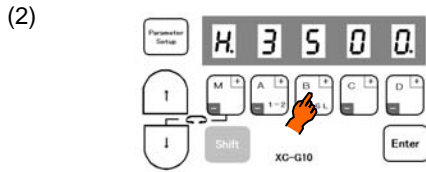


1. To change the maximum speed (Ex. to change to 3500 rotations) Function setting [H.3500]

- (1) **Call out the program mode [P] function [H].**
 (This can be called with mode call or direct number call.
 (Direct call number = "0"))



Press the [+] and [-] keys ([A], [B], [C], [D]), and set to "3500".

- (3) **Entering the normal mode**
 For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

- A. The setting range of the maximum speed is 0 to 8999 rotations.
- B. By pressing each of the [A], [B], [C] and [D] keys, the setting value will change between 0 and 9. (However, the [A] key is only between 1 and 8.) To lower the value, press the [A], [B], [C], [D] keys while holding down the [Shift] key.
- C. The factory setting is [4000 rotations].
- D. Low speed, thread trimming speed, start tacking speed, end tacking speed, medium speed and slow start speed can be set in the same manner.

Memo

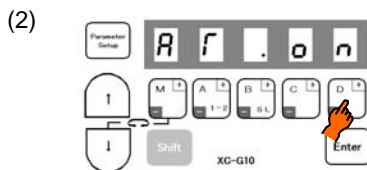
The LED.D dot will flicker after the setting is changed. This indicates that the factory setting value (default value) has been changed.



(This explanation regarding the flickering dot is omitted in the following explanations.)

2. To set the standing work typeFunction setting [AT.ON]

- (1) **Call out the program mode [P] function [AT].**
 (This can be called with mode call or direct number call.
 (Direct call number = "33"))



*Press the [D] key and set to "ON" for the setting value.

- (3) **Entering the normal mode**
 For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

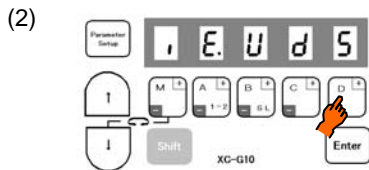
Description

- A. This is used for high speed operation during standing operations.
 When setting it to turning ON, it operates at the speed with the rate which has been set with the [C] and the [D] key in normal mode regardless of the pedal stepping quantity.
- B. This setting is first priority to the key switch [AUTO] of control switch panel (XC-G500 type).
- C. The setting value will alternate between [OF] and [ON] with each press of the [D] key in step (2). (The factory setting is [OF])

Note : The switches for standing operation are connected as shown in the manual. Be sure to set the function [PDS] to ON in the program mode [C] as shown in the manual.

3. To operate Half-stitch operation with a backstitching switch Function setting [IE.UDS]

- (1) **Call out the program mode [C] function [IE].**
 (This can be called with mode call or direct number call.
 (Direct call number = "312"))



*Press the [D] key and set to "UDS" for the setting value.

- (3) **Entering the normal mode**

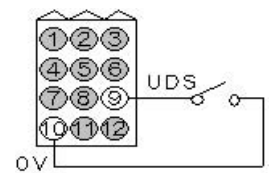
For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

- A. Turning ON the backstitching switch connected No.9 pin in sewing machine connector, backstitching (reverse feed) will start while the sewing machine is running. Half-stitch operation will start while the sewing machine is stopped.
- B. The setting value will be changed with each press of the [D] key in step (2). (The factory setting is [S7])

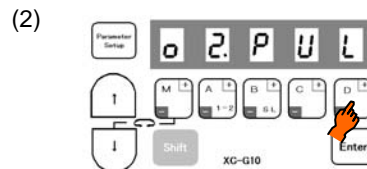
sewing machine connector



Note) When using this function, always return to the normal mode before starting operations.

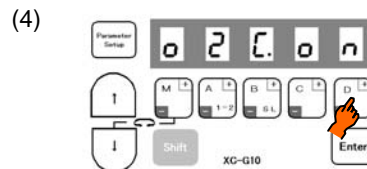
4. Outputting puller output to spare output O2 Function setting [O2.PUL] + [O2C.ON]
 (Example: To set to half-wave 50% duty)

- (1) **Call out the program mode [C] function [O2].**
 (This can be called with mode call or direct number call.
 (Direct call number = "421"))



*Press the [D] key and set to "PUL" for the setting value.

- (3) **Call out the program mode [C] function [O2C].**
 For mode call: [↓]



*Press the [D] key and set to "ON" for the setting value.

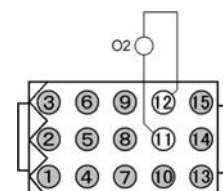
For direct number call: Set with **Enter**, select the number [423], and then press **Enter**

- (5) **Entering the normal mode**
 For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

- A. Select puller output [PUL]. Set to connect [O2] and [PUL].
- B. The spare output O2 turns ON only when the presser foot lifter is operating.

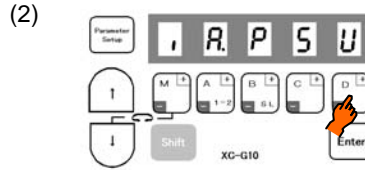


5. Setting the number of stitches to the UP position stop after fabric end is detected with optical sensor, etc.

..... Function setting C mode [IA. PSU] and P mode [PSU.10]

(Example: Setting to 10 stitches)

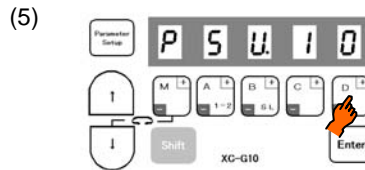
- (1) **Call out the program mode [C] function [IA].**
 (This can be called with mode call or direct number call.
 (Direct call number = "300"))



* Press the [D] key and set the value to "PSU".

- (3) **Set the function [IA] settings.**
 For mode call: [↓] + [↑]
 For direct number call: Set with **Enter**

- (4) **Call out the program mode [P] function [PSU].**
 (This can be called with mode call or direct number call.
 (Direct call number = "12"))

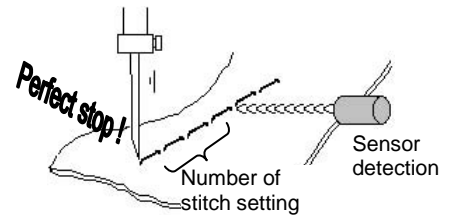


* Press the [C] and [D] keys and set the value to "10".

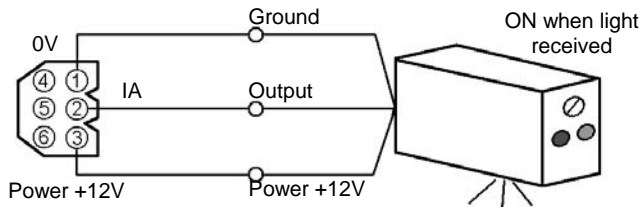
- (6) **Entering the normal mode**
 For mode call: [↓] + [↑]
 For direct number call: Set with **Enter** and then press **Parameter Setup**

Description

- A. Set both the C mode [IA] and P mode [PSU] functions.
- B. When the output from the optical sensor, etc., connects with the No. 2 pin of the option A connector and the optical sensor turns ON, the thread will be trimmed and the needle will stop at the UP position after ten stitches.
- C. The setting value will change sequentially each time the [D] key is pressed in step (2). (The factory setting is [PSU].)
- D. The number of stitch setting range is 0 to 99 stitches.
- E. The setting value will change between 0 and 9 each time the [C] and [D] keys are pressed in step (5).



Connection example



Option A connector

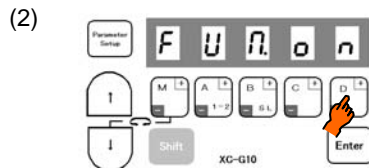
(* Refer to the Instruction Manual enclosed with the sensor for details on handling the sensor.)

Please choose the one of the following specification to be an optical sensor.
 Sensor supply source : DC12V (40mA max.)
 Sensor output type : NPN open collector type
 (Residual voltage : 0.4V max. when 5V / 2.0mA)

6. To continue presser foot lifting after the thread trimming, and to bring down the presser foot after the time set on the timer has passed Function setting [FUM.ON]+ [FU.C]

(1) **Call out the program mode [P] function [FUM].**

(This can be called with mode call or direct number call.
(Direct call number = "21"))

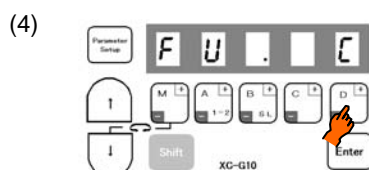


*Press the [D] key and set to "ON" for the setting value.

(3) **Call out the program mode [P] function [FU].**

For mode call: [↓]

For direct number call: Set with , select the direct call number "22", and then press .



*Press the [D] key and set to "C" for the setting value.

(5) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with and then press .

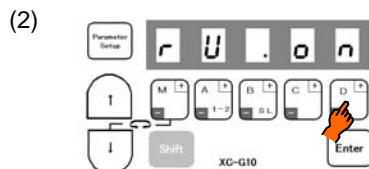
Description

- A. Set both [FUM](21) and [FU](22) functions.
- B. Each time of the [D] key is pressed in step (2), the set value will alternate between [OF] and [ON]. (The factory setting is [OF])
- C. Each time the [D] key is pressed in step (4), the set value will change in order of [M][C][A][T]. (The factory setting is [M])
- D. The timer time can be adjusted with the FUM timer setting [FCT](23) in the [C] mode. (The factory setting is 12 sec.)

7. When after trimming thread while sewing thick fabric, needle is stuck and fabric cannot be removed Function setting [RU.ON]

(1) **Call out the program mode [P] function [RU].**

(This can be called with mode call or direct number call. Refer to pages 14 to 16.
(Direct call number = "36"))



* Press the [D] key and set the value to "ON".

(3) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with and then press .

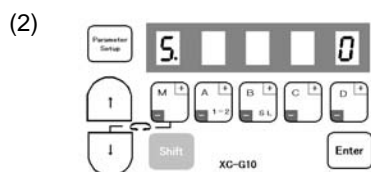
Description

- A. After the thread is trimmed, the motor is run in reverse, and the needle is stopped near the needle bar top dead center. The reverse run angle can be set with [R8] in two-degree increments between 0 and 500. (The factory setting is [30 degrees].) [R8] can be set by pressing the [↓] key after setting the [RU] function in step (2).
- B. The setting value will alternate between [OF] and [ON] each time the [D] key is pressed in step (2). (The factory setting is [OF].)

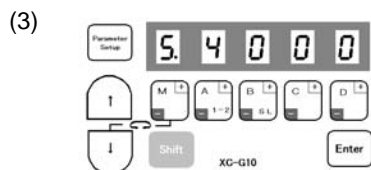
8. To display the rotation speed on the control switch panel
 Function setting [S.****]

- (1) **Call out the program mode [B] function [S].**

(This can be called with mode call or direct number call.
 (Direct call number = "200"))



* The rotation speed is indicated as "0" when the sewing machine stops.



* For example, if the maximum speed setting is 4000 rotations, the displayed speed will be [S.4000] when the pedal is fully toed down as shown above.

- (4) **Return to the normal mode after confirming**

For mode call: [↓] + [↑]

For direct number call: Press  twice.

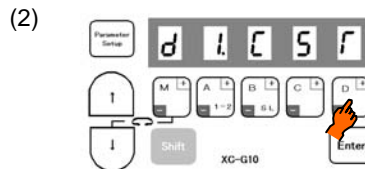
Description

- A. The rotational speed at which the sewing machine is in running is displayed.
- B. If the speed differs from the predicted speed, check the P mode's maximum speed setting [H.] or the speed adjustment setting for the normal mode.

9. To adjust the tacking accurately

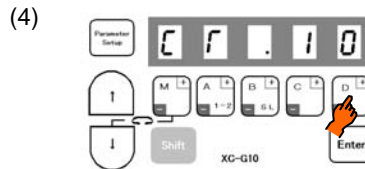
(1) To adjust tacking surely Function setting [D1. CST] + [CT. 10]
(To set the stop time at each tacking corner to 100 msec.)

(1) **Call out the program mode [D] function [D1].**
(This can be called with mode call or direct number call. (Direct call number = "600"))



*Press the [D] key and set to "CST" for the setting value.

(3) **Call out the program mode [D] function [CT].**
For mode call: [↓]
For direct number call: Set with **Enter**, select the number "602", and then press **Enter**.

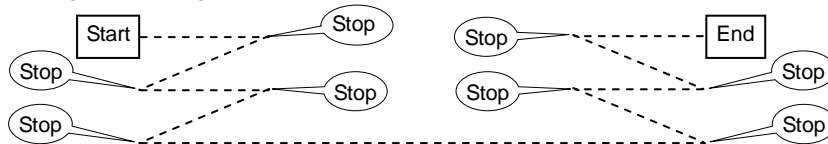


*Press the [C], [D] key and set to "10" for the setting value.

(5) **Entering the normal mode**
For mode call: [↓] + [↑]
For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

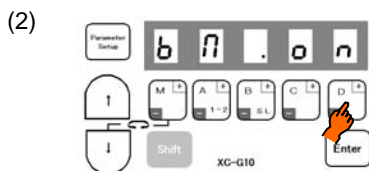
- A. Set the start/end tacking and No. of switches with Page 17 before making the above setting.
- B. When using W tacking, the sewing machine will stop at each corner for 100msec., so the tacking is surely executed.



- C. Each time the [D] key is pressed in step (2), the setting will change in the order of [M], [D], [N], [CST], [CSU] and [CSD]. (The factory setting is [M])
- D. The setting range of the stop time is 0 to 990 msec. in 10-msec. intervals. The setting display 10 refers to 100 msec., and 20 to 200 msec. . (The factory setting is 50 msec.)
- E. The setting value will change between 0 and 9 each time the [C] and [D] key is pressed in step (4). To lower the value, press the [C] or [D] key while holding down the [Shift] key.

(2) To align tacking when start/end tacking speed is less than 1000 rpm. Function setting [BM. ON]

(1) **Call out the program mode [D] function [BM].**
(This can be called with mode call or direct number call. (Direct call number = "603"))



*Press the [D] key and set to "ON" for the setting value.

(3) **Entering the normal mode**
For mode call: [↓] + [↑]
For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

- A. Set function [BM] to [ON] when start/end tacking speed is less than 1000rpm
- B. Set function [BM] to [OF] when start/end tacking speed is 1000rpm or higher. This BM function can be used for a rough tacking alignment of the start and end tacking.
- C. Each time the [D] key is pressed in step (2), the setting will alternate between [OF] and [ON]. (The factory setting is [OF].)

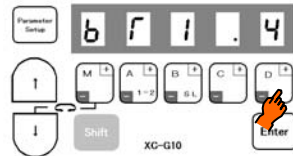
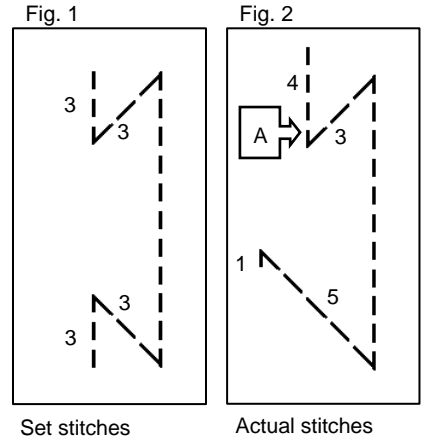
Note) This function can be used for normal tacking (not to stop at each corner).
When the function setting [D1. CST] is set, this function setting [BM. ON] will be invalidated.

10. Setting the tacking stitch correction

To correct when the set number of tacking stitches does not match the number of actual stitches
Function setting [BT1.4] + [BT2.4] + [BT3.8]

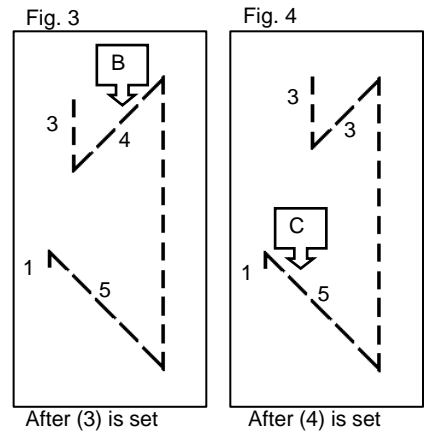
(To stitch three start and end tacking stitches (Fig. 1), but actual stitches as shown in (Fig. 2).)

- (1) **Call out the program mode [D] functions [BT1] to [BT3].**
 (This can be called with mode call or direct number call.
 (Direct call number = from "604" to "606"))
- (2) Confirm that [BT1] to [BT3] are all set to "0". If not set to "0", reset to "0", and then stitch to check the number of tacking stitches. (If the stitches does not match, correct with the following steps.)
- (3) In Fig.2, there are four stitches at the forward section of the start tacking. Since there is one extra stitch, decrement the number of correction stitches by 1. (Point A)

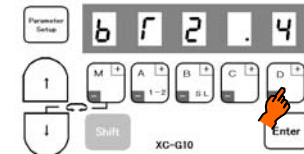


In the following table, the number of correction stitches "-1" corresponds to 4. Set [BT1] to 4.

- (4) After (3) is set (Fig. 3), there will be one less stitch at the forward section. The backward section is then incremented by one stitch for a total of four stitches. Decrement the number of correction stitches by 1. (Point B)



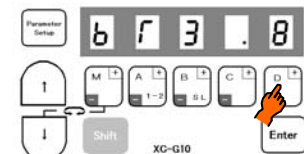
Call out the program mode [D] function [BT2].
 For mode call: [↓]
 For direct number call: Set with [Enter], select the number "605", and then press [Enter].



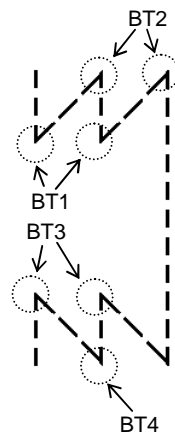
In the following table, the number of correction stitches "-1" corresponds to 4. Set [BT2] to 4. (This completes correction of the start tacking section.)

- (5) In Fig. 4, the backward section of the end tacking has five stitches, which is two stitches over. Decrement the number of correction stitches by 2. (Point C)

Call out the program mode [D] function [BT3].
 For mode call: [↓]
 For direct number call: Set with [Enter], select the number "606", and then press [Enter].



In the following table, the number of correction stitches "-2" corresponds to 8. Set [BT3] to 8. (The backward section now has three stitches. The forward section is increased to two stitches for a total of three stitches.) (Fig. 1)



BT1: Correction for forward start tacking.
 BT2: Correction for backward start tacking.
 BT3: Correction for backward end tacking.
 BT4: Correction for forward end tacking.

- (6) **Entering the normal mode**
 For mode call: [↓] + [↑]
 For direct number call: Set with [Enter] and then press [Parameter Setup].

Relation of number of correction stitches and setting value

Setting value	9	8	7	6	5	4	3	2	1	0	A	B	C	D	E	F
Number of correction stitches	-2 ¹ / ₄	-2	-1 ³ / ₄	-1 ² / ₄	-1 ¹ / ₄	-1	- ³ / ₄	- ² / ₄	- ¹ / ₄	0	+ ¹ / ₄	+ ² / ₄	+ ³ / ₄	+1	+1 ¹ / ₄	+1 ² / ₄

11. Example of setting counter function

(1) UP counter for product amount (one hundred times)

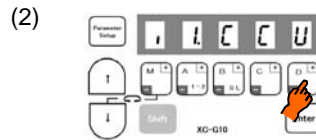
[1] Up counter amount "U" is add at each thread trimming.

[2] When up counter amount "U" become the setting amount "P", sewing will be prohibited.

[3] When the input signal "I1" is turned on, Up counter amount become zero and sewing become possible.

(1) **Call out the program mode [C] function [I1].**

(This can be called with mode call or direct number call.
(Direct call number = "0357"))



* Press the [D] key and set the value to "CCU".

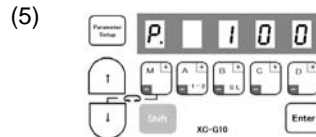
(3) **Set the function [I1].**

For mode call: [↓] + [↑]

For direct number call: Set with **Enter**

(4) **Call out the program mode [B] function [P].**

(This can be called with mode call or direct number call.
(Direct call number = "0203"))

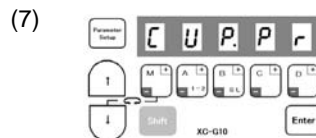


* Press the [A] to [D] keys and set the value to "100".

(6) **Call out the program mode [B] function [CUP].**

For mode call: [↓]

For direct number call: Set with **Enter**, select number [205], and then press **Enter**.

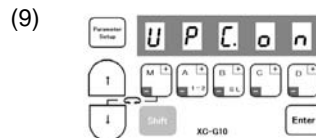


* Press the [D] key and set the value to "PR".

(8) **Call out the program mode [B] function [UPC].**

For mode call: [↓]

For direct number call: Set with **Enter**, select number [208], and then press **Enter**.

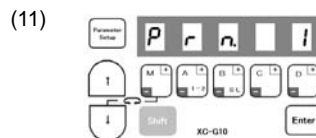


* Press the [D] key and set the value to "ON".

(10) **Call out the program mode [B] function [PRN].**

For mode call: [↓]

For direct number call: Set with **Enter**, select number [216], and then press **Enter**.



* Press the [D] key and set the value to "ON".

(12) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press



Note) [P] key function selection (Factory setting is [CCU].)[C] mode [IP]=[CCU] : Clear UP counter (counter with control panel [P] key clearness)

Description

[C] mode function selection

[I1.CCU]: Input signal "I1" is set to UP counter clear function.

[B] mode function selection

[P. 100] Set the setting amount of up counter "P". This amount become the target amount for up counter.

*[U. 0] Current up counter amount "0"

[CUP.PR]: "PRN" function is that up counter is added at each trimming time.

("PRN" is set "1", up counter is added each trimming time in this example)

*[USC. ST]:When the amount of current up counter "U" become setting amount "P", sewing will be prohibited Input signal "I1" is set to the following function. When it is turned on, sewing become possible.

[UPC.ON] Set "UPC" to "ON" to use up counter.

[PRN. 1] one trimming time add one count amount.

Items marked with an asterisk * are the factory settings.

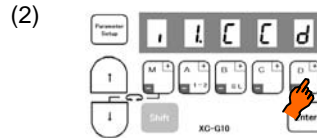
12. Example of setting counter function

* When using down counter as a bobbin thread level counter (Ending count after 10,000 stitches)

- (1) The current down counter value [D] is decremented by one each time ten stitches are stitched.
- (2) When the remaining down counter [D] reaches 0, stitching is prohibited after trimming
(Stitching is possible until the thread is trimmed.)
- (3) When the external switch I1, set with the [C] mode function selection, turns ON, the current down counter value [D] value is set to the down counter value [N], and the next stitching is enabled.

(1) **Call out the program mode [C] function [I1].**

(This can be called with mode call or direct number call.
(Direct call number = "357"))



* Press the [D] key and set the value to "CCD".

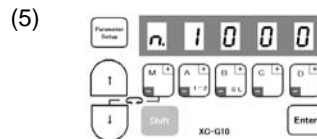
(3) **Set the function [I1].**

For mode call: [↓] + [↑]

For direct number call: Set with

(4) **Call out the program mode [B] function [N].**

(This can be called with mode call or direct number call.
(Direct call number = "201"))

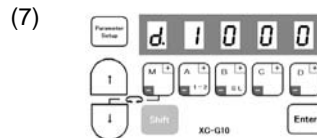


* Press the [A] to [D] keys and set the value to "1000".

(6) **Call out the program mode [B] function [D].**

For mode call: [↓]

For direct number call: Set with , select number [202], and then press .

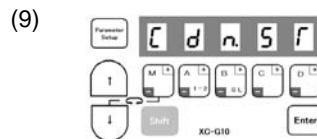


* Press the [A] to [D] keys and set the value to "1000".

(8) **Call out the program mode [B] function [CDN].**

For mode call: [↓]

For direct number call: Set with , select number [210], and then press .

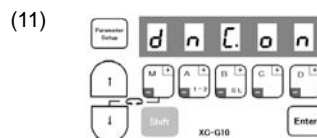


* Press the [D] key and set the value to "ST".

(10) **Call out the program mode [B] function [DNC].**

For mode call: [↓]

For direct number call: Set with , select number [213], and then press .

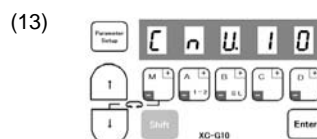


* Press the [D] key and set the value to "ON".

(12) **Call out the program mode [B] function [CNU].**

For mode call: [↓]

For direct number call: Set with , select number [217], and then press .



* Press the [C] and [D] keys and set the value to "10".

(14) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with and then press .

Note) To clear the down counter with the P key on the control switch panel set the following.
[C] mode function selection
[I1.CCD]: Sets the P key on the control switch panel to the counter clear signal [CCD].

Description

[C] mode function selection

[I1.CCD]: Sets the external input I1 to the counter clear signal [CCD].

[B] mode function selection

[N.1000]: Sets the down counter value. The down counter counts (subtracts) from the value set here.

[D.1000]: Current down counter value.

[CDN.ST]: The down counter is decremented by one each time the number of stitches set in [CNU] is stitched. (In this example, [CNU] is set to 10, so the down counter is decremented by one each time 10 stitches are stitched.)

* [DSC.ST]: When the current down counter [D] reaches 0, the next stitching is prohibited after trimming. The next stitching is enabled when the external input I1, set with [C] mode function selection, turns ON.

[DNC. ON]: Down counter is validated. Set this to ON to use the down counter.

[CNU.10]: Set this to count every 10 stitches.

Items marked with an asterisk * are the factory settings.

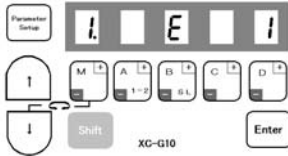
13. To check the error code history and input/output signal

(1) How to view the error code history Function setting [1.E--], [2.E--], [3.E--], [4.E--]

(1) **Call out the program mode [E] function [1].**

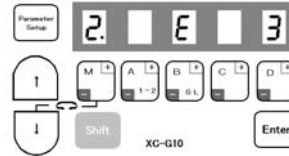
(This can be called with mode call or direct number call. (Direct call number = "700"))

(2) **Call out function [1].**



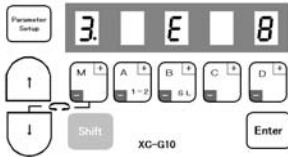
* The last error code is displayed. (Ex. error code E1 is displayed.)

(3) **Call out function [2].**



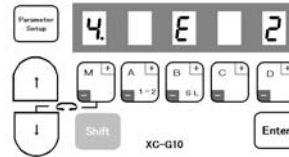
* The error code before the last is displayed. (Ex. error code E3 is displayed.)

(4) **Call out function [3].**



* The error code before the second is displayed. (Ex. error code E8 is displayed.)

(5) **Call out function [4].**



* The error code before the third is displayed. (Ex. error code E2 is displayed.)

(6) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Press .

Description

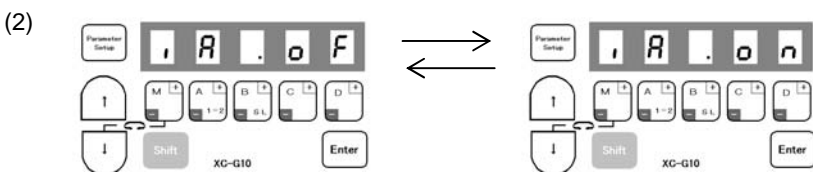
- A. 4 times errors from the last to the fourth error can be viewed.
- B. Refer to page 44 for the error code.

(2) To check input signals

..... Function setting [IA] - [IL], [I1] - [I5], [IP] - [IR], [ECA], [ECB], [UP], [DN], [DR], [VC], [V2]

(1) **Call out the input signal in program mode [E] to be checked. (In this example, call out [IA].)**

(This can be called with mode call or direct number call. (Direct call number = "706"))



- * Turn the input for the input terminal to be viewed ON and OFF, and confirm that the LED C.D changes between [ON] and [OFF].
- * If the input to be viewed is UP or DN, turn the sewing machine shaft. If ECA or ECB, turn the motor shaft.

Caution To turn the signals related to the sewing machine operation ON and OFF when the signal is turned ON and OFF, normal operation will take place.

(3) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with and then press .

Input signal (Factory setting)	Display
Variable speed run signal (S1)	IG
Thread trimming (S2)	IH
Presser foot lifter (S3)	II
Presser foot lifter signal (F)	IF
Thread trimmer cancel signal (TL)	ID
Backstitching signal (S7)	IE
Needle UP position priority stop signal (PSU)	IA
Needle DOWN position priority stop signal (PSD)	IB
Low speed run signal (S0)	IC
Input signal (IO1)	I1
Needle lift signal (U)	I2
No setting (NO)	I4
No setting (NO)	I5
Encoder signal display (A phase)	ECA
Encoder signal display (B phase)	ECB
Detector signal display (UP signal)	UP
Detector signal display (DOWN signal)	DN
Display the angle from down position	DR
Display the voltage of VC	VC
Display the voltage of VC2	V2

Description

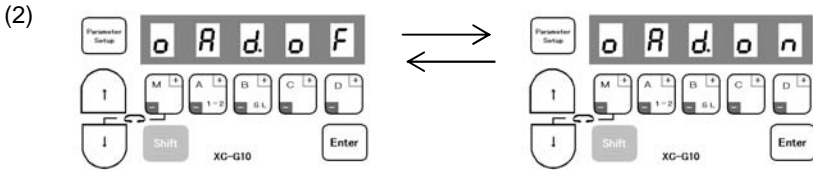
- A. It is possible to check whether or not input signal is wired right. When the display is not turned [ON][OFF] even if the signal is turned ON/OFF, check wiring to a control box from the signal. Note that the sewing machine will run when checking the input of signal terminals related to operation.
- B. Refer to the "Connector layout" in the manual for the input terminals, and the technical information manual for details on the input function names.

(3) To check output signal (check in operation)

..... Function setting [OAD] - [ODD], [OFD], [OPD] - [ORD], [O1D] - [O7D]

- (1) **Call out the output signal in program mode [E] to be checked. (In this example, call out [OAD].)**

(This can be called with mode call or direct number call. (Direct call number = "737"))



*Confirm the display ON during full pedal heeling operation

Caution Be careful to sewing machine operation when turned ON the signal which the sewing machine operation relates to.

Output signal (Factory setting)	Display
Thread trimming output (T)	OAD
Wiper output (W)	OBD
Backstitch output (B)	ODD
Thread release output (L)	ODD
Presser foot lifter output (FU)	OFD
O1 output (OT1)	O1D
Output for needle cooler (NCL)	O2D
TF output (TF)	O3D

- (3) **Entering the normal mode**

For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

Description

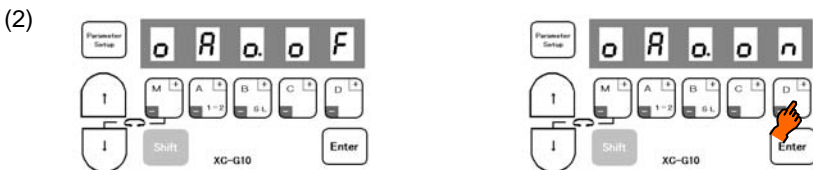
- A. This is useful for setting the various items and checking the operation before connecting the output to the solenoid, etc.
 B. Refer to the "Connector Layout" in the manual for the output terminals, and to the Technical information manual for details on the output function names.

(4)To check an output terminal (To forcibly turn the output ON without running the sewing machine.)

..... Function setting [OAO] - [ODO], [OFO], [OPO] - [ORO], [O1O] - [O7O]

- (1) **Call out the output signal in program mode [E] to be checked. (In this example, call out [OAO].)**

(This can be called with mode call or direct number call. (Direct call number = "752"))



* Output signal is turned ON while pressing the [D] key.
 Note) While displaying this function, sewing machine can not operate.

Output signal (Factory setting)	Display
Thread trimming output (T)	OAO
Wiper output (W)	OBO
Backstitch output (B)	OCO
Thread release output (L)	ODO
Presser foot lifter output (FU)	OFO
O1 output (OT1)	O1O
Output for needle cooler (NCL)	O2O
TF output (TF)	O3O

- (3) **Entering the normal mode**

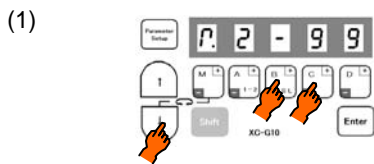
For mode call: [↓] + [↑]

For direct number call: Set with **Enter** and then press **Parameter Setup**.

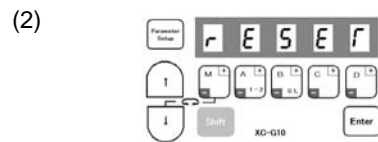
Description

- A. This is useful for checking that the wiring to the solenoid, etc., from the control box's output terminals is correct.
 B. Refer to the "Connector Layout" in the manual for the output terminals, and to the Technical information manual for details on the output function names.

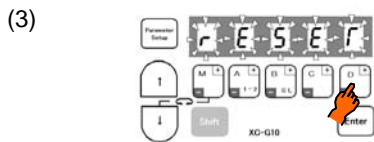
14. To return all settings to the factory settings Function setting [RESET]



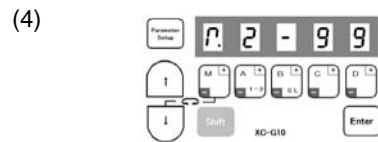
* Enter program mode [R]
([↓] + [B] + [C] keys)



* Program mode [R] will be entered.



* [RESET] will flicker when the [D] key is held down, and the reset process will be executed.



* The data will be set to the factory setting when the [D] key is pressed over 2 seconds or more, and then the normal mode will be returned to. (Process is completed)

Description

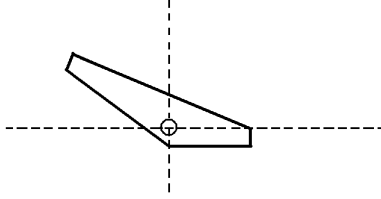
- A. All settings will be returned to the factory settings when the [D] key is held down for two or more seconds while [RESET] is displayed. The display will return to the normal mode.
- B. To return to the normal mode from the [RESET] display without executing the reset process, press the [↑] key while holding down the [↓] key. In this case, the settings will not be returned to the factory setting.

Caution

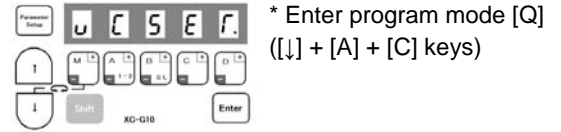
When this function is set, the contents of all settings to this point will be cleared, and will return to the factory settings. Please take care when using this function.

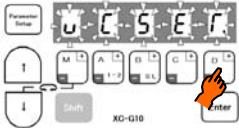
15. To adjust the position data for the lever unit ... Function setting [VCSET]
 (When error "MA" is displayed)

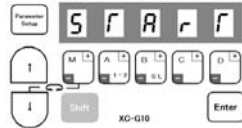
(1) Set the pedal (lever unit) to the neutral position.



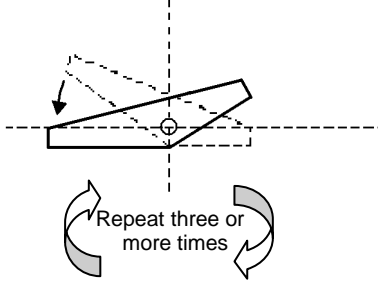
(2) **Call out the program mode [Q] function [VCSET].**
 (This can be called with mode call or direct number call. (Direct call number = "1427"))



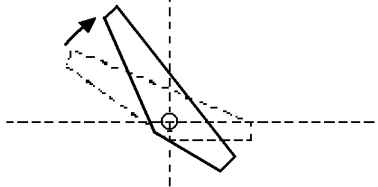
(3) 
 [VCSET] will flicker when the [D] key is held down.

(4) 
 The display will change to [START].
 (The neutral position is saved at this point.)

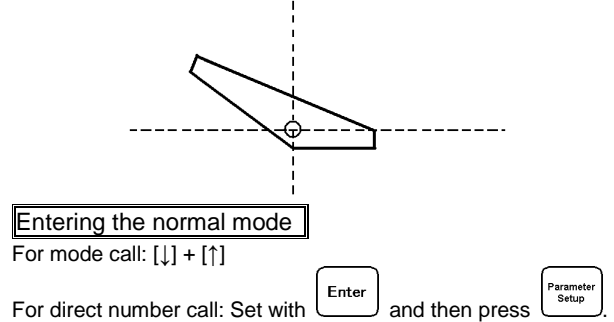
(5) Fully toe down the pedal (lever unit).
 (The maximum toe down position is saved.)



Fully heeling the pedal (lever unit).
 (The maximum heeling position is saved.)



(6) Return the pedal (lever unit) to the neutral position.



Description

The lever's neutral, toe down and heeling positions can be adjusted.
 If the [D] key is held down when the pedal is at the neutral position, the display will flicker and change to the [START] display.
 (The neutral position is saved at that point.)
 After that, repeat the pedal toe down and heeling operation three or more times. (The maximum toe down position and maximum heeling position are saved at this time.)
 When finished, always return the pedal to the neutral state, and then return to the normal mode.

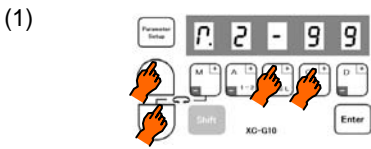
Caution

- If the position data for the lever unit is faulty, the error "MA" will appear.
 The error "MA" is released by pressing D key.
 Confirm the neutral position of the pedal (lever unit), and then save the neutral, toe down and heeling positions again with the above steps.
- To enter the [VCSET] state with mode call and then return to the normal mode, press down the [↓] and [↑] keys simultaneously. The lever unit's neutral, toe down and heeling positions are not adjusted in this case.

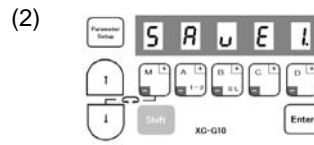
16. How to use the program mode [I]

To save the setting data Function setting [SAVE*]

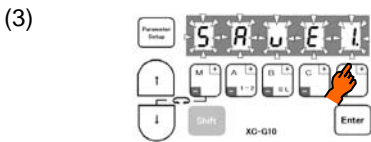
(Two types of data, [SAVE1] and [SAVE2] can be saved. The [SAVE1] data can be read out with [LOAD1], and the [SAVE2] data with [LOAD2].)



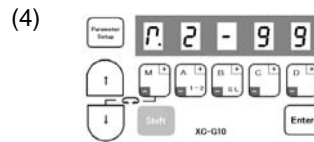
* Enter program mode [I]
([↓] + [↑] + [B] + [C] key)



* Program mode [I] will be entered.



* When the [D] key is held down, [SAVE1.] will flicker, and the save process will be executed.



* Press [D] key over 2 seconds or more, and then the normal mode will be returned to. (Process is completed)

Description

- A. The current setting data can be saved as simple settings. Saving the data is completed when the [D] key is held down for two or more seconds while [SAVE*] is displayed and the display returns to the normal mode.
- B. To return to the normal mode from the [SAVE*] display without saving the data, press the [↑] key while holding down the [↓] key. The set data will not be saved.
- C. The saved setting data is saved in the program mode {1} simple setting [LOAD1] or [LOAD2], and can be read out by selecting [LOAD1] or [LOAD2] with program mode [1].
(As the factory setting, the [412B] data is saved in the simple settings [LOAD1] and the [280M] data is saved in the simple settings [LOAD2].)

Caution

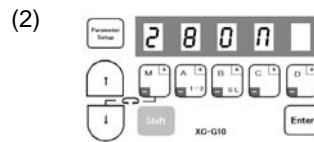
When this function setting [SAVE*] is used, the settings saved in the program mode [1] simple setting [LOAD*] before the new data was set will all be cleared. The current setting data will be newly saved in the simple setting [LOAD*]. Check the current setting data before starting operation.

D. Reading the setting data saved with the [SAVE*] function

The setting data saved with the [SAVE*] function above can be read out with the following procedure (program mode [1]).



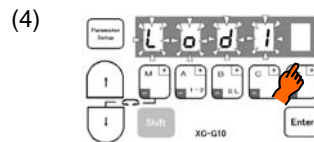
* Enter program mode [1]
([↓]+[A]+[B] key)



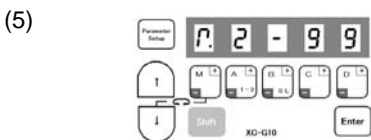
* Program mode [1] will be entered.



Press the [↑] key and set the function to [LOAD1].



* When the [D] key is held down, [LOAD1] will flicker, and the loading process will be executed.



* Press [D] key (2 seconds or more) to return to the normal mode. (Process is completed)

17. Examples of using control switch panel

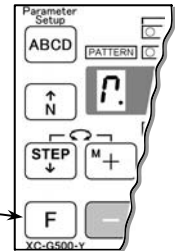
(1) SELECTION OF MODE

There are 2 kinds of modes in the control panel

- 1) G10 mode : Display of setting data for control box like sewing machine direction, sewing machine speed and so on.
(The same display as the XC-G10 control panel)
- 2) Control panel mode : Display of back tacking data, program input data, teaching input data and so on.
(The specific display of the XC-G500 control panel)

Please select them for your purpose.

(Factory setting is G10 mode)



How to change mode

Press the **F** key while pressing the **STEP** key
The previous mode is returned at the same operation.

Note: Mode is not changed while the **INPUT** is lighted on control panel mode.

Press the **OUTPUT** key and after the **INPUT** is turned OFF the light, it is possible to change mode.

(2) Setting Data Copy Function

The control panel can be used to read the machine control box settings data and write to another control box.

Reading Settings Data (Control Box → Control Panel)

- (1) Turn ON the power while pressing the **ABCD** key. The display will indicate **r E R d**.
- (2) Turn the **F** key ON to copy the settings data from the control box to the control panel.
- (3) Copying is completed successfully if the normal display appears after several tens of seconds. If M5 (**ns**) displays, an error has occurred. Use the following procedure to perform the operation again.
 - 1) Turn the power OFF. → 2) Turn OFF the M5 display.
 - 3) Inspect the connector connection. → 4) Repeat the operation from step 1.

Writing Settings Data (Control Panel → Control Box)

- (1) Turn ON the power while pressing the **N** key. The display will indicate **B r i r E**.
- (2) Turn the **F** key ON to copy the settings data from the control panel to the control box.
- (3) Copying is completed successfully if the normal display appears after ten seconds. If M5 (**ns**) displays, an error has occurred. Use the following procedure to perform the operation again.
 - 1) Turn the power OFF. → 2) Turn OFF the M5 display. → 3) Check the control box voltage/model.
 - 4) Inspect the connector connection. → 5) Repeat the operation from step 1.

Notes: 1. The settings data cannot be written if the voltage and model (control box model name) do not match.
(M5 (**ns**) displays.)

2. Never disconnect the control panel while reading or writing settings data. Control box operation after disconnection cannot be guaranteed.

18. Setting points for post-type sewing machine

1. Sewing machine model : Post-type sewing machine

2. Applicable control box : XC-GMF type

3. Details of fault : Stop position inconsistency, overrunning, etc.

4. Setting points (In respect to standard setting value or ultra-thick material setting value)

(1) If the sewing machine has a belt longer than a normal sewing machine, the [GA. LL] setting is valid for the gain setting [GA.]. If the belt is not long, or if the sewing machine pulley is not large, the [GA.L] or [GA.H] setting is more effective. If the torque or power at the start of stitching is a problem, the [GA.H] setting is more effective.

(2) When using the sewing machine for ultra-thick material or the post-type sewing machine, the pulley may be larger than the normal sewing machine. Set the size of the pulley on the sewing machine being used, and the size of the pulley on the motor.

A mode : [PL.ON] (Direct call number = "0109")	(Pulley ratio manual setting)
[MR.***] (Direct call number = "0110")	(Motor side pulley diameter setting)
[SR.***] (Direct call number = "0111")	(Sewing machine side pulley diameter setting)

(3) Speed setting

If the stop position is inconsistent or if overrunning occurs when stopping from high-speed operation, lower the high-speed setting value.

P mode : [H.2000] (Direct call number = "0000")	(For example, even if the sewing machine specification is 3000 rotations, lower the setting value.)
---	---

If the stop position is inconsistent when stopping from low-speed operation or inching, lower the low-speed setting value.

P mode : [L. 150] (Direct call number = "0001")	(For example, 150 rotations, etc.)
---	------------------------------------

If the stop position is inconsistent when stopping with pedal healing needle lift (thread trimming), lower the needle lifting speed setting.

P mode : [T. 150] (Direct call number = "0002")	(For example, 150 rotations, etc.)
---	------------------------------------

(4) Set the deceleration time for stopping to a large value. (Note that this will delay the time for stopping.) Set the deceleration time in [DC.-]. Set the deceleration time to a value larger than the [DCT.16] setting value.

A mode : [DC. -] (Direct call number = "0104")	
[DCT. 30] (Direct call number = "0105")	(For example, 30, etc.)

(5) Braking time at sewing machine stop (Use the original setting value if this does not need to be improved.)

In addition to changing the deceleration time in item (4) above, increase the braking time setting value for stopping the sewing machine.

A mode : [BKT. 30] (Direct call number = "0115")	(For example, 30 (30 x 10msec = 300msec), etc.)
--	---

(6) When the stop position deviates during DOWN position stop (2-position) Do not set the needle DOWN stop position angle (coasting angle) setting [D8.] to less than the default setting [28].

Set [D8.] to a value larger than [28].

(This is effective when the sewing machine does not stop at the DOWN position.)

P mode : [D8. 50] (Direct call number = "0054")	(For example, 50 degrees, etc.)
---	---------------------------------

(7) When the stop position deviates during UP position stop (1-position or needle lifting (thread trimming)) Do not set the needle UP stop position angle (coasting angle) setting [U8.] to less than the default value [14].

Set [U8.] to a value larger than [14].

(This is effective when the sewing machine does not stop at the UP position.)

P mode : [U8. 50] (Direct call number = "0055")	(For example, 50 degrees, etc.)
---	---------------------------------

Caution) Adjust the DOWN and UP stop positions with the detector.

(When changing the [U8.] setting value, always adjust the detector's coupler.)

(When changing the [D8.] setting value, always adjust the detector's DOWN position disk.)

(8) If the A mode speed loop stop setting [STM.] does not pose a problem with normal starting or stopping, set [STM. OF].

(This may be effective for ultra-thick material sewing machines, but is not very effective for the post-type sewing machine.)

(9) The effectiveness of the following settings for the post-type sewing machine is not cleared, but can be tried.

(9-1) K mode function setting [NAN. ON] (Deceleration immediately when operation signal turns OFF.)

(9-2) K mode function setting [HWG. ON] (Large inertia sewing machine operation gain valid)

(K mode : ([↓] + [↑] + [A] + [C] key))

(10) When degree of pedal pressing does not feel correct during 1-stitch sewing with pedal or inching

A mode : [SC. ON] (Direct call number = "0106")	(S-pattern cushion valid at start)
[SCT. 7] (Direct call number = "0107")	(S-pattern cushion time setting. Increase this value slightly as required.)

* For 1-stitch sewing, the K mode function setting [NAN.ON] in item (9-1) above is also effective.

Set and adjust the sewing machine referring to the above points.