MITSUBISHI

MITSUBISHI Industrial Sewing Machine

XC-E500-Y CONTROL PANEL   Technical Information

Thank you for choosing the XC-E500-Y control panel. Before using this control panel, please read this manual carefully so that the equipment is used to its optimum.
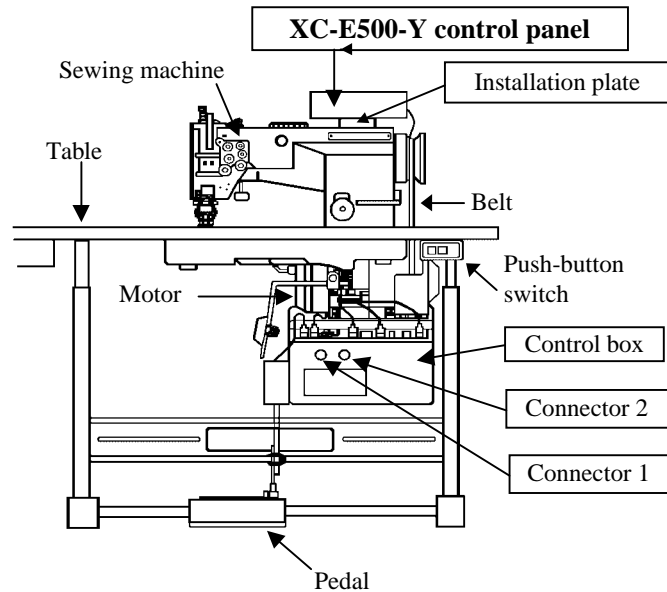
Fig.1

1. HANDLING INSTRUCTIONS

(1) Connect the XC-E500-Y control switch panel with the XC-E , XC-H.

It cannot be used with any other control boxes (such as LS. LA. LD, LE. LF. ZK. XC. XC-A. XC-B series).

(2) To ensure safety, the control switch panel must be plugged or unplugged after setting the power switch to OFF.

Otherwise, the control switch panel or the control box may be damaged and/or the contents

of the internal memory may be corrupted.

(3) Clean the control switch panel with a soft cloth, etc. if it is smeared with machine oil. If left smeared,

the panel may be discolored or deformed or the surface sheet could peel off. Wipe with neutral

detergent if the panel is heavily smeared. In this case, do not use thinners, etc. to protect the panel

from being discolored or deformed.

2. INSTALLATION PROCEDURE (See Fig. 1.)

(1) Switch off the motor power.

(2) Using the accessory installation plate and screws, install the control panel by making use of the back plate

tightening screws in the sewing machine arm.

(3) Special care must be exercised to prevent the lead wires from making contact with the belt.

(4) Securely connect the connectors of the accessory cable with those of the control panel and control box (1or2).

(5) When the power switch turn on, the pattern number appear 1.

3. KEY NAMES AND FUNCTIONS
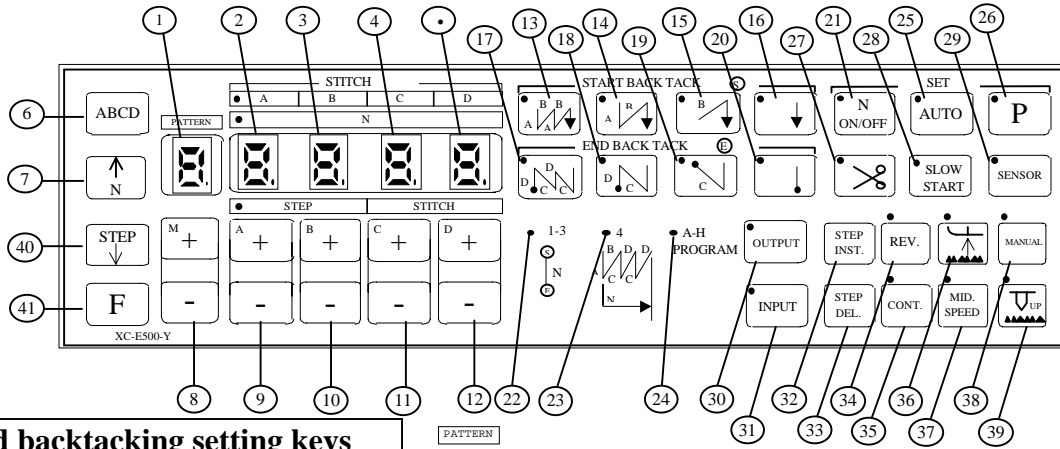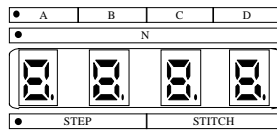
(Numerals ① to ㊶ correspond to those in Fig. 2)

Fig. 2

Start/end backtacking setting keys

① Pattern display

Pattern number is displayed. ㉒㉓㉔ will light in sequence with the pattern number.

②③④⑤ Stitch number displayed.

Stitch number of Start/End back tacking , Stitching with fixed stitches and step,etc. displayed.

| Pattern No.	Fig.2 No.	Pattern
1 to 3	㉒	Straight lock stitching/Back tacking Stitching with fixed stitches
4	㉓	Continuous Back tacking
A to H	㉔	Teaching/Programming

⑥ ABCD Back tacking stitch display select key

Used to switch the number of backtacking stitches indicated by the stitch display. When the valid , indicate the LED.
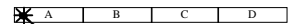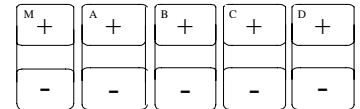
⑦ ↑N Stitching with fixed stitches (N) display select key

Used to switch the number of stitching with fixed stitches indicated by the stitch display. When the valid, indicate the LED
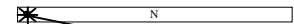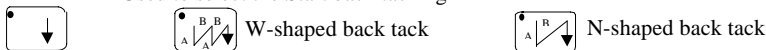
⑧⑨⑩⑪⑫ Setting value select key

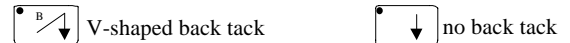⑧ is the pattern change key. The other keys are used to change the value set on the key.

⑬⑭⑮⑯ Start back tacking select keys

Used to select the Start back tacking

W-shaped back tack   N-shaped back tack   V-shaped back tack   no back tack

The W, N and V tacking keys can be pressed simultaneously. When N-shaped and V-shaped are pressed simultaneously,V plus N tacking will be selected.

⑰⑱⑲⑳ End back tacking select keys

Used to select the End back tacking

W-shaped back tack   N-shaped back tack   V-shaped back tack   no back tack
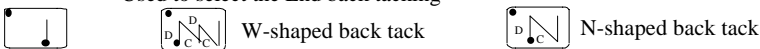
The W, N and V tacking keys can be pressed simultaneously. When W-shaped and N-shaped are pressed simultaneously,W plus N tacking will be selected.

㉑ N ON/OFF Stitching with fixed stitches ON / OFF select key

Used to select the Stitching with fixed stitches ON / OFF.

Keys related to program / teaching input

㉚㉛ OUTPUT / INPUT Output and input keys (used for patterns A to H)

Used to select between output and input.

㉜ STEP INST. Step insert key (used for patterns A to H)

Used to insert a step during program correction.

㉝ STEP DEL. Step delete key (used for patterns A to H)

Used to delete a step during program correction.

㉞ REV. Reverse stitching key (used for patterns A to H)

Used to select between execution and non-execution of reverse stitching during the stitching operation.

CONT. (35) Continuous key (used for patterns A to H)

Used to select between execution and non-execution of continuous stitching of steps during the stitching operation.

For further details. see | Using the continuous key |

(36) Presser foot up key (used for patterns A to H)

Used to select between execution and non-execution of presser foot lifting at the end of stitching.

MID. SPEED (37) Middle speed key (used for patterns A to H)

Used to select between execution and non-execution of middle-speed stitching of the corresponding step.

MANUAL (38) Manual key (used for patterns A to H)

Used to select between execution and non-execution of manual stitching during the stitching operation.

For more information. see | Using the manual key |

UP (39) Needle up key (used for patterns A to H)

By pressing this key when the needle is not at the UP position , the sewing machine rotates up to the needle UP position.

For more details, see | Using the needle up key |

AUTO (25) Automatic key (used for patterns A to H)

Used to select between execution and non-execution of stitching by toeing the pedal once during the stitching operation.

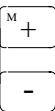For further details. see | Using the automatic key |

(27) Trim key

Used to select between execution and non-execution of thread trimming at the end of stitching.

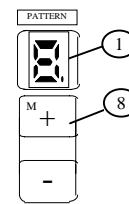For further details. see | Using the Trim key |

M + − (8) Pattern number setting key

Used to select any of patterns 1 to H.

Pattern 1 to 9 :Straight lock stitching / Back tacking / Stitching with fixed stitches

Pattern 4 :Continuous back tacking

Pattern A to H :Teaching/Programming

STEP ∨ (40) Step/stitch setting display select key

Used to switch the Step/stitch indicated by the stitch display. When the valid , indicate the LED of upper figure.
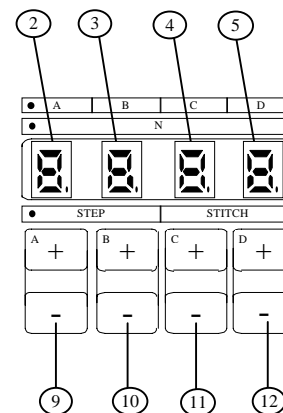
(9) (10) (11) (12) Step/stitch setting keys

Used to set a step and the number of stitches.(used for patterns A to H)

Step display for programming / teaching

Indicates a step . Maximum number of steps are 24.

Stitch display for programming / teaching

Indicates the number of stitches .

Other keys

SLOW START (28) Slow start select key

Used to select between slow start valid and invalid at the start of stitching.

SENSOR (29) Sensor select key

Used to select between edge sensor valid and invalid . For further details see | Using the Sensor key |

P (26) Program key

This can be customized (arbitrary input function) by using the functions on the main unit control box.

Refer to | Using the Program key | for details on the simple usage methods.

F (41) Function key

Used to select indicates . For further details. see | Using the Function key |

4.OPERATION PROCEDURES

All keys are invalid during the stitching operation without [P] key. (while the sewing machine is being operated).

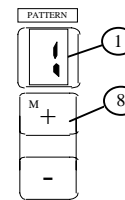(Any value cannot be changed by pressing the corresponding key.)

Straight lock stitching

(1) Ordinary lock stitching (manual stitching)

While viewing the pattern number display ① select pattern 1 to 3 by pressing the ⑧ key.
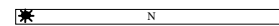
Setting the stitching edges : Select the [↓] and [↓] keys.

(2) Stitching with fixed stitches

While viewing the pattern number display ① select pattern 1 to 3 by pressing the ⑧ key.

Setting the stitching edges : Select the [↓] and [↓] keys.

Setting the number of stitches for fixed-stitch stitching

Change the indicate to the stitch number by using the [↑N] key. Light the LED ✳ N

Set the number of stitches using the ⑨ ⑩ ⑪ ⑫ keys.

It is able to set 0 to 9999. (If it set 0 , become to manual stitching.)

Backtacking

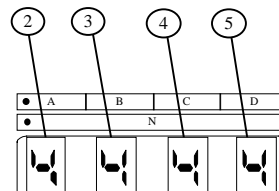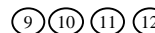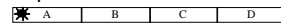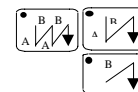While viewing the pattern number display ① select pattern 1 to 3 by pressing the ⑧ key.

(1) Start backtacking

Select the type of start backtacking from between the start backtacking select keys

(Start backtacking is not performed when [↓] key selected.)

To set the number of start backtacking stitches, press the [ABCD] key. This lights up the LED

and calls the number of backtacking stitches.

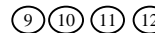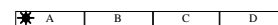While viewing this value, set the number of stitches with the stitch setting keys. ⑨ ⑩ ⑪ ⑫

(2) End backtacking

Select the type of end backtacking from between the end backtacking select keys

(End backtacking is not performed when [↓] key selected.)

To set the number of end backtacking stitches, press the [ABCD] key. This lights up the LED ✳ A B C D

and calls the number of backtacking stitches.

While viewing this value, set the number of stitches with the stitch setting keys. ⑨ ⑩ ⑪ ⑫

Continuous backtaking

While viewing the pattern number display ① select pattern 4 by pressing the ⑧ key.

Lights up the LED ㉓

To set the number of backtacking stitches, press the [ABCD] key. This lights up the LED ✳ A B C D

and calls the number of backtacking stitches.

While viewing this value, set the number of stitches with the stitch setting keys. ⑨ ⑩ ⑪ ⑫

For the No. of times, when [↑N] is pressed, the lamp ✳ N will light, and the No. of times N

will display on the No. of stitch display section ② ③ ④ ⑤ . Make a setting with the setting value change keys
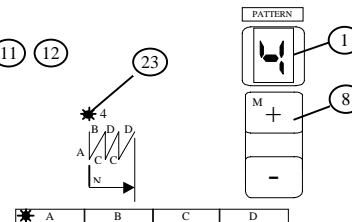
⑨ ⑩ ⑪ ⑫ while observing this number.

Table 1   Relationship between the Number of Stitches end Display Values

| Display Values	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Number of Stitches	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Note 1. If the pattern is changed midway while stopped (when forced full pedal heeling is carried out during the pattern),

the pattern will be stitched from the start including the tacking.

2. The pattern cannot be changed midway while stopped (when the pedal is at the neutral position during manual

stitching, etc.). Full pedal heeling must be carried out first.

3. Only the type of end tacking can be changed when stopped during a pattern (when the pedal is at the neutral position

during manual stitching, etc.). Note that the No. of stitches for end tacking cannot be changed.

Using the trim key ✂

Basically, when the lamp on the upper left of the trimming key ✳✂ is lit, the thread will be trimmed.

However, the operation will differ according to the state, so refer to the following for details.

1. Ordinary lock stitching (manual stitching) (Continuous backtaking) Pattern 1 to 4 : To trim the thread at the end of stitching (pedal heeling operation), press the ✳✂ key and turn ON the lamp on the upper left of the key.

   When thread trimming at the end of stitching (pedal heeling operation) is to be canceled, press the ✂ key and turn off the lamp on the upper left of the key. The thread will not be trimmed when the lamp on the upper left of the key is not lit. (This only applies when the sewing machine stops at the UP position after the set end backtacking is performed.)

2. Stitching with fixed stitches Pattern 1 to 4 : To stop the sewing machine after the fixed-stitch stitching is over (with the pedal kept toed), press the ✂ key to switch off the lamp on upper left of the key. When that lamp is off, the sewing machine stops at the specify position (UP or DOWN) after the fixed-stitch stitching is over. Then heel the pedal to perform the set end backtacking and thread trimming.

3. Pattern A to H : To cancel thread trimming at the end of stitching at the corresponding step in program / teaching input mode, press the ✂ to switch off the lamp on upper left of the key. In output mode, the sewing machine DOWN stops after stitching that step. (If the pedal is fully heeled, the thread will be trimmed, and step 1 will be returned to.) In output mode, the ✂ key is invalid.

Using the automatic key AUTO

1. Ordinary lock stitching fixed stitches Pattern 1 to 4 Pattern 1 to 4 : When the AUTO key has been pressed to switch off the lamp on upper left of that key, the speed varies according to the toeing amount of the pedal. (The sewing machine comes to a stop when the pedal is set to the neutral position.) When the AUTO key has been pressed to switch on the lamp on upper left of that key, the speed is fixed at high level independently of the toeing amount of the pedal.

2. Continuous backtaking Pattern 4 Regardless of the AUTO key's ON/OFF state or the full toe down amount, A and B will be the start tacking speed, and C and D will be the end tacking speed. (Variable speed operation is possible when set on the control box.)

3. Pattern A to H : To stop the sewing machine by setting the pedal to the neutral position during stitching of the corresponding step in program / teaching input mode, switch off the lamp by pressing the AUTO key. To continue automatic stitching operation to the end of that step after setting the pedal to the neutral position during stitching of that step, switch on the lamp by pressing the AUTO key. In output mode, the AUTO key is invalid.

Using the needle up key ▽UP

1. Sewing time : The needle will not move even if the needle UP key ▽UP is pressed.

2. Program / Teaching : By pressing the needle up key ▽UP when the needle is not at the UP position in this mode, the sewing machine rotates up to the needle UP position and stops there.

   By pressing the needle up key ▽UP to switch on the lamp in this mode, the sewing machine stops at the needle UP position at the end of stitching of that step in output mode.

Using the manual stitching key MANUAL

(The manual stitching key is only valid for patterns A to H.)

1. Input mode : Manual stitching is carried out at a step where the manual stitching key MANUAL has been pressed to switch on lamp. Raise the presser foot to shift to the next step during output of a step programmed for manual stitching. (Provide the presser foot lifting signal if the machine used is not equipped with the automatic presser lifting.)

2. Output mode : By pressing the manual stitching key MANUAL to switch on that lamp, stitching is stopped at the currently output step and manual stitching is enabled. To return to pattern stitching, press the MANUAL key again to switch off the lamp. This resumes stitching from where it had stopped. If the presser foot has been raised in manual stitching mode, stitching is resumed from the step following the stopped step.

Setting the pattern in teaching input mode

Input

Pocket stitching shown in Fig. 3 is described by way of example.

(1) Set the required pattern number among A to H.

(2) Press the input key [INPUT] to select input mode.

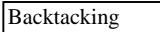(3) Check that the step displayed is 1 and the number of stitches 0 is flickering. (Fig.4)

If the number of stitches is not flickering, repeat pressing the [STEP DEL.] key until the number of stitches 0 starts flickering.

(4) Select start /end backtacking by either of the following keys.

(For more information on backtacking. see [Backtacking] .)

(5) Actually stitch the area A in Fig. 3.

(5.1) By setting a fabric and toeing the pedal, straight stitching is performed after the set start backtacking. By returning the pedal to the neutral position after stitching the area A in Fig. 3, the number of stitches made is displayed and flickers on the stitch display (Fig.4)

(5.2) Then, lift the presser foot (by light heeling or by the foot switch), change the direction of the fabric, and lower the presser foot. The step shown on the step display then changes to 2 and the number of stitches on the stitch display to Fig. 4 flickering.

(This completes the entry of the number of stitches and presser foot lifting for the area A.)

(6) In a similar manner, stitch B, C and D. (This completes the entry of the number of stitches and presser foot lifting for the areas B, C and D.) After stitching the area D, fully heel the pedal (S2=ON). The set end backtacking is then performed and the threads trimmed. (This completes the final entry of the number of stitches and presser foot lifting.)

(7) Since teaching input is complete at the above step, press the output key [OUTPUT] .

The step automatically changes to 1 and output mode is selected.

If any of the number of stitches of A, B, C and D is greater than 99, the step is automatically incremented (same as [CONT.] key ON).

(e.g. if the number of stitches of A is 140, 99 stitches and the [CONT.] key are input into step 1 and 41 stitches into step 2).

Caution: After the input operation is over, press the [OUTPUT] key and switch the power off. The entered pattern is not stored if the power is switched off with the [INPUT] key ON (input mode).
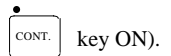
Output

Pocket stitching entered in the preceding section is described by way of example.

(1) Press the [OUTPUT] key to switch on the lamp on upper left of that key. This select output mode.

(2) Set the pattern number by pressing the pattern number setting key.(The drawing on the right shows the case when A is set.)

(3) The display shows step 1 and the number of stitches entered for the area A(Fig.3).

(4) By setting a fabric and toeing the pedal, the set start backtacking is carried out, fixed-stitch stitching is performed in the area A (the number of stitches entered), the needle stops at the DOWN position, and the presser foot rises automatically. Then change the direction of the fabric. At this time, the display automatically indicates the next step to be stitched.

(5) In a similar manner. stitch B, C and D. After fixed-stitch stitching of the area D is over, the set end backtacking is performed, the threads are trimmed, and the presser foot rises.

When output is complete as above, the step displayed has already returned to 1.

By toeing the pedal again, the same stitching is performed.

Note 1. The pattern cannot be changed when stopped during program or teaching playback. Always carry out full pedal heeling or trim the thread.

2. If the thread is trimmed during the playback of the program or teaching, the step will always return to the first step (step 1). Note that after the thread has been trimmed, the step can be changed with the step key.

3. Only the end tacking can be changed when stopped during playback of the program and teaching. Note that the No. of end tacking stitches cannot be changed.
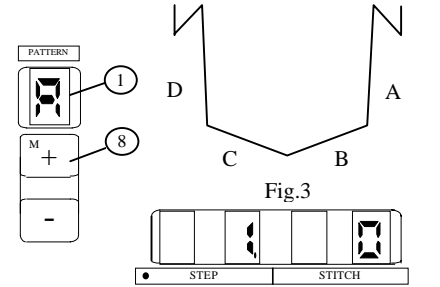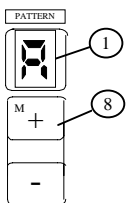
Setting the pattern in program mode

Input

Label sewing shown in Fig. 5 is described by way of example.

(1) Set the required pattern number among A to H.

(2) Press the input key [INPUT] to select input mode.

(3) Check that the step displayed is 1 and the number of stitches 0 is flickering. (Fig.6)

    If the number of stitches is not flickering, repeat pressing the [STEP DEL.] key until the number of stitches 0 starts flickering.

(4) Step 1 can be input even with the start tacking key [B], but the method that does not use

    the start tacking key will be explained here. Thus, pressing of the start taking selection key [↓] and

    end tacking selection key [↓] will be handled as taking.
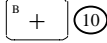
(5) Setting of step 1 (Backward stitching of three stitches at middle speed without a halt)

   (5.1) Press the stitch setting key and set the number of stitches to 3.

    (5.2) Press the middle speed key. [MID. SPEED]

    (5.3) To shift to the next step without a halt, press the continuous key. [CONT.]
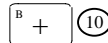
    (5.4) To specify reverse stitching, press the reverse stitching key . [REV.]

    (5.5) Since the setting of step 1 is over at the above step, press the step key [B +] (10)

        to switch the displayed step to 2. At this time, the number of stitches displayed is 0 and flickering.

(6) Setting of step 2 (10 stitches, pedal speed with a halt)

    (6.1) Press the stitch setting key [C +] [D +] [−] and set the number of stitches to 10.

    (6.2) To lift the presser foot , press the presser foot lifting key .

    (6.3) Since the setting of step 2 is over at the above step, press the step key [B +] (10)

        to switch the displayed step to 3. At this time, the number of stitches displayed is 0 and flickering.

(7) Same setting for step 3 to 5.

(8) Setting of step 6 (13 stitches, pedal speed with thread trimming followed by presser foot lifting)

    (8.1) Press the stitch setting key [C +] [D +] [−] and set the number of stitches to 13.

    (8.2) To trim the threads, press the trim key.

    (8.3) To lift the presser foot after thread trimming, press the presser foot lifting key .

(9) Since teaching input is complete at the above step, press the output key [OUTPUT] .

  The step automatically changes to 1 and output mode is selected.

Caution: After the input operation is over, press the [OUTPUT] key and switch the power off. The entered pattern is not stored

 if the power is switched off with the [INPUT] key ON (input mode).

Output

Label sewing entered in the preceding section is described by way of example.

(1) Press the [OUTPUT] key to switch on the lamp on upper left of that key. This select output mode.

(2) Set the pattern number by pressing the pattern number setting key. (The drawing on the right shows the case when B is set.)

(3) The display shows step 1 and the number of stitches 3, and the lamps on the [REV.] , [CONT.] and [MID. SPEED] keys are on.

(4) When the pedal is pressed down, medium speed tacking will take place and then the label pattern will be stitched.

  (3 stitches back, 10 stitches forward, stop, presser foot lift, 5 stitches forward, stop,

 presser foot lift, 20 stitches forward, stop, presser foot lift, 5 stitches forward, stop,

 presser foot lift, 13 stitch es forward, thread trimming stop, presser foot lift) After stitching,

 the step will automatically return to step 1 as shown in Fig. 7. When the pedal is pressed again, the same stitching will be repeated.

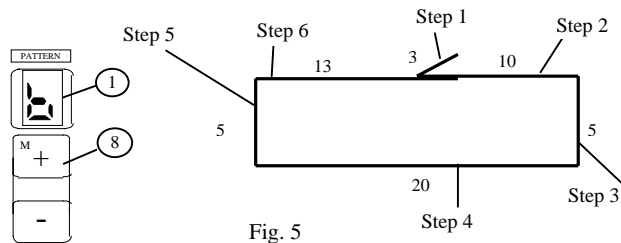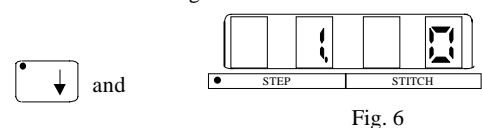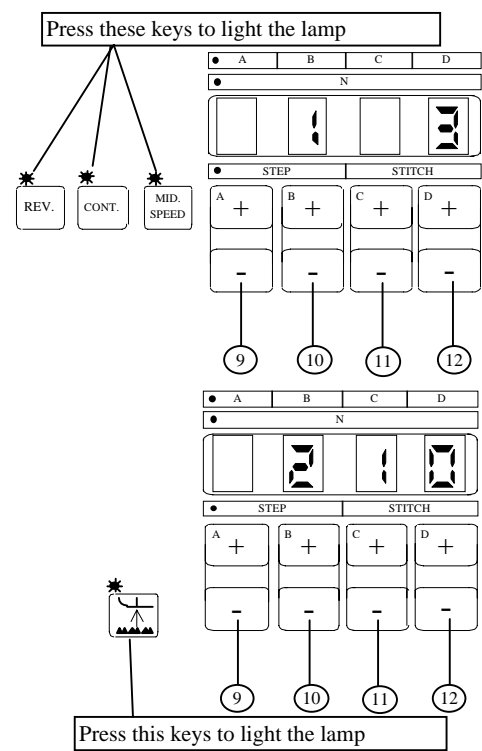Step 5   Step 6   Step 1   Step 2

13   3   10

5   5

20   Step 3

Step 4

Fig. 5

Fig. 6

Press these keys to light the lamp

REV.   CONT.   MID. SPEED

9   10   11   12

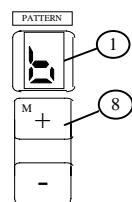Press this keys to light the lamp

PATTERN

REV.   CONT.   MID. SPEED

Fig. 7

Correcting the data programmed for patterns A to H

Correcting the number of stitches

(1) While viewing the pattern number display ①, set the required pattern number by pressing the pattern number select key ⑧.

(2) Press the input key [✳ INPUT] to select input mode.

(3) While viewing the step display ②③, set the required step (process) number by pressing the step select key ⑨⑩.

(4) Then, while viewing the stitch display ④⑤, set the required number of stitches by pressing the stitch select key ⑪⑫.

(5) Press the output key [OUTPUT] to select output mode.
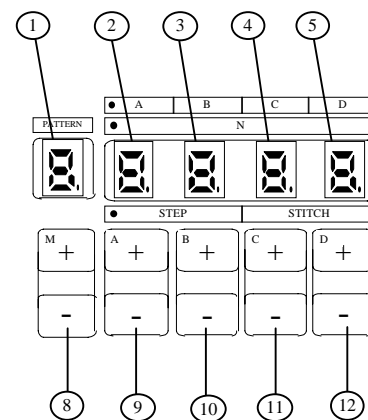
Inserting the step

To insert a process of 25 stitches between step 2 and step 3 in a pattern with a pocket as shown in Fig. 8, for example, proceed as follows:

(1) While viewing the pattern number display ①, set the required pattern number by pressing the pattern number select key ⑧.

(2) Press the input key [✳ INPUT] to select input mode.

(3) While viewing the step display ③, set the step (process) number 3 by pressing the step select key ⑩.

(4) By pressing the step insert key [STEP INST.] the number of steps at step 3 changes to 0 and the patterns originally at step 3 and thereafter are shifted to step 4 and thereafter.

(5) Set the number of stitches at step 3 to 25 by pressing the stitch select keys ⑪⑫.

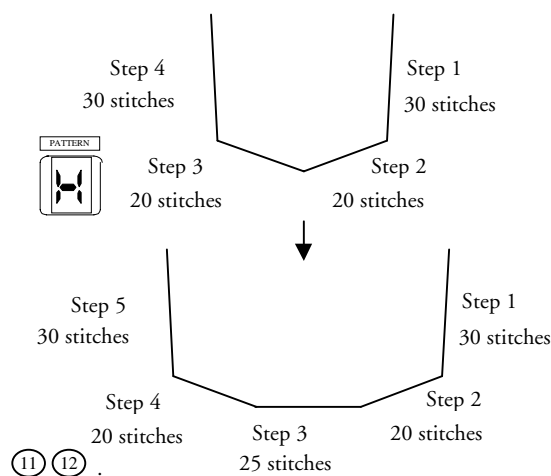(6) Since teaching input is complete at the above step, press the output key [✳ OUTPUT].

Step 4 — 30 stitches   Step 1 — 30 stitches
PATTERN
Step 3 — 20 stitches   Step 2 — 20 stitches

Step 5 — 30 stitches   Step 1 — 30 stitches
Step 4 — 20 stitches   Step 3 — 25 stitches   Step 2 — 20 stitches

Fig. 8

Deleting the step

To delete step 3 from a pattern with a pocket as shown in Fig. 9, for example, proceed as follows:

(1) While viewing the pattern number display to ①, set the required pattern number by pressing the pattern number select key ⑧.

(2) Press the input key [✳ INPUT] to select input mode.

(3) While viewing the step display ③, set the step (process) number 3 by pressing the step select key ⑩.

(4) By pressing the step delete key [STEP DEL.], step 3 is deleted and step 4 and thereafter are decrement by 1 in order to step 3 and thereafter.

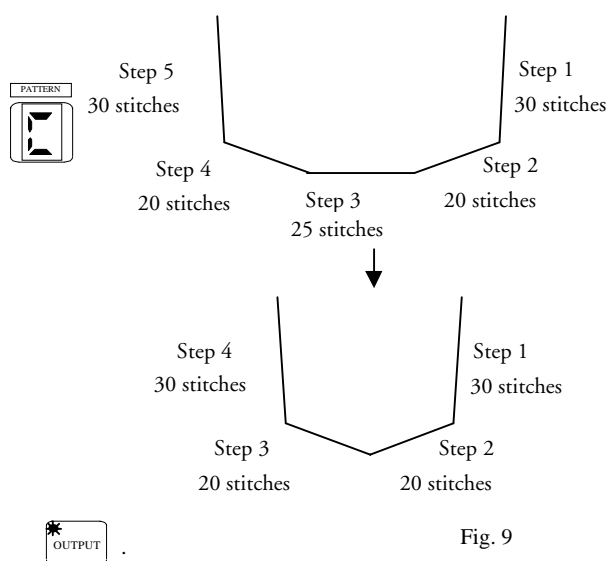(5) Since teaching input is complete at the above step, press the output key [✳ OUTPUT].

PATTERN
Step 5 — 30 stitches   Step 1 — 30 stitches
Step 4 — 20 stitches   Step 3 — 25 stitches   Step 2 — 20 stitches

Step 4 — 30 stitches   Step 1 — 30 stitches
Step 3 — 20 stitches   Step 2 — 20 stitches

Fig. 9

Using the continuous key $\boxed{\text{CONT.}}$

When inputting the program, if the $\boxed{\text{CONT.}}$ ✱ key is pressed and the lamp lit, the steps can be continuously stitched.

If the $\boxed{\text{CONT.}}$ key is pressed at the final step (any step from 2 to 24) during program/teaching input and the No. of stitches is 0,

the stitching will take place sequentially with the next pattern.

Use this when No. of stitches (99 stitches) in one step is insufficient or when the No. of steps on 1 pattern (24 steps) is insufficient.

Using the Function key $\boxed{\text{F}}$

The function key $\boxed{\text{F}}$ is valid states other than program or teaching input (when $\boxed{\text{INPUT}}$ lamp is not lit).

To leave this mode, turn ON the $\boxed{\text{ABCD}}$ key. The display when the $\boxed{\text{F}}$ key is turned ON will be as shown below

according to the program "C" mode "CNF" setting on the control box.

Program mode C	CNF=DN	Down counter display
Program mode C	CNF=UP	Up counter display
Program mode C	CNF=SP	Speed display
Program mode C	CNF=SE	Pattern 1 ~ 4 No. of sensor stitches display

The following setting is required to operate the up/down counters.

To operate the DOWN counter

Program mode B   Setting of N = other than 0 and DNC = ON

To operate the UP counter

Program mode B   Setting of P = other than 0 and UPC = ON

Various settings can be made for the up/down counters using the program "B" mode on the control box. (No. of thread trimming

times, No. of stitch counter, etc.) Refer to the **Mitsubishi LIMISERVO E , H Series Technical Manual** for details.

Usage as control box display

If $\boxed{\text{F}}$ is pressed while holding down $\boxed{\text{STEP} \lor}$ in a mode other than the input mode (when $\boxed{\text{INPUT}}$ lamp is not lit), the same display

as the control box will appear. Refer to the following table for how the keys are handled.

(In the case, the following keys are valid even when the sewing machine is operating.)

Control Unit key	↑	↓	M	A 1-2	B SL	C →	D ↗
Control panel key	↑ N	STEP ∨	M +	A +	B +	C +	D +

To return to the normal display of the control switch panel, press $\boxed{\text{F}}$ again while holding $\boxed{\text{STEP} \lor}$ down.

When the display of the control switch panel doesn't return to normal display, press $\boxed{\text{ABCD}}$.

## Using the Sensor key $\boxed{\text{SENSOR}}$

This key is extremely handy when the stitching is to be automatically stopped at the cloth edge. Refer to the

Mitsubishi LIMISERVO E , H Series Technical Manual for details on the connector to which these sensor is connected.

1. Pattern 1 to 4   The sensor will be valid when the $\boxed{\text{SENSOR}}$ ✱ key is pressed and the lamp is lit.

Refer to the section $\boxed{\textbf{Using the Function key}}$ above for details on the No. of stitches until the

operation stops after the sensor detection.

Note 1. The on/off state of the sensor, and the No. of stitches until operation stops after sensor detection can be set for each pattern.

2. Refer to the **Mitsubishi LIMISERVO E , H Series Technical Manual** for details on the needle position at sensor stop.

2. Pattern A to H   : The sensor will be validated in the designated step when the $\boxed{\text{SENSOR}}$ ✱ key is pressed and the lamp is lit

during the input. Set the No. of stitches until operation stops after the sensor detection with the $\boxed{\text{C} +}$ $\boxed{\text{D} +}$ keys.

Note 1. The No. of step stitches will be used as the No. of sensor stop stitches.

2. When inputting, the manual stitching and sensor cannot be used simultaneously.

3. During the playback, if the sensor is not to be used in a step for which it is set, move to the next step with light pedal

heeling, or turn the manual stitching key ON ($\boxed{\text{MANUAL}}$ ✱ lamp lights), and after completing manual stitching, move to

the next step with light pedal heeling.

4. The needle position when the sensor stops can be selected with the $\boxed{\overline{\cup}\text{UP}}$ key. (Valid only during the input.)

Using the Program key
| P |

This can be customized (arbitrary input function) by using the functions on the main unit control box.

The lamp on the upper left of this key can also be customized (arbitrary display function) by using the functions on the main

unit control box. The default settings for this key are as follow.

    * Switch input function: XC-H , XC-E (After Ver.527) Up counter clear (CCU)

                   :XC-E (before Ver.526) Counter clear (CCL)

    * Lamp output function: Not used (NO)

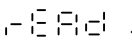Refer to the **Mitsubishi LIMISERVO E , H Series Technical Manual** for details on setting methods for customization.
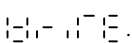
Copy Mode for Setting Table

The data set in the main control box can be read using the control switch panel, and then written to another control box.

Reading of set data (Control box ⎯⎯ Control switch panel)

    (1) Turn the power ON while holding down the | ABCD | key. The display will be   `-E Rd` .

    (2) When the | F | key is turned ON, the set data will be copied from the control box to the control switch panel.

    (3) The copying is completed correctly if the normal display appears after several 10 seconds. If M5 displays, there is

        an error. Turn the power OFF, and refer to following.

        1) power OFF ⎯→ 2) OFF the Lamp "M5" ⎯→ 3)check the connector ⎯→ 4)repeat the operation from step(1)

Reading of set data (Control switch panel ⎯⎯ Control box)

    (1) Turn the power ON while holding down the | ↑ N | key. The display will be   `Eb-iTE`.

    (2) When the | F | key is turned ON, the set data will be copied from the control box to the control switch panel.

    (3) The copying is completed correctly if the normal display appears after several 10 seconds. If M5 displays, there is

        an error. Refer to following and table 2.

        1) power OFF ⎯→ 2) OFF the Lamp "M5" ⎯→ 3) check the Voltage , model name ⎯→ 4)Check the connector

        ⎯→ 5)repeat The operation from step(1)

 Note 1. If the voltage and model (control box type) differ, the set data cannot be written. (M5 will display.)

     2. Never disconnect the control switch panel while reading or writing the set data.

        The operation of the control box after disconnection cannot be guaranteed.
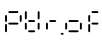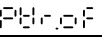
5. ERROR DISPLAY

If any error has occurred in the motor. control box, detector. etc., the display indicates the corresponding error code.

After checking the error code, turn off the power switch and inspect according to Table 2.

If the error still persists, consult your sales representative.

Table 2.   Error Code and Inspection Item

Error Code	Inspection Item
`PBr.oF`	Inspect the fuse on the PCB installed on the cover of the control box. `PBr.oF` will display for approximately 10 seconds after the power is turned OFF, but this is not an error.
E 1	Check for open or disconnected cable to the motor. Check that connector is plugged securely.
E 3	Check that connector of detector in motor (Limi-Servo X) is plugged securely. (E Series) Also check that sewing machine is not locked.
E 9	Check the solenoid wiring. Solenoid defect (coil defect).
M 5	This error occurs when copying from the control box. Check that the control box connector is correctly connected. Check that the control box voltages and models (control box types) are the same.

When the error not to be entering in above table , refer to **Mitsubishi LIMISERVO E , H Series Technical Manual** .

MITSUBISHI ELECTRIC CORPORATION
2-2-3 MITSUBISHI DENKI BIDG MARUNOUCHI TOKYO JAPAN

USING XC-E500-Y FOR DOWN COUNTER USING THE TRIMMER SIGNAL AS THE TRIGGER FOR THE COUNT

TO MAKE THE XC-E500-Y DISPLAY THE SAME AS THE XC-EMFY

1. PRESS AND HOLD THE STEP-KEY [STEP ↓] THEN PRESS THE F-KEY [F]

2. **NOTE:** INPUT LAMP [INPUT] MUST BE OFF

TO RETURN TO THE NORMAL XC-E500-Y DISPLAY

PRESS AND HOLD THE F-KEY [F] THEN THE STEP KEY [STEP ↓]

COUNTER FUNCTION (LOCATED IN THE B-MODE)

1. ENTER THE B-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE B-KEY FOR

   2 OR MORE SECONDS

2. USING THE DOWN ARROW KEY FIND THE SETTING N

3. USING THE C AND D-KEYS CHANGE THE 99 TO 0

4. USING THE DOWN ARROW KEY FIND THE SETTING D

5. USING THE C AND D-KEYS CHANGE THE 99 TO 0

6. USING THE DOWN ARROW KEY FIND THE SETTING DNC

7. USING THE D-KEY CHANGE THE OF TO ON

7. PRESS THE UP ARROW AND THE DOWN ARROW KEYS TOGETHER TO EXIT THE B-MODE

TO MAKE THE XC-E500-Y DISPLAY THE STITCH COUNT

NOTE: ALSO IN THE C-MODE, INPUT P REPRESENTS THE P-KEY ON THE XC-E500 WHICH IS SET TO CCL TO CLEAR THE UP AND DOWN COUNT.

ON THE XC-FMFY AND LATER VERSIONS OF THE XC-EMFY THIS SETTING IS CHANGED TO CCU TO CLEAR THE UP COUNTER ONLY. IF YOU ARE GOING TO USE THE DOWN COUNTER, SET INPUT P FROM CCU TO CCD TO CLEAR THE DOWN COUNTER.

1. ENTER THE C-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE C-KEY FOR 2 OR MORE SECONDS

2. USING THE UP ARROW KEY FIND THE SETTING CNF

3. USING THE D-KEY CHANGE THE FUNCTION SE TO DN

4. PRESS THE DOWN ARROW AND THE UP ARROW KEYS TOGETHER TO EXIT THE C-MODE

5. PRESS AND HOLD THE F-KEY THEN THE STEP-KEY

6. PRESS THE F-KEY TO DISPLAY STITCH COUNT

   SINCE THE COUNTING IS TRIGGERED BY THE TRIMMER SIGNAL, RUN THE MACHINE AS NORMAL AND WHEN THE BOBBIN RUNS OUT MAKE NOTE OF THE COUNT AMOUNT.

7. PRESS AND HOLD THE STEP-KEY THEN THE F-KEY

8. ENTER THE B-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE B-KEY FOR 2 OR MORE SECONDS

9. USING THE DOWN ARROW KEY FIND THE SETTING N

10. USING THE A, B, C, AND D-KEYS, ENTER THE TARGET COUNT FOR THE DOWN COUNTER

11. PRESS THE DOWN ARROW AND UP ARROW KEYS TOGETHER TO EXIT THE B-MODE

12. PRESS AND HOLD IN THE F-KEY THEN THE STEP KEY

13. PRESS THE F-KEY

14. PRESS THE P-KEY

15. PRESS THE P-KEY TO RESET AND CLEAR THE STITCH COUNT AFTER THE TARGET VALUE HAS BEEN REACHED

    NOTE: THE BUZZER WILL COME ON AFTER THE TARGET STITCH COUNT HAS BEEN REACHED AND THE MACHINE WILL NOT RUN UNTIL THE P-KEY HAS BEEN PRESSED

USING XC-E500-Y FOR DOWN COUNTER USING A CERTAIN AMOUNT OF REVOLUTIONS TO TRIGGER THE DOWN COUNTER 1 TIME

TO MAKE THE XC-E500-Y DISPLAY THE SAME AS THE XC-EMFY

1. PRESS AND HOLD THE STEP-KEY [STEP ↓] THEN PRESS THE F-KEY [F]

2. **NOTE:** INPUT LAMP [INPUT] MUST BE OFF

TO RETURN TO THE NORMAL XC-E500-Y DISPLAY

PRESS AND HOLD THE F-KEY [F] THEN THE STEP KEY [STEP ↓]

COUNTER FUNCTION: STITCH COUNT TYPE (LOCATED IN THE B-MODE)

1. ENTER THE B-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE B-KEY FOR

   2 OR MORE SECONDS

2. USING THE DOWN ARROW KEY FIND THE SETTING N

3. USING THE C AND D-KEYS CHANGE THE 99 TO 0

4. USING THE DOWN ARROW KEY FIND THE SETTING D

5. USING THE C AND D-KEYS CHANGE THE 99 TO 0

6. USING THE DOWN ARROW KEY FIND THE SETTING CDN

7. USING THE D-KEY CHANGE THE FUNCTION FROM CU TO ST

8. USING THE DOWN ARROW KEY FIND THE SETTING DNC

9. USING THE D-KEY CHANGE THE OF TO ON

10. USING THE DOWN ARROW KEY FIND THE SETTING CNU

11. USING THE C, AND D-KEYS CHANGE THE 1 TO, FOR EXAMPLE 10

    THIS SETTING WILL MAKE THE COUNTER COUNT 1 TIME PER 10 REVOLUTIONS

12. PRESS THE UP ARROW AND THE DOWN ARROW KEYS TOGETHER TO EXIT THE B-MODE

TO MAKE THE XC-E500-Y DISPLAY THE STITCH COUNT

NOTE: ALSO IN THE C-MODE, INPUT P REPRESENTS THE P-KEY ON THE XC-E500 WHICH IS SET TO CCL TO CLEAR THE UP AND DOWN COUNT.

ON THE XC-FMFY AND LATER VERSIONS OF THE XC-EMFY THIS SETTING IS CHANGED TO CCU TO CLEAR THE UP COUNTER ONLY. IF YOU ARE GOING TO USE THE DOWN COUNTER, SET INPUT P FROM CCU TO CCD TO CLEAR THE DOWN COUNTER.

1. ENTER THE C-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE C-KEY FOR 2 OR MORE SECONDS

2. USING THE UP ARROW KEY FIND THE SETTING CNF

3. USING THE D-KEY CHANGE THE FUNCTION SE TO DN

4. PRESS THE DOWN ARROW AND THE UP ARROW KEYS TOGETHER TO EXIT THE C-MODE

5. PRESS AND HOLD THE F-KEY THEN THE STEP-KEY

6. PRESS THE F-KEY TO DISPLAY STITCH COUNT

   SINCE THE COUNTING IS TRIGGERED 1 TIME PER 10 REVOLUTIONS, RUN THE MACHINE AS NORMAL AND WHEN THE BOBBIN RUNS OUT MAKE NOTE OF THE COUNT AMOUNT.

7. PRESS AND HOLD THE STEP-KEY THEN THE F-KEY

8. ENTER THE B-MODE BY PRESSING AND HOLDING IN THE DOWN ARROW AND THE B-KEY FOR 2 OR MORE SECONDS

9. USING THE DOWN ARROW KEY FIND THE SETTING N

10. USING THE A, B, C, AND D-KEYS, ENTER THE TARGET COUNT FOR THE DOWN COUNTER

11. PRESS THE DOWN ARROW AND UP ARROW KEYS TOGETHER TO EXIT THE B-MODE

12. PRESS AND HOLD IN THE F-KEY THEN THE STEP KEY

13. PRESS THE F-KEY

14. PRESS THE P-KEY

15. PRESS THE P-KEY TO RESET AND CLEAR THE STITCH COUNT AFTER THE TARGET VALUE HAS BEEN REACHED

NOTE: THE BUZZER WILL COME ON AFTER THE TARGET STITCH COUNT HAS BEEN REACHED.

THE MACHINE WILL STILL BE ABLE TO RUN BUT THE BUZZER WILL CONTINUE WHILE THE

MACHINE IS RUNNING UNTIL THE P-KEY HAS BEEN PRESSED