User´s Manual

GARUDAN®

GPS-0402 series

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This Manual is a description of the operation method and other details having to do with the operation for the proper use of the GPS/B – series Electronically Controlled Bartacking / Pattern Tacking Machine.
Please read the Manual thoroughly before operation.

■ Don't use in case of power voltage is 380V in European area.

1. The safety regulations in this manual are indicated as DANGER, WARNING, and CAUTION. They indicate that ignorance of the rules may bring injures, physical damages, or machine breakdown.
2. Please don't use this machine for other uses and ways that are not described in this manual. We don't take responsibility for machine damage and physical injury due to the ignorance of the rules.
3. Part of the content might be different from reality due to change for functional improvement of the product.

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1

MACHINE SAFETY REGULATIONS

Safety instruction on this manual are defined as Danger, Warning and Notice.
If you do not keep the instructions, physical injury on the human body and machine damage might be occurred.

Danger : This indication should be observed definitely. If not, danger could be happen during the installation, conveyance and maintenance of machines.

Warning : When you keep this indication, injury from the machine can be prevented.

Notice : When you keep this indication, error on the machine can be prevented.

1-1) Machine Transportation Danger	Those in charge of transporting the machine should know the safety regulations very well. The following indications should be followed when the machine is being transported. ⓐ More than 2 people must transport the machine. ⓑ To prevent accidents from occurring during transportation, wipe off the oil on the machine well.
1-2) Machine Installation Warning	The machine may not work well or breakdown if installed in certain places, install the machine where the following qualifications agree. ⓐ Remove the package and wrappings starting from the top. Take special notice on the nails on the wooden boxes. ⓑ Dust and moisture stains and rusts the machine. Install an airconditioner and clean the machine regularly. ⓒ Keep the machine out of the sun. ⓓ Leave sufficient space of more than 50cm behind, and on the right and left side of the machine for repairing. ⓔ EXPLOSION HAZARDS Do not operate in explosive atmospheres. To avoid explosion, do not operate this machine in an explosive atmosphere including a place where large quantities of aerosol spray product are being used or where oxygen is being administered unless it has been specifically certified for such operation. ⓕ The machine were not provided with alocal lighting due to the feature of machine. Therefore the illumination of the working area must be fulfilled by end user. [Refer] Details for machine installment are described in Mechanical Structure Manual 4. Machine Installment.
1-3) Machine Repair Notice	When the machine needs to be repaired, only the assigned troubleshooting engineer educated at the company should take charge. ⓐ Before cleaning or repairing the machine, close down the motive power and wait 5 minutes till the machine is completely out of power. ⓑ Not any of the machine specifications or parts should be changed without consulting the company. Such changes may make the operation dangerous. ⓒ Spare parts producted by the company should only be used for replacements. ⓓ Put all the safety covers back on after the machine has been repaired.

1-4) Machine Operation

Warning

A(B) Bartack Series is made to sew patterns on fabrics and other similar material for manufacturing.
Follow the following indications when operating the machine.

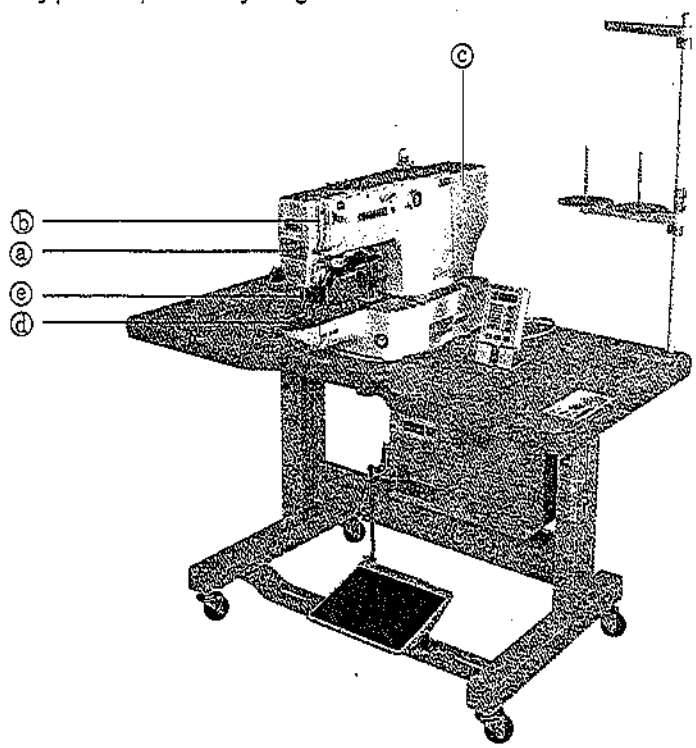
ⓐ Read through this manual carefully and completely before operating the machine.
ⓑ Wear the proper clothes for work.
ⓒ Keep hands or other parts of the body away from the machine operation parts(needle, shuttle, thread take-up lever, and pulley etc.) when the machine is being operated.
ⓓ Keep the covers and safety plates on the machine during operation.
ⓔ Be sure to connect the earthing conductor.
ⓕ Close down the electric motive power and check if the switch is turned "off" before opening electric boxes such as the control box.
ⓖ Stop the machine before threading the needle or checking after work.
ⓗ Do not step on the pedal when turning the power on.
ⓘ Be sure to connect the earthing conductor.
ⓙ If possible, install the machine away from loud noise such as high frequency welding machines

[Warning]
Belt will crush or amputate finger or hand, keep cover in place before operating, turn off power before inspecting or adjusing.

1-5) Devices fo Safety

Notice

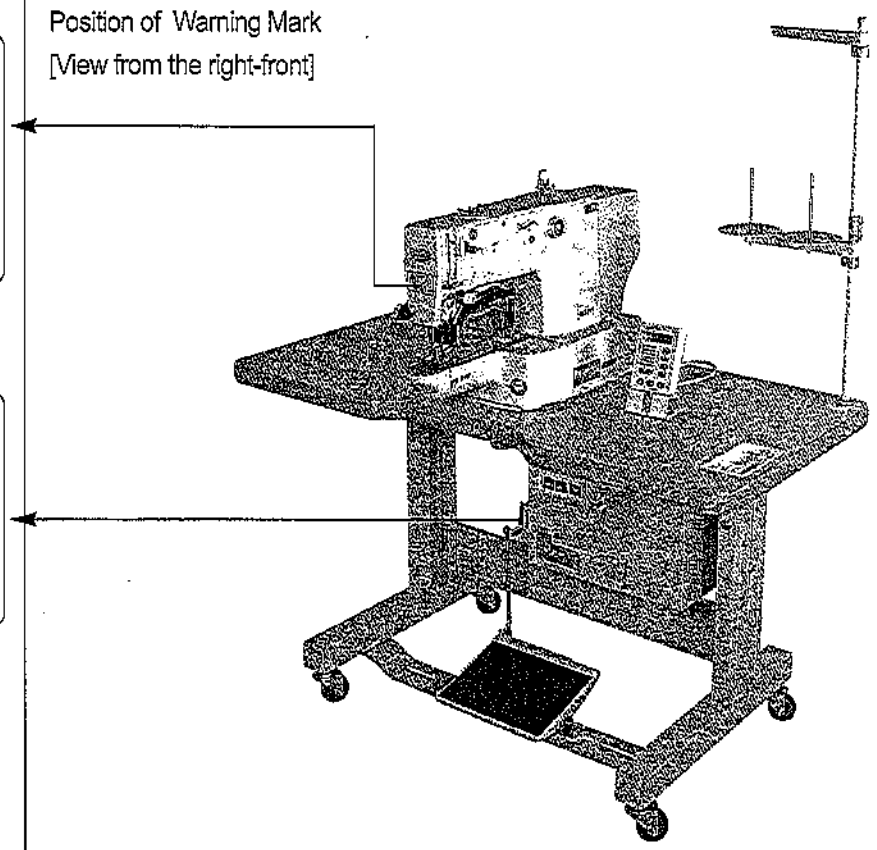
ⓐ Safety label : It describes cautions duing operating the machine.
ⓑ Thread take-up cover : It prevents from any contact beween body and take-up lever.
ⓒ Belt cover : It prevents from insertion of hands, feet or clothes by V-belt.
ⓓ Label for specification of power : It describes cautions for safety to protect against electric shock during rotating the motors.
ⓔ Finger guard : It prevent from contacts between a finger and needle.
ⓕ Safety plate : It protects eyes against needle breaks.



1-6) Caution Mark Position

Caution mark is attached on the machine for safety.
When you operate the machine, observe the directions on the mark.

Position of Warning Mark
[View from the right-front]



1-7) Contents of Marks

Caution

1)

CAUTION

Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, cleaning etc. switch off main switch.

2)

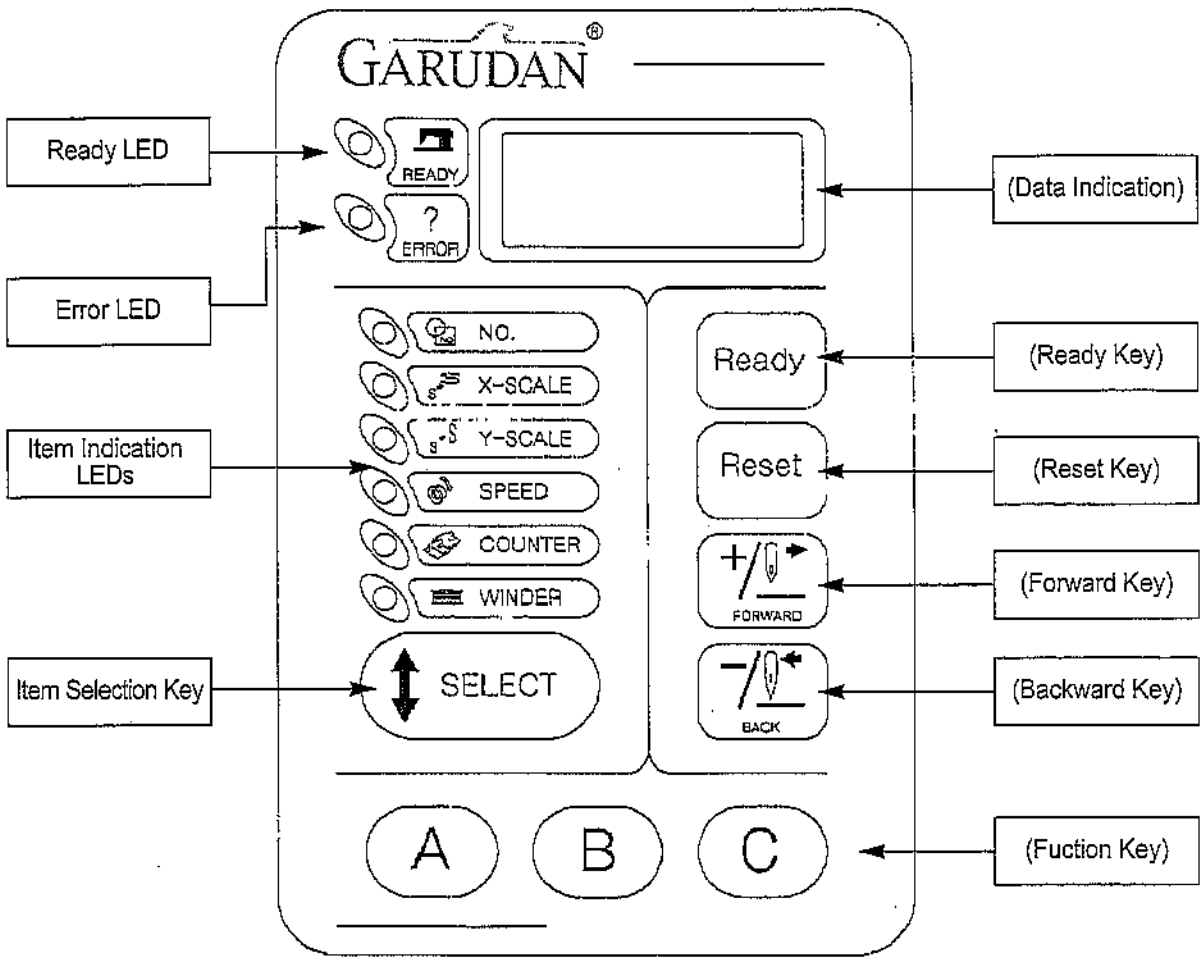
WARNING

Hazardous voltage will cause injury.
Be sure to wait at least 360 seconds before opening this cover after turn off main switch and unplug a power cord.

2

Operation of sewing Machine (Basic)

1) Name and Role of Operation Box Keys



※ First if you turn on power, the pattern number performed previously appears.
The role of LED and keys are as follows.

READY Ready — If you press [Ready Key], the machine comes to be ready to work with LED turned on.

? ERROR — It means error is occurred.

SELECT — It is used to select items. Whenever pressed this key, the items move to as following.

→ Pattern Number → X Enlargement Reduction → Y Enlargement Reduction → Sewing Speed → Counter → Thread winding →

Reset	It is used to back to the initial state.
+/FORWARD -/BACK	It is used to increase and decrease the value or forward and backward the needle bar.
A B C	It is used to call a specific pattern with only a key operation.

2) Setting the Item Data

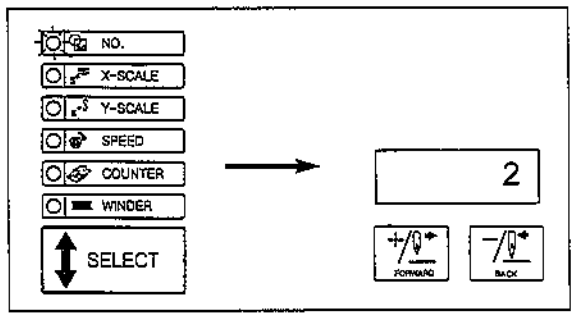
Set up each item as below.

Setup of Pattern Number → Setup of X Enlargement and Reduction rate → Setup of Y Enlargement and Reduction rate → Setup of Sewing Speed

A. Turn on the Main Switch.

The lamp in the pattern number is turned on, and the pattern number performed previously is indicated.

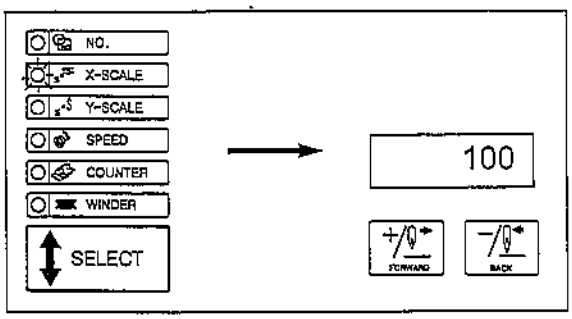
B. Setup of Pattern Number



1. Press [SELECT] until NO item is indicated.
2. Press [+/FORWARD], [-/BACK] until "2" is indicated on the screen.

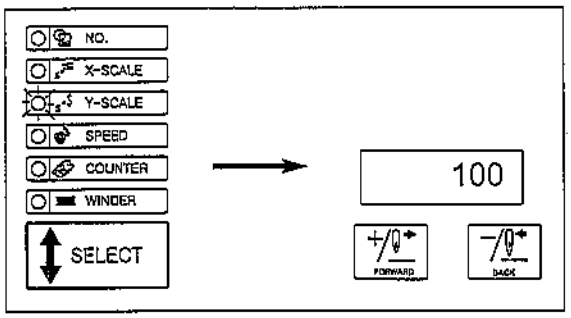
※ Please refer to annexed program list.

C. Setup of X Enlargement and Reduction



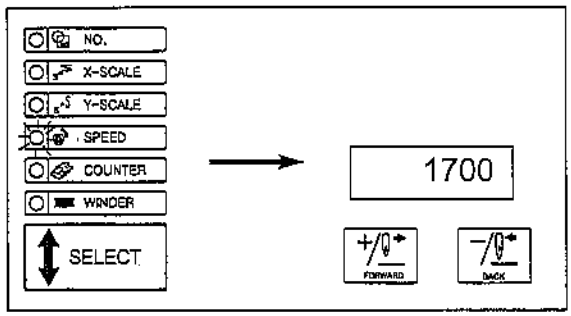
1. Press [SELECT] until X-SCALE item is indicated.
2. Press [+/FORWARD], [-/BACK] and set the scale within 20%~200%

D. Setup of Y Enlargement and Reduction



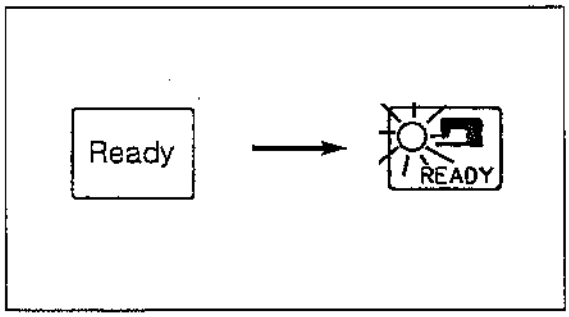
1. Press [SELECT] until Y-SCALE item indicated.
2. Press [+/FORWARD], [-/BACK] and set up the scale within 20%~200%.

E. Setup of Sewing Speed



1. By Pressing [SELECT] to make SPEED appear on the screen.
2. By pressing [+/FORWARD] and [-/BACK] to "1700" appear on the screen.

F. Completion of Setup



1. Press [Ready].
2. After the feeding frame moves and ascends, the lamp on Ready turns on and becomes sewing available state.
   ※ It is possible to reconfirm the setting value by pressing [SELECT].

◀ Caution ▶

Confirm the pattern number.
If you press [Ready] at the state of pattern No. "0" (factory-installed condition), the machine moves to the origin.
Use this pattern to confirm the origin.
If you select pattern number that does not have any data, "E-01" error is marked. At this time, set up another pattern number.

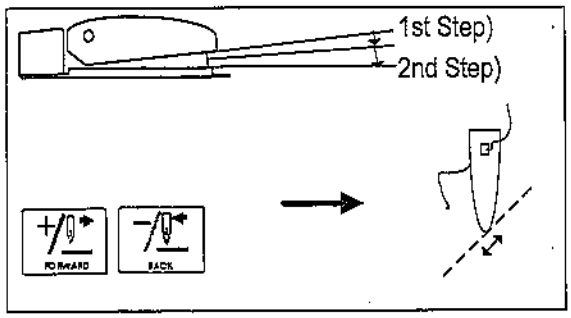
G. Threading the Thread (In case of GPS-0504)

In the state of [Ready], if you press the [Emergency Stop Switch], the upper feed plate and the presser foot will descend.
In the descended state, if you press the emergency stop switch again, the upper feed plate and the presser foot will ascend.

3) Confirming the pattern

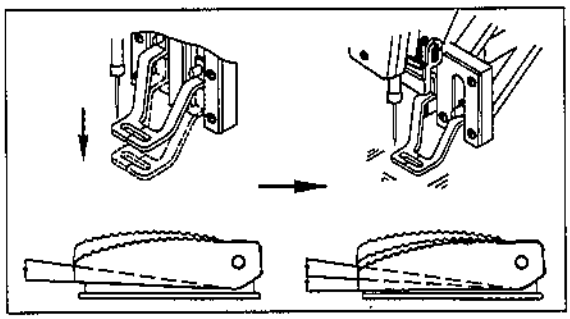
Caution

- After selecting a pattern number, confirm the pattern. If the pattern gets out of feeding limit of feeding of feeding frame, serious problems can be occurred including needle breaking since the needle is involved in the feeding frame.
- During checking the pattern, do not press the pedal switch to the 2nd step. When the pedal switch is pressed to the 2nd step, the sewing machine comes to move.



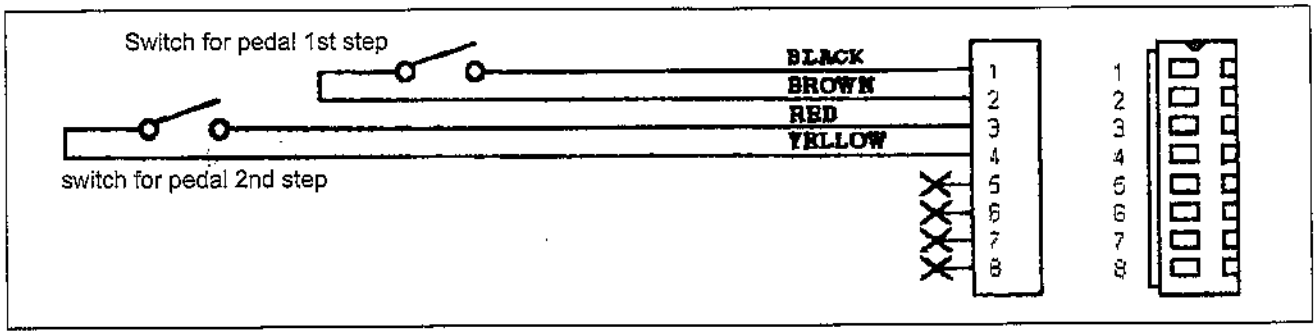
1. On condition that sewing was prepared, step the pedal switch to the step 1 and take down the Pressure Plate.
2. Whenever you press [+/FORWARD] and [-/BACK], the feeding frame moves to each stitch.
   During pressing continuously, the feeding frame moves without cease.
3. If you press [Reset], the needle backs to the sewing start point, then the feeding frame ascends.
   ※ When a needle moves for a while, take off your feet from the pedal.

4) Sewing



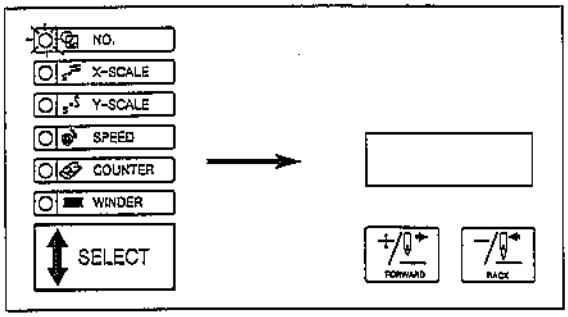
1. Place the sewing materials on feeding frame.
2. If you press a pedal switch to the 1st step, the feeding frame descends. If you take off your feet from the pedal switch, the feeding frame ascends.
3. When the feeding frame is in downward state, if you press pedal switch to the 2nd step, the sewing is started.
4. When finishing sewing, the feeding frame ascends and moves to the sewing start point.

■ Block diagram for standing pedal



1set step : Feed clamp operation
2nd step : Machine starts operation

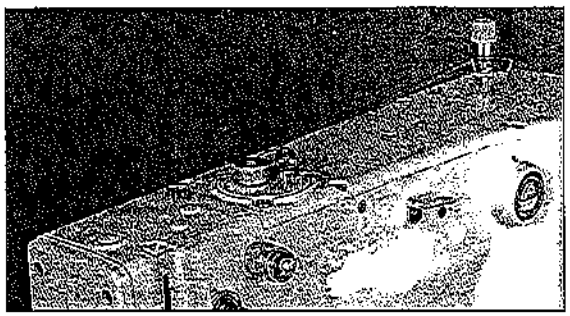
5) Changing the Sewing Pattern



1. Press [Ready]. Then the ready lamp is turned off.
2. Press [SELECT] and make No. item is indicated.
3. Set up 2-(B)~(F), moves to the [Confirming the pattern] item.

6) Winding the Bottom Thread

A. When winding is performed during sewing.

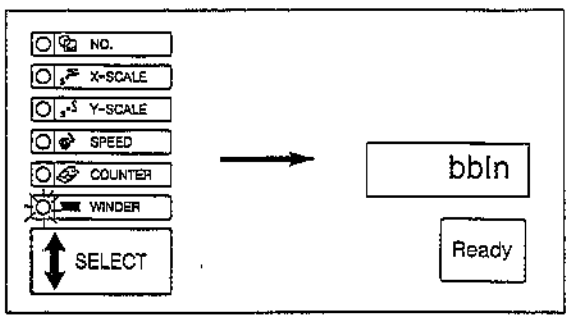


Insert thread as seen in the fig. and wind the bottom thread.

B. When olny bottom thread is winded

Caution

■ During the bottom thread is winding, the feeding plate does not move, but a needle moves. So, do not put anything under the needl



1. Press [SELECT] and select [WINDER] item.
   ※ When the Ready lamp turns on, it can not be selected.
2. Press [Ready].
3. Press a pedal switch to the 2nd step.
   Then bobbin winder starts thread winding.
4. Press a pedal switch to the 2nd step again, then thread winding is stopped.
5. Press [Ready] to stop thread winding.

7) Emergency Stop During Sewing (In case of GPS-0504)

If you press the emergency stop button during sewing, the sewing work stops at the current position of it. At that time the front.back stitch key is pressed, it is possible to transfer the feed plate by stitch by stitch. If you want to get out of the work completely terminating the current sewing work, you should press the emergency stop button again. At that time the thread trimmer operates and the feed plate moves to the starting point of the sewing work. But if you want to start sewing again from the stopped position, you should work the pedal to start sewing and the sewing work will start again.

3

Operation of Sewing Machine (Application)

1) Using the User's Programs

In programs for users, the 7 different programs (P1~P7) are registered and used.
In the 7 user's programs, the pattern number, the setup of X Enlargement and Reduction rate, the setup of Y Enlargement and Reduction rate, and the sewing speed are registered.
It is comfortable to register the repeatedly-used patterns.

(1) Register of user's Programs

Setup example) Register the following items as P1.

Pattern No. : 3 X Enlargement and Reduction rate : 50% Y Enlargement and Reduction rate : 80% Limit to sewing speed 1800spm

A. With pressing [SELECT], turn on the power. → P---

B. Press [A] key. → P1

C. Press [SELECT] until No. item is indicated.
With [+/FORWARD], [-/BACK] set up the pattern No. as 3 . → 3

D. After pressing [SELECT], using with [+/FORWARD], [-/BACK] set up the X Enlargement and Reduction rate to be 50%, Y Enlargement and Reduction rate to be 80%, and the sewing speed to be 1800spm. → 50

80

1800

E. By pressing [Ready], complete the register.
※ If you want to register at P2~P7 , select P2~P7 in the process of B and practice the process of C~E. → P---

F. When the register is completed, turn off the power and turn on again.

(2) Selection of user's Program

P1 : Press [A].
P2 : Press [B].
P3 : Press [C].
P4 : Press [A] and [B] at the same time.
P5 : Press [B] and [C] at the same time.
P6 : Press [A] and [C] at the same time.
P7 : Press [A], [B] and [C] at the same time.

※ When selecting P4, P5, P6 and P7, combine [A] ~ [C] keys.

(3) Operation of Sewing

Operation example) Sew the registered contents of P1, then the contents of P3.

A. Turn on the power.
B. Press [A].
C. By pressing [Ready], the Ready lamp is turned on, then a feeding plate ascends after movement.
D. Confirm the patterns. (Refer to the 「Confirming the Pattern」)
E. If the result of confirmation on the patterns is good, sewing can be available.
F. After completing sewing, if you press [C], the feeding plate moves to the sewing start position after moving the origin. (By using function keys, the change of pattern is available with only a key operation although the Ready lamp is turned on.)
G. Performs D. and E. process above.

※ P1~P7 is indicated when changing patterns by pressing [+/FORWARD] and [-/BACK].

→ 0 to 99 ↔ P1 to P7 ← Unregistered P1~P7 are not indicated.

2) Sewing to use the Function of Combination

It is available to change patterns in the orders whenever sewing is completed by arranging the already registered users' s program in Cnb1, Cnb2 and Cnb3.

※ The maximum combination of P1~P7 available to register in Cnb1, Cnb2 and Cnb3 are 15.

(1) Register of Combination

Setup example) Register in the order of P1, P2 and P3 with combining in Cnb1.

A. With pressing [A] and [SELECT], turn on the power. → Cnb1

B. After pressing [SELECT], press [A]. → 1-P1

C. After pressing [SELECT], press [B]. → 2-P2

D. After pressing [SELECT], press [C]. → 3-P3

E. By pressing [Ready], complete the register. → Cnb1

F. If the power is turned on in the process off.

※ ① If the power is on in [B] process, press [C] or [SELECT]. If you press [B], the register comes to be Cnb2, and press [C], the register comes to Cnb3.

※ ② If you want to register P4~P7, press [A] ~ [C] at the same time.

※ ③ 10~15 are indicated as A~F.

◀ Caution ▶
Patterns not registered in Function key (P1~P7) can not be combined.

(2) Operation of Sewing

A. Turn on the power.

B. With [+/FORWARD], [-/BACK] key, Make the pattern No. as "C1-1~C3-F".
Change like followings when the key is pushed.
→ 0 to 99 ↔ P1 to P7 ↔ C1-1 to C3-F ←

※ P1~P7, Cnb1~Cnb3 not registered are not indicated.

C. By pressing [Ready], the Ready lamp is turned on, then a feeding plate ascends after movement.

D. If the result of confirmation on the patterns is good, sewing can be available.

E. Whenever the sewing is completed, each stage is made according to the combination.
When a sewing in a cycle is completed, it goes to the initial stage. Sewing is repeated.

※ ① During sewing, if you want to back to the previous or goes to the next stage, when ready lamp is turned on, press [+/FORWARD], [-/BACK].
The contents of indication in No. item comes to change, and the feeding plate moves to the initial point of sewing.

※ ② If the contents of P1~P7 are changed after registering the Cnb1~Cnb3, great attention should be payed since the contents of P1~P7 used in Cnb1~Cnb3 are changed.

※ ③ Confirm each pattern. (Refer to 「Confirming the pattern」)

※ ④ Within one item (for example, Cnb1), a pattern will be changed into next pattern automatically.

3) Sewing Used with Bottom Thread Counter

The counter for working capacity can be used as Bottom Thread Counter. In case of sewing with same pattern is repeated, when the quantity reaches the number that one bobbin can sew, the machine stops working At this time, the bottom thread counter should be setup decreasing type.

◀ Caution ▶
The machine is set up as working capacity counter system (Increment type) when factory- installed. When the bottom thread counter is installed, the memory switch should be changed. (Refer to 「Use of Memory Switch」)

A. Press [SELECT] when the ready lamp is turned off to "COUNTER" should be indicated.

B. Press [Ready] key.

C. Press [+/FORWARD], [-/BACK] to set up sewing available times with a bobbin.

D. After completing each sewing, the counter value decreases each.

E. When the sewing is completed as much as setup times, the machine does not work even pedaling.

F. After exchanging into new bobbin, press [Ready].

G. Repeat D.~F.

4) Cautions

A. When inserting the thread or running the machine, start sewing after the thread tension plate is closed.

B. In case of turning on the error lamp, take up proper measure according to the cause of trouble.

C. Do not pull the sewing materials during running, since the position of needle is distorted. In that case, press [Ready] key twice to make the needle locate in right position.

D. Do not turn off the power when the needle is descending.

■ Sewing speed according to materials

	Speed (SPM)
Denim 8pcs	Below 2,200 ~ 2,700
Denim 12pcs	Below 2,200 ~ 2,500
Clothes	Below 2,200 ~ 2,700
Clothes (Synthetic)	Below 2,000 ~ 2,300
Knit	Below 1,800 ~ 2,000
Underclothes	Below 1,800 ~ 2,000

E. To prevent from thread cutting by heat, set up properly the sewing speed according to sewing materials referring to the above table.

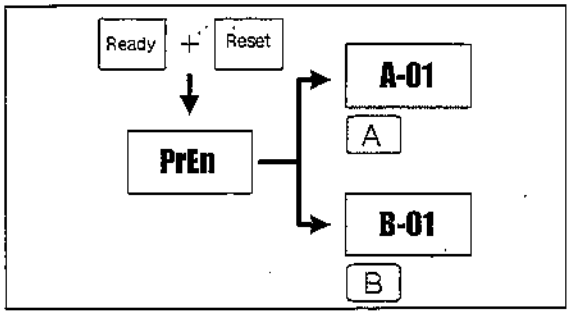
F. When sewing materials such as underclothes, lower the height of needle bar to prevent from stitch jumping. (Refer to 「Adjusting the Height of Needle Bar」)

4

How to Use the Memory Switch

1) Running the Memory Switch

The function of memory switch is divided into two groups. One is the general sewing related function to change general operation of sewing machine, the other is the control related one to change the operation of servo motor.



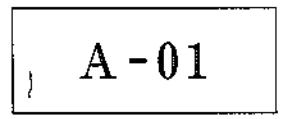
1. Turn on the power with pressing [Ready] and [Reset].
2. Press [A] to change the general sewing related function.
3. Press [B] to change the servo motor related function.

2) Examples of Setting up the Memory Switch

(1) Upper Limit Setup of Sewing Speed

Ex) Change 2000spm to 1800spm.

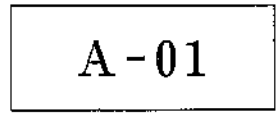
1. Press [+/FORWARD] to make "A-01" appears on the screen after running memory switch.



2. If you press [Ready], the present setting value is indicated.

3. Press [-/BACK] to change the setting value into "1800"

4. Register it with [Ready].



(2) Setting Up the Soft Start Speed for Start Sewing

The speed for 1~5 stitches for start sewing can be changed with a unit of 100 spm.

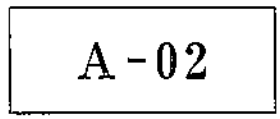
	Setup Range	Initial Setup
The 1st Stitch	100~900	400 spm
The 2nd Stitch	100~2,000	900 spm
The 3rd Stitch	100~2,000	1,800 spm
The 4th Stitch	100~2,000	1,800 spm
The 5th Stitch	100~2,000	1,800 spm

The above set up values are subject to change according to the Models of the machines.

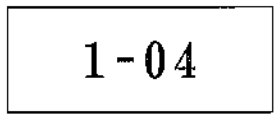
◀ Caution ▶
A 01, the general sewing related function (Upper Limit setup Sewing Speed) has priority.

Ex) Change the 1st stitch from 400 into 900, and the 2nd stitch from 900 into 1,200.

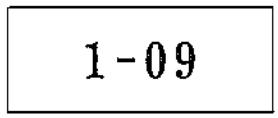
A. After running the memory switch,
Press [+/FORWARD] to make " A-02" appear on the screen.



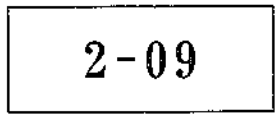
B. Press [Ready] to set up present setting value.
(The 1st stitch speed, 400 spm is indicated.)



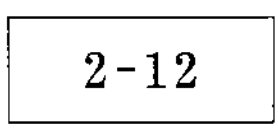
C. Press [+/FORWARD] to make "1-09" appear on the screen.
(change into 900 spm.)



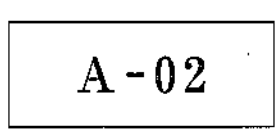
D. Press [SELECT] (The 2nd stitch speed, 900 spm is indicated.)



E. Press [+/FORWARD] to make "2-12" appear on the screen.
(Change into 1,200 spm.)



F. Register it with [Ready].

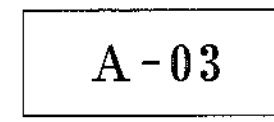


(3) Setting up the Pattern Data Calling

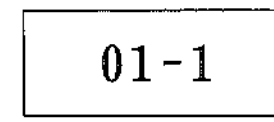
It makes the unneeded pattern calling impossible to prevent from calling of unavailable pattern by mistake. In addition, it possible to call needed pattern to use.

Ex) It makes calling of pattern 1,2 impossible.

A. After running the memory switch.
Press [+/FORWARD] to make "A-03" appear on the screen.

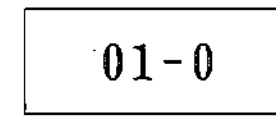


B. Press [Ready] to set up present setting value.
Indication ⓐ : Pattern No.
Indication ⓑ : 0 : Calling impossible
1 : Calling possible

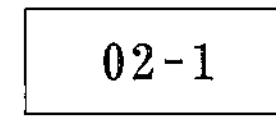


ⓐ ⓑ

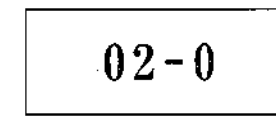
C. Press [-/BACK] to change indication ⓑ from "1" into "0".



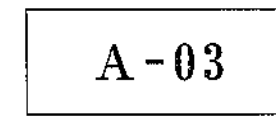
D. Press [SELECT] to change indication ⓐ from "1" into "2".



E. Press [-/BACK] to change indication ⓑ from "1" into "0".



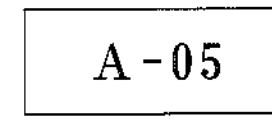
F. Register it with [Ready].



(4) Setting up the Counter Operation

Ex)Production counter(Increment type) changes into Bobbin Thread Counter(Decrement type).

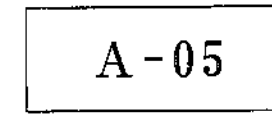
A. After running the memory switch,
Press [+/FORWARD] to make "A-05" appear on the screen.



B. Press [Ready]. to set up present setting value.

ⓐ

C. Press [+/FORWARD] to change indication ⓐ from "0" into "1"
Indication ⓐ : Pattern No.
: 0 : Product Counter
: 1 : Bobbin Counter

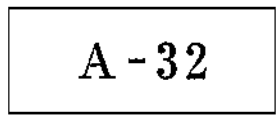


D. Register it with [Ready].

(5) Selecting Upper Thread Holding Device Function

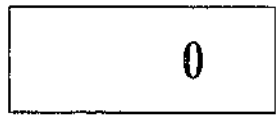
Please change parameter to use upper thread tension adjusting function in pneumatic type.

A. After running the memory switch press [+/FORWARD] to make "A-32" appear on the screen.



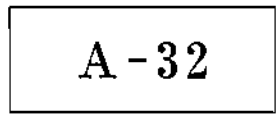
ⓐ

B. Press [Ready] to set up presert setting value.
Indication ⓐ Part: 0: Not use holding device
1: Use holding device



C. Press [+/FORWARD] to change indication ⓐ from "0" into "1".

D. Register it with [Ready] key.

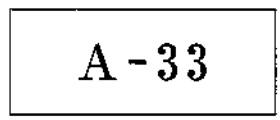


(6) Selecting Method of Serial/Separate Type Pedal

Please change parameter to use separate type of pedal in HA-22 Model.

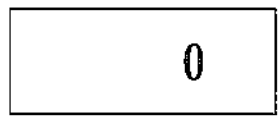
Ex) When using separate type pedal

A. After running the memory switch, Press [+/FORWARD] to make "A-33" appear on the screen.

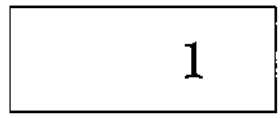


ⓐ

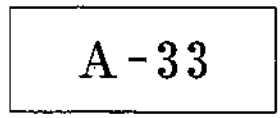
B. Press [Ready] to set up present setting value.
Indication ⓐ Part : 0 : Monolithic type pedal
1 : Separate type pedal



C. Press [+/FORWARD] to change indication ⓐ from "0" into "1".



D. Register it with [Ready] key.



◀ Caution ▶

If you want to use separate type pedal as series type pedal, change indication ⓐ "1" →"0" by pressing [-/BACK] when going from step B to step C. Register with [Ready] Key.

3. Function Chart of Memory Switch (A Group)

1) Turn on the power with pressing [Ready] and [Reset] simultaneously, then operate it by pressing [A].

NO	Function and Description	Setup Range	Initial Setup	Unit
A-01	Upper Limit of Sewing Speed	Normal Materials : 100~2700 Heavy Weight Materials : 100~2700 Thin Materials : 100~2000 Knit : 100~2000 Pneumatic Type : 100~2200 Button Sewing : 100~2500 Pattern Tacking : 100~2500	2300 spm 2300 spm 1800 spm 1800 spm 1800 spm 2200 spm 2200 spm	100 spm
A-02	Set the speed of 1-5 stitches of sewing start (soft start set, different by machine type)	1 stitch : 100~900 2 stitch : 100~2200 3 stitch : 100~2200 4 stitch : 100~2200 5 stitch : 100~2200	Bartack/Button Sewer: 400 spm, 900 spm, 1800 spm, 1800 spm, 1800 spm Pattern Tacking: 400 spm, 900 spm, 2200 spm, 2200 spm, 2200 spm	100 spm
A-03	Set whether to call the patter data (Available to set each pattern individually)	0 : Calling Impossible 1 : Calling Possible	1201: 1~22:1, 23~99:0 1202: 1~33:1, 34~99:0 1254: 1~56:1, 57~99:0	
A-04	Set X and Y extension and reduction rate, indication of maximum speed limit and possibility of change(prevention of wrong operation)	0 : Impossible 1 : Possible	1	
A-05	Set the counter action Production Counter: addition counter Lower Thread Counter: reduction counter	0 : Addition counter 1 : Deduction counter	0	
A-06	Set the datum point of extension and reduction	0 : Origin 1 : Sewing Start Position	0	
A-07	Set whether to practice retrieval of original point after completion of sewing (in case of sewing by normal pattern number)	0 : Not performed 1 : Performed	0	
A-08	Set whether to practice retrieval of original point after completion of sewing (in case of sewing by function combination)	0 : Not performed 1 : Performed	0	
A-09	Set the standard of extension and reduction.	0 : Unlimited 1 : Limit to feeding range	1	
A-10	Set the start angle of XY transfer	-100~100 °	Belt Type:0° / Direct Drive Type:-24°	1 °
A-11	Set the thread trimmer speed	200~400spm	400spm	1000spm
A-12	Set the reverse rotation after thread trimming	0 : Not performed 1 : Performed	0	
A-13	Set the reverse rotation setting angle after thread trimming	0~70 °	0 °	1 °
A-14	Set whether to call the electronic wiper	0: Calling Impossible 1: Calling Posible	1201,1202:0/1254:1	
A-15	Function to reduce raising time of presser foot after thread trimming	0 : Not performed 1 : Performed	1	
A-16	Function to retrieve the original point after work of a certain time (Retrieve the original point after working as many as the times set at A-17)	0 : Not performed 1 : Performed	0	
A-17	The number of work for retrieval of original point	0~1000	1000	4
A-18	Set the ON time of electronic wiper	4~1020ms	100ms	4ms
A-19	Function to cancel thread trimming		0	
A-20	Presser Plate Solenoid Full On Time	4~1020ms	100ms	4ms
A-21	Thread Trimmer Solenoid Full On Tim	4~1020ms	100ms	4ms
A-22	Auxiliary Solenoid Full On Time	4~1020ms	100ms	4ms
A-23	Wiper Solenoid Full On Time	4~1020ms	100ms	4ms
A-24	Presser Plate Solenoid Duty	1~25%	10%	1%
A-25	Thread Trimmer Solenoid Duty	10~25%	20%	5%
A-26	Auxiliary Solenoid Duty	10~25%	20%	5%
A-27	Wiper Solenoid Duty	10~25%	20%	5%
A-28	Presser Plate Solenoid Rise Detecting Time	4~1020ms	HA Type: 100ms Other M/C Type: 500ms	4ms
A-29	Presser Plate Solenoid Drop Detecting Time			
A-30	Set the Off-Time of Electronic Wiper		40ms	4ms
A-31	Set Up/Down After Trimming	0: down 1: Up	1: Up	
A-32	Set Whether to pratice retrical the upper thread holding device in pneumatic type	0: Not Pertormed 1: Pertormed	0	
A-33	Set Whether to select by monolithic and separte type pedal	0: Monolithic Type 1: Separete Type	0	

2) Function Code related servo motor control (B Group) : For Belt Type

After turning on the power with pressing [Ready] and [Reset] simultaneously, operate it by pressing [B].

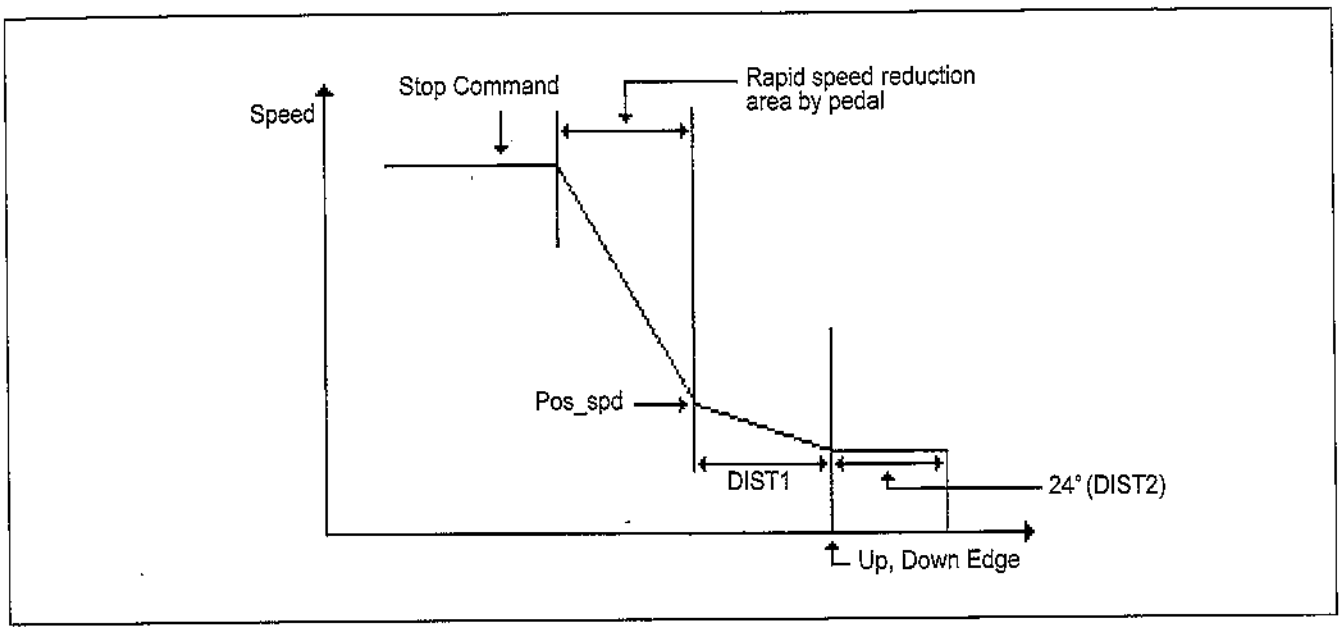
NO	Function and Description	Name of Function	Setup Range	Initial State	Unit
B-01	Position sensing speed to stop	Pos-spd	2~510	220spt	2spt
B-02	Speed right before stop	end spd2	0~255	16spt	1spt
B-03	Delay time to place rightly at stop position	Stop Delay	4~1020	80ms	4ms
B-04	Sensing distance of the 1st position	DIST1	0~255	150Pulse	1Pulse
B-05	Speed P-Gain	KC1A	0~255	10	1
B-06	Not in use	KC1B	0~255	2	1
B-07	Speed D-Gain	KC1C	0~255	10	1
B-08	Not is use	KC2	0~255	100	1
B-09	Positon P-Gain	KF1A	0~255	160	1
B-10	Not is use	KF1B	0~255	80	1
B-11	positon D-Gain	KF1C	0~255	180	1
B-12	Whole level on speed benefit	Belt Type KF2	Belt Type 0~255	100	1
B-13	Power when pulley is fixed	KH1	10~100	40	1
B-14	Repairing distance when pulley is fixed	KH2	10~100	20	1
B-15	Reduce rate from stop signal to position sensing speed	accelA	2~100	54	1
B-16	Speed decrease rate (the more the faster reduce)	accelB	10~100	80	1
B-17	SpeedReduce Rate (Larger Late Faster Decreased)	accelC	10~100	30	1
B-18	Speed increase rate (the more the faster acceleration)	accelD	2~100	4	1
B-19	Not in use	Inertia			Not in use
B-20	Not in use	SPMUPPER			Not in use
B-21		UPPosition			Not in use
B-22		IND-REFM			Not in use
B-23		TRStartM			Not in use
B-24		TREndM			Not in use
B-25	Sewing machine pulley size	PULY-SIZEN			Not in use
B-26		CutSartM			Not in use
B-27		CutEndM			Not in use
B-28	Synchronizer sensor sensing time	SlockTmM	5~1275	40×0.1	0.5s
B-29	Overload sensing time	OvLoadM	5~1275	30×0.1	0.5s
B-30	Not in use	HOLD-FG	0: Disable 1: Enable	0: Disable	
B-31	Servo motor rotary direction	DIR-MODE	0: Reverse 1: Forward	1: Forward	
B-32	Sensing Time of Origin Sensor	Orgtm	4~1020	500	4ms

3) Function Code related servo motor control (B Group) : For Direct Motor

After turning on the power with pressing [Ready] and [Reset] simultaneously, operate it by pressing [B].

NO.	Function and Description	Name of Function	Setup Range	Initial State	Unit
B-01	Position sensing speed to stop	Pos-spd	2~510	400	2spt
B-02	Speed right before stop	end spd2	2~255	50	1spt
B-03	Delay time to place rightly at stop position	Stop Delay	4~1204	200	4ms
B-04	Sensing distance on the 1st position	DIST1	0~255	10	1Pulse
B-05	Speed P-Gain	KC1A	0~255	30	1
B-06	Not in use	KC1B	0~255	0	1
B-07	Speed D-Gain	KC1C	0~255	0	1
B-08	Not is use	KC2	0~255	0	1
B-09	Positon P-Gain	KF1A	0~255	150	1
B-10	Not is use	KF1B	0~255	0	1
B-11	positon D-Gain	KF1C	0~255	700	1
B-12	Whole level of speed benefit	Direct Motor~ Spd-unit	1~255	100	1
B-13	Power when pulley is fixed	KH1	10~100	40	1
B-14	Repairing distance when pulley is fixed	KH2	10~100	20	1
B-15	Reduce rate from stop signal to position sensing speed	accelA	2~100	35	1
B-16	Speed decrease rate (the more the faster reduce)	accelB	10~100	25	1
B-17	SpeedReduce Rate (Larger Late Faster Decreased)	accelC	10~100	15	1
B-18	Speed increase rate (the more the faster acceleration)	accelD	2~100	5	1
B-19	Not in use	Inertia		0	Not in use
B-20	Not in use	SPMUPPER		1000	Not in use
B-21		UPPosition		4000	Not in use
B-22		IND-REFM		358	Not in use
B-23		TRStartM		180	Not in use
B-24		TREndM		0	Not in use
B-25	Sewing machine pulley size	PULY-SIZEN		8000	Not in use
B-26	Upper Stop Position	CutSartM		70	Not in use
B-27		CutEndM		0	Not in use
B-28	Synchronizer sensor sensing time	SlockTmM	5~1257	40	0.5s
B-29	Overload sensing time	OvLoadM	5~1257	30	0.5s
B-30	Not in use	HOLD-FG	0: Disable 1: Enable	0	
B-31	Servo motor rotary direction	DIR-MODE	0: Reverse 1: Forward	1	
B-32	Sensing Time of Origin Sensor	Orgtm	4~1020	500	4ms

※ Description on shade area



■ B-04 (DIST1)
The figure shows the position that rapid speed reduction is completed when stop working.
Stable rapid speed reduction can be made as the figure increases.

■ B-08 (KC2)
It can be saved by inertia turning, and chase to distance gets slower as this figure increase.
(General user and engineer are not permitted to use.)

■ B-12 (KF2)
It can be saved by inertia trning, and chase to distance gets slower as this figure increases.
(General user and engineer are not permitted to use.)

■ B-15 (accelA)
It can be saved by inertia tuning, and it is a speed reduction until rapid speed reduction is completed after inputting stop signal of pedal. The more this value increases, the less rapid speed reduction is made, but if the value extremely increase, the rapid speed reduction can available.

■ B-16 (accelB)
It shows the value how rapidly the speed increases during the accelerating by pedal, and the acceleration to the aim speed gets faster, but speed change at the reaching aim speed can be increased.

■ B-17 (accelC)
It shows the value how rapidly the speed increases during the decelerating by pedal, and the speed reduction to the aim speed gets faster, but speed change at the reaching aim speed can be increased.

※ Example to use the function in shade area

① When the emergency stop is not easily available and one more stitch is proceeded.
- This case is occurred when the sewing machine drives in very high speed or rapid speed reduction in short time is not available owing to the overload of sewing machine. Increase the value of B-04 and B-15 properly.

② During increasing or decreasing the sewing speed, the time that motor follows speed is slow
- This case can be occurred when the increase and decrease rate is less than increase and decrease load of sewing machine. Increase the value of B-16 and B-17 properly.

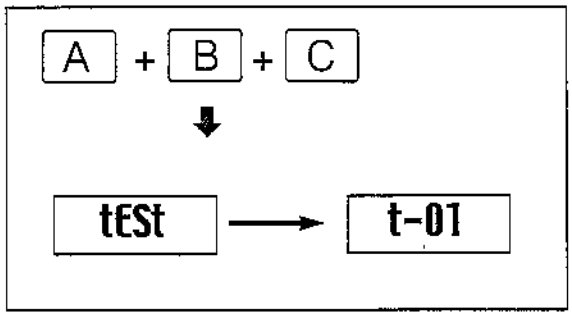
5 The Rest

1) Testing the Machine

It is available to check each part of sewing machine. If the machine does not work normally, take follow-up measure after checking the cause of trouble in electric system.

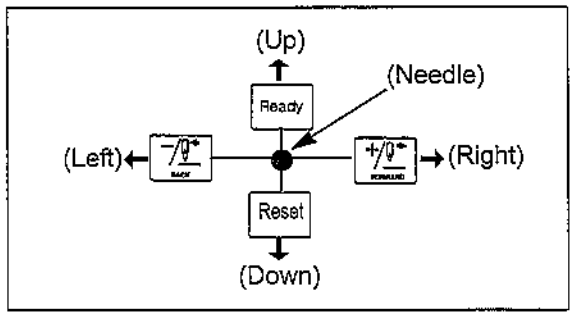
※ After running the function of machine test if you want to move to other item of machine test, press [SELECT], then press [+/FORWARD] and [-/BACK].

(1) Operation of Machine Test



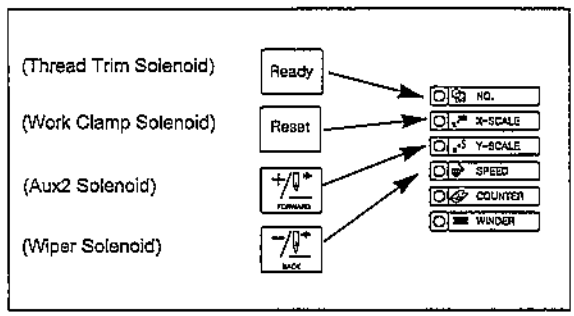
1) With pressing [A], [B], and [C] simultaneously, turn on the power.
2) Then "tESt" indication appears on the screen for a while, then "t-01" indication appears.

(2) Move the Step motor and Rrigin Sensor Test



1) After running the function of machine test, press [Ready] key.
2) As seen in the figure if you press the relevant key, a needle moves to.
3) The X-axis origin sensor signal is indicated in X-scale lamp, and the Y-axis origin sensor signal is indicated in Y-scale lamp.
4) When the needle is at the right upper part of feed plate, if two lamps are on, it is normal.
5) By pressing [SELECT], complete the test.

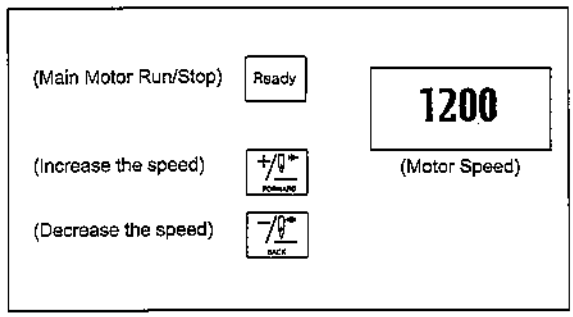
(3) Solenoid Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-02" appear on the screen.
2) Press [Ready].
3) As seen in the figure, if you press the relevant key, solenoid starts operating, and the relevant lamp turns on.
4) By pressing [SELECT], complete the test.

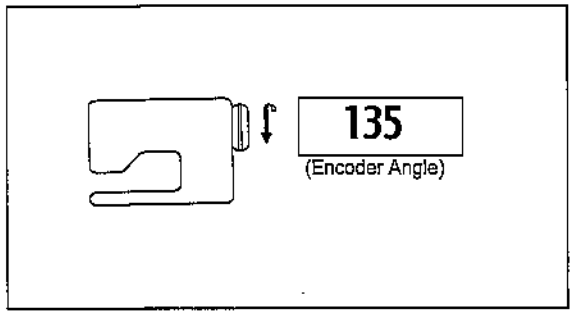
※ Wiper solenoid is the option of air pressure (HA type)
※ In case of (1254)
In case of Pattern Tacking, the "RESET" key actuates the solenoid of the presser foot, which is a pneumatic [] key to actuate the upper feed plate.

(4) Main Motor Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-03" appear on the screen.
2) Press [Ready].
3) If you press [Ready], motor starts running.
   The speed of main motor is indicated on the window.
   If you press Ready again, the machine stops operating.
4) Adjust the speed with [+/FORWARD] and [-/BACK].
5) By pressing [SELECT], complete the test.

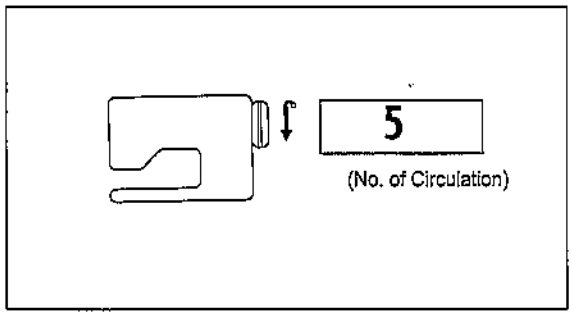
(5) Encoder Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-04" appear on the screen.
2) Press [Ready].
3) If you turn pulley manually, the encoder angle is indicated on the window, and NO lamp turns on.

   ◀ Note ▶
   If the value is not changed, there may be a problem in encoder including connector.
5) By pressing [SELECT], complete the test.

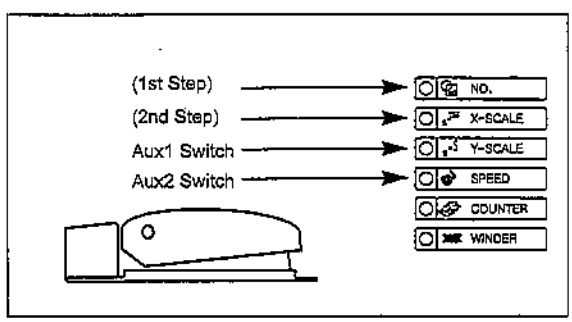
(6) Synchronizer Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-05" appear on the screen.
2) Press [Ready].
3) If you turn pulley manually, the time of circulation is indicated on the window and the synchronizer signal is indicatedon No. lamp.

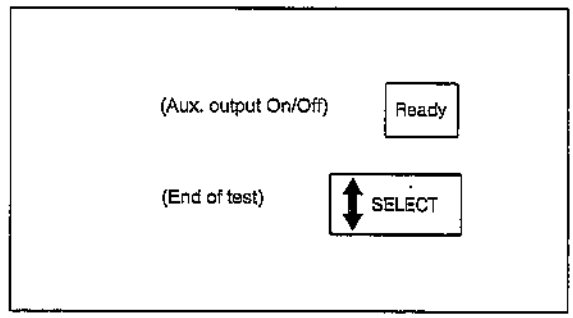
   ◀Note▶
   If the value is not changed although you turn more than one time, there may be a problem in synchronizer including connector.
5) By pressing [SELECT], complete the test.

(7) Pedal Input Test



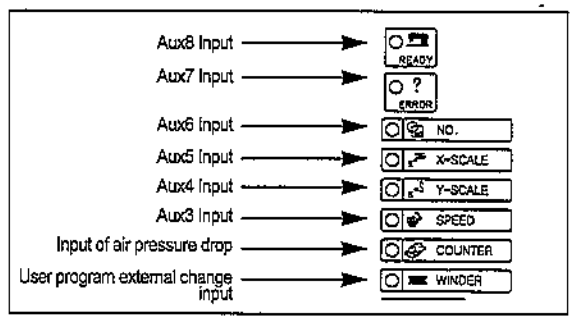
1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-06" appear on the screen.
2) Press [Ready].
3) If you press pedal to the 1set step, the NO lamp turns on, and pedal to tne 2nd step, the X-SCALE lamp turns on. If you press Aux1 switch, the Y-SCALE lamp turns on, and press Aux2 switch, the [SPEED] lamp turns on.
4) By pressing [SELECT], complete the test.

(8) Auxiliary Output Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-07" appear on the screen.
2) Press [Ready].
3) If you press Ready, the 8 Aux. outputs (J11 on digital circuit board)turn on, then if you press [Ready] one more time, all turn off.
4) By pressing [SELECT], complete the test.

(9) Auxiliary Input Test

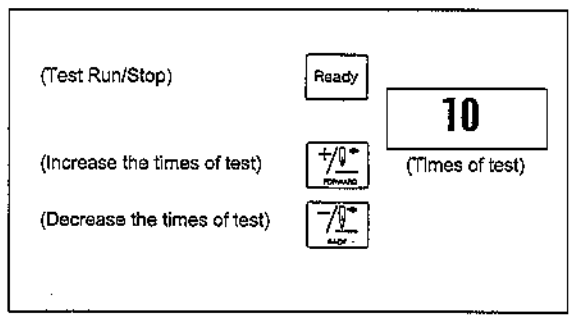


1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-08" appear on the screen.
2) Press [Ready].
3) According to the signal of the 8 Aux. (J9 of digital board) input, the relevant lamp turns on.
4) By pressing [SELECT], complete the test.

(In case of GPS-0504) When the emergency stop switch is pressed, the "SPEED" item lamp is on.

- Use the input of air pressure drop in case the machine is pneumatic type.

(10) Step Motor Jump Test



1) After running the function of machine test, by pressing [+/FORWARD] and [-/BACK], let "t-09" appear on the screen.
2) Press [Ready].
3) If you press [Ready], the machine stops after testing 10 times automatically.

◀ Note ▶

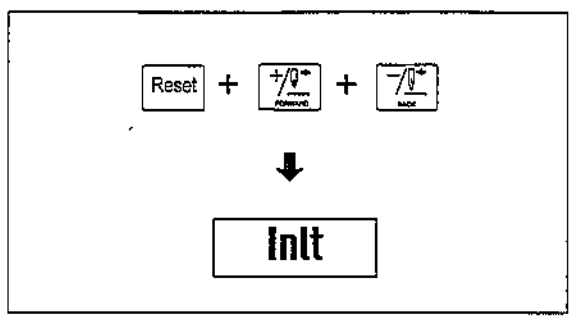
By using [+/FORWARD] and [-/BACK], the times of test can be changed.

4) By pressing [Reset], complete the test.

2) Using Other Function

(1) Initialization of Memory Switch

It is the function to return the setting of memory switch that the user has changed to the shipping status.



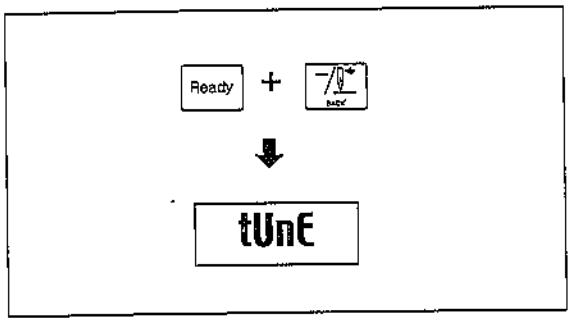
1) Turn the power on pressing [+/FORWARD], [-/BACK], and [Reset] key at the same time.
2) If the following screen appears, return the memory switch setting to factory shipping status.
3) After a moment, it returns to the initial screen.

◀ Note ▶

Pay attention that the memory switch setting that the user has changed should not erased.

(2) Inertia Tuning

The controller automatically practices inertia tuning to meet the load of machine.
Please don' t use unless tracing of sewing speed is too late or inner stitch goes faster.



1. Turn the power on while pressing Ready and -/Back key at the same time.
2. Then the following screen shall appear.
3. If you step on the foot plate switch up to step 2, automatically inertia tuning is practiced.

※ As the needle bar stops at a temporary location after practice of inertial tuning, turn off the power after placing the needle bar at the right location and then turn the power on again.

(3) Check Program Version

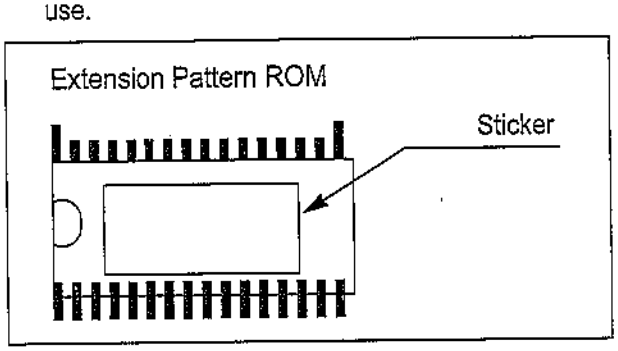
If you turn the power on, the following screen appears for about 0.5 seconds and disappears, and here, dH indicates machine dH11 model and 11 indiates the version in the ROM side figure.

Model \ Item		"Er05" Presser Foot Error	Air Pressure Use	"Er07" Air Pressure Error	Maximum Sewing Speed	Version Indication in Case of Power On	
						Direct Type	Belt Type
0402 BH	For Heavy	○	×	×	2700[spm]	dH11	bH11
0402 BM	For Normal	○	×	×	2700[spm]	dn11	bn11
0402 BL	For Thin	○	×	×	2000[spm]	dL11	bL11
0402 BK	For Kint	○	×	×	2000[spm]	dh11	bh11
B1254PA	Pattern Tacking for heavy materials, pneumatic type	○	○	○	○	PA 02	×
	Pattern Tacking for general materials, pneumatic type	○	○	○	○	PA 02	×

3) ROM Mounting and Changing

(1) Type and Classification of ROM

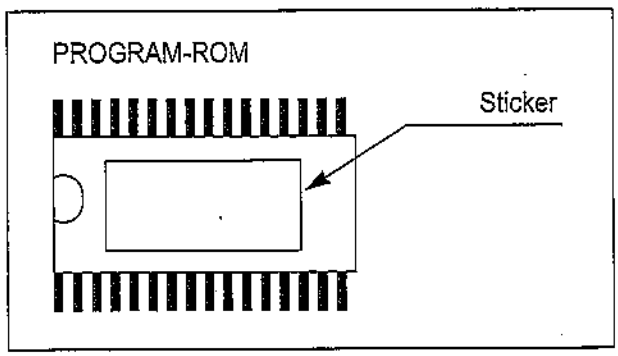
① Extension Pattern ROM: As the ROM input the sewing pattern manufactured to meet the user' s request, it is not mounted at the time of factory shipping. Upon request of user, it is separately dispatched and mounted for use.



· Sticker Indication : Generally indicate by eight figures, but indication differs by design.

Ex) bc000928, bj000390...

② Program ROM : As the ROM input the program required to operate sewing machine, it is basically mounted at the time of factory shipping. However, in case of adding or changing the function, you should replace with new version of program ROM and use it.



- Sticker Indication: Indicate by four figure as follows.
  Ex) b005, b006, b□ 07

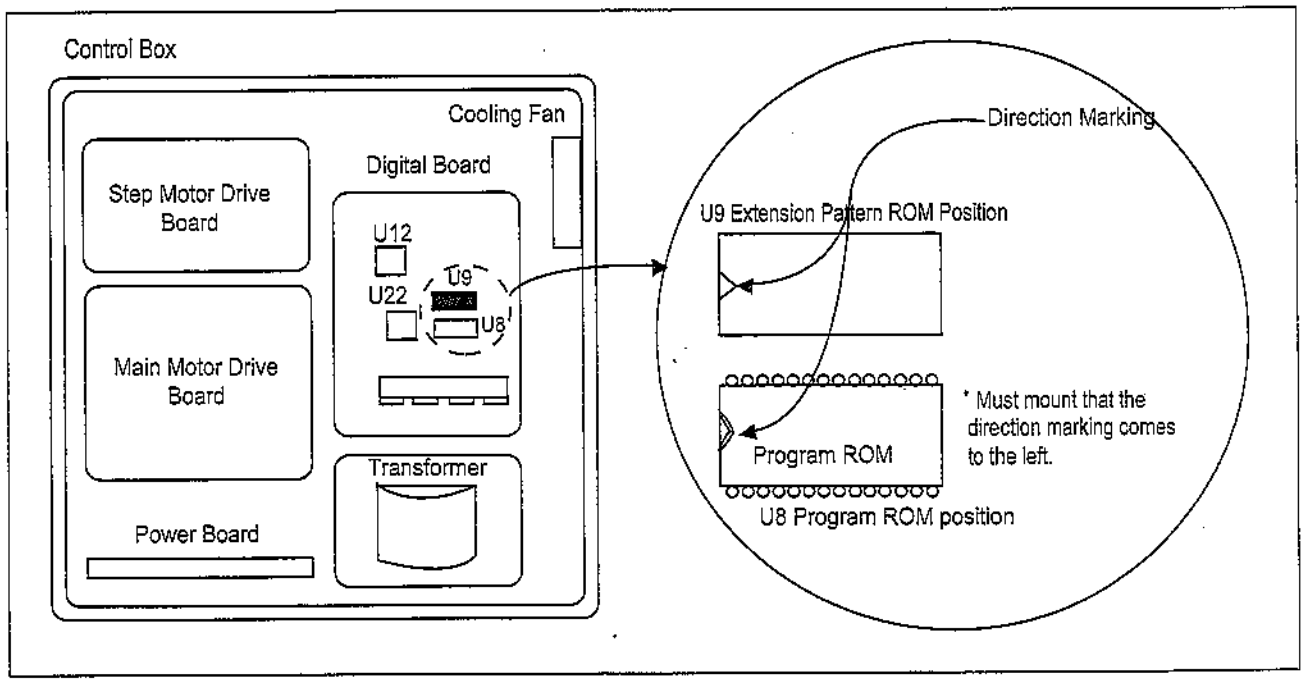
ROM Name	Indication of Digital Board	ROM Type	Number of Pin
Extension Pattern ROM	U9 (Upward Socket)	27C256	28 Pin
Program ROM	U8 (Downward socket)	27C512	28 Pin

Kind of ROM and Installing Position

(2) Notes and Mounting Location in case of ROM Changing

◀ Note ▶

1) You must turn off the power and after the indication on the operation board screen disappeared, practice mounting or replacing the ROM.
2) If you mount the direction marking incorrectly, ROM might be damaged.
3) Must mount that location of pin meet with socket correctly.
4) When you remove the existing ROM, use the IC removing tool or a small (-) rule driver that the board should not bedamaged.



ROM Installing Position

(3) Using Method of Extension Pattern

① Mounting Method of Extension Pattern

1) Separate the cover of Bartack control box
2) Mount the separately supplied extension design ROM at the location of "U9" on the digital board that the ROM pins enter into the socket correctly matched with the direction indicated at the board(that the direction marking comes to the left).
3) Press the extension design ROM tightly with fingers that it can enter into the socke

② Using Method of Extension Pattern

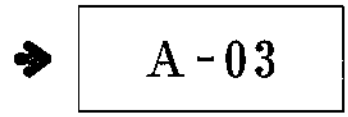
◀ Note ▶

1) If there is a pattern number set as "impossible to "call" at the time of factory shipping, it can't use. Therefore, should use after set the pattern number to use as "possible to call".
2) Should use after confirming the pattern shape whether the needle and presser plate are not interfered.

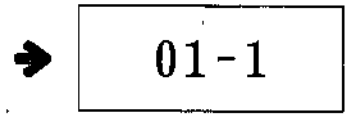
GPS 0402 series

Setting Ex) Change the pattern number 33 and 34 into "possible to call".

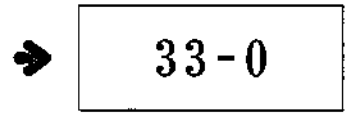
A. After turning the power on pressing [Ready] and [Reset] key, press [A] key and press [+/FORWARD] key in order to indicate "A-03" on the screen.



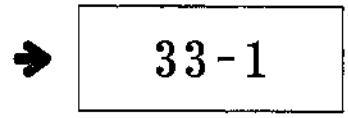
B. Indicate the present set value by pressing [Ready] key.
Indication ⓐ part: Pattern number ,
Indication ⓑ part: 0: impossible to call 1: possible to call



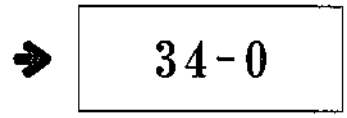
C. Press [SELECT] key to make indication ⓐ part to "01" - "33".



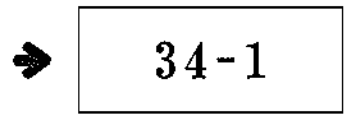
D. Press [+/FORWARD] key to make indication ⓑ part to "0" - "1".



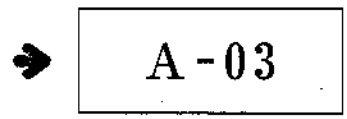
E. Press [SELECT] key to make indication ⓐ part to "33" - "34".



F. Press [+/FORWARD] key to make indication ⓑ part to "0" - "1".



G. Register by [Ready] key.

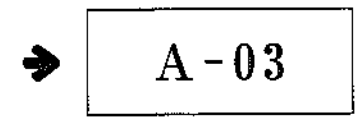


H. Turn off the power and then turn it on again.

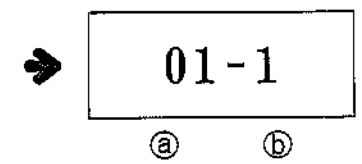
GPS 0504 series

Setting Ex) Change the pattern number 57 and 58 into "possible to call".

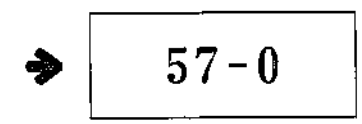
A. After turning the power on pressing [Ready] and [Reset] key, press [A] key and press [+/FORWARD] key in order to indicate "A-03" on the screen.



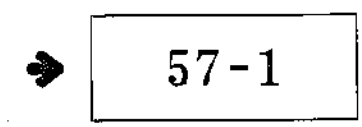
B. Indicate the present set value by pressing [Ready] key.
Indication ⓐ part: Pattern number,
Indication ⓑ part: 0: impossible to call 1: possible to call



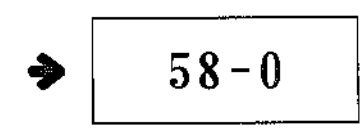
C. Press [SELECT] key to make indication ⓐ part to "01" → "57".



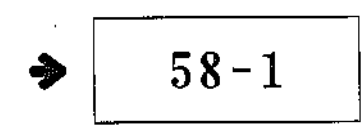
D. Press [+/FORWARD] key to make indication ⓑ part to "0" → "1".



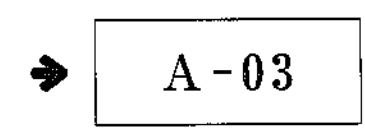
E. Press [SELECT] key to make indication ⓐ part to "57" → "58".



F. Press [+/FORWARD] key to make indication ⓑ part to "0" → "1".



G. Register by [Ready] key.



H. Turn off the power and then turn it on again.

(4) Hole Fixing Device Using Method

① Sub Model Names

Belt Type: GPS/A – 0402 HP

Direct Connection Type: GPS/B – 0402 HP

② List of parameter details and default values that varies when using Electronic Type wiper and Hole Fixing Device.

Parameter	Using Electronic Type Wiper		Using Electronic Type Wiper	
Group No.	Details	Default	Details	Default
A-18	Electronic Type Wipe In "On" time	100[ms]	Pin Attach Falling time	100[ms]
A-23	Electronic Type Wipe in "Full On" time	100[ms]	Pin Solenoid In "Full On" time	100[ms]
A-27	Electronic Type Wipe Duty Value	20[%]	Pin Solenoid duty value	20[%]
A-30	Pin Solenoid Duty Value	40[ms]	Pin Solenoid attach rising time	100[ms]

◀ Caution ◀

When using the Hole Fixing Device you cannot use the Electronic Type Wiper.

③ Method of Use.

First, confirm or refuse the calling of Pattern Data.

A. Turn on the Power while pressing the [Ready] and [Reset] Key. Press the [A] Key. Then press the [+/FORWARD] Key. You will see "A-03" displayed on the screen. → A-30

B. Press the [Ready] Key to see the current setting values. → 40

C. Press the [+/FORWARD] Key you can change the Pin Hole rising time to "100" → 100

D. Enter with the [Ready] Key. → A-30

E. Press the [+/FORWARD] Key to see "A-34" on the screen. → A-34

F. Press the [Ready] Key to see the current setting values.
Indication ⓐ part 0: do not use Pin Hole
1: use Pin Hole → 0 (ⓐ)

G. Change the ⓐ indication from "0" → "1" by pressing the [+/FORWARD] Key. → 1

H. Enter with the [Ready] Key. → A-34

I. After turning the machine off and on, if you select the number that you wish, and press the [Ready] key, the Key Feed Pin will move to the exterior angle and the pressing plate will be lifted. You will see the Pin Hole in the lifted position.

◀ Caution ▶

1.If the Pin Hole cannot be lowered or lifted, "Er11" will be displayed. Turn the power off to eliminate the cause and then turn it on again.

2.In case of GPS/A 0402 HP or GPS/B 0402 HP , Provided execlusive use extension pattern.(No.33~No.92)

3.When converted to a bobbin winding mode, the pin hole moves down and the transfer plate goes back to its original place. When converted to the sewing mode from bobbin winding mode, the transfer plate moves to its second origin and the pin hole moves up.

(5) Details about Pattern Download from a PDA (or PC) to the Machine

■ Usage of Pattern Download Function

A. Click the Reset key and turn on the power and you will see "Prog" on the screen. ➔ Prog

B. Click the Ready key and the screen will convert to "r-33." ➔ r-33

C. Use the +/FORWARD key to switch "r-33" to "r-40." ➔ r-40

D. Press the Ready key and the screen will display "doUn" and convert to a down standby mode. ➔ doUn
※ Download patterns from a PDA.

E. An "End" mark will be displayed when the download is completed. ➔ End
◀ Caution ▶
A buzzer sound will be heard every time one package of pattern is downloaded.

F. Press the Reset key and the screen will change to "r-40." ➔ r-40
◀ Caution ▶
To continue downloading patterns with a different number, repeat steps 2 to 5.

G. Press the Select key and the machine will convert to a sewing mode. ➔ xx
◀ Caution ▶
The screen will display the pattern number stored in the memory.

H. Use the -/BACK or +/FORWARD key to select the downloaded pattern numbers. ➔ 40

I. Press the Ready key and step on the pedal to start sewing.

■ Total Number of Stitches and Buzzer Sounds when Downloading Patterns from PDAs (or PCs) to Machines

Machine Type	Total number of downloaded stitches (number of packages)	Number of buzzer sounds
GPS/A – 0402 series GPS/B – 0402 series	500 stitches (4 package)	4
GPS/B – 0504 series	1000 stitches (8 package)	8

※ 1 package=125 stitches

6

Breakdown and Trouble Shooting (Electronical Parts)

No.	Condition of Breakdown	Cause of Breakdown(1)	Cause of Breakdown(2)	Troubleshooting
1	Noindication operating plate.	1) No power is supplied.	A) Cable No. 17 is disconnected. (Main circuit Board)	Insert the Cable.
			B) Cable No. 19 is disconnected. (Main Circuit Board)	
			C) Cable No.15 is disconnected. (Drive Circuit Board)	
			D) F6 Fuse is cut. (Main Circuit Board)	After removing the cause of fuse cut, exchange the fuse (15A).
			E) F1 Fuse is cut. (Drive Circuit Board)	
		2) Operating plate is not connected..	C) Cable No.1 is omitted. (Digital Circuit Board)	Insert the cable.
		3) Circuit Board is out of order.		Exchange them in the order of drive circuit board and operating plate.
2	All keys in operating plate do not work.	1) Switch is not connected between operating plate and membrane switch.	A) Switch cable inside of operatiing plate is disconnected.	Insert the cable of membrane switch again.
		3) Circuit Board is out of order.		Exchange them in the order of digital circuit board and operating plate.
3	Movement is not available with READY key.	1) Power is not supplied into step motor drive plate.	A) Cable No. 20 is omitted.	Insert th cable.
			B) F1 Fuse is cut. (Main Circuit Board)	After removing the cause of fuse cut, exchange the fuse.
			C) F2 Fuse is cut. (Main Circuit Board)	
		2) Drive board is not connected to step motor.	D) Cable No. 12 is disconnected.	Insert th cable.
			E) Cable No. 13 is disconnected.	
		3) Drive signal of step motor is not transmitted. (Digital circuit board→ Drive board)	F) Cable No. 14 is disconnected.	
		4) Circuit board is out of order.		Exchange them in the order of drive circuit board and digital circuit board.
4	If you press READY key, the machine exceeds feed limit.	1) Sensor signal is not transmitted.	A) Cable No. 4 is disconnected.	Insert the cable.
			B) Sensor is out of order.	Exchange the sensor.
		2)Circuit board is out of order.		Exchange the digital circuit board.

No.	Condition of Breakdown	Cause of Breakdown(1)	Cause of Breakdown(2)	Troubleshooting
5	Feed plate does not ascend with READY key.	1) +33V is not supplied in digital circuit board. (In case of using electronic solenoid)	A) Cable No.18 is disconnected. (Main circuit board)	Insert the cable.
			B) F5 fuse is cut. (Main circuit board)	After removing the cause of fuse cut, exchange the fuse.
		2) +24V is not supplied in IO circuit board. (In case of pneumatic type)	C) Cable No.18 is disconnected. (Main circuit board)	Insert the cable.
			D) F4 fuse is cut. (Main circuit board)	After removing the cause of fuse cut, exchange the fuse.
		3) Air pressure is not entered. (In case of pneumatic type)		Insert the cable.
		4) Solenoid cut		After measuring and confirming with tester, exchange solenoid.
		5) Pneumatic switch and pneumatic cylinder are out of order. (In case of pneumatic type)		Exchange the pneumatic switch and pneumatic cylinder.
		6) Circuit board is out of order.		Exchange the digital circuit board.
6	If you step on pedal for start sewing, the machine turns at one spot.	1) Signal for synchronizer is not available.	A) Cable No. 5 is disconnected.	Insert the cable.
		2) Synchronizer is out of order.		Exchange the synchronizer.
		3) Circuit board is out of order.		Exchange them in the order of digital circuit board and drive circuit board.
7	Sewing machine does not run even with pedalling.	1) Belt is disconnected.		Insert the belt.
		2) Drive circuit board is not connected to servo motor.	A) Cable No. 11 is disconnected. (Error occurs in No. 129.)	Insert the cable.
		3) Main motor circuit board is not connected to encoder.	B) Cable No. 6 is disconnected. (Error occurs in No. 128)	
		4) Digital circuit board is not connected to pedal switch.	c) Cable No. 3 is disconnected.	
		5) Circuit board is out of order.		Exchange the encoder.
		6) Circuit board is out of order.		Exchange the pedal switch.
		7) Circuit board is out of order.		Exchange them in the order of drive circuit board and digital circuit board.

No.	Condition of Breakdown	Cause of Breakdown(1)	Cause of Breakdown(2)	Troubleshooting
8	Cooling fan does not run.	1) Power is not supplied to cooling fan.	A) F3 fuse is cut. (Main circuit board)	After removing the cause of fuse cut, exchange the fuse.
		2) Cooling fan is out of order.		Exchange the cooling fan.
		3) Circuit board is out of order.		Exchange the circuit board.
9	If you step on pedal for start sewing, the machine turns at one spot.	1) Digital circuit board is not connected to drive circuit board.	A) Cable No. 16 is disconnected.	Insert the cable.
		2) Circuit board is out of order.		Exchange them in the order of digital circuit board and drive circuit board.
10	OTHERS	1) Keys does not operate partly.	A) Sewing machine is in the sewing available state.	Get out of the sewing available state by pressing READY key.
		2) Circuit board is out of order.		Feeding error : Exchange them in the order of drive circuit board, main circuit board and digital circuit board. Other errors except feeding : Exchange the digital circuit board.

7

Error List

Use	Indication	Description	Occurrence of noise
1	Er01	Pattern calling is not available	×
2	Er02	Error in enlargement/Reduction	×
3	Er03	Error in needle bar position	×
4	Er04	Error in feed limit	×
5	Er05	Error in clamp position	×
6	Er06	When the origin movement is not available within the expected Time	×
7	Er07	In case of air pressure specifications (HA Type), if the air pressure is less that the regulated value	×
8	Er8	Error in ROM version according to new digital board	○
9	Er10	It tells the counter to be "0"	×
10	61	Error in synchronizer connection	○
11	128	Error in encoder connection	○
12	129	Overload in main motor	○
13	130	Error in synchronizer signal	○
14	EEPr	Error in EEPROM	○
15	1000~9999 CE17,LC18 BC20,AC19	Communication error in CPU circuit board	○

※ In the item of Occurrence of noise → O : Occurrence of buzzer, X : No Buzzer

8

Electronic Circuit Diagram

1) Control Box Connector Connecting Method (Belt Type)

Connect the connectors of each of the machine cables to the Control Box according to the chart below.

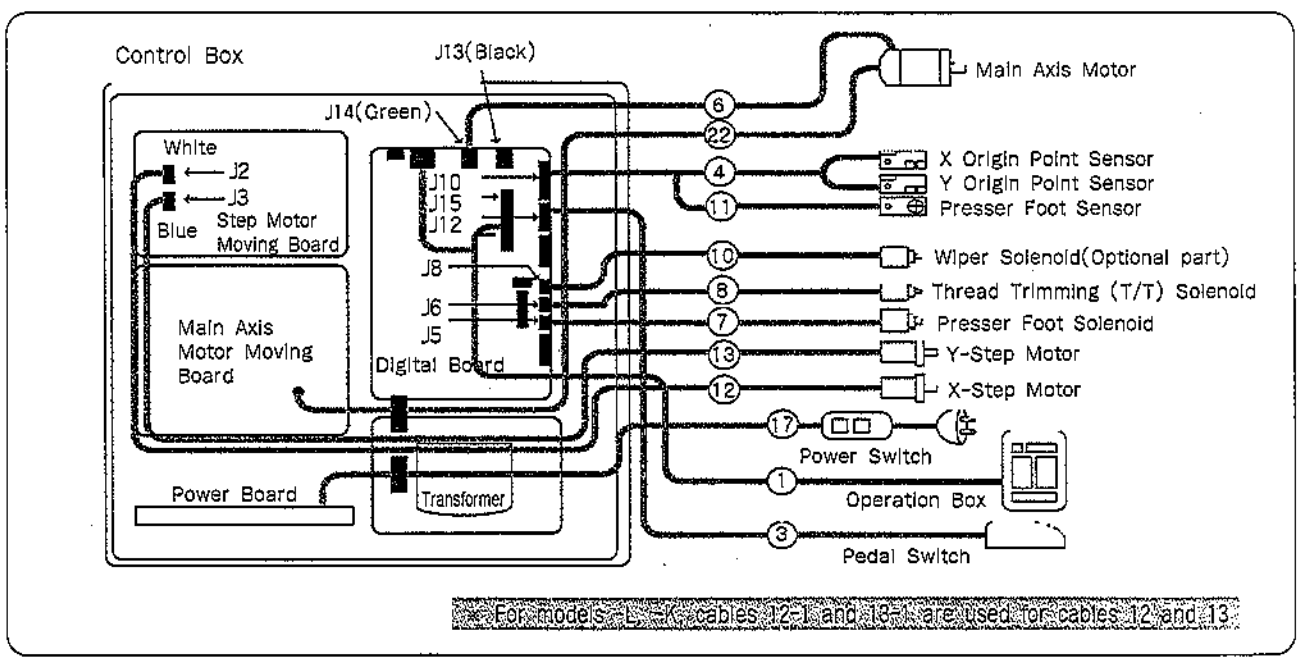
(1) Cable Connecting Method

Cable Name	Machine	Control Box
Operation Box Cable	①	J15, J2
Pedal Switch Cable	③	J12
Starting Point Sensor Cable	④	J10
Encoder Cable	⑥	J14
Pressing Plate Solenoid Cable	⑦	J5
Trimming Solenoid Cable	⑧	J6
Pressing Plate Sensor Cable	⑪	J10

Cable Name	Machine	Control Box
X-Step Motor Cable	⑫	J2
Y-Step Motor Cable	⑬	J3
Power Switch Cable	⑰	P 1, 2, 3
Main shaft Motor Cable	(22)	J4
High Pressure Input-Output Cable	(23)	J11
Pin Ball Sensor Cable	(24)	J10, J12
Pin Ball Solenoid Cable	(25)	J8

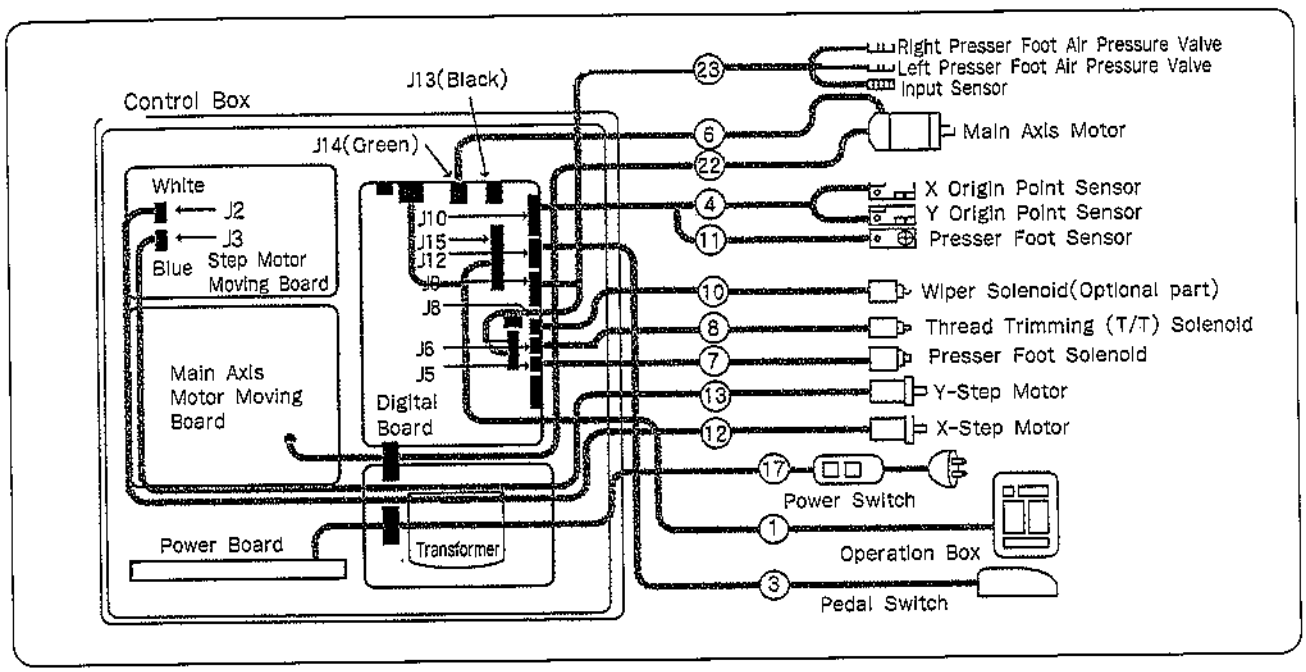
◀ Caution ▶
- Always hold the connector when connecting or disconnecting.
- Always turn off the power when connecting or disconnecting the plug.
- Do not let the cables come in contact with "V-Belts" or any machine part.

A. For general use, for heavy material (-M, -H, -L, -K models)

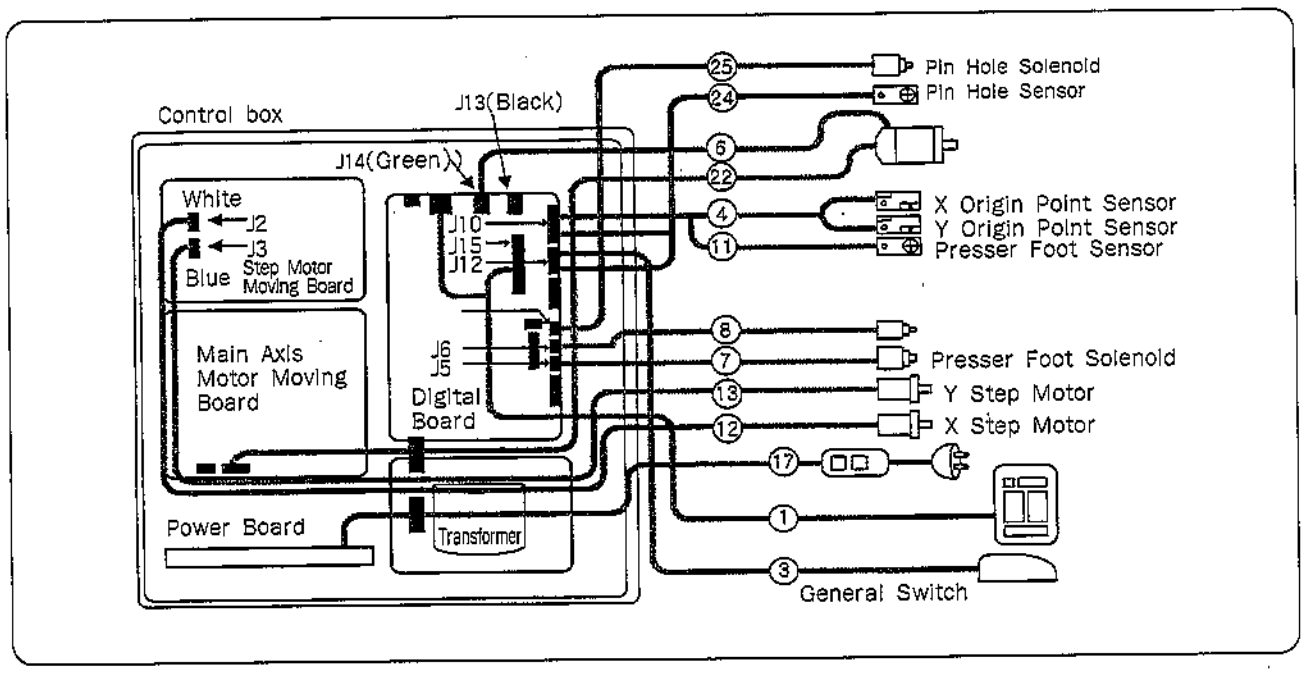


※ For models -L, -K cables 12-1 and 13-1 are used for cables 12 and 13.

B. For models with air pressure specifications (-HA model)



C. When Fixing Hole Device is Attached (-HP Model)



2) Control Box Connector Connecting Method (Direct Connection Type)

Connect the connectors of each of the machine cables to the Control Box according to the chart below.

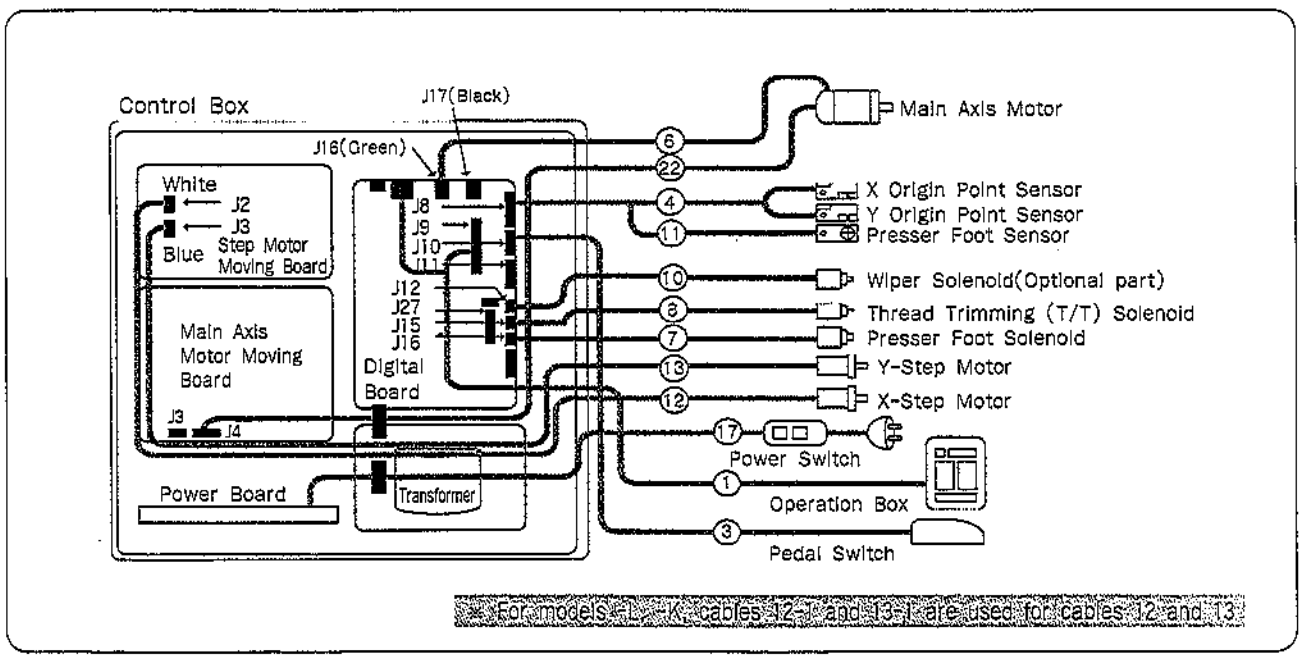
(1) Cable Connecting Method

Cable Name	Machine	Control Box
Operation Box Cable	①	J9, J2
Pedal Switch Cable	③	J10
Starting Point Sensor Cable	④	J8
Encoder Cable	⑥	J6
Pressing Plate Solenoid Cable	⑦	J16
Trimming Solenoid Cable	⑧	J15
Pressing Plate Sensor Cable	⑪	J8

Cable Name	Machine	Control Box
X-Step Motor Cable	⑫	J2
Y-Step Motor Cable	⑬	J3
Power Switch Cable	⑰	P 1, 2, 3
Main shaft Motor Cable	(22)	J4
High Pressure Input-Output Cable	(23)	J11
Pin Ball Sensor Cable	(24)	J10, J12
Pin Ball Solenoid Cable	(25)	J8

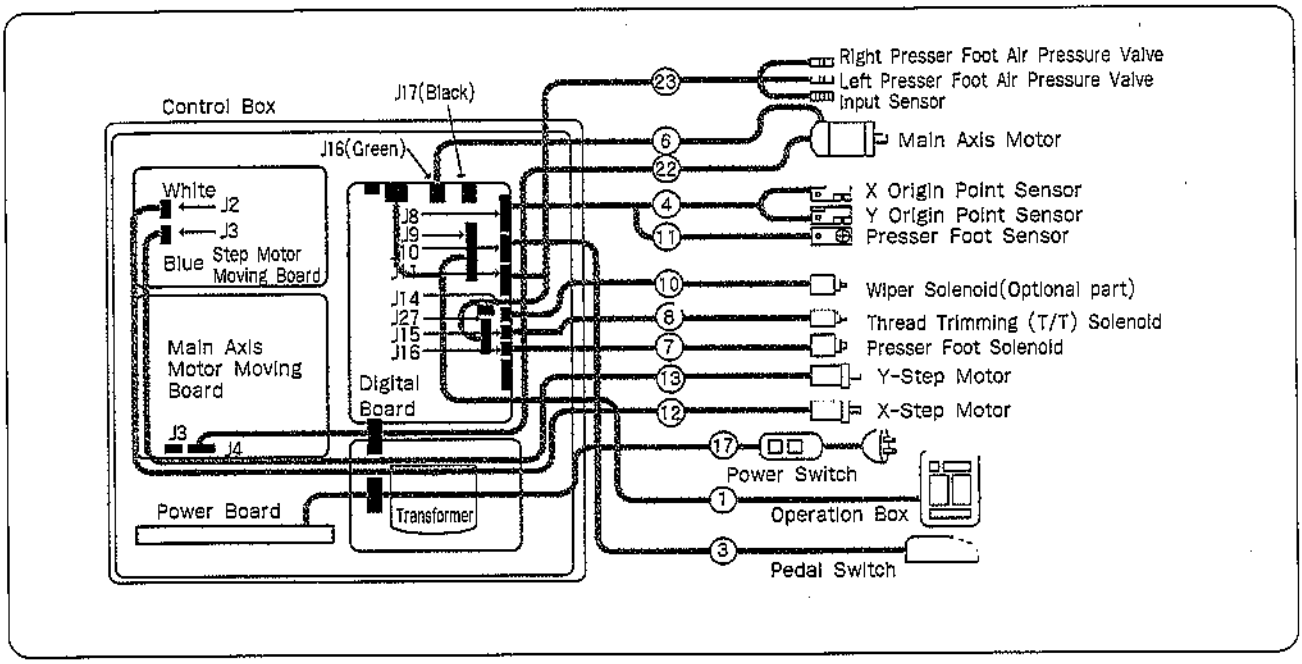
◀ Caution ▶
- Always hold the connector when connecting or disconnecting.
- Always turn off the power when connecting or disconnecting the plug.

A. For general use, for heavy material (-M, -H, -L, -K models)

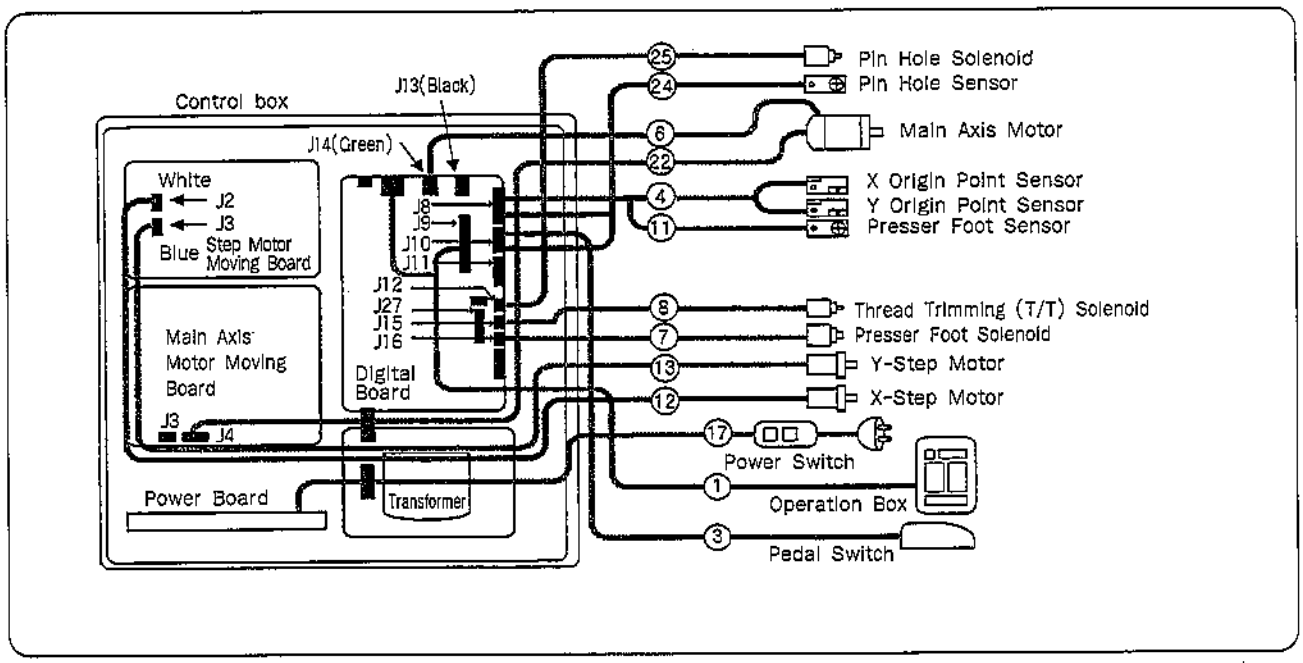


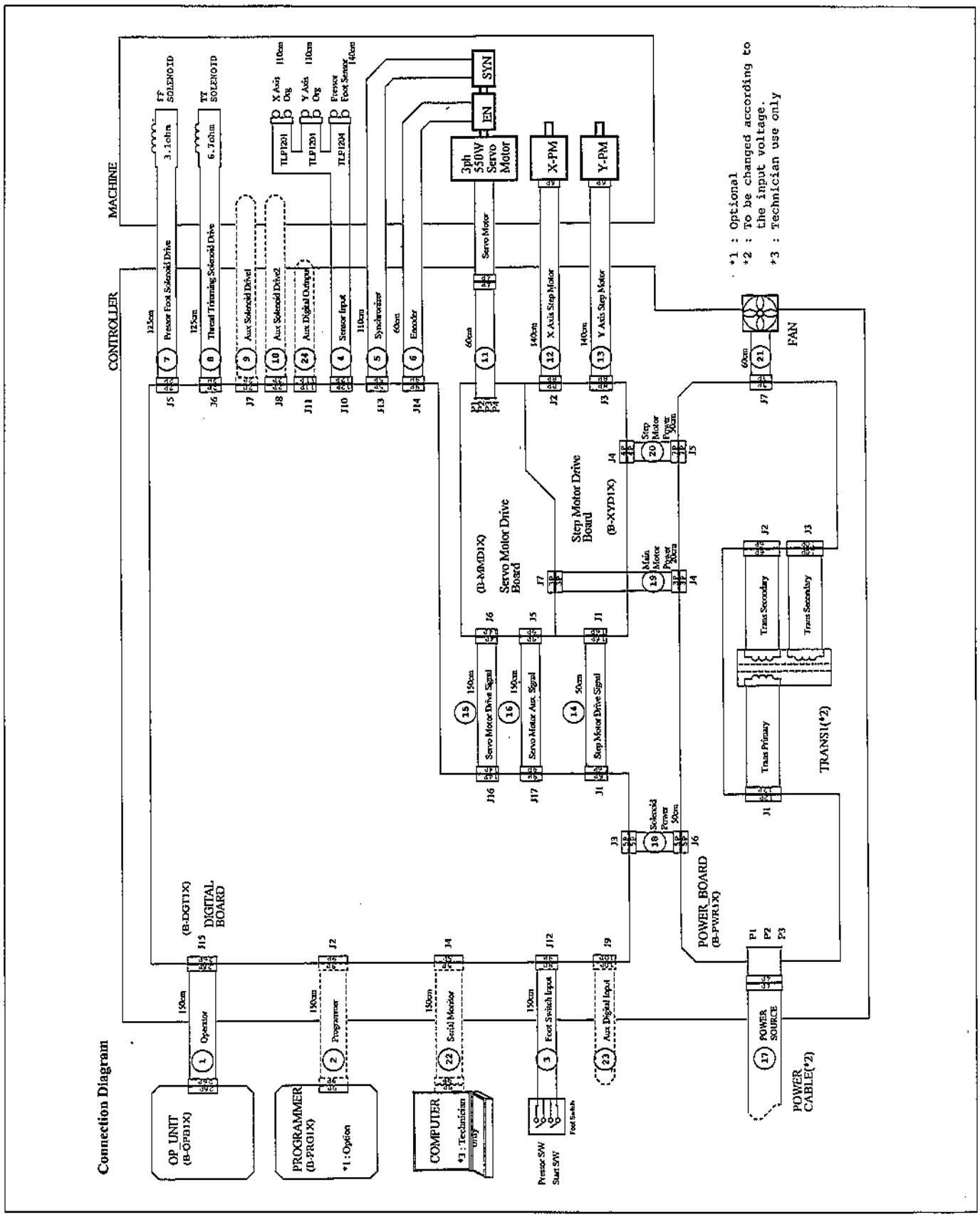
※ For models -L, -K, cables 12-1 and 13-1 are used for cables 12 and 13.

B. For models with air pressure specifications (-HA model)

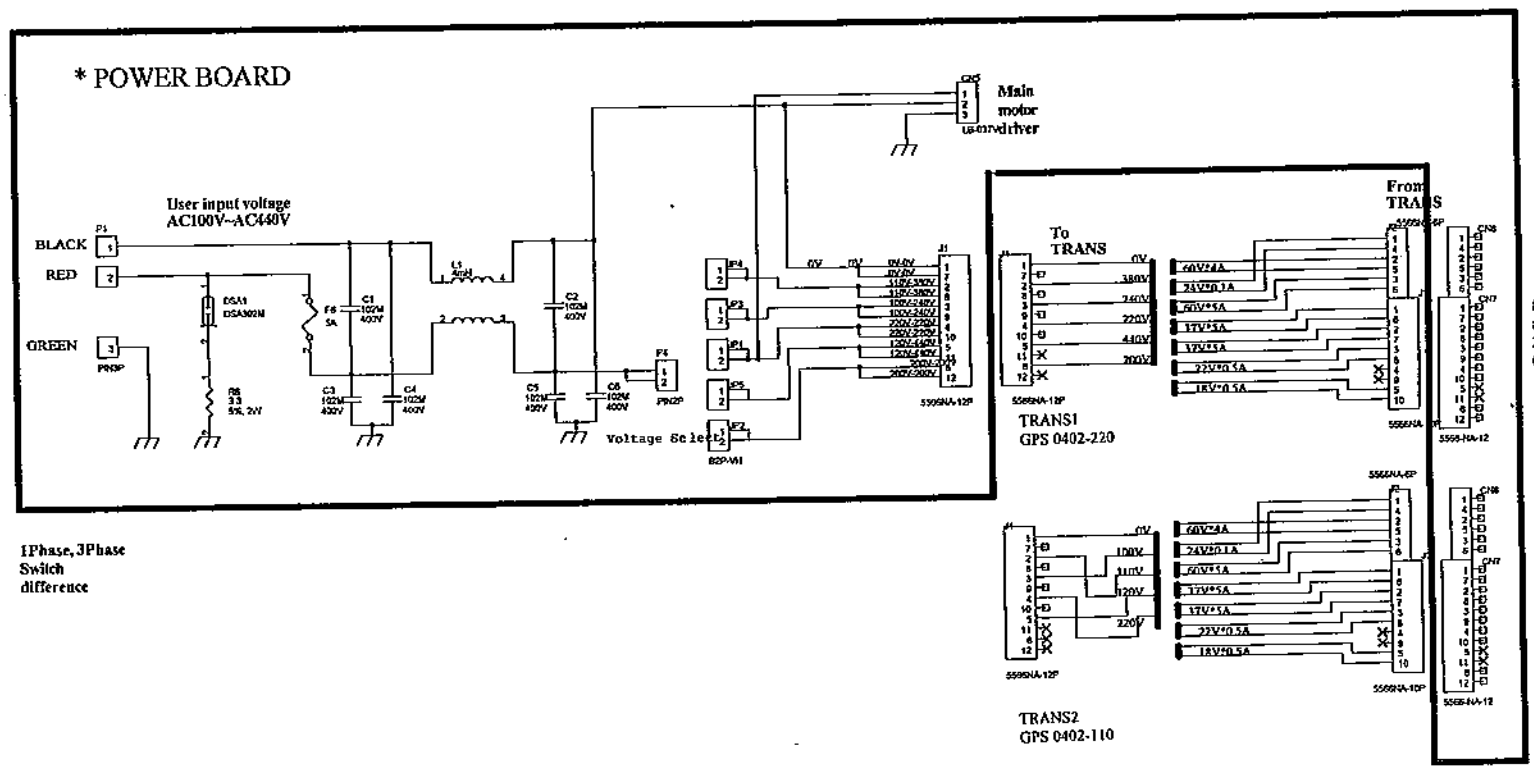


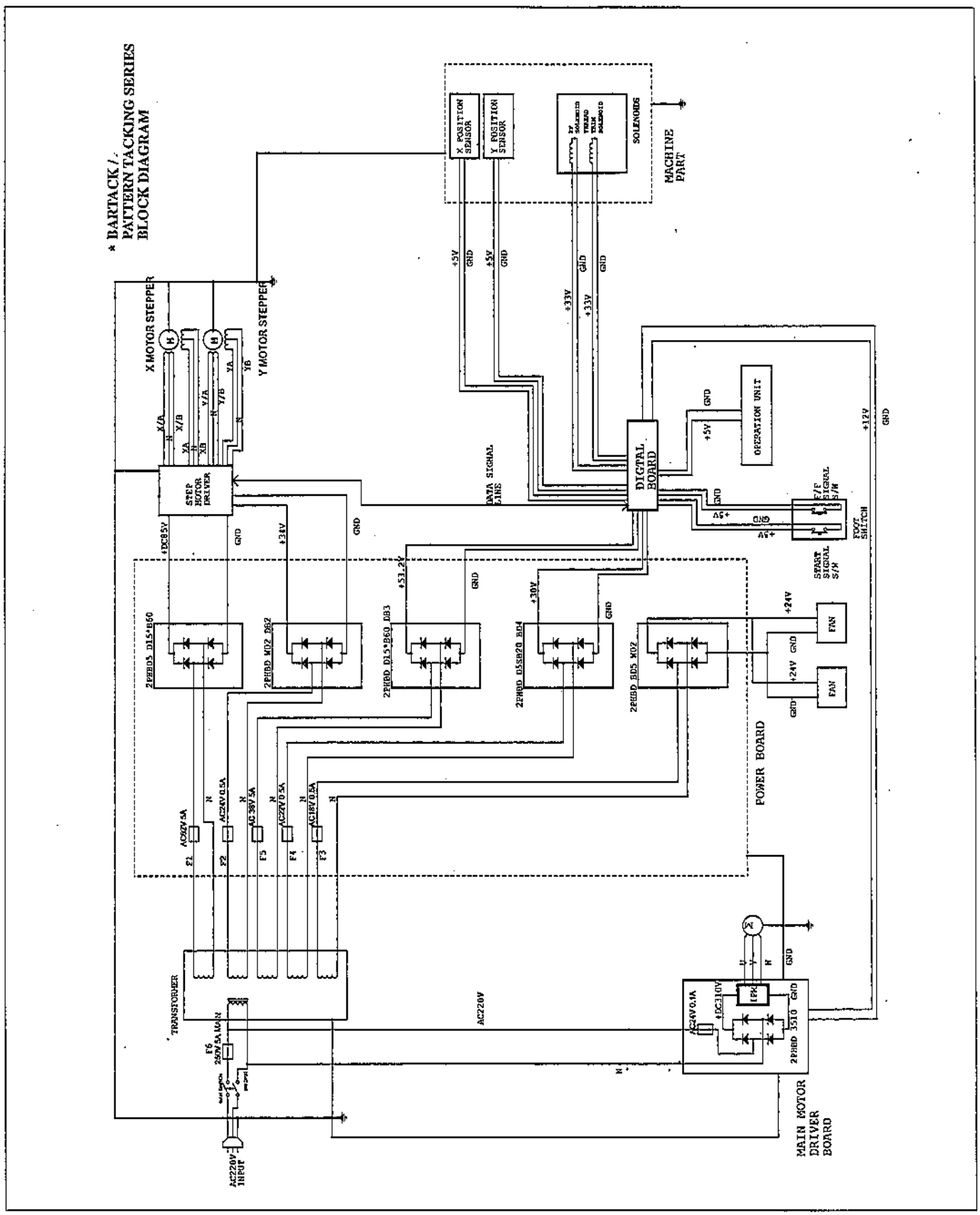
C. When Fixing Hole Device is Attached (-HP Model)




Connection Diagram
MACHINE
CONTROLLER
OP UNIT (B-OPB13X)
PROGRAMMER (B-PRG13X)
*1 : Option
COMPUTER
*3 : Technician only
DIGITAL BOARD (B-DGT13X)
Servo Motor Drive Board (B-MMD13X)
Step Motor Drive Board (B-XYD13X)
POWER BOARD (B-PWR13X)
TRANS1(*2)
FAN
POWER CABLE(*2)
Operator
Programmer
Serial Monitor
Foot Switch Input
Aux Digital Input
Presser Foot Solenoid Drive
Thread Trimming Solenoid Drive
Aux Solenoid Drive1
Aux Solenoid Drive2
Aux Digital Output
Sensor Input
Synchronizer
Encoder
Servo Motor
X Axis Step Motor
Y Axis Step Motor
Servo Motor Drive Signal
Servo Motor Aux. Signal
Step Motor Drive Signal
Main Motor Power
Step Motor Power
Solenoid Power
Trans Primary
Trans Secondary
Trans Secondary
POWER SOURCE
Presser SW
Start SW
Foot Switch
3ph 550W Servo Motor
SYN
EN
X-PM
Y-PM
FF SOLENOID
TT SOLENOID
X Axis Org
Y Axis Org
Presser Foot Sensor
TLP1201
TLP1203
TLP1204
*1 : Optional
*2 : To be changed according to the input voltage.
*3 : Technician use only

* Input voltage type POWER DIAGRAM



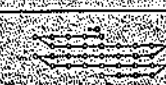

* BARTACK / .
PATTERN TACKING SERIES
BLOCK DIAGRAM
X MOTOR STEPPER
Y MOTOR STEPPER
STEP MOTOR DRIVER
X POSITION SENSOR
Y POSITION SENSOR
SOLENOIDS
MACHINE PART
DIGTAL BOARD
DATA SIGNAL LINE
OPERATION UNIT
POWER BOARD
FAN
MAIN MOTOR DRIVER BOARD
TRANSFORMER
AC220V INPUT
AC220V

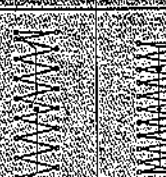
9

How Select the Sewing Pattern List and the Sewing Lange

1) GPS – 0402 series

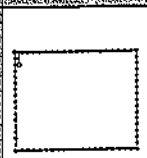
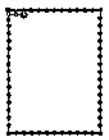
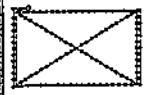
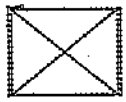
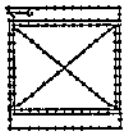
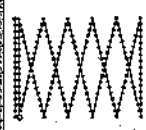
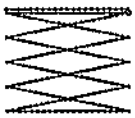
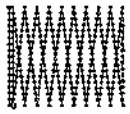
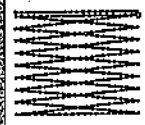
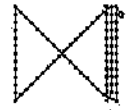
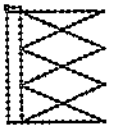
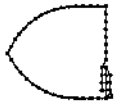
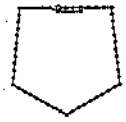
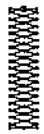
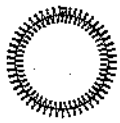
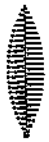
Application	No.	Pattern	Stitch Number	Range of Sewing X (mm)	Range of Sewing Y (mm)
For Heavy and General Materials	1		28	10	2.5
	2			16	2.5
	3		36	10	2.5
	4			16	2.5
	5		42	10	2.5
	6			16	2.5
	7			16	2.5
	8			24	3
	9		56	24	3
	10		64	24	3
For Thin Materials	11		21	6	2.5
	12		28	6	2.5
	13		36	6	2.5
For Knit	14		14	8	2
	15		21	8	2
	16		28	8	2
Straight Line	17		21	10	0

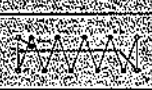
Application	No.	Pattern	Stitch Number	Range of Sewing X (mm)	Range of Sewing Y (mm)
Straight Line	18		28	10	0
	19			25	0
	20		36	25	0
	21		41	25	0
	22		44	35	0
Semi Circle	31		42	11	7
	32		42	11	7

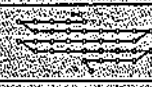
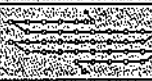
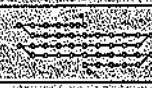
Vertical				
No.	23	24	25	26
Pattern				
Stitch Number	28	36	42	56
Range of Sewing X (mm)	4	4	4	4
Range of Sewing Y (mm)	20	20	20	20

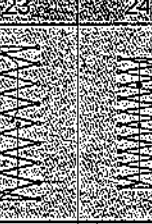
Linear Vertical				
No.	27	28	29	30
Pattern				
Stitch Number	18	21		28
Range of Sewing X (mm)	0	0	0	0
Range of Sewing Y (mm)	20	10	20	20

2) GPS – 0504 series

No.	Pattern	model	Stitch Number	Range of Sewing X (mm)	Range of Sewing Y (mm)
33		B1254	75	50	40
		B1263	75	50	40
34		B1254	59	45	29
		B1263	59	45	29
35		B1254	59	30	40
		B1263	59	30	40
36		B1254	139	50	30
		B1263	139	50	30
37		B1254	159	50	40
		B1263	159	50	40
38		B1254	155	30	35
		B1263	155	30	35
39		B1254	219	50	40
		B1263	219	50	40
40		B1254	229	50	40
		B1263	229	50	40
41		B1254	335	45	40
		B1263	335	45	40
42		B1254	397	50	40
		B1263	397	50	40
43		B1254	84	30	30
		B1263	84	30	30
44		B1254	147	35	40
		B1263	147	35	40
45		B1254	56	33	30
		B1263	56	33	30
46		B1254	56	35	35
		B1263	56	35	35
47		B1254	74	36	36
		B1263	74	36	36
48		B1254	78	8	35
		B1263	78	8	35
49		B1254	116	31	31
		B1263	116	31	31
50		B1254	109	28	28
		B1263	109	28	28
51		B1254	136	28	28
		B1263	136	28	28
52		B1254	122	40	28
		B1263	122	40	28
53		B1254	152	34	31
		B1263	152	34	31
54		B1254	142	40	24
		B1263	142	40	24
55		B1254	65	30	8
		B1263	65	30	8
56		B1254	65	8	30
		B1263	65	8	30

Application	No.	Pattern	Stitch Number	Range of Sewing X (mm)	Range of Sewing Y (mm)
For Heavy and General Materials	1		28	10	2
	2			16	2.5
	3		36	10	2
	4			16	2.5
	5		42	10	2
	6			16	2
	7			16	2.5
	8			24	3
	9		56	24	3
	10		64	24	3
For Thin Materials	11		21	6	2.5
	12		28	6	2.5
	13		36	6	2.5
For Knit	14		14	8	2
	15		21	8	2
	16		28	8	2
Straight Line	17		21	10	0

Application	No.	Pattern	Stitch Number	Range of Sewing X (mm)	Range of Sewing Y (mm)
Straight Line	18		28	10	0
	19			25	0
	20		36	25	0
	21		41	25	0
	22		44	35	0
Semi-Circle	31		42	11	7
	32		42	11	7

Vertical				
No.	23	24	25	26
Pattern				
Stitch Number	28	36	42	56
Range of Sewing X (mm)	4	4	4	4
Range of Sewing Y (mm)	20	20	20	20

Linear Vertical				
No.	27	28	29	30
Pattern				
Stitch Number	18	21		28
Range of Sewing X (mm)	0	0	0	0
Range of Sewing Y (mm)	20	10	20	20

Note) 1. Pattern No. 33 to No. 56 are for label, waving, etc, works.

2. Pattern No. 1 to No. 32 are for Bartack works. Please work after the option gauge has been mounted.
   (When operating Bartack works, be sure to use the standard shuttle hook or the standard bobbin case)
   (In case of Pattern No. 1 to No. 32 and No. 47 to No. 56, Please use it by lowering the maximum sewing speed.)
3. The status of sewing shall be not uniform according to the kind of sewing materials and other conditions in case of patterns fo Bartack works.
   In this case, Please make use of our company' s GPS/A(B) – 0402 series
4. Besides the above 56 Patterns, it is available to provided with 43 patterns additionally.
   (Maximum 99 patterns)

10. BASIC MANUAL

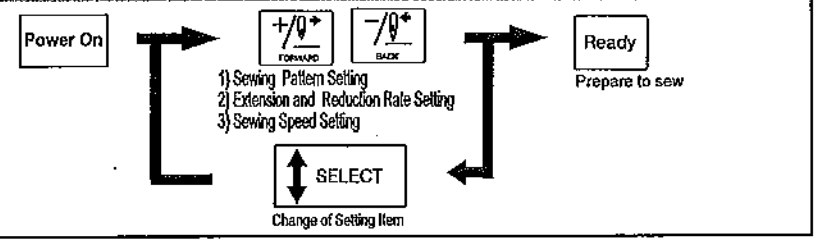
GARUDAN GPS / A (or GPS / B) Series

1. General Sewing : Sew by setting the sewing pattern, extension and reduction rate and sewing speed
2. Use of Using Program : Conveniently call the sewing pattern that you frequent use
3. Use of combined function : Sew by combining the sewing pattern in the order that you want
4. Sewing Pattern Confirming

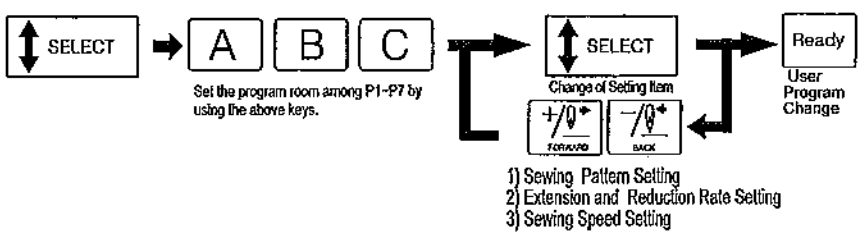
Reference: Turn the power on while pressing the switch

1. User Program Registration — SELECT
2. Use of Combined Function — SELECT + A B C
   Select the group by pressing only one from the three.
3. Parameter — Ready + Reset
4. Parameter Initialization — Reset + +/0 (FORWARD) + −/0 (BACK)
5. Machine Test — A + B + C
6. Inertia Tuning — Ready + −/0 (BACK)

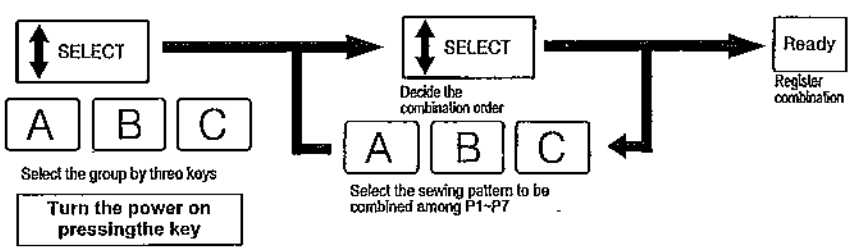
1. General Sewing : Sew by setting the sewing pattern, extension and reduction rate and sewing speed



2. Use of Using Program : Conveniently call the sewing pattern that you frequent use



3. Use of combined function : Sew by combining the sewing pattern in the order that you want



4. Sewing Pattern Confirming : Confirm whether the sewing pattern and presser plate are interfered