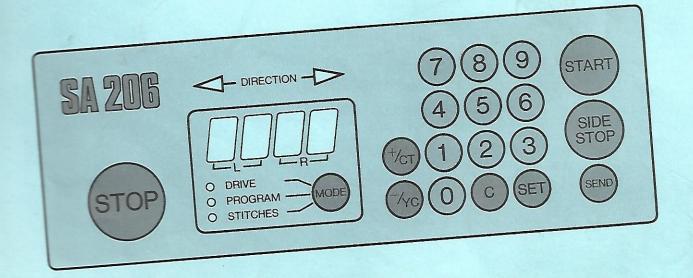
INSTRUCTION BOOK

MOTOR DRIVE UNIT MOD. SA206



CONTENTS

. 1
. 2
. 8
11
19
21

PRECAUTION

* Keep the Machine away from:

Direct Sunlight

Heater or Other Heat Source Rapid Change in Temperature High Humidity or Excessive Dust Corrosive Gas or Chemicals

Excessive Vibration

- * When the Machine is turned off, allow 3 seconds or more before turning the power
- * Grip the plug when Power Cord is inserted or withdrawn.
- * Be sure to turn off the Power Switch before connecting Power Cord to AC mains.
- * Avoid any shock to the Controller as it contains precision electronic components.
- * Never disassemble the Controller to avoid any possible machine failure, electric leakage and electric shock accident.
- * Clean the surface with a damp cloth. (If necessary, use a cloth slightly moistened with water and mild detergent.) Never use Benzine or Thinner as they may mar the finish.

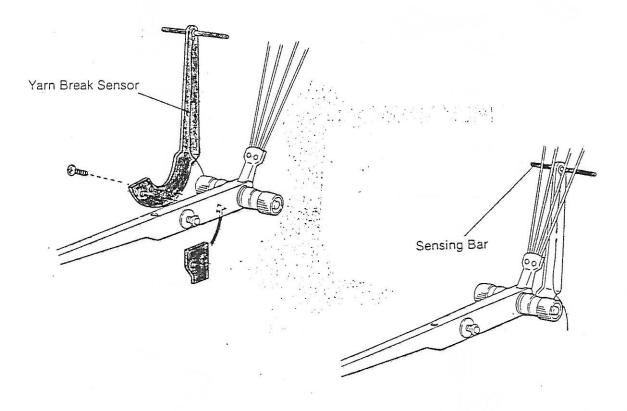
ERRATA

INSTRUCTION BOOK for the MOD. SA206

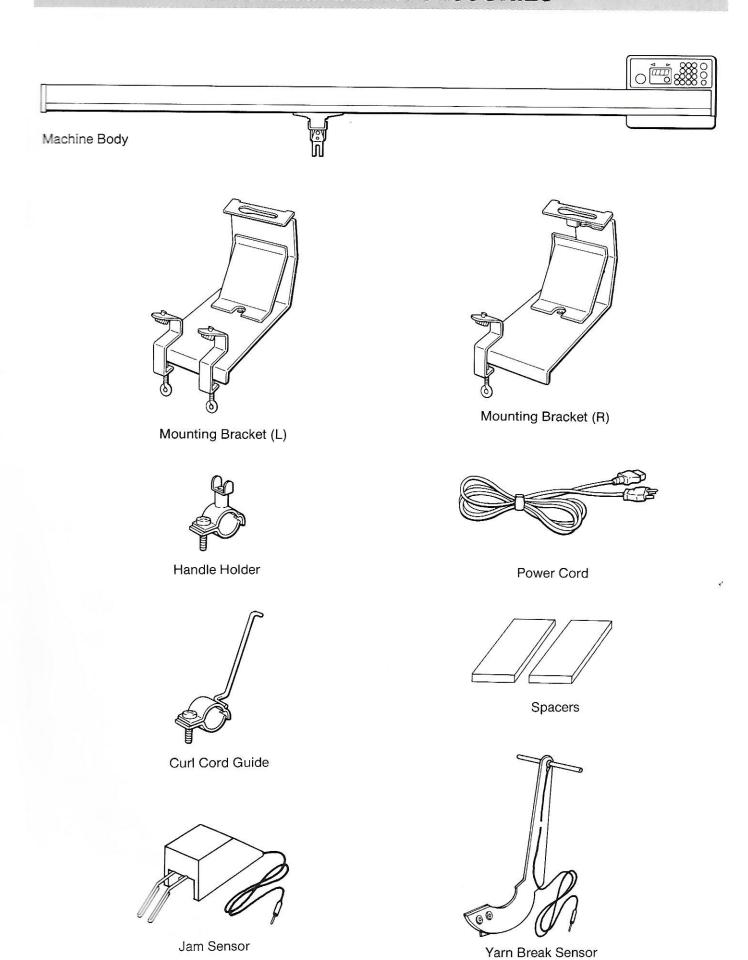
Change the illustration as follows:

- 5. Install the Yarn Break Sensor to Auto-Tension.
 - Separate the Yarn Break Sensor by removing two Screws.
 - Secure the Yarn Break Sensor under Auto-Tension with the Screws:
 - Connect the Yarn Break Sensor Cord to the Controller. (Plug in the left-hand Socket when viewed from the back.)

NOTE: Tension Springs must contact the Sensing Bar on the sensor while the springs are free.



MACHINE AND ACCESSORIES

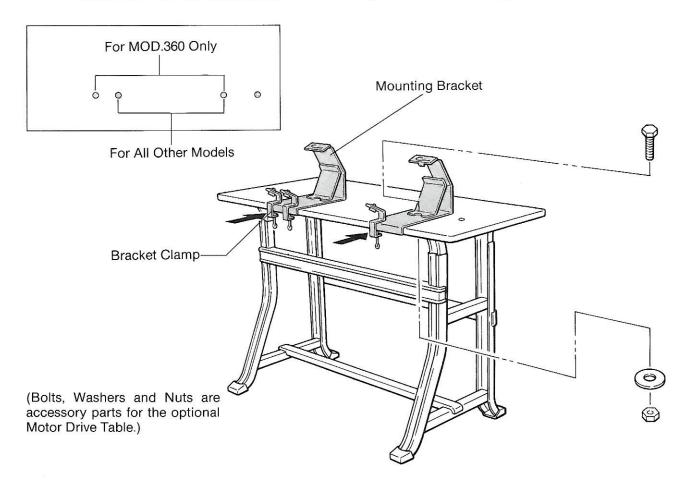


ASSEMBLING THE MACHINE

ASSEMBLY OF THE MACHINE

- 1. Install the Mounting Brackets on the table.
 - According to the Knitter being used, place the Mounting Brackets into position on the optional Motor Drive Table. (See below)
 - Align Locational Holes and secure the brackets with Bracket Clamps, while pressing the clamps against the table.
 - Fit the Bolts with mating Washers and Nuts through Locational Holes.

NOTE: Four Locational Holes are provided on the optional Motor Drive Table. Select the correct Locational Holes according to the Knitter being used:



IMPORTANT: The following models apply to Motor Drive Unit (SA206):

Applicable Models

KNITTER (P = 4.5mm): Punch Card MOD.360, 260 and 600 Knitters

Electronic MOD.560 and 550 Knitters

(P = 3.6mm): Fine Gauge Punch Card MOD.F370 and F270 Knitters

RIBBER (P = 4.5mm): MOD.SRP60 and SRP50 Ribbers

(P = 3.6mm): Fine Gauge MOD.FRP70 Ribber

Conditionally Applicable Models

KNITTER (P = 4.5mm): Punch Card MOD.700; Knit (Radar) Contour Inoperative

(P = 9.0mm): Chunky Punch Card MOD.155 Knitter; Knitting Width Limited to 90 Stitches

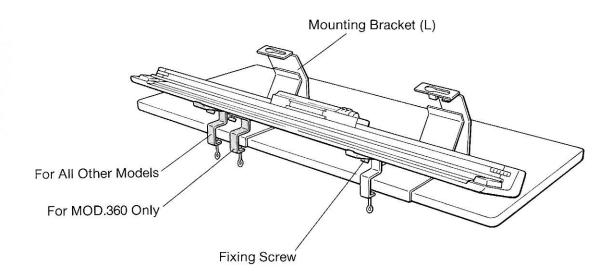
Chunky MOD.151 and 150 Knitters; Special Yarn Rod (Option) Essential

RIBBER (P = 9.0mm): Chunky MOD.SR150 Ribber; Special Connecting Spacers (Option) Essential

2. Install the Knitter on the Bracket Clamps.

- According to the Knitter being used, set the Knitter on the appropriate clamps. (See below)
- Secure the Knitter with Fixing Screws on the clamps. Ensure the Knitter is properly held by the clamps.

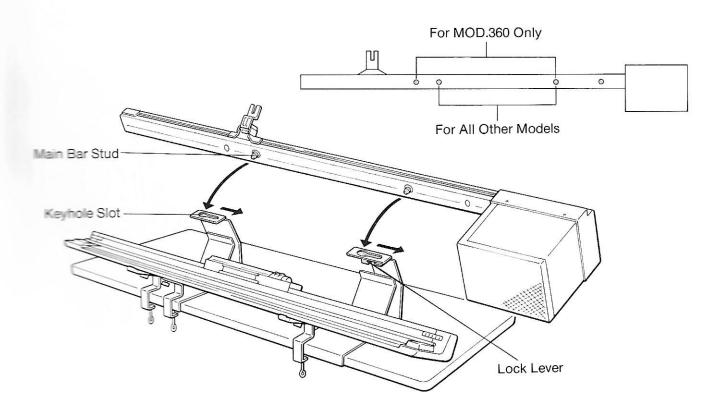
NOTE: Two built-in Bracket Clamps are provided on the Mounting Bracket (L). Use the right-hand clamp for MOD.360 Knitter only and the left-hand clamp for all other models.



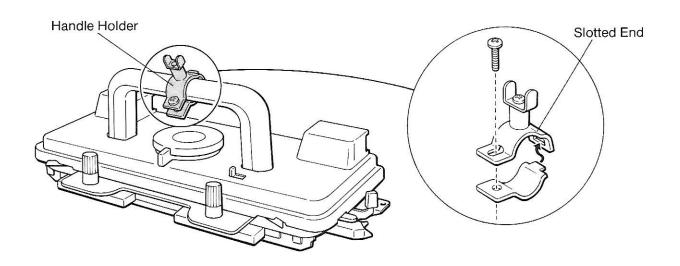
3. Mount the Motor Drive Unit (SA206) on the brackets.

- If necessary, shift the left-hand Main Bar Stud according to the Knitter being used. (See below)
 Use a coin to loosen or tighten the stud at its removal and reinstallation.
- Insert both Main Bar Studs into the Keyhole Slots on the brackets, and slide the SA206 slightly to the right to lock into position.
 - It may be necessary to push in the Lock Lever on the Mounting Bracket (R), if not restored in place.

NOTE: Four Tapped Holes for Main Bar Studs are provided under Main Bar. Select the correct holes according to the Knitter being used:

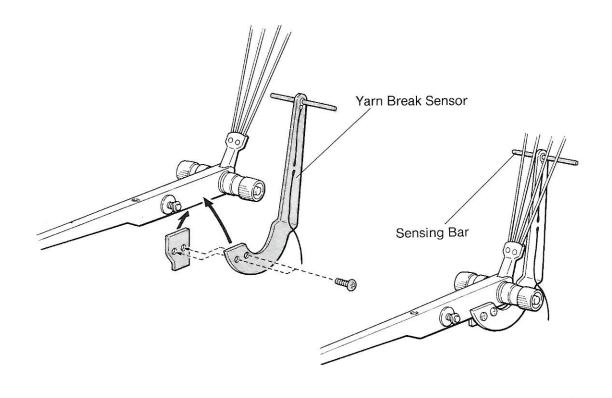


- 4. Install the Handle Holder at the center of Knitter Carriage Handle.
 - Separate the Handle Holder by removing the Screw.
 - Fit the Handle Holder at the center of Knitter Carriage Handle with its slotted end away from you.
 - Loosely fasten the Screw to secure the Handle Holder temporarily.



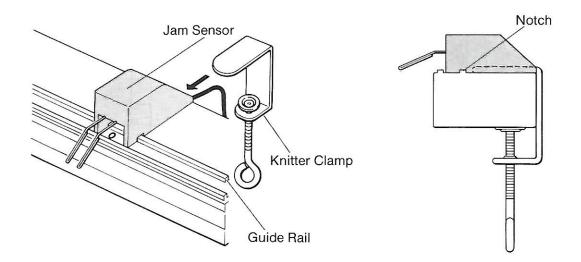
- 5. Install the Yarn Break Sensor to Auto-Tension.
 - Separate the Yarn Break Sensor by removing two Screws.
 - Secure the Yarn Break Sensor under Auto-Tension with the Screws.
 - Connect the Yarn Break Sensor Cord to the Controller. (Plug in the left-hand Socket when viewed from the back.)

NOTE: Tension Springs must contact the Sensing Bar on the sensor while the springs are free.



6. Install the Jam Sensor on Main Bar at center "0".

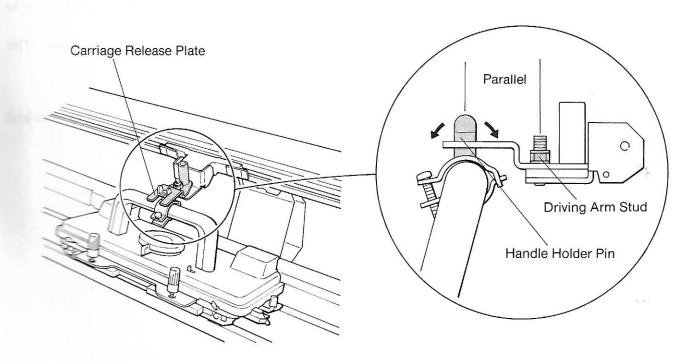
- Place the Jam Sensor on Main Bar at center "0" with its notch fitted onto Guide Rail.
- Secure the Jam Sensor to Main Bar with Knitter Clamp.
- Connect the Jam Sensor Cord to the Controller. (Plug in the right-hand Socket when viewed from the back.)



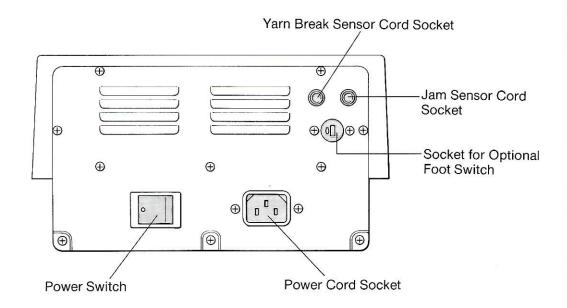
7. Connect the Driving Arm to Knitter Carriage.

- Engage the Carriage Release Plate on Driving Arm with Handle Holder.
- Adjust the position of Handle Holder so that Handle Holder Pin is parallel to Driving Arm Stud.
- Retighten the Screw securing Handle Holder.

NOTE: If both pins are not parallel to each other, the Carriage cannot be released smoothly from Driving Arm when jammed.



8. Connect the Power Cord to the Controller.



- 9. Plug the Power Cord into AC mains.
- *TO DISASSEMBLE THE MACHINE, PULL THE LOCK LEVER TOWARD YOU TO UNLOCK THE SA206, THEN REVERSE THE ABOVE PROCEDURE.

STOP MOTIONS

Carriage Jam Stop

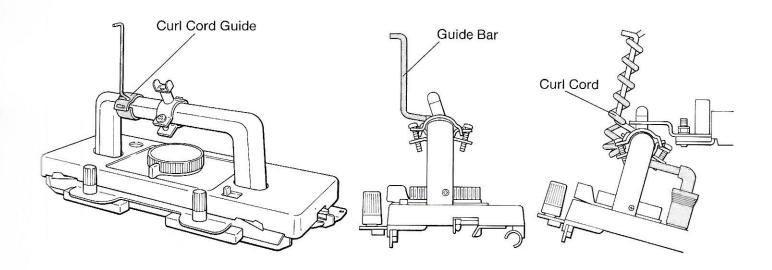
- *When unusual load is applied to the Carriage under normal operating conditions, the Carriage Release Plate will rotate to release the Carriage from Driving Arm. At the same time, the Driving Arm will leap up to contact the Jam Sensor and cause the Machine to stop automatically.
- *To resume the machine operation, press START key after reconnecting the Carriage to Driving Arm. (The Carriage Release Plate can manually be rotated into position.)

Yarn Break Stop

- * When the yarn breaks during knitting, the Tension Spring will leap up to contact the Yarn Break Sensor and cause the Machine to stop automatically.
- *To resume the machine operation, press START key after rethreading the yarn properly.

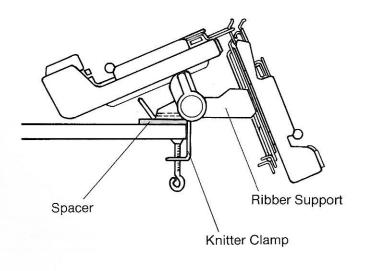
NECESSARY NOTES WHEN USING ELECTRONIC KNITTER

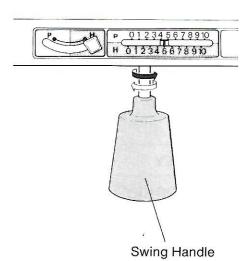
- *Be sure to install the Curl Cord Guide at the left-hand side of Knitter Carriage Handle with its slotted end toward you in the same manner as for Handle Holder. Position the Guide Bar on Curl Cord Guide at a right angle to the top face of Knitter Carriage.
- *Be sure to bring the Curl Cord under Knitter Carriage Handle and wind the cord around the Guide Bar.



NECESSARY NOTES WHEN USING KNITTER WITH RIBBER

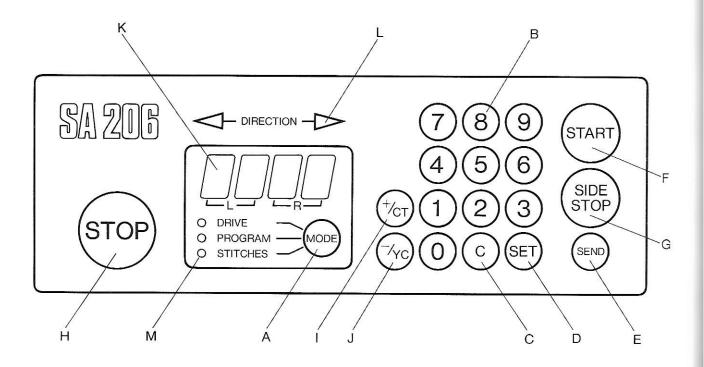
- *Be sure to insert the Spacers under both Ribber Supports.
- *Position the Ribber at H-5 or P-5 by turning Swing Handle, except when knitting racked patterns.
- *When knitting racked patterns, the maximum knitting width is limited to LEFT-90/RIGHT-90.





CONTROLLER OF THE MACHINE

CONTROL PANEL ON CONTROLLER



A.	MODE KEY	Used to select the mode of operation.			
B.	DIGIT KEY	Used to specify the numbers.			
C.	CLEAR KEY	Used to clear the memory of any previous programs. Also used to cancel entered data.			
D.	SET KEY	Used to enter specified numeric data into the memory. Also used to verify memory contents of the step counters, and to initialize the program.			
E.	SEND KEY	Used to advance one step counter at a time. Also used to shift the Row Number Display from the 4 low-order digits to the 4 high-order digits, and vice versa.			
F.	START KEY	Used to start the operation of the Machine.			
G.	SIDE STOP KEY	Used to stop the Carriage at either side of Needle Bed.			
Н.	EMERGENCY STOP KEY	Used to stop the Carriage anywhere within its limits of travel.			

I.	ADD/CONTINUE KEY	Provides dual function: "ADD" (+):	Used to add desired row number to the accumulated row number currently displayed.
		"CONTINUE" (CT):	Used to enter "CONTINUE" instruction to knit continuously. To cancel entered "CONTINUE" instruction, press this key once again.
J.	DEDUCT/YARN CHANGE KEY	Provides dual function:	
		"DEDUCT" (—):	Used to deduct desired row number from the accumulated row number currently displayed.
		"YARN CHANGE" (YC):	Used to enter "YARN CHANGE" instruction to knit with the yarn changing. To cancel entered "YARN CHANGE" instruction, press this key once again.
K.	DISPLAY WINDOW	Offers a choice of: 1. Row Number Display 2. Program Display 3. Knitting Width Display	/
			. Accumulated Row Number . Countdown of Pre-set Row Number
			. Accumulated Row Number . Step Counter Number (C1-C16)
L.	DIRECTION INDICATOR LAMP	Indicates the direction of	the Carriage.
M.	MODE LAMP	Indicates the selected model Also indicates entered "C tion: "CONTINUE": "YARN CHANGE":	ode of operation. ONTINUE" "YARN CHANGE" instruc- Upper Mode Lamp blinks. Lower Mode Lamp blinks.

PROGRAM MEMORY OF CONTROLLER

* In the SA206, the keystrokes that make up a control program are stored in the program memory of the Controller. The memory consists of 16 step counters numbered C1 to C16, in which you can store control programs independently to create a knitting program. A loop of the Step Counter No.C1 to C16 will be formed when fully occupied. But, if any empty step counter (0) exists within the memory, the Controller will form a smaller program loop without execution of subsequent step counters.

Row Number Setting

*The row numbers from 1 to 9999 can be preset in each step counter. More digits result in overflow and cannot be stored.

Main Functions

* The Controller offers the following functions:

1. Every Row Side Stop If no "CONTINUE" instruction is entered, the Carriage will stop at either side of

Needle Bed every row until the pre-set number of rows has been knitted. (Press

START key after each stop.)

Take note the Controller will repeat this motion endlessly unless any control

program is stored in the memory.

2. Continuous Knitting If the "CONTINUE" instruction is entered, the Carriage will continue to travel

until the pre-set number of rows has been knitted.

3. Knitting Width Setting The Carriage will travel within the pre-set knitting width. The knitting width

from 30 to 99 can be preset on each side of center "0" (LEFT-30 to 99/RIGHT-30 to 99). The width numbers less than 30 result in underflow and are automatically set to 30. The width numbers more than 99 result in overflow and cannot be

stored.

4. Yarn Change Motion If the "YARN CHANGE" instruction is entered, the Carriage will move to the

extreme left beyond the pre-set knitting width so as to change the yarn for the

other on carriage traverse from right to left.

Special Functions

* Entering the digit "0" serves special functions within the memory as follows:

1. Endless Repeat If the digit "0" is entered together with "CONTINUE" instruction, the Carriage

will continue to travel endlessly.

If the digit "0" is entered together with both "CONTINUE" and "YARN

CHANGE" instructions, the Carriage will continue to travel endlessly with the

yarn changing.

2. Program Skip If the digit "0" is entered together with "YARN CHANGE" instruction anywhere

in a knitting program, the Controller will skip the exeution of related step

counter specified by "0" within the program loop.

KEYBOARD OPERATIONS IN EACH MODE

MODE OF OPERATION

*The Controller can be operated in any of 3 modes of operation. The mode can be changed in circular shift at each press of MODE key. The selected mode is indicated by Mode Lamp (Upper/Center/Lower) on the Control Panel.

DRIVE MODE:

Used to drive the Carriage.

PROGRAM MODE: Used to enter the program.

STITCHES MODE: Used to set the knitting width.

KEYBOARD OPERATIONS IN DRIVE MODE

To Display Accumulated Row Number

- Press MODE key to select DRIVE Mode, and the accumulated row number appears on the display.

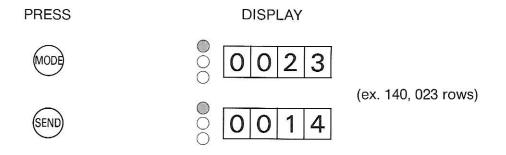
PRESS	DISPLAY	
MODE	0 432	(ex. 432 rows)

To Shift Row Number Display

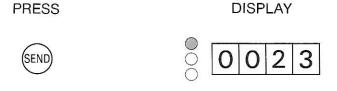
*The Row Counter contains 8 digits and usually displays the 4 low-order digits. The Row Number Display can be shifted to another 4 high-order digits by pressing SEND key.

NOTE: If the Row Counter contains significant digits (1—9) in its 4 high-order digits, the number preceded by "0" will be displayed in its 4 low-order digits. If not, such left-hand "0" will be justified.

Press SEND key to shift the Row Number Display.



To return the display, press SEND key again.

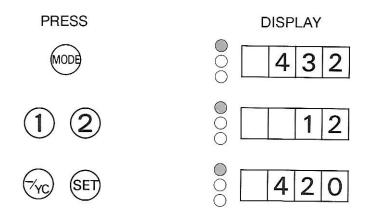


To Correct Accumulated Row Number

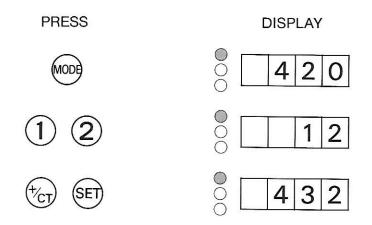
*The correction of the accumulated row number can be accomplished in the following 2 different manners. Choose whichever method you like.

METHOD 1: CALCULATION

— Deduct desired number from the accumulated row number currently displayed.

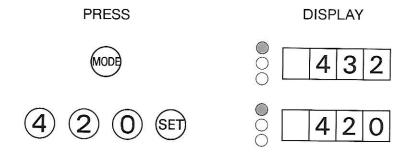


— Add desired number to the accumulated row number currently displayed.



METHOD 2: REENTRY

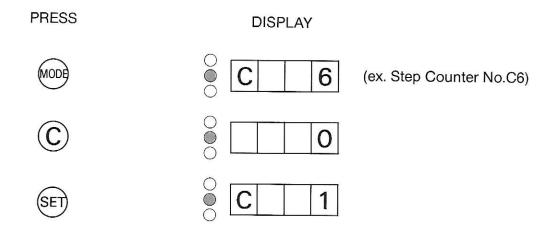
- Enter desired number over the accumulated row number currently displayed.



KEYBOARD OPERATIONS IN PROGRAM MODE

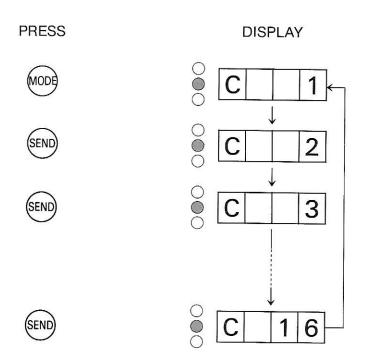
To Clear the Memory of Any Previous Programs

- Select PROGRAM mode to display the step counter number.
- Press CLEAR and SET keys in sequence to clear the memory of any previous programs.



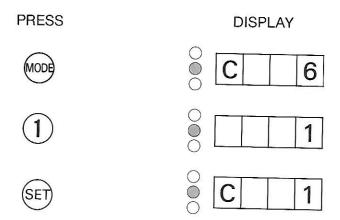
To Advance Step Counter

 Press SEND key to advance the step counter. Each press of SEND key advances one step counter at a time in circular shift.



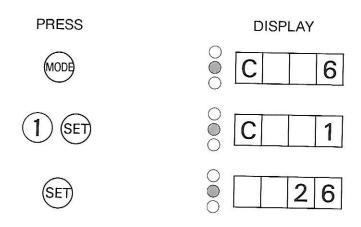
To Call Desired Step Counter

Enter the number for desired step counter over the step counter number currently displayed.

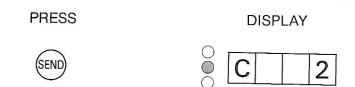


To Verify Contents of Step Counter

- Call desired step counter of which contents need to be verified.
- Press SET key to verify the contents.

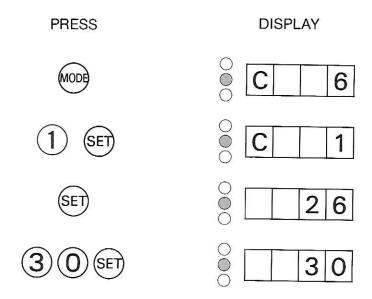


Proceed to the next step counter to finish the procedure.



To Change Pre-set Row Number

- Call desired step counter of which contents need to be changed.
- Press SET key to verify the contents.
- Enter desired row number over the number to be changed.



Proceed to the next step counter to finish the procedure.

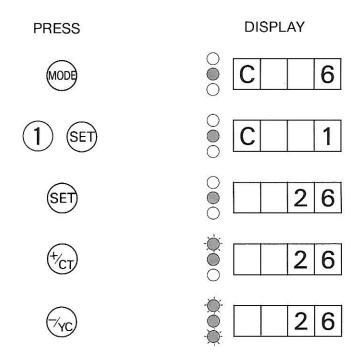
PRESS DISPLAY

SEND

C
2

To Change "CONTINUE"/"YARN CHANGE" Instruction Setting

- Call desired step counter of which contents need to be changed.
- Press SET key to verify the contents.
- Press (+/CT) key to enter "CONTINUE" instruction.
- Press (-/YC) key to enter "YARN CHANGE" instruction.



Proceed to the next step counter to finish the procedure.

PRESS DISPLAY

C C 2

KEYBOARD OPERATIONS IN STITCHES MODE

To Display Pre-set Knitting Width

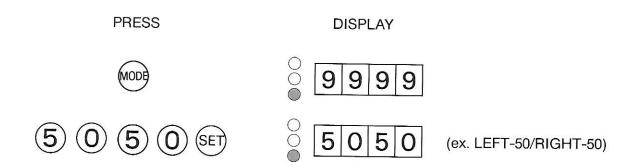
- *When the mode is set to STITCHES, the pre-set knitting width appears on the display; if the knitting width number has not previously been stored by keying, the number 9999 (LEFT-99/RIGHT-99) will automatically be set. The leftmost 2 digits indicate the left end stop and the rightmost 2 digits indicate the right end stop, respectively.
- Press MODE key to select STITCHES mode, and the pre-set knitting width appears on the display.

DISPLAY

O 9 9 9 9 (ex. LEFT-99/RIGHT-99)

To Change Pre-set Knitting Width

 Enter each 2 digits for desired left and right end stops in sequence over the pre-set knitting width currently displayed.



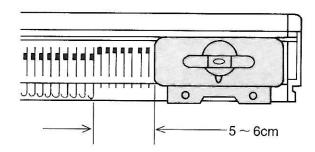
NOTE: If the error entry has been made by mistake, press CLEAR key to cancel the entered data and reenter the correct knitting width number.

NECESSARY NOTES WHEN DETERMINING KNITTING WIDTH NUMBER

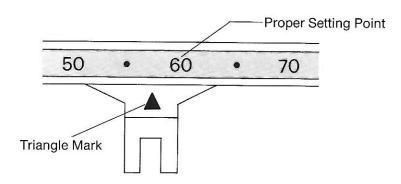
*The Main Bar Scale is numbered 30 to 90 outward from center "0" in both directions. Each dot denotes 5, giving 14 settings altogether on each side. The Main Bar Scale simply shows the reference setting points, and the scale does not correspond to Needle Bed Scale because the Knitters of various gauges (2.8G to 7G) can be operated with the SA206.

To Determine Knitting Width Number

1. Position the Carriage 5—6cm away from the edge of the working needles.



- 2. Connect the Driving Arm to the Carriage.
- 3. Read the setting point indicated by the Triangle Mark on Driving Arm. Get a little safety factor by selecting a nearest larger point ("5" increments).



- 4. Repeat the steps (1) (3) on opposite side.
- 5. Enter the measured points for the knitting width from the keyboard.

 Take note the maximum width number is 9999 (LEFT-99/RIGHT-99) covering full working width, and the minimum width number is 3030 (LEFT-30/RIGHT-30).

OPERATIONAL PROCEDURES FOR KNITTING

NEW KNITTING FROM THE FIRST STEP

Preparatory Steps for New Knitting

- 1. Arrange required number of needles, and determine proper setting points for both left and right end stops.
- 2. Work cast-on and waste knitting before running the program. (It is recommended to perform this step manually before you get to know your SA206 well enough.)
- 3. Eliminate yarn slack on Auto-Tension.
- 4. Complete necessary preparation for main knitting.

Operational Procedure for New Knitting

* Follow the Operation Table to start knitting from the first step.

NOTE: Apply your own program to the step (4) given in the Operation Table below.

For practice, enter Sample Programs (1) to (4) on pages 21 — 23 to get acquainted with the SA206.

NEW KNITTING

	OPERATION	PRESS	DISPLAY	REMARK
1.	Turn the power on.	0	432	Accumulated row number appears.
2.	Select PROGRAM mode.	MODE	© C 6	Center Mode Lamp lights up. Any of step counter numbers appears.
3.	Clear the memory of any previous programs.	© SET	© C 1	Step Counter No.C1 is automatically called.
4.	Enter necessary control data.	SETSEND	NNNN	Make up your own program at will within memory capacity. (See pages 21 — 24)
5.	Call the Step Counter No.C1.	1 SET	© C 1	
6.	Select STITCHES mode.	MODE	9999	Lower Mode Lamp lights up. Pre-set knitting width is verified.
7.	If necessary, enter desired width number. (ex. Number 5050)	5050	5050	Knitting width is newly set to LEFT-50/RIGHT-50.
8.	Select DRIVE mode.	MODE	432	Upper Mode Lamp lights up. Accumulated row number appears again.
9.	If necessary, clear the Row Number Display.	© SET	0 0	Row Number Display is reset to 0.
10.	Initialize the program.	SET)	0	
11.	Start the Machine.	START	0	

CONTINUED KNITTING AFTER SHORT OR LONG POWER FAILURE

Preparatory Steps for Continued Knitting

- 1. Eliminate yarn slack on Auto-Tension.
- 2. Complete necessary preparation for main knitting.

Operational Procedure for Continued Knitting

* Follow the Operation Table to continue knitting after power failure.

NOTE: The Controller will keep the memory contents for 7 days, even if the power is turned off. When the power is back on after a long power failure over 7 days, the Controller may displays accumulated row number "0". In this case, the Controller no longer retains backup memory because a self-contained battery (rechargeable) is completely discharged. Reenter the program from the first step.

CONTINUED KNITTING

1.	Turn the power back on.		9 432	Accumulated row number appears.
				If the digit "0" appears, the backup memory is no longer retained. Reenter the program.
2.	Start the Machine.	START	6 432	

MAKING UP YOUR OWN PROGRAM

- (a) Row Number Setting
- (b) Every Row Side Stop
- (c) Continuous Knitting
- (d) Yarn Change Motion
- (e) Endless Repeat

PROGRAM 1: (a) + (b)

TO KNIT 10 ROWS, RESTING THE CARRIAGE AT EITHER SIDE EVERY ROW

	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of Step Counter No.C1.	(SET)	0	
2.	Enter 10 rows.	108		
3.	Proceed to Step Counter No.C2.	SEND	© C 2	

PROGRAM 2: (a) + (b) + (c)

TO KNIT 10 ROWS CONTINUOUSLY AND STOP THE CARRIAGE UPON COMPLETION OF 10TH ROW

	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of Step Counter No.C2.	SET		
2.	Enter 9 rows.	9 (SET)	9	
3.	Enter "CONTINUE" instruction.	(*c _T)	9	Upper Mode Lamp blinks.
4	Proceed to Step Counter No.C3.	SEND	© C 3	
5.	Verify the contents of Step Counter No.C3.	SET		
6.	Enter 1 row. out to Stop	1 SET		
7.	Proceed to Step Counter No.C4.	SEND	© C 4	

^{*}Through a combination of prescribed functions, you can make up your own program as you like from the keyboard within memory capacity (16 step counters):

^{*}To help your understanding, the Sample Programs are listed below:

PROGRAM 3: (a) + (b) + (d)

TO KNIT 10 ROWS WITH THE YARN CHANGING, RESTING THE CARRIAGE AT EITHER SIDE EVERY ROW

NOTE: Automatic Yarn Changer YC6 or YC5 is essential in actual knitting.

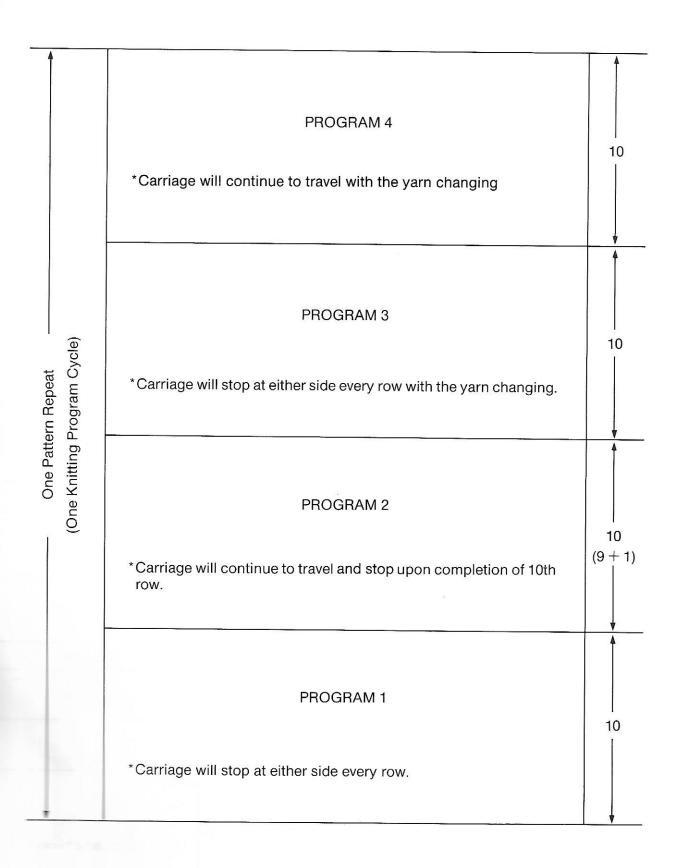
	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of Step Counter No.C4.	SET		
2.	Enter 10 rows.	108		
3.	Enter "YARN CHANGE" instruction.	√vo	10	Lower Mode Lamp blinks.
4.	Proceed to Step Counter No.C5.	SEND	© C 5	

PROGRAM 4: (a) + (c) + (d)

TO KNIT 10 ROWS CONTIINUOUSLY WITH THE YARN CHANGING

NOTE: Automatic Yarn Changer YC6 or YC5 is essential in actual knitting.

	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of Step Counter No.C5.	SET	0	
2.	Enter 10 rows.	1081		
3.	Enter "CONTINUE" instruction.	€ _G	10	Upper Mode Lamp blinks.
4.	Enter "YARN CHANGE" instruction.	\	10	Lower Mode Lamp blinks
5.	Proceed to Step Counter No.C6.	SEND	© C 6	



PROGRAM 5: (a) + (c) + (d)

TO KNIT CONTINUOUSLY, CHANGING THE YARN EVERY 10TH ROW

NOTE: Start the Carriage from the left to arrange the carriage traverse from right to left every 10th row.

Automatic Yarn Changer YC6 or YC5 is essential in actual knitting.

	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of Step Counter No.C1.	SET	0	
2.	Enter 9 rows.	9 (SET)	9	
3.	Enter "CONTINUE" instruction.	(cr)	9	Upper Mode Lamp blinks.
4.	Proceed to Step Counter No.C2.	SEND	© C 2	
5.	Verify the contents of Step Counter No.C2.	(SET)	0	
6.	Enter 1 row.	1 SET		
7.	Enter "CONTINUE" and "YARN CHANGE" instructions.	€cr €vo		Upper and Lower Mode Lamps blink.
8.	Proceed to Step Counter No.C3.	SEND	© C 3	

PROGRAM 6: (e) + (c)

TO KNIT ENDLESSLY WITHOUT STOP

NOTE: This program can be entered anywhere in the program memory as the execution of the program stays within the specified step counter.

	OPERATION	PRESS	DISPLAY	REMARK
1.	Verify the contents of desired step counter.	SET	NNNN	
2.	Simply leave its contents empty (0), if the specified step counter is empty.			
	Enter the digit "0", if the specified step counter is not empty.	O SET		
3.	Enter "CONTINUE" instruction.	(ст)		Upper Mode Lamp blinks.
4.	Proceed to the next step counter.	SEND	CN	