SERVICE MANUAL

FOR

KNITTING MACHINE

MOD. 700/600

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*This service manual describes the key points only for the maintenance of MOD.700/600 Knitter. The adjusting methods not contained in this manual are the same as for other punch-card machines of 4.5mm pitch. For more information, refer to the service manual for the MOD.360/260.

*The adjusting procedures described in this manual will be applicable to both right-hand and left-hand parts of the machine, if symmetrically installed.

[1] MAIN COMPONENTS AND PARTS OF THE MACHINE

1-1 Machine Body

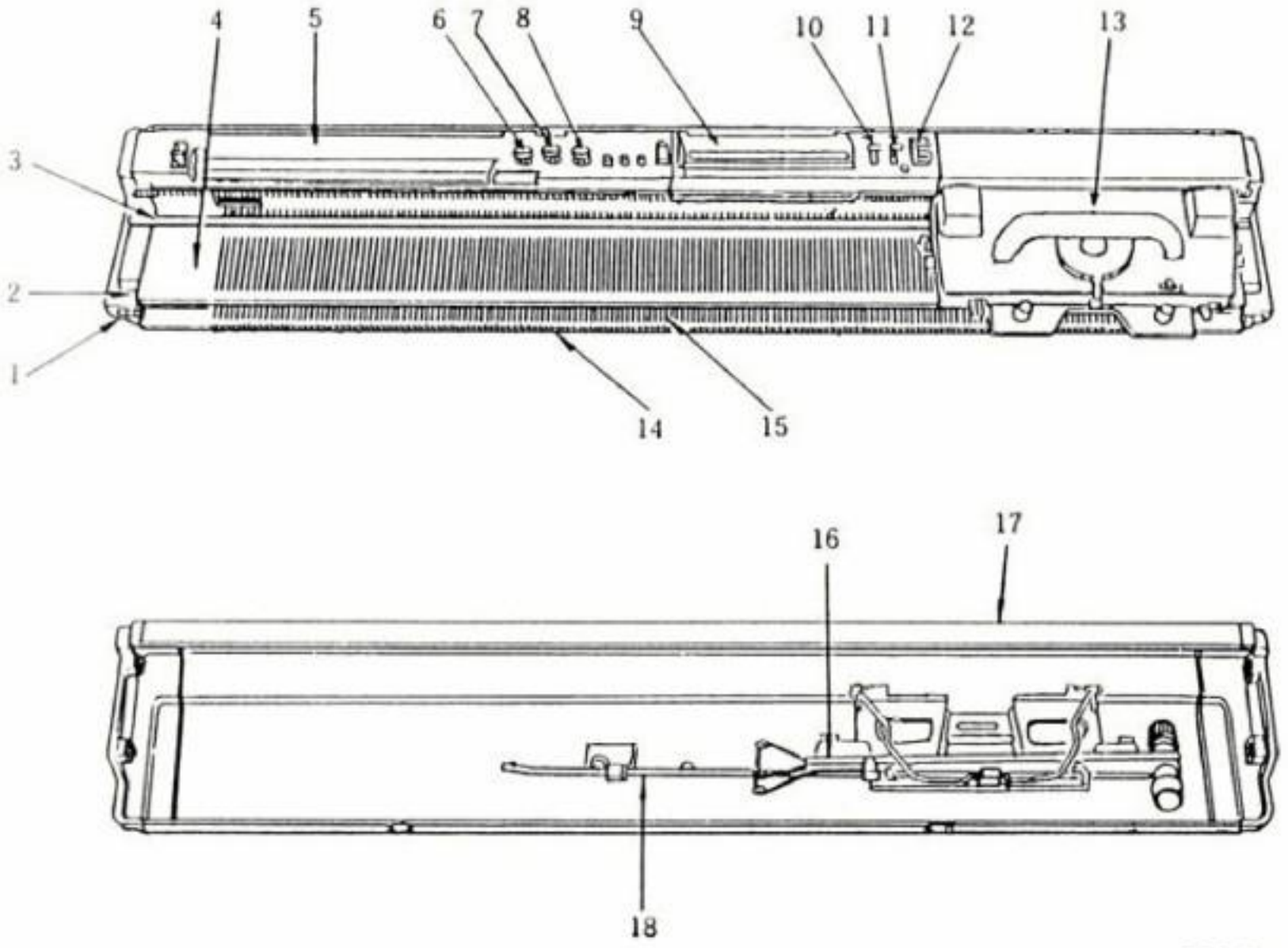


FIG.1

1. Yarn Clip
2. Needle Retainer
3. Carriage Rail
4. Needle Bed
5. KR Panel
6. Row Number Dial (KR Setting Dial)
7. KR Feeding Dial (KR Setting Dial)
8. Change Dial
9. PC Panel
10. Stop Knob
11. L Knob
12. Feeding Dial
13. Carriage
14. Sinker
15. Latch Needle
16. Tension Unit
17. Top Cover
18. Yarn Rod Unit

1-2 Carriage (Inside)

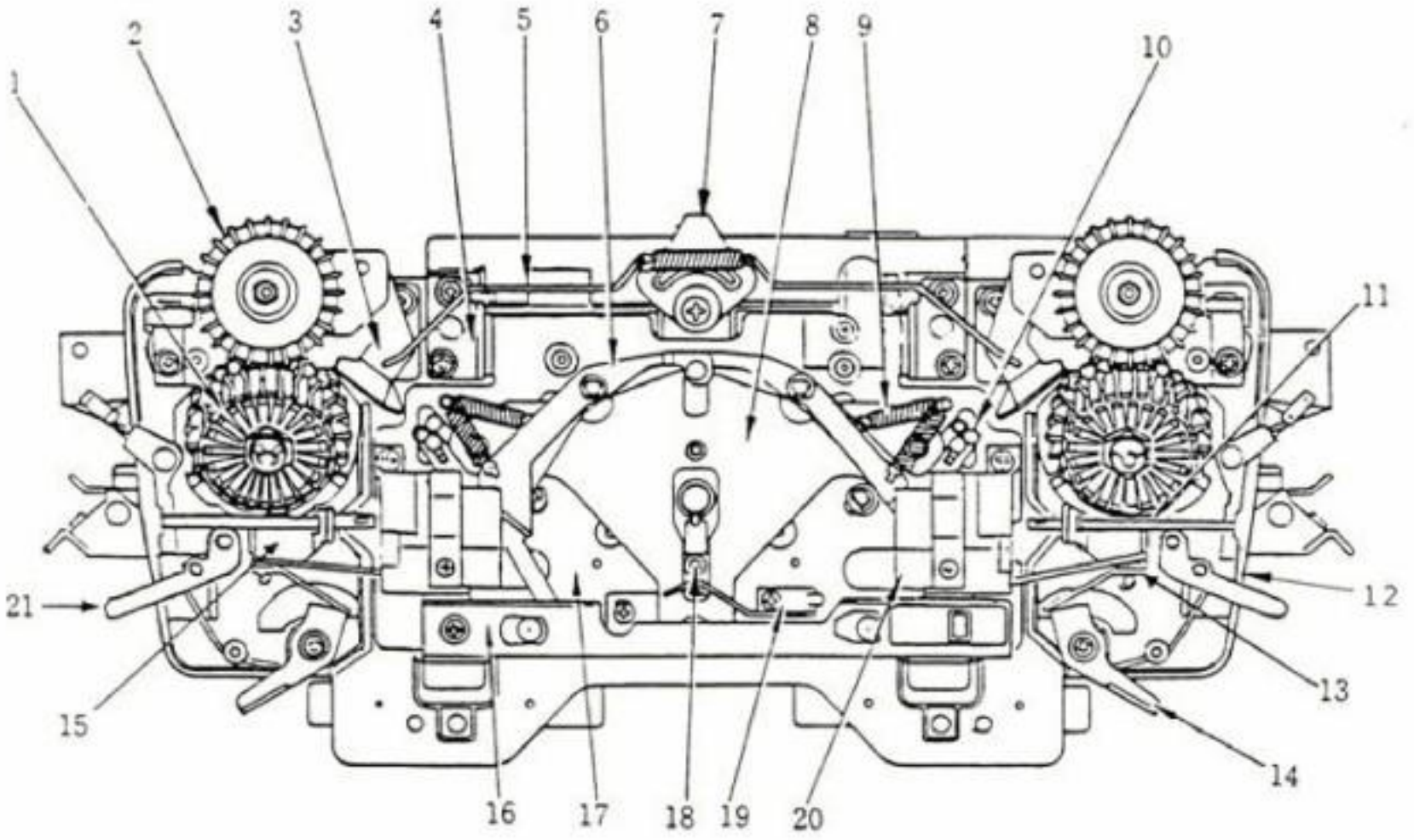


FIG.2

1. Sub Drum
2. Main Drum
3. Sub Drum Clear Cam (L)
4. Carriage Plate A Holder (L)
5. Clear Wire (L)
6. Raising Cam Lever
7. Clear Cam
8. Travelling Plate
9. Sub Lever Spring
10. Cam Spring
11. Side Lever Spring B
12. Carriage Plate B
13. Raising Spring (R)
14. Russel Lever (R)
15. SP Holder (L)
16. Jam Release Plate
17. Carriage Plate A
18. Moving Plate Pin
19. Dial Spring
20. Handle Holder (R)
21. Intarsia Lever (L)

1-3 Carriage (Underside)

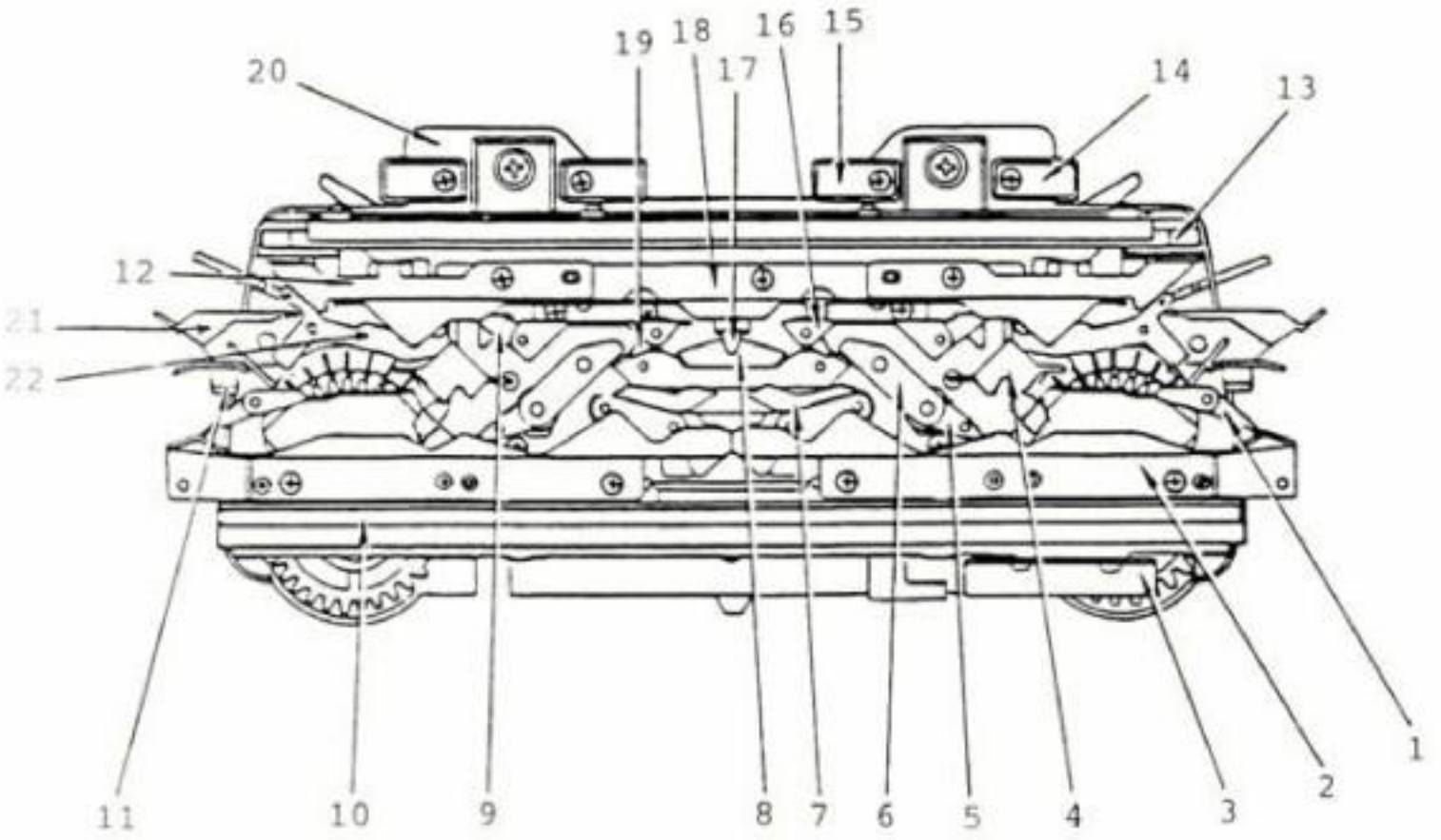
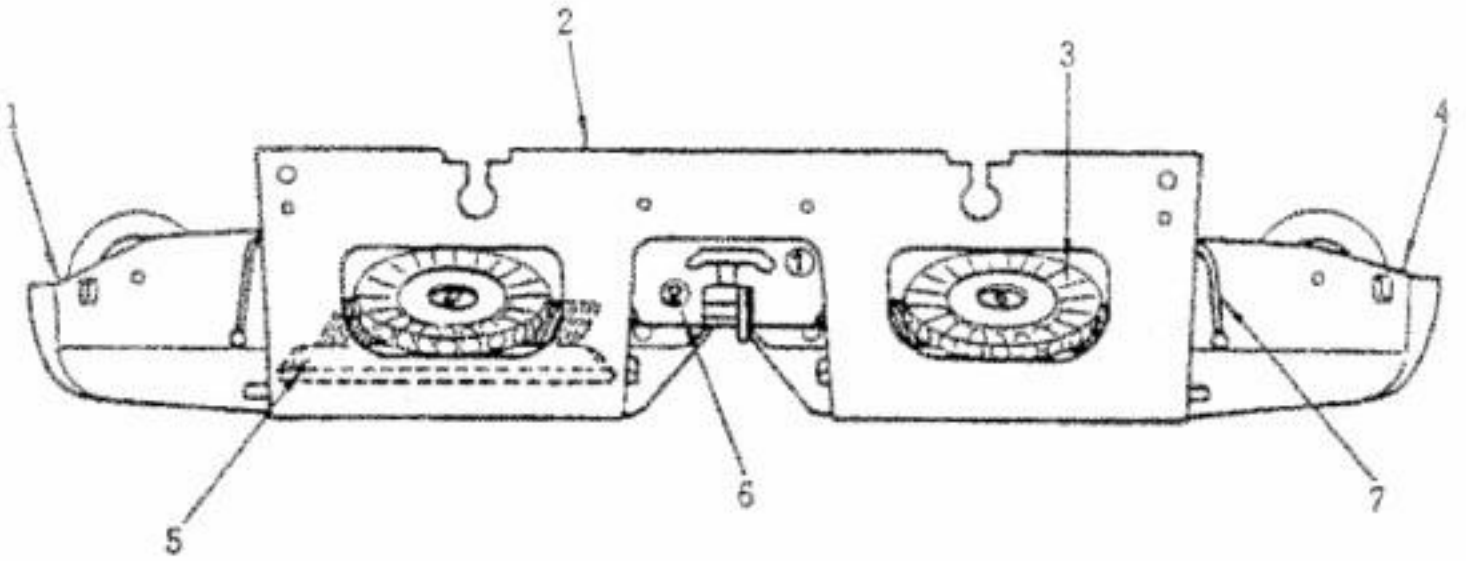


FIG. 3

1. Side Cam (R)
2. Guid Plate (R)
3. Driving Cam
4. Separation Cam (R)
5. Sub Cam (R)
6. Main Cam (R)
7. Knit-in Cam (R)
8. Center Cam
9. Raising Cam (L)
10. Carriage Pipe
11. Side Cam Stopper (L)
12. Russel Cam (L)
13. Carriage Slider
14. Carriage Magnet A
15. Carriage Magnet B
16. Middle Course Cam (R)
17. Lowering Cam C
18. Needle Guide
19. Lowering Cam B (L)
20. Carriage Plate B
21. Intarsia Cam Base (L)
22. Intarsia Cam (L)



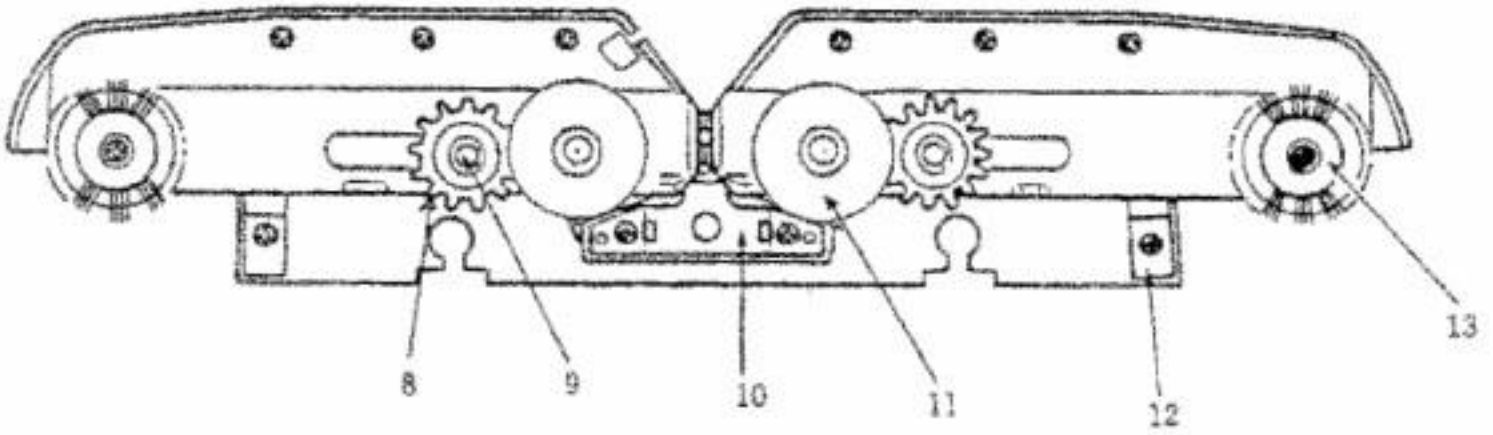


FIG. 4

1. Fabric Presser (L)
2. Arm
3. Weaving Brush
4. Fabric Presser (R)
5. Clearing Brush
6. Yarn Feeder
7. Yarn Holder (R)
8. Fabric Gear
9. Fabric Gear Pin
10. Plating Yarn Feeder
11. Rubber Disc
12. Weaving Yarn Feeder (R)
13. Round Brush B

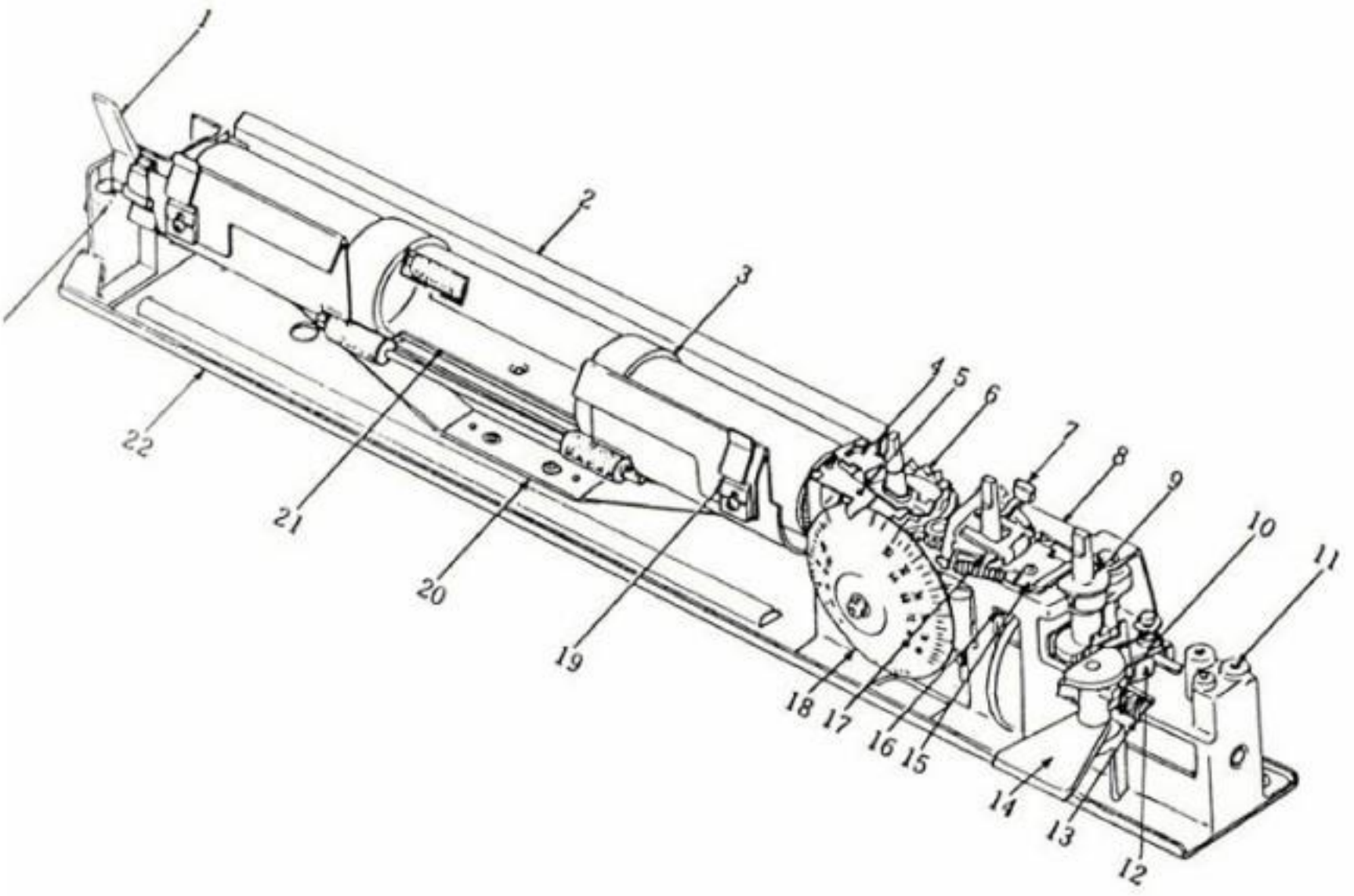


FIG.5

1. Paper Lever
2. Roller Pan Unit
3. Platen
4. Wheel Spring
5. KR Row Indicator
6. Set Wheel
7. Select Lever Knob
8. KR Feeding Lever
9. Change Cam A
10. KR Feeding Plate
11. Frame (R)
12. Sliding Plate
13. Friction Disc Spring
14. Row Feeding Cam
15. Spring Holder
16. Friction Wheel
17. Select Lever
18. Row Scale
19. Scale Holder
20. Pan Spring U
21. Roller Holder
22. KR Base
23. Frame (L)

[2] CARRIAGE DISASSEMBLY

1. Fold the Carriage Handle away from you as shown in Figure 6.

2. Remove two Carriage Handle Screws in both recessed ends of Carriage Handle using small +Screwdriver.

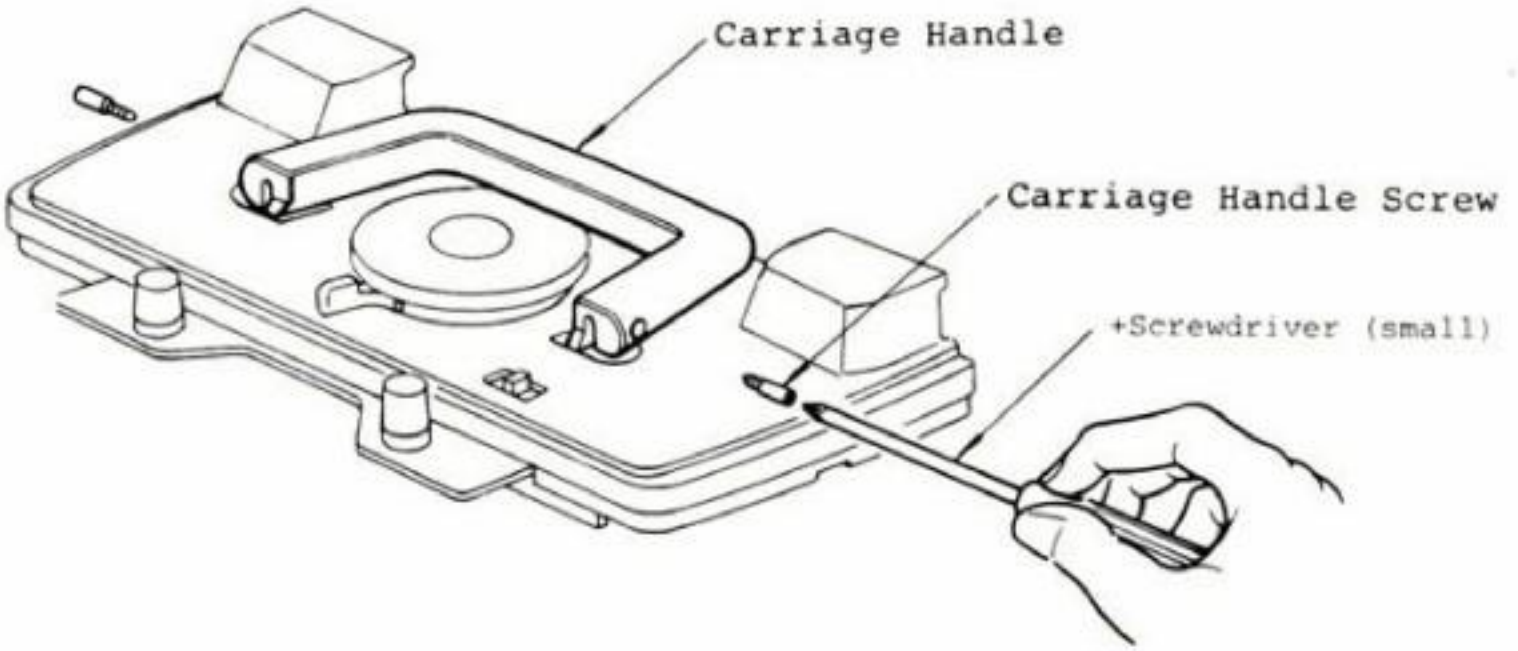


FIG.6

3. Turn the Stitch Dial full counterclockwise, and pull it out together with Dial Cap.

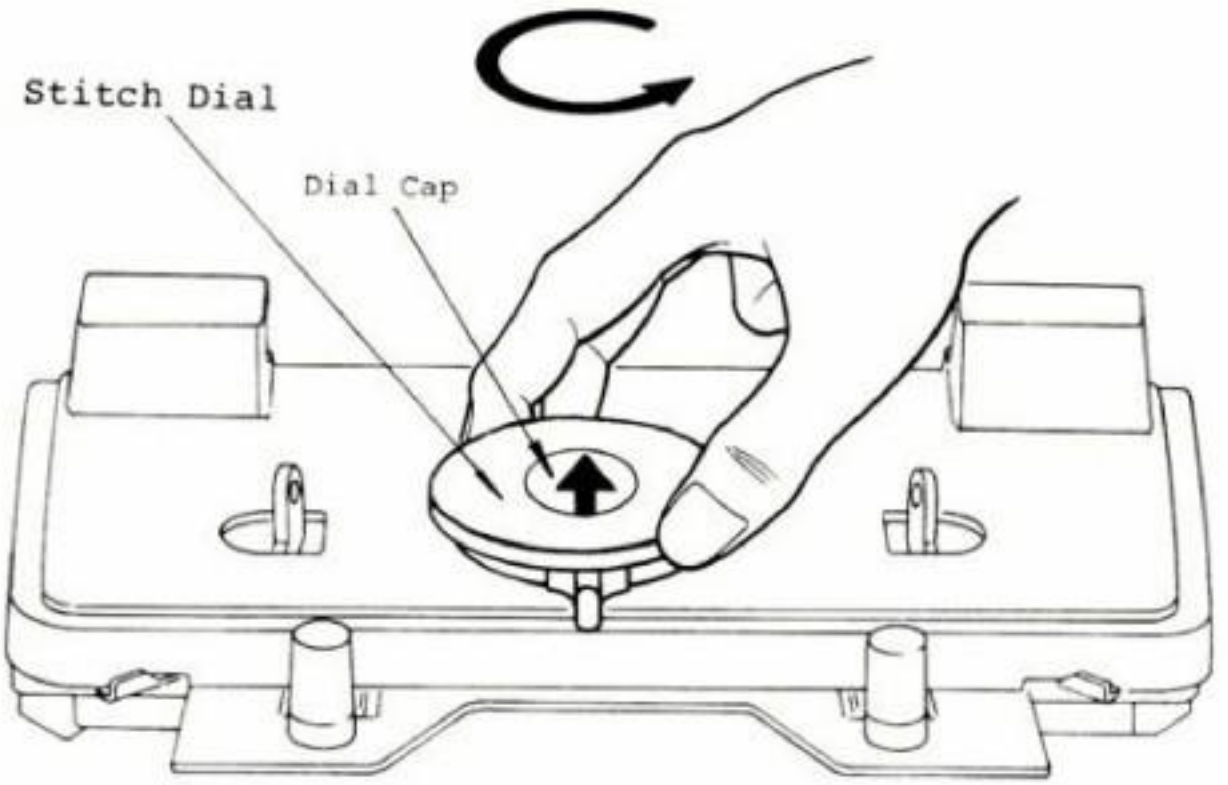


FIG.7

4. Remove two Binding Head Screws 3x6 securing Carriage Cover.

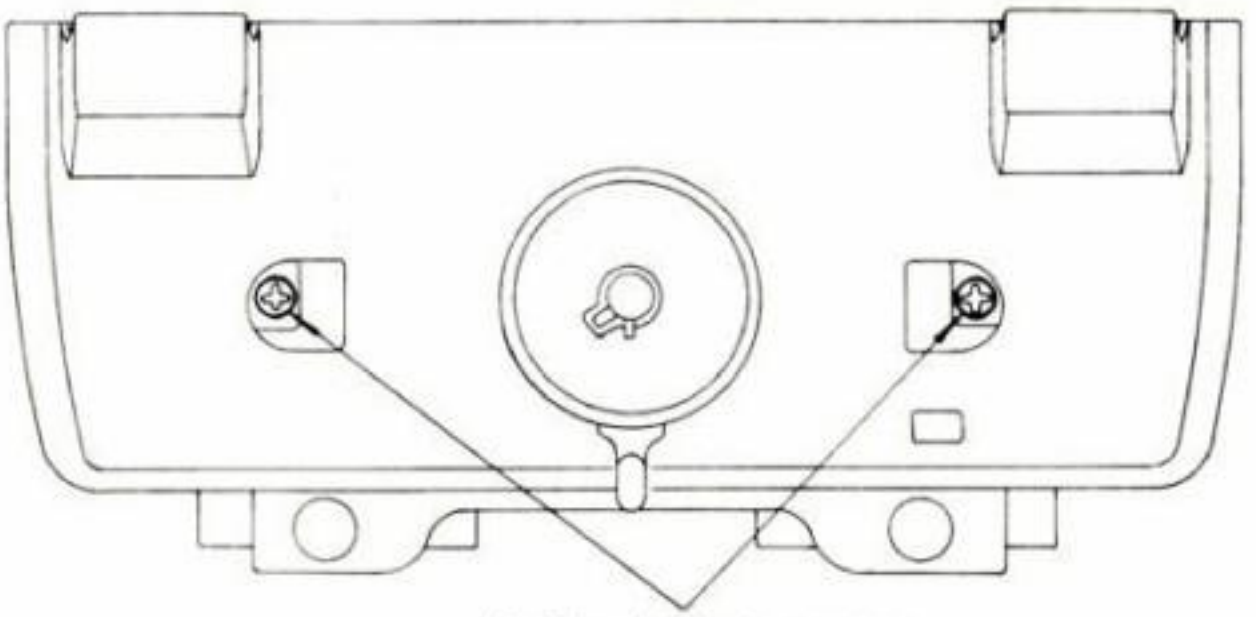


FIG.8

5. Set the Cam Lever to "FAIR ISLE". While pressing the Dial Spring toward you with the shaft of Screwdriver, pull out the Cam Lever together with Carriage Cover as shown in Figure 9.

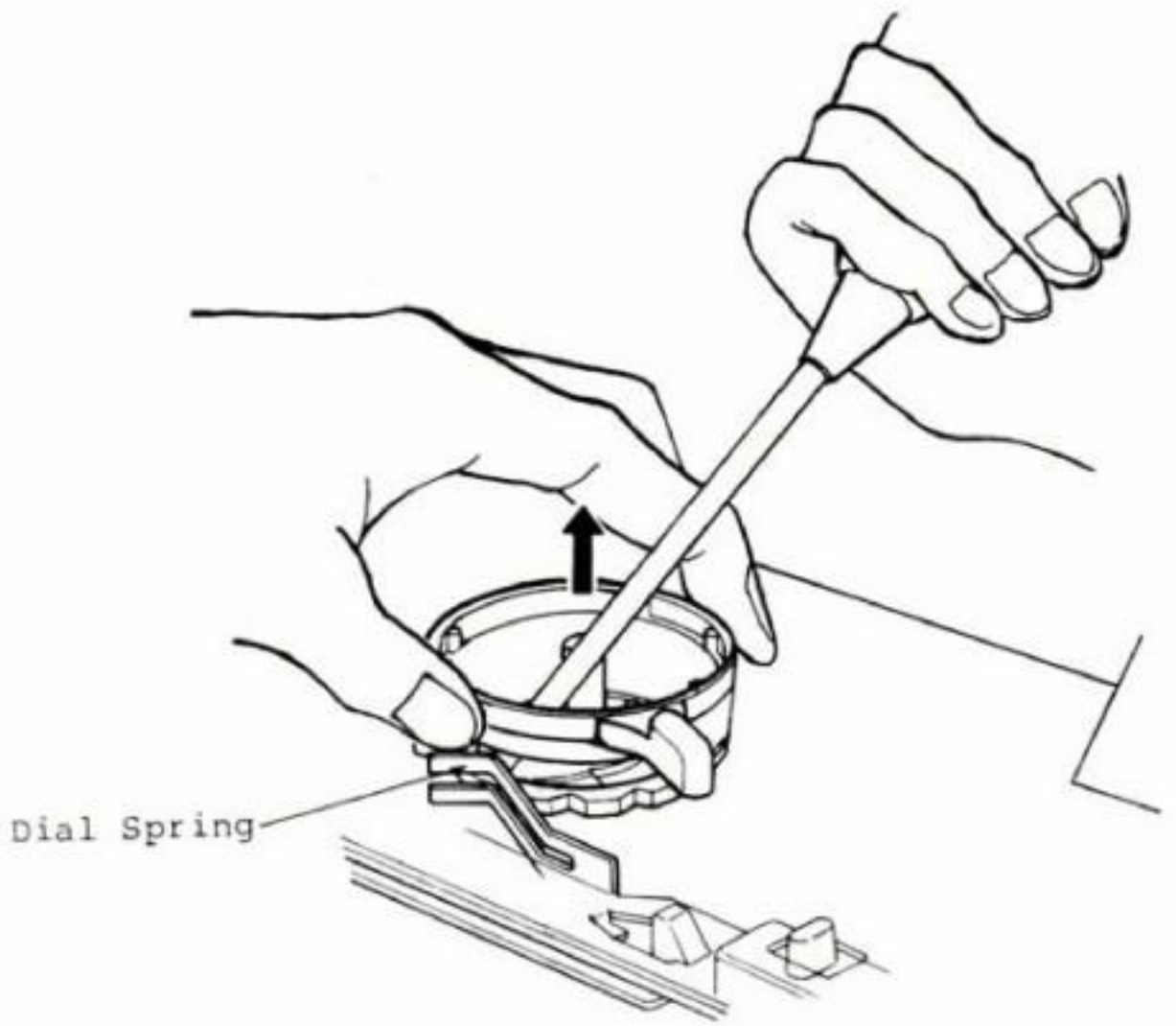


FIG.9

[3] DRUM UNIT ADJUSTMENT

*Before attempting the Drum Unit Adjustment, remove SP Holder and replace Sub Drum with Drum Adjusting Gear (Sub Drum Gear).

[Adjusting Method]

1. Loosen two Spec. PW Binding Head Screws 3x7 and one Binding Head Screw 3x8 securing Drum Base Unit (2 on inboard & 1 on outboard side), and refasten those three screws loosely to secure the Drum Base Unit temporarily.

2. With the notch of Drum Adjusting Gear fitted to Needle Slot, move Drum Base Unit to align the center line between Main and Sub Drum Shafts with the center of Needle Slot and Rack Slot as shown in Figure 10, using the blade of -Screwdriver. Simultaneously, obtain the main drum backlash of approx. 0.2mm circumferential against Needle Bed Rack.

3. Tighten three screws to secure the adjustment.

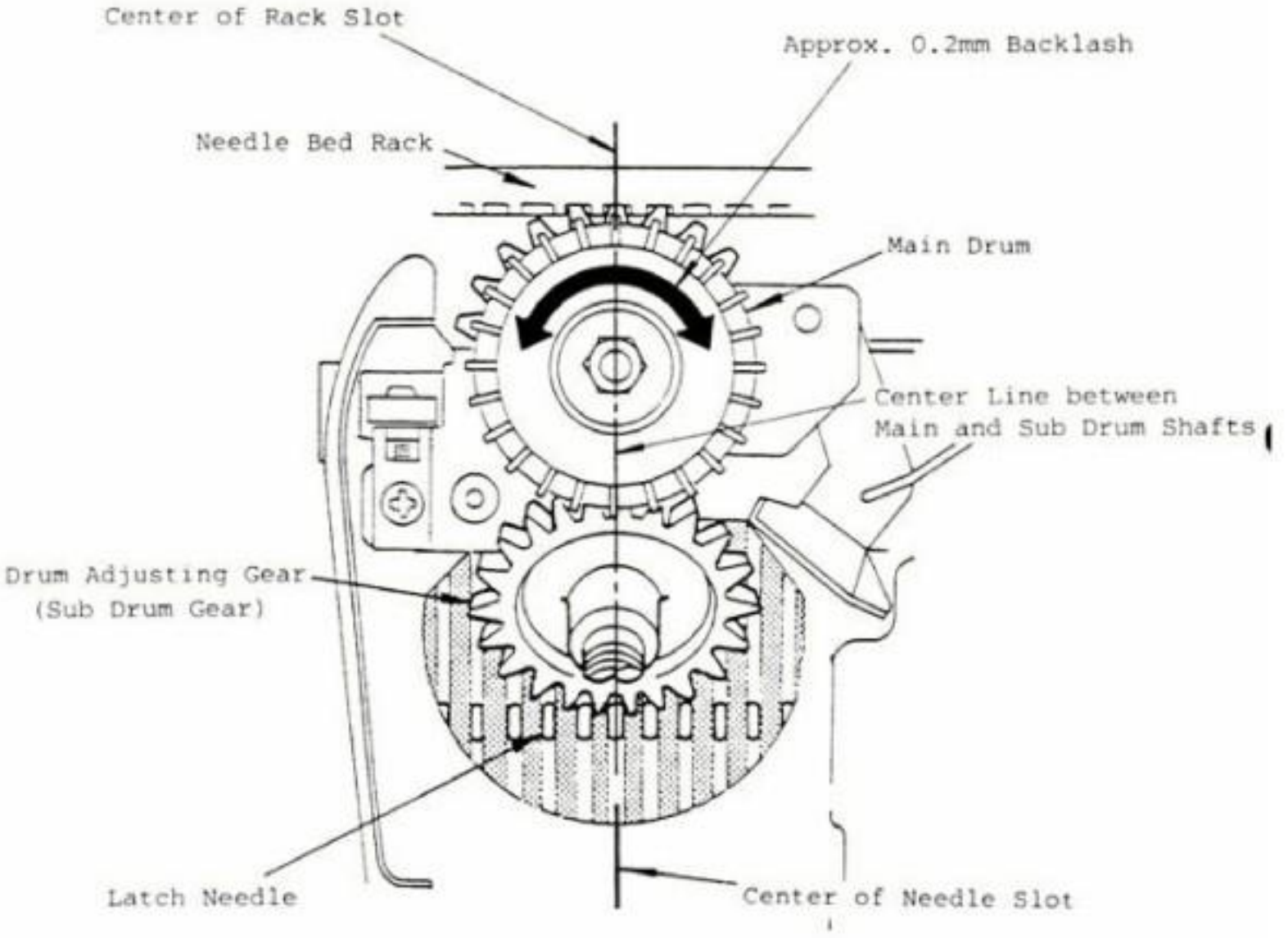


FIG.10

[4] CLEAR WIRE ADJUSTMENT

*When the Drum Unit Adjustment is accomplished, always perform the Clear Wire Adjustment.

[Adjusting Method]

1. Position the Carriage near center so that Clear Cam is actuated by Clear Bar as shown in Figure 11.

2. Adjust the effective length of Clear Wire by stretching or folding its bent portion with Pliers to eliminate the play of Sub Drum Clear Cam in operating position.

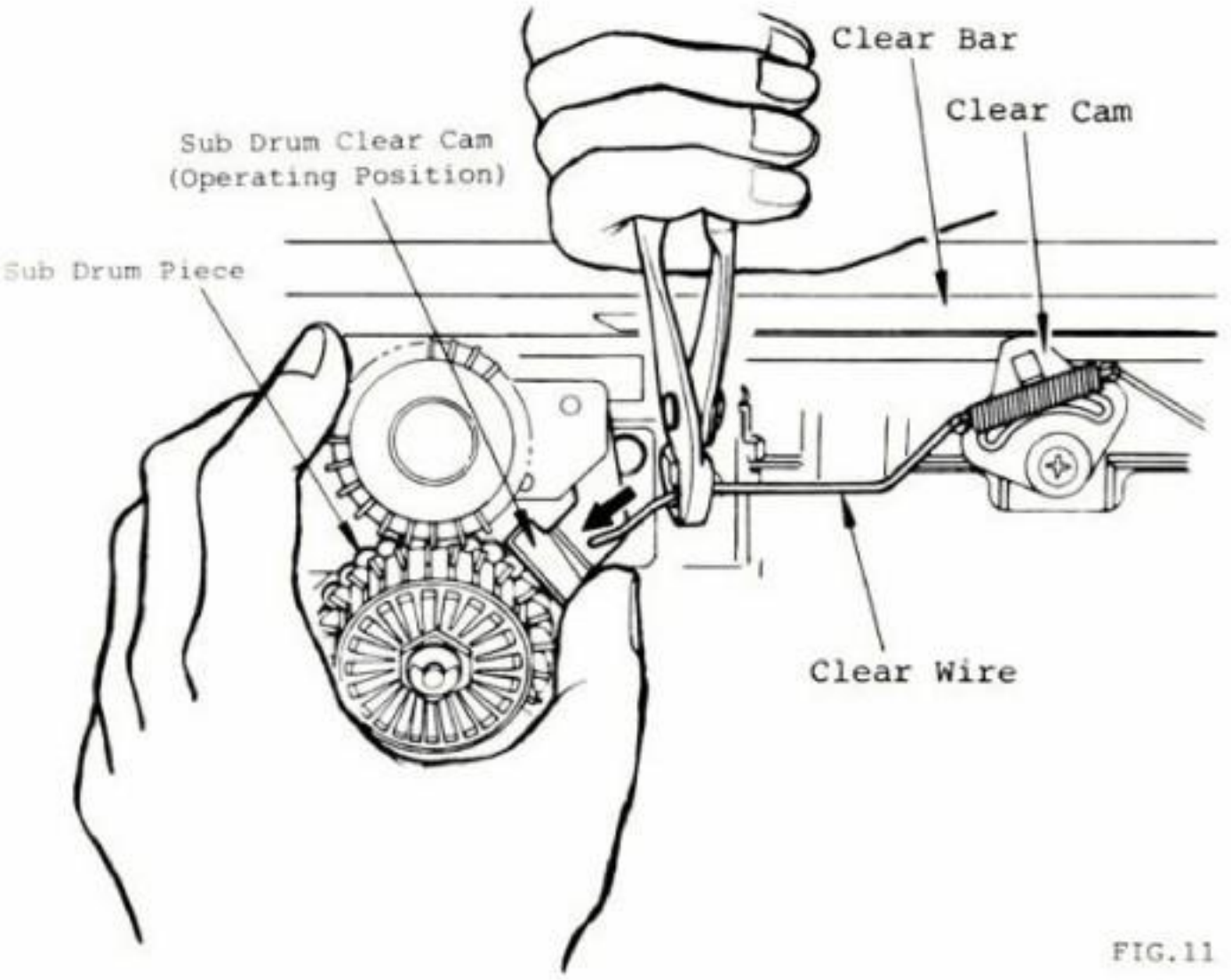


FIG.11

*A clearance between Sub Drum Clear Cam when at operating position and Sub Drum Pieces may result in the incorrect needle selection, because the stored memory in the Sub Drum cannot be cleared completely.

[4] CARRIAGE ROLLER ADJUSTMENT

*Carriage Rollers must contact Carriage Rail and rotate smoothly over the rail when operating the Carriage.

[Adjusting Method]

1. Visually check that Carriage Roller (rear) extends 0.1 to 0.2mm beyond the inner face of Carriage Pipe by measuring the clearance between Carriage Pipe and Carriage Rail.

2. If the Carriage Roller is in excessive contact with Carriage Rail, remove Rear Roller Holder by unscrewing Binding Head Screw 3x8, insert suitable washer under the holder, secure the holder with the screw 3x8 while locating from the boss on Drum Base Unit.

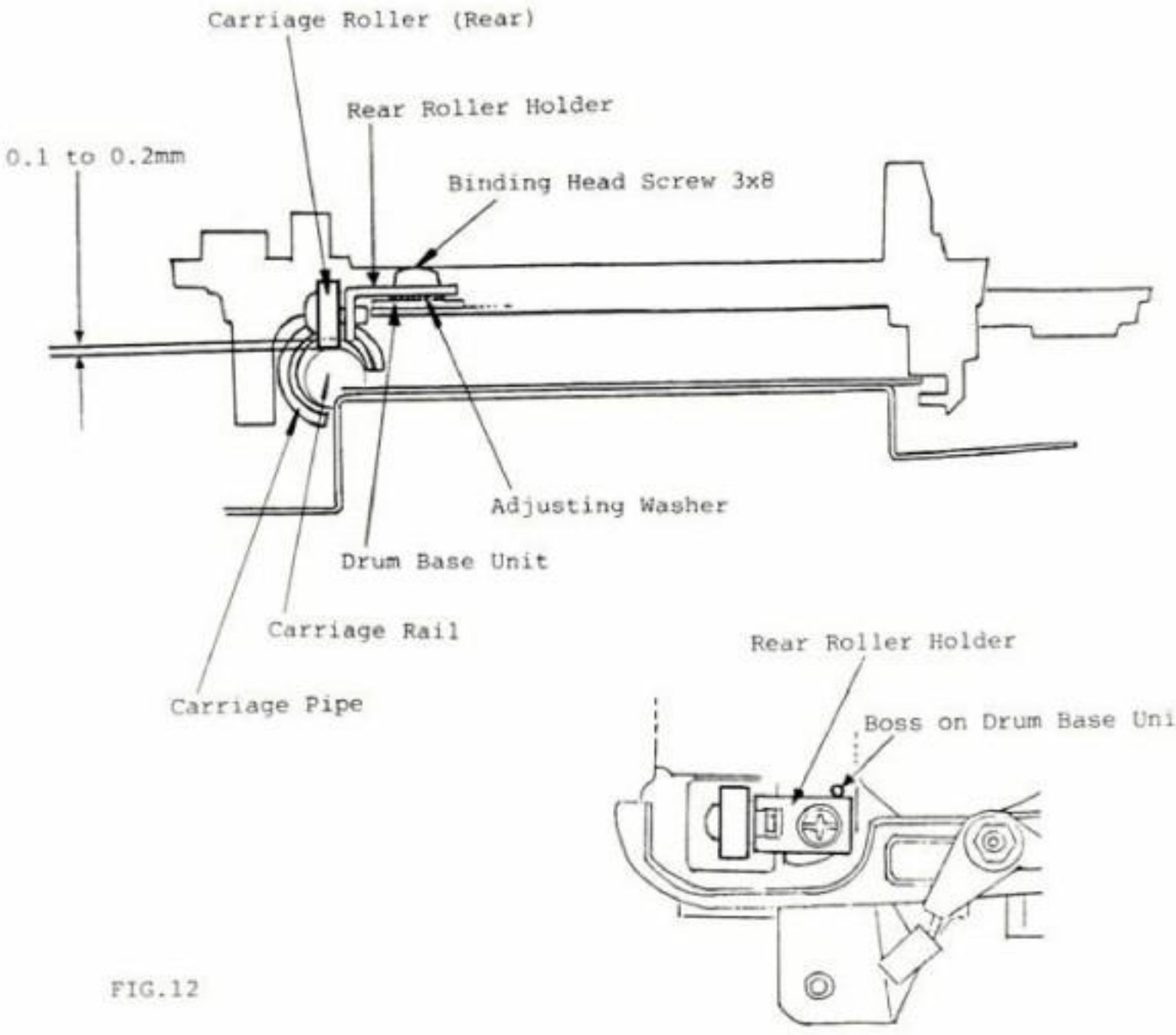


FIG.12

3. If the Carriage Roller is out of contact with Carriage Rail, remove the Carriage from Needle Bed and place it on a stable workbench, put the tip of +Screwdriver on the Rear Roller Holder, strike the screwdriver an impacting blow with Hand Hammer to bend down the holder as shown in Figure 13.

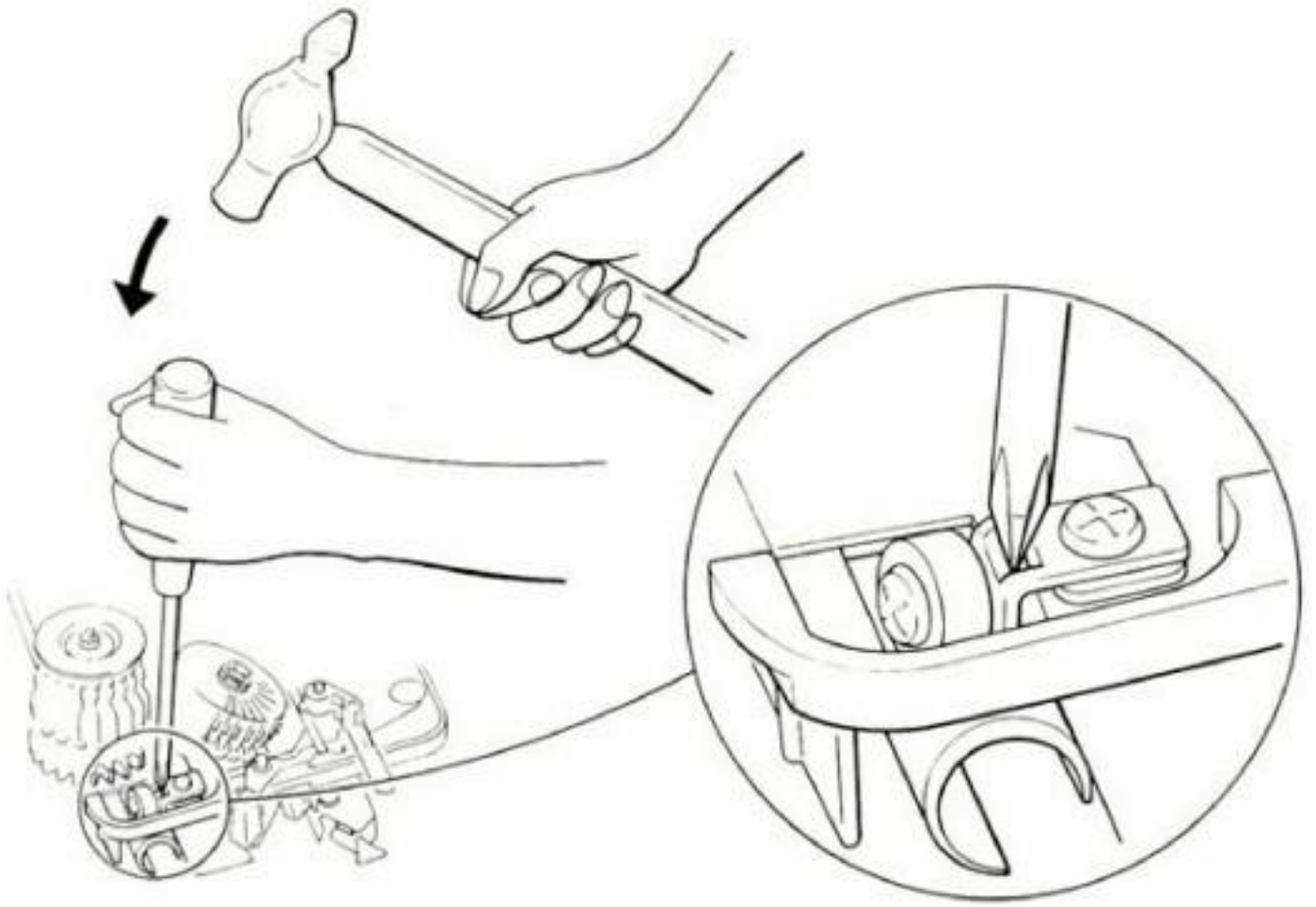


FIG.13

[6] STITCH DIAL DISASSEMBLY AND ASSEMBLY

[Disassembly]

1. Make a pencil index mark on the Stitch Dial A against the locational lug on Dial Indicator to ensure correct reinstallation.

2. Insert a 1-pronged Transfer Tool between the Stitch Dial A and the snap-in latch on Dial Indicator appearing in the side slot.

3. Lever up the Stitch Dial A out of Dial Indicator.

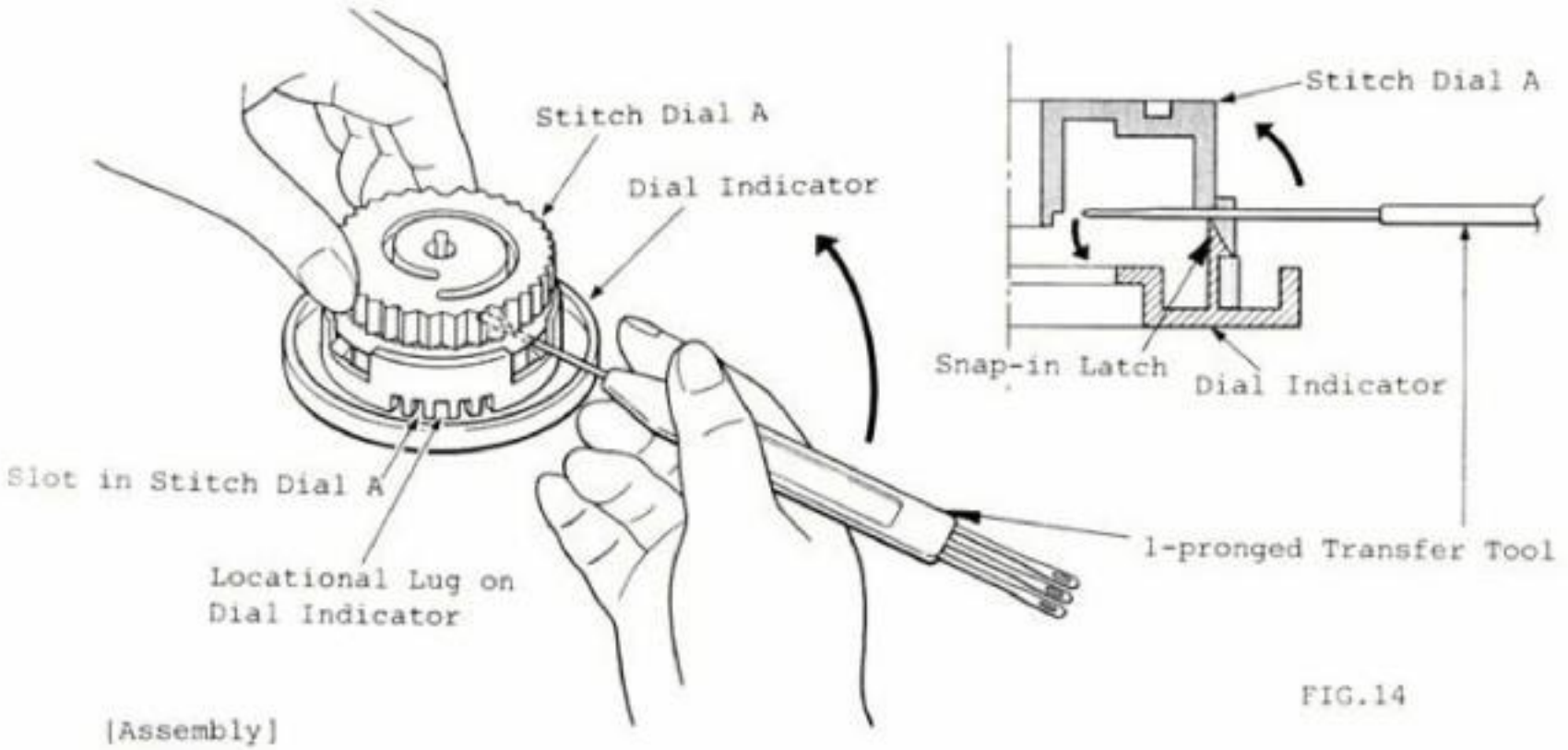


FIG.14

[Assembly]

1. Coincide the locational lug on Dial Indicator with the pencil index mark on Stitch Dial A as shown in Figure 15, while fitting three snap-in latches into the rim of Stitch Dial A.

2. Press the Dial Indicator into Stitch Dial A.

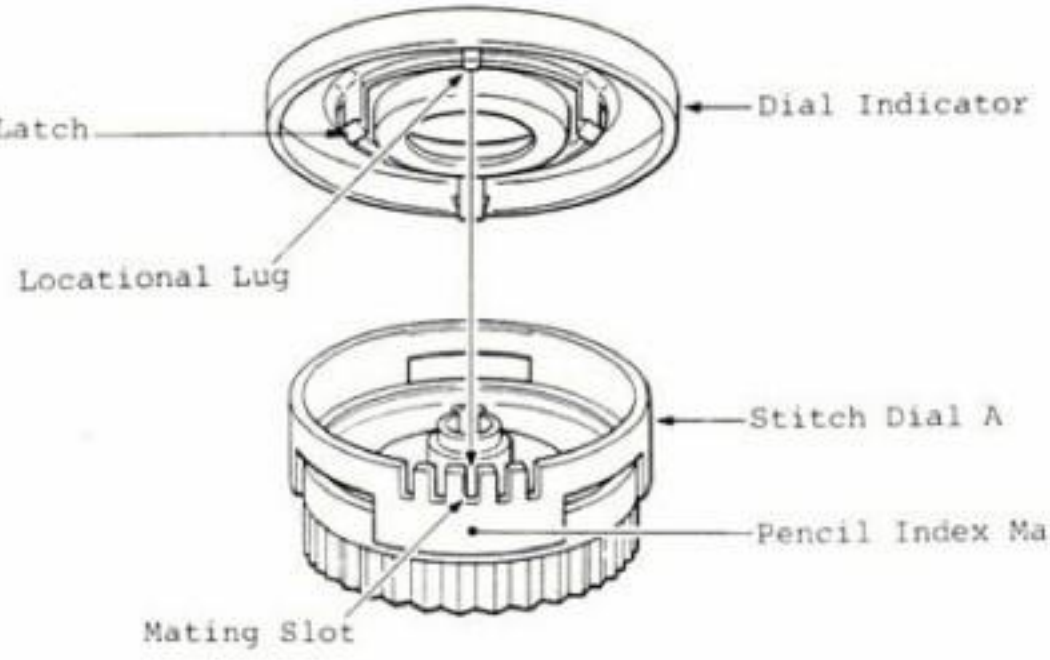


FIG.15

[7] CARRIAGE ASSEMBLY

1. Place the Cam Lever through the opening in Carriage Cover. Position the Cam Lever at "FAIR ISLE".

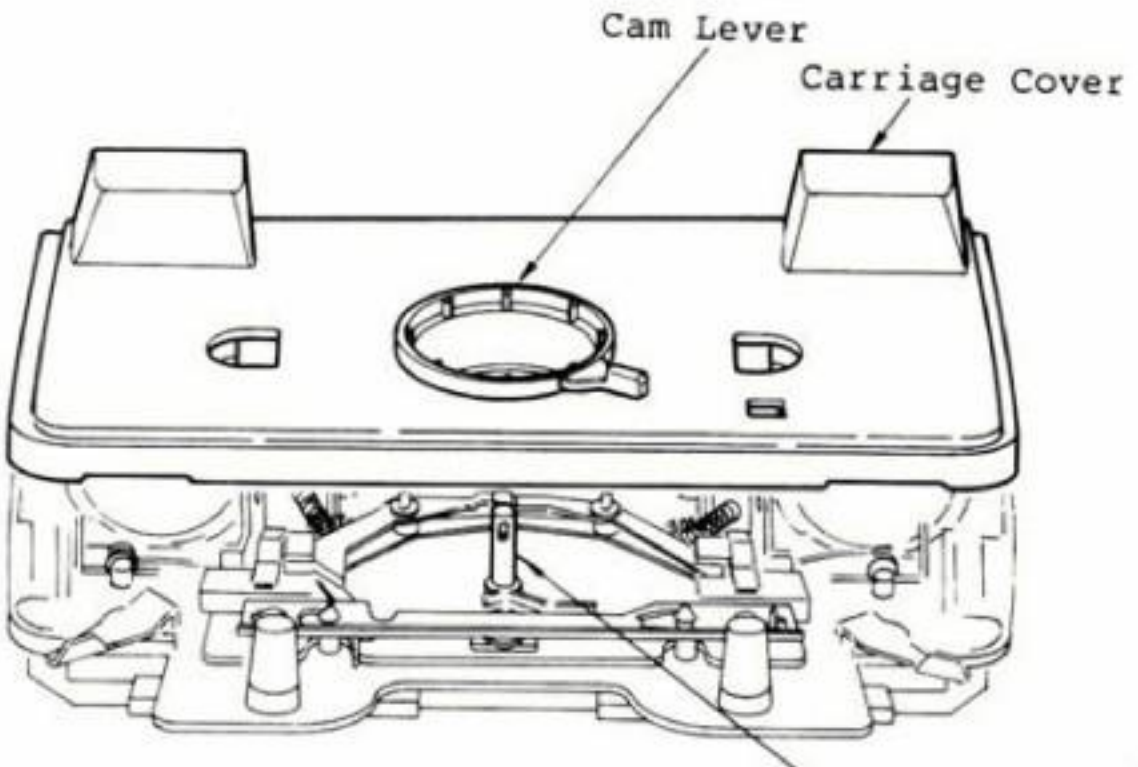


FIG.16

2. Fit the Cam Lever onto Dial Shaft.

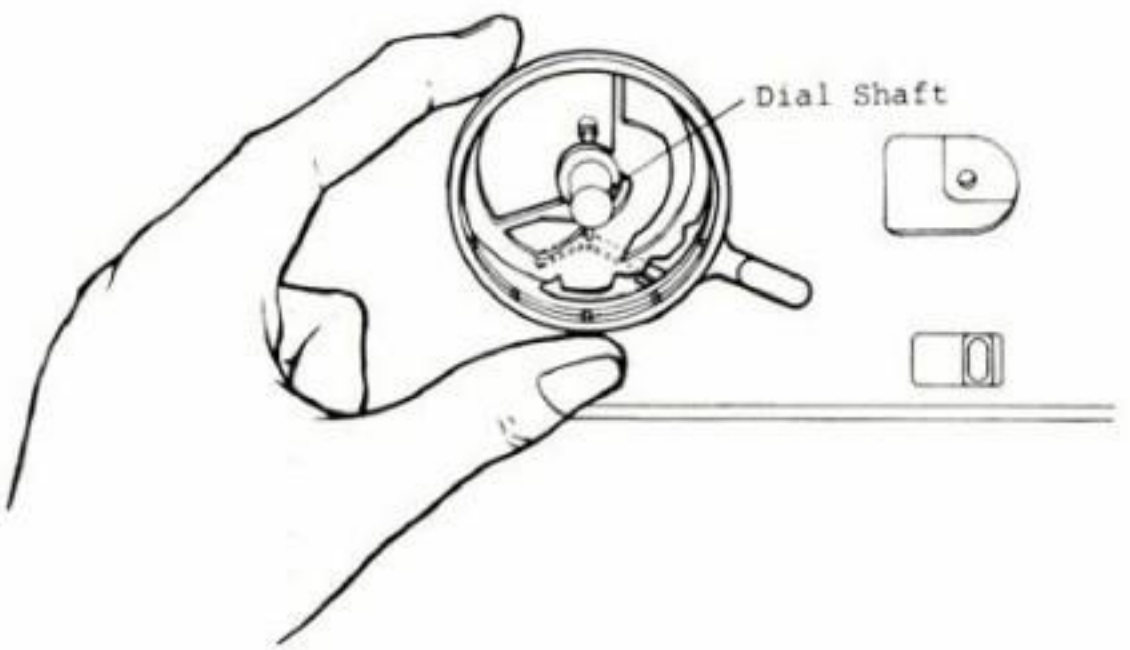


FIG.17

3. Turn the cam Lever toward "PUNCH LACE", while pressing it downward. Cam Lever will fall down a little and get stuck at the position immediately before "PUNCH LACE".

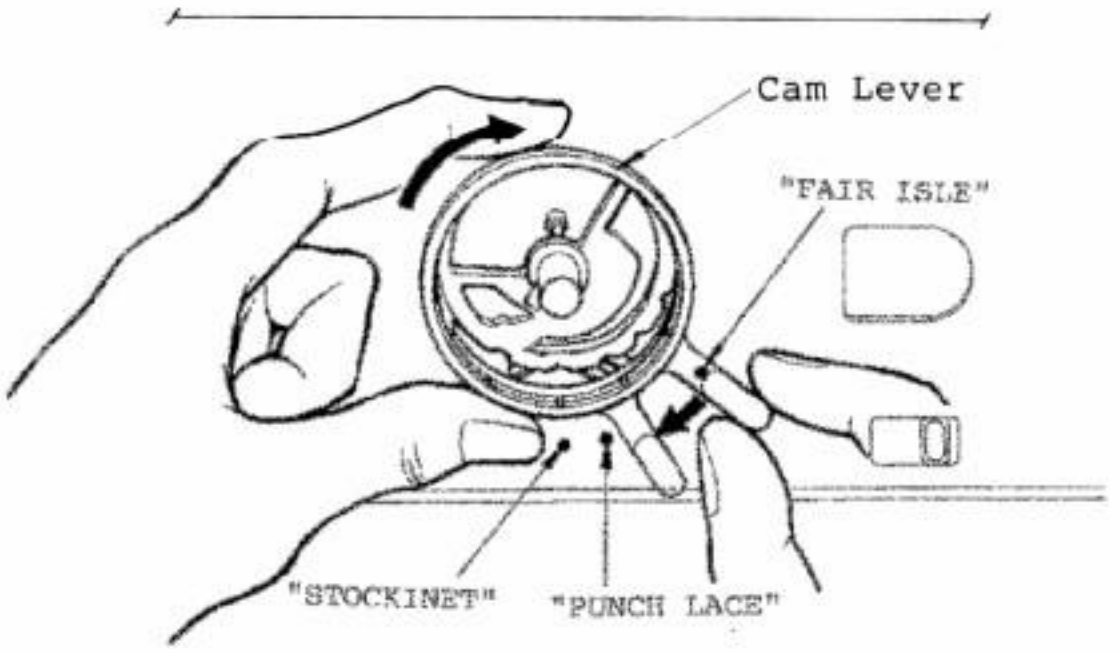


FIG.18

4. Still applying downward finger pressure, return Cam Lever carefully toward "FAIR ISLE". When the Cam Lever has got stuck at "FAIR ISLE", press down the lever firmly into position.

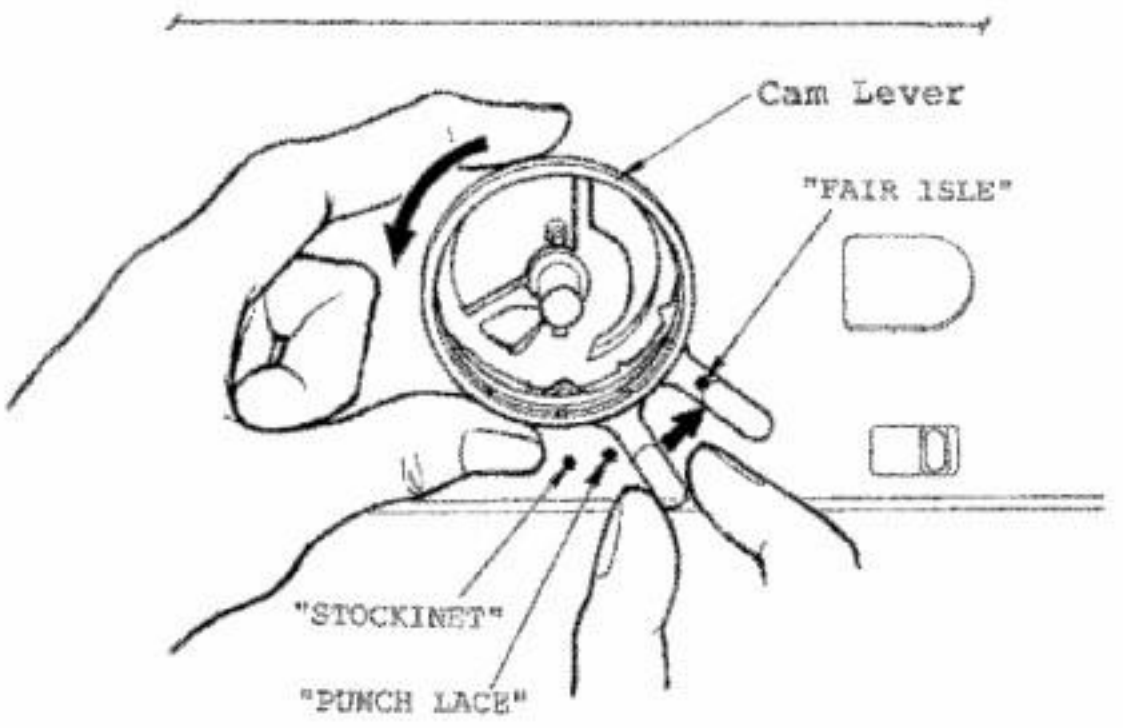


FIG.19

5. Secure the Carriage Cover with two Binding Head Screws 3x6.

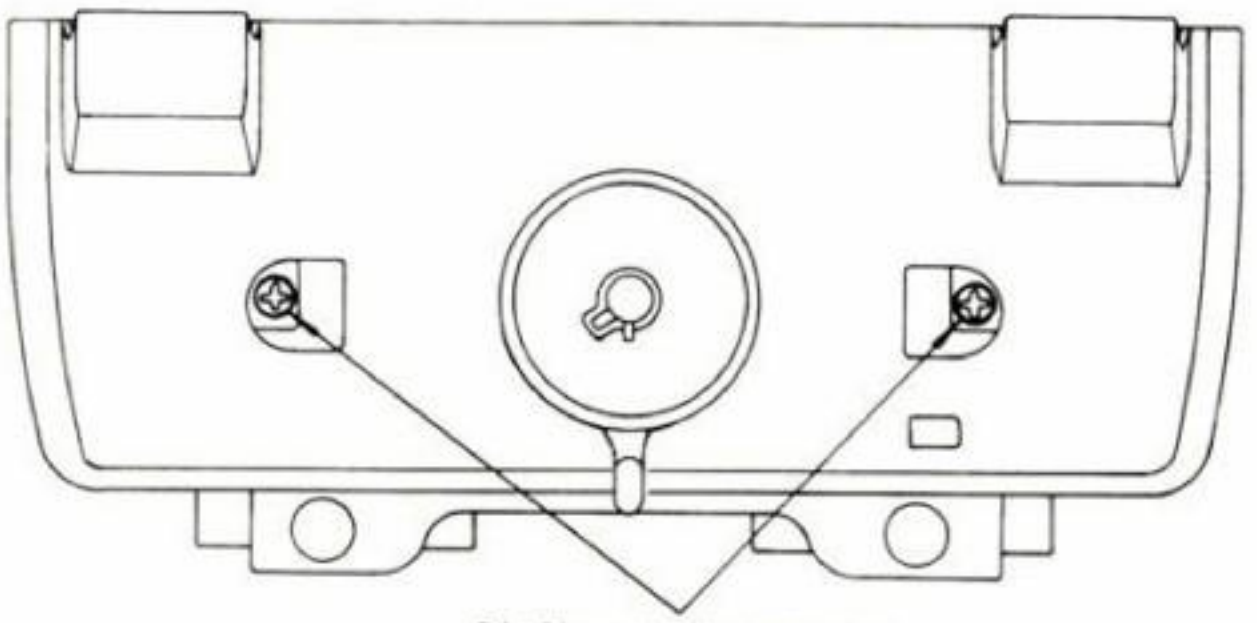


FIG.20

6. Push the Travelling Plate Pin toward Dial Shaft. (If the Travelling Plate Pin is away from Dial Shaft, Stitch Dial will not fit in place.)

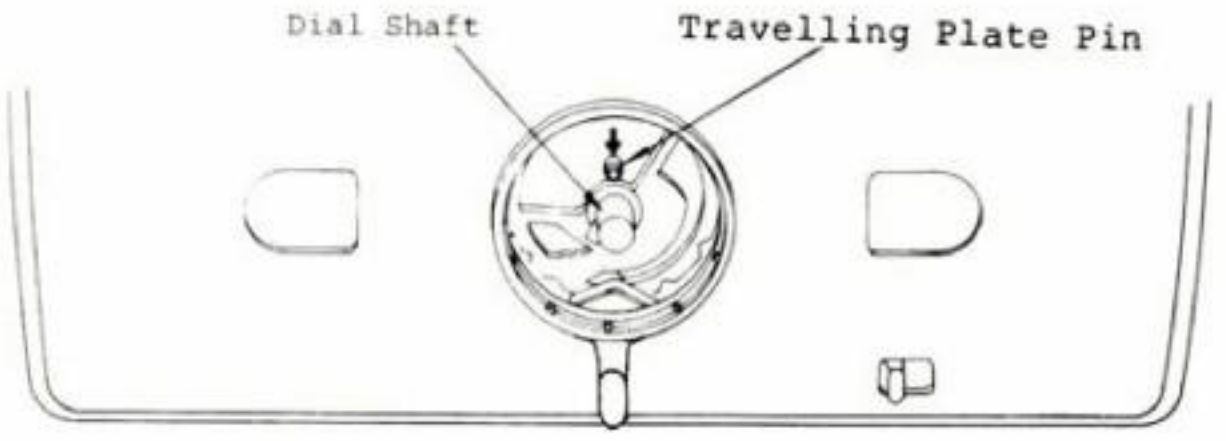


FIG.21

7. Fit the Stitch Dial onto Dial Shaft, and turn the dial clockwise. Snap the Dial Cap onto Dial Shaft with its pointer toward you.

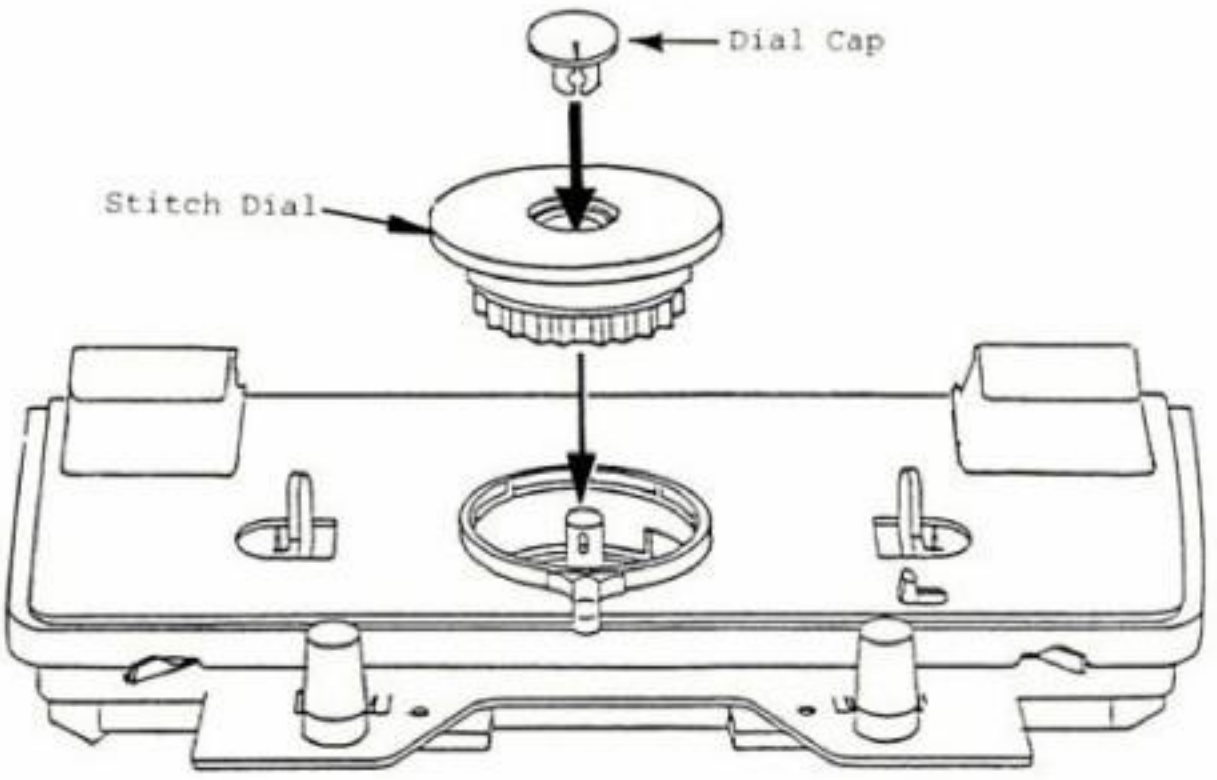


FIG.22

8. Lay down Carriage Handle as shown in Figure 23. Install two Carriage Handle Screws to engage recesses in Carriage Handle.

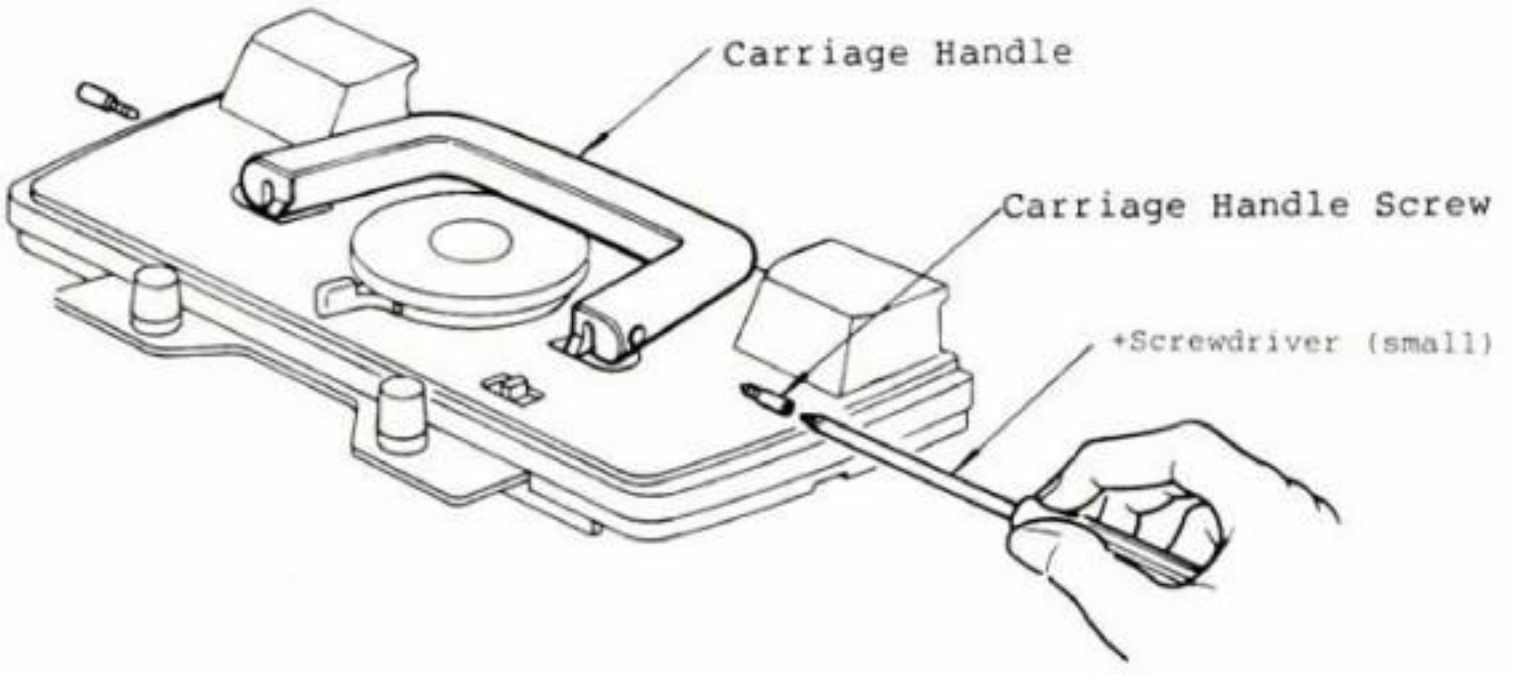


FIG.23

[8] MACHINE BODY DISASSEMBLY AND ASSEMBLY

1. Pull off Row Number Dial, KR Feeding Dial, and Change Dial on KR Unit, also Stop Knob and L Knob on Pattern Unit.

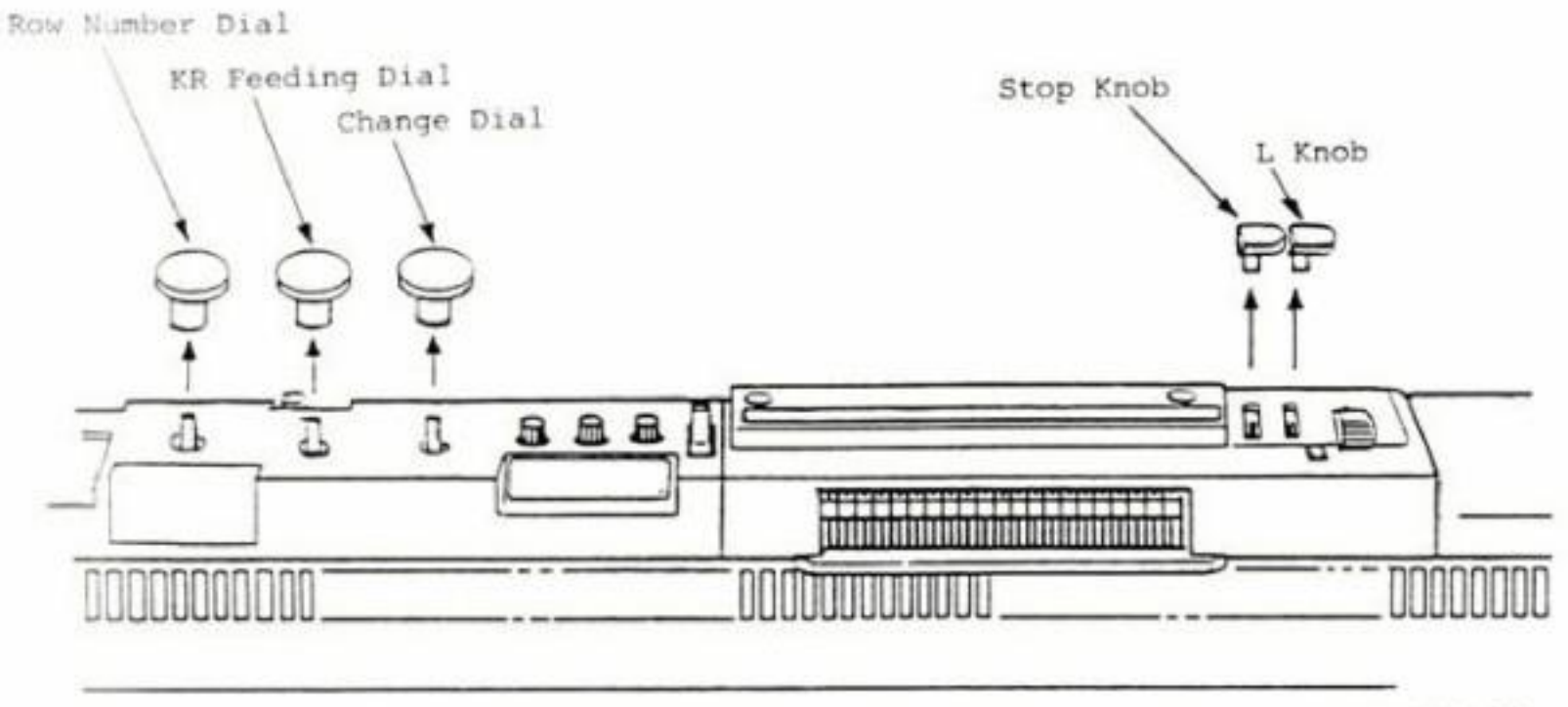


FIG.24

2. Turn the Paper Lever and RC Lever toward you, also Select Lever to the left. Remove two Panel Screws securing PC Panel.

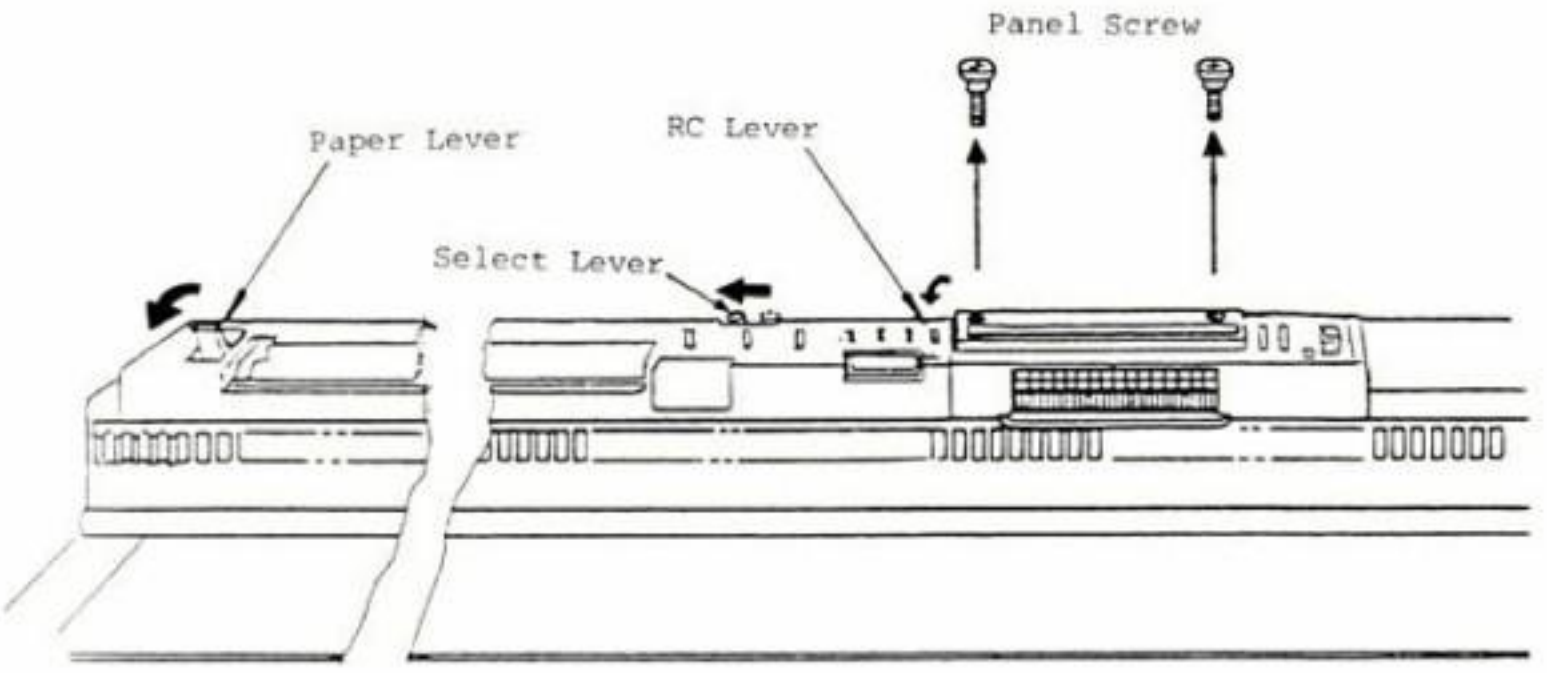


FIG.25

3. Lift off PC Panel, then KR Panel.

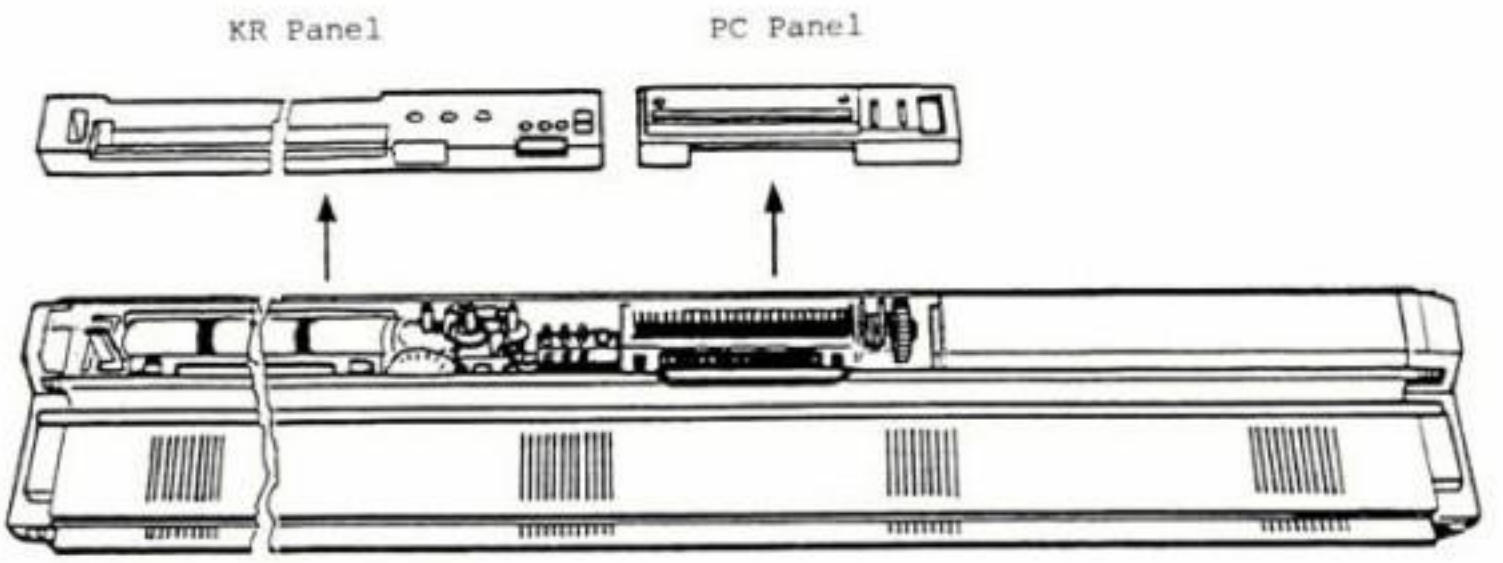


FIG.26

4. Ensure the Accessory Box is closed. Lift up left end of Accessory Box, then slide it to the left out of the Case.

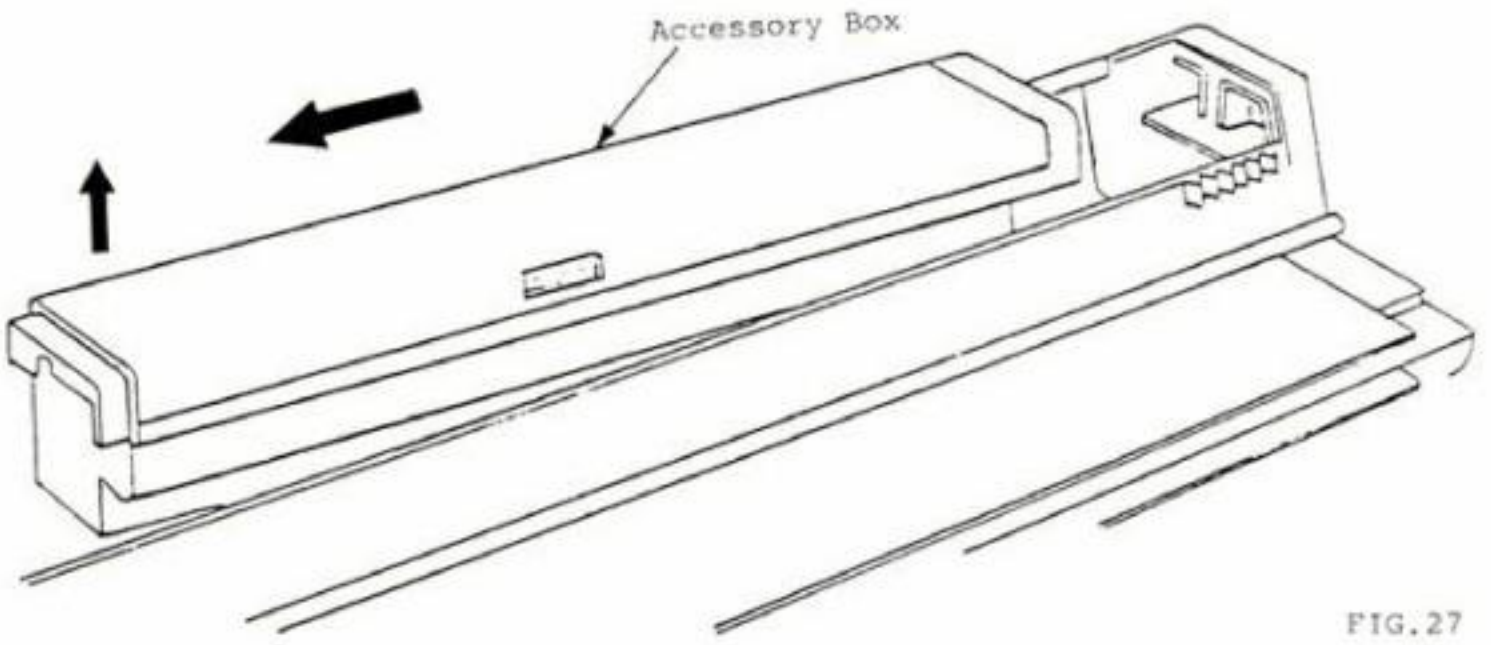


FIG.27

5. Place the Machine Body upside down as shown in Figure 28. Remove four Collar Head STT Screws 3x8 (1 on each bottom and back & 2 behind Carrying Handle), also two Binding Head STT Screws 3x10 securing Carrying Handle Brackets.

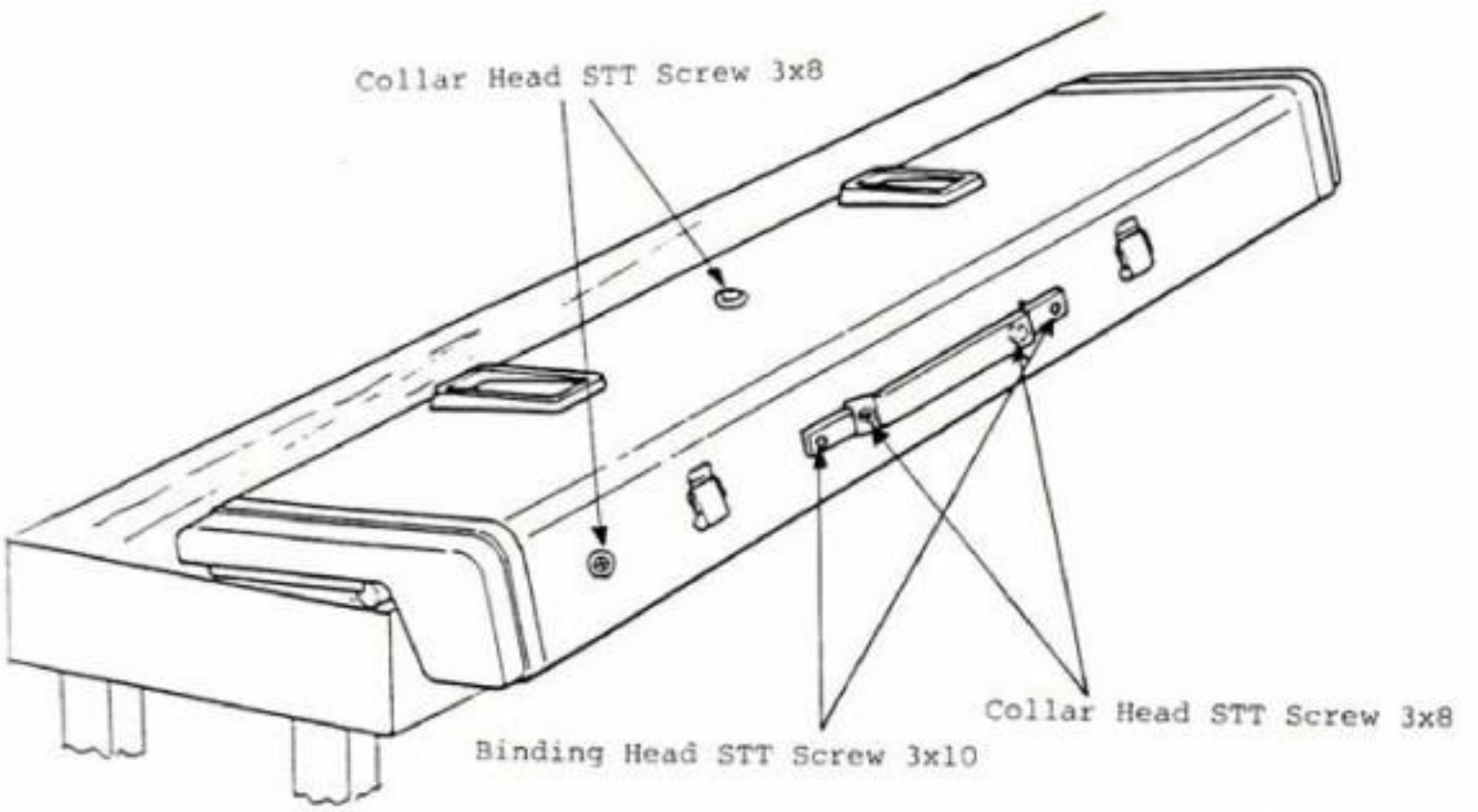


FIG.28

6. Turn over the Machine Body to the top side. Remove four Spec. Flat Head Countersunk STT Screws 4x10 and two Binding Head Screws securing Needle Bed at both ends.

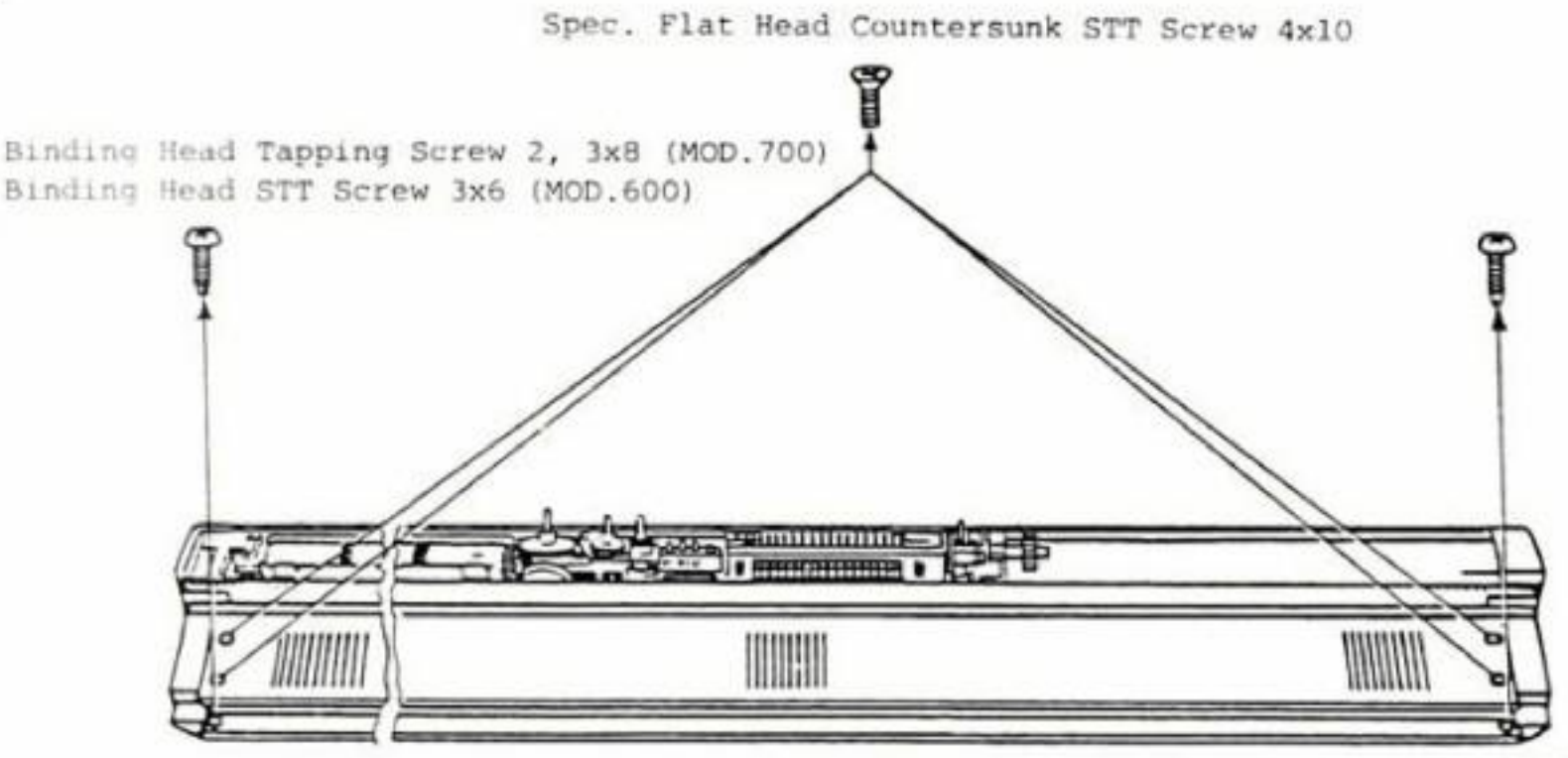


FIG.29

7. Slightly lift up the front edge of Needle Bed, then draw the Needle Bed toward you out of the Case. Do not raise the front edge more than necessary; otherwise, the Pattern Unit will be caught in the Case.

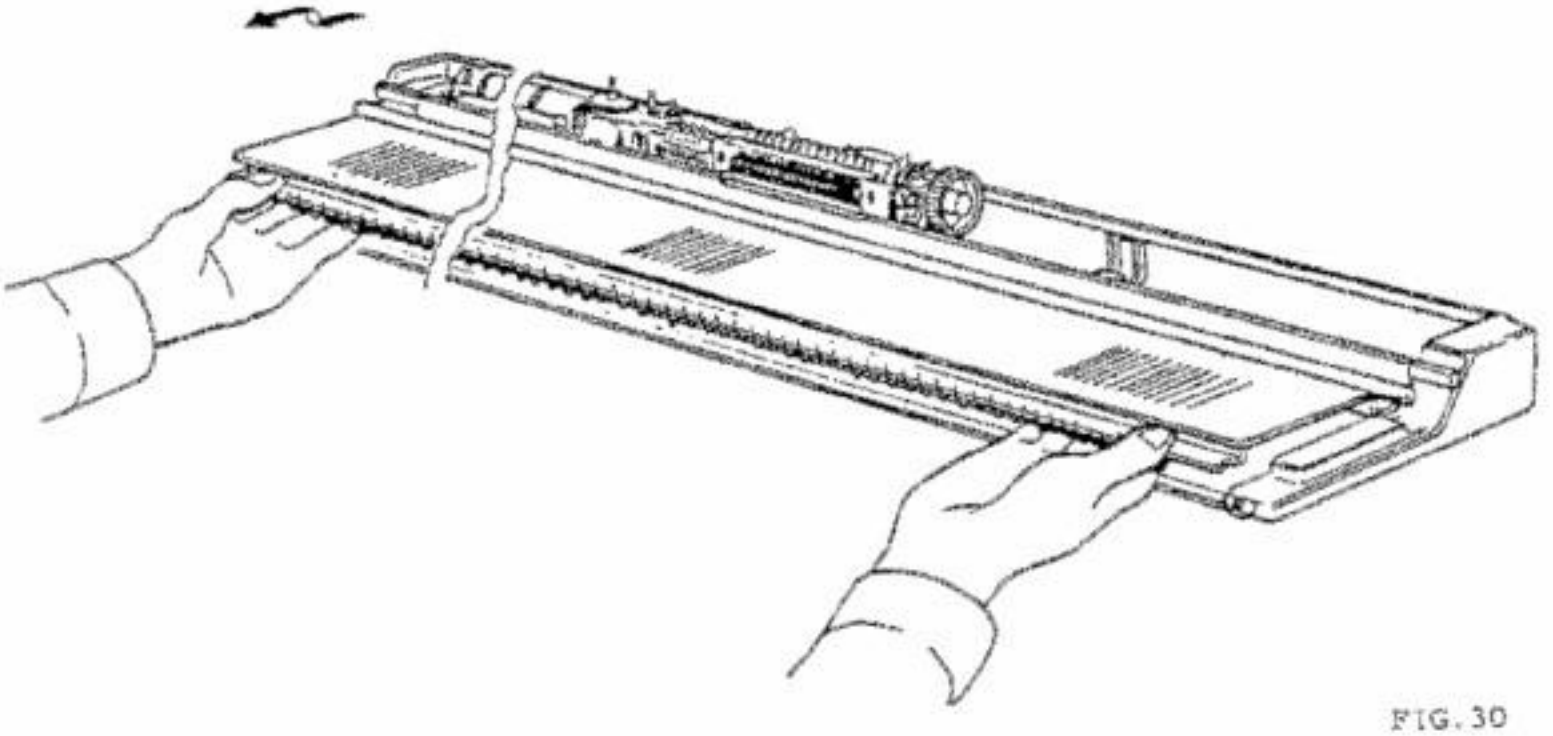


FIG.30

*REVERSE THE PROCEDURE TO ASSEMBLE THE MACHINE BODY.

[9] KR UNIT REMOVAL AND INSTALLATION

1. Remove the Row Counter from KR Unit by unscrewing Pan Head STT Screw 3x6.

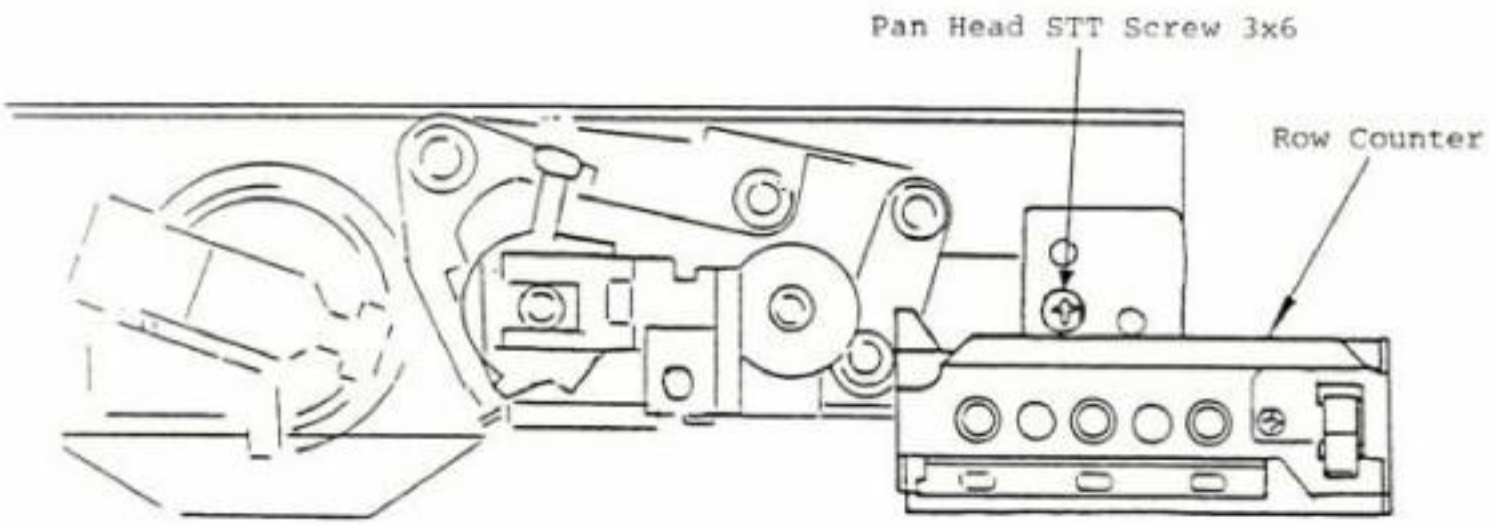


FIG.31

2. Push approx. 100 needles in front of Pattern Unit to D Position. Remove four Binding Head STT Screws 3x8 (bright yellow) securing KR Unit.

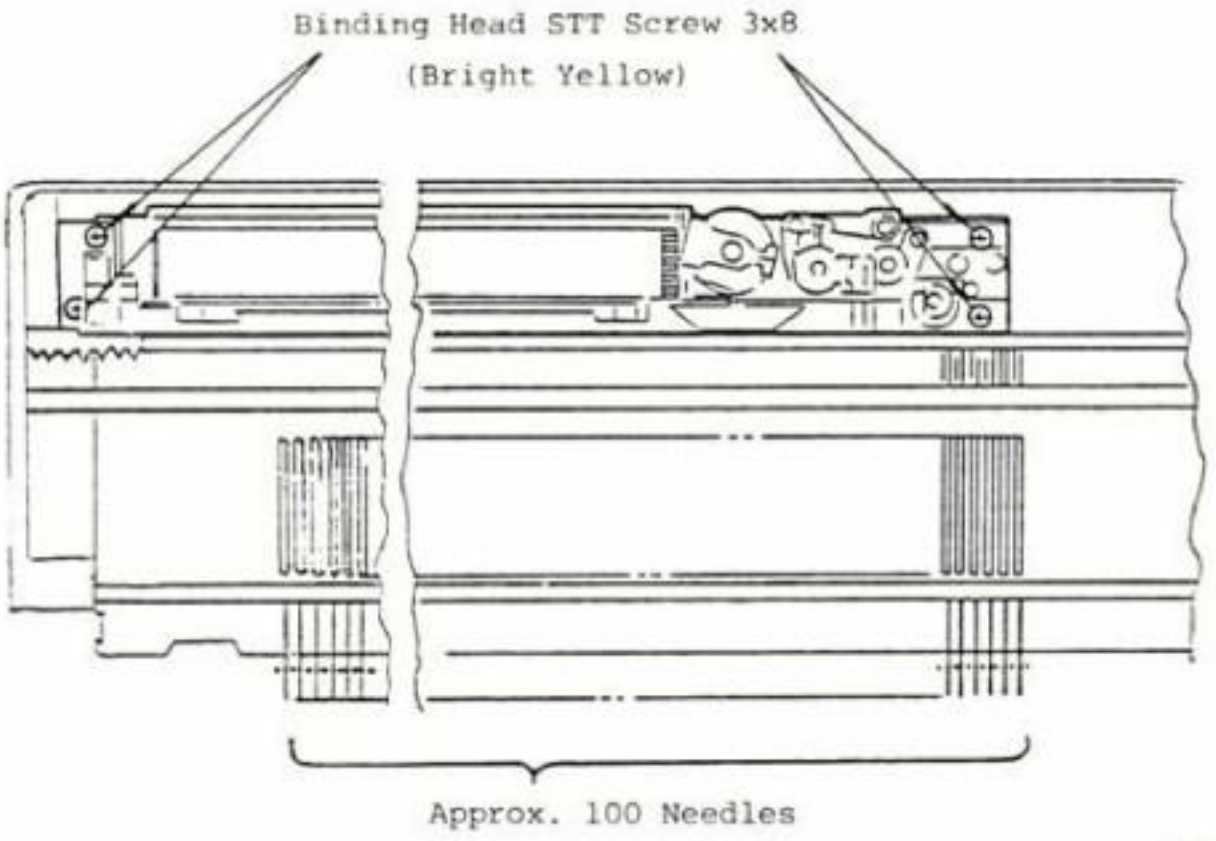


FIG.32

3. Press and hold Row Feeding Cam against the KR Unit as shown in Figure 33. Lift the left end of KR Unit by picking up the Paper Lever, then slide the unit to the left until approx. its half-section comes out of the Machine Body.

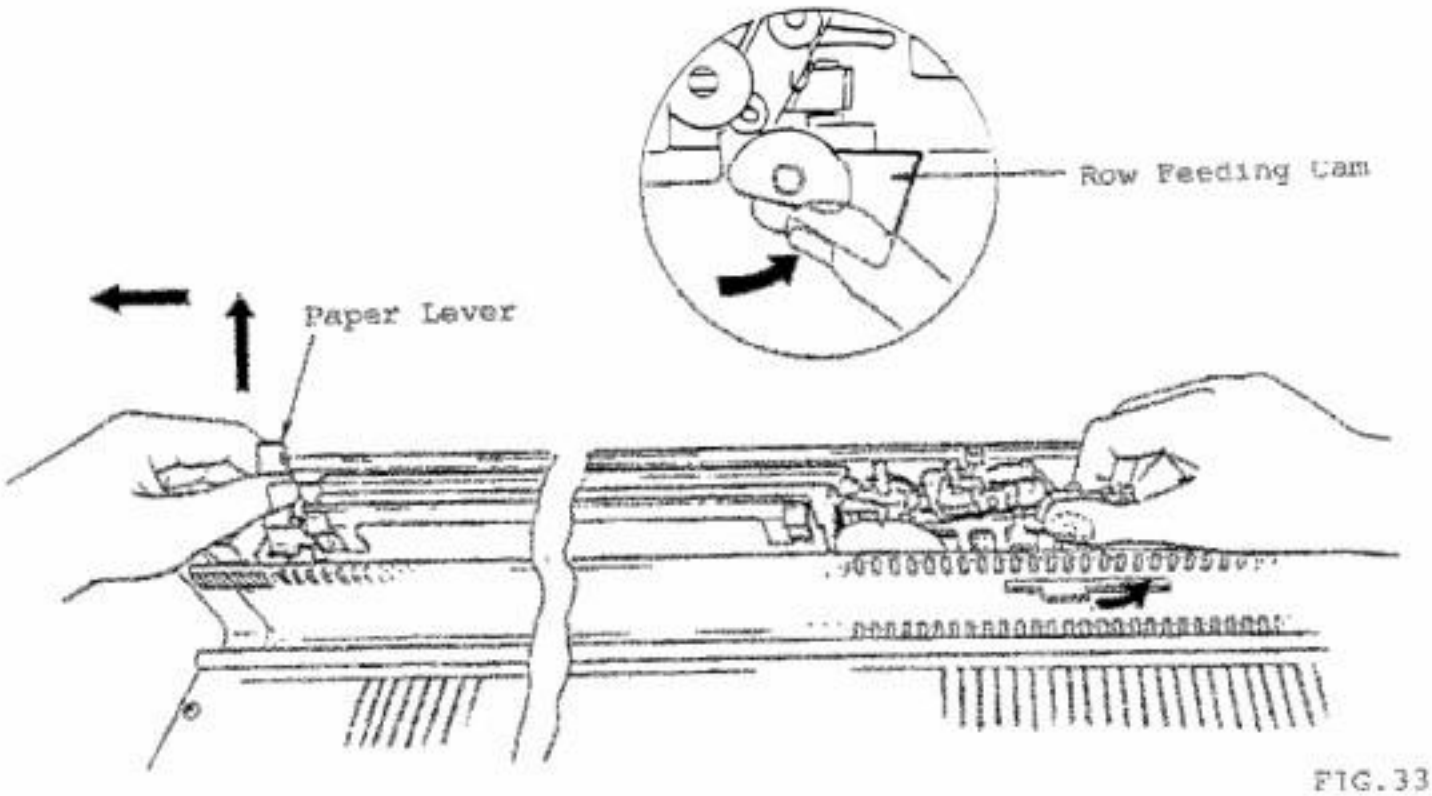


FIG.33

4. Further lift up the KR Unit out of the Machine Body, while tilting the unit toward you.

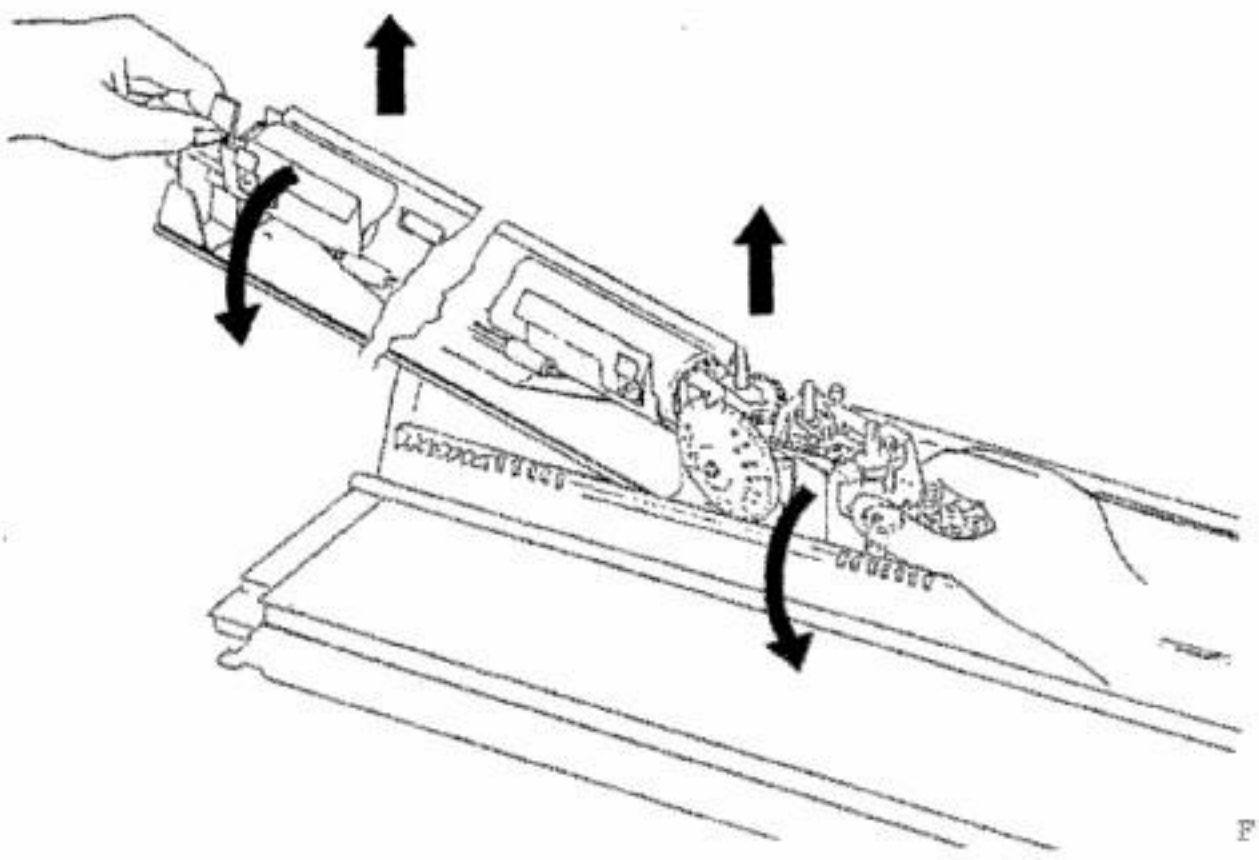


FIG.34

*REVERSE THE PROCEDURE TO INSTALL THE KR UNIT.

[10] PATTERN UNIT ADJUSTMENT

*When the Pattern Unit is removed from the machine, always perform the Pattern Unit Adjustment at reinstallation.

[Adjusting Method]

1. Insert Punch Card No.1 (or NP Card) into Pattern Unit. Turn the Stop Lever toward you to stop the card feeding. Loosen four Collar Head STT Screws 3x5 securing Pattern Unit, and refasten those four screws loosely to secure the unit temporarily.

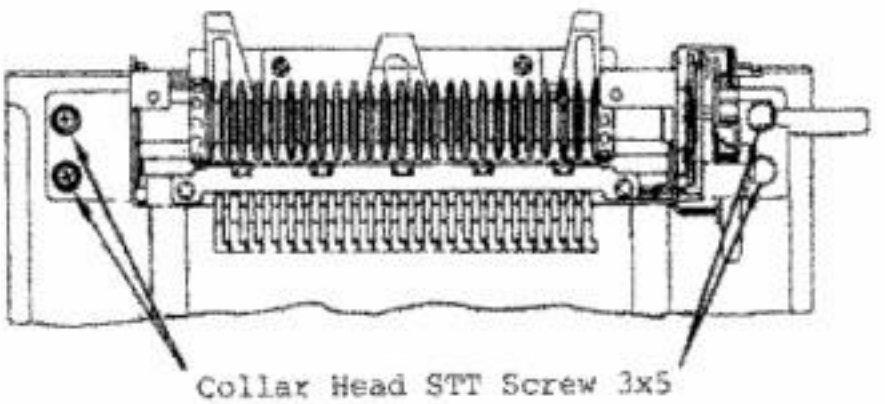
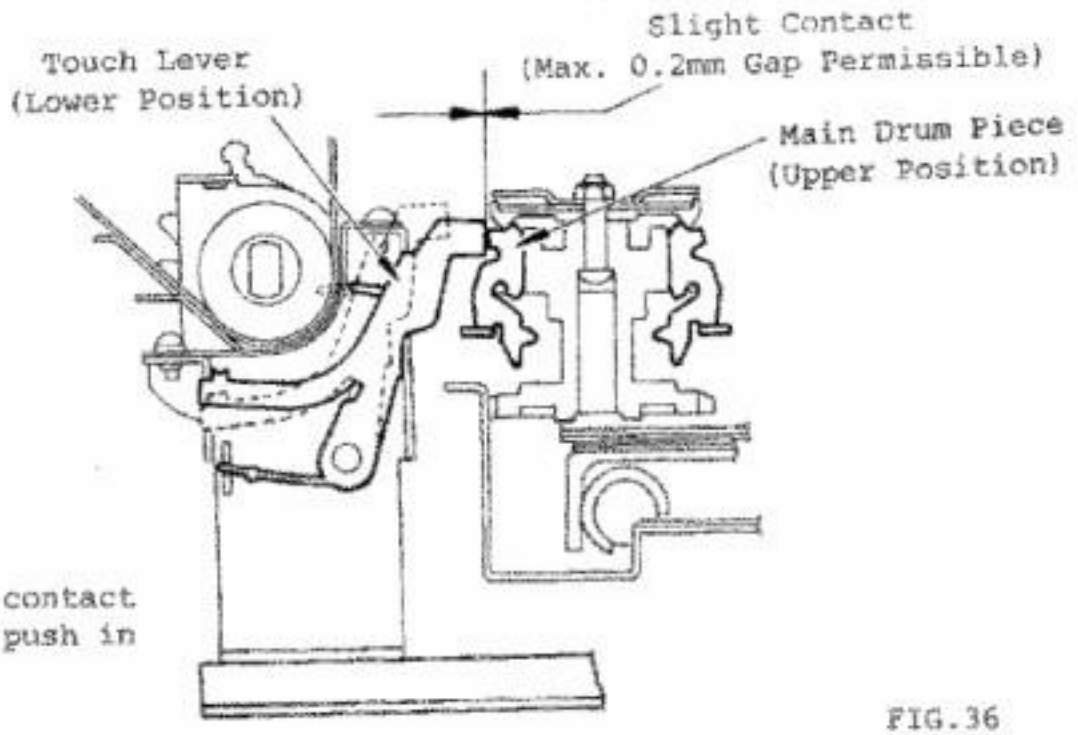


FIG.35

2. Position the Carriage so that Main Drum Piece is pushed in and aligned with Touch Lever as shown in Figure 36. Using the blade of -Screwdriver, move the Pattern Unit back and forth to obtain a slight contact (0 to 0.2mm gap permissible) between Touch Lever and Main Drum Piece.



*Check for proper contact when Touch Lever push in Main Drum Piece.

FIG.36

3. Tighten the screws 3x5 to secure the adjustment.

[11] FEEDING LEVER ADJUSTMENT

[Adjusting Method]

1. Position the Carriage so that Feeding Lever is raised to its uppermost position by Driving Cam on the back of the Carriage as shown in Figure 37. Check to see if the vertical play of Feeding Lever is provided only slightly by pulling it upward with finger. The maximum play must not exceed 0.5mm.

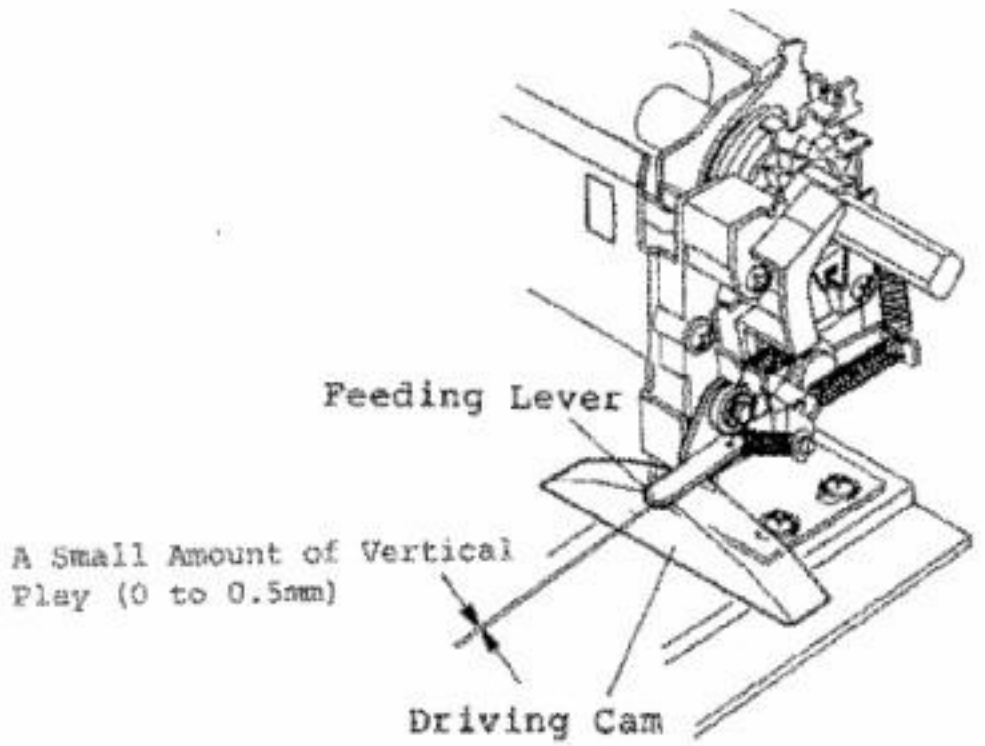


FIG.37

2. To check the amount of vertical play, press and hold Feeding Lever B against Ratchet Wheel with finger, then measure the clearance between Feeding Lever B and Adjusting Collar using Feeler Gauge (or visual inspection). The clearance should be 0 to 0.5mm.

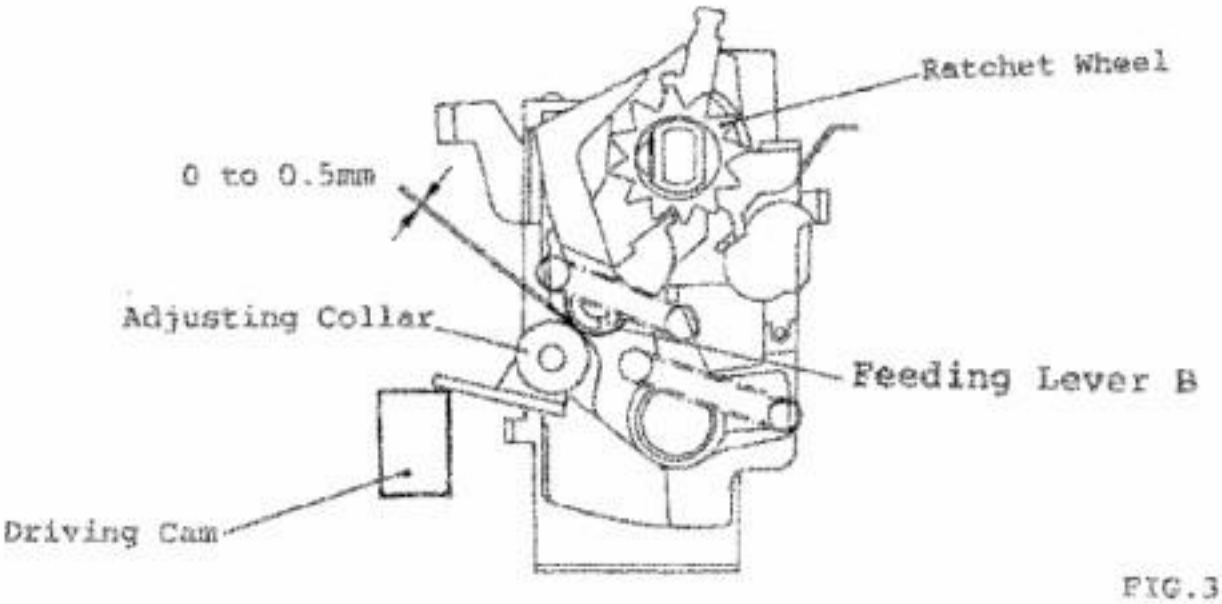


FIG.38

3. If the clearance is in excess of 0.5mm, replace the Adjusting Collar with a next larger size one (provided in 0.5mm increments 7ø to 14ø) by removing E Snap Ring 3 with a midget -Screwdriver.

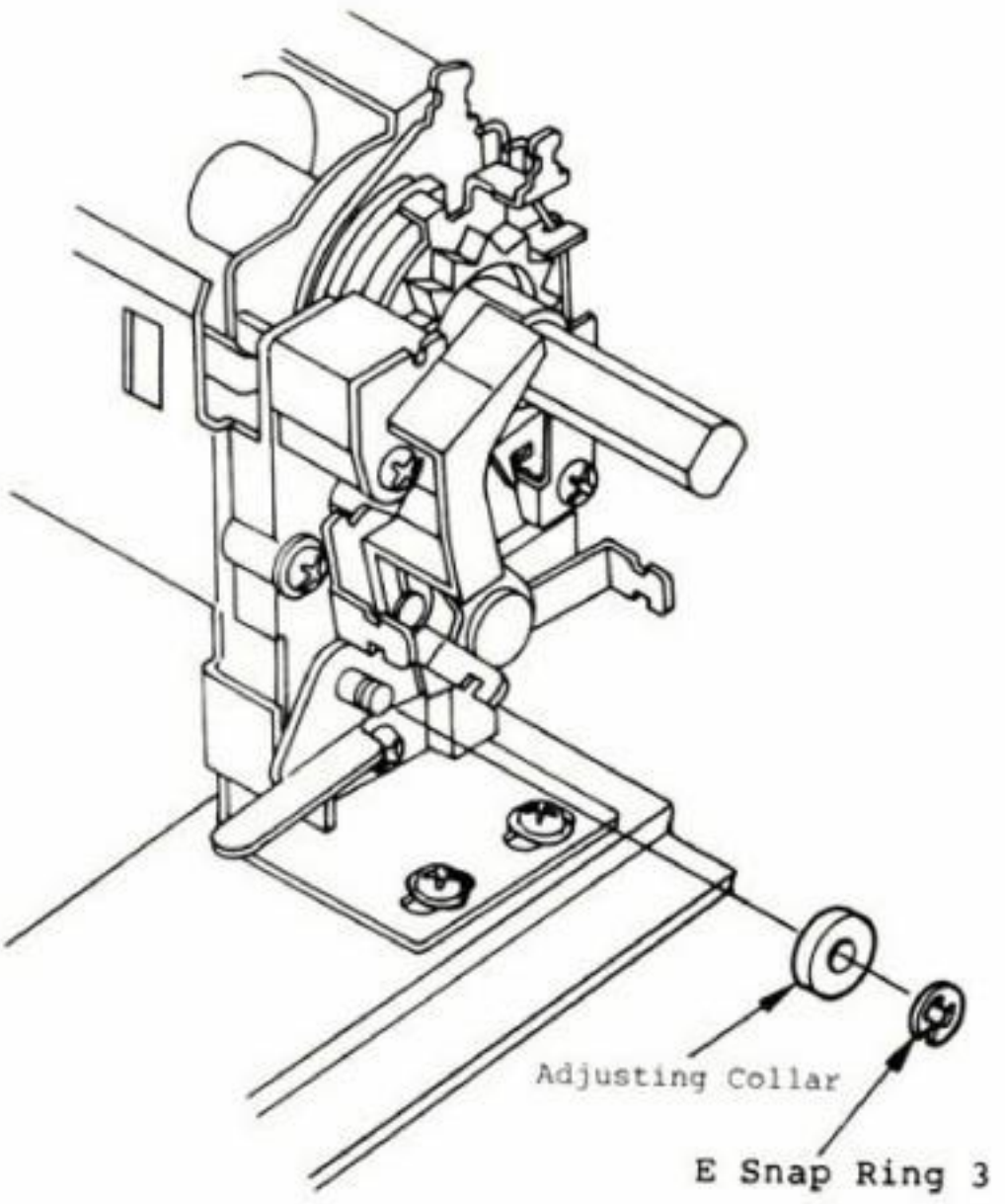


FIG.39

[NOTE] Before attempting the Arm Adjustments (PN/YN/PS/YS), remove Weaving Brushes, Rubber Discs, and Fabric Gears from the Arm to facilitate the adjustments.

[12] PN ADJUSTMENT

*PN Dimension.....0 to 0.3mm

(The clearance between the bottom of Latch Needles and the front edge of Needle Bed -- the dimension to check the amount of contact between Fabric Presser and Latch Needles)

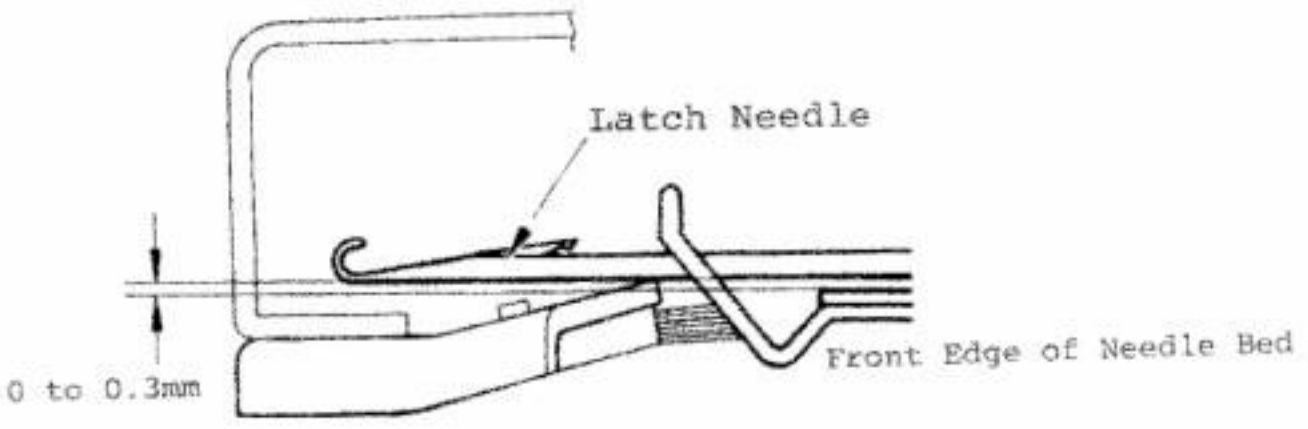


FIG.40

[Adjusting Method]

1. Push approx. 60 needles near center to D position. Set the both Russel Levers to "I".

2. Position the Carriage over the needles so that approx. three needles appear on the straight edge of each Fabric Presser. Visually check Fabric Presser lifts up the needles only slightly. Then, check to see if the clearance between the bottom of the needles and the front edge of Needle Bed is 0 to 0.3mm using Feeler Gauge.

3. If the Fabric Presser is out of contact with the needles, remove Arm from the Carriage and place it upside down, then depress the presser gradually by hand as shown in Figure 41 to increase the presser angle.

(Note) Do not apply too much force to the Fabric Presser when depressing it; otherwise, the Arm may be bent more than necessary, and consequently the presser may provide excessive amount of contact with the needles.

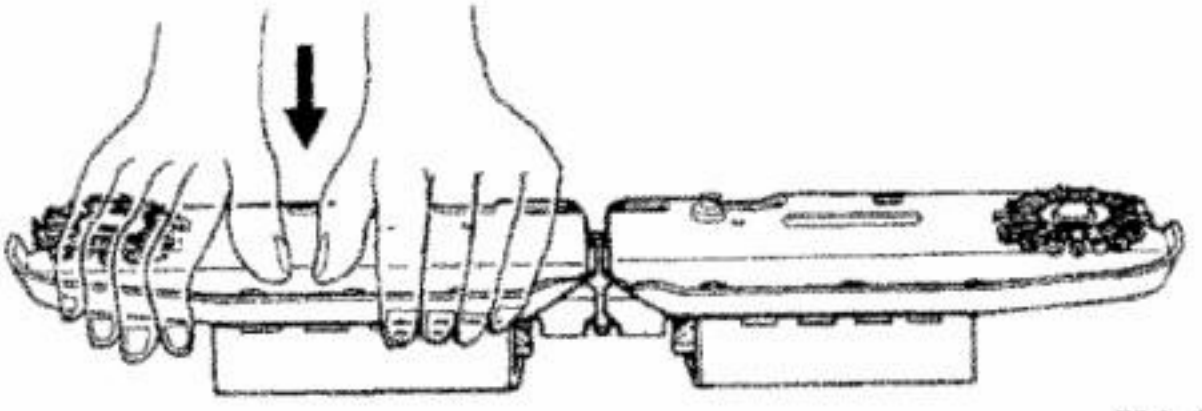


FIG.41

4. If the Fabric Presser is in excessive contact with the needles, position the Carriage to either end so that the presser to be adjusted is off edge of the Needle Bed, then pull down the presser by hand as shown in Figure 42 to reduce the presser angle.

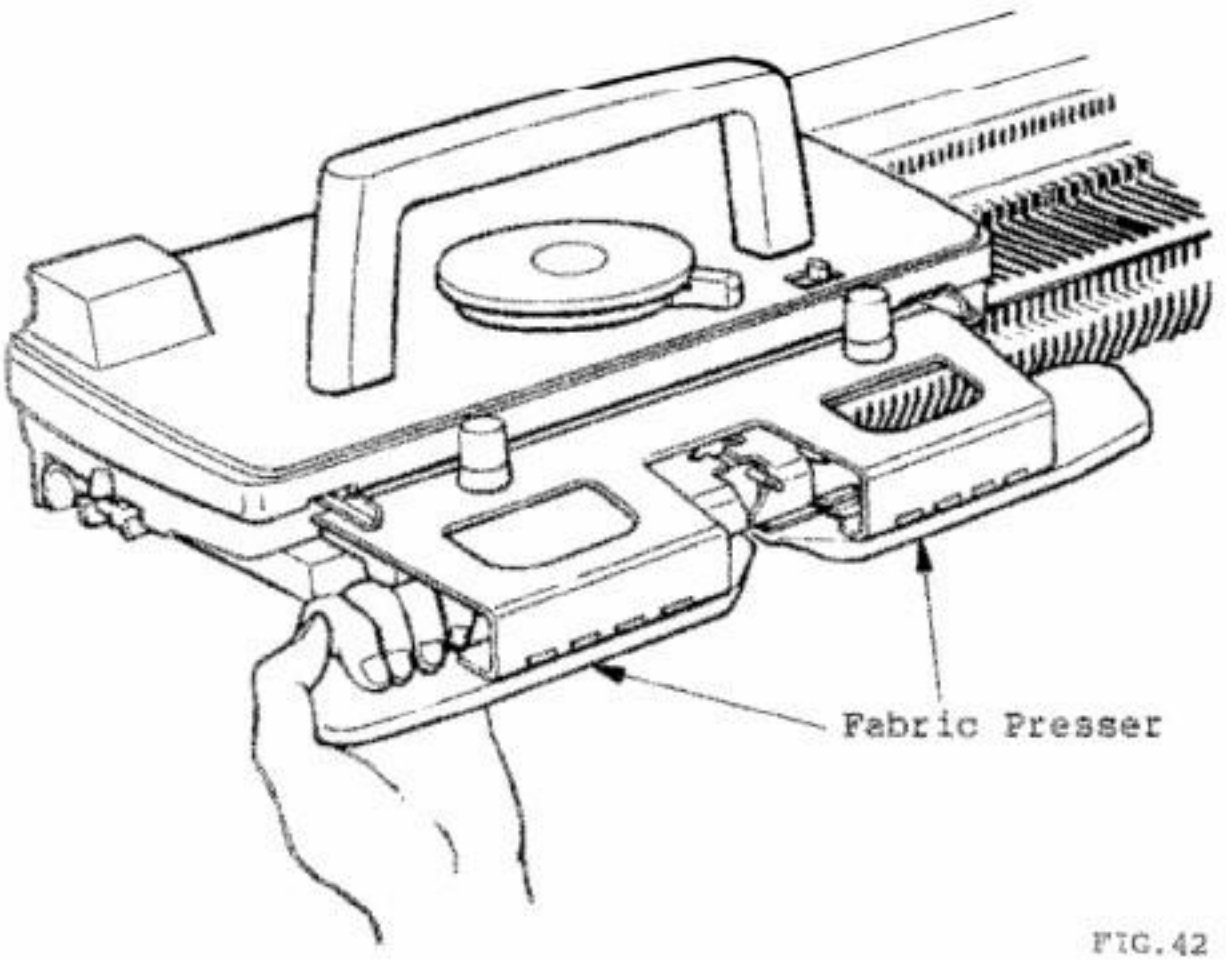


FIG.42

5. Align both right and left Fabric Pressers horizontally.

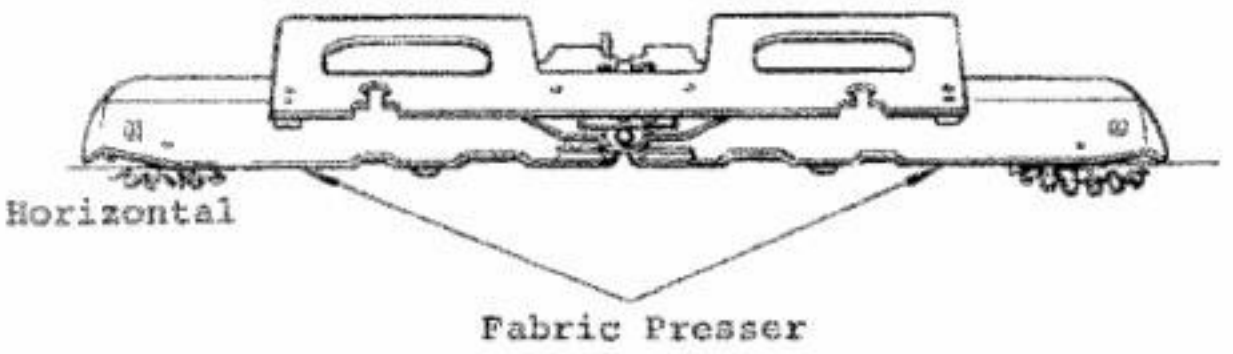


FIG.43

[13] YN ADJUSTMENT

*The angle of the inboard side of Fabric Presser cannot be checked by the preceeding method described in Item [12]. To obtain proper inboard presser angle against the needles, check and adjust the YN Dimension.

*YN Dimension.....0.1 to 0.3mm

(The clearance between Yarn Feeder and the open latch of Latch Needle)

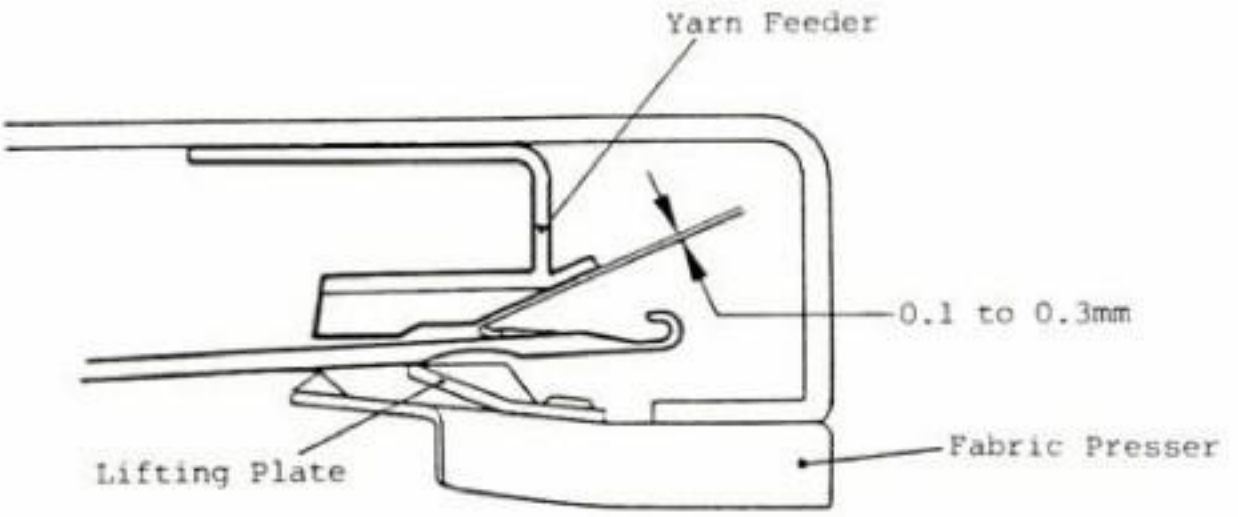


FIG.44

[Adjusting Method]

*The machine controls remain the same as for the PN Adjustment.

1. Open the latches of the needles in D position.

2. Position the Carriage over the needles so that one of the needles comes directly under the slot in the Yarn Feeder.

3. Use a Feeler Gauge to measure the clearance between Yarn Feeder and the open latch of the forth needle from the centered needle. The measurement should be 0.1 to 0.3mm.

4. If not within the tolerance, adjust the inboard presser angle with hand force in the same manner as for the PN Adjustment shown on pages 26 to 27.

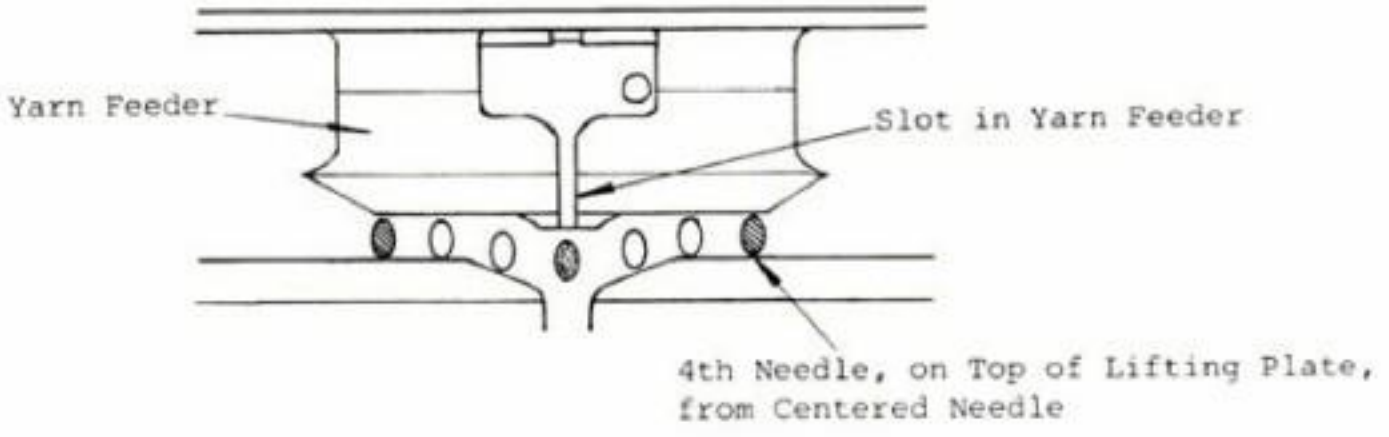


FIG.45

[14] PS ADJUSTMENT

*PS Dimension.....1.35 to 2.0mm

(The clearance between the edge of Fabric Presser and Sinkers)

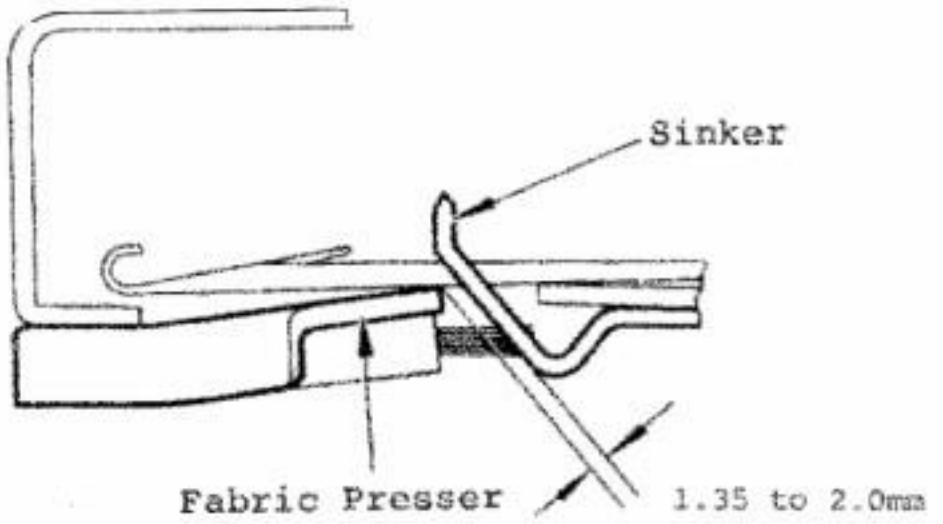


FIG.46

[Adjusting Method]

1. Push all the needles back to A position.

2. Check to see if the clearance between the edge of Fabric Presser and the inclined surface of Sinkers is 1.35 to 2.0mm using Feeler Gauge.

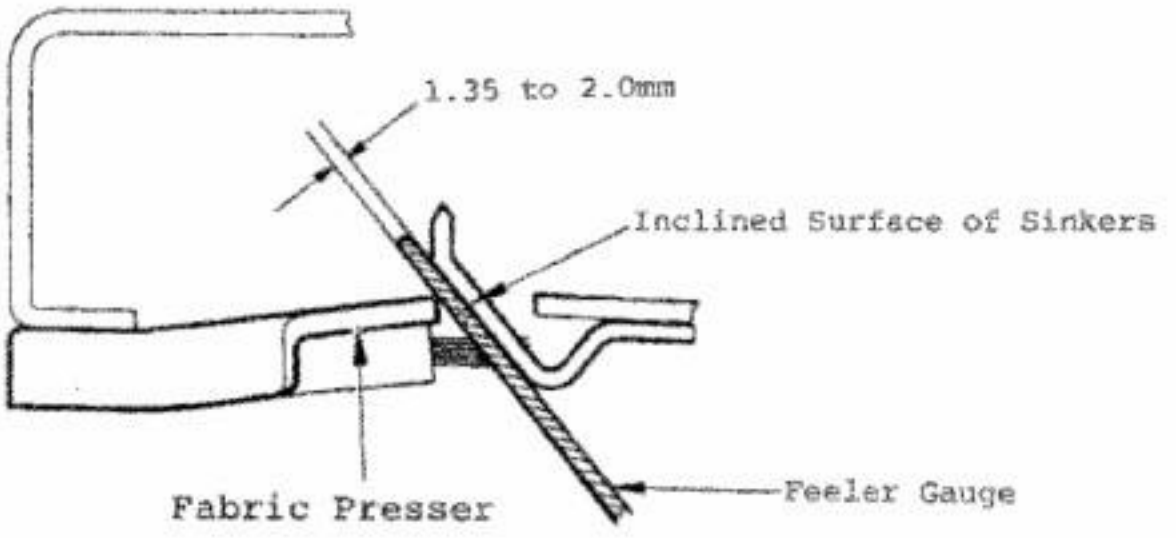


FIG.47

3. If not within the tolerance, loosen two Binding Head Screws 3x6 and one Binding Head Screw 3x10 securing the Fabric Presser to be adjusted, bring the presser toward you to provide the maximum PS Dimension (more than 2.0mm), loosely secure the presser with those three screws.

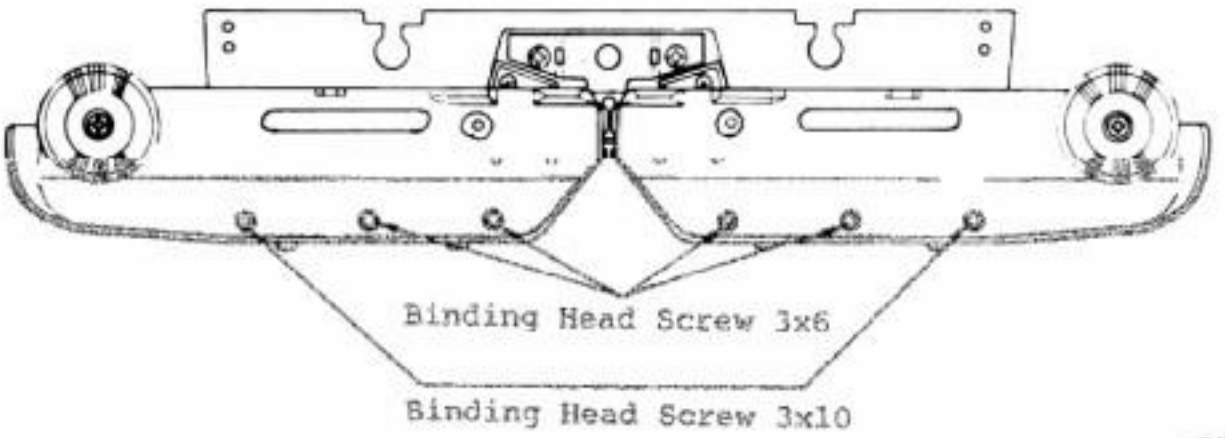


FIG.48

4. Adjust the position of Fabric Presser by tapping it with the handle of Screwdriver to obtain 1.35 to 2.0mm clearance between the presser edge and the inclined surface of Sinkers, while measuring the clearance with Feeler Gauge. Tighten three screws to secure the adjustment.

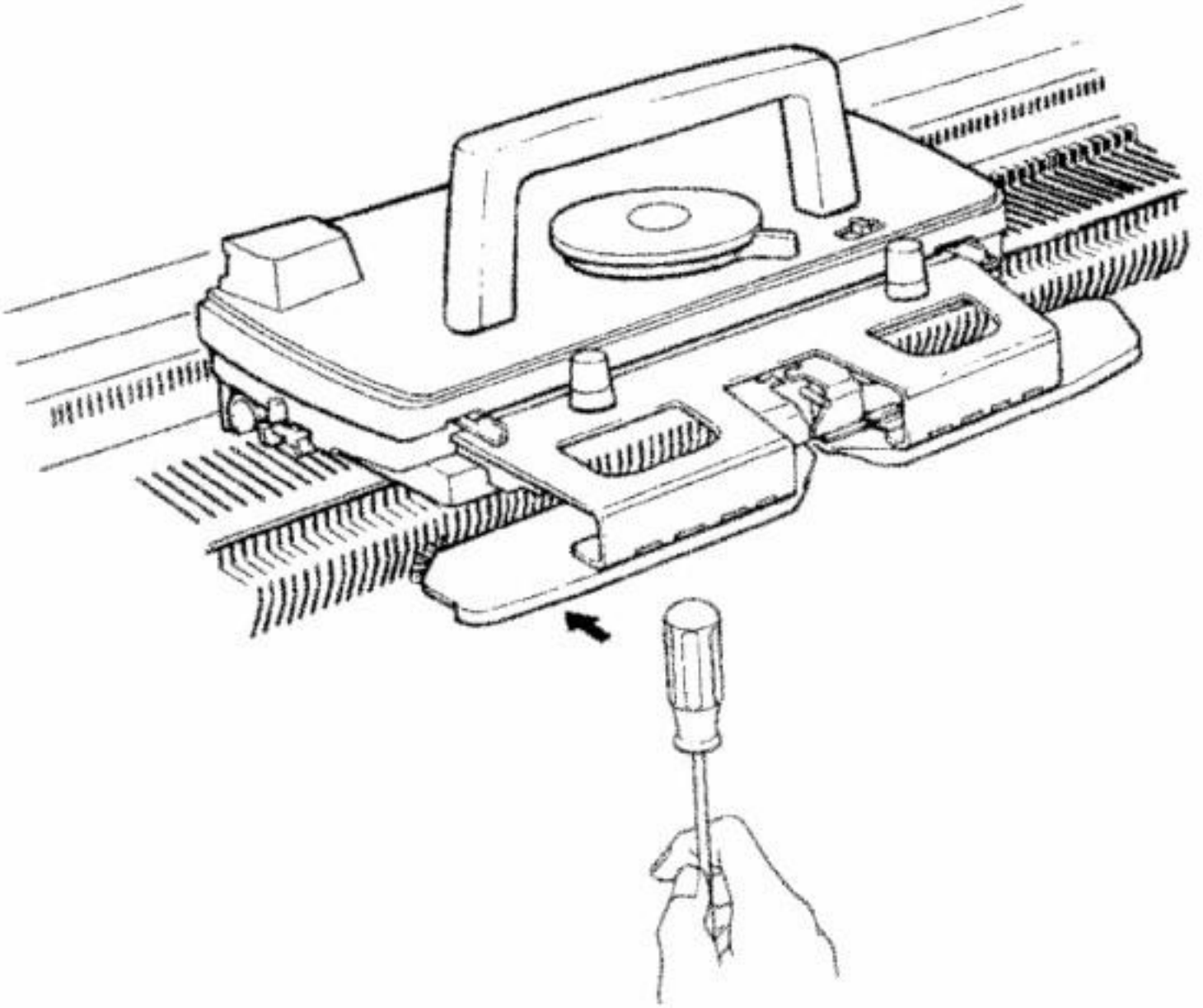


FIG.49

[15] YS ADJUSTMENT

*YS Dimension.....0.3 to 1.0mm

(The clearance between the edge of Yarn Feeder and Sinkers)

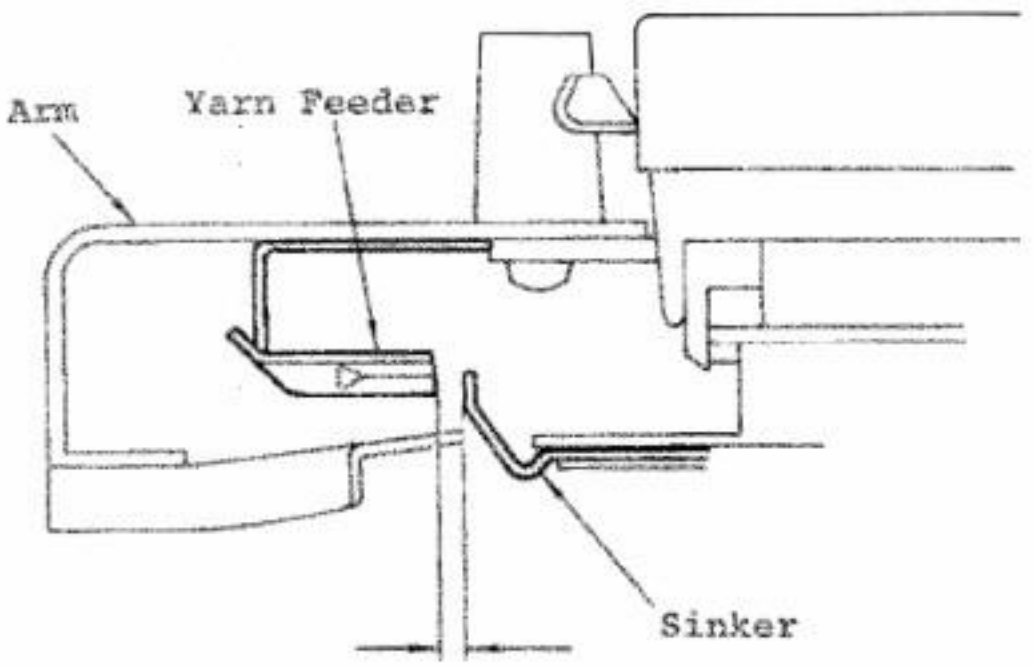


FIG.50

[Adjusting Method]

1. Push all the needles back to A position.

2. Check to see if the clearance between the edge of Yarn Feeder and the vertical surface of Sinkers is 0.3 to 1.0mm using Feeler Gauge.

3. If not within the tolerance, loosen two Binding Head Screws 3x4.5, and move the Yarn Feeder toward or away from the Sinkers to obtain 0.3 to 1.0mm clearance between the edge of Yarn Feeder and the vertical surface of Sinkers while measuring with Feeler Gauge. Tighten the screws 3x4.5 to secure the adjustment.

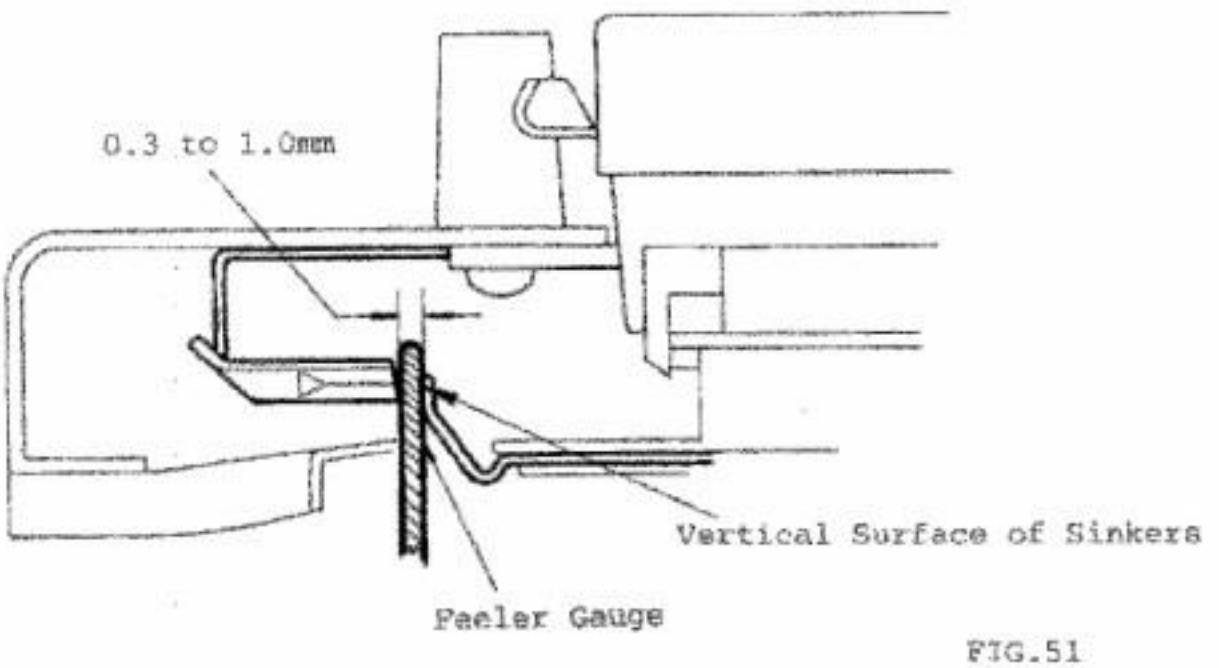


FIG.51

[16] WEAVING BRUSH POSITIONING

*Up-down position of Weaving Brush against Fabric Presser.....-0.7 to +0.5mm

*Back-forward position of Weaving Brush against Fabric Presser.....-0.5 to +0.5mm

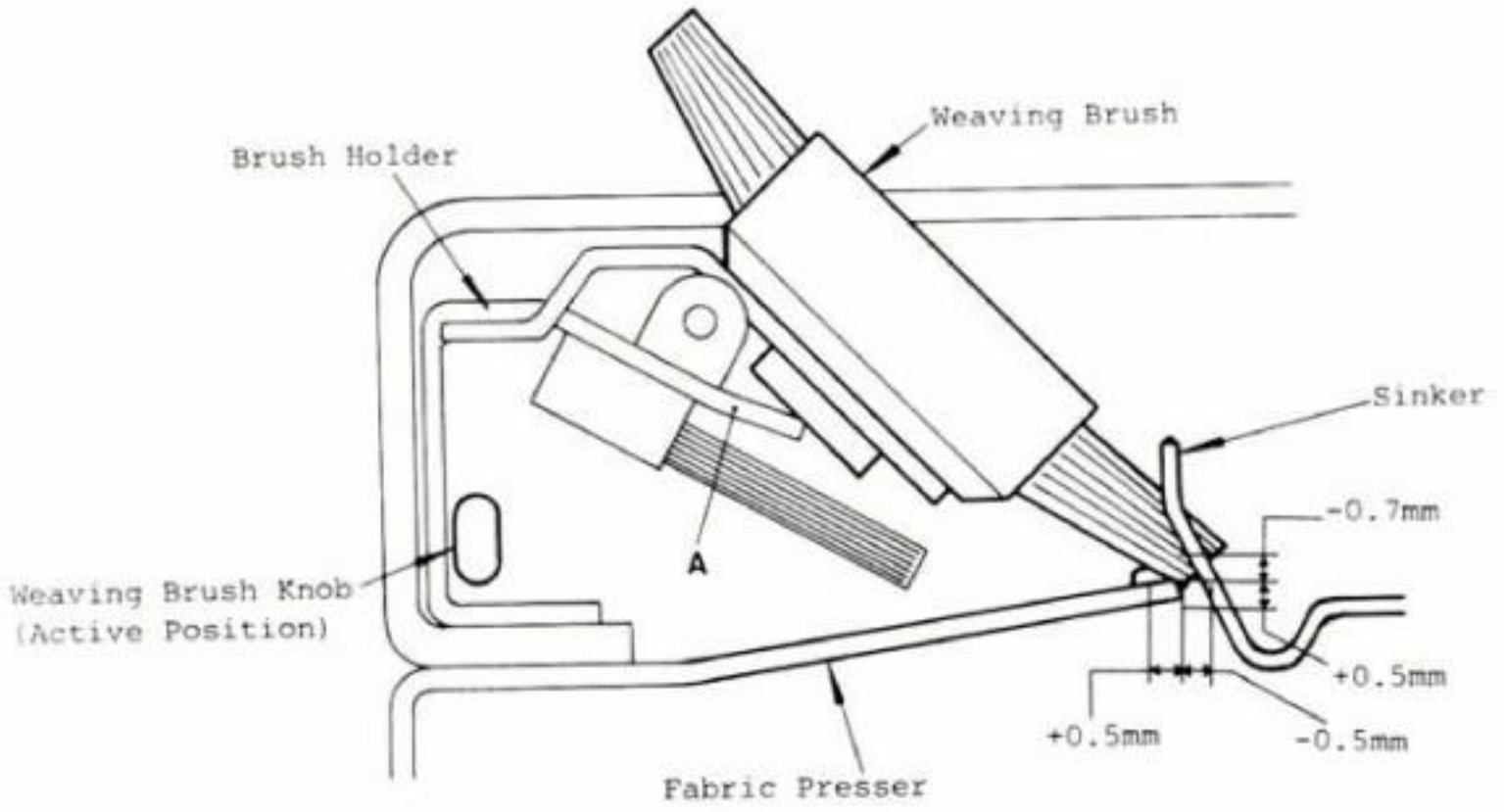


FIG.52

[Adjusting Method]

Adjust the position of Weaving Brush by bending the tip (A) of Brush Holder upward or downward using Slot-pointed Adjusting Tool or Pliers as shown in Figure 53.

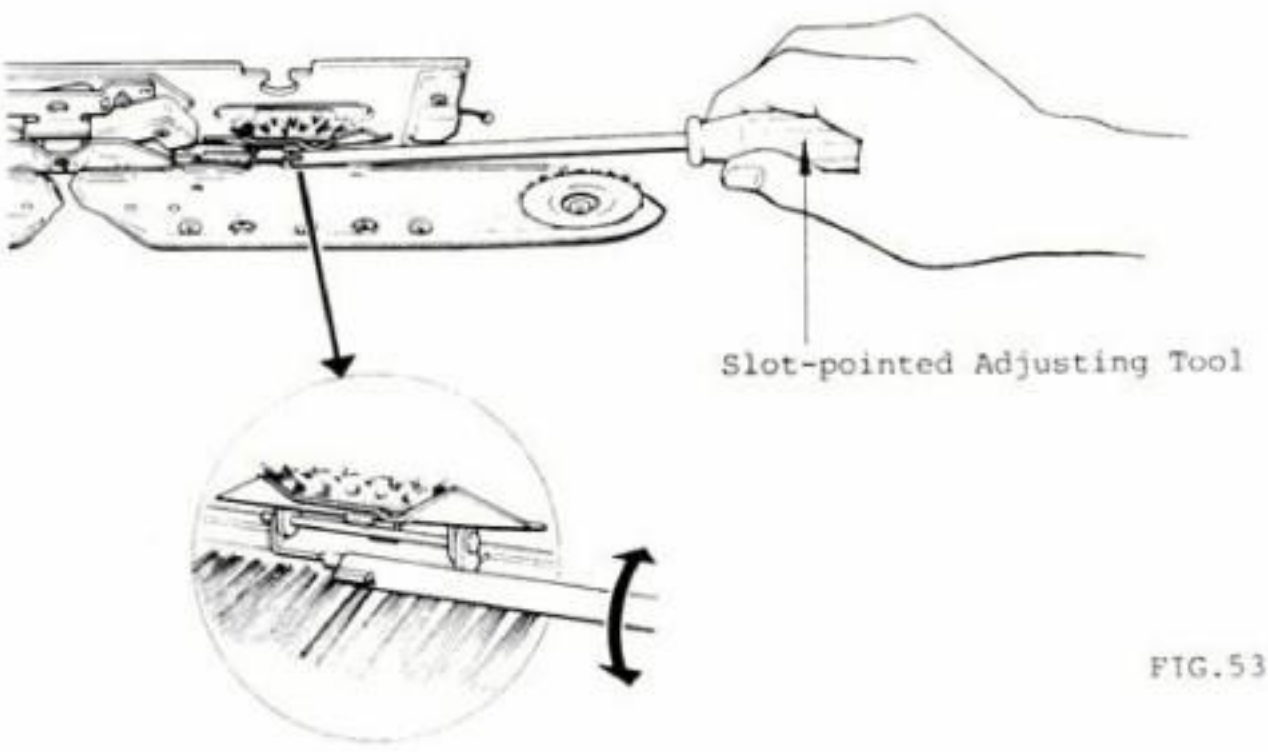


FIG.53