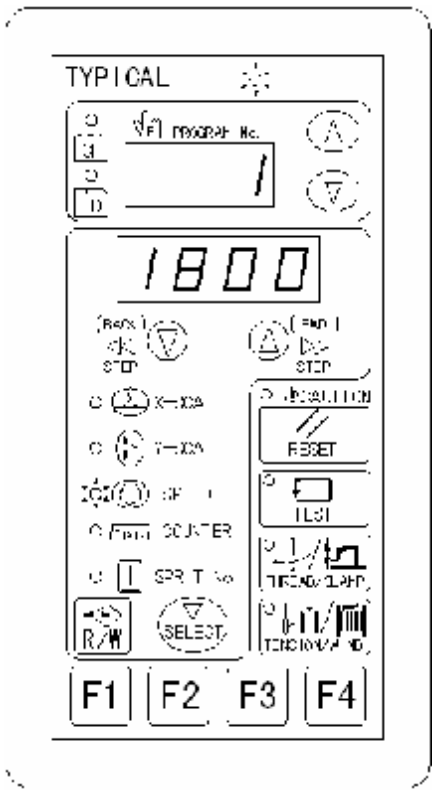


Fig. 5-1

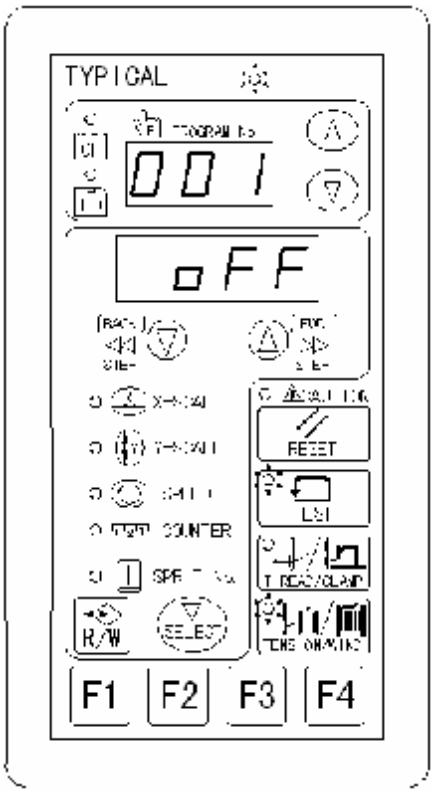


Fig. 5-2

1. In the sewing speed set-up interface (as shown in Fig. 5-1), press TEST and TENSION/WIND keys simultaneously to enter the user parameter set-up mode(as shown in Fig. 5-2). Now, the presser foot frame is pressed down, parameter No. [001] is displayed on the PROGRAM No. display area, the current set value [ON] of the parameter is displayed on the menu display area.

2. Press ▽ or △ key to select other parameter numbers; press BACK STEP ▽ or FWD STEP △ key to change the current set-point value of the parameter.

3. After the set-up is completed, press TEST key to save set-up and exit the user parameter set-up mode, return to the sewing speed display interface.

Note: In X/Y scale display interface, speed display interface, count display interface and cycle program interface view, user parameter set-up mode can be accessible directly; after exit, it will return to the interface from which it enters.

5.3 Zoom in and zoon out of sewing pattern

Default set-up of the scale is 100(%) at ex-factory.

1. In the sewing speed set-up interface, press SELECT key to switch to the X (horizontal) scale display interface, the X-SCALE indicator light is on (as shown in Fig. 5-3); press SELECT key to switch to the Y (vertical) scale display interface, the Y-SCALE indicator light is on (as shown in Fig. 5-4). The pattern number [1] is displayed on the PROGRAM No. display area, default scale [100] is displayed on the menu display area.

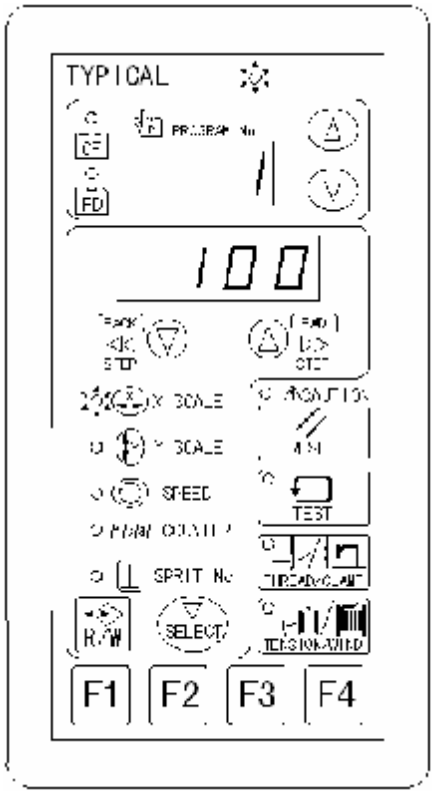


Fig. 5-3

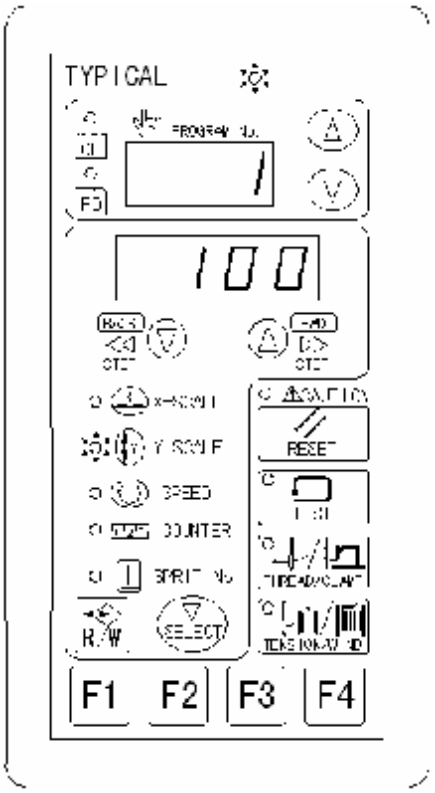


Fig. 5-4

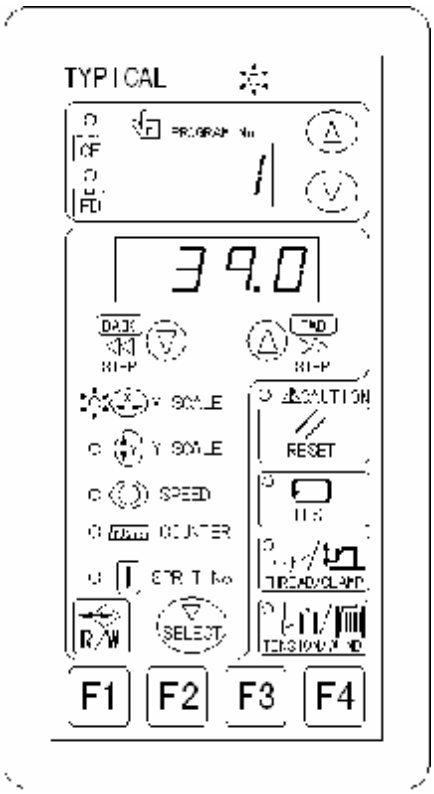


Fig. 5-5

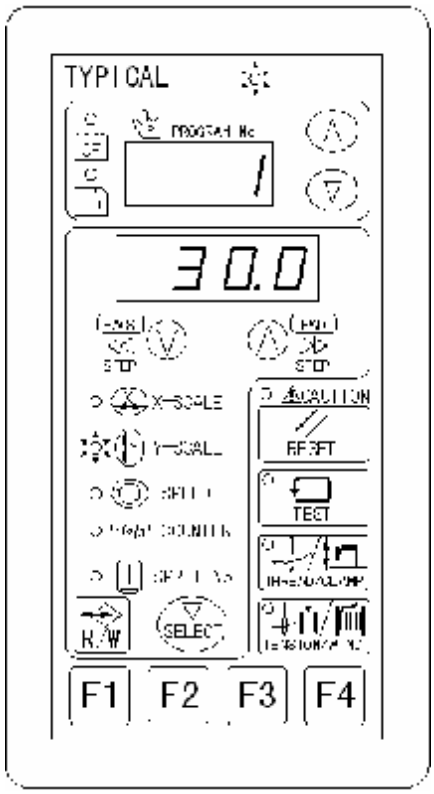


Fig. 5-6

2. In the scale display interface, press BACK STEP or FWD STEP key to change the scale of default pattern, the adjusting range is 20～200 (%) and the step-length is 1 (%).

3. After proper scale is set up, tread the right pedal to confirm pattern motion. Now, the zoom in or zoon out set-up of pattern has been recorded and sewing can be performed.

4. When the 402# user parameter is set at ON, the scale of pattern will be displayed in mm; if it is switched to the X (horizontal) scale/Y (vertical) scale display interface (as shown in Fig 5-5 and Fig. 5-6), the adjusting range in the X direction is 7.8～70 (mm) and the adjusting range in the Y direction is 6～50 (mm), the step-length is 0.1 (mm).

Note:

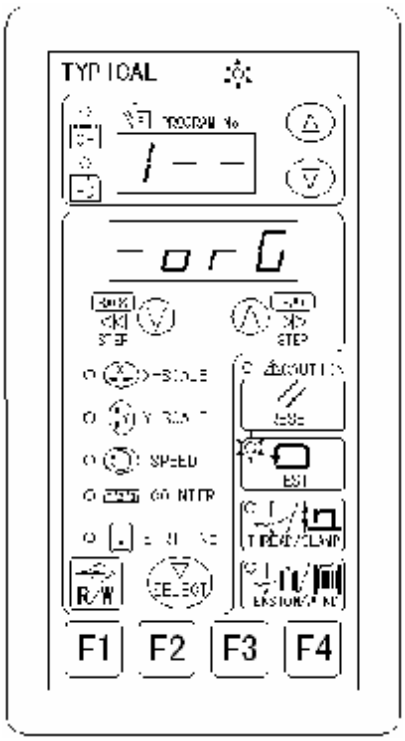
1. The pattern multiplying set-up is only valid to the current pattern; if pattern is replaced after the set-up is completed, the set scale will be automatically cleared.
2. If "E.500" alarm appears when set-up the pattern scale, it means the size of pattern is out of the sewing range due to the scale set-up. The scale of pattern shall be zoomed out.

5.4 Secondary origin and parallel move of sewing pattern

1. In the sewing speed set-up interface, tread the treadle pedal to 2nd gear to confirm the pattern motor.

2. Press TEST and ▽ to enter the secondary origin set-up interface, see

Fig. 5-7.



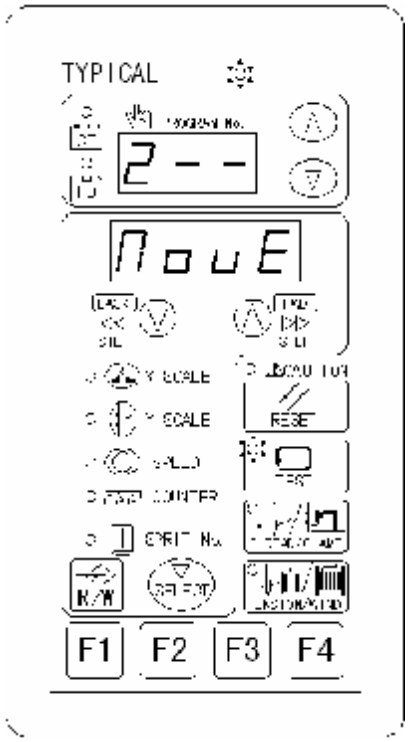


Fig. 5-7 **Fig. 5-8**

3. Press SELECT key, the current pattern number will display on the program area, X displacement 0.0 is displayed on the PROGRAM No. display area, ○ X-SCALE light is on, the presser foot moves to the current secondary origin. Press BACK STEP or FWD STEP key to change the current secondary origin X coordinate within the scope of -35mm～35mm. Press RESET key to cancel this set-up to restore the secondary origin; press TEST key to save the set-up value and exit the secondary origin set-up interface.

4. Before exiting the set-up interface, press SELECT key, the Y displacement 0.0 is displayed on the PROGRAM No. display area, the ○ Y-SCALE light is on, press BACK STEP or FWD STEP key to change the current secondary origin Y coordinate within the scope of -25mm～25mm. Press RESET key to cancel this set-up to restore the secondary origin; press TEST key to save the set-up value and exit the secondary origin set-up interface.

Displacement set-up:
Default set-up of parallel move amount of the sewing pattern is 0 (mm) at ex-factory.

1. As shown in Fig. 5-7, press  to enter the displacement set-up interface, see Fig.5-8;
2. Displacement set-up is same as step 3 and step 4 of secondary origin set-up.

5.5 Pattern simulation

In order to confirm whether the pattern satisfies machine requirements, pattern simulation shall be performed to check whether it is out of the sewing range during the sewing process.

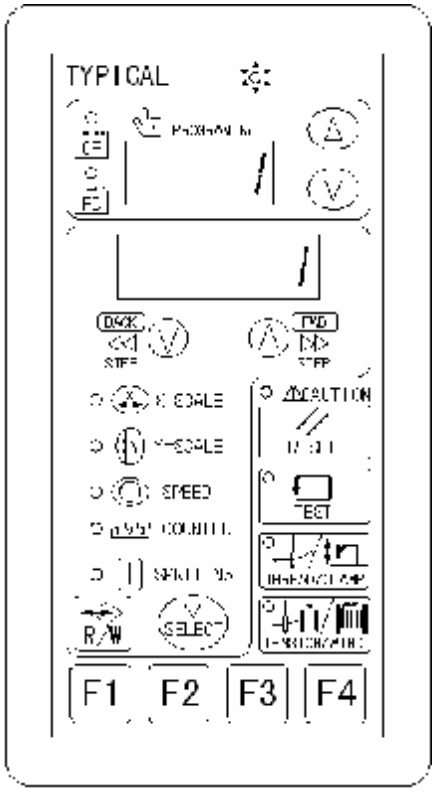


Fig. 5-9

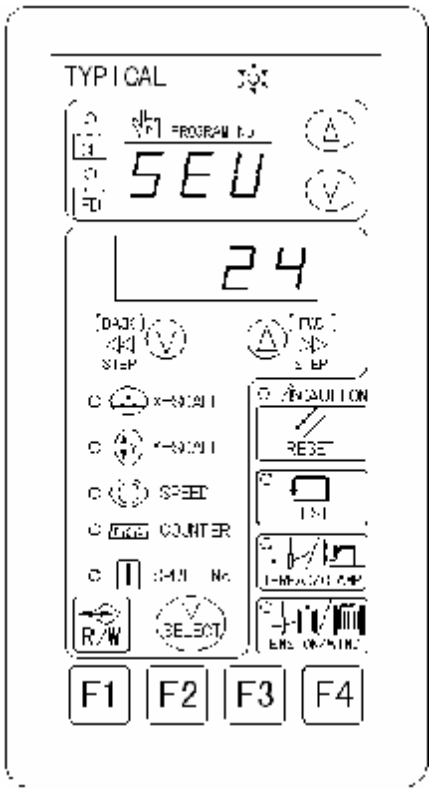


Fig. 5-10

Single-step simulation:

1. In the sewing speed set-up interface, select the 1# pattern. Tread the pedal switch to 2nd gear to carry out pattern confirmation, and then tread the pedal switch to 1st gear and press  or  key to enter the pattern simulation interface, at this time, the presser foot frame and the middle presser foot are pressed down, the pattern section No. is displayed on the PROGRAM No. display area, needle No. is displayed on the menu display area (as shown in Fig. 5-9).

2. Press  key once, the presser foot frame will go forwards one needle according to needle No. order of the pattern.

3. Now press BACK STEP or FWD STEP key, the presser foot frame will fall back or go forwards according to needle No. order of the pattern, the needle No. displayed on the menu display area will decrease or increase one.

4. Press and hold BACK STEP or FWD STEP key, when the presser foot frame falls back or goes forwards to the first needle or last needle, pressing BACK STEP or FWD STEP key again is invalid.

5. After the completion of simulation, press RESET key to exit the pattern simulation interface and return to the sewing speed set-up interface.

Continuous simulation:

1: same as Step 1 and 2 of single-step simulation.

2: Tread the pedal switch to 1st gear, and then the system will falls back the needle to the first needle.

3: Tread the pedal switch to 2nd gear, and then the system will automatically complete the all patterns. The key display is as shown in Fig.5-10, the sewing-start needle number is displayed on the menu area.

5.6 Emergency stop

5.6.1 Emergency stop under main mode

The main mode contains X/Y scale set-up interface, speed set-up interface, count display interface and cycle program view interface.

Under the main mode, press emergency stop switch, the operation panel display is as shown in Fig. 5-11, the machine is locked and all operations will not work.

Switch on the emergency stop switch again, return to the original display interface after unlocking.

5.6.2 Emergency stop during the sewing process

During the sewing process, if thread break, needle break, lower thread exhaustion or any other condition requires emergency sewing stop occurs, you can use the emergency stop function to intermit sewing, and then continue the uncompleted pattern sewing after failures are dealt with.

1. In the sewing speed set-up interface, a certain pattern shall be selected to carry out normal sewing, during the sewing process, press on emergency switch installed at left side of the machine head, or step on the emergency shift of step switch, then the machine stops operation, the presser foot frame and the middle presser foot is pressed down. The operation panel display is as shown in Fig. 5-11, now all keys on the operation panel are invalid.

2. Press emergency stop switch installed at left side of the machine head again,

the operation panel display is as shown in Fig. 5-12, pattern section No. is displayed on the PROGRAM No. display area, needle No. is displayed on the menu display area. Now press BACK STEP or FWD STEP key to control the presser foot frame to fall back or go forward according to needle No. order of the pattern, number of needle displayed on the menu display area will be changed correspondingly.

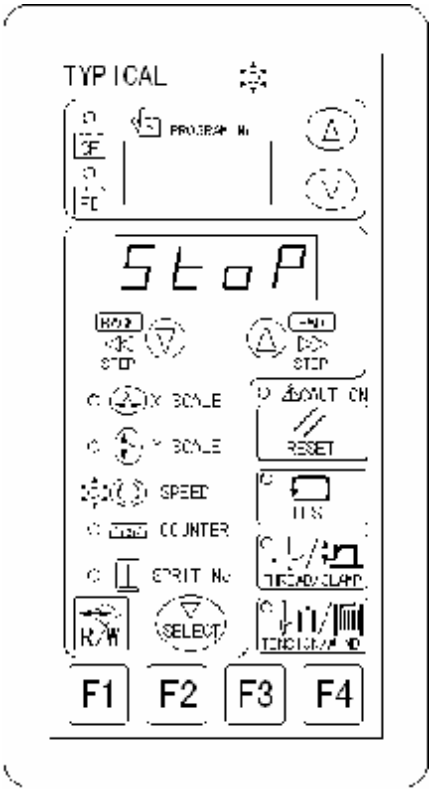


Fig. 5-11

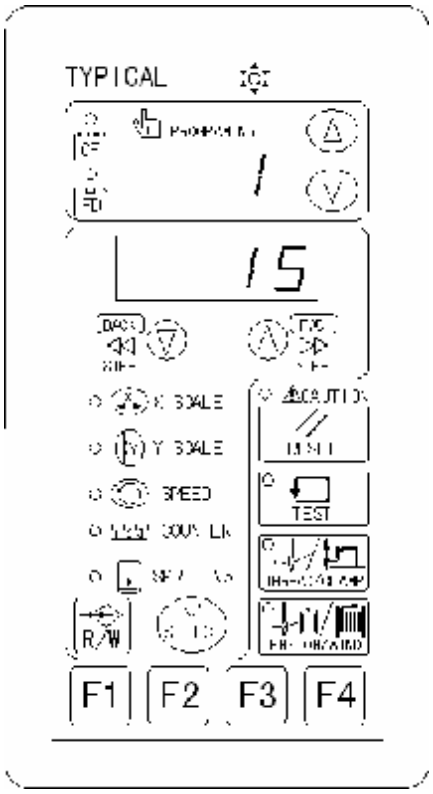


Fig. 5-12

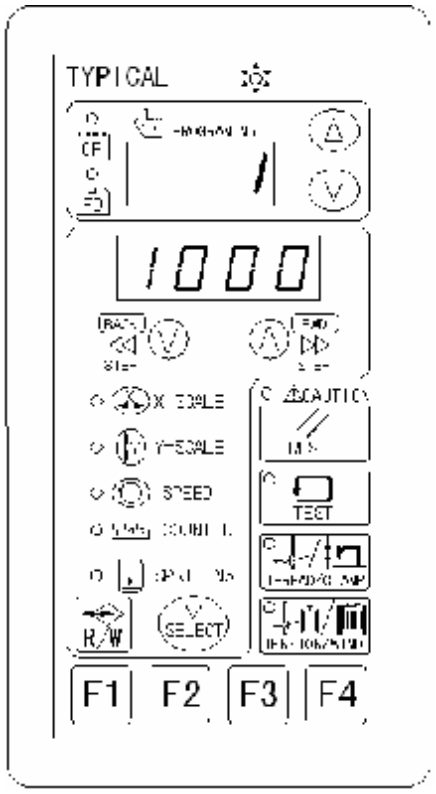


Fig. 5-13

3. Press and hold BACK STEP or FWD STEP key, when the presser foot frame falling back or going forward to the first needle or last needle of the pattern, press BACK STEP or FWD STEP invalidly, and return to the speed set-up interface after pressing on RESET key.

4. When needle No. is displayed on the menu display area, tread the gear 1 of pedal once, the system shall go backward by one needle, and continue to tread the gear 1, then it goes backward by one needle, and continues until it is up to the the first needle of the pattern; also tread the pedal to the gear 2. Starting from the needle No. of needle displayed on the menu display area, the system shall finish sewing the residual needle numbers with the former sewing speed, the menu display area is as shown in Fig.5-13.

5.7 Lower thread counter set-up

According to thread sewing amount in the bobbin, the capable sewing amount shall be set in the lower thread counter in advance, so as to prevent lower thread exhaustion during the midway of sewing.

5.7.1 Lower thread counter set-up

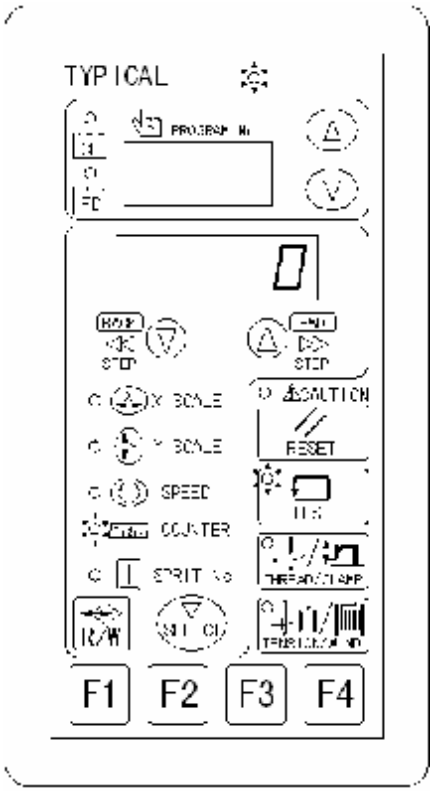


Fig. 5-14

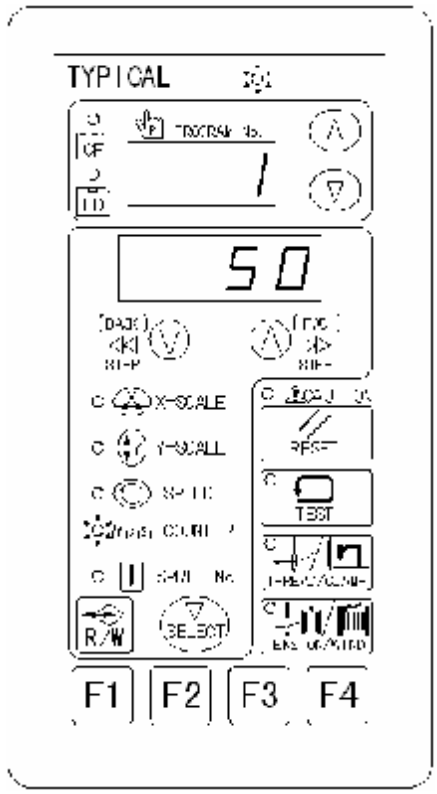


Fig. 5-15

1. In the sewing speed set-up interface, press TEST and BACK STEP keys simultaneously to enter the lower thread counter set-up mode (as shown in Fig. 5-14).

2. Press BACK STEP or FWD STEP key to change the value displayed on the menu display area to 50. During the set-up process, if the RESET key is pressed, value displayed on the menu display area will clear the set-up value to zero automatically; if the counter value is set at 0, the lower thread counter will not work, but do not influence sewing; set-up range: 0～9999.

3. Press TEST key to save set-up and exit the lower thread counter set-up interface, it will return to the sewing count interface automatically (as shown in Fig. 5-15).

Note: The lower thread counter set-up interface can be accessible directly from the X/Y scale set-up interface, speed set-up interface, count display interface and cycle program view interface; it will be at the count display interface after exit.

5.7.2 Lower thread counter operation

When the 300# user parameter is set at OFF, the lower thread counter will be displayed at the count display interface.

1. Tread the pedal to carry out sewing. The value displayed on the menu display area decreased 1 when sewing once every time. If the value displayed on the menu display area is decreased at 1, sew once again, the system shall make alarm. Press RESET key, and start counting when value displayed on the menu display area is recovered at 50.

2. During the sewing process, value displayed on the menu display area will be decreased by pressing BACK STEP key. Count from the value after decrease when sewing is started again.

3. If power-off operation exists during the sewing process, the lower thread counter will be zero cleared after power on again. If the lower thread counter is set at 0, the counter will not work, therefore, reset shall be performed for continual use.

Note: If the lower thread counter is set up but the 300# user parameter is set at ON, lower thread count is not displayed at the count display interface, after several times of sewing, the 300# user parameter shall be set at OFF, then view the count display interface, if the count value has decreased, it means that the lower thread counter has been working all the time without display.

5.8 Production counter

5.8.1 Production counter set-up

1. In the sewing speed set-up interface, press TEST and FWD STEP keys simultaneously, to enter production counter set-up mode (as shown in Fig.5-16).

2. Press BACK STEP or FWD STEP key, and the digital values in the display of Modify Menu will be 555 5555. In the set-up process, the digital values in the menu display will clear zero automatically if pressing RESET key; set-up range: 0～999 9999, PROGRAM No. display area shows the first three digital numbers, with menu display indicative of the second four digital numbers.

3. Press TEST key to save the set-point and exit the set-up interface of production counter (as shown in Fig. 5-17), and PROGRAM No. display area shows pattern number, with menu display indicative of the second four-digital set-point values.

Note: Bobbin thread counter set-up interface can be accessible directly from the X/Y scale set-up interface, speed set-up interface, count display interface or cycle program step view interface. And after exit, you can return to the previous interface.

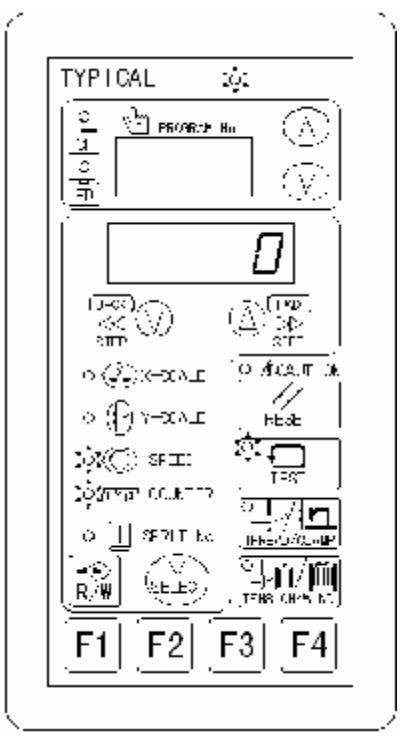


Fig. 5-16

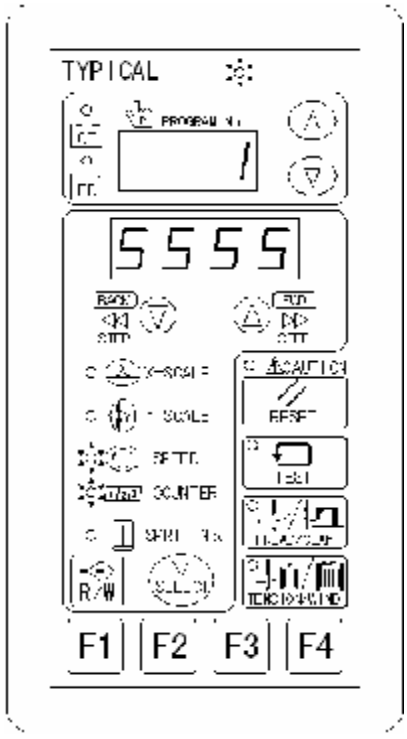


Fig. 5-17

5.8.2 Production counter Operation

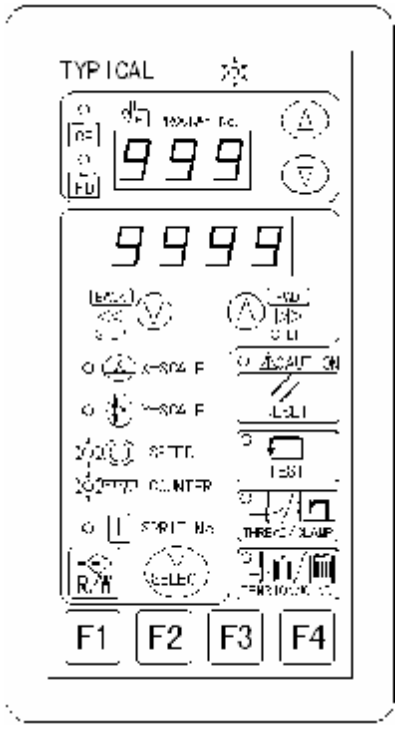


Fig. 5-18

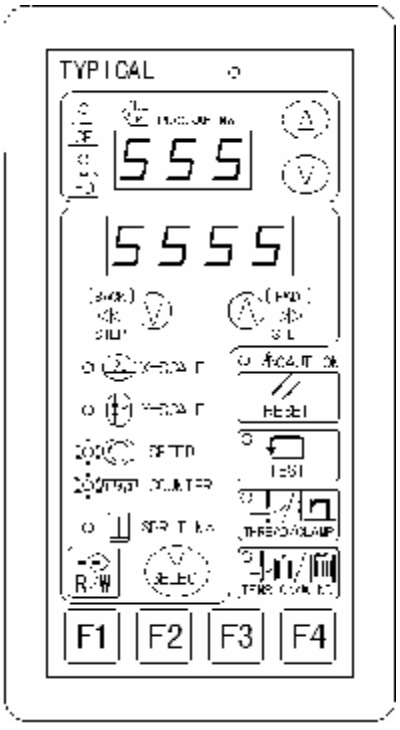


Fig. 5-19

When 300# user parameter set-point values are on, the count display interface will indicate production counter.

1. Tread the foot pedal to perform sewing operation. at each sewing, the digital value displayed on the menu display area will increase 1. When digital values

displayed on PROGRAM No. display area and menu display area as a whole increase to 999 9999, tread the foot pedal once again and the machine alarm (as shown in Fig. 5-18) power light will be red with buzzer sounding. All this shows it has reached the maximum count value and can only be used after zero clearing.

2. In the status as shown in Fig. 5-19, press RESET key, operation panel will return to set-up value. It can continue sewing after release alarm at this time.

3. In the sewing speed set-up interface, production counter can be shown instantly. Meanwhile, press TEST and RESET keys, and operation panel PROGRAM No. display area and menu display will show production counter value as a whole. Release the key and it will return to sewing speed set-up interface.

4. If sewing machine is switched on or off in the sewing process, production counter set-point values will be zero cleared and reset after restarting. At this time, it starts sewing normally, but the production counter counts from 0.

Note: Count value of production counter is incremental; therefore, normal sewing can be performed even without set-up with counting from 0 merely as long as it is in production counter display interface.

5.9 Cycle program

5.9.1 Set-up of cycle program preset program

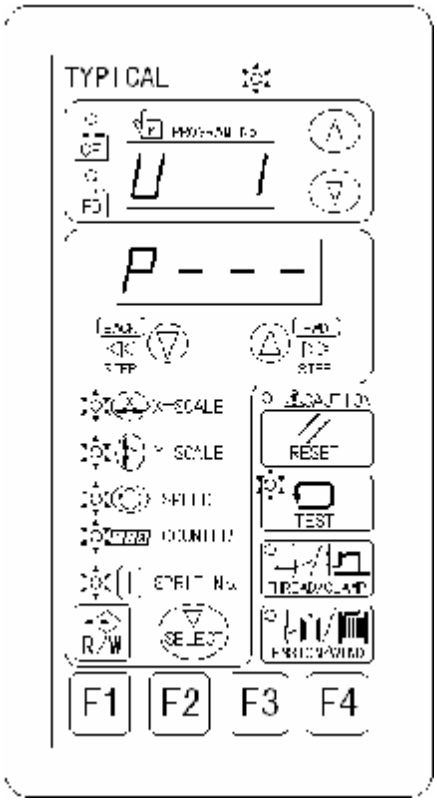


Fig. 5-20

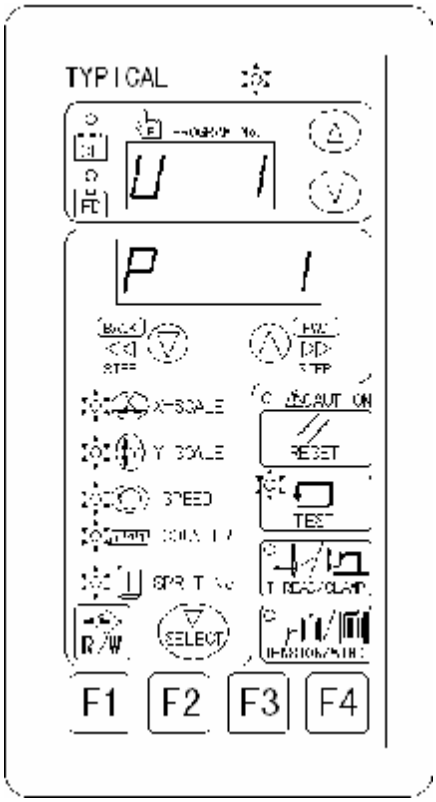


Fig. 5-21

1. In the sewing speed set-up interface, press TEST and SELECT keys (as shown in Fig. 5-20) simultaneously to enter cycle program set-up mode. ○ X-SCALE , ○ Y-SCALE , ○ SPEED , ○ COUNTER and ○ SPRIT No. indicator lights flash.

2. As shown in Fig. 5-20, [U 1] shows cycle program preset program 1, [P---] shows the prefix of directed pattern number. At this time, press BACK STEP or FWD STEP key to select pattern 1# from pattern numbers. And the operation panel display is as shown in Fig. 5-21.

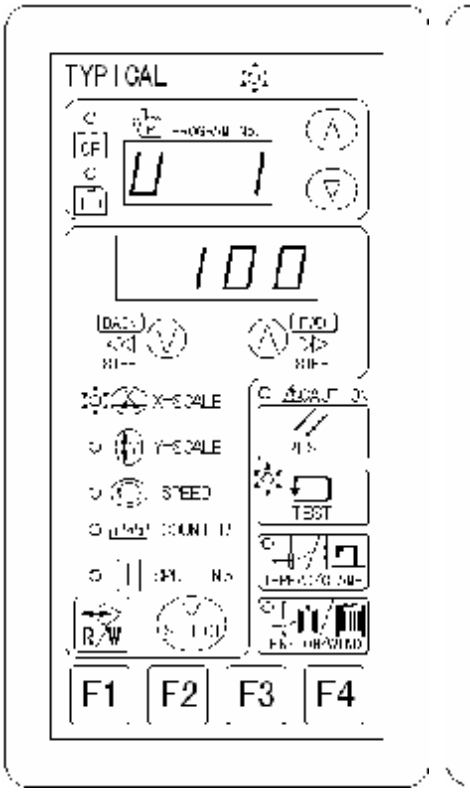


Fig. 5-22

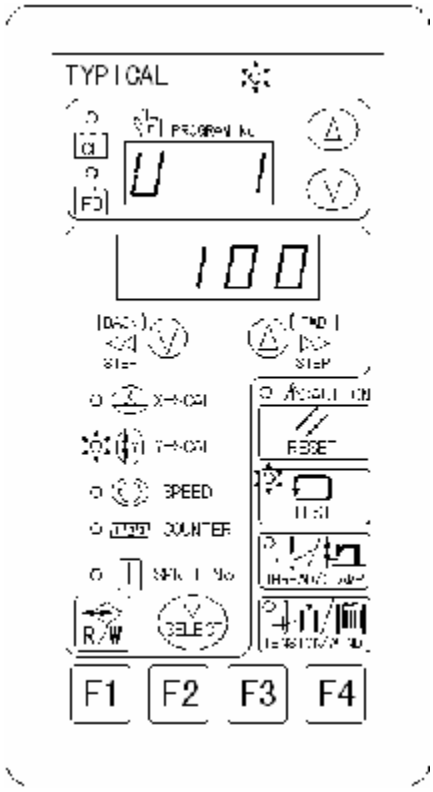
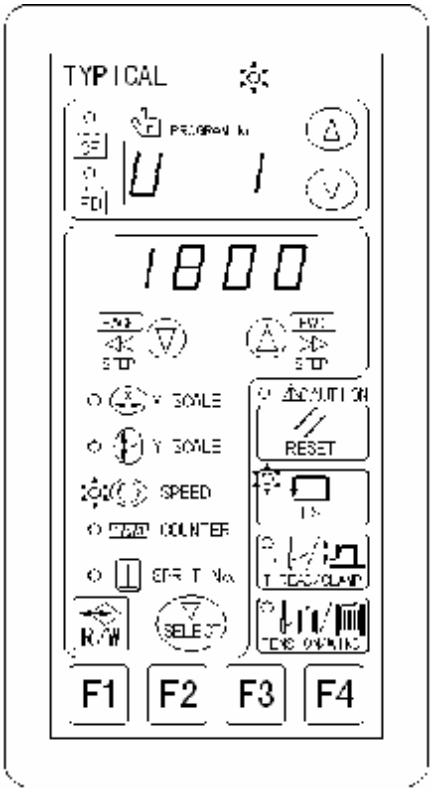


Fig. 5-23

3. Press SELECT key, to switch to pattern X (horizontal) scale set-up interface (as shown in Fig. 5-22); at this time ○ X-SCALE indicator light flashes. Then press BACK STEP or FWD STEP key to change X (horizontal) scale size.

4. Press SELECT key, to switch to pattern Y (vertical) scale set-up interface (as shown in Fig.5-23); at this time ○ Y-SCALE indicator light flashes. Then press

BACK STEP or FWD STEP key to change Y (vertical) scale size.



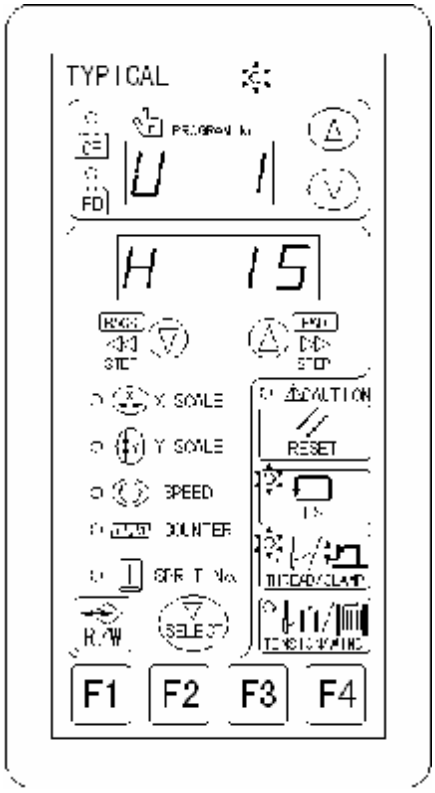


Fig. 5-24 **Fig. 5-25**

5. Press SELECT key to switch to sewing speed set-up interface (as shown in Fig. 5-24), SPEED indicator light flashes. Press BACK STEP or FWD STEP key to change sewing speed value.

6. Press SELECT key, to switch to presser foot frame height set-up interface (as shown in Fig. 5-25), lift the presser foot frame with THREAD/CLAMP key indicator light flashing. Press BACK STEP or FWD STEP key to change presser foot frame height.

7. When cycle program preset program 1 set-up is completed, press ▽ or △ key, to select preset program 2 or other preset programs.

Note:

1. In preset program, 50 ([U 1]～[U50]) programs can be set up at most; X (horizontal) scale，Y (vertical) scale, sewing speed and pressure foot framer height for each of them can be set up.

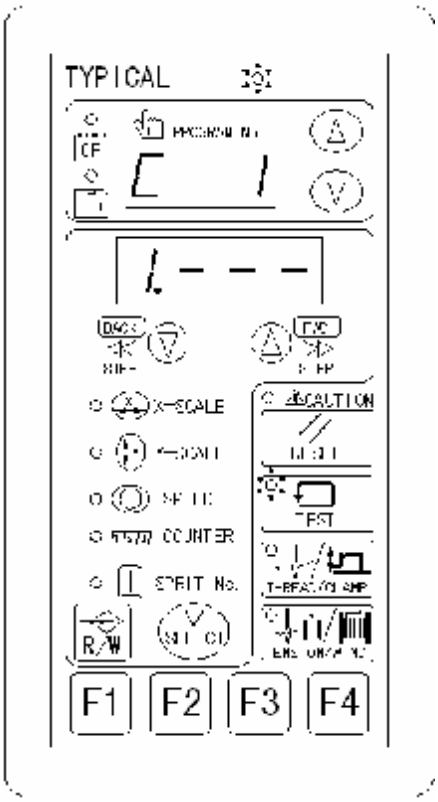
2. When cycle program preset program set-up is completed, press TEST key to

exit set-up mode and return to sewing speed interface.

3. Cycle program preset program set-up can be accessible directly from the X/Y scale set-up interface, speed set-up interface, count display interface or cycle program view interface. And after exit, you can return to the previous interface.

Caution: In sewing operation, set-point values of X (horizontal) scale, Y (vertical) scale, sewing speed and presser foot frame cannot be set up or changed; so, in setting up cycle program preset program, it is required various set-points should be set up accurately.

5.9.2 Cycle program set-up



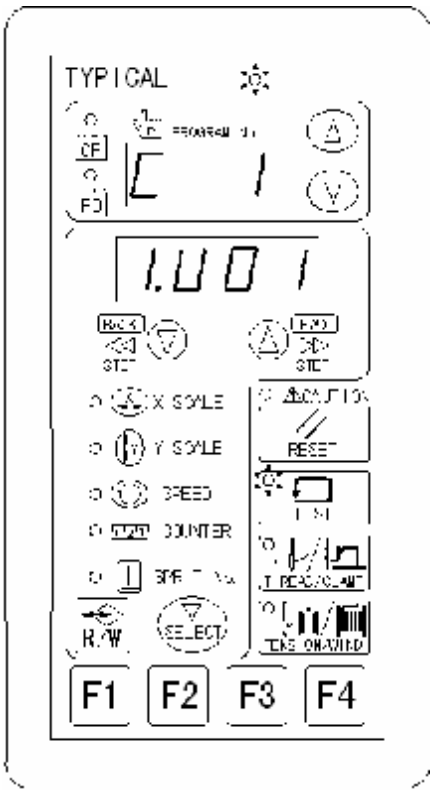


Fig. 5-26 **Fig. 5-27**

1. When cycle program preset program set-up is completed, directly press F1, F2, F3, F4 key, to enter cycle program set-up interface; and the difference is that corresponding cycle programs are [C 1], [C 2], [C 3] or [C 4] respectively after entry. Press the F1 key to enter (as shown in Fig. 5-26)

2. As shown in Fig. 1, [C 1] shows cycle program 1, [1. U--] shows the preset program directed in cycle program 1. At this time, press BACK STEP or FWD STEP key to select preset program number so as to select preset pattern [U 1]. Now the operation panel is as shown in Fig. 5-27.

3. Press 

key to switch to step 2 of cycle program and continue to set up the preset program for step 2. A cycle program contains 15 program steps. When setting up step 10, menu display shows [10.--]; at this time if the preset program number to be set up is ≥10, it will show [10.10] after setting up program step.

4. When cycle program [C 1] set-up is completed, press  or  key, to select other programs for set-up.

5. When all the set-up is completed, press 

key to save set-up and exit set-up mode, so as to return to sewing speed set-up interface.

Note:

1. In selection of preset program number, only preset program with pattern number set up already can be viewed, other preset programs excluded.
2. 10 cycle programs can be set up in all, each of which contains 15 program steps.

5.9.3 Cycle program Application

When 401# user parameter set-up is on, cycle program is effective.

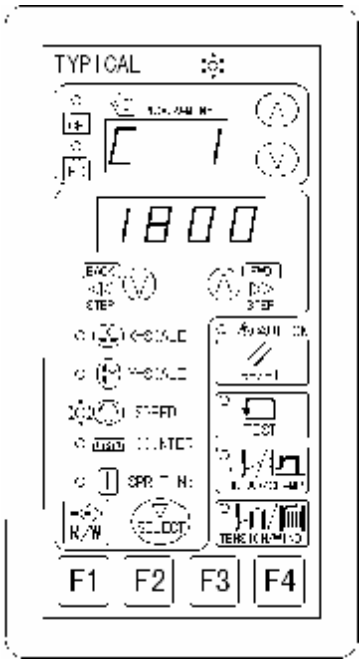


Fig. 5-28

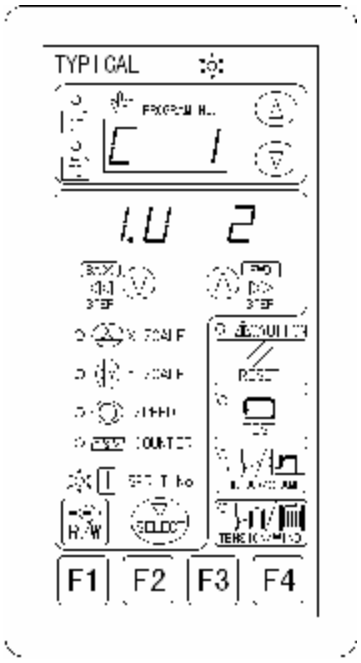


Fig. 5-29

1. Press ▽ or △ key, to find out cycle program number (as shown in Fig. 5-28) on PROGRAM No. display area. Ensure pattern confirmation and start sewing.

2. Press SELECT key, to select view X (horizontal) scale, Y (vertical) scale, sewing speed, presser foot frame height and program step of cycle program.

3. When program step 1 is completed in sewing, operate keypad menu display to automatically switch to program step 2 (as shown in Fig. 5-29). Then sewing can be performed from program step 1 to program step 15; BACK STEP ▽ key can be pressed as well, to return to program step 1 to perform sewing once again; alternately, △ FWD STEP can be pressed once to directly skip program step 2 and enter program step 3 directly.

6. Pattern Establishment and Save

In saving pattern under the second edit mode and drafting mode, menu display shows the processing method of PRCC (this pattern number already exits).

After menu display shows PRCC characters, press F1 key and the newly-established pattern data will overlay the current pattern data existent already in controller, press F2 key not to save the current pattern and press ▽ and △ keys to reselect pattern number. After selection, press TEST key to save it.

6.1 The Second Editing Mode

Pattern-sewing machine is equipped with three original patterns #1, #2, and # 3 at ex-factory; the second edit mode is used to change original pattern parameters (X and Y scale, radius of rounded angle, stitch length, number of sewing-start needle, sewing ring number, point number of overlapped sewing and number of fastening sewing needle). New pattern will be established after the second editing of original pattern, with no effect upon the original pattern.

6.1.1 Parameter Specification

Pattern 1# is rectangular

Serial. No.	Parameter	Default Value
1	X-SCALE (Width in the X Direction)	39 (mm)
2	Y-SCALE (Width in the Y Direction)	30 (mm)
3	Radius of rounded angle	0 (mm)
4	Stitch length	3.0 (mm)
5	Number of sewing-start point needle	1
6	Sewing ring number	1
7	Point number of overlapped sewing	3
8	Number of fastening sewing needle	0

Pattern 2# is rectangular, with cross knot

Serial. No.	Parameter	Default Value
1	X-SCALE (Width in the X Direction)	39 (mm)

2	Y-SCALE (Width in the Y Direction)	30 (mm)
3	Radius of rounded angle	Have no this parameter
4	Stitch length	3.0 (mm)
5	Number of sewing-start point needle	1
6	Sewing ring number	1
7	Point number of overlapped sewing	3
8	Number of fastening sewing needle	0

Pattern 3# is circular.

Serial. No.	**Parameter**	**Default Value**
1	X-SCALE (Width in the X Direction)	36(mm)
2	Y-SCALE (Width in the Y Direction)	36 (mm)
3	Radius of rounded angle	Have no this parameter
4	Stitch length	3.0(mm)
5	Number of sewing-start point needle	1
6	Sewing ring number	1
7	Point number of overlapped sewing	3
8	Number of fastening sewing needle	0

6.1.2 Key Description

1. 

key:

Switch to six parameters, i.e. X-SCALE (width in the X direction), Y-SCALE (width in the Y direction), radius of rounded angle, number of sewing-start point needle and number of seam fastening needle.

2  **and**  **keys:**

Switch to pattern number and switch between pattern 1, pattern 2 and pattern 3.

3. 

and 

keys

Set up value of program display area, between permissible min. value and max. value.

4. 

Key:

Save pattern.

Pattern can be saved in any parameter set-up. If parameter is no set up, a pattern will be produced according to the default parameter. When number of needle is less than 2, it will directly exit without saving the pattern.

5. 

and 

key:

Exit the second editing mode.

6.1.3 Operation Steps

1. Enter the second editing function

After starting the machine, in the sewing speed set-up interface, press TEST and F2 keys simultaneously to enter the second editing function. And the operation panel is as shown in Fig 6-1:

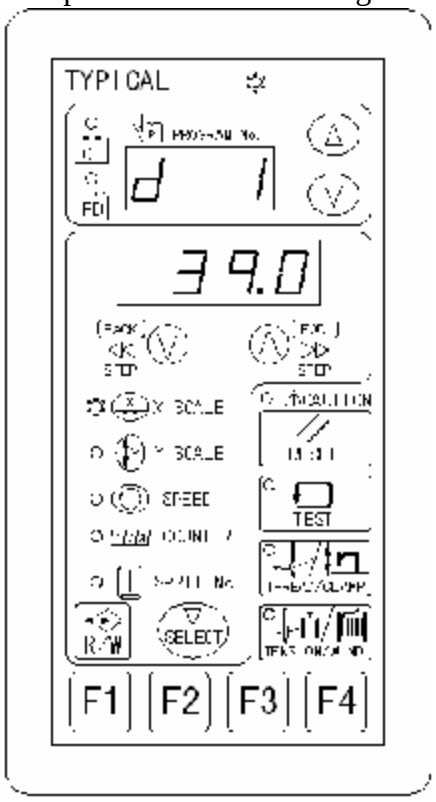


Fig 6-1

At this time, [d 1] displayed on PROGRAM No. display area indicates the second editing is performed on pattern 1#. [39.0] displayed on menu display area shows the original length of pattern 1# in the X direction is 39 mm.

2. The second edit step of pattern

Now X-SCALE indicator light is on, press BACK STEP or FWD STEP key to set up the length value in the X direction (max. value 70 mm).

Press SELECT key and menu display area will show 30.0 with Y-SCALE indicator light on, as shown in Fig. 6-2. Then press BACK STEP or FWD STEP key to set up the length value in the Y direction (max. value 50 mm).

Press SELECT key and menu display shows 0.0; X-SCALE and Y-SCALE indicator light are on, as shown in Fig. 6-3. Press BACK STEP or

FWD STEP key to set up radius of rounded angle.

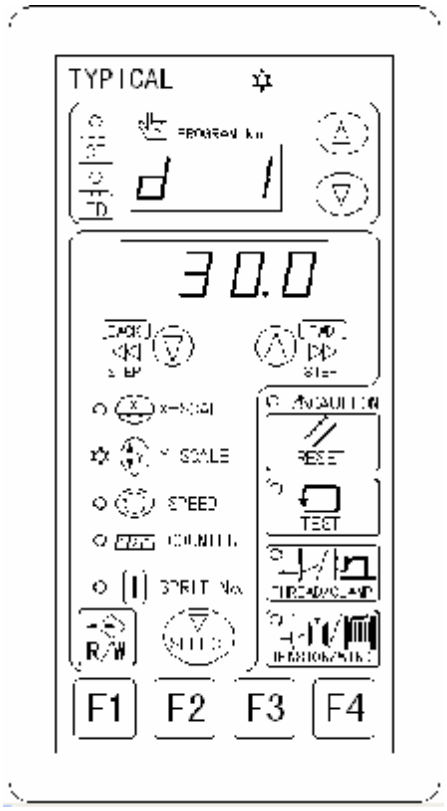


Fig. 6-2

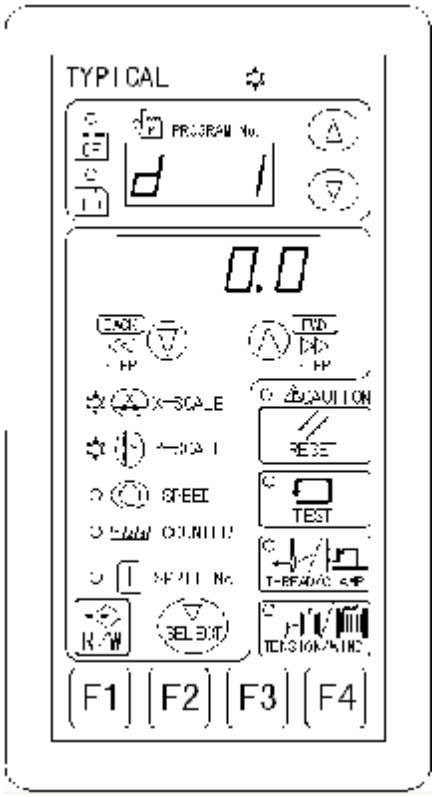


Fig. 6-3

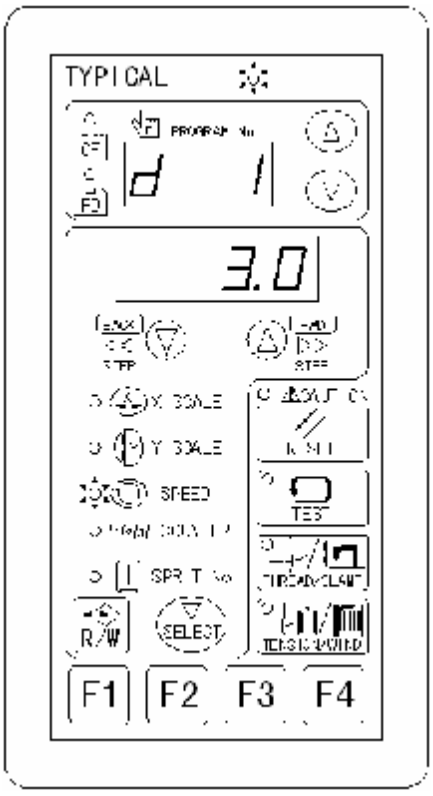


Fig. 6-4

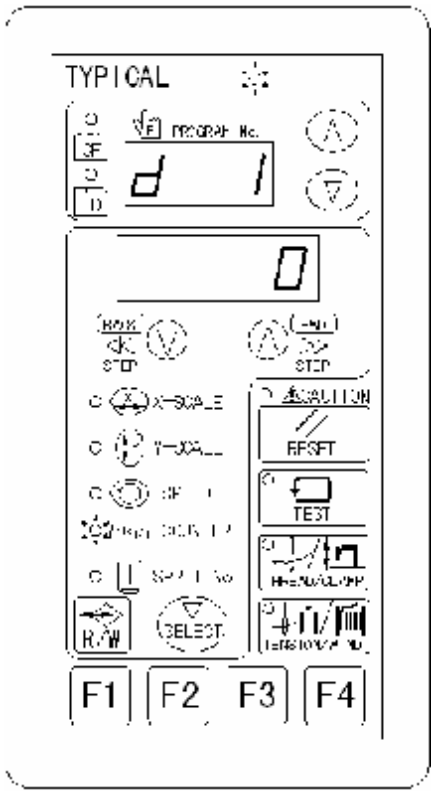


Fig. 6-5

Press SELECT key and menu display shows 3.0; ○ SPEED indicator light is on, as shown in Fig. 6-4. Press BACK STEP or FWD STEP key to set up stitch length.

Press SELECT key and menu display shows 0; ○ COUNTER indicator light is on, as shown in Fig. 6-5. Press BACK STEP or FWD STEP key to set up number of sewing-start point needle.

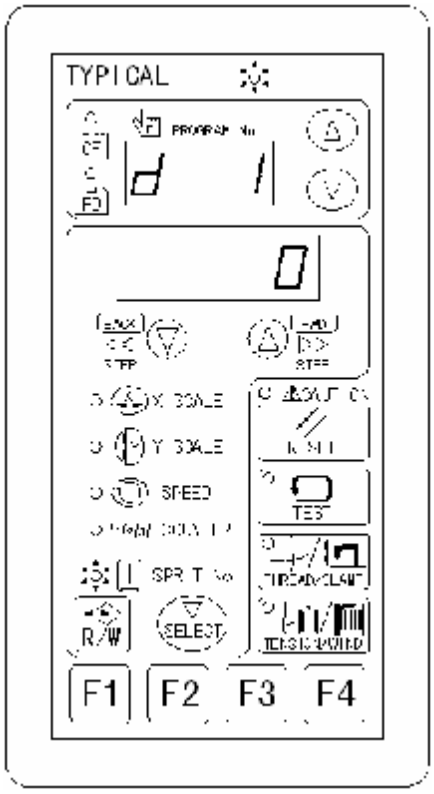


Fig. 6-6

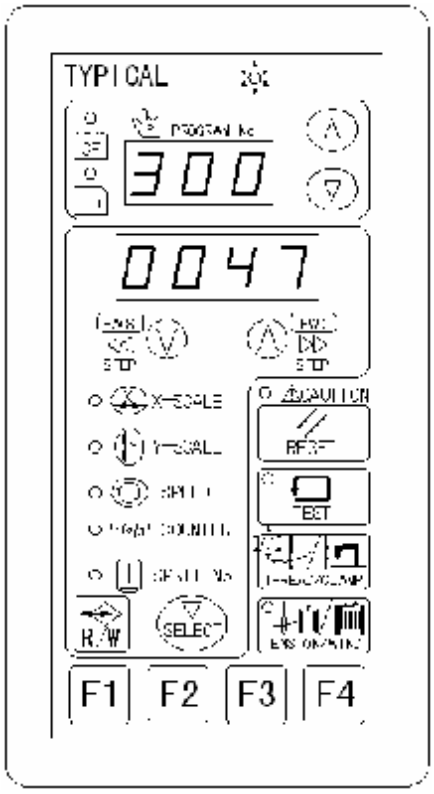


Fig. 6-7

Press SELECT key and menu display shows 1; ○ X-SCALE and ○ COUNTER indicator light is on, as shown in Fig.6-6. Press BACK STEP or FWD STEP key to set up number of sewing ring, the sewing ring number is less than 5.

Press SELECT key and menu display shows 3 ; ○ Y-SCALE and ○ COUNTER indicator light is on, as shown in Fig.6-7. Press BACK STEP or FWD STEP key to set up the number of overlapped sewing needle.

Press SELECT key and menu display shows 0, ○ SPRIT No. indicator light is on, as shown in Fig.6. Press BACK STEP or FWD STEP key to set up the number of of

fastening sewing needle, the number of of fastening sewing needle is less than 10.

Press SELECT key and menu display area shows 0; SPRIT No. indicator light is on, as shown in Fig. 6-6. Press BACK STEP or FWD STEP key to set up number of sew fastening needle.

Note:

1：When the number of fastening sewing needle and number of overlapped sewing needle are set up at one time, only the number of fastening sewing needle in valid.

2：During the course of secondary edition, press THREAD/CLAMP key to put up and lower down the middle press foot.

Press R/W key and interface will appear as shown in Fig.6-7, then press ▽ or △ key to select pattern number (range: 300～999) for the pattern after the second editing. Digital value displayed on menu display is the total number of needle of new pattern. After the No.of new pattern is selected, press TEST key to exit the secondary edition mode and save the new pattern. Then after the system save the pattern automatically, the system shall return to the sewing speed set-up interface.

3. Exit the second editing function

If you don't want to save the set pattern, press TEST and F2 key to exit, then return to sewing speed set-up interface.

6.2 Drafting Mode

6.2.1 Basic Drafting Input Method and Arrow Key Introduction

1. Basic input method

[--K]: Point input empty moving

[--D]: Point input, sewing via one needle for one input point;

[--L]: Straight-line input, 2-point input, performs straight-line sewing between the current position (inputted already) and any other input point;

[--H]: Arc input, 3-point input, sewing via input 2-point left arc at the current position (inputted already).

2. Arrow key introduction (the actual direction as shown in the figure)

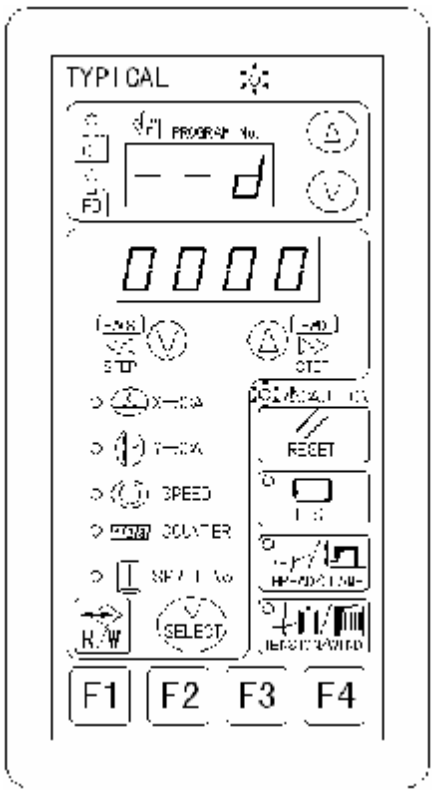
Key	Moving Direction of Needle
F1	Up
F2	Down
F3	Left

F4	Right
F3+F4	Bottom left
F4+F2	Bottom right
F3+F1	Top left
F4+F1	Top right

6.2.2 Enter Drafting Mode

1. In sewing speed set-up interface, simultaneously press TEST or △ key to enter drafting mode, with operation panel as shown in Fig. 6-8, presser foot frame is pressed downward, then X/Y axis motor returns to origin, at the time press TEST and △ key and exit the drafting mode, and lift the presser foot frame.

2. Enter into the drafting mode, PROGRAM No. display area shows drafting input method with point input as default; other input methods can be selected by pressing ▽ or △ key, with menu display showing number of needle.



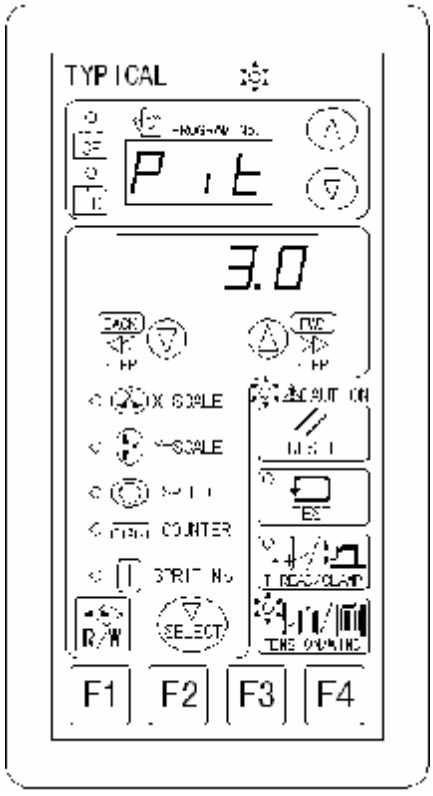


Fig. 6-8 **Fig. 6-9**

3. If you want to set up stitch length (parameter identification [PIT]) and processing method of remainder needle (parameter identification [MOD]), then simultaneously press TEST and TENSION/WIND keys, to enter drafting parameter set-up interface, as shown in Fig. 6-9. Perform parameter selection by

pressing ▽ or △ key; press BACK STEP ▽ or △ FWD STEP key to change parameter default.

4. After completion of parameter set-up, press TEST key to exit parameter set-up interface, returning to drafting mode.

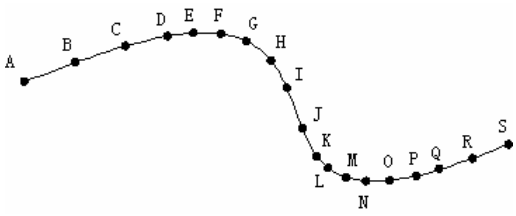
Note:

1. Stitch length set-up range 0.1～12.7 (mm), default set-up 3.0 (mm).
2. Processing method of remainder needle: When it is set as ON, the remaining length greater than or equal to 1/2 stitch length, one more needle is needed, and average value of stitch length and number of needle is less than 1/2 stitch length, stitch length is equal to number of needle; when it is set as OFF, the remaining length needs one more needle. The default set-up is ON.
3. During the drafting course, press THREAD/CLAMP key to lift and lower down the middle presser foot.

6.2.3 Point Input.

1. Press pattern template under the presser foot frame in terms of proper position and then enter drafting mode, select [--D] (point input) by pressing ▽ or △ key.

Example: Establish pattern according to the following strike-off.



2. Lower the needle by handwheel, and stop when it almost contacts template. Use Arrow Key to move machine needle from origin to point A, with operation panel shown as Fig. 6-10 in moving process. And [K001] displayed on menu display indicates the key point. After moving to point A, press ▽ SELECT key to confirm point A with operation panel as shown in Fig. 6-11 and [0001] displayed on menu display showing the first needle.

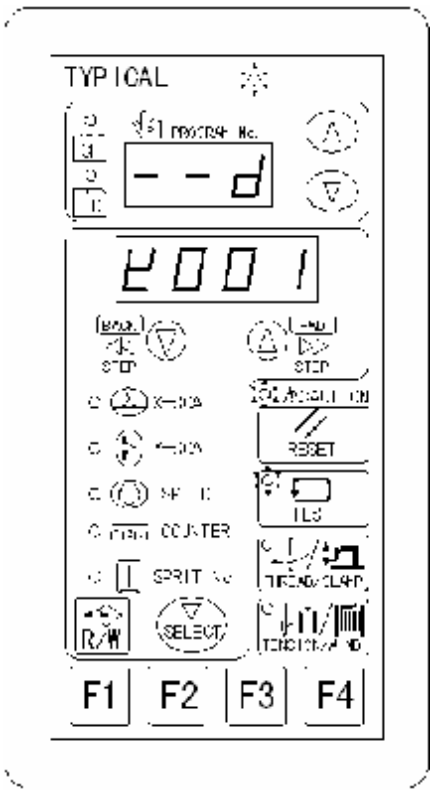


Fig. 6-10

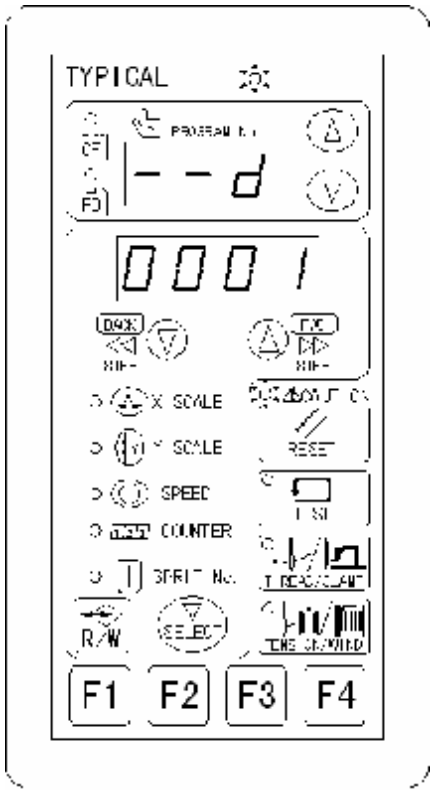


Fig. 6-11

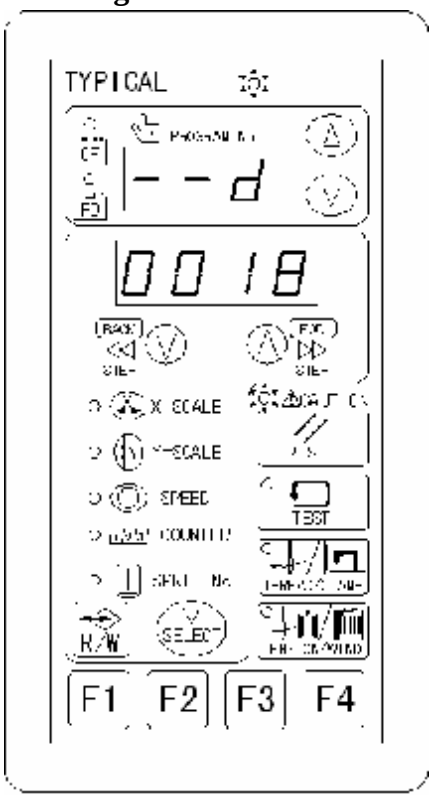


Fig. 6-12

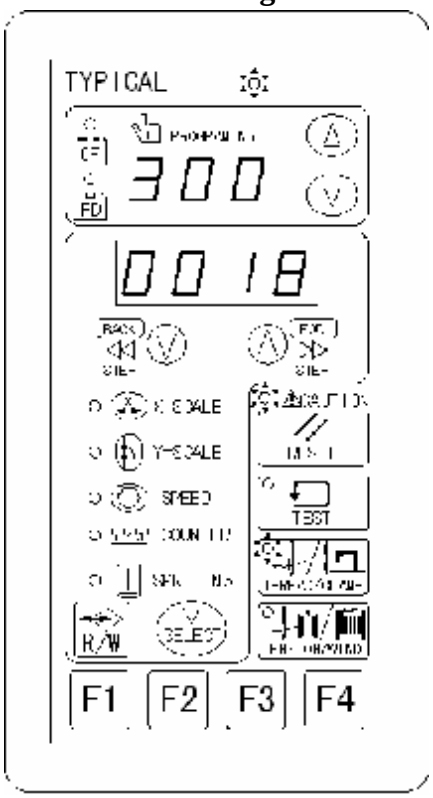


Fig. 6-13

3. Use the above methods to input B～S points entirely, with operation panel shown in Fig. 6-12. Use handwheel to lift machine needle to highest point.

4. Press R/W key, to save pattern, with operation panel as shown in Fig. 6-13. Press ▽ or △ key to select any number in the range 300～999 as name of the pattern. And then, press TEST key to save pattern and automatically exit drafting mode, the machine finds origin automatically with operation panel returning to the speed set-up interface.

Caution:

1. When drafting by point input, more numbers of needle are required to use in arc section, to guarantee smoother arc section of pattern.
2. In the point input process, trimming function can be added to this point after completion of inputting one point. The specific operation method is as follows:

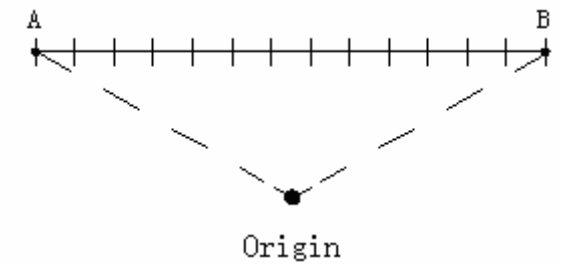
   1) Input one point, and press △ FWD STEP key to enter additional function selection interface; then press BACK STEP ▽ or △ FWD STEP key, with menu display showing [F000], [F001] and [F002] to represent no additional function, trimming and other respectively.

   2) Select needed additional function, then press TEST key to exit and save additional set-up in former input point. Then continue to input point in terms of input method.

6.2.4 Straight-line Input

1. Press pattern template under the presser foot frame in terms of proper position, and then enter drafting mode. Simultaneously press TEST and TENSION/WIND keys to set up stitch length as 4.0 and processing method of remainder needle as ON.

Example: Establish pattern according to the following strike-off.



2. Lower the needle by handwheel, and stop when it almost contacts “origin” position in the template. Use arrow key to move machine needle from origin to point A, with operation panel shown as Fig. 6-14 in moving process. And [K001] displayed on menu display indicates the key point. After moving to point A, press ▽ SELECT key to confirm point A with operation panel, as shown in Fig. 6-15 .and

[0001] displayed on menu display showing the first needle.

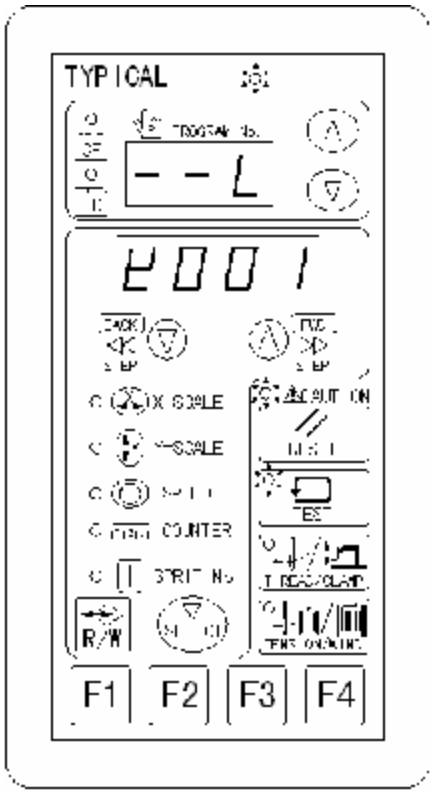


Fig. 6-14

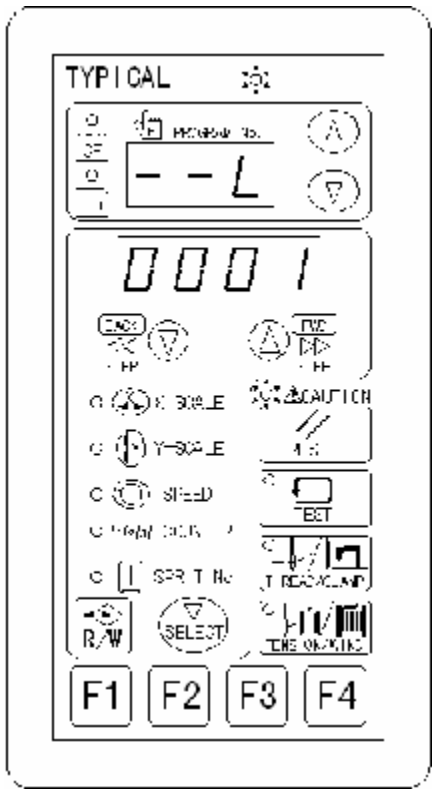


Fig. 6-15

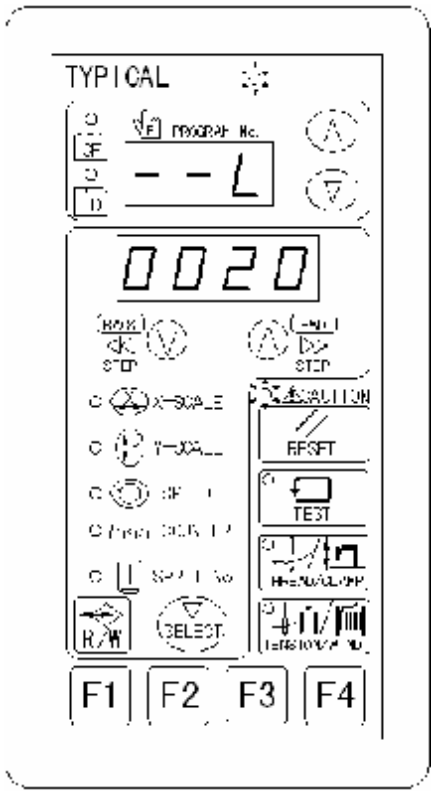


Fig. 6-16

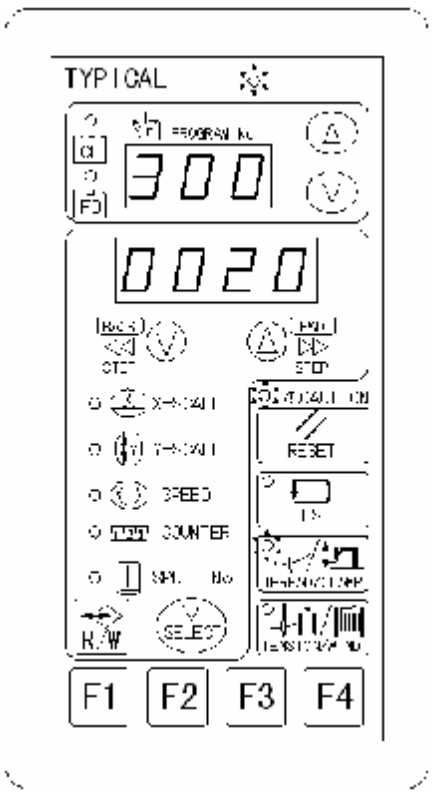


Fig. 6-17

3. Continue pressing arrow key to move machine needle from point A to point B,

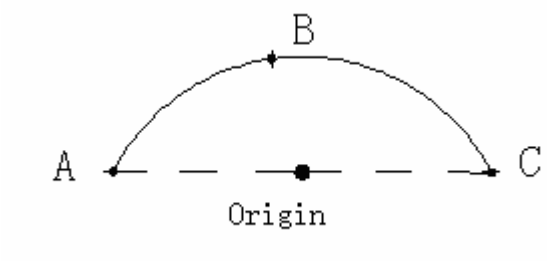
and press SELECT for confirmation when moving to point B. as shown in Fig. 6-15.Machine needle is lifted to highest point by hand wheel.

4. Press R/W key, to save pattern, with operation panel as shown in Fig. 6-17. Press ▽ or △ key to select any number in the range 300～999 as name of the pattern. And then, press TEST key to save pattern and automatically exit drafting mode, the machine finds origin automatically with operation panel returning to the speed set-up interface.

6.2.5 Arc Input

1. Press pattern template under the presser foot frame in terms of proper position, and then enter drafting mode. Simultaneously press TEST and TENSION/WIND keys to set up stitch length as 4.0 and processing method of remainder needle as ON. Press TEST key to exit after set-up completion, or press ▽ or △ key to return to straight-line interface, then select [--H] (straight-line input).

Example: Establish pattern according to the following strike-off.



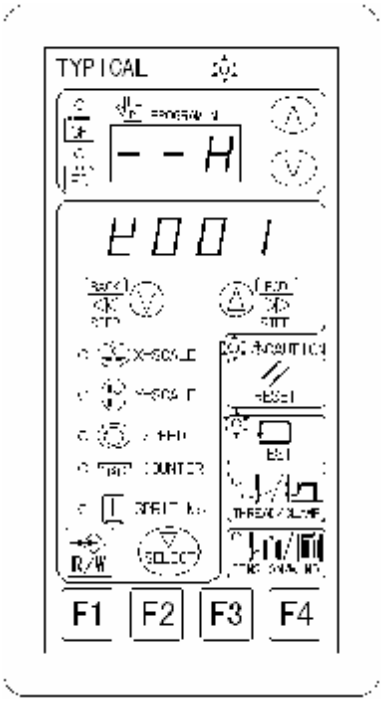


Fig. 6-18

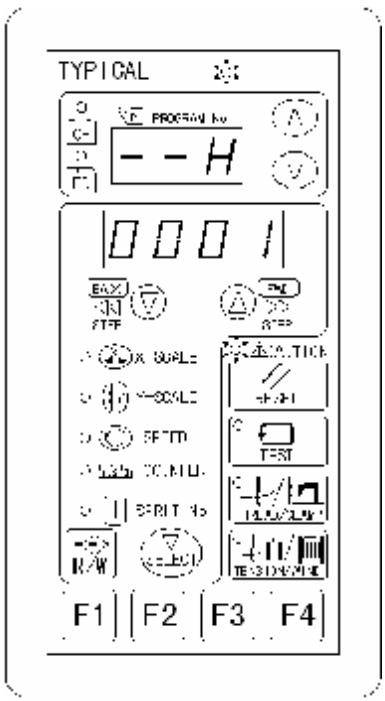


Fig. 6-19

2. Lower the needle by hand wheel, and stop when it almost contacts “origin” position in the template. Use arrow key to move machine needle from origin to point A, with operation panel shown as Fig. 6-18 in moving process. And [K001] displayed on menu display indicates the key point. After moving to point A, press SELECT key to confirm point A, with operation panel as shown in Fig. 6-19 and [0001] displayed on menu display showing the first needle.

3. Continue pressing arrow key, to move machine needle from point A to point B, and press SELECT for confirmation when moving to point B; then move machine needle to point C and press SELECT for confirmation. As shown in Fig. 6-17 Machine needle is lifted to highest point by hand wheel.

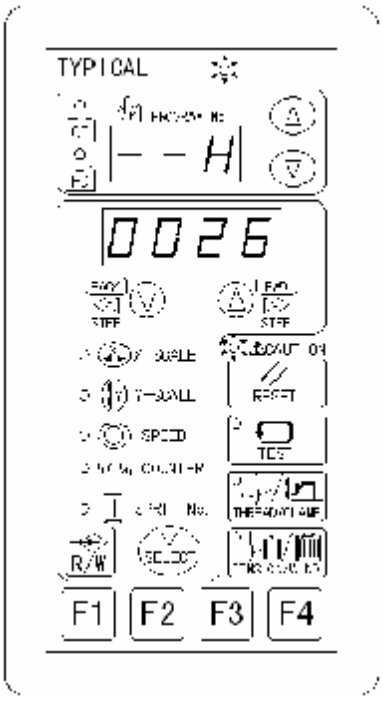


Fig. 6-20

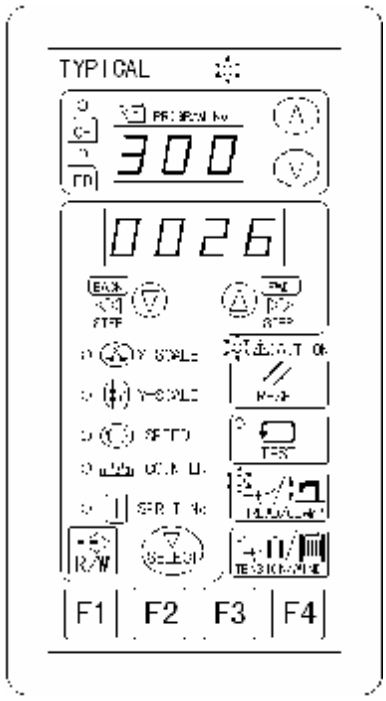


Fig. 6-21

4. Press R/W key, to save pattern, with operation panel as shown in Fig. 6-21. Press ▽ or △ key to select any number in the range 300～999 as name of the pattern. And then, press TEST key to save pattern and automatically exit drafting mode, the machine finds origin automatically with operation panel returning to the speed set-up interface.

6.2.6 Alarm and Solution in Drafting Process

1. In drafting process,

Alarm Code	**Cause and Solution**
E001	Pattern exceeds the sewing range of presser foot frame. Press BACK STEP ▽ key, to cancel previous section input.
E002	The inputted three points are in one straight-line and cannot produce an arc. Press any F1 F2 F3 F4 key, to change position of input point.
E003	Don't produce line type. Press RESET key, to cancel the whole pattern.
E004	Number of needle of pattern exceeds 9999.

	Press BACK STEP key, to cancel previous section input.

6.3 SD Card Pattern Read

Users establish self-compiled pattern data file ***.ntp (like 301.ntp) with pattern editing software. The finished pattern data file is read into SD card using reader. And the self-compiled pattern data in SD card is read to FLASH storage area of controller through SD card socket on controller.

Note：

1. Before the pattern data is read, format the SD card in FAT16 or FAT. The SD card with storage capacity ≤2G is recommended.
2. It is necessary to establish the corresponding file folder according to the order of "SD card/XRYfile folder/ISM file folder/ISMDA0 file folder/pattern"
3. The name of the data file must be within 300～999, and don't alter the file name.

6.3.1 SD card pattern reading process description

1. Establish file folder XRY under root directory of SD card, and open the folder; then establish file folder ISM under filer folder XRY, and open file folder ISM; establish ISMDA0 under file folder ISM, and open file folder ISMDA0; put the pattern needed to read into controller into file folder ISMDA0.
SD card/XRY/ISM/ISMD0/Pattern

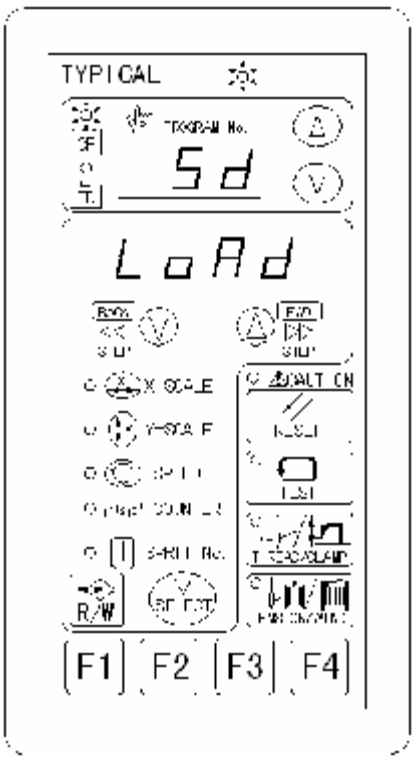


Fig. 6-22

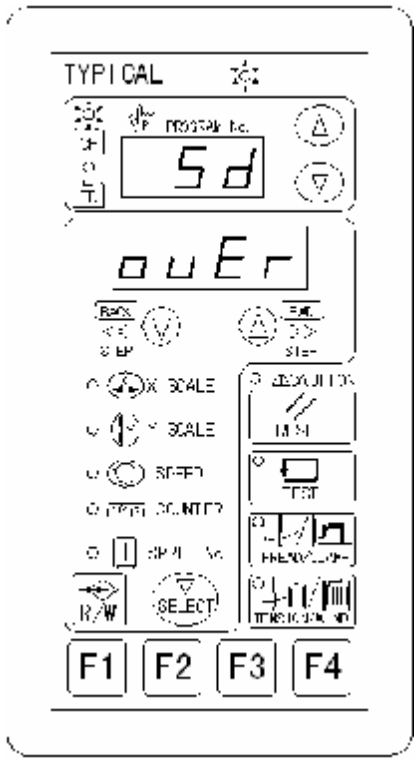


Fig. 6-23

2. Insert SD card into controller SD card mounting. In sewing speed set-up

interface, press R/W and TEST keys simultaneously; controller starts reading the pattern in SD card automatically. Operation panel is as shown in Fig. 6-22.

3. When reading of the pattern in SD card is completed, operation panel is as shown in Fig. 6-23, with OVER displayed on menu display still under flashing state.

4. Wait a few seconds till operation panel restores sewing speed set-up interface automatically, reading of the pattern in SD card being completed.

6.3.2 Displayed characters meaning and solution in reading process

1. Displayed characters and their meaning

CURR---FLASH memory is full;

Pattern in PRCC---SD card has the same name as that of pattern in controller FLAHS.

E SD--- Data quantity in SD card is larger than that of the whole controller FLASH memory.

ERR---Shows SD is bad, not inserted or its data format is wrong.

RULL---No pattern is in SD card or pattern data is placed in a wrong position.

2. Display solution to CURR characters

After menu display area displays CURR characters, it is needed for user to delete the pattern previously saved in FLASH.

Press △ or ▽ key, to select the pattern number needed to delete, and delete the current pattern number by pressing F3 key. If CURR still displays after deletion, it shows the FLASH memory is insufficient yet, and it is needed to continue deletion until menu display displays LOAD.

After data are read into FLASH completely, menu display displays OVER and pattern-sewing machine returns to original working status. It ended when you take out SD card.

3. Display solution to PRCC characters

After menu display area displays PRCC characters, press F1 key to overlay the pattern in FLASH memory or press F1 key not to overlay it. If it still displays PRCC or CURR after handling, please handle it by the corresponding method until menu display displays LOAD in terms of corresponding methods; after data are read in FLASH completely, menu display area displays OVER and pattern-sewing machine returns to original working status. It ended when you take out SD card.

4. Display solution to ESD characters

Data quantity of pattern in SD card is larger than max. FLASH memory area; delete pattern data in SD card to ensure pattern data in SD card is less than max. FLASH memory area. It starts reading as the card is re-inserted.

5. Display Solution to ERR characters

Menu display displays ERR, check:

1). Whether SD card is bad.

2). Whether SD card is inserted well.

3). Whether SD card is FAT 16 or FAT.

6. Display Solution to EULL characters

Check for pattern in SD card; if not, pattern is needed to save in SD card and it starts reading as the card is re-inserted.

Besides, check whether pattern is saved under a proper file folder in terms of the specified storage method.

6.4 Pattern save as

Implement the displacement operation, multiplying power for the current pattern, after it is confirmed by trial cloth and sewing, the current pattern shall be saved as a new pattern.

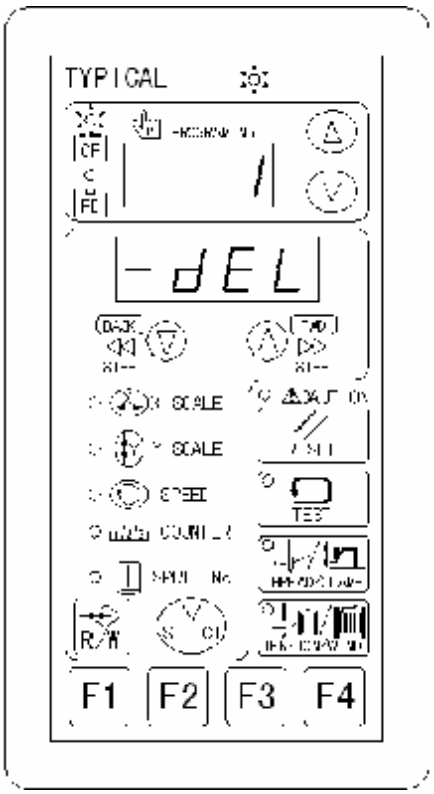
Operation steps：

1. In sewing speed set-up interface，press SELECT key to set up X Y multiplying power, and tread the step switch to gear 2 to confirm the settings, and the system save the settings automatically.

2. Press TEST and ▽ key to set up second origin and displacement（the set-up method is shown in 5.2） press TEST to save settings.

3. Press TEST and F3 key to enter into or exit current pattern save-as mode, entering into post-program and display that the range of 300-999 is not in use and the type is minimized, menu area display total needle numbers, press ▽ or △ key to select pattern No. Press TEST key to save. If rename the new pattern, press F1 key to cover the former pattern save, press F2 key not to cover former pattern, it is necessary to re-select pattern No., and press TEST key to save, after it is successfully saved, it return to the main interface.

6.5 Pattern deletion



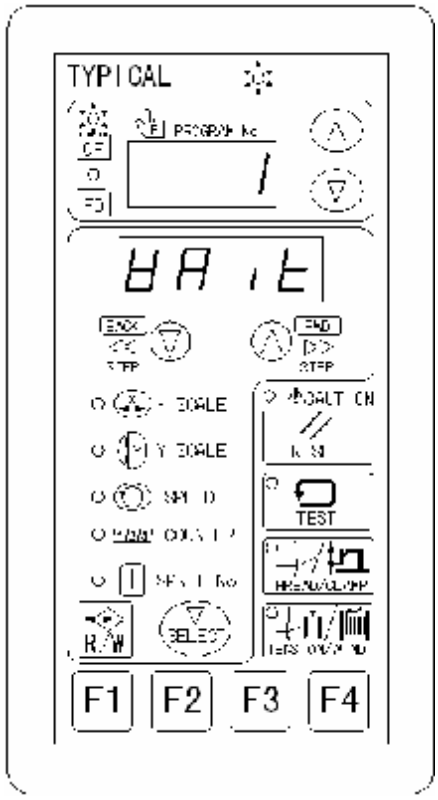


Fig. 6-24 **Fig. 6-25**

1. In sewing speed set-up interface, simultaneously press R/W and RESET keys, to enter pattern deletion interface (as shown in Fig. 6-24).

2. Press ▽ or △ key, to select the pattern number needed to delete. After pattern is selected, press RESET key once till buzzer stops sounding; with the result that pattern is completely deleted. Pattern displayed on PROGRAM No. display area skips to next pattern; at this time, you can continue to select other pattern needed to delete for operation.

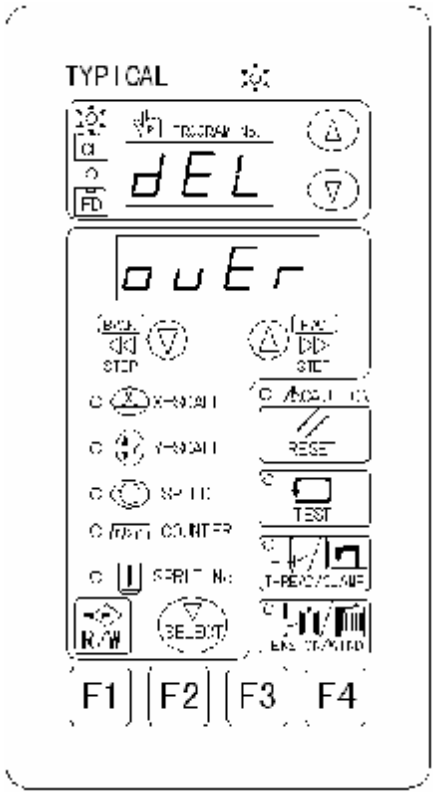


Fig. 6-26

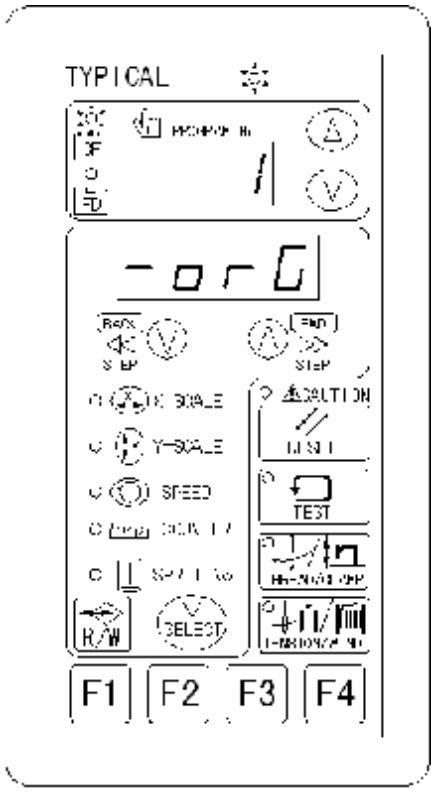


Fig. 6-27

3. When deletion is completed, press 

key to exit pattern deletion interface; at this time, operation panel is as shown in Fig. 6-25. The controller arranges its memory automatically. After completion of arrangement, operation panel is as shown in Fig. 6-26 for one second, and return to sewing speed set-up interface.

Note:

1. Number 1/2/3 Pattern of the machine can be deleted in deletion interface; but operation panel is as shown in Fig. 6-27 in each deletion; number 1/2/3 pattern still exists when exiting pattern deletion.
2. Pattern deletion interface can be accessible directly from X/Y scale interface, speed set-up interface, count display interface and cycle program step view interface; after exit, it returns to sewing speed set-up interface.

7. Alarm Message List

When machine gives alarm, buzzer will sound and operation panel TYPICAL ○ indicator light will be red, with alarm code displayed on menu display. Please release alarm according to the follow methods.

Alarm Code	Cause and Solution
E.025	Connect power supply when the right pedal is treaded. Disconnect power supply to confirm position of the right pedal; Confirm the cable connection from the treadle pedal to BK position on front panel.
E.035	After connecting power supply, examine the left pedal functions erratically. Disconnect power supply, and confirm position of the left pedal; Confirm the cable connection from treadle pedal to BK position on front panel.
E.050	The sewing machine head is tilted after connecting power supply. Disconnect power supply, and set the sewing machine head straight; Confirm the cable connection from switch of sewing machine head to BK position on front panel.
E.055	The sewing machine head is tilted before connecting power supply. Disconnect power supply, and set the sewing machine head straight; Confirm the cable connection from switch of sewing machine head to BK position on front panel.
E.105	Perform sewing when presser foot is lifted. Disconnect power supply, and restart sewing machine.
E.106	It returns to origin when press plate is lifted. Disconnect power supply, and restart sewing machine.
E.107	It returns to origin when machine needle is placed at lower position. Disconnect power supply, and restart sewing machine.
E.100	Main axis motor cannot find origin after connecting power supply. Disconnect power supply, rotate handwheel to confirm whether upper axis is stuck or not. Confirm the cable connection from main axis motor to ZD position on front panel.
E.110	Wrong needle start and stop position of main axis motor Rotate handwheel till alarm vanishes.
E.111	Main axis functions erratically. Disconnect power supply, rotate handwheel to confirm whether upper axis is stuck or not.

	Confirm the cable connection from main axis motor to ZD position on front panel.
E.200	X axis motor cannot find origin after connecting power supply. Disconnect power supply, and check whether mechanical part in the X (horizontal) direction is stuck or not; Confirm the cable connection from X axis to XD position on front panel.
E.201	X axis motor gets desynchronized during feeding cloth. Disconnect power supply, and check whether mechanical part in the X (horizontal) direction is stuck or not; Confirm the cable connection from X axis motor to XD position on front panel; Confirm whether X axis motor and encoder are mounted firmly or not.
E.210	Y axis motor cannot find origin after connecting power supply. Disconnect power supply, and check whether mechanical part is stuck or not in the Y (vertical) direction; Confirm the cable connection from Y axis to YD position on front panel.
E.211	Y axis motor gets desynchronized during feeding cloth. Disconnect power supply, and check whether mechanical part is stuck or not in the Y (vertical) direction; Confirm the cable connection from Y axis motor to YD position on front panel; Confirm whether Y axis motor and encoder are mounted firmly or not.
E.300	Presser foot lifter motor cannot find origin after connecting power supply. Disconnect powers supply, and rotate presser foot lifter motor, to check whether presser foot lifter mechanical part is stuck or not; Confirm the cable connection from presser foot lifter motor to TD position on front panel.
E.301	There is great error for lift and presser foot motor during motion. Shut down the power supply, and check whether the machinery part of lift and presser foot motor is stuck or not; Confirm the connection situation of cable for lift and presser foot motor to TD position of front panel; Confirm the installation of lift and presser foot motor and coder is firm or not.
E.500	Because of scale set-up, sewing pattern exceeds the sewing range. Set up pattern scale of enlargement once again.
E.501	Read the sewing pattern exceeding the sewing range. Confirm pattern data; Confirm presser foot frame size set-up is accurate.
E.512	Pattern is not completely sewed (sewing not completed). Disconnect power supply, restart sewing machine.
E.551	Pattern name doesn’t conform to inner file of pattern. Re-edit pattern, to make pattern name in conformity with inner file of pattern.

E.552	Pattern data structure is inaccurate. Re-edit pattern.
E.553	It functions erratically in arrangement of Flash memory. Disconnect power supply, and restart sewing machine.

8. Routine Maintenance

This product shall be operated in clean, ventilation environment. Don't put sundries around controller to facilitate heat dissipation of controller and avoid dust entering controller meanwhile.

There has to be a 1 minute interval between twice powers-on to start sewing machine.

If power failure occurs suddenly, power switch shall be disconnected first of all.

In the process of using operation panel, prevent scratch by prohibiting pressing keys by fingernail or any object such as stick。

Power supply has to be disconnected before performing system maintenance.

Clean machine case regularly, to prevent various oils adhering to controller or flowing into controller.

Check grounding line system regularly.

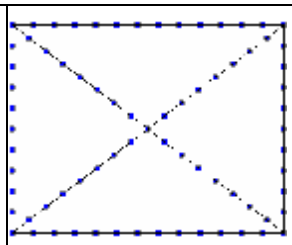
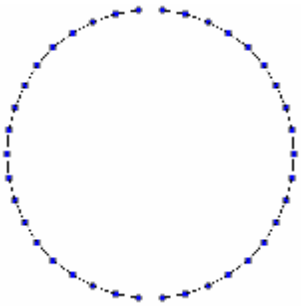
Check external cable of controller regularly.

9. Appendix

9.1 Original pattern list

Electronic pattern-sewing machine list, number of needle and X/Y length are shown as follows:

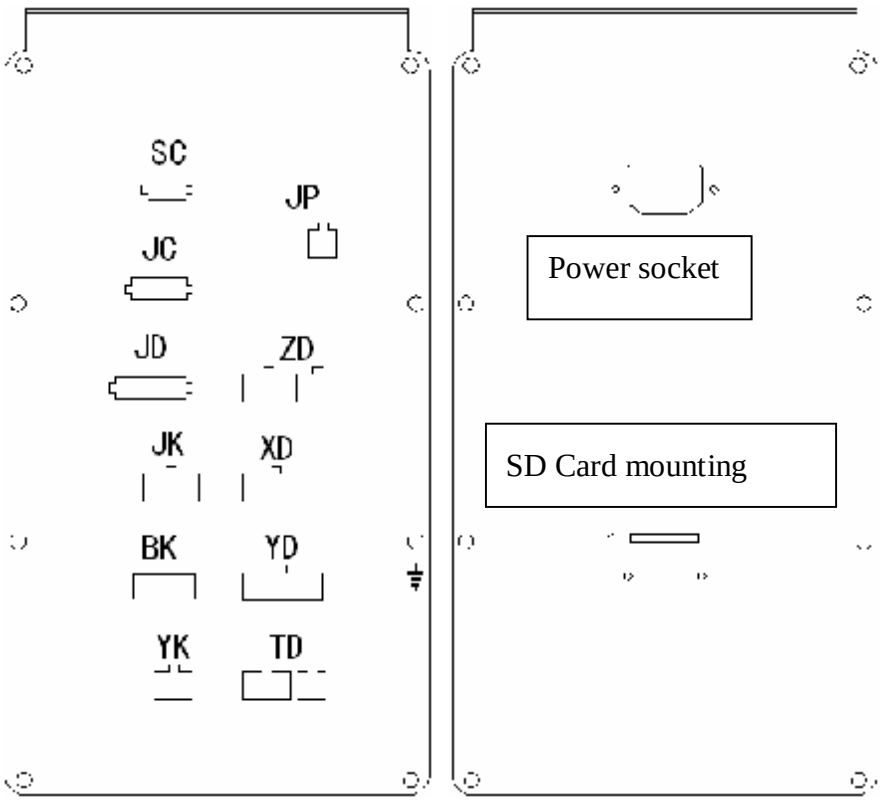
Pattern number	**Sewing Pattern**	**Number of Needle (Needle)**	**Sewing Length X (mm)**	**Sewing Length Y (mm)**
1		50	39	30

2		102	39	30
3		42	36	36

9.2 Character comparison table

									
0	1	2	3	4	5	6	7	8	9
									
A	B	C	D	E	F	G	H	I	J
									
K	L	M	N	O	P	Q	R	S	T
									
U	V	W	X	Y	Z				

9.3 Front and rear panel interface description



Front Panel **Rear Panel**

Front Interface Description:

Character	Description
SC	Loosing electromagnet
JC	Loosing electromagnet
JD	Wiping electro-magnet
JK	X/Y axis zero position detector
BK	Switch of sewing machine head
YK	Foot switch
JP	Operation panel
ZD	Main axis motor and encoder
XD	X axis motor and encoder
YD	Y axis motor and encoder
TD	Presser foot lifter motor and encoder