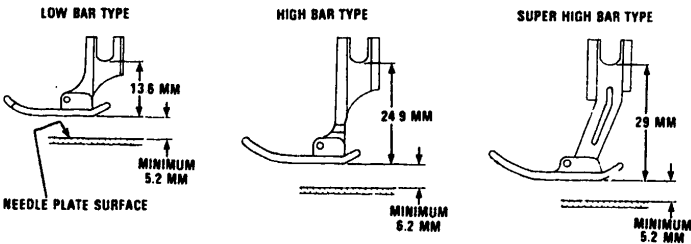


158.17560 158.17572  
 158.17560 158.17740  
 158.17570 158.17741  
 158.17571

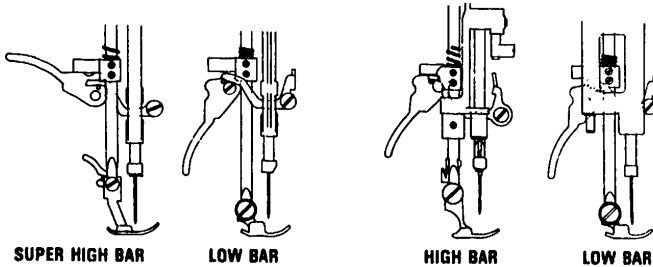
STRAIGHT STITCH POSITION	ATTACHMENT DIMENSION	ZIGZAG BITE	FOOT CONTROL
CENTER	LOW BAR	5.8	6816

PRESSER FOOT HEIGHT



FRONT FACING SHUTTLE

SIDE FACING SHUTTLE



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 special stitch dial at red "S" or red dot and stitch width control at red "S" or red dot. Using the straight stitch needle plate, check and see if the needle goes in the center of the needle hole. If not, adjust the needle position according to instructions on D-2.

Using the zigzag stitch needle plate, check the needle swing by turning the stitch width control from "S" or red dot to "4" with the needle at its lowest position (Step No. 1). Next rotate hand wheel one complete turn and check needle swing by turning stitch width control from "S" or red dot to "4" with needle at its lowest position. (Step No. 2).

If needle swing in Step No. 1 is not equal to that in Step No. 2, loosen screw (A), insert eccentric tool in hole (B) and move adjustable plate (C) in either direction (D) or (E) to obtain equal needle swing.

After adjusting tighten screw (A).

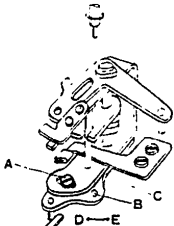


FIGURE C-10

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.

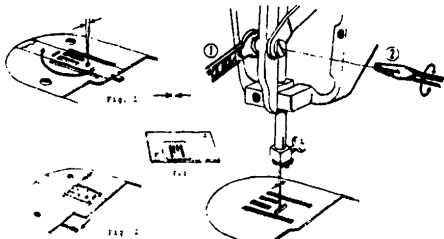


FIGURE D-2

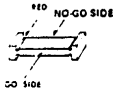
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158.17572  
158.17740  
158.17741

Feed Dog Height

FOR FRONT FACING SHUTTLE MODELS, PLACE GAUGE AT POSITION AS ILLUSTRATED WITH THE NO-GO-SIDE OF THE GAUGE FACING THE NEEDLE PLATE. LOWER PRESSED FOOT. WHILE TURNING THE HANDWHEEL SLOWLY BY HAND, THE GAUGE SHOULD BE MOVED BY THE FEEDDOG TEETH. IF NOT, FEEDDOG TEETH ARE TOO LOW, THEN PLACE THE GAUGE UP-SIDE-DOWN WITH THE GO-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 DRCP 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.

Zero-Feeding

SET SPECIAL STITCH DIAL AT "S", STITCH WIDTH CONTROL AT "S" AND STITCH LENGTH CONTROL AT "0". TURNING HANDWHEEL, CHECK TO SEE IF THE FEED DOG MOVES HORIZONTALLY. AT THIS POSITION THE FEED DOG SHOULD NOT MOVE. IF FEED DOG MOVES, LOOSEN SCREW (1) SLIGHTLY. TURN ECCENTRIC SCREW (2) EITHER CLOCKWISE OR COUNTERCLOCKWISE UNTIL MACHINE DOES NOT FEED ON THE "0" SETTING. TIGHTEN SCREW (2) SECURELY AFTER ADJUSTMENT.

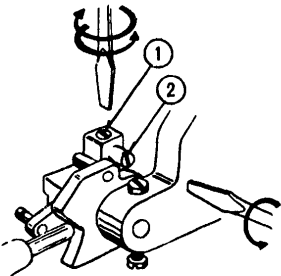
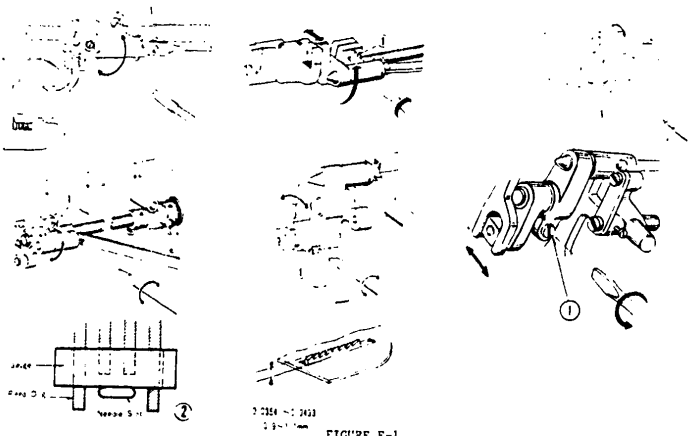


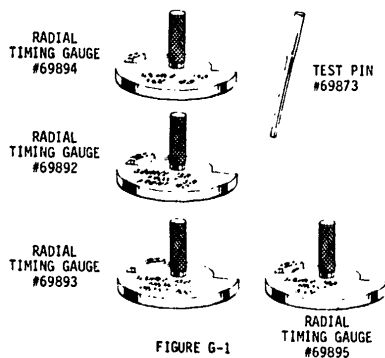
FIGURE F-7



## 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 Insert correct radial timing gauge into shuttle driver.  
Use gauge marked  
Source 158 FRONT 70 FRONT 70D  
Use FRONT 70D marking
- 3 Set stitch control at "O" or "S" (depending on model involved).  
On machines with 70 zigzag bite which have a left needle straight stitch position, center the needle by means of the stitch width control. Use center strip between rear feeddogs as a guide for centering the needle.
- 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.
- 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.

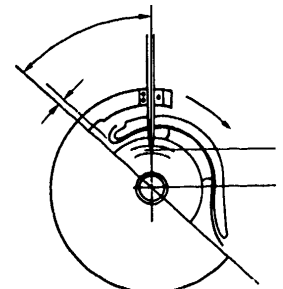
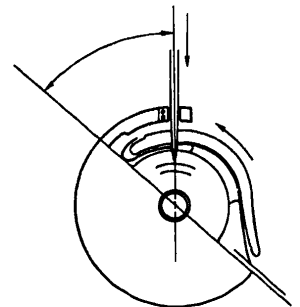


FIGURE G-3

### Needle Clearance to Shuttle

The clearance "a," "b," "c," and the angle "d" are very critical points in relation to the needle timing to shuttle. However, these points are visually determined by using the Radial Timing Gauges.

#### NOTE:

No adjustment is allowed for "Dimension C" for the front-facing shuttle models. For adjustment for side-shuttle models, please refer to Figure G-3.

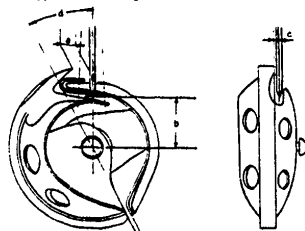


FIGURE G-2

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158.17741

### 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.

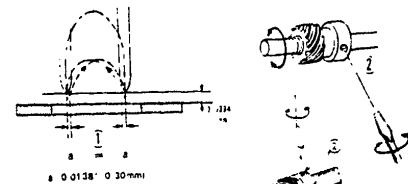


FIGURE H-1

### Straight Stitching

SET STITCH WIDTH CONTROL AT "S". TURNING HANDWHEEL SLOWLY, CHECK TO SEE IF THE NEEDLE SWINGS. IT SHOULD NOT SWING. IF ADJUSTMENT IS NECESSARY, LOOSEN SCREW (1) AND MOVE THE ZIGZAG WIDTH ARM (2) TO THE EXTREME LEFT POSITION. TIGHTEN THE SCREW SECURELY AFTER ADJUSTMENT.

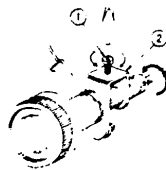


FIGURE I-4

### Automatic Reverse Stitching Stretch Stitch

Place the No. 21 pattern disc in the machine. Set the stitch width control at 4 and the stitch length control at 6. Place a piece of folded paper over the feed dogs. Check and see if the forward and reverse stitches are equal by zig zag stitching on the paper. If the pitch of the stitches in reverse is shorter or longer than in forward, loosen screw (B) and adjust the plate (C) as indicated. Tighten the screw securely after adjustment.

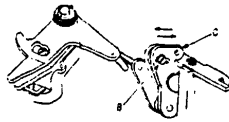


FIGURE J-14

158.17560  
158.17570  
158.17571  
158.17572  
158.17740  
158.17741

### Automatic Mechanism Cam and Follower Mechanism

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

To adjust the mechanism set the special stitch dial between any two settings. Loosen screw (A), push operating plate (B) in direction (C), move claw opening plate (D) in direction (E), then tighten screw (A) with zigzag width bracket pin (F) held in direction (H) against locker plate (G).

Next set special stitch dial at one of four settings and stitch width control at 4). Lower needle to its lowest position. Check if needle moves to the right when special stitch dial is set between each setting and if it almost touches the right edge of the needle hole. If needle hits the needle plate, refer to instructions on distribution of needle swing.

Check if zigzag cam follower moves without touching each built-in cam when special stitch dial is turned clockwise or counterclockwise. If it does not move properly, refer to instructions on cam selector guide plate setting.

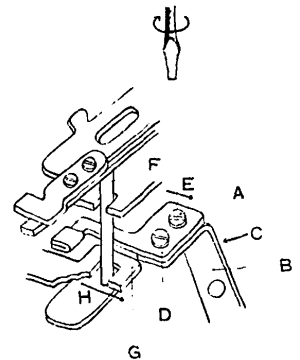


FIGURE K-13

### Cam Selector Guide Plate Setting

If the cam follower does not align with the cam adjust in the following manner.

For model 17550 and 17560 heads, set special stitch dial at blind stitch setting. For model 17570 - set special stitch dial at mending settings.

Remove the cap on the backside of the machine arm and loosen screw (A) with a screw driver through the hole of the machine arm. Pushing selector plate (D) either direction (E) or (F) in order that zigzag cam follower (G) is aligned with blind stitch cam (H). After obtaining proper position tighten screw (A). Be sure zigzag cam follower is aligned with each built-in cam.

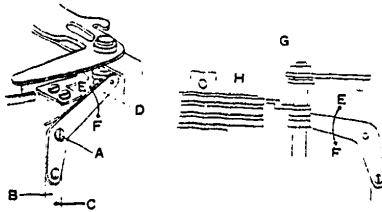


FIGURE M-3