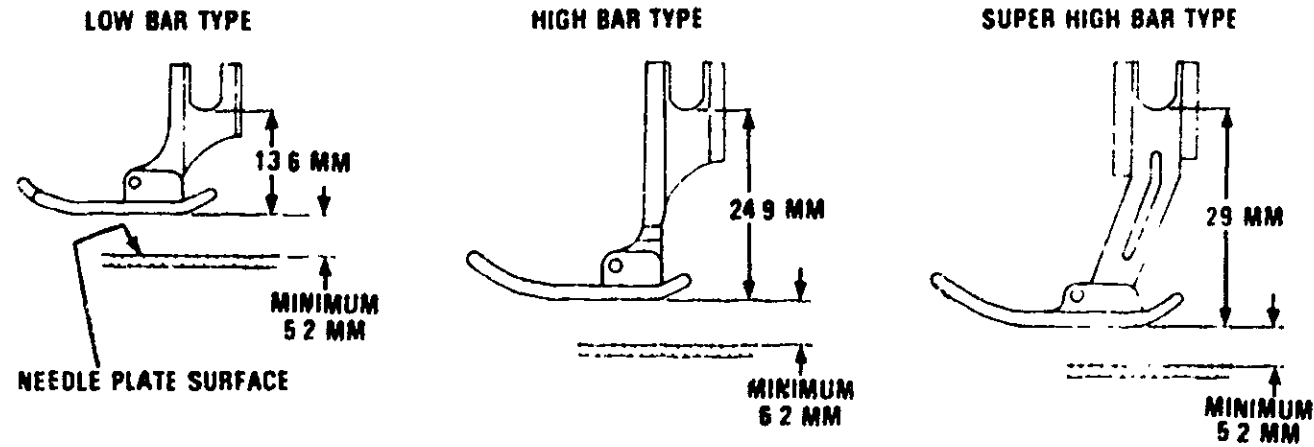


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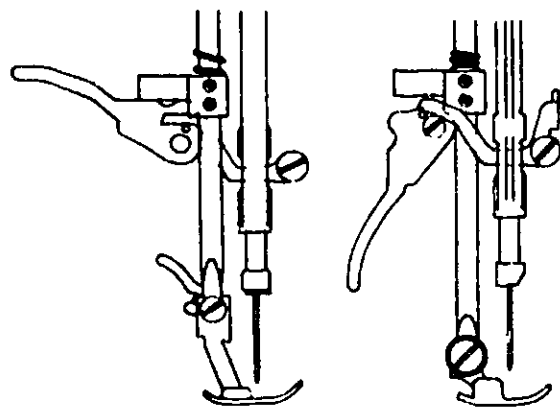
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STRAIGHT STITCH POSITION	ATTACHMENT DIMENSION	ZIGZAG BITE	FOOT CONTROL
CENTER	LOW BAR	5.8	6816

PRESSER FOOT HEIGHT



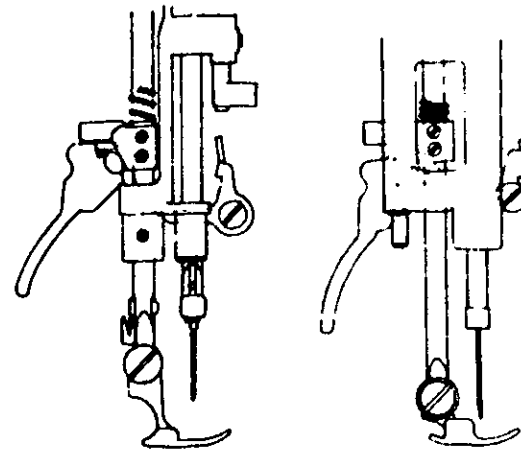
FRONT FACING SHUTTLE



SUPER HIGH BAR

LOW BAR

SIDE FACING SHUTTLE



HIGH BAR

LOW BAR

Drop feed dog. Press down pressure regulator to the maximum pressure. Lower pressure foot lever. Loosen thumb screw and be sure presser foot is seated properly. Tighten thumb screw.

If adjustment is necessary, raise presser foot lever and loosen screws on presser bar holder. Adjust the height of presser foot from needle plate as specified. Confirm the height of presser foot by a complete turn of the handwheel. Tighten the screws securely after adjustment.

FIGURE A-1

Distribution of Needle Swing

Set the special stitch dial at red dot and stitch width control at 4. Lower needle to the lowest position. Loosen set screw (A) slightly, and slide the zigzag width bracket (B) to either direction, until you can obtain the equal clearance between the needle and the edge of needle slot at both left and right needle position. Tighten the screw securely after adjustment.

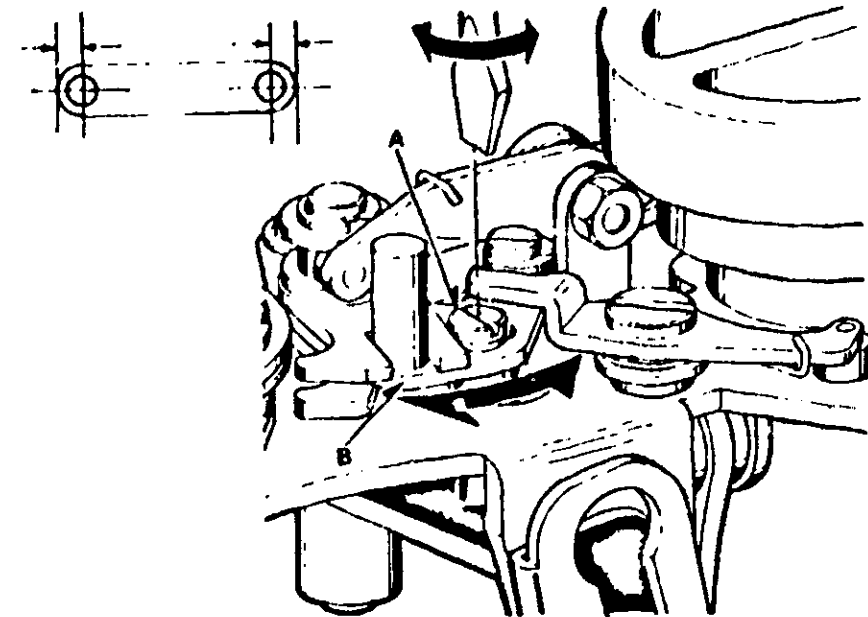


FIGURE C-19

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Needle Position

Set stitch width control at 0. Prepare the needle plate for straight stitching by reversing or sliding the center plate (See Figures 1 & 2) or place the needle plate insert for straight stitch onto the needle plate (See Figure 3) Turning handwheel, check and see if the needle goes through the needle hole at its center. If not, loosen nut (1) and adjust needle position by slightly turning the eccentric roller pin (2). Tighten the nut securely after adjustment.

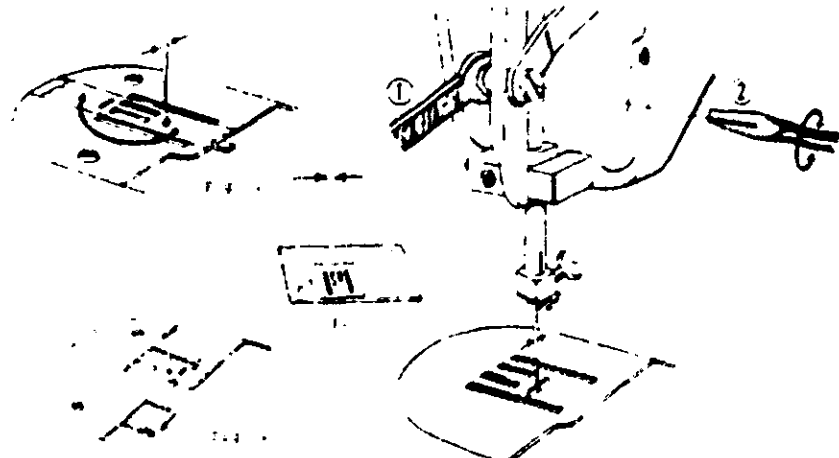


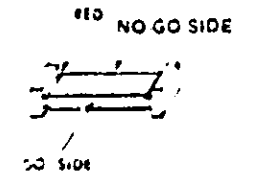
FIGURE D-2

Feed Dog Height

FOR SHUTTLE MODEL: PLACE GAUGE ON THE FEED DOG AS SHOWN IN THE DRAWING. TURN THE HANDWHEEL TO THE RIGHT UNTIL THE GAUGE IS ON THE FEED DOG. TURN THE HANDWHEEL TO THE LEFT UNTIL THE GAUGE IS ON THE FEED DOG. TURN THE HANDWHEEL TO THE RIGHT UNTIL THE GAUGE IS ON THE FEED DOG. TURN THE HANDWHEEL TO THE LEFT UNTIL THE GAUGE IS ON THE FEED DOG. PLACE THE GAUGE UP-SIDE-DOWN WITH THE 30-SIDE FACING THE NEEDLE PLATE. REPEAT THE SAME PROCEDURE. THE GAUGE SHOULD NOT BE MOVED. IF THE GAUGE IS MOVED, THE FEEDDOG TEETH ARE TOO HIGH.

IN CHART FORM IT LOOKS LIKE THIS:

Feed Dog Height Gauge	Go-Side (Facing Needle Plate)	No-Go-Side (Facing Needle Plate)
Correct	Not Moving	Moving
Low	Not Moving	Not Moving
High	Moving	Moving



IF ADJUSTMENTS ARE NECESSARY, LOOSEN SCREW (1) ON DRY FEED CENTER BLOCK AND ADJUST THE FEEDDOG HEIGHT AS SPECIFIED. TIGHTEN THE SCREW SECURELY AFTER ADJUSTMENT.

CAUTION: FOR SIDE FACING SHUTTLE MODEL BE SURE THE GAUGE IS PLACED ON THE SURFACE OF NEEDLE PLATE. BE SURE ONE END IS NOT RESTING ON THE HANDHOLE COVER PLATE.

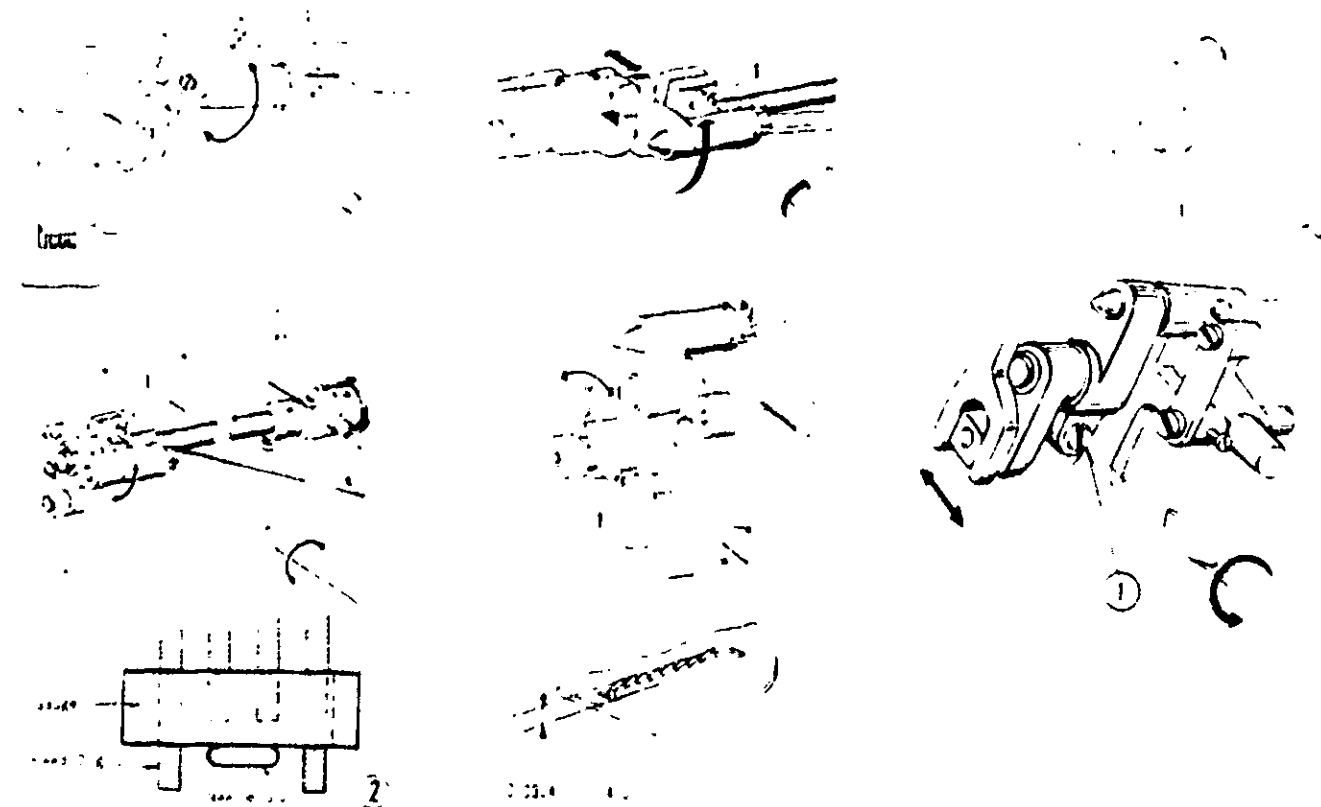


FIGURE E-1

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Zero-Feeding

Set stitch length control at "0". Turning handwheel, check and see if the feed dog moves horizontally. At "0" position the feed dog should not move. If it does, loosen screw (A) and insert the eccentric tool (B) into the hole (C). Turn the eccentric tool either way to eliminate movement of the feed dog. Tighten the screw (A) after adjustment.

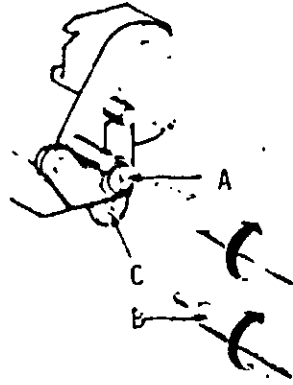
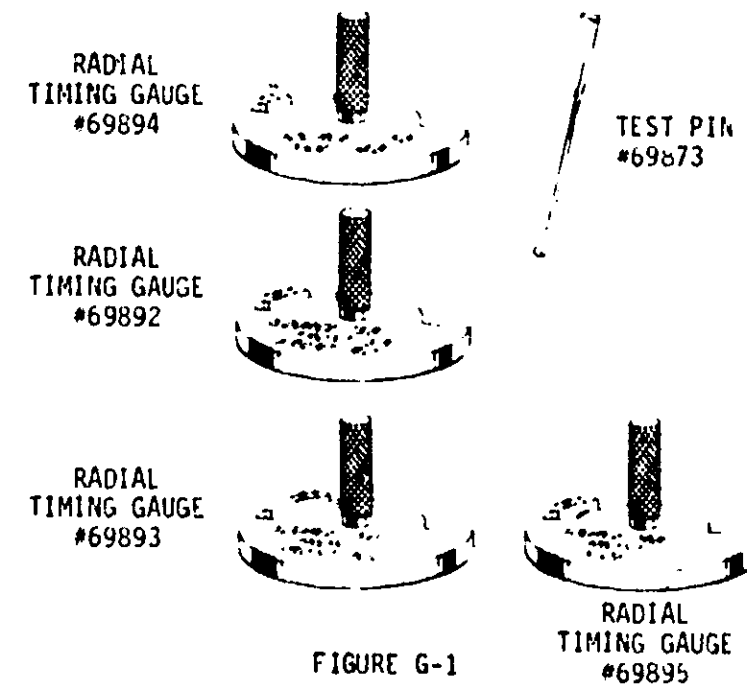


FIGURE F-12

NEEDLE TIMING TO SHUTTLE NEEDLE BAR HEIGHT

THE RADIAL TIMING GAUGES AND TEST PINS, AS ILLUSTRATED BELOW, ARE AVAILABLE FROM DIVISION 92, SOURCE 192. THE KIT IS IDENTIFIED AS #69659. EACH GAUGE AND TEST PIN CAN ALSO BE ORDERED INDIVIDUALLY.

THIS KIT IS USED FOR SOURCE 148 AND 158 VERTICAL BOBBIN SEWING MACHINES.

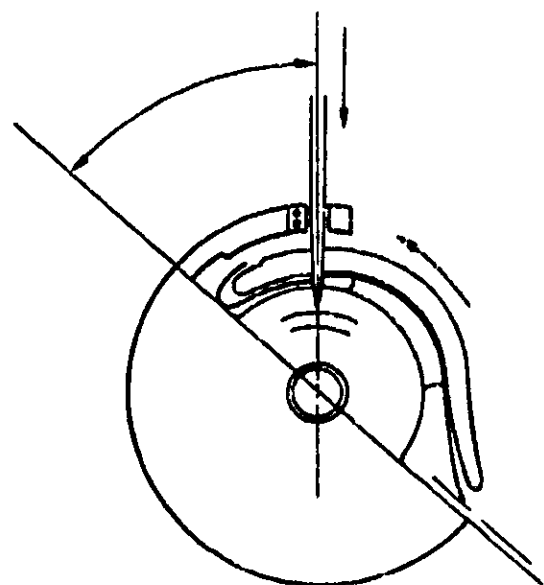


NEEDLE TIMING TO SHUTTLE

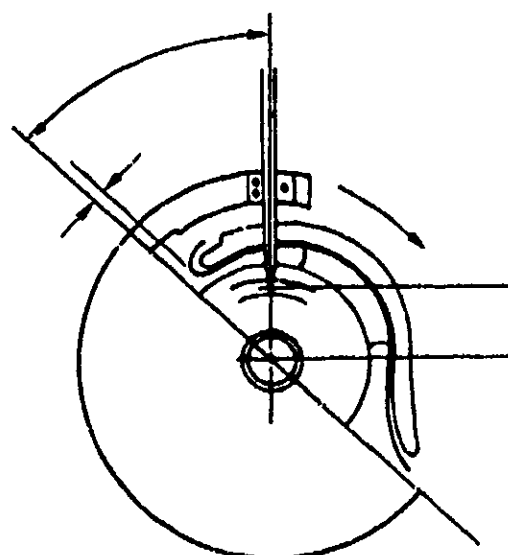
Do not attempt adjustments other than those specified in this manual. If, by following the prescribed procedures, it is determined that a machine is out of radial time, handle per Bulletin S-820.

Radial Timing Gauge Instructions

- 1 Remove needle and replace it with test pin which has a blunt tip
- 2 Remove bobbin case and shuttle hook. Insert correct radial timing gauge into shuttle driver.
For this model(s) use gauge marked
Source 158 FRONT 5 8 FRONT 4 0
Use FRONT 5 8 marking
- 3 Set stitch control at "0" or "S" (depending on model involved)
- 4 Set needle position control at center for models which have this control
- 5 Rotate handwheel slowly by hand (See Figure G-3a) The test pin should come between the correct two vertical lines at the end of the counterclockwise rotation of the gauge. For this model(s) use vertical lines identified with one dot.
- 6 To check needle bar height, continue to rotate handwheel slowly by hand (See Figure G-3b) At the lowest position of the needle bar, the end of the test pin should come between two horizontal lines on the gauge.
If necessary, adjust needle-bar height. Loosen screw on needle bar holder and adjust height on the test pin.



DIMENSION A



DIMENSION B

FIGURE G-3

Figure G-3 gives a general idea of the use of the radial timing gauge. Follow the instructions at the left which pertain to this model(s).

Zigzag Synchronization

Set stitch width control at maximum. Turning the handwheel, check and see if the needle side motion on the standard plane (0.0394 inch above the upper surface of the needle plate) at both needle positions

come within the engineering limit of 0.0138 inch. If not, loosen set screw (2) on the worm gear either direction. Tighten the screw (2) securely after adjustment.

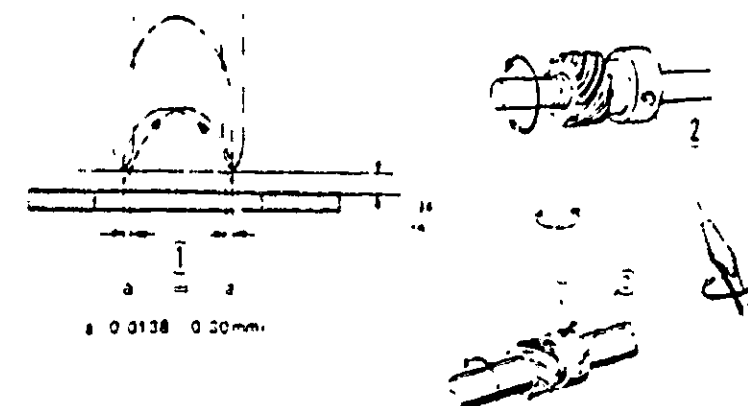


FIGURE H-1

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**Straight Stitch
Position**

SET STITCH WIDTH CONTROL AT RED DOT. CHECK TO SEE IF THE NEEDLE SWINGS BY MOVING ZIGZAG GUIDE BAR IN EITHER DIRECTION AS SHOWN. NEEDLE SHOULD NOT SWING. IF ADJUSTMENT IS NECESSARY, LOOSEN TWO SCREWS (A) ON SELECTOR CAM (B) AND PULL OUT DIAL (C), OR REMOVE DIAL INSERT (D). LOOSEN SCREWS (E), HOLD ZIGZAG GUIDE BAR (E) DOWNWARD SLIGHTLY AND TURN STITCH WIDTH CONTROL AS ILLUSTRATED TO MAINTAIN PERFECT STRAIGHT STITCHING. AFTER ADJUSTMENT, SET STITCH WIDTH CONTROL TO RED DOT, TIGHTEN SCREWS (E) AND ASSEMBLE THE DIAL (C) OR DIAL INSERT (D) IN THE ORIGINAL POSITION.



FIGURE J-3

**Automatic Reverse Stitching
Stretch Stitch**

Set stitch length control at 6, special stitch dial at red dot and stitch width control at 4. Place a piece of paper (folded in two) over the feed dogs. Check and see if forward stitches are equal in length with reverse stitches by zigzag stitching on paper. If the length of reverse stitches is shorter or longer than that of forward stitches, loosen nut (A) and turn eccentric pin (B) in either direction until the both stitches are equal in length. Tighten nut (A) after adjustment.

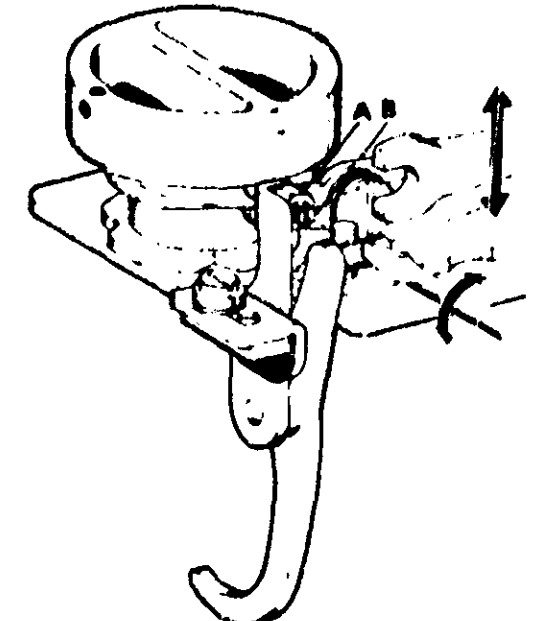


FIGURE J-24

**Automatic Reverse Stitching
Buttonhole**

If the length of reverse stitches is shorter or longer than that of forward stitches, turn screw (A) either way until you can obtain the correct balance.

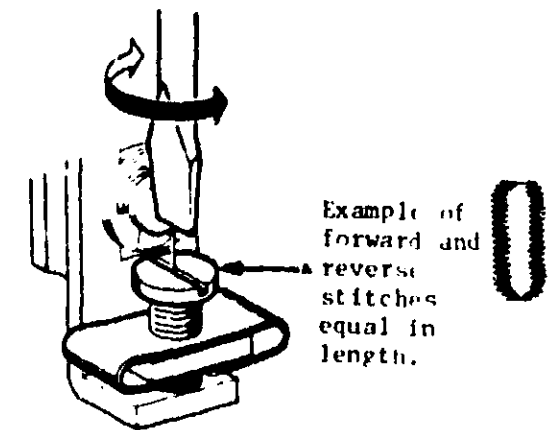


FIGURE J-29

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Automatic Mechanism Cam and Cam follower Mechanism

If the special stitch dial cannot be turned, it may be due to insufficient clearance between cam (A) and cam follower (B). Excessive clearance will result in an irregular pattern.

To adjust the mechanism, set the stitch width control at 4 and special stitch dial between any two settings, as illustrated. Loosen screw (C) and turn the eccentric collar (D) in either direction as shown, until you can get the correct clearance (0.006 inch) between the highest point of cam (A) and cam follower (B). Tighten screw (C) after adjustment.

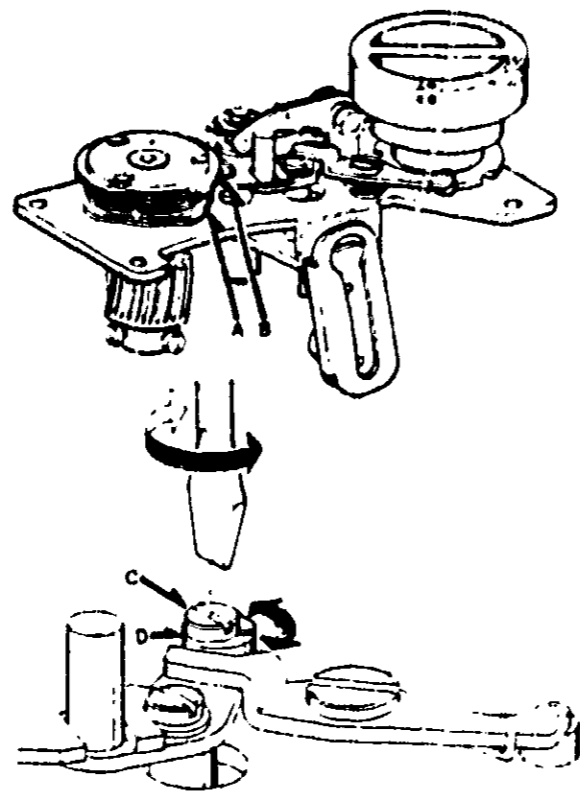


FIGURE K-21