

Service Manual for Knitting Machine

BROTHER

MODEL KH-800



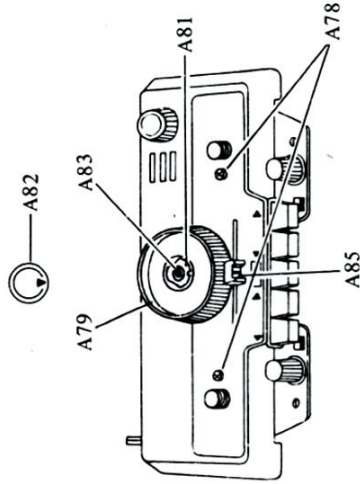
I N D E X

Disassembling of the Carriage	1
Assembling of the Carriage	5
Disassembling of the Machine Body	9
Assembling of the Machine Body	13
Checking of the Needle Selection Mechanism	17
How to adjust individual part; Carriage	18
How to adjust individual part; Machine Body	21

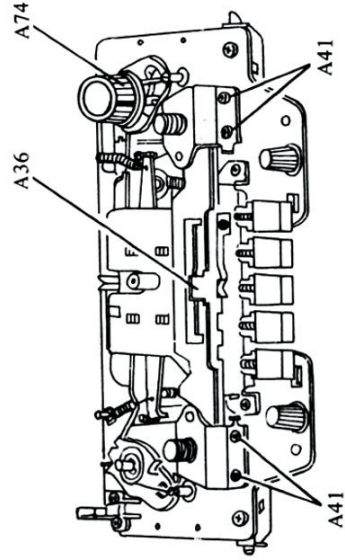
DISASSEMBLING OF THE CARRIAGE

1. Removal of the Tension dial (A79)

2. Removal of the Carriage cover (A76)



3. Removal of the Handle setting screws (A39 & 40)

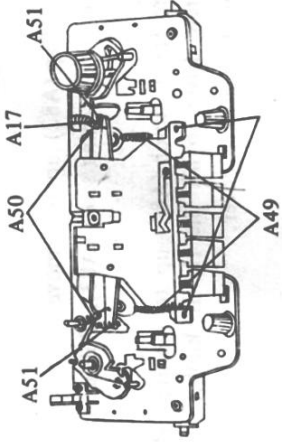


1.1 Pull the Cap (A82) up to remove.
1.2 Remove the Fastening screw (A83). Pull up the Tension dial.

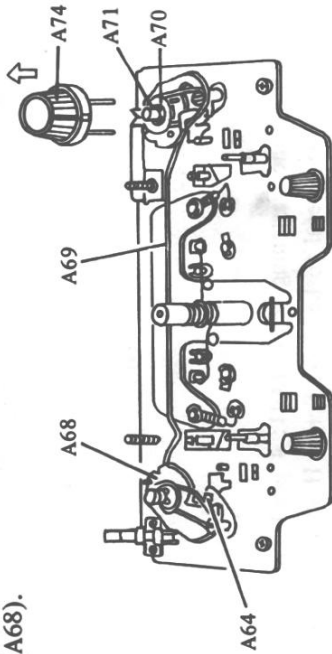
2.1 Pull the H.C.L. knob (A85) up to remove. (Use the small (-) screw driver to lift the H.C.L. knob.)
2.2 Lift up the Carriage cover.

3.1 Remove the Fastening screws (A41; 4 pcs.)
Note: Be careful to keep the Screw Head of these screws when removing because they are fastened very tightly. And
3.2 Move the right Handle setting screw (A39) to right. And remove it.
3.3 Move the left Handle setting screw (A40) to left. And remove it.
3.4 Lift the Holding cam lever (A36) to remove.
3.5 Remove both Holding cam spring from both Holding cams.

4. Removal of the Pattern selector button unit (A21-34)



5. Removal of the MC knob (A74) and the Switch cams (A68).



6. Removal of the MC cams (A63 & 64).



4.1 Remove both Raising cam springs (A50) from the Rear foot (A44).

4.2 Disconnect the end of the Raising cam change springs (A51) on the side of the pins with using a Latch tool.

4.3 Disconnect the end of the Stitch cam guide plate springs (A49) each on the side of the Pattern selector button unit with the Latch tool.

4.4 Remove the Fastening screws (A43).

4.5 Pull the unit toward yourself, then lift and remove.

5.1 After shifting to the MC position, pull out the MC knob (A74).

5.2 Remove the right and left Snap rings (A71) with a small screw driver, then the Washers (A70).

5.3 Remove both MC cam springs (A73).

5.4 When the right and left Switch cams (A68) are pulled out, move the Switch cam connecting wire (A69) concurrently.

6.1 Loosen the Stud for MC cam (A67) with a screw driver.

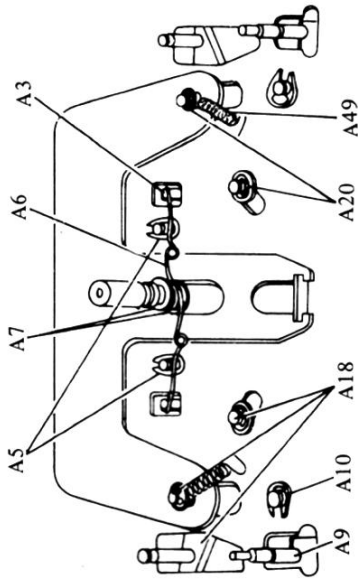
Note: The Stud for MC cam is fastened tightly so that care should be exercised not to let screw driver slip.

6.2 Then the MC cam (A67), MC cam presser plate (A65) and Collar for MC cam (A66) all together with be removed concurrently.

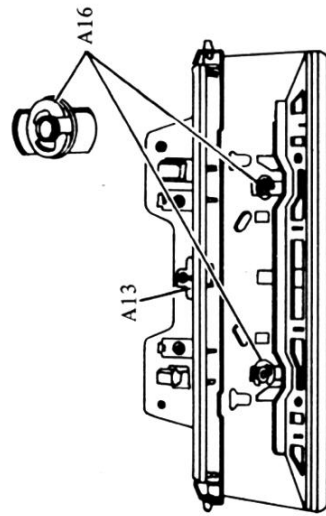
7. Removal of the Holding cams (A8 & 9).

8. Removal of the Tucking cams (A3 & 4).

9. Removal of the Stitch cams (A17 & 18).



10. Removal of the Stitch cam guide plate (A12).



7.1 Remove the Snap rings (A10) with a small screw driver.
7.2 Remove the Holding cams (A8 & 9).

8.1 Remove the Washer (A7) and then the Tuck cam spring (A6) from the Tuck cams (A3 & 4).
8.2 Remove another Washer (A7).
8.3 Remove the Snap rings (A5).
8.4 Remove the Tuck cams (A3 & 4).

9.1 Remove the Snap rings (A20; 4 pcs.) so that the Stitch cam guide plate springs (A49) drop down together with Stitch cams.

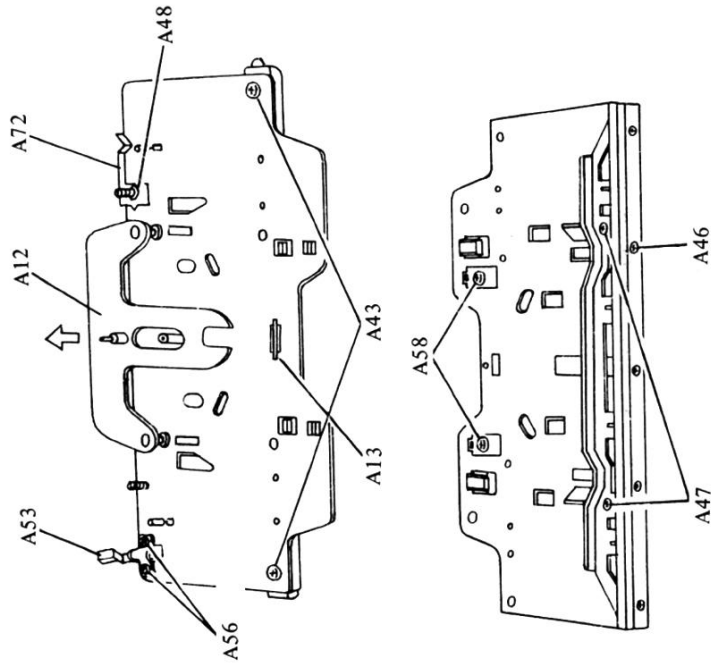
10.1 Remove the Snap rings (A16) from the back side of the Carriage plate (A1).

10.2 Remove the Fastening screw (A14).

10.3 Lift the Stitch cam guide plate pin (A12) and move the Stitch cam guide plate in the direction of an arrow to remove. (See Fig.8 on next page.)

10.4 Remove the Fastening screws (A43) to remove the front foot (A35).
(The Stitch cam adjuster plate (A13) will be removed simultaneously.)

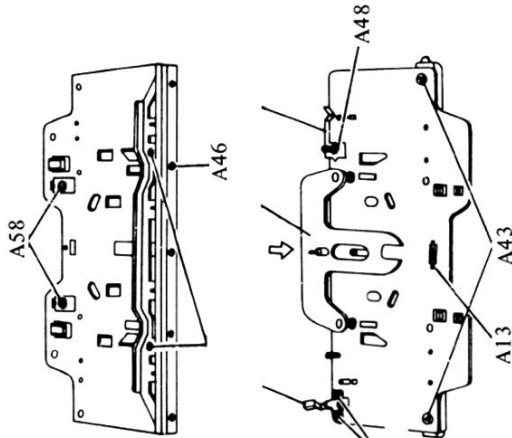
11. Removal of the Rear foot (A44).



- 11.1 Remove the Nut (A48) with a Box-driver.
- 11.2 Remove the Fastening screws (A56) and lift the Row counter tripper base and spring (A52-55) to remove.
- 11.3 Remove the Fastening screws (A47) from the back side of the Carriage.
- 11.4 Remove the Fastening screws (A46; 5pcs.) to remove the Rear foot.)
- 11.5 Remove the Fastening screws (A58).

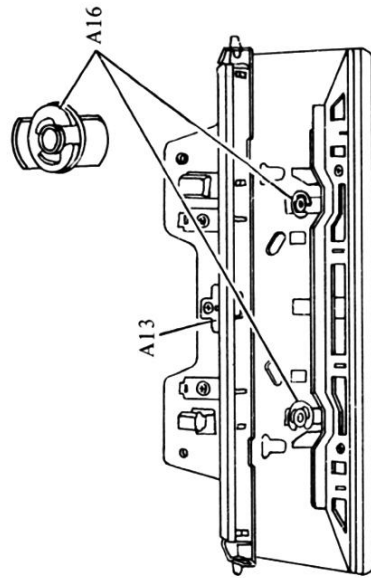
ASSEMBLING OF THE CARRIAGE

1. Fitting of the Rear foot (A44).



- 1.1 Fit the Stoppers (A58).
- 1.2 Fit the Rear foot (A44) with the Square nuts (5 pcs.) to be fitted onto the Carriage plate.
- 1.3 Fasten the five pcs. of screws (A46).
(The Rear foot should be adhered to the inside of the Carriage.)
- 1.4 Fasten two screws (A47) from the back side of the Carriage.
- 1.5 Place the Carriage plate face up and fasten the MC cam spring on the right side with nut.
- 1.6 Put the Row counter tripper spring (A55) into the Row counter tripper base (A52). Fit the Row counter tripper with screws.
(The Row counter tripper should be installed so as to be able to work properly.)
- 1.7 Put the Stripe adjuster plate with the Fastening screw (A14) tightly.
- 1.8 Put the Fastening screws (A43) lightly.

2. Fitting of the Stitch cam guide plate (A12).

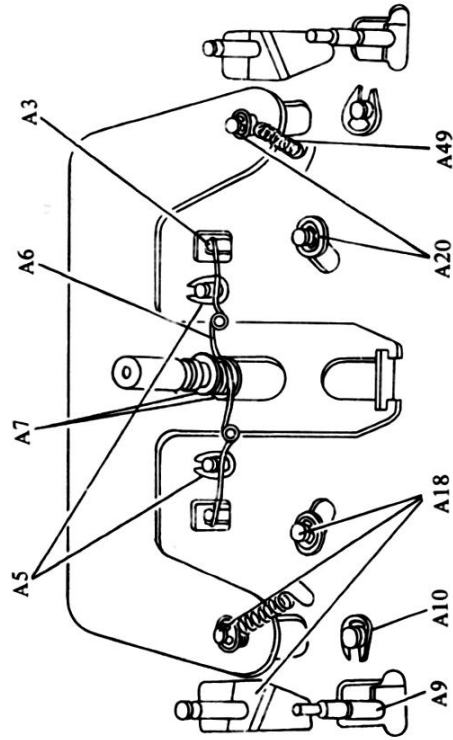
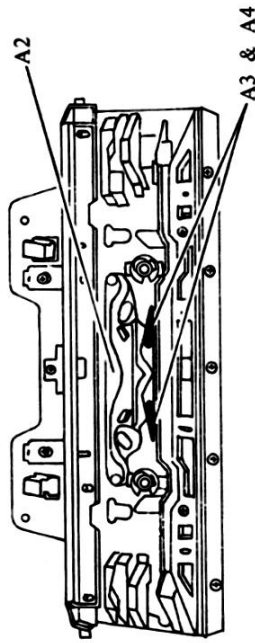


- 2.1 Fit the Stitch cam guide plate onto the Carriage plate and insert the Washers (A15) from the back side of the plate, then fix it with the Snap rings.
- 2.2 Fasten the screw (A14) lightly. (Make sure that the Stitch cam guide plate (A12) moves smoothly.)

3. Fitting of the Tuck cams (A3 & 4).

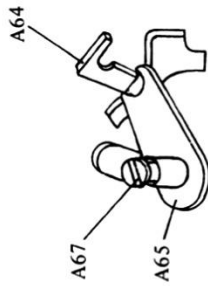
4. Fitting of the Stitch cams (A17 & 18).

5. Fitting of the Holding cams (A8 & 9).



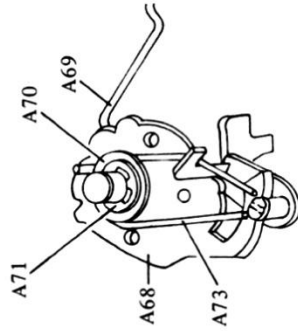
- 3.1 Put both Tuck cams (A3 & 4) into the Guide cam (A2).
- 3.2 Fit the Guide cam together with the Tuck cams from the back side of the Carriage plate. And the Tuck cam pins are fixed with Snap rings (A5). (Care should be exercised not to spoil the head of the Tuck cam axles.)
- 3.3 Put the Washer (A7) on the Tension dial axle and hang the Tuck cam spring (A6) on the axles. (See Fig.14.) (Be careful not to take the wrong direction of the Tuck cam spring and make sure that the Tuck cams move smoothly.)
- 4.1 Fit the right Stitch cam (A17) from the back side of the Carriage plate.
- 4.2 Place the Washer (A19) on the Stitch cam pin from above to be fixed with the Snap ring (A20).
- 4.3 Put the Stitch cam guide plate spring (A49) on the Stitch cam axle and place the Washer (A19) to be fixed with the Snap ring (A20). (The Stitch cam guide plate spring (A49) shall be fitted so as to make its hook shaped and face inside.)
- 4.4 Fit the left Stitch cam (A18) in the same way as in the case of the right Stitch cam.
- 5.1 Fit the right Holding cam (A8) from the back side of the Carriage plate.
- 5.2 Fix the Holding cam with the Snap ring (A10) from the front side of the Carriage plate.
- 5.3 Fit the left Holding cam (A9) in the same way as the right Holding cam.

6. Fitting of the "MC" cams (A63 & 64).



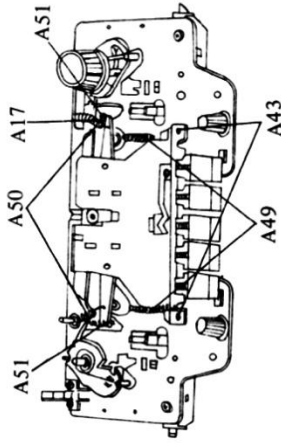
- 6.1 Insert the right "MC" cam (A63) from under the Carriage plate and the Collar (A66) from above then put the cutting groove on the "MC" cam presser plate (A65) into the "MC" cam to fasten with the Stud (A67) securely.
- 6.2 Fit the left "MC" cam in the same way as in the above.
- 6.3 Make sure that the "MC" cams work properly.

7. Fitting of the Switch cams (A68).



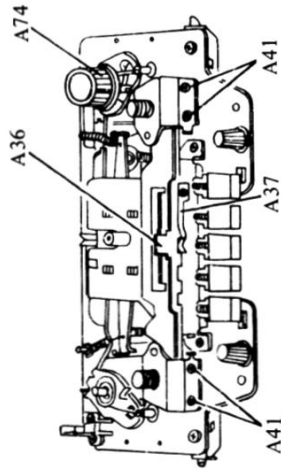
- 7.1 Put the Switch cam connecting wire (A69) into the right and left Switch cams (A68).
- 7.2 Set the Switch cams at the "MC" position and fit both right and left "MC" cams at the same time.
- 7.3 Fit the "MC" cam springs (A73).
- 7.4 Put the Washer (A70) and fix with the Snap ring (A71).
- 7.5 Put on the "MC" knob (A74) from above. (Make sure that the "MC" knob moves lightly and works to make the "MC" cams shift without fail.)

8. Fitting of the Pattern selector button unit (A21-34).



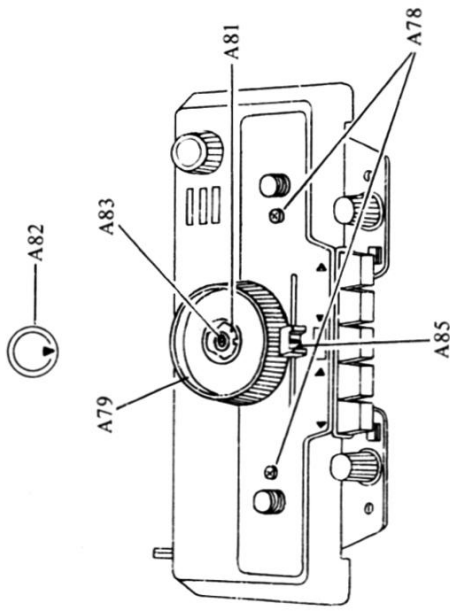
- 8.1 Place the Washer (A7) on the Tuck cam spring (A6) correctly. (Be careful not to let the Washer incline.)
- 8.2 Fit the Pattern selector button unit by pushing the Switch cam connecting wire (A69) toward yourself with a finger so as to put it inside the unit, and fasten with the Fastening screws (A43).
- 8.3 Hang the Stitch cam guide plate springs (A49) on the unit.
- 8.4 Hang the Raising cam change springs (A51) on the Stitch cam pins.
- 8.5 Hang the hook of the Raising cam springs (A50) on the Stitch cam axles and their round parts on the Fastening screws of the Rear foot. (Make sure that when the Pattern selector buttons are depressed to shift to the TUCK, PLAIN or PART position, the appropriate cam is shifted correctly.)

9. Fitting of the Handle setting screws (A39 & 40).



10. Fitting of the Carriage cover (A76).

11. Fitting of the Tension dial (A79).



9.1 Put the Holding cam springs (A11) on to the each Holding cam right (A8) and left (A9).

9.2 Put the Holding cam lever (A36) and set the Holding cam lever spring (A37).

9.3 Fit the right Handle setting screw (A39) and fix with the Fastening screws (A41).

9.4 Fit the left Handle setting screw (A40) in the same way as in the above.

10.1 Fit the Carriage cover (A76) and fix with the Fastening screws (A78).

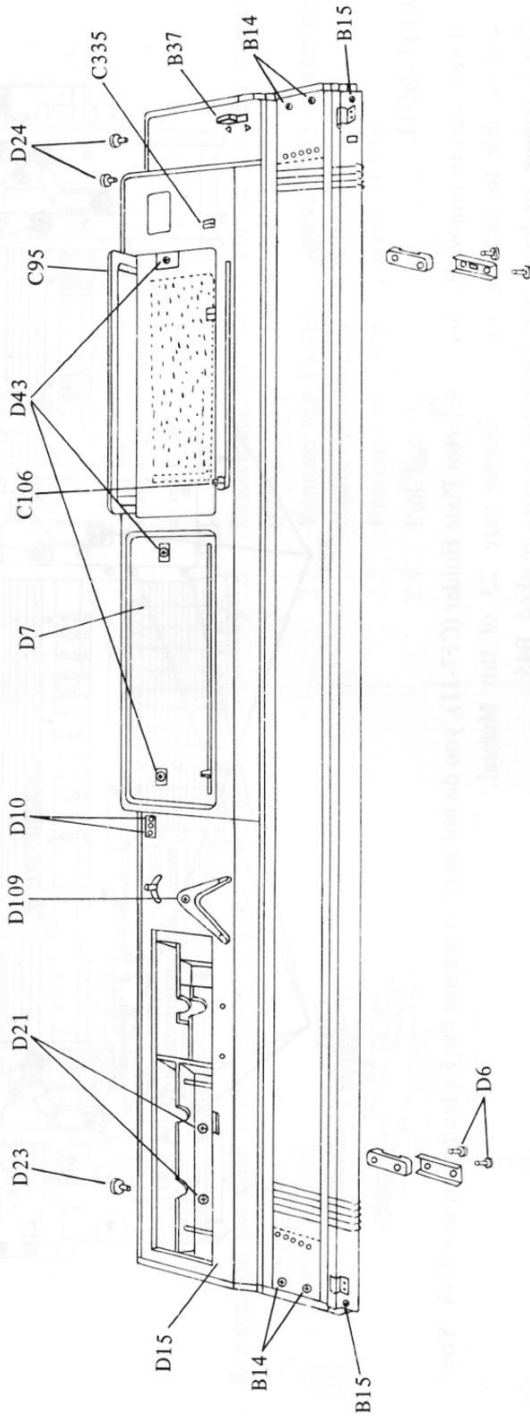
11.1 Put the Tension dial presser washer (A84) and the Tension dial (A79) on the Tension dial axle.

11.2 Put the cutting groove of the Stitch dial presser (A81) at the center of the PLAIN and fix with the Fastening screw (A83).

11.3 Put the Tension dial presser cap on the Tension dial. (Put the mark ▼ on the Cap at the cutting groove of the Tension dial presser.)

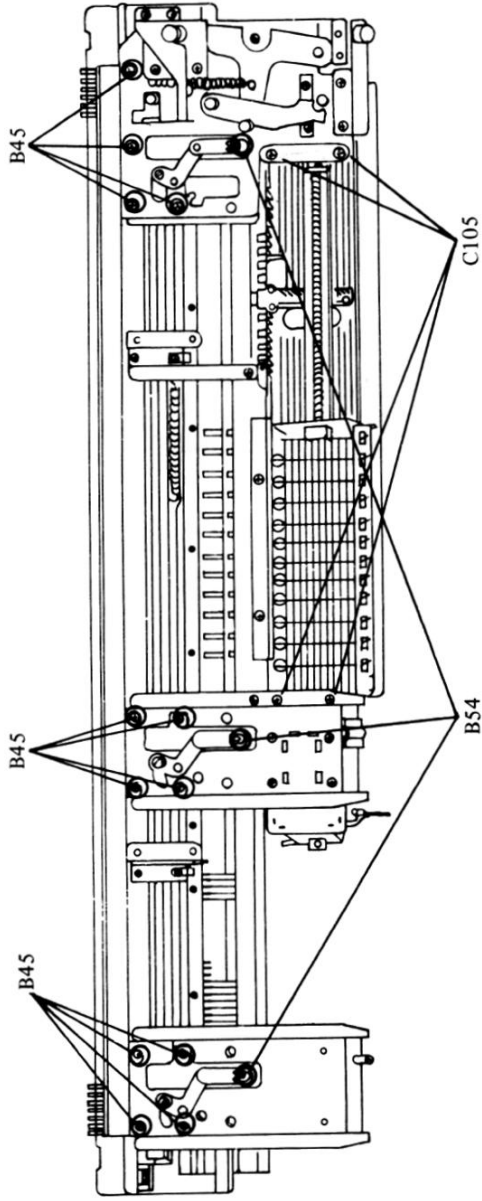
DISASSEMBLING OF THE MACHINE BODY

1. Removal of the Needle selector unit panel (D7).
2. Removal of the Accessory box (D15).
3. Taking the machine body from the case.



- 1.1 Shift the MC change lever knob to position "N" and pull it out.
- 1.2 Pull out the One pitch return knob (C10b).
- 1.3 Open the Card presser plate (C95a).
- 1.4 Remove the Fastening screws (D14).
- 1.5 Move the Needle selector unit panel (D7) to the left to remove it.
- 2.1 Take out the 2 pcs. each of the Carriage handles (A86), Claw weights (E39) and remove the Fastening screws (D21).

- 2.2 Remove the Fastening screw (D10).
- 2.3 Remove the Fastening screw (C109) and pull out the Feeding lever (C107).
- 2.4 Move the Accessory box (D15) to the left to remove it.
- 3.1 Remove the Fastening screws (B14).
- 3.2 Remove the Fastening screws (B15).
- 3.3 Remove the Fastening screws (D24) and (D23).
- 3.4 Turn the machine body upside down and remove the Fastening screws (D6).
- 3.5 Take the machine body from the case.



SPECIAL NOTE

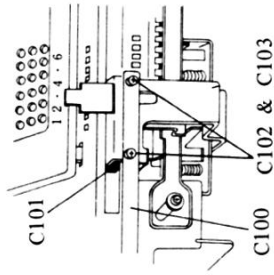
- 1) If you want to remove the Needle Selector Plate Holder (C17-31), you do not need to remove the Fastening screws (B54). You will be able to find the way by opening page 23 of this Manual.
- 2) Don't remove or loose any Fastening screws marked B45 .
- 3) If you want to replace the Needle retaining spring (B5), you do not need to remove the Stay. (See on page 22)
- 4) If you want to adjust the distance of the Gate pegs fitting, you do not need to remove the Stay. (See on page 21)

4. Removal of the Needle selector unit (C33-104).

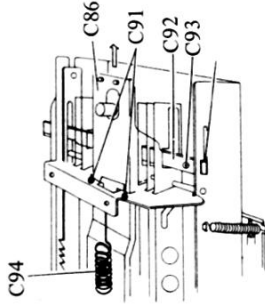
- 4.1 Disconnect the end of the Card reader operating spring on the side of the Feeding lever base.
- 4.2 Remove the Fastening screws (C105) to remove the Needle selector unit.

5. Disassembling the Needle selector unit

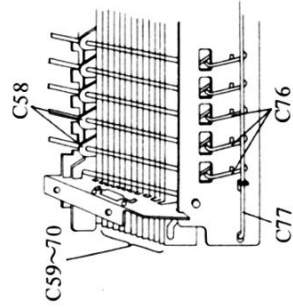
5.1 Removal of the Step indicator (C100a-b).



5.2 Removal of the Card reader operating plate A (C86).



5.3 Removal of the Card reader cranks (C76).



5.1.1 Remove the Fastening screws (C102 & 103). C103 screw is longer than C102. And there is a Collar (C101) behind the Step indicator.

5.2.1 Disconnect the end of the Card reader operation spring (C94).

2.2 Remove the Fastening screws (C93) to remove the Card reader operating plate B (C92).

2.3 Remove the Fastening screws (C91).

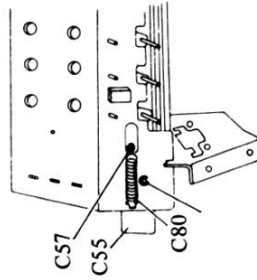
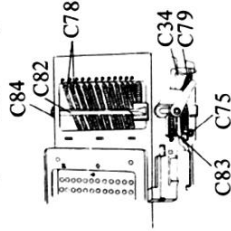
2.4 Pull out the Card reader operation plate A (C86).

5.3.1 Remove the Card reader crank stopper wire (C77).

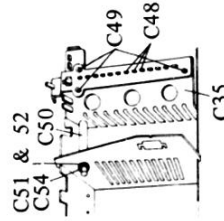
3.2 Pull out the Card reader cranks (C76).

5.4 Removal of the Card reader operating plate No.1 to 12 (C59-70).

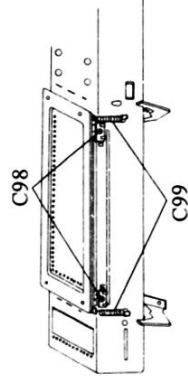
5.5 Removal of the Pattern repeating plate (C34) and Rack plate (C55).



5.6 Removal of the Card reader unit (C35).



5.7 Removal of the Card presser plate (C95a-e).



5.4.1 Disconnect the Spring for returning stopper B (C83) by using the Work hook.

4.2 Remove the Snap ring 2 (C75) for the Stud (C82).

4.3 Pull out the Stud for returning stopper B.

4.4 Remove the Snap ring 2 for the Stud (C71) and pull out the Card reader operation stud A (C71) and collar (C72).

4.5 Remove the Snap ring 2 for the Stud (C74) and pull out the Card reader operation Stud B (C74).

4.6 Remove the Card reader operating plate springs (C78).

4.7 Remove the Card reader operating plate No.1 to 12.

4.8 Remove the Card reader crank plates (C58).

5.5.1 Remove the Returning plate spring (C79).

5.2 Remove the Feeding gear spring (C80).

5.3 Remove the Fastening screws (C73) to remove the Pattern repeating plate (C34) and Collar (C72).

5.4 Remove the Fastening screw (C57).

5.5 Pull out the Rack plate (C55) to right.

5.6.1 Remove the Snap ring 3 (C54) and pull out the Stud (C50). (The Collar, C51, and Washer, C52, are removed same time.)

6.2 Remove the Card reader unit (C35).

6.3 Remove the Fastening screws (C49) and pull out the Card readers (C48).

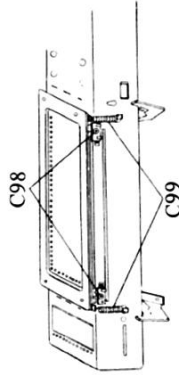
5.7.1 Remove the Card presser plate springs (C99).

7.2 Remove the Fastening screws (C98).

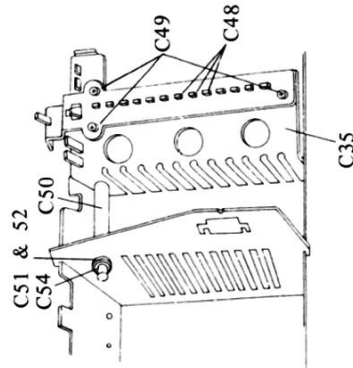
ASSEMBLING OF THE MACHINE BODY

1. Assembling of the Needle selector unit

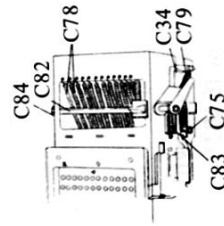
1.1 Fitting of the Card presser plate (C95a-e).



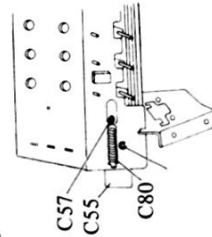
1.2 Fitting of the Card reader unit (C35).



1.3 Fitting of the pattern repeating plate (C34) and the Rack plate (C55).



1.4 Fitting of the Card reader operating plate (C59-70).



1.1.1 Put the Card presser plate by fixing the Fastening screws (C98).

1.2 Put the Card presser plate springs (C99).

1.2.1 Insert the Card readers (C48: 12 pcs.) into the Card reader unit body (C35).

2.2 Put the Card reader unit body (C35) into the Needle selector unit frame (C33), then insert the Stud (C50). Put the Collar (C51) and the Washer (C52) on the Stud (C50) and fix with Snap ring, 3 (C54).

1.3.1 Fit the Pattern repeating plate (C34) and Collar (C72) and fix with the Fastening screw (C73).

3.2 Insert the Rack plate (C55) and put the Collar (C56) on it. Then, fix with the Fastening screw (C57).

1.4.1 Put the Card reader crank plates (C58: 12 pcs.) into the Needle selector unit frame (C33).

4.2 Put the Card reader operating plate No.1 to 12 into the Needle selector unit frame (C33) according to the order of operating plates.

4.3 Put the Card reader operation stud B (C74) and fix with the Snap ring, 2 (C75).

4.4 Put the Card reader operation stud, A (C71) and Collar (C72), then fix with the Snap ring 2 (C75).

4.5 Connect the Card reader operating plate springs (C78). (Hook one side of the spring on the Card reader operating plate and connect another side of the spring to the frame.)

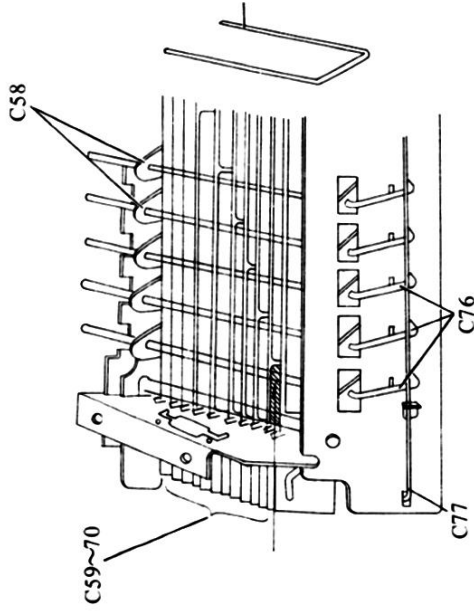
4.6 Connect the Returning plate spring (C79).

4.7 Connect the Feeding gear spring (C80).

4.8 Put the Stud (C82) and fix with the Snap ring, 2 (C84).

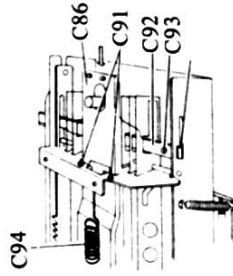
4.9 Connect the Returning plate stopper spring B (C83).

1.5 Fitting of the Card reader cranks (C76).



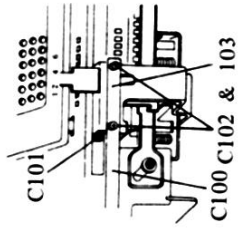
- 1.5.1 Insert the Card reader cranks.
(The longer side of Crank must be up.)
- 5.2 Put the Card reader crank stopper Wire (C77).

1.6 Fitting of the Card reader operating plate A (C86).



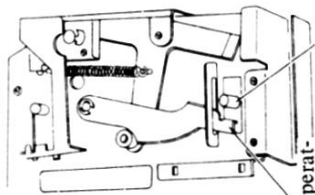
- 1.6.1 Insert the Card reader operating plate A from right side.
- 6.2 Put the Card reader operating guide (C90) and fix with the Fastening screw (C91).
- 6.3 Insert the Card reader operation plate B (C92) into the cutting groove of the Card reader operation plate A and Card reader operation plates and fix with the Fastening screw (C93).
- 6.4 Connect the Card reader operation spring A (C94).

1.7 Fitting of the Step indicator (C100a-b).

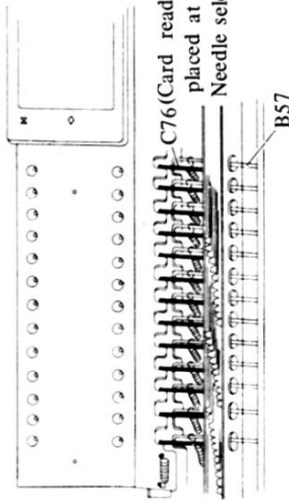


- 1.7.1 Put the Collar (C101).
- 7.2 In the first instance, put the Step indicator with a longer screw (C103), then fix another screw (C102).
- 7.3 Connect the Card reader operating spring.

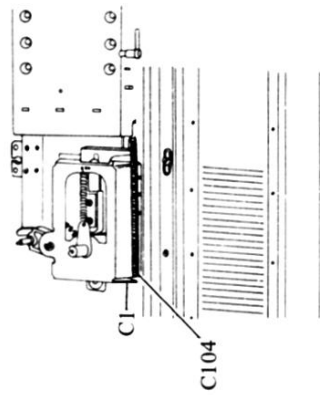
2. Fitting of the Needle selector unit



Place the Card reader operating cam at the left end of groove.
 Pin must be placed at the right side of Operating cam.



C76 (Card reader cranks must be placed at the left side of the Needle selector plate cranks.)

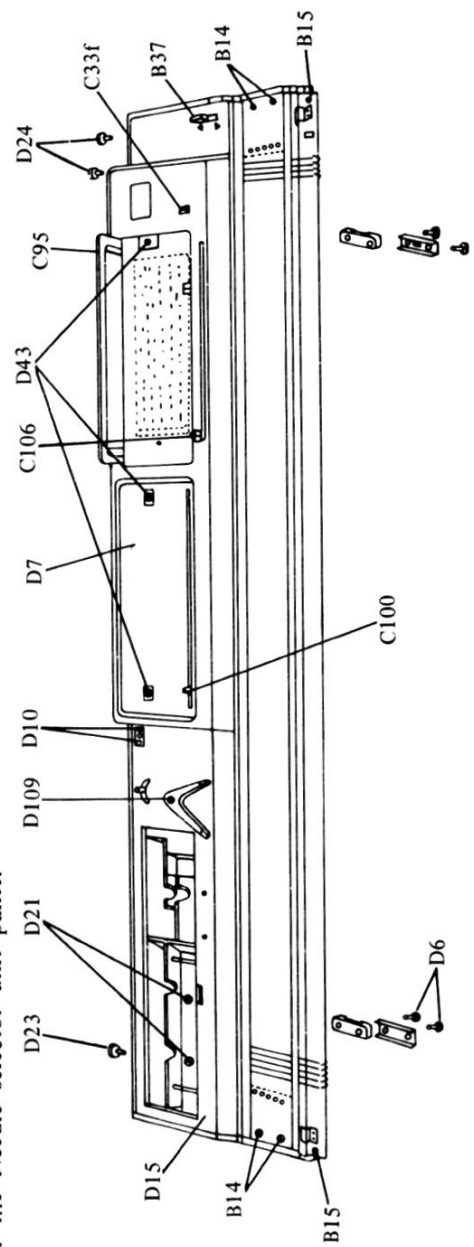


- 2.1 Place the Operating cam (B26) as far as it will go to the left.
- 2.2 Place the Card reader cranks to left side and fix with Fastening screws.

Note: The Card reader cranks (12 pcs.) must be placed at the left side of the Needle selector plate cranks.

The Pin of the Card reader operating plate A must be placed at the right side of the Card reader operating cam.

- 2.3 Connect the Spring (C94) to the Feeding lever base. (C-1)

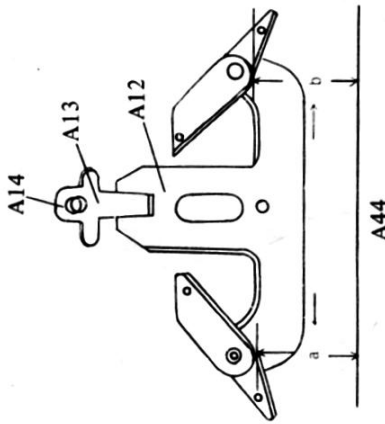
<p>3. Putting of the Machine body into the Case.</p> <p>4. Putting of the Accessory box.</p> <p>5. Fitting of the Needle selector unit panel.</p> 	<p>3.1 Put the Machine body into the lower case.</p> <p>3.2 Fix the Fastening screws (D23) and (D24).</p> <p>3.3 Fix the Fastening screws (B14).</p> <p>3.4 Fix the Fastening screws (B15).</p> <p>4.1 Place the Accessory box at the left side of the case. Then, fix with the Fastening screws (D21).</p> <p>4.2 Fix the Yarn tension rod hole decorator with the Fastening screws (D10).</p> <p>4.3 Put the Feeding lever (C107) on the Feeding lever shaft and fix by using the Washer (C108) and Fastening Screw (C109).</p> <p>5.1 Open the Card presser plate (C95).</p> <p>5.2 Place the Panel at the right side of the Case. Pick up the Step indicator (C100) by using the Transfer tool or Latch tool.</p> <p>5.3 Fix the Fastening screws (D14) with Washer. (Check whether the Card presser opens smoothly.)</p> <p>5.4 Put the MC change lever knob (B37) and the One pitch returning knob (C106).</p> <p>5.5 Turn the machine body upside down and put the Two table clamp setting plates by Fastening screws (D6).</p>
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CHECKING OF THE NEEDLE SELECTION MECHANISM

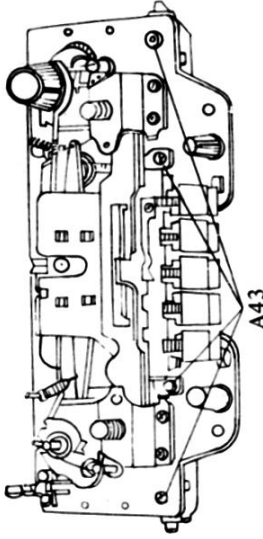
<p>1. Feeding mechanism</p> <p>2. Step indicating mechanism</p> <p>3. Working of the Pattern repeat regulator.</p> <p>4. Working of the Needle selector unit.</p>	<p>1.1 Set the Pattern repeat regulator on the step 36th.</p> <p>1.2 Feed the Step indicator from first step to the 36th by moving the Carriage.</p> <p>1.3 The Step indicator will be automatically returned to the first step. And then, turn the Set lever.</p> <p>1.4 Move the Carriage and check whether the Step indicator is feed one step to right.</p> <p>2.1 Set the Step indicator on the Step 36th. This lever will go back one step to left by pressing it down as far as it will go then releasing. Check the movement.</p> <p>3.1 Set the Pattern repeat regulator on the 5th step and move the Carriage to feed the Step indicator. Check whether the Step indicator will be returned by the Pattern repeat regulator.</p> <p>3.2 Move the Carriage. The Step indicator does not step. This is correct. (If you turn the Set lever, and move the Carriage, then, the Step indicator will do one step to right.)</p> <p>4.1 Bring all needles forward to B position.</p> <p>4.2 Set the MC change lever to N position.</p> <p>4.3 Put the No.8 punch card on the Needle selector unit.</p> <p>4.4 By turning the Set lever, every other needles must be brought forward. Please check.</p>
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HOW TO ADJUST INDIVIDUAL PART: CARRIAGE

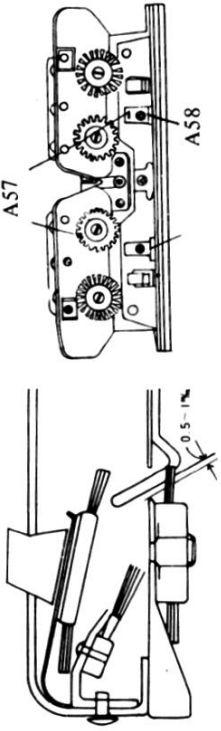
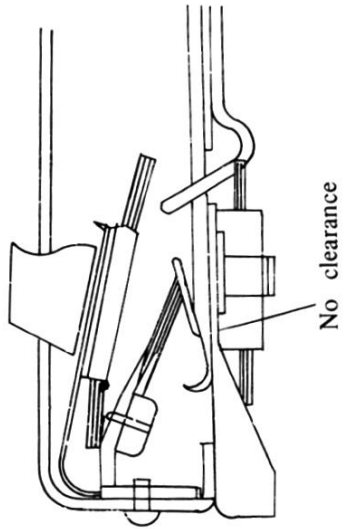
1. How to adjust stripes;

CAUSE	ADJUSTMENT
<p>1. The distance between a and b is not same.</p>  <p style="text-align: center;">A44</p>	<p>1. Same way as KH-588.</p>

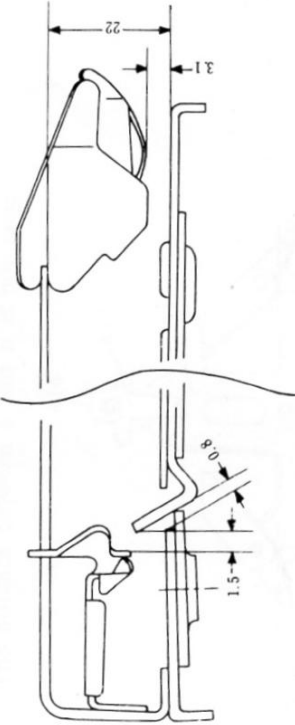
2. How to adjust the Carriage front leg;

CAUSE	ADJUSTMENT
<p>1. The end play between the Carriage and Needle bed is too big.</p>  <p style="text-align: center;">A43</p>	<p>1. Same way as KH-588.</p>

3. The operation of the Carriage is too heavy and does not make a stitch;

CAUSE	ADJUSTMENT
<p>1. The Sinker plates touch the Needle gate pegs or clearance is too big.</p> 	<p>1. Same way as KH-588..</p>
<p>2. The Sinker plates lift the plain needles or clearance is there.</p> 	<p>1. Same way as KH-588.</p>

4. Yarn guide hits the latch of the plain needle

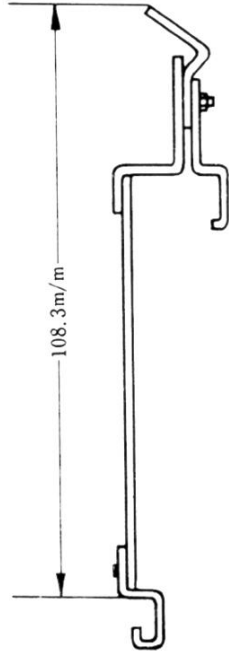
CAUSE	ADJUSTMENT
<p>1. The Yarn guide does not fit correctly.</p> 	<p>1. Adjustment of front and rear; Adjust the clearance between the Sinker plate and Needle gate pegs to 0.8 mm so as to get the 1.5 mm clearance between the Yarn guide and Gate pegs.</p> <p>2. Adjustment of height; Bend the Sinker plate slightly to get the proper clearance (3.1 mm) between the Yarn guide and Sinker plate.</p> <p>If the clearance is more than 3.1 mm, the second color yarn is not fed properly in Fair Isle knitting.</p>

HOW TO ADJUST INDIVIDUAL PART: MACHINE BODY

1. The length of the knitting works is not same between right end and left end though the number of row is same.

CAUSE

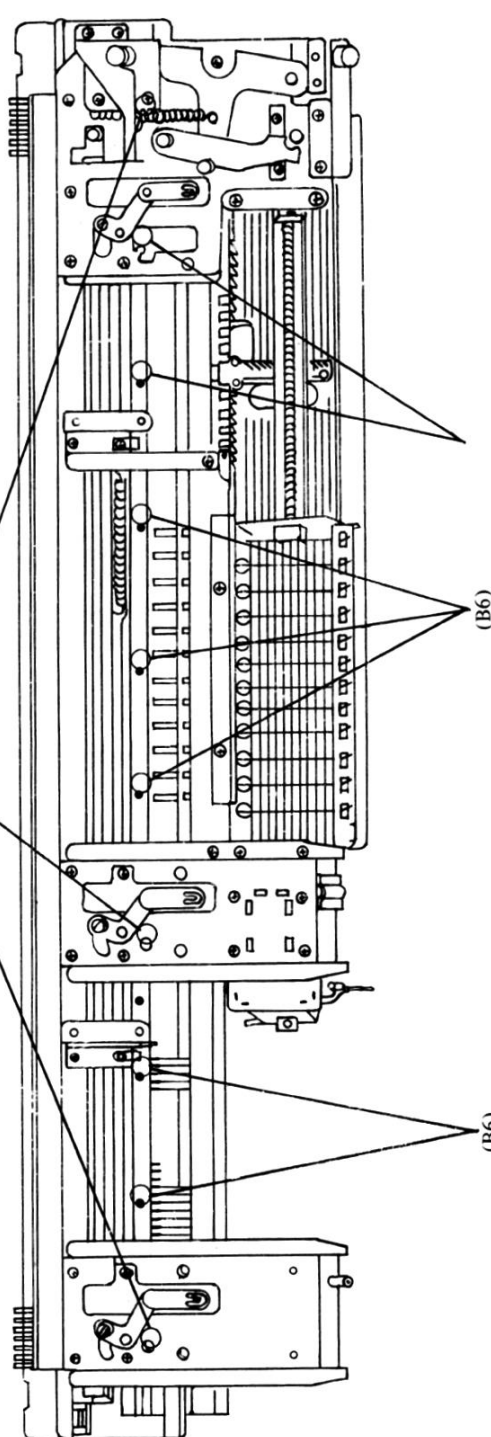
1. The needle gate pegs is not fitted properly.



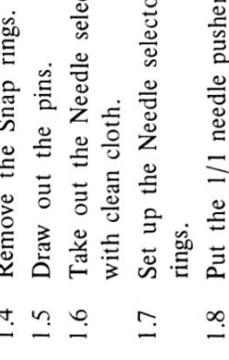
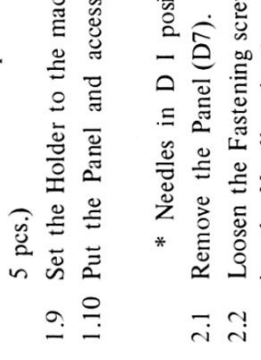
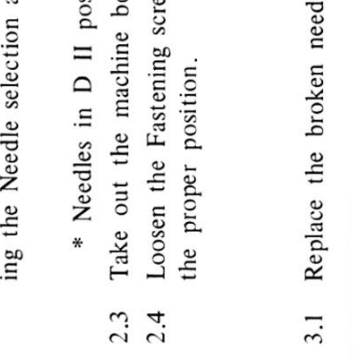
ADJUSTMENT

1. Same way as KH-588.

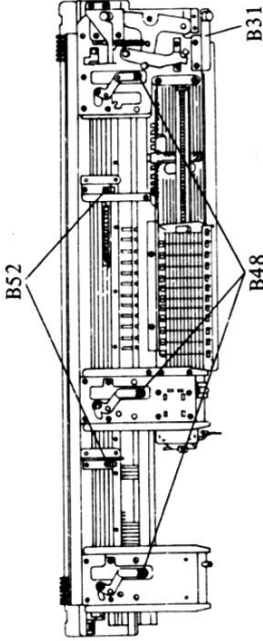
2. The plain needles do not arrange in a line after knitting or operation of the needles become lightly in the part.

CAUSE	ADJUSTMENT
<p>1. Needle retaining spring is broken.</p> 	<p>Put the Screw driver through the hole of the Stay when remove these screws.</p>
<p>How to replace the Needle retaining spring.</p> <p>2.1 Take out the machine body from case.</p> <p>2.2 Using the small-head plus driver, remove the Fastening screws (B7; 10 pcs.) to remove the Needle retaining spring and Holder (B6).</p> <p>Note: You can replace the Needle retaining spring without removing the Stays.</p>	<p>How to put the Needle retaining spring.</p> <p>3.1 Place the Needle retaining spring and Holder and using the small-head plus driver, fasten the screws (10 pcs.) temporarily.</p> <p>3.2 Adjust the center of the Needle retaining spring to the shank of the needle. And fasten the screws tightly.</p> <p>3.3 Put the machine body into the case.</p>

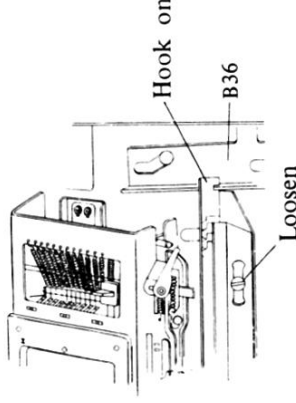
3. Missing the needle selection;

CAUSE	ADJUSTMENT
<p>1. There is oil inside of the Needle selector plates.</p> 	<p>1.1 Remove the Panel (D7) and Accessory box (D15). 1.2 Bring forward all needles to position E. 1.3 Remove the Fastening screws (C32; 5 pcs.). 1.4 Remove the Snap rings. 1.5 Draw out the pins. 1.6 Take out the Needle selector plate holder and wipe away oil with clean cloth. 1.7 Set up the Needle selector plates and put the Pins and Snap rings.</p>
<p>2. The Needle selector plate does not meet with needle properly.</p> 	<p>1.8 Put the 1/1 needle pusher to keep the clearance (1 mm) into the Needle selector plate holder and fasten the screws (C32; 5 pcs.) 1.9 Set the Holder to the machine body. 1.10 Put the Panel and accessory box.</p> <p>* Needles in D I position; 2.1 Remove the Panel (D7). 2.2 Loosen the Fastening screws (C88; 2 pcs.) and adjust by moving the Needle selection adjuster plate (C87) to right or left.</p>
<p>3. Needle is broken.</p> 	<p>* Needles in D II position; 2.3 Take out the machine body from the case. 2.4 Loosen the Fastening screws (B60; 2 pcs.) and adjust to get the proper position.</p> <p>3.1 Replace the broken needle to new one.</p>

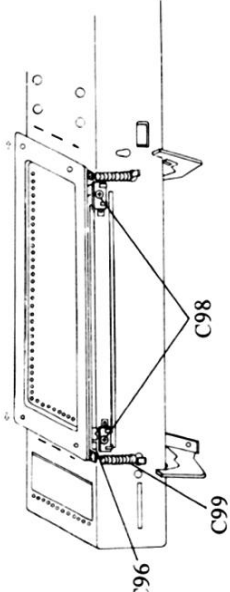
4. The selected needles hit the cams of the Carriage or can not make the pattern stitch though the required needles are selected.

CAUSE	ADJUSTMENT
<p>1. The selected needle position is not correct.</p> 	<p>*D I position</p> <p>1.1 Loosen the Stud screws (B54; 3pcs.) and bring forward or backward the Holder to get the proper position. (Please be careful not to take off the Stud screws.)</p> <p>*D II position</p> <p>1.2 Adjust the Needle selector holder stopper position.</p>

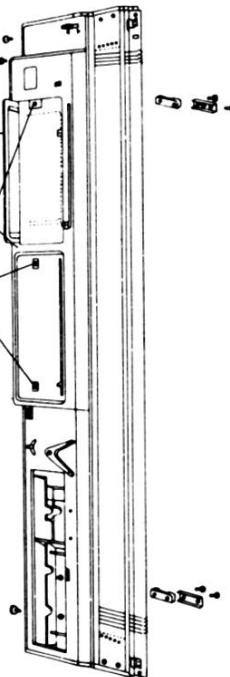
5. The MC change lever does not work properly.

CAUSE	ADJUSTMENT
<p>1. The right end of the Needle selector plate holder comes off.</p> 	<p>1.1 Remove the Panel (D7).</p> <p>1.2 Loosen the right Stud screw (B54) and hook the right end of the Holder on the right stay.</p>

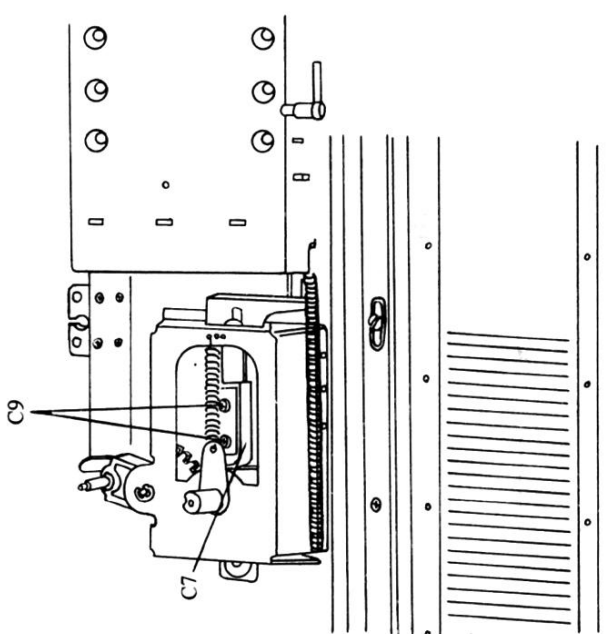
6. It is difficult to draw out the Puncher when making the punch card.

CAUSE	ADJUSTMENT
<p>1. The holes of the Card presser do not meet under holes.</p> 	<p>* The Card presser slips out to right or left.</p> <p>1.1 Remove the Panel (D7).</p> <p>1.2 Loosen the Screws (C98; 2 pcs.) and adjust by moving the Card presser to right or left.</p> <p>* The Card presser slips out forward or backward.</p> <p>1.3 Bend the Holder (C96) slightly to adjust the position.</p>

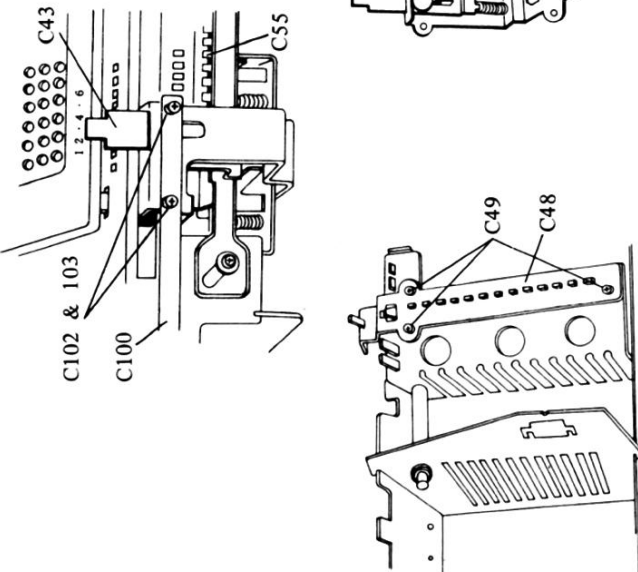
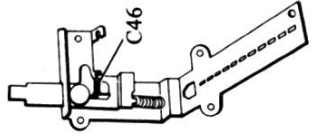
7. The Card presser does not open though press the Release lever to right.

CAUSE	ADJUSTMENT
<p>1. There is no clearance between the Panel and Card presser.</p> <p>2. The Card presser plate spring (C99) comes off.</p> 	<p>1.1 Loosen the Fastening screws (D14; 3 pcs.) and get the proper clearance.</p> <p>1.2 Hook the spring.</p>

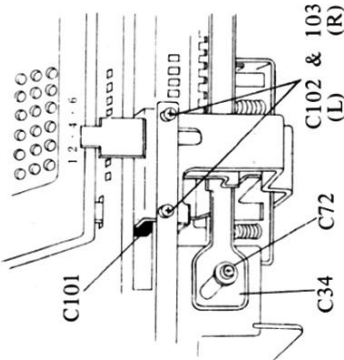
8. The Step indicator does not work properly.

CAUSE	ADJUSTMENT
<p>1. The Step indicator (C100) and One pitch return knob (C106) do not work properly though operating the Feeding lever (C107).</p> 	<p>1.1 Remove the Accessories box (DI5). 1.2 Because of too small feeding length of Feeding cam (C7), loosen two screws (C9) and move the Feeding cam to left to get proper feed length.</p> <p>* Moving the Feeding cam to left getting smaller feed length. * Moving the Feeding cam to right getting larger feed length.</p>
<p>2. When moving the Carriage so fast, one pitch return knob goes two steps a row. 3. After returning the One pitch return knob to first position automatically, the One pitch return knob does not go through swiveling the Set-lever and operating the Feeding lever.</p>	<p>2.1 Loosen two screws (C9) and move the Feeding cam to right to get proper feed length. 3.1 Loosen two screws (C9) and move the Feeding cam to right to get proper feed length.</p>

9. The One pitch return knob does not return one step though pushing it down.

CAUSE	ADJUSTMENT
<p>1. The One pitch return cam spring comes off or broken.</p> 	<ol style="list-style-type: none"> 1.1 Take out the machine body from case. 1.2 Remove the Needle selector unit (C33-104). 1.3 Remove the left fastening screw (C103). 1.4 Disconnect the Card reader operation spring (C94). 1.5 Remove the Fastening screws (C49; 3 pcs.) to remove the Card reader holding plate. 1.6 Replace the One pitch return cam spring if necessary. <p>(Order for assembling)</p> <ol style="list-style-type: none"> 1.7 Set the Card reader holding plate. 1.8 Set the Card reader operation spring. 1.9 Insert the Card readers (C48; 12 pcs.) into the holes on the C94 and fix by the screws (C49; 3 pcs.). 1.10 Put the Collar (C101) behind the Step indicator and fasten the Screw (C103). 1.11 Put the Needle selector unit and fasten the screws. 1.12 Put the machine body into the Case and fasten the screws. <ol style="list-style-type: none"> 2.1 Check the bend of the Lever, and correct it if necessary. 2.2 Check the bend of the rack gear on the Needle selector unit body.
<p>2. The One pitch return lever does not work properly.</p> 	

10. The Step indicator (C100) and One pitch return knob (C106) do not return by the Pattern repeat regulator (C33c).

CAUSE	ADJUSTMENT
<ol style="list-style-type: none"> 1. The Pattern repeat regulator is moved by the One pitch return knob. 2. The Pattern repeating plate does not work smoothly. 3. The Fastening screws (C102 and C103) and Collar come off. 4. The Returning stopper B (C81) does not work properly. 	<ol style="list-style-type: none"> 1.1 Take out the machine body from the case. 1.2 Bend the Spring plate (C33d) to get stronger pressure. 2.1 As the Pattern repeating plate is touching with the Needle selector unit body, adjust it correctly. 2.2 Check the bend of the Needle selector unit body and adjust it correctly. 2.3 Check the position of the Collar (C101) and correct the position if necessary. 3.1 Put the Collar and fasten the screws. 4.1 Check the bend of the Returning stopper B and adjust it correctly. 4.2 Press down the One pitch return knob and check the bend of the Forwarding latch, correct it if necessary. 