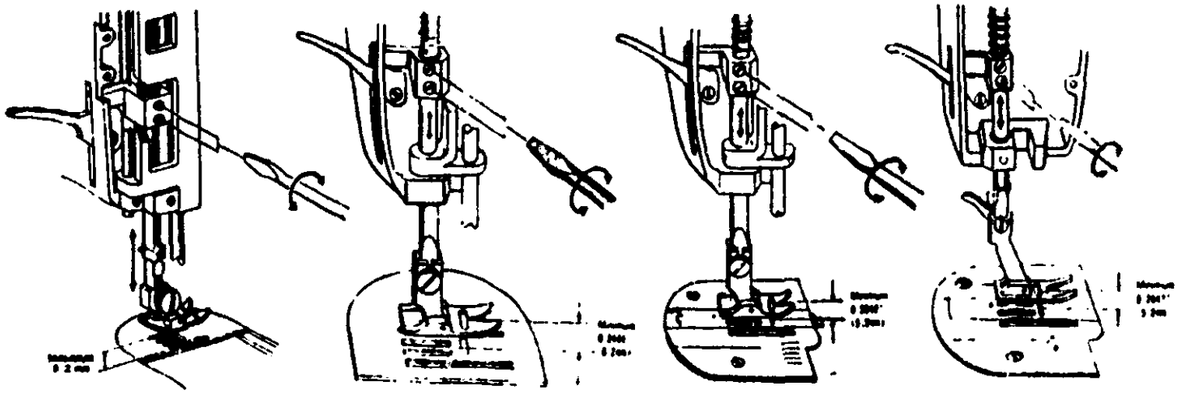
Straight Stitch Position	Attachment Dimension	Zigzag Bite	Foot Control
Left	Super High Bar	7.0	6817

*Left Needle Position is also referred to as "S" position.

Presser Foot Height

DROP FEED DOG. PRESS DOWN PRESSURE REGULATOR TO THE MAXIMUM PRESSURE. LOWER PRESSER 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 HAND-WHEEL. TIGHTEN THE SCREWS SECURELY AFTER ADJUSTMENT.



LOW BAR | HIGH BAR SIDE FACING SHUTTLE | HIGH BAR | SUPER HIGH BAR

FIGURE A-1

Distribution of Needle Swing

SET THE SPECIAL STITCH DIAL AT RED DOT AND STITCH WIDTH CONTROL KNOB AT 4. LOWER NEEDLE TO THE LOWEST POSITION. LOOSEN SET SCREWS (1) SLIGHTLY. INSERT THE ECCENTRIC TOOL (3) INTO THE HOLE (4). SLIDE THE ZIGZAG WIDTH BRACKET (2) IN EITHER DIRECTION, BY TURNING THE ECCENTRIC TOOL UNTIL YOU OBTAIN EQUAL CLEARANCE BETWEEN THE NEEDLE AND THE EDGE OF NEEDLE SLOT AT BOTH LEFT AND RIGHT NEEDLE POSITIONS. TIGHTEN THE SCREWS SECURELY AFTER ADJUSTMENT.

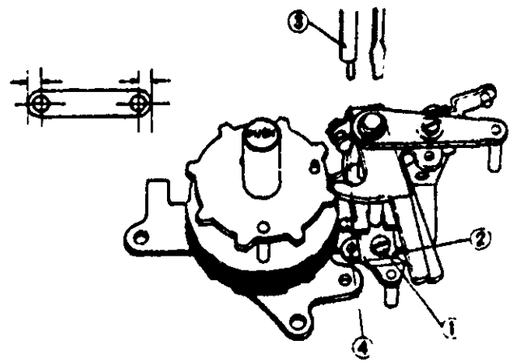


FIGURE 3C-18

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.

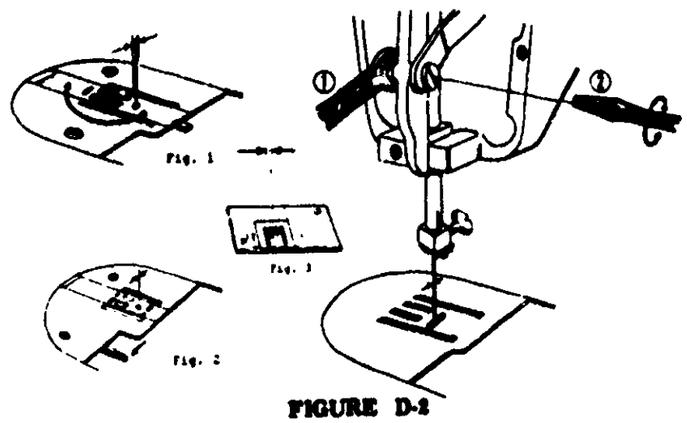


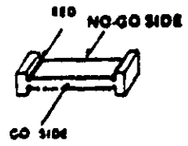
FIGURE D-2

Feed Dog Height

FOR FRONT FACING SHUTTLE MODELS, PLACE GAUGE AT POSITION AS ILLUSTRATED WITH THE NO-GO-SIDE OF THE GAUGE FACING THE NEEDLE PLATE. LOWER PRESSER 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:

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



IF ADJUSTMENTS ARE NECESSARY, LOOSEN SCREW (1) ON DROP 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.

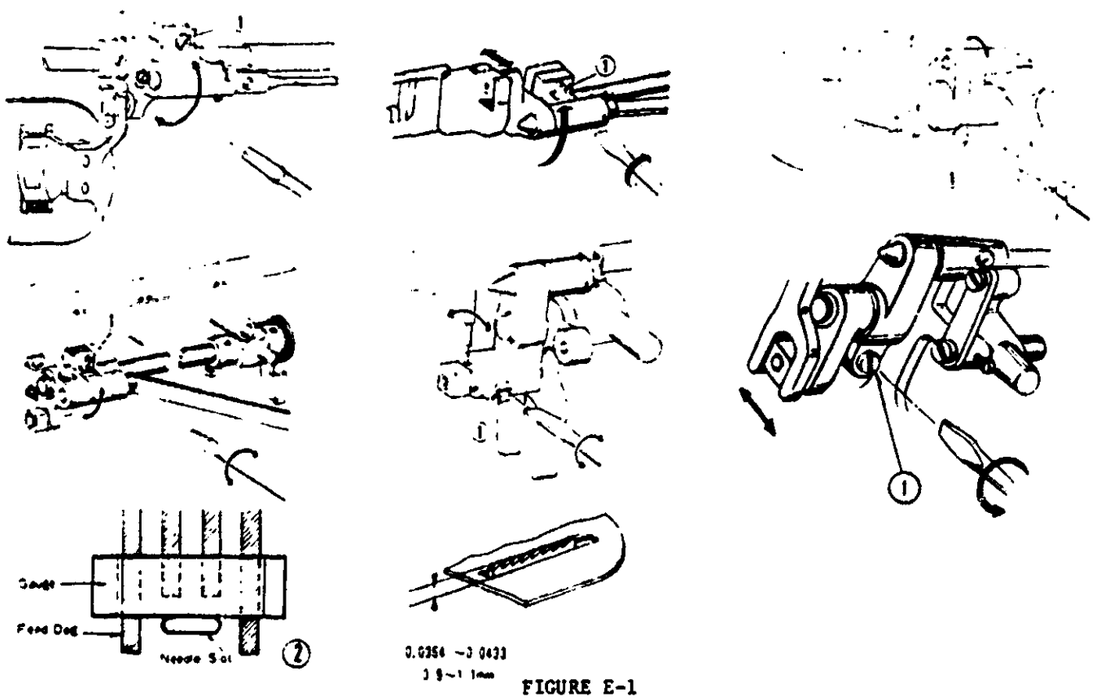


FIGURE E-1

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.

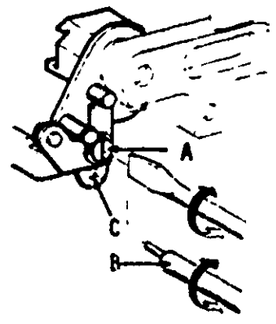


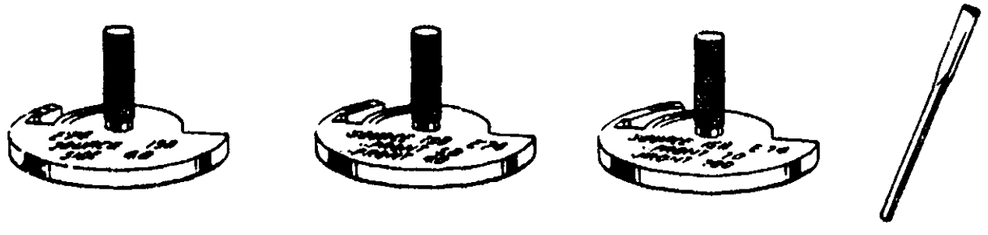
FIGURE F-12

Needle Timing to Shuttle
Needle Bar Height

(INSTRUCTION FOR RADIAL TIMING GAUGE)

USE GAUGE	SOURCE 158 • FRONT 7.0 ‡ FRONT 7.0D				SOURCE 158 • FRONT 5.6 ‡ FRONT 4.0				SOURCE 158 SIDE 4.6
USE MARK	• FRONT 7.0	‡ FRONT 7.0D			• FRONT 5.6		‡ FRONT 4.0		
	160	926	18141	17630	150	15250	650	340	All Side Face Shuttle Models
	161	16030	13150	17650	151	16000	10200	341	
	162	16031	19120	17660	152	16001	10300	342	
	163	17010	19131	17670	980	16010	10301	520	
	920	17011	19140	17671	980	16011	10302	521	
	921	17012	19141X	17672	980	16012	10304	522	
	922	17030	19142X	17740	980	16020	10400	523	
	923	17031		17741	12110	16021	10401	540	
	924	17032			12310	16210	10402	541	
	17000	17033			13060	16250	10450	542	
	17001	17511			13150	16410	10500	550	
	17490	17540			13180	16490	10501	551	
		18011			13170	16500	10600	552	
	17510	18020			13180	16510	16530	900	
	19010	18021			13190	16520		901	
		18022			13200	16540		902	
		18023			13201	16600		903	
		18024			13250	17200		904	
		18030			13360	17300		906	
		18031			13470	17310		18000	
		18032			13471	17500			
		18033			13670	17501			
		18034			13671	17520			
		18130			14000	17600			
		18131			14001	19310			
		18140			14002	19311			
					14003	19400			
					14100	19410			
					14101	19411			
					14300	19412			
					14301	19460			
					14310	19461			
					14311	19470			
					15140	19471			
					15150				
					15160				

The radial timing gauges and test pins, as illustrated below, are available through Department 206, Chicago only. The kit is identified as #69659.



Needle Timing to Shuttle

Models which do not have a center needle position for straight stitching must be set to the center position before using the radial timing gauge. If the Low Bar Alignment Gauge is available, the following method may be used.

First, insert test pin with blunt tip and tighten needle clamp screw securely. Place pattern disc number 1081 18, or number 26842 (according to the model) onto the cam driver shaft and turn it by hand until the cam follower (2) touches the cam surface at the maximum diameter of the disc. On models that have the standard cam built in, set the special stitch dial to the "S" position.

Remove the presser foot and attach the Low Bar Alignment Gauge onto the presser bar. Locate center needle position by rotating stitch width control until the test pin comes to the C hole on the gauge as shown. Confirm test pin is in C hole, raise the needle bar by rotating handwheel, remove the gauge.

Check the radial timing and needle bar height following the instructions under G-3.

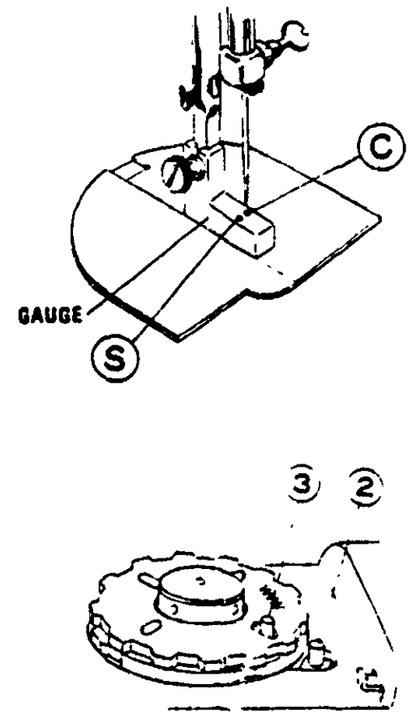


FIGURE G-4

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.

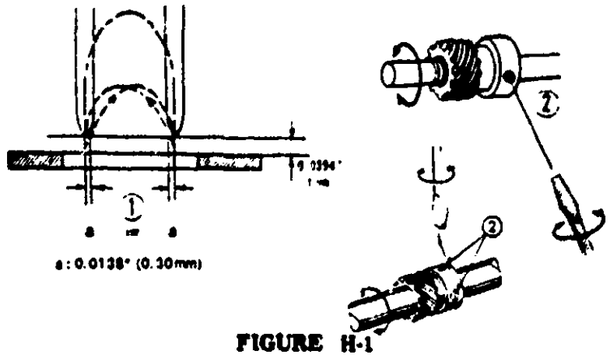


FIGURE H-1

Straight Stitch Position

REMOVE ARM COVER. SET STITCH WIDTH CONTROL AT RED S OR DOT. CHECK TO SEE IF THE NEEDLE SWINGS BY MOVING ZIGZAG GUIDE BASE (C) IN EITHER DIRECTION AS SHOWN. NEEDLE SHOULD NOT SWING. IF ADJUSTMENT IS NECESSARY, LOOSEN SCREW (A). HOLD ZIGZAG GUIDE BAR (D) DOWNWARD SLIGHTLY, SET STITCH WIDTH CONTROL (B) AT RED S OR DOT AND TIGHTEN SCREW (A).

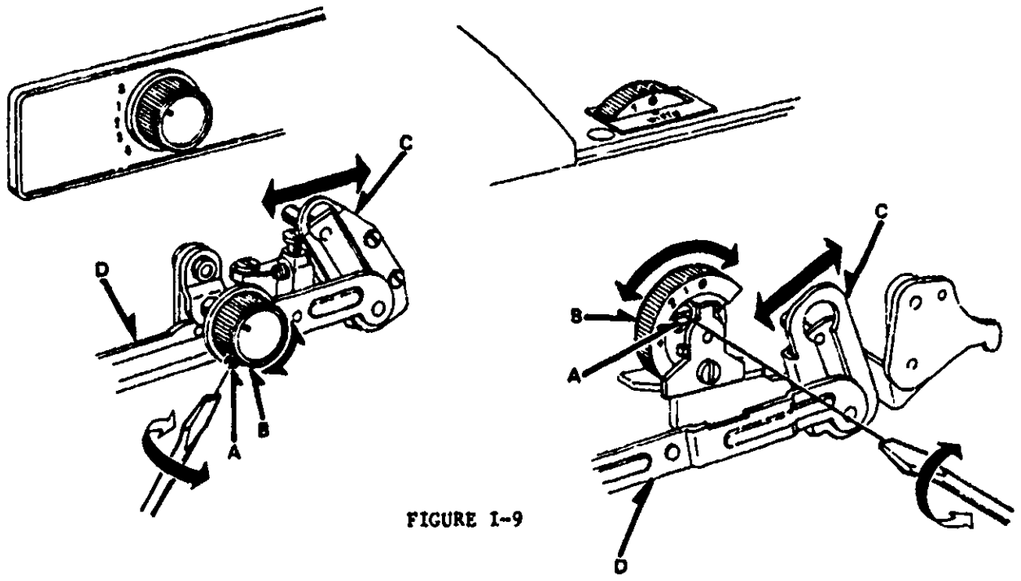


FIGURE I-9

Automatic Reverse Stitching Stretch Stitch

Set stitch length control at 6, stitch width control at 4, special stitch selector at red dot and special stitch modifier at S. Place a piece of paper (folded in two) over the feed dogs. Check and see if forward stitches are equal with reverse stitches by zigzag stitching on paper. If not, loosen set screw (1) slightly, insert the eccentric tool (2) into the hole (3), slide the super adjuster (4) to either direction, towards you or away from you, by turning the eccentric tool (2) until the lengths of both stitches are equal. Tighten screw (1).

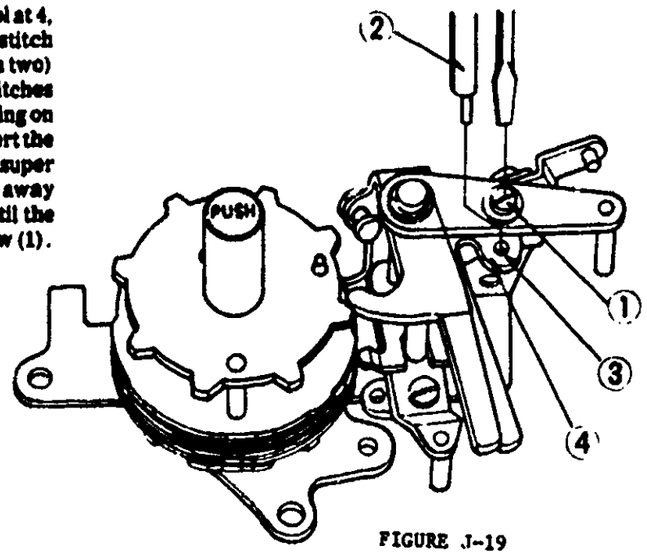


FIGURE J-19

Automatic Reverse Stitching Buttonhole

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

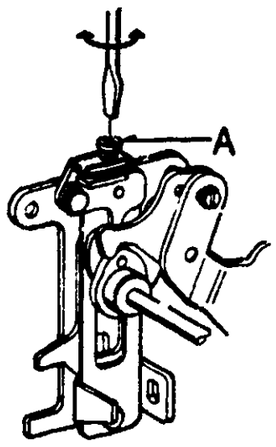


FIGURE J-21A

If the length of reverse stitches is shorter or longer than that of forward stitches, loosen nut (A) and turn screw (B) clockwise or counter-clockwise, until you can obtain the correct balance. Tighten the nut (A) after adjustment.

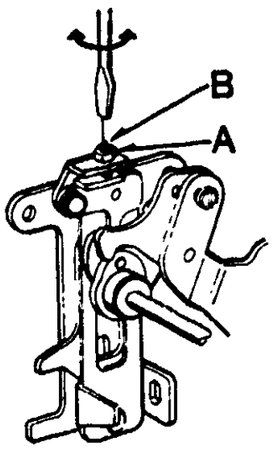
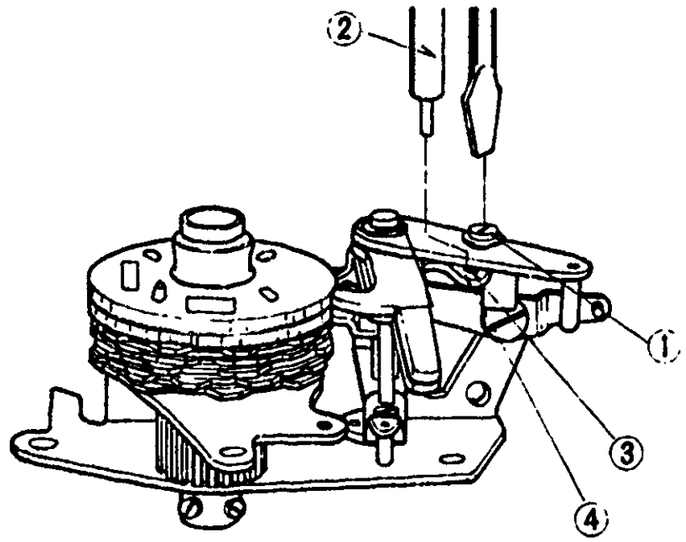


FIGURE J-21B

Automatic Mechanism
Cam and Cam follower Mechanism

Set zigzag width control at 4, special stitch dial at CAM, stitch length control at 6 and special stitch dial at middle position between S and L. Place #24 pattern cam into the machine and if a pattern disc produces incorrect pattern (as illustrated), adjust the machine in the following way: Loosen set screw (1), insert eccentric tool (2) into the hole (3) and turn the tool to either direction (clockwise or counter-clockwise) to move the plate (4) as illustrated. Tighten the screw (1) securely after adjustment.



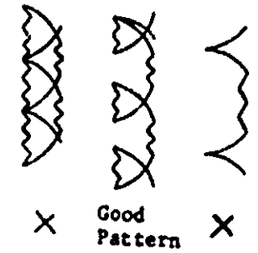


FIGURE K-17

Cam Selecter Guide Plate Setting

Set stitch length dial at 6 and special stitch dial at "S" or red dot. The cam follower should align with a cam as shown If not, loosen nut (A), and turn eccentric screw (B) slightly to either direction (counterclockwise or clockwise) so that the follower aligns with a cam. Tighten nut (A) securely after adjustment.

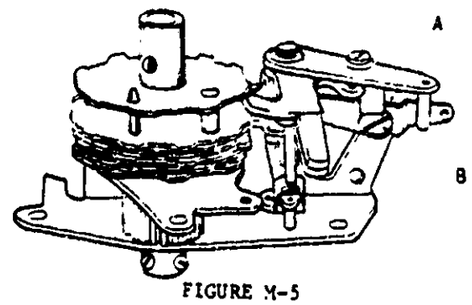


FIGURE M-5