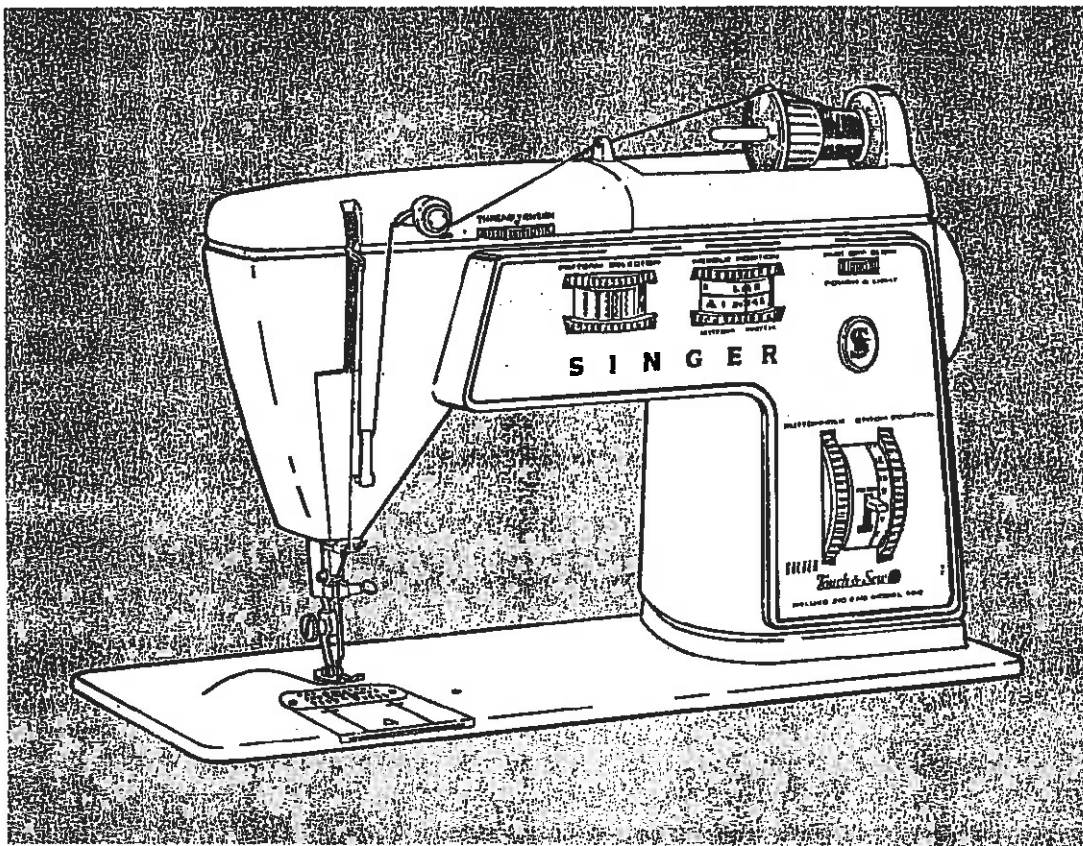


Supplement to  
Form 20732  
Machines 750, 756 and 758  
(670)

# SERVICE MANUAL

# SINGER\*

## Sewing Machines 750 Series



**S**\*

THE SINGER COMPANY

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# GENERAL INFORMATION

## DESCRIPTION

Each of the machines in the 750 series (750, 756 and 758) is a combination gear- and belt-driven lockstitch machine with built-in motor and sewing light. Speed control on the 750 is governed by a solid state controller with a two speed switch on control panel for fast and slow speeds. On the 756 and 758, speed control is governed by a single pile controller with a two speed switch on control panel for fast and slow speeds. All of these machines produce straight, zig-zag and stretch stitching as well as chainstitching. The 750 and 756 are capable of producing a basting stitch.

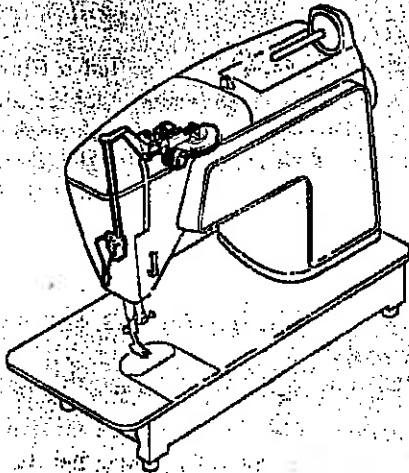
Decorative and functional zig-zag stitching as well as straight stitching is accomplished on all of these machines by the following methods:

- **750 Machine:** Built-in stack of seven Fashion discs and one replaceable disc. The replaceable disc is a cam-controlled feed disc, called a Flexi-stitch disc. Additional replaceable Fashion discs and Flexi-stitch discs are supplied with each machine.
- **756 Machine:** Built-in stack of eight discs, seven Fashion discs and one cam-controlled feed disc (Flexi-stitch disc).
- **758 Machine:** One replaceable disc in the machine and additional Fashion discs and Flexi-stitch discs which can be interchanged with the disc in the machine.

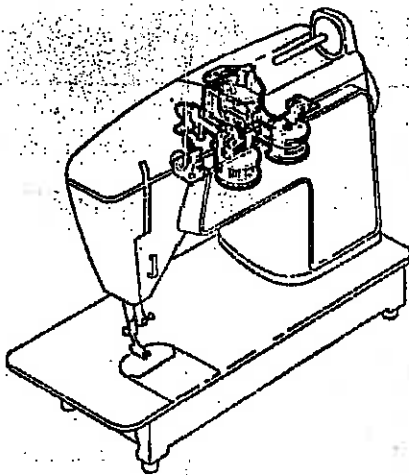
Additional Flexi-stitch discs and Fashion discs with the improved finger grips for easy removal and replacement are supplied in the attachment set for the 750 and 758 machine. The 750 series retains some of the features of the 640 series plus improvements and new features listed in the chart below.

FEATURES	750	756	758
Push-button bobbin	X	X	X
Reverse feed flexi-stitch	X	X	X
Two-step built-in buttonholer	X	X	X
Soft-touch fabric feed system	X	X	X
Dial controls	X	X	X
Two-speed motor	X	X	X
Spinning reel thread delivery	X	X	X
Top cover thread tension dial	X	X	X
Magnetic throat plates	X	X	X
Slant needle	X	X	X
Gear motor drive	X	X	X
Drop-in front bobbin	X	X	X
Chainstitch convertability	X	X	X
Quick return reverse-stitch control	X	X	X
Built-in threading chart	X	X	X
One-way needle clamp	X	X	X
Safety power and light switch	X	X	X
Rotary movement quiet motion transmission	X	X	X
Built-in speed basting system	X	X	
Built-in pattern discs	X	X	
Built-in needle hook type threader		X	X
Interchangeable Fashion and flexi-stitch discs	X		X
Pattern start indicator	X		X
Push-button needle threader	X		
Variable speed, solid-state control	X		
Self threading take-up lever	X	X	X

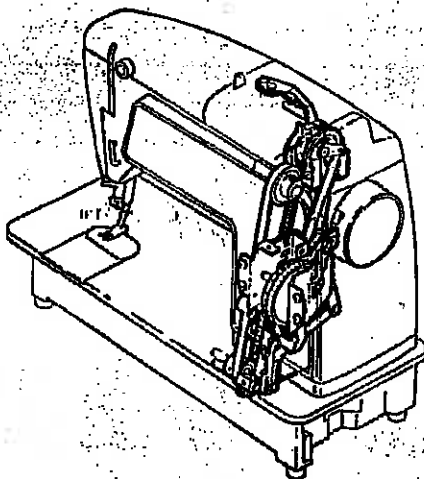
## MAJOR SYSTEMS



TOP-COVER TENSION SYSTEM



DIAL-CONTROLLED SELECTOR SYSTEM



CAM CONTROLLED FEED SYSTEM

Top Cover Tension System is a new Universal Type thread tension assembly with an adjustable dial located in the arm top cover. It insures consistency in tension settings and enables the operator to dial from minimum tension to maximum tension within one turn. The top cover location simplifies threading and gives the operator an unobstructed view of the stitching area.

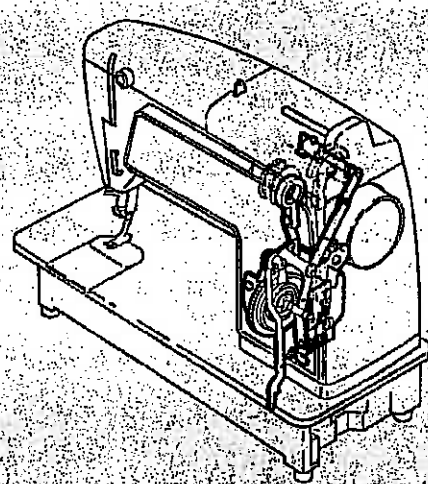
Dial-Controlled Selector System replaces the lever type system of earlier Touch and Sew machines. Graphically illustrated dials simplify ease of selection and enhance machine appearance.

- **Stitch Width Selector** controls width of zig-zag stitching. "0" setting produces straight stitching. Red bar designates setting for buttonhole width.
- **Needle Position Selector** places needle in a left, center or right position for straight, zig-zag or decorative stitching. It is also used for positioning the needle for buttonhole stitching.
- **Stitch Pattern Selector** controls stitch pattern cam follower for selection of straight, zig-zag or decorative stitching. Stitch patterns are indicated graphically on the selector dial for positive selection of pattern. A special symbol indicated in red on dial facilitates quick settings for buttonholing

Cam-Controlled Feed System controls both the zig-zag movement of the needle and the forward-reverse stitching direction to produce multi-purpose and decorative patterns. The stretch stitch produced by this system makes the machine capable of sewing on overedged seam which is particularly appropriate for use in construction of garments made of knit, stretch or elasticized fabrics. It also provides a durable straight stretch stitch utilizing either the "Feather" or "Overedge" cam with controls set for straight stitching. The cam-controlled feed system is regulated by the feed dial when using any one of the cam-controlled feed cams supplied with machine.

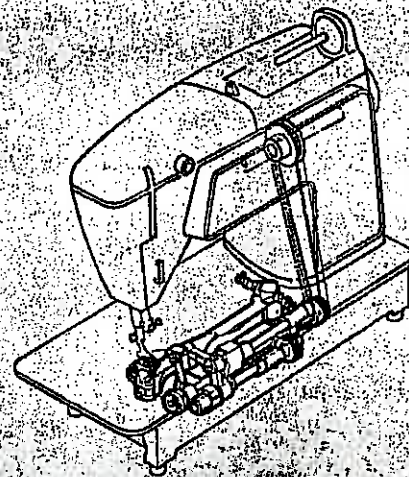
## MAJOR SYSTEMS

**Two-Step Built-in Buttonhole System** provides the machine with the capability of making round-end buttonholes by means of two simple settings on the new buttonhole dial. Settings are indicated graphically on the buttonhole dial. The dial automatically stops in its "OFF" position to disengage the buttonhole mechanism when a buttonhole is completed.



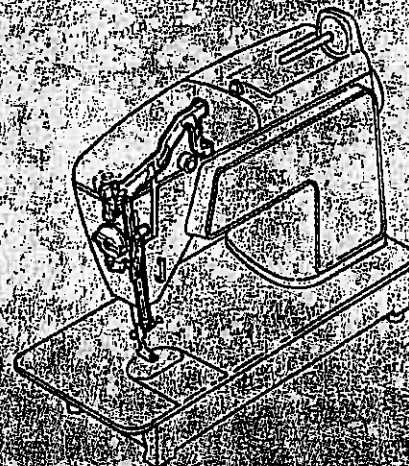
**TWO-STEP BUILT-IN BUTTONHOLE SYSTEM**

**Alpha Feed System** is a compact, yet efficient, feed system which insures precise stitch length control as well as improved feeding of fabric. The feed actuating linkages are located close to the feed dog to reduce the possibility of the retarding effect on feeding and stalling of cam-controlled reverse feed. The stitch length is set by a dial-operated stitch-length control. Feeding can be changed from forward to reverse by manually pressing a spring-biased reverse-stitch lever. Urethane gears and the introduction of a belt drive system between the horizontal arm and hook shafts assures quiet running.



**ALPHA-FEED SYSTEM**

**Speed Basting Stitch System** provides convenient intermediate stitches for sewing operations such as basting or other types of temporary stitching where hand basting would ordinarily be required. Speed basting is accomplished by means of a cam which restricts the needle action to one penetration every twelfth stitch.



**SPEED BASTING STITCH SYSTEM**

# PARTS REMOVAL and REPLACEMENT

## ARM TOP COVER

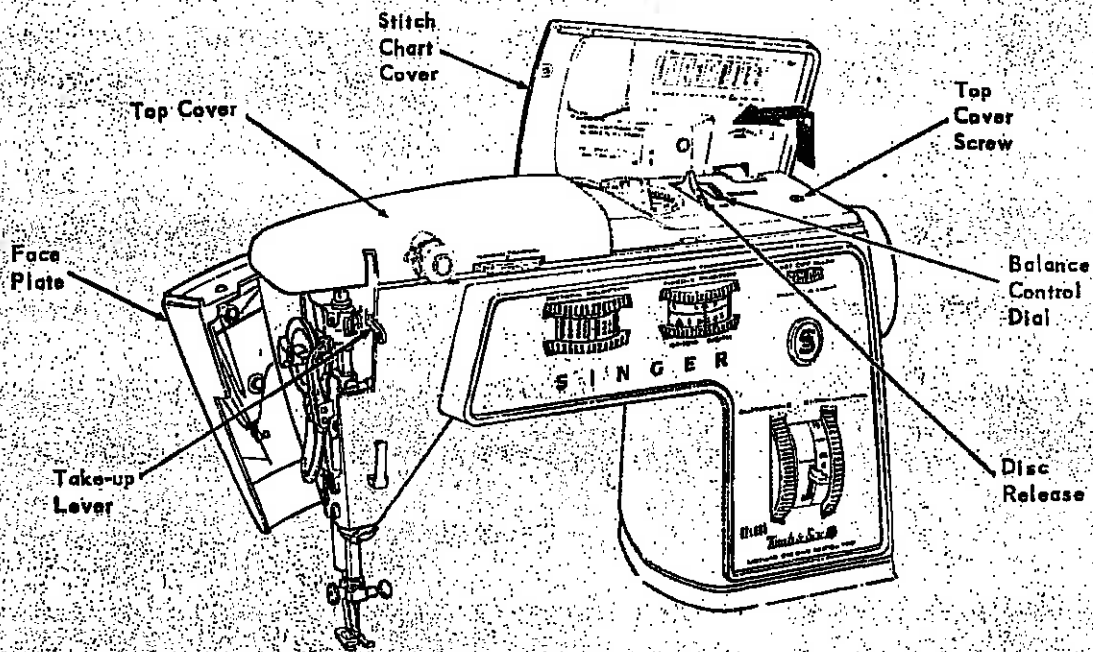
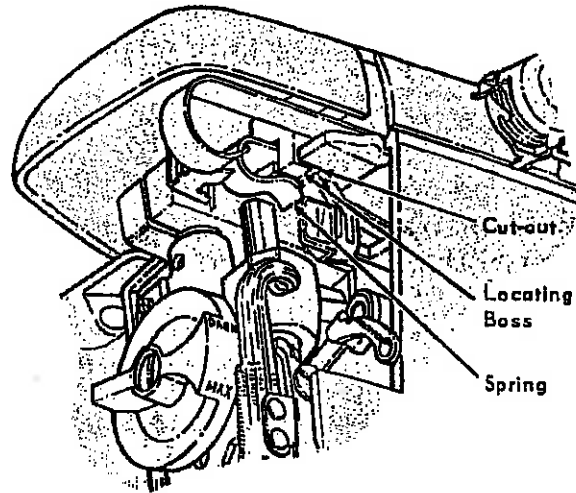
### Removal

1. Raise stitch chart cover, open face plate and lower presser foot.
2. Turn hand wheel toward front of machine until take-up lever is in its lowest position, so that take-up lever does not interfere with the top cover when it is being removed.
3. Remove top cover screw located under stitch chart cover.
4. Raise the top cover until the disc release and the balance control dials clear the slots in top cover.
5. Slide top cover to the left and off the machine.

4. Align locating boss inside top cover with cut-out in top of arm (above needle bar) and raise the stitch chart end of top cover so that it clears the disc release and the balance control dial.
5. Slide top cover to the right and onto the machine until spring snaps into place on casting. Lower right end of cover onto machine.
6. Replace top cover screw.

### Replacement

1. Make sure that face plate is in place and in the open position.
2. Turn hand wheel toward front of machine until take-up lever is in its lowest position, so that take-up lever does not interfere with the top cover when it is being replaced. Make sure that stitch chart cover is open and presser foot is down.
3. Position top cover over top of machine allowing a slight overhang on the left-hand side.



# PARTS REMOVAL and REPLACEMENT

## ARM TOP COVER TENSION

### TENSION DISC ASSEMBLY

#### Machine Setting

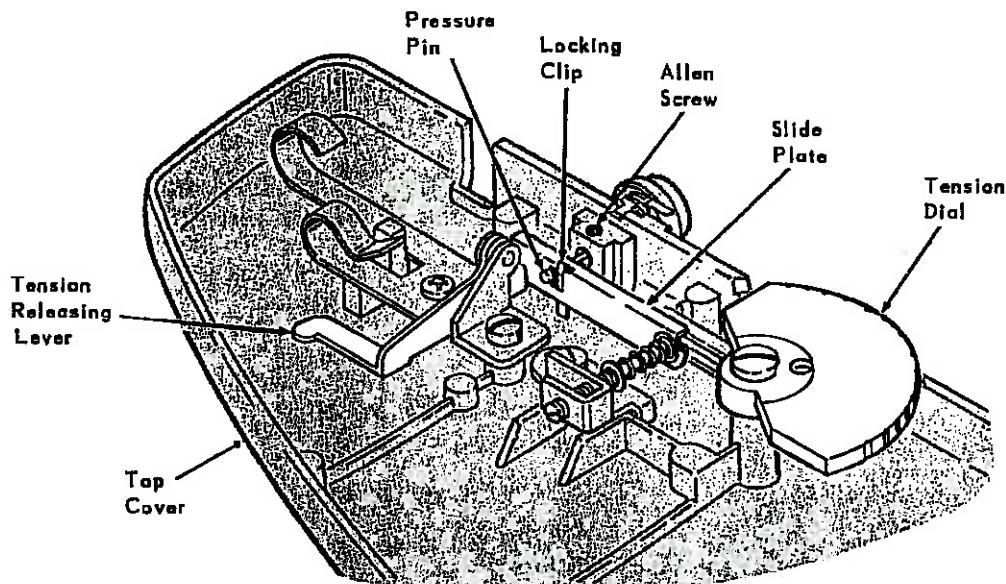
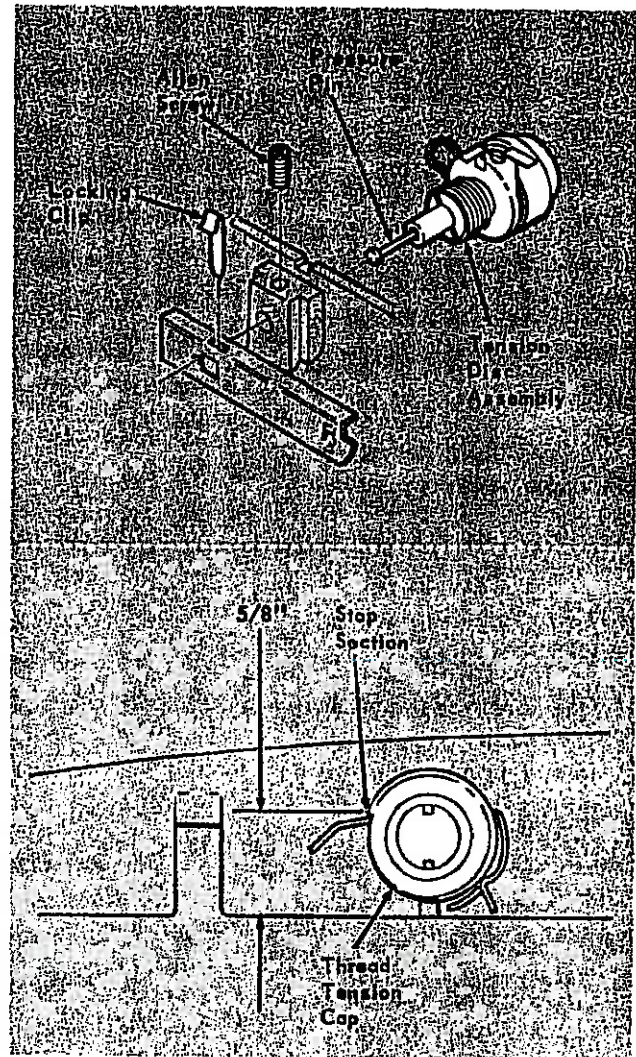
1. Tension Dial: "0" 

#### Removal

1. Remove top cover.
2. Remove locking clip that holds pressure pin.
3. Loosen allen screw that holds tension disc assembly.
4. Remove tension disc assembly.

#### Replacement

1. Press tension releasing lever down so that it holds slide plate in position for replacement of tension disc assembly.
2. Hold top cover in a vertical position (stitch pattern cover end down).
3. Replace tension disc assembly into top cover. Make sure that pressure pin is correctly positioned in slide plate. Assemble carefully. Do not bend pressure pin.
4. Turn the thread tension cap until the take-up spring stop section is 5/8" from bottom of top cover.
5. Tighten allen screw that holds tension assembly in position.
6. Insert locking clip in slide plate and press into position (Do not bend pressure pin).





# PARTS REMOVAL and REPLACEMENT

## ARM TOP COVER TENSION (Cont.)

### TENSION ACTUATING MECHANISM

#### Machine Setting

1. Tension Dial: "0"



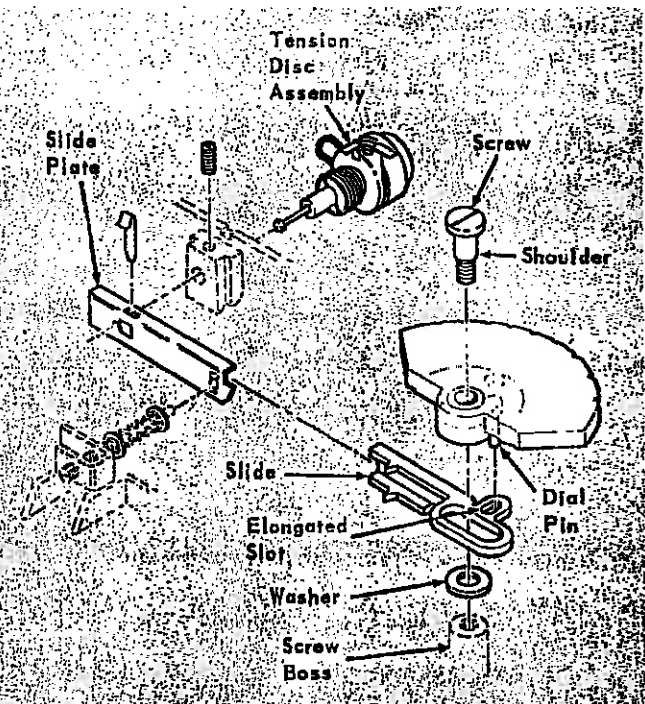
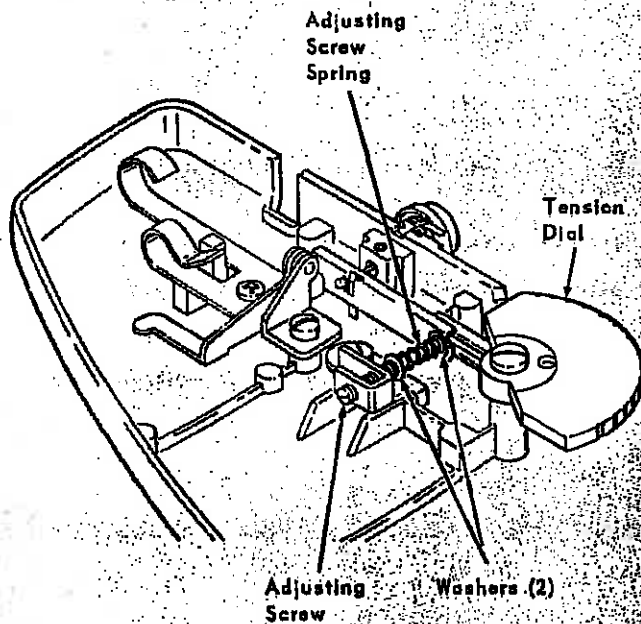
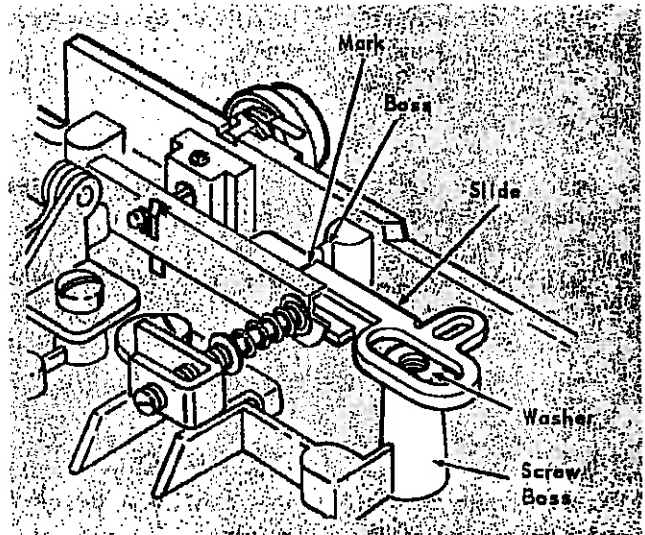
#### Removal

- NOTE: Do not disturb setting of adjusting screw.
1. Remove tension disc assembly, page 7.
  2. Loosen and remove screw that holds tension dial. Remove dial and washer.
  3. Remove slide from slide plate.
  4. Turn slide plate into vertical position for ease of removal. Remove slide plate from adjusting screw.

#### Replacement

1. Make sure that two washers and spring are in place on adjusting screw.
2. Hold slide plate in a vertical position and connect it to adjusting screw. Lower slide plate into top cover.
3. Insert slide into slide plate. For ease of assembly, align mark on slide with boss in top cover.
4. Place washer between slide and screw boss.

5. Replace tension dial, positioning dial pin in elongated slot of slide. Align holes in dial, washer and screw boss.
6. Replace screw that holds dial. Make sure that dial is properly seated on shoulder of screw. Tighten screw. If dial does not turn freely, recheck dial for proper relationship with shoulder of screw.
7. Turn tension dial to 0.
8. Replace tension disc assembly.

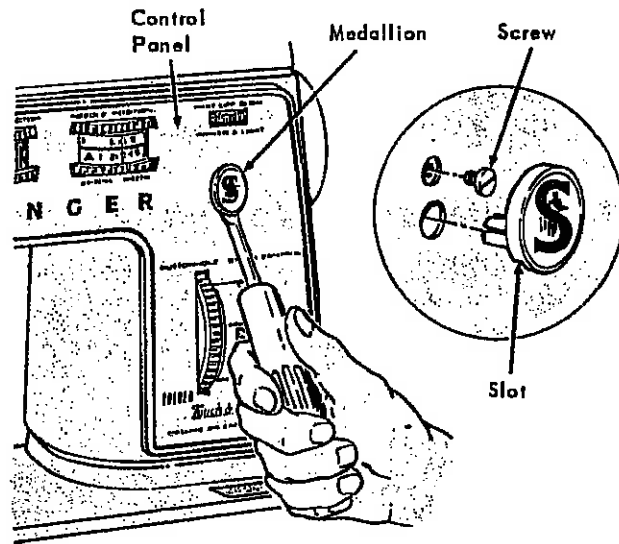


# PARTS REMOVAL and REPLACEMENT

## CONTROL PANEL

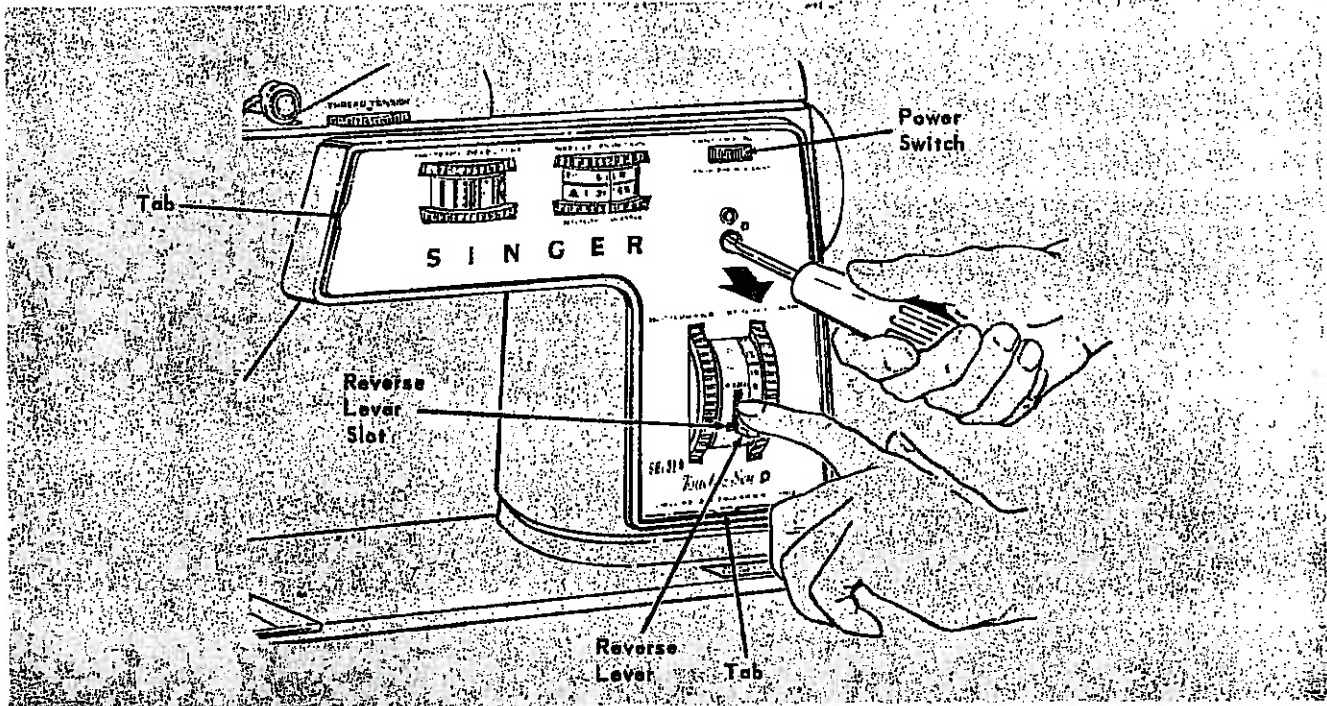
### Removal

1. Insert small screwdriver into slot in bottom of medallion and pry medallion away from control panel. Then, grasp medallion with fingertips and remove it.
  2. Remove screw located under medallion.
  3. Place the power switch in the "OFF" (center) position and stitch control dial on cam controlled feed.
  4. Press down on reverse lever. Insert small screwdriver into hole in panel where medallion was located.
  5. Gently pry control panel away from machine until edge of panel may be grasped with fingers.
  6. Slightly lift panel so that it clears reverse lever and tab at bottom of panel releases from casting. At the same time pull panel away and remove from machine.
  7. Release reverse lever.
3. Depress reverse lever.
  4. Locate tab on left side of control panel into machine. Then, locate tab at bottom of control panel into machine. Press top of control panel into machine.
  5. Release reverse lever.
  6. Replace screw holding control panel.
  7. Push medallion into place on machine.

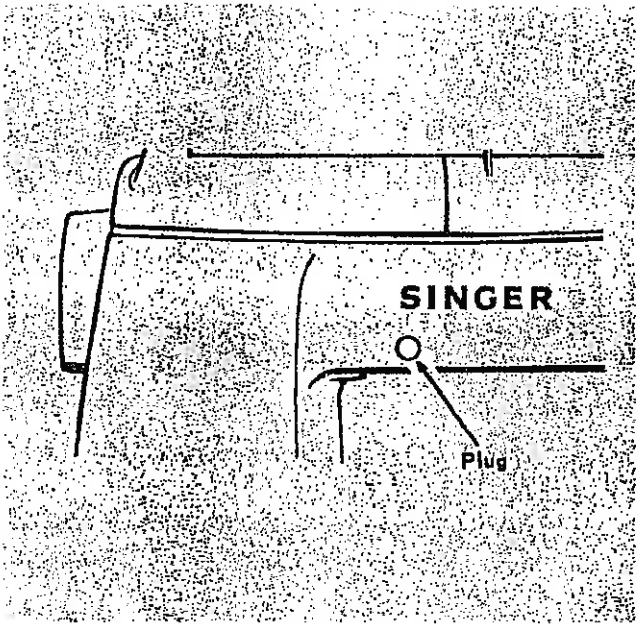


### Replacement

1. Place the power switch in the "OFF" (center) position.
2. Place reverse lever slot, located in control panel, over reverse lever.



# ADJUSTMENT PROCEDURES

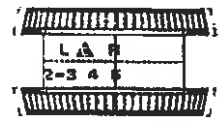


## SELECTOR SYSTEM

### ADJUSTING HEIGHT OF NEEDLE POSITION FOLLOWER

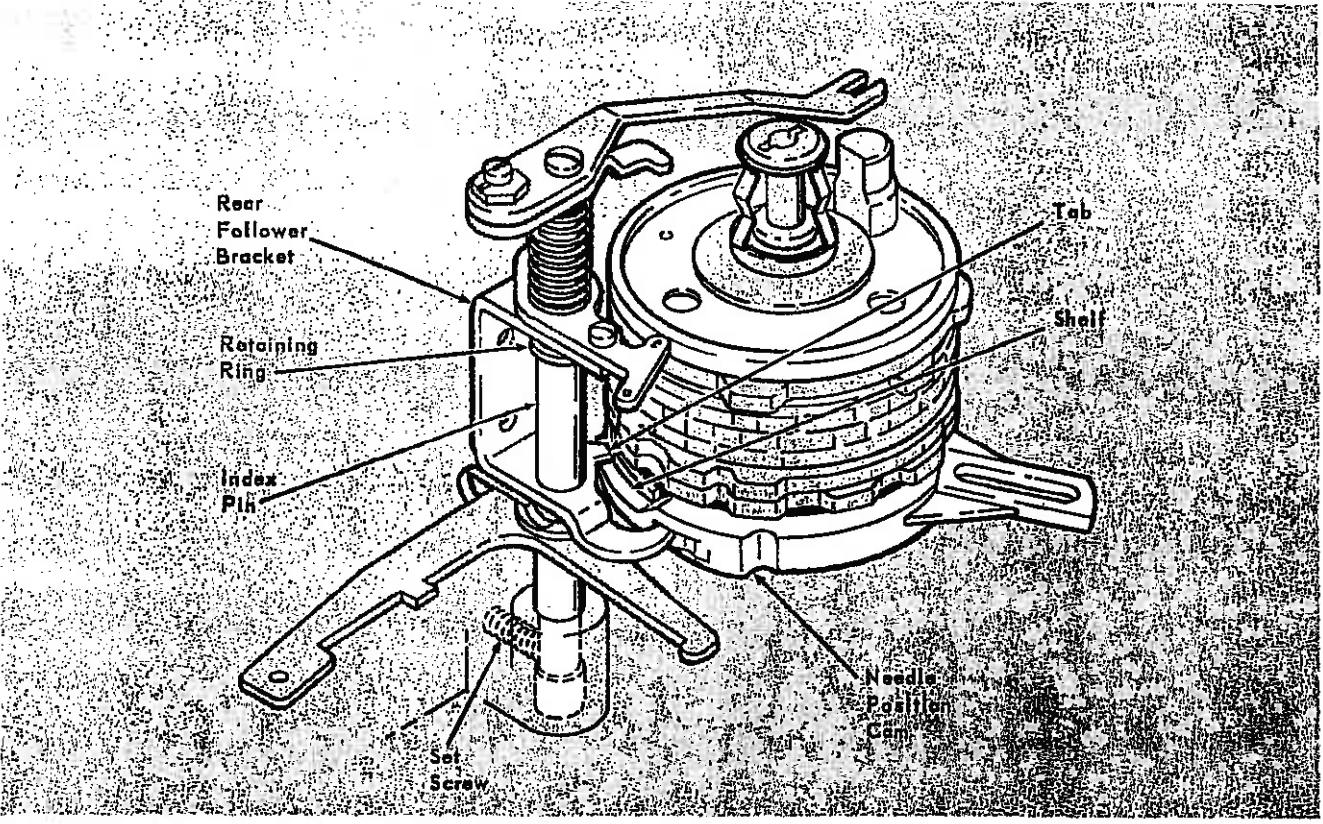
#### Machine Settings

1. Needle Position Dial: "R"
2. Stitch Width Dial: "5"



#### Adjustment

1. Remove plug (located at rear of arm) that covers set screw which holds rear index pin. Tap point of a bent needle into plug at an angle. Then, grasp needle with pliers and remove plug.
2. Hold rear follower bracket (down) against retaining ring, and at the same time, loosen set screw which holds rear index pin.
3. Raise or lower index pin until tab on the rear follower bracket lightly rests on shelf of needle position cam and rear follower is centered on straight stitch cam.
4. Tighten set screw that holds rear index pin. Visually check tab for proper position on cam.
5. Check cam control feed adjustments, page 23.
6. Smooth burred edge of plug and push it into place.



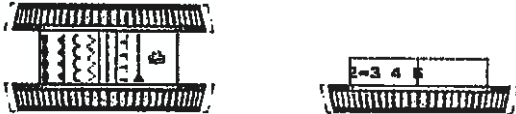
# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### ADJUSTING DRIVING ARM KICK-OUT FOLLOWER FOR PROPER POSITION

#### Machine Settings

1. Pattern Selector Dial: Basting Stitch (3rd cam from top of built-in cam stack)
2. Stitch Width Dial: "5"



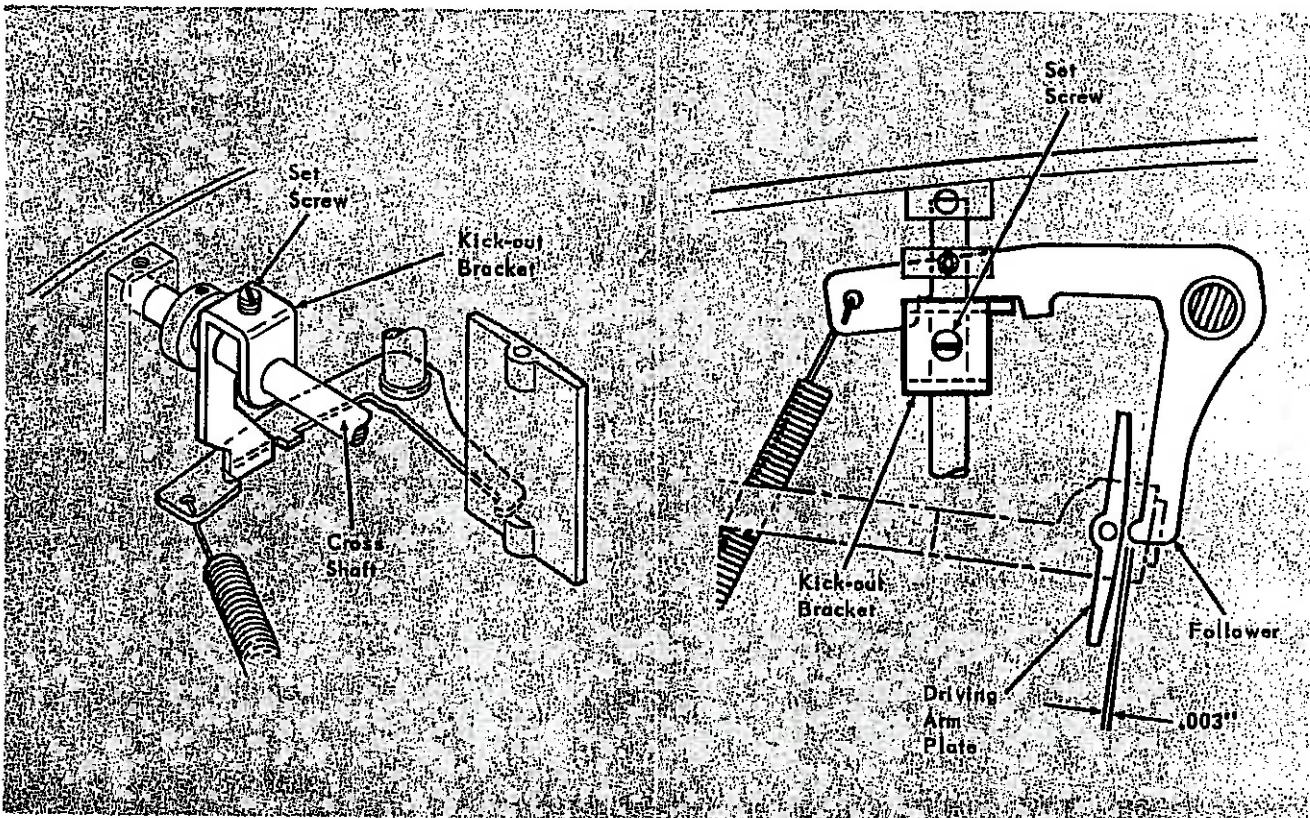
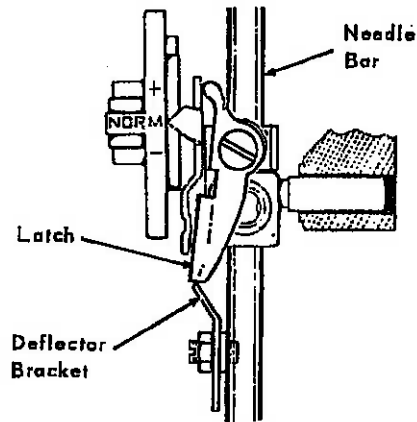
#### Adjustment

NOTE: Use basting stitch cam only for this adjustment. Needle bar goes toward the right .030" more on this cam than on any other cam.

1. Turn hand wheel toward front of machine until the needle bar is at its highest position and the needle bar latch is seated on the deflector bracket.
2. Pull cross shaft toward front of machine and loosen

set screw that holds needle bar driving arm kick-out bracket.

3. Continue pulling cross shaft toward front of machine and move kick-out bracket on cross shaft until follower is within .003" of needle bar driving arm (wobble) plate.
4. Tighten set screw.
5. Recheck pattern selector dial adjustments, page 15, needle position adjustments, page 14, basting stitch adjustments, page 19, and follower clearance to cam stack, page 12.



# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### ADJUSTING CLEARANCE BETWEEN FRONT FOLLOWER AND HIGH LOBES OF CAM STACK

#### Machine Settings

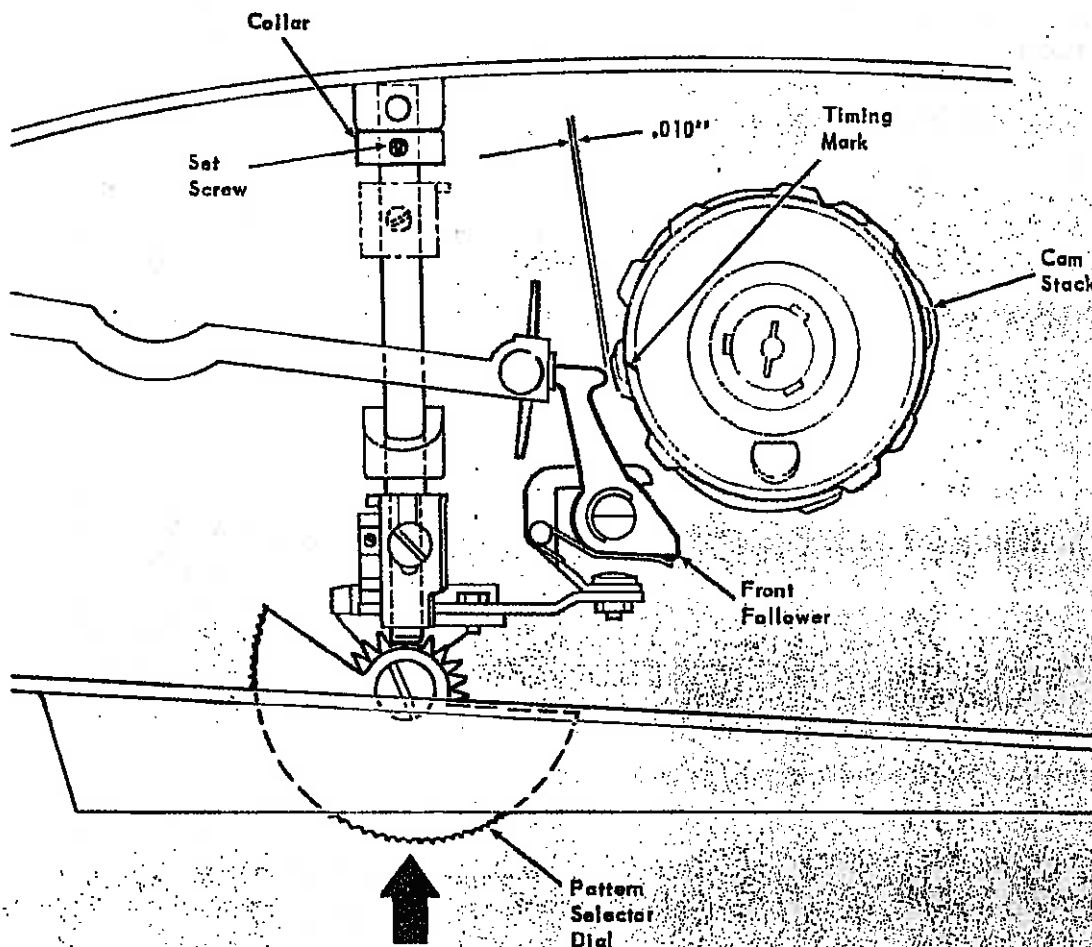
1. Pattern Selector Dial: Straight Stitch (top cam of built-in cam stack)
2. Stitch Width Dial: "5"



#### Adjustments

1. Make sure that the needle bar driving arm kick-out lever is properly adjusted, page 11.

2. Turn hand wheel toward front of machine until the front follower is adjacent to the timing mark on the cam stack (This is the high point of the cam stack).
3. Check clearance between front follower and cam stack. Press in on pattern selector dial and move front follower to zig-zag cam (bottom cam). Clearance between front follower and all cams should not exceed .010" (thickness of a matchbook cover).
4. If clearance is insufficient, loosen cross shaft collar set screw and move collar (slightly) toward dial. Tighten cross shaft collar set screw.
5. Check clearance and make sure that needle does not strike top of throat plate when pressing in on dial. If it strikes throat plate, release dial and loosen cross shaft collar set screw. Move collar slightly away from dial and tighten cross shaft collar set screw.



# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### ADJUSTING THE LEFT BIGHT STOP

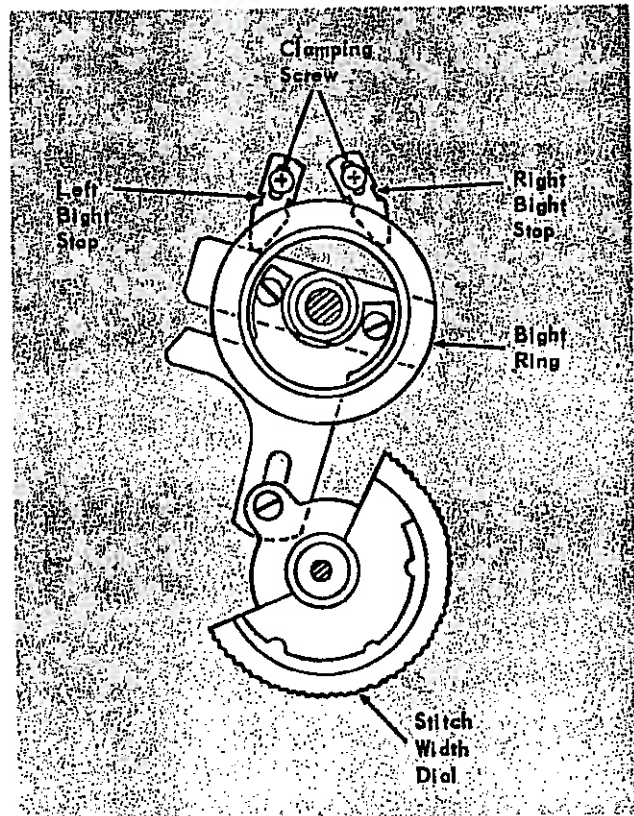
#### Machine Settings

1. Pattern Selector Dial: Zig-Zag
2. Needle Position Dial: "C"
3. Stitch Width Dial: "3"



#### Adjustment

1. Loosen clamping screw in left bight stop.
2. Run machine slowly and turn stitch width dial toward "0" until there is little or no sidewise movement of the vibrating bracket.
3. Move left bight stop against bight ring (no pressure) and tighten clamping screw.
4. Adjust stitch width dial, page 14.



### ADJUSTING THE RIGHT BIGHT STOP

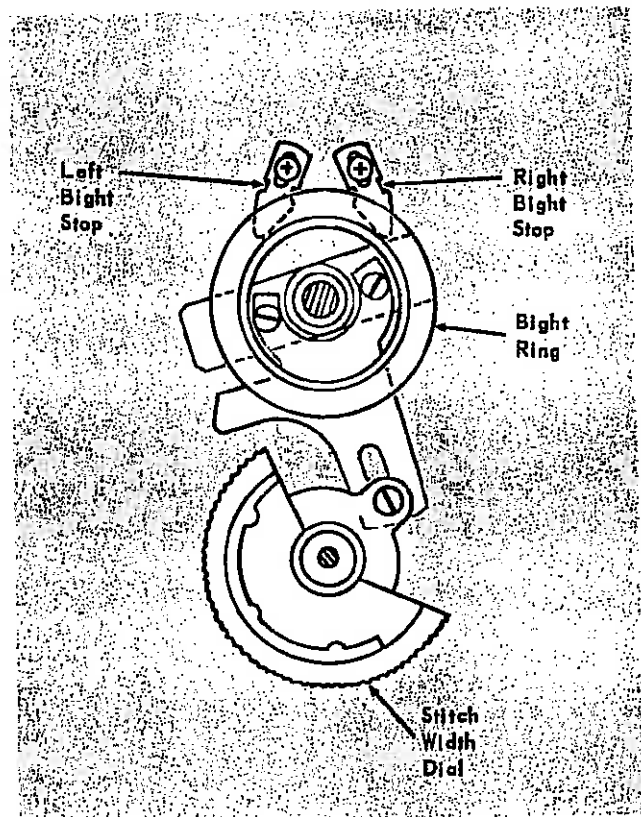
#### Machine Settings

1. Pattern Selector Dial: Zig-Zag
2. Stitch Width Dial: "1"

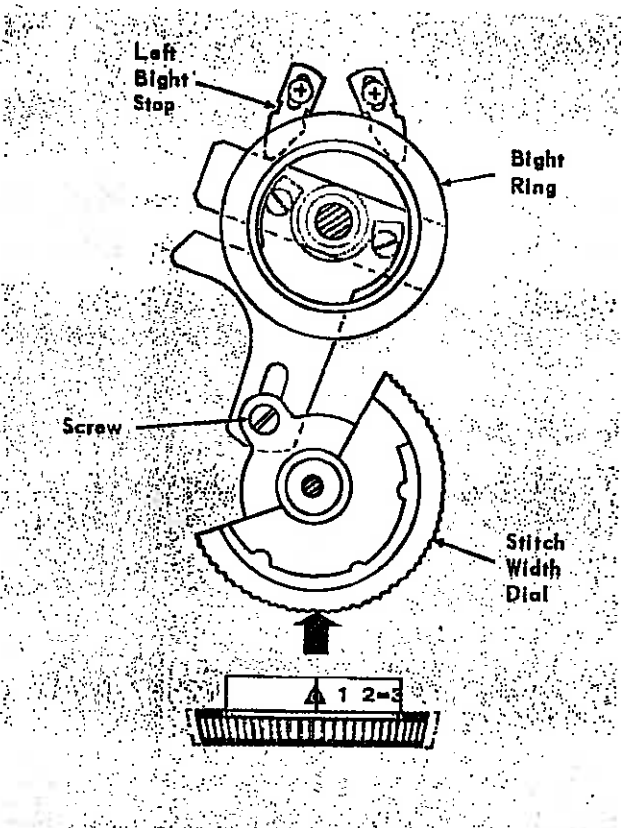
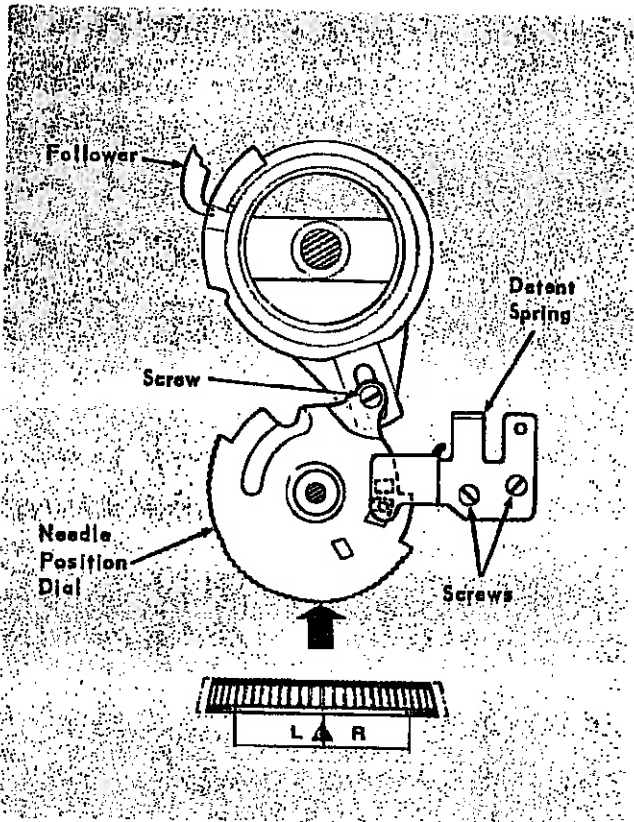


#### Adjustment

1. Loosen clamping screw in right bight stop.
2. Turn hand wheel toward front of machine until needle bar is in its lowest position.
3. Continuously move needle position dial from "L" to "R". At the same time turn stitch width dial toward "5" until sidewise movement of needle bar stops.
4. Move right bight stop against bight ring and tighten clamping screw.
5. Adjust stitch width dial, page 14.



# ADJUSTMENT PROCEDURES

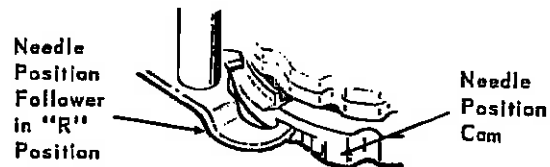


## SELECTOR SYSTEM (Cont.)

### ALIGNING NEEDLE POSITION DIAL GRAPHICS TO PANEL

#### Adjustment

1. Loosen two screws that hold the detent spring.
2. Align "C" (point of triangle) on dial with the red line on panel. Tighten the two screws that hold detent spring.
3. Set needle position dial on "R". Make sure that needle position follower is in the "R" position of the needle position cam.

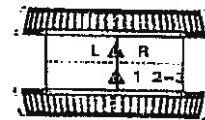


4. If the follower is not in the "R" position of cam, loosen screw and set cam until follower is in the "R" position.
5. Hold follower in "R" needle position and tighten screw.
6. Recheck follower position and alignment of "C" on dial to red line on panel.

### ALIGNING STITCH WIDTH DIAL GRAPHICS TO PANEL

#### Machine Settings

1. Needle Position Dial: "C"
2. Stitch Width Dial: "0"



#### Adjustment

1. Loosen screw that holds stitch width dial.
2. Hold bight amplitude selector against left bight stop.
3. Turn dial until "0" (point of triangle) on stitch width selector dial is aligned with red line on panel. Tighten screw.
4. Check alignment of "0" on stitch width dial to red line on panel and re-adjust if necessary.

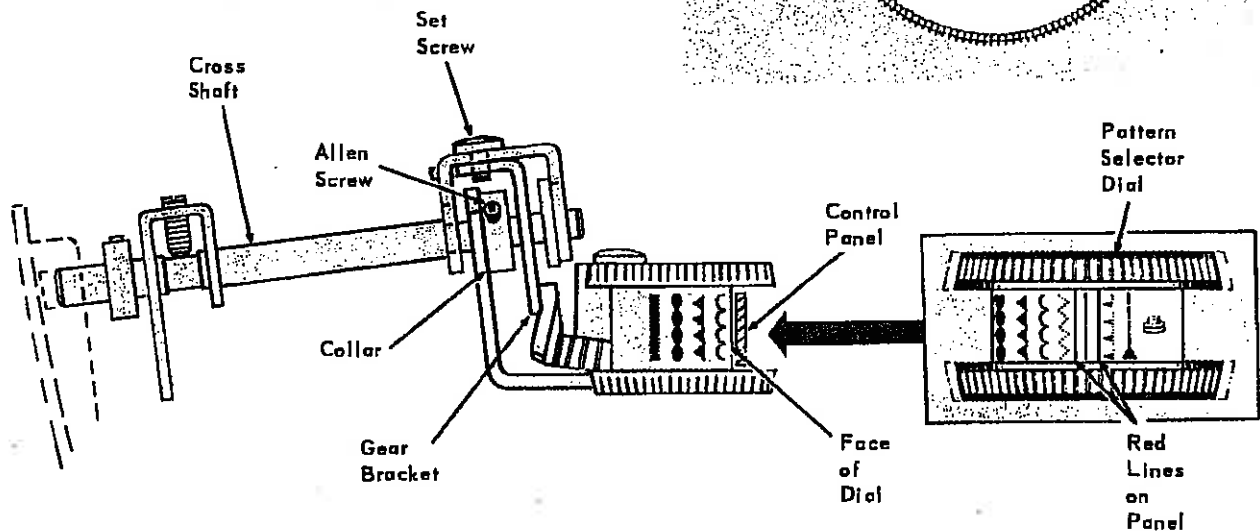
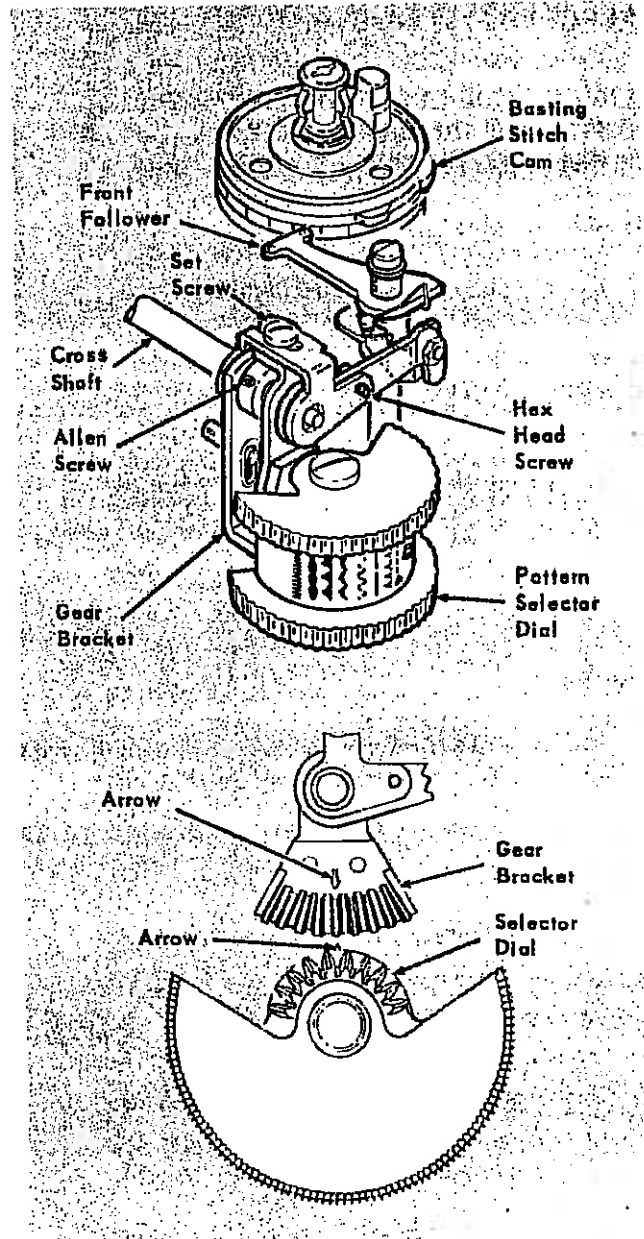
# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### ADJUSTING SELECTOR DIAL FOR ALIGNMENT TO PANEL, CLEARANCE TO PANEL AND PROPER GEAR MESH

#### Adjustment

1. Push in and turn pattern selector dial until the front follower is on the basting stitch cam (3rd cam down from top of built-in cam stack).
2. Loosen set screw that holds gear bracket, and loosen allen screw on disc selector arm collar.
3. Hold cross shaft toward front of machine and pull selector dial until it touches control panel.
4. Continue holding cross shaft forward. At the same time, push the pattern selector dial in until the face of the dial just clears the control panel. Tighten allen screw that locks collar to cross shaft.
5. Release cross shaft. The face of the dial should just clear the control panel. If not, re-adjust dial.
6. Center basting stitch graphics on dial between red lines on panel.
7. Move gear bracket forward, meshing gears on bracket and dial at points indicated by arrows molded into the gears.
8. Tighten set screw holding gear bracket.
9. If graphics on dial are not centered between red lines on panel, loosen hex head screw in front follower arm and move dial until graphics are centered.
10. Tighten hex head screw.





# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### ALIGNMENT OF LEFT AND RIGHT NEEDLE POSITION TO ZIG-ZAG CAM (ZEROING OUT OF REAR FOLLOWER)

#### Machine Settings

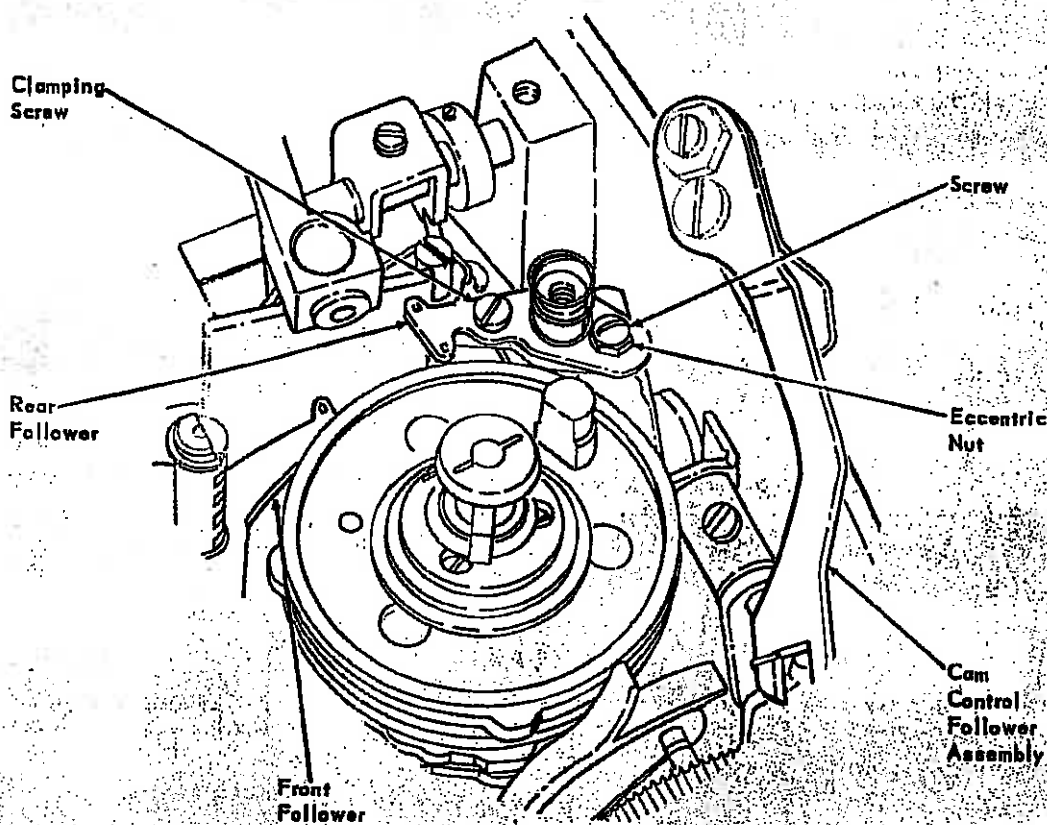
1. Pattern Selector Dial: Zig-Zag (bottom cam of built-in cam stack)
2. Needle Position Dial: "L"
3. Stitch Width Dial: "5"



#### Adjustment

1. Turn hand wheel toward front of machine until front follower is on the high point of zig-zag cam.

2. To gain access to eccentric nut, remove screw from cam control follower assembly and move assembly to position illustrated so that a screwdriver and 7/32" wrench will fit on eccentric nut. It is not necessary to remove cam control follower assembly.
3. Loosen clamping screw that holds rear follower and screw holding eccentric nut.
4. Place paper on throat plate and turn hand wheel until needle slightly perforates paper. Hold paper in place and turn hand wheel toward rear of machine until needle is just above paper.
5. Move stitch width dial to zero.
6. Turn eccentric nut until needle lines up with hole in paper.
7. Hold position of eccentric nut and tighten screw.
8. Tighten clamping screw.
9. Move stitch width dial from "0" to "5" and observe needle. If there is sidewise movement, re-adjust rear follower.
10. Re-assemble cam control follower assembly.
11. Recheck needle position adjustments, page 14, and basting stitch mechanism, page 19.



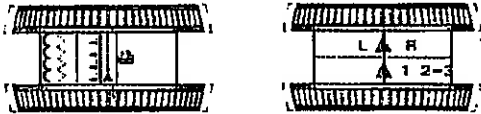
# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### CENTRALIZING NEEDLE IN NEEDLE HOLE (LEFT TO RIGHT POSITION)

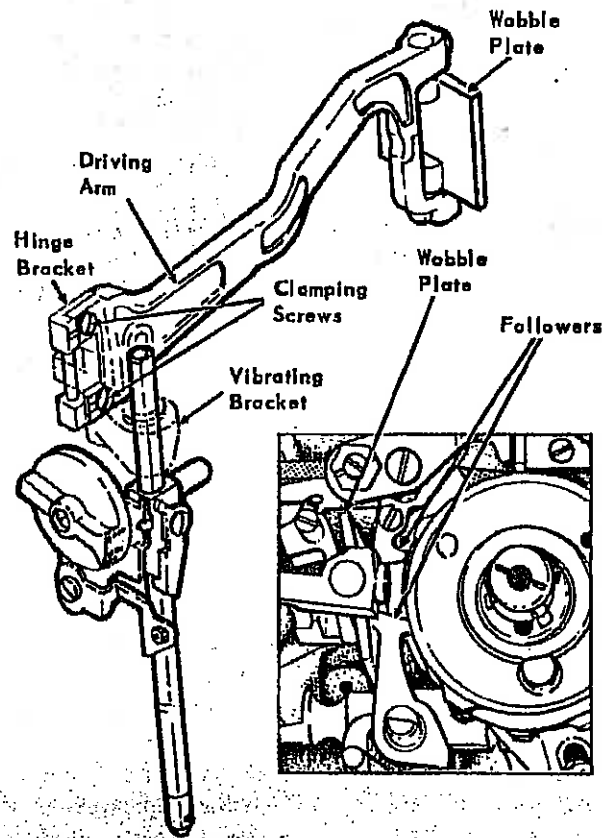
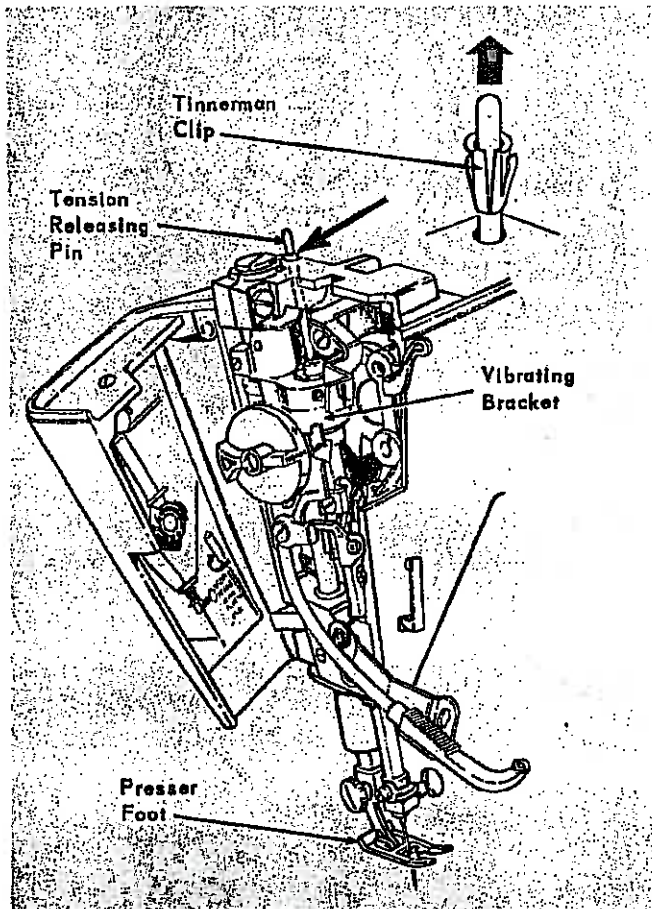
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch (top cam of built-in cam stack)
2. Stitch Width Dial: "0"
3. Needle Position Dial: "C" (needle position follower in center needle position)



#### Adjustment

1. Insert a straight stitch throat plate into machine.
2. Raise presser foot.
3. Remove Tinnerman clip and tension releasing pin by pulling pin up, and out of casting.
4. Loosen two clamping screws in hinge bracket.
5. Guide needle into needle hole and obtain an approximate 4:20 clock hand location.
6. Hold driving arm so that wobble plate is against followers.
7. Press in on vibrating bracket to centralize needle. Then, tighten one screw.
8. Release driving arm and vibrating bracket. Check needle location. If centralized, alternately tighten each screw. If not, re-adjust driving arm.
9. Replace tension releasing pin and Tinnerman clip. Press Tinnerman clip into position in casting.
10. Check hook timing, page 29, feed timing, page 31, and basting stitch mechanism, page 19.



# ADJUSTMENT PROCEDURES

## SELECTOR SYSTEM (Cont.)

### TIMING THE CAM STACK (PENDULUM TIMING)

#### Machine Settings

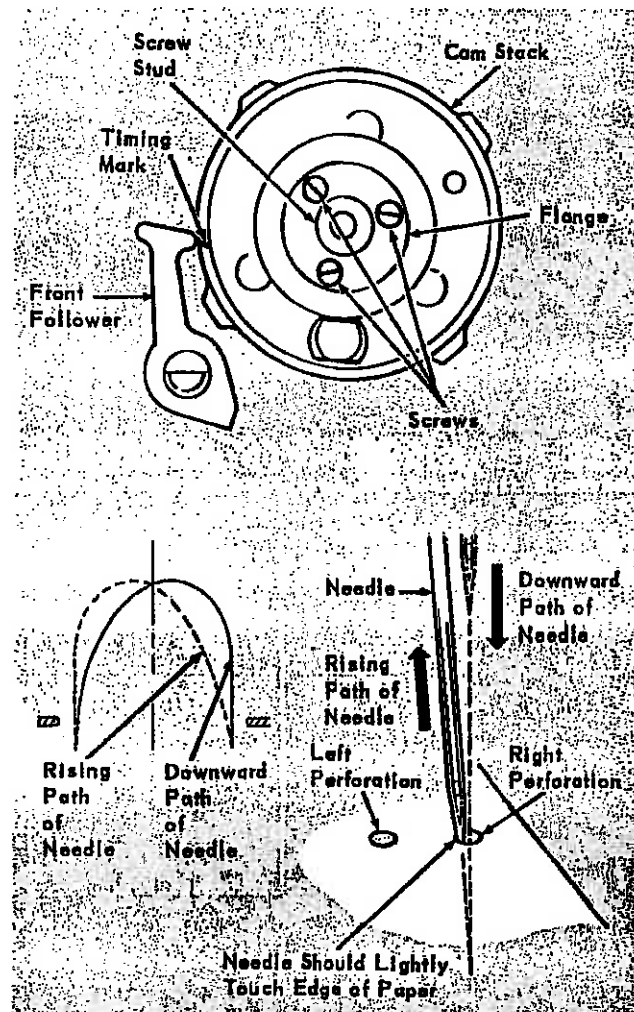
1. Pattern Selector Dial: Zig-zag
2. Needle Position Dial: "C"
3. Stitch Width Dial: "5"



#### Adjustment

1. Raise needle bar and remove presser foot.
2. Check timing of cam stack. Place a small piece of paper on throat plate and hold it in place so that feed dog does not move it. Turn hand wheel. As the needle is rising from the right perforation, the point of the needle should be moving toward the left, lightly touching the edge of the paper without enlarging hole.
3. If adjustment is necessary, remove screw stud and spring. Set pattern selector dial on straight stitch.
4. If timing is too fast, needle will enlarge hole in paper when needle is rising from the right position toward the left. Turn hand wheel toward front of machine until the screws holding cam stack are aligned with three holes in cam stack eccentric pin flange. Loosen the three screws, turning one of them until screw head is in flange. This prevents screws from scoring cam stack cap. Slightly turn cam stack counterclockwise. Tighten screw that was located in flange. Check cam stack timing by the paper perforation test method and re-adjust if necessary. Tighten three cap screws. Replace spring and screw stud.
5. If timing is too slow, needle will rise straight up rather than move toward the left. Turn hand wheel toward front of machine until the screws holding the cam stack are aligned with three holes in cam stack eccentric pin flange. Loosen the three screws, one of them until screw head is in flange. This prevents screws from scoring cam stack cap. Slightly turn cam stack clockwise. Tighten screw that was located in flange. Check cam stack timing by the paper perforation test method and re-adjust if necessary. Tighten three cap screws. Replace spring and screw stud.

6. If machine is considerably out of time, and cannot be adjusted by the previous methods, loosen 3 screws in cam stack turning one of them until head of screw is in flange. This prevents screws from scoring cam stack cap. Turn hand wheel toward front of machine until needle bar is in its lowest position.
7. Turn cam stack until timing mark on top of cam stack is adjacent to front follower. Make sure that needle bar is at its lowest position.
8. Tighten cap screw, head of which is located in flange.
9. Check pendulum timing by the paper perforation test method as previously instructed. Re-adjust if necessary.
10. Tighten three screws holding cam stack. Replace spring and screw stud.
11. Check basting stitch mechanism, page 19.



# ADJUSTMENT PROCEDURES

## BASTING STITCH SYSTEM

When making adjustments or checking clearances on Basting Stitch System, be sure to follow the order given. The entire procedure for adjusting the Basting Stitch System is to be followed after replacement of the pressure regulating dial bracket.

### ADJUSTING THE NEEDLE BAR LATCH DEFLECTOR

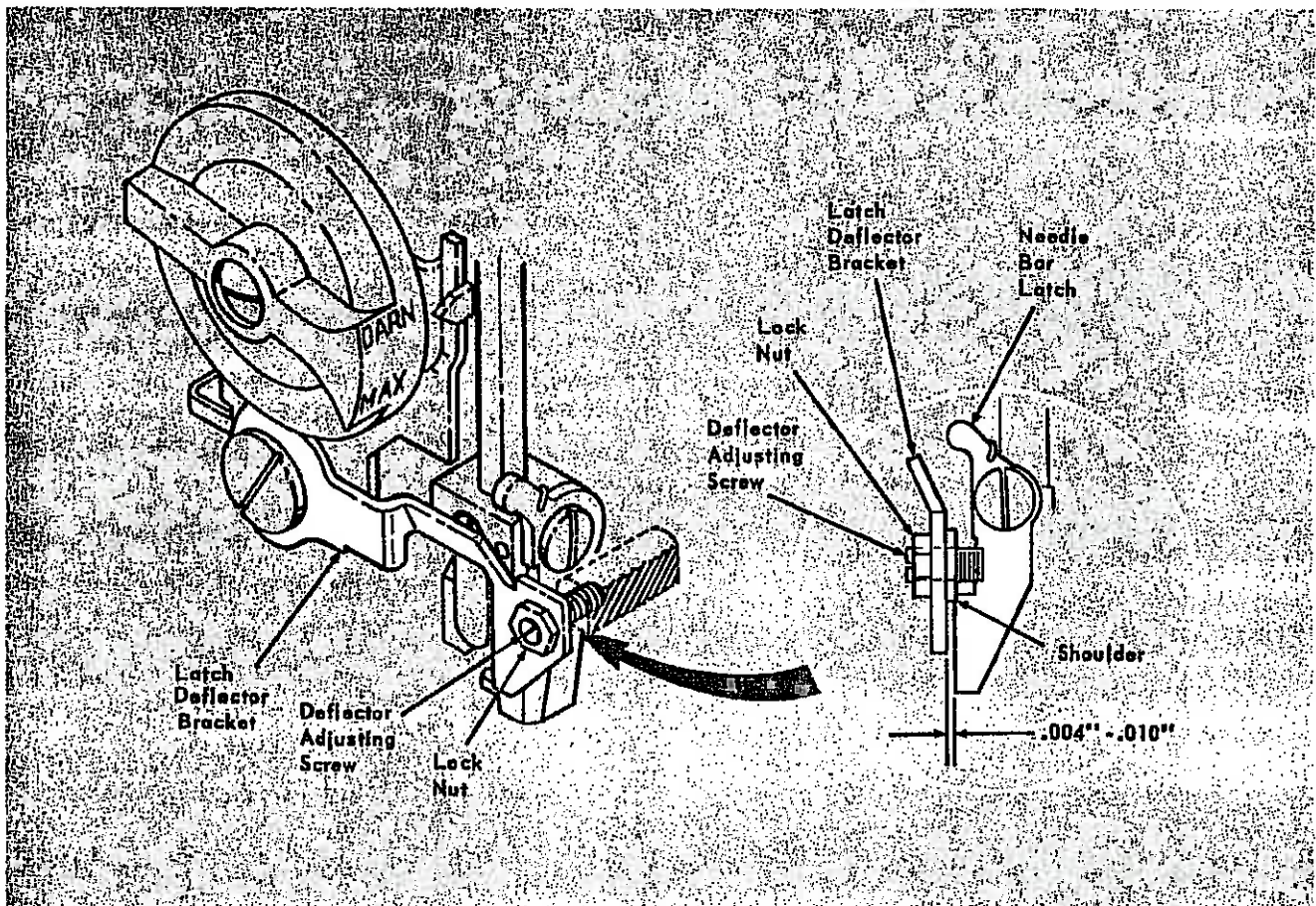
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Needle Position Dial: "C"
3. Stitch Width Dial: "5"



#### Adjustment

1. Remove arm top cover and face plate.
2. Turn hand wheel until the needle is on the right side of throat plate and needle bar is in the upward stroke. Place the needle bar latch alongside the latch deflector bracket as shown.
3. Clearance between the needle bar latch and the latch deflector bracket should be approximately .004"-.010" (thickness of a matchbook cover).
4. If adjustment is necessary, loosen lock nut and hold latch deflector bracket firmly against the shoulder of adjusting screw. Turn deflector adjusting screw clockwise to reduce clearance or counterclockwise to open clearance, until clearance is approximately .004"-.010" (thickness of a matchbook cover). Tighten lock nut.
5. Recheck clearance and re-adjust if necessary.



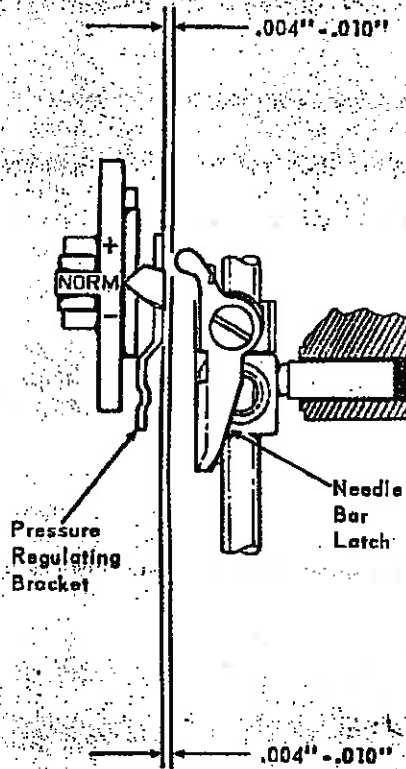
# ADJUSTMENT PROCEDURES

## BASTING STITCH SYSTEM (Cont.)

### ADJUSTING PRESSURE REGULATING BRACKET

#### Machine Settings

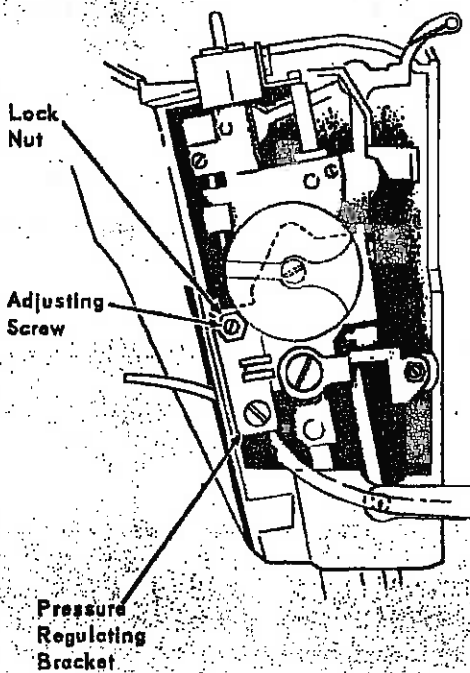
1. Pattern Selector Dial: Straight Stitch
2. Stitch Width Dial: "5"
3. Needle Position Dial: "C"



#### Adjustment

1. Turn hand wheel toward front of machine until the needle bar latch is alongside the center portion of the pressure regulating bracket as shown.
2. Check clearance between the needle bar latch and pressure regulating bracket. There should be no less space than the thickness of a matchbook cover (approximately .004-.010 inch) between latch and bracket at the upper and lower levels of the pressure regulating bracket. Loosen lock nut on bracket adjusting screw and turn bracket adjusting screw to obtain clearance desired. Tighten lock nut.
3. Recheck clearance. Make sure that the clearance at the top of the bracket is the same as the clearance at the center. If clearance is not the same, bracket should be re-adjusted.

NOTE: A clicking noise while machine is running is acceptable.



# ADJUSTMENT PROCEDURES

## BASTING STITCH SYSTEM (Cont.)

### ADJUSTING NEEDLE BAR RECOIL SPRING

#### Machine Settings

1. Pattern Selector Dial: Basting Stitch
2. Stitch Width Dial: "5"



#### Adjustment

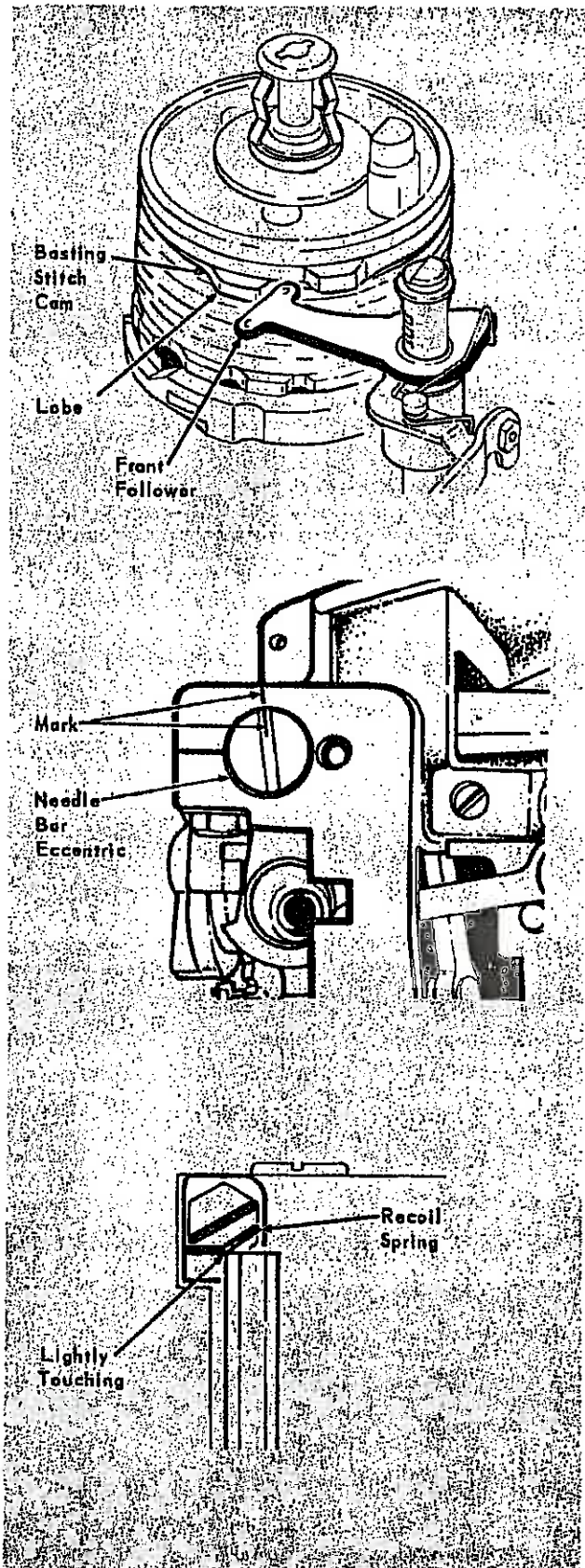
1. Turn hand wheel toward front of machine until the front follower has just passed the lobe on the basting stitch cam. The needle bar should be at the top of its stroke in the right swing position. At this point, there should be no clearance between top of needle bar and recoil spring. If the needle bar is touching the recoil spring, or if there is clearance, an adjustment is necessary. Prior to making adjustment, mark position of needle bar eccentric slot on casting to allow for correct resetting if eccentric is inadvertently moved.

**CAUTION:** Do not disturb needle bar eccentric setting. An incorrectly adjusted eccentric can seriously effect machine operation.

2. When needle bar is at its highest point, loosen recoil spring clamping screw.

**CAUTION:** Be careful not to disturb eccentric setting. When loosening or tightening recoil spring clamping screw, hold upper eccentric very firmly.

3. Adjust recoil spring so that it lightly touches top of needle bar. If needle bar is striking recoil spring, noise will be heard when the machine is running.
4. Tighten recoil spring clamping screw very firmly. Do not disturb needle bar eccentric setting.
5. To check adjustments, set pattern selector dial on straight stitch and stitch width dial on "5".
6. Turn hand wheel (manually) toward front of machine and observe that needle bar does not strike the recoil spring.
7. Re-adjust if necessary.



# ADJUSTMENT PROCEDURES

## BASTING STITCH SYSTEM (Cont.)

### ADJUSTING HEIGHT OF NEEDLE BAR LATCH DEFLECTOR

#### Machine Settings

1. Pattern Selector Dial: Basting Stitch
2. Stitch Width Dial: "5"



#### Adjustment

1. Raise needle bar to its highest position.
  2. Loosen latch deflector clamping screw and loosen lock nut.
  3. Raise latch deflector to the level where it pinches the tab of a needle envelope cover to latch (.003" - .005").
- CAUTION:** Be sure latch deflector bracket is parallel to needle bar latch.
4. When the latch deflector is correctly set, latch will swing freely, without drag into the unlatch position.
  5. Tighten latch deflector clamping screw and tighten lock nut.
  6. Recheck height of needle bar latch deflector.
  7. Manually rotate hand wheel and check for proper action of the needle bar latch and latch deflector.

8. Run machine while set for basting stitch. Check latch and latch deflector for proper action and clearance at high and low speeds.
9. Re-adjust if necessary.

### CHECKING NEEDLE DEFLECTION

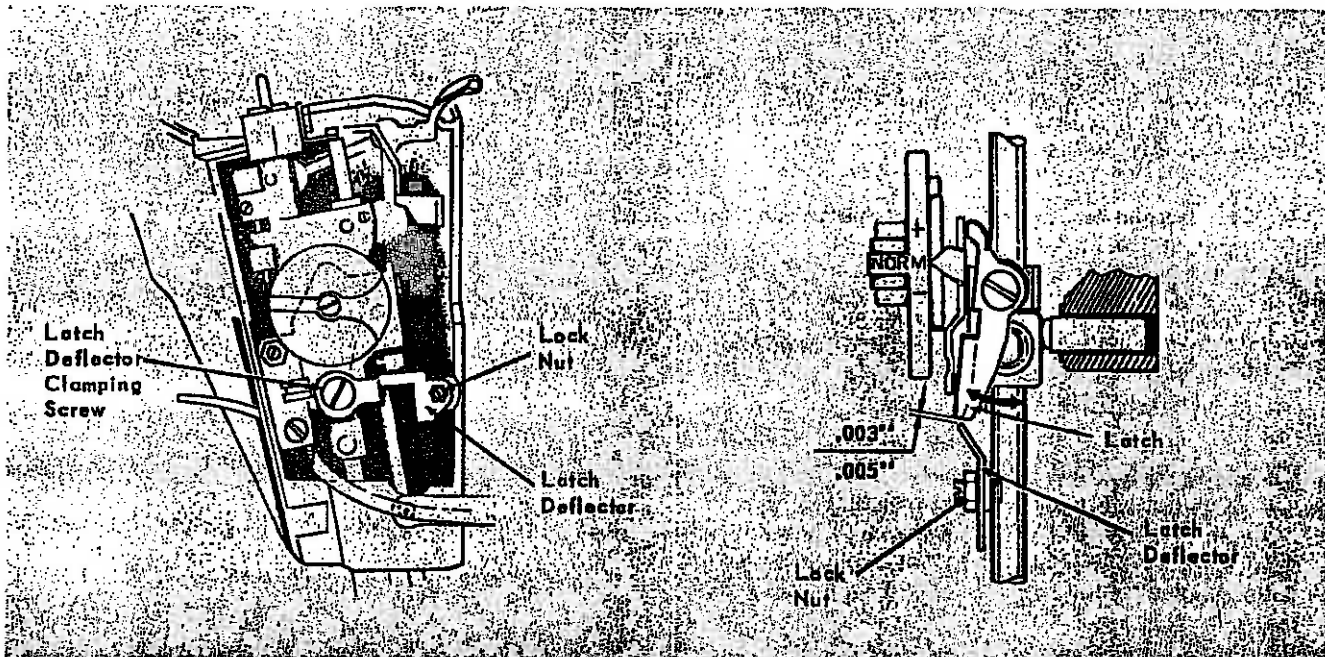
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Stitch Width Selector Dial: "5"



#### Adjustment

1. Insert a size 18 needle into needle clamp.
2. Turn hand wheel toward front of machine until the needle point is just above the raised presser foot. The needle bar should be on its downward stroke.
3. Move pattern selector dial to basting stitch, so that needle bar latch strikes latch deflector.
4. The needle bar latch deflector should be set to prevent the size 18 needle from striking the raised presser foot or the general purpose throat plate. A minimum amount of rubbing is permitted.



# ADJUSTMENT PROCEDURES

## CAM CONTROLLED FEED SYSTEM

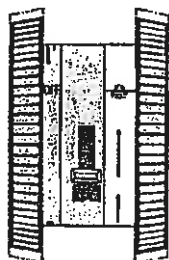
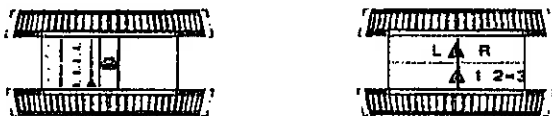
### ADJUSTING FEED BALANCING DIAL

1. Loosen nut on feed balancing dial.
2. Align adjustment mark on dial with mark on bracket.
3. Tighten nut.
4. Zero out cam controlled feed.

### ZEROING OUT CAM CONTROLLED FEED

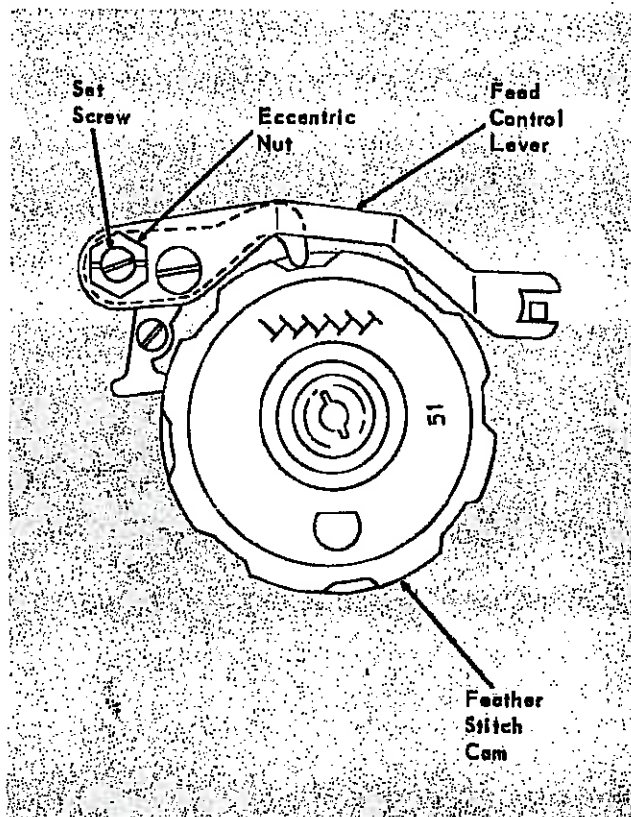
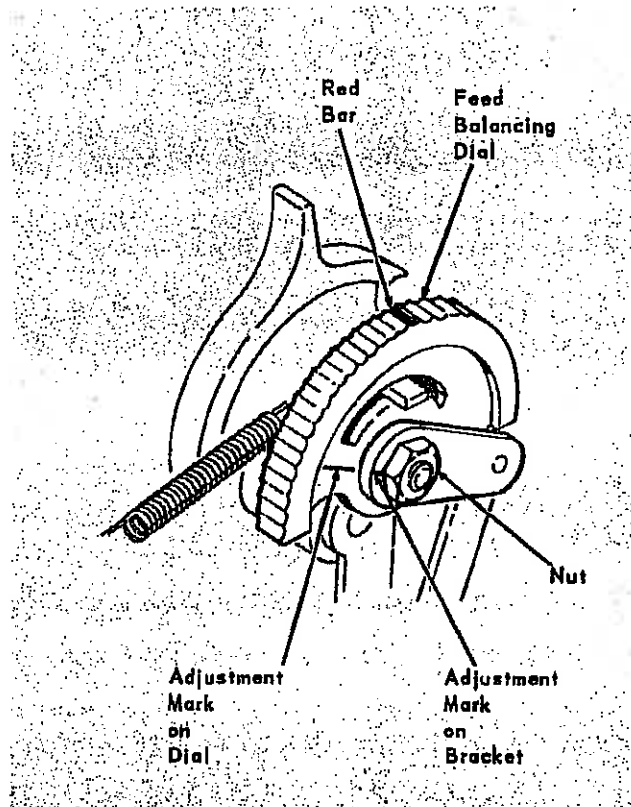
#### Machine Settings

1. Pattern Selector Dial: ☼
2. Needle Position Dial: "C"
3. Stitch Width Dial: "0"
4. Stitch Control Dial: ☼
5. Cam Control Feed Balancing Dial: Red Bar



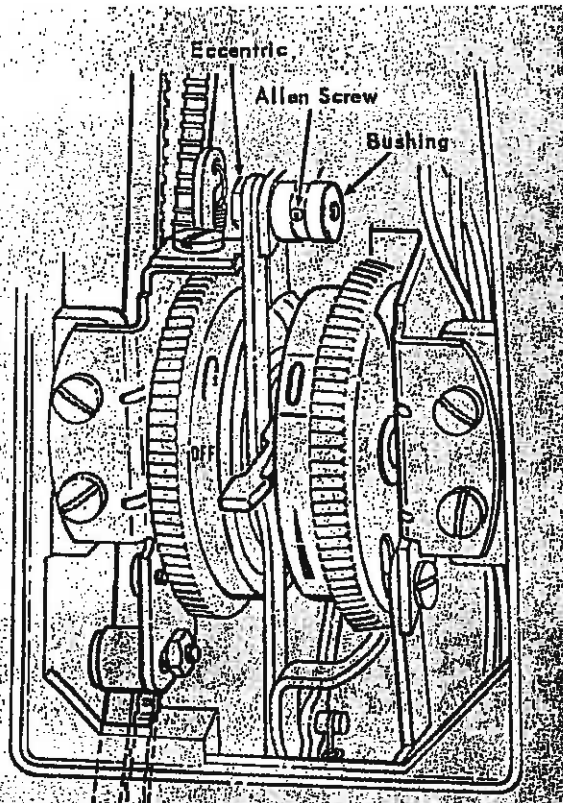
#### Adjustment

1. Insert a number 51 (feather stitch cam) into the machine.
2. Place paper under presser foot and run machine at a slow speed. If correctly adjusted, needle will make two perforations forward and one reverse, the reverse and one forward stitch entering previously made holes in paper. Holes in paper will resemble straight stitching.
3. If adjustment is necessary, loosen set screw that holds eccentric nut and turn nut until feed control lever is as far to the rear as possible.
4. Place paper under presser foot and run machine at a slow speed. Turn eccentric until needle makes two perforations forward and one reverse, the reverse and one forward stitch entering holes previously made in paper. If feed continues in one direction, turn eccentric counterclockwise until reverse feed is accomplished.
5. Tighten set screw.
6. Recheck feeding and re-adjust if necessary.

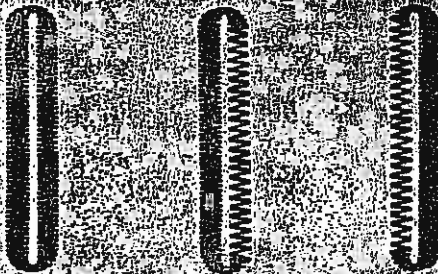




# ADJUSTMENT PROCEDURES



Correct      Incorrect      Incorrect



Eccentric



Turn Eccentric Down

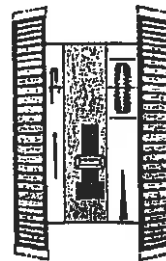
Turn Eccentric Up

## BUTTONHOLE SYSTEM

Before adjusting buttonhole mechanism make sure that feeddog is correctly set to prevent unequal side stitching of buttonhole.

### Machine Settings

1. Pattern Selector Dial: Zig-Zag
2. Needle Position Dial: "R"
3. Stitch Width Dial: Red Bar
4. Stitch Length Dial: Buttonhole
5. Buttonhole Dial: Buttonhole No. 1



### Adjustment

1. From the "OFF" position, turn the buttonhole dial toward number one position until it clicks once.
  2. Sew a test buttonhole and compare stitching in left and right hand rows for balance and crossover.
  3. If the side stitching is unequal, loosen allen screw in bushing. Turn eccentric down if the stitching is too close in left-hand row. Turn eccentric up if stitching is more open in left-hand row. Sew a test buttonhole and compare stitching in left and right hand rows. Re-adjust if necessary.
  4. If the problem is balance, continue with step 3. If it is crossover, refer to page 25.
  5. When side stitching is equal, tighten allen screw.
- NOTE: By turning eccentric, number of stitches increases on one side and decreases on the other. When making the adjustment, eccentric need only be turned slightly in either direction.

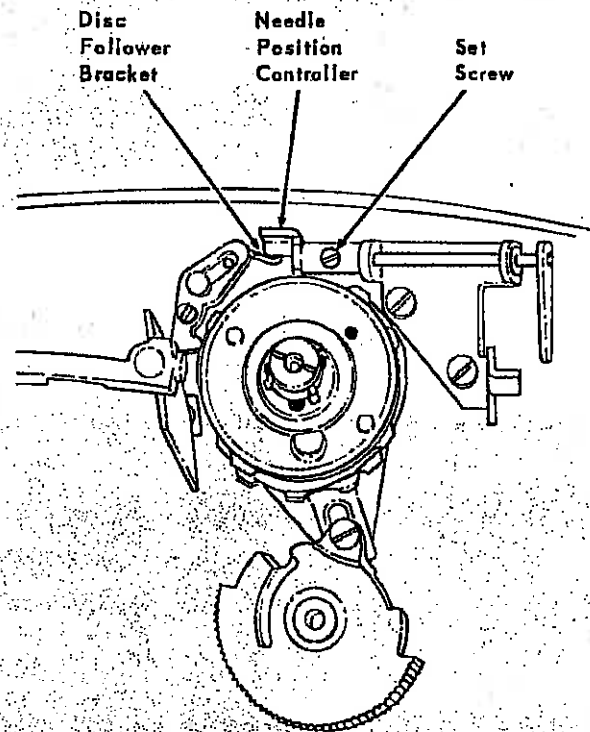
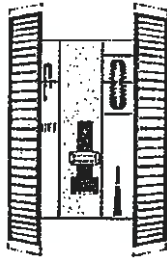
# ADJUSTMENT PROCEDURES

## BUTTONHOLE SYSTEM (Cont.)

### ADJUSTING BUTTONHOLE NEEDLE POSITION CONTROLLER FOR CUTTING SPACE

#### Machine Settings

1. Pattern Selector Dial: Zig-Zag
2. Needle Position Dial: "R"
3. Stitch Width Dial: "0"
4. Stitch Length Dial: Buttonhole
5. Buttonhole Dial: Buttonhole No. 1



#### Adjustment

1. From the "OFF" position, turn the buttonhole dial toward the number one position until it clicks once.
2. Loosen set screw on buttonhole needle position controller and move controller until it touches disc follower bracket. Tighten set screw.
3. Stitch a buttonhole and recheck crossover quality.

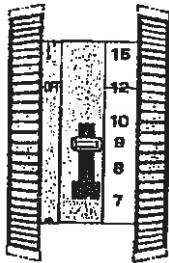
# ADJUSTMENT PROCEDURES

## ALPHA FEED SYSTEM

### CENTRALIZING FEED IN THROAT PLATE (LEFT TO RIGHT)

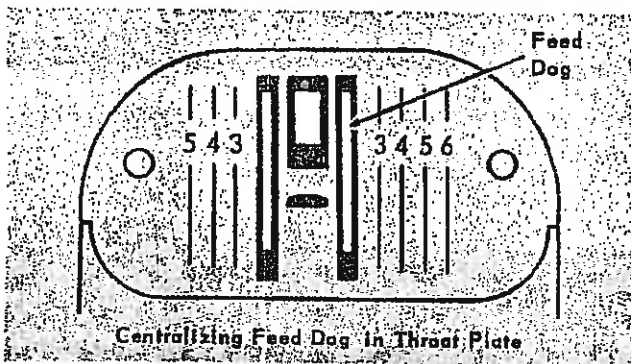
#### Machine Settings

1. Stitch Length Dial: "12" - "15" Stitch Per Inch



#### Adjustment

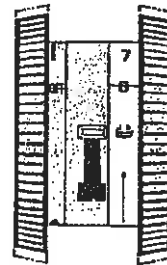
1. Turn hand wheel toward front of machine until the feed dog is at its highest point.
2. Loosen set screw that holds feed bar pivot hinge eccentric.
3. Turn feed bar pivot hinge eccentric with 5/16" wrench until feed dog is centrally located in throat plate slots (Left to Right).
4. Tighten set screw.



### ADJUSTING FEED DOG THROW (FORWARD AND BACKWARD MOVEMENT OF FEED DOG)

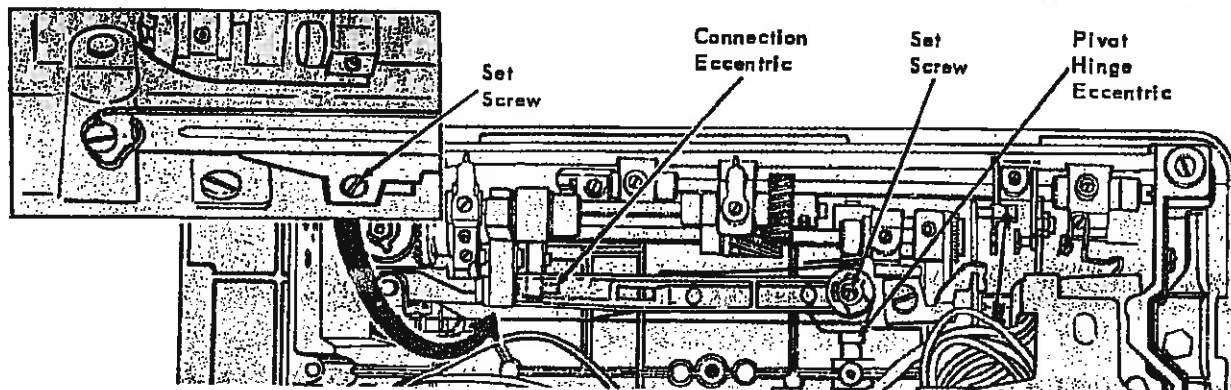
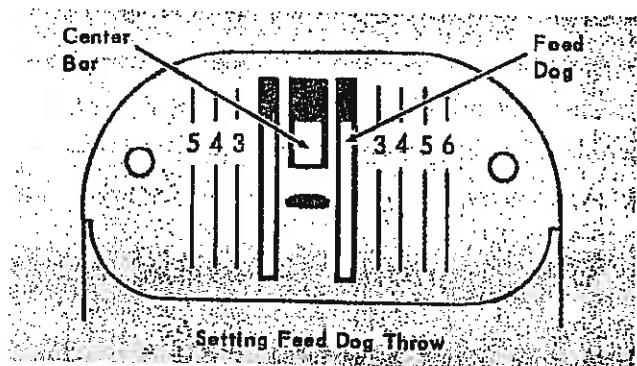
#### Machine Settings

1. Feed Control Dial: "6"



#### Adjustment

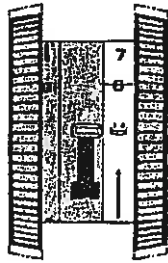
1. Turn hand wheel toward front of machine until center bar of feed dog is in its most forward position in center slot of throat plate.
2. Loosen set screw holding feed bar connection eccentric and turn eccentric until center bar of feed dog is as close as possible to throat plate without striking.
3. Tighten set screw.



# ADJUSTMENT PROCEDURES

## ALPHA FEED SYSTEM (Cont.)

### ADJUSTING FEED DOG HEIGHT

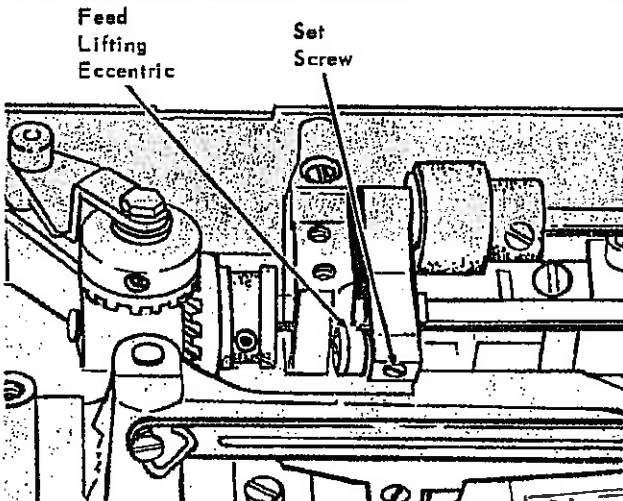
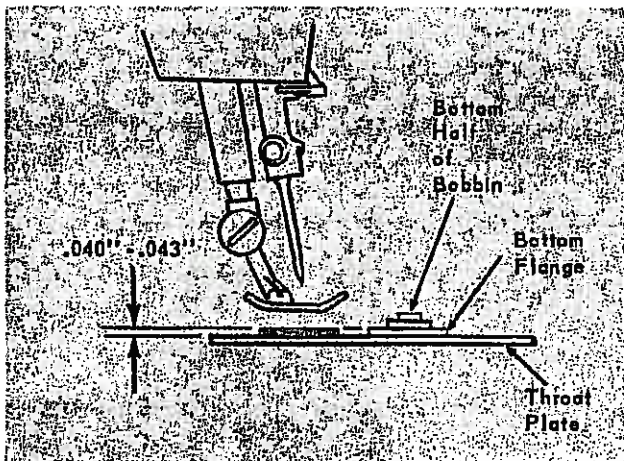


#### Machine Setting

1. Feed Control Dial: "6"

#### Adjustment

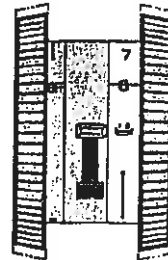
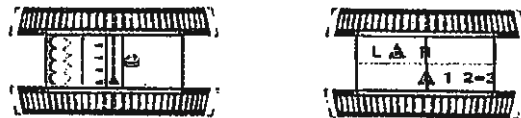
1. Turn hand wheel toward front of machine until feed dog is at its highest point.
2. Place bottom half of plastic bobbin on throat plate adjacent to feed dog.
3. Loosen set screw holding feed lifting eccentric and turn feed lifting eccentric until top of feed dog is slightly higher than bottom flange of bobbin (.040"-.043"). Tighten set screw.
4. Recheck feed dog height.



### ADJUSTING PULL-OFF FINGER

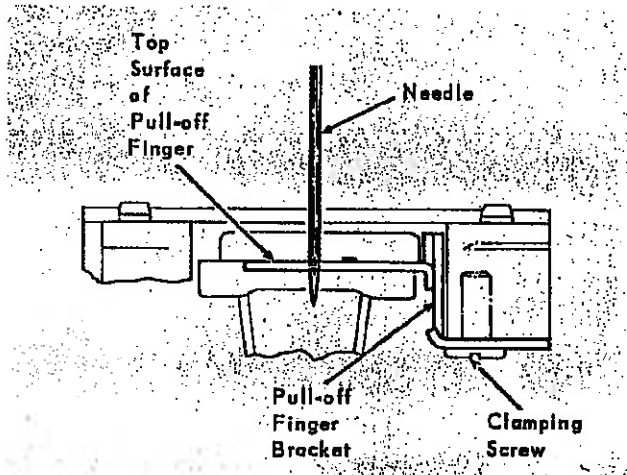
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Needle Position Dial: "R"
3. Stitch Width Dial: "0"
4. Feed Control Dial: "6"

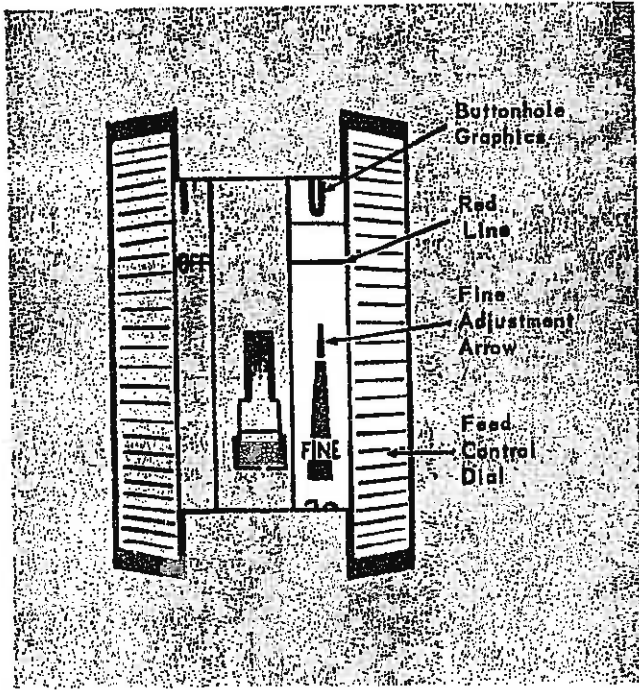


#### Adjustment

1. Insert a size 18 needle into needle clamp and turn hand wheel toward front of machine until needle is in its lowest point.
2. Continue turning hand wheel until eye of needle is even with top surface of pull-off finger.
3. Turn machine on side and loosen clamping screw which holds pull-off finger bracket and move pull-off finger toward rear of machine until it clears needle in right needle position.
4. Tighten clamping screw which holds pull-off finger bracket.



# ADJUSTMENT PROCEDURES

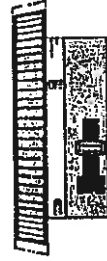


## ALPHA FEED SYSTEM (Cont.)

### ADJUSTING FOR ZERO FEED

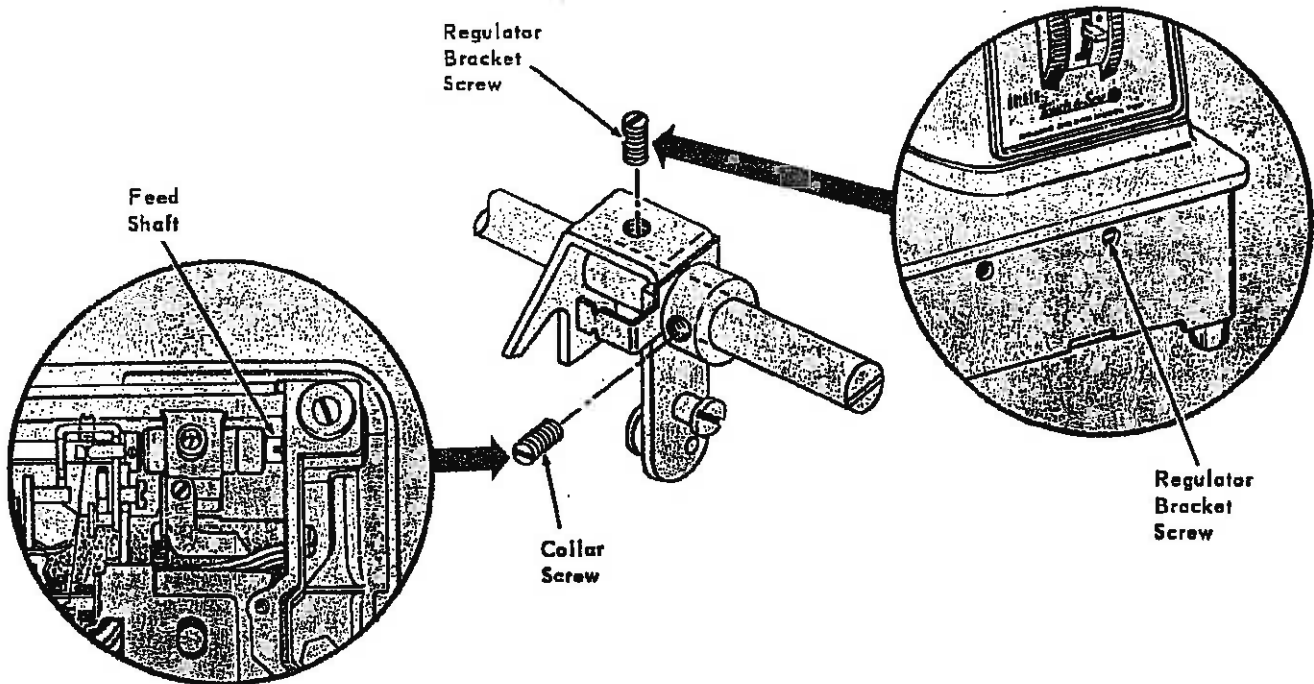
#### Machine Setting

1. Buttonhole Dial: "Off"



#### Adjustment

1. Turn feed control dial from 20 stitches per inch toward buttonhole graphic until the dwell in cam is felt in dial. The dwell in cam will be felt when the red line on control panel is located between the fine adjustment arrow and the buttonhole graphic on the feed control dial. A definite resistance will be felt on the dial. Do not turn dial past this point.
2. Loosen regulator bracket screw and screw on collar.
3. Place paper under presser foot.
4. Run the machine at a fast speed and turn feed shaft with screwdriver until feed movement stops.
5. Stop machine and tighten regulator bracket screw and screw on collar.
6. Check for zero movement of feed and readjust if necessary.
7. Check cam control feed adjustments, page 23, and buttonhole adjustments, page 24.



# ADJUSTMENT PROCEDURES

## ROTATING HOOK

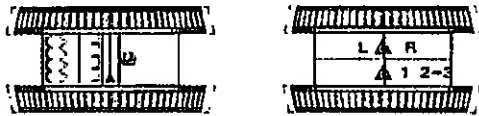
### TIMING THE HOOK

#### Remove

1. Throat Plate
2. Bed Slide
3. Bobbin Case
4. Bottom Cover
5. Presser Foot

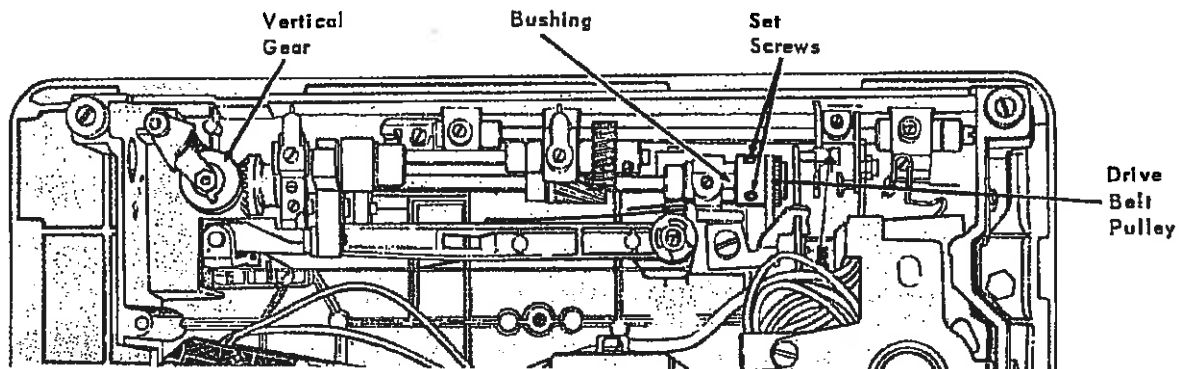
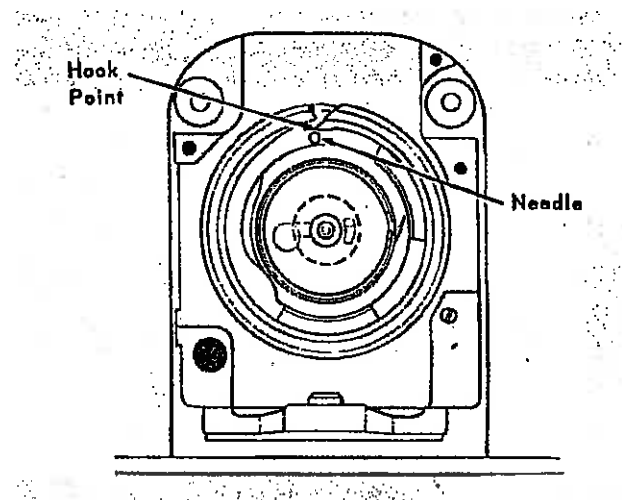
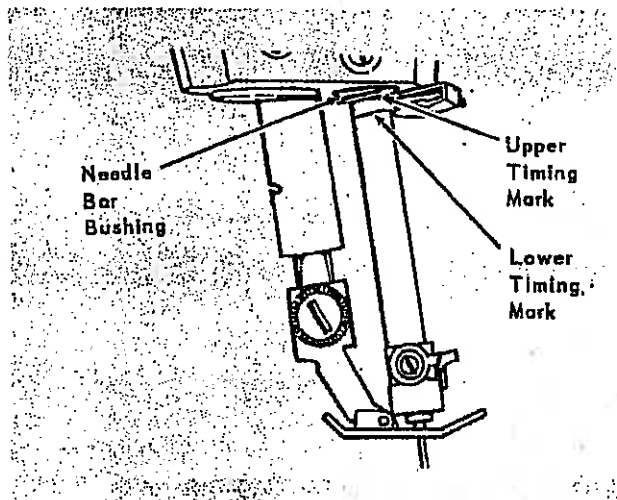
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Needle Position Dial: "C"
3. Stitch Width Dial: "0"



#### Adjustment

1. Insert a size 18 needle into the needle clamp.
2. Turn hand wheel toward the front of machine until the needle bar is in its lowest position. Observe position of upper timing mark in relation to needle bar bushing. Turn hand wheel toward front of machine until lower timing mark is in the same position as the upper timing mark was in relation to needle bar bushing. The point of hook should be at center of needle as illustrated.
3. If point of hook is not at center of needle, loosen the two set screws in drive belt pulley. While maintaining position of needle bar, turn vertical gear at hook end of shaft until point of hook is in correct position. Then, tighten the two pulley set screws, making certain that the pulley is against the bushing without binding.
4. Check feed timing, page 26.



# ADJUSTMENT PROCEDURES

## ROTATING HOOK (Cont.)

### TIMING THE FEED

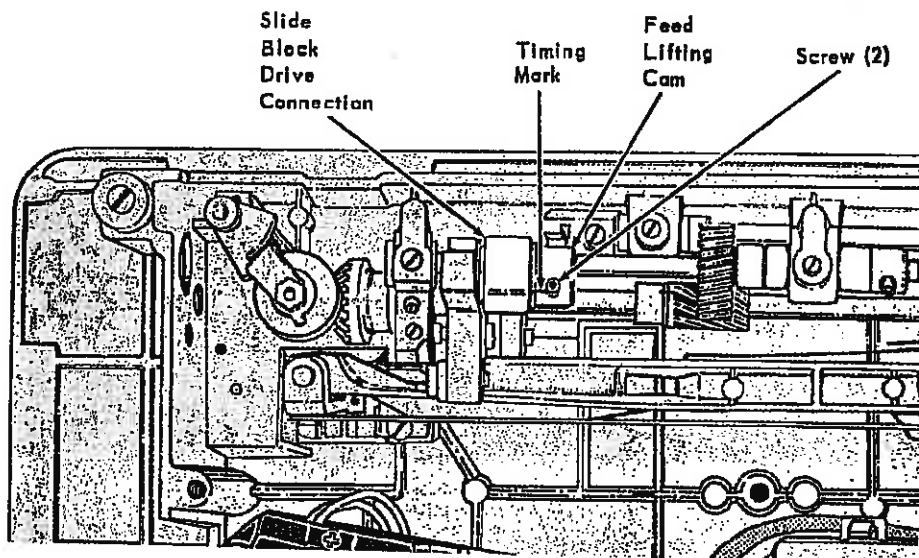
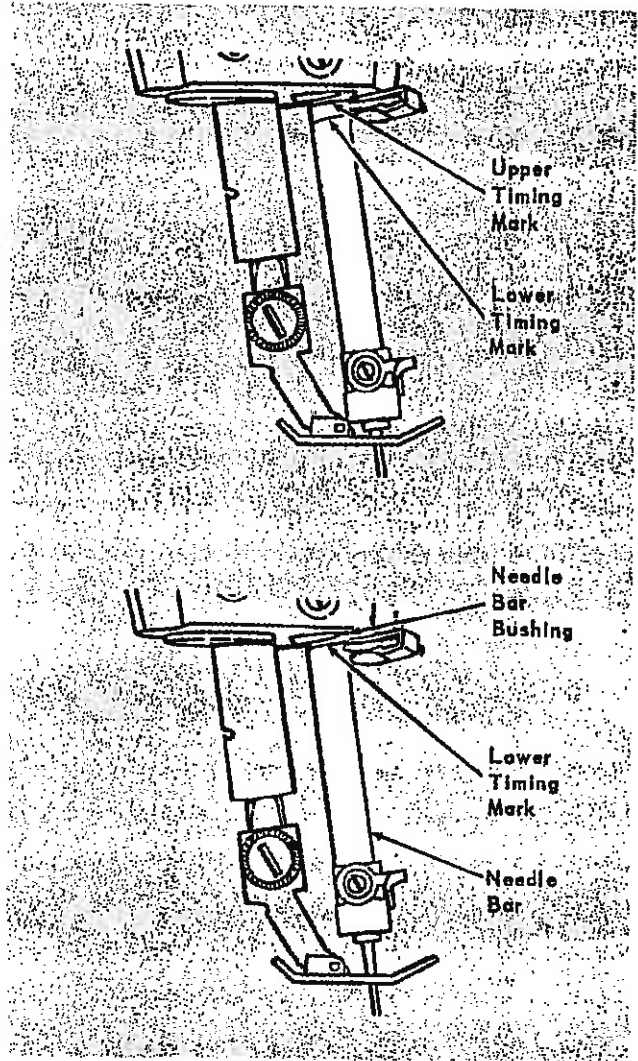
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Needle Position Dial: "C"
3. Stitch Width Dial: "0"



#### Adjustment

1. Check hook timing, page 29.
2. Insert a size 18 needle into the needle clamp.
3. Loosen two screws in feed lifting cam (eccentric). Turn hand wheel toward the front of machine until the needle bar is in its lowest position. Observe position of upper timing mark in relation to needle bar bushing. Turn hand wheel toward front of machine until lower timing mark is in the same position as the upper timing mark was in relation to needle bar bushing. Turn feed lifting cam until timing mark on cam is aligned with timing mark on the feed regulator slide block drive connection.
4. Tighten two screws in feed lifting cam.



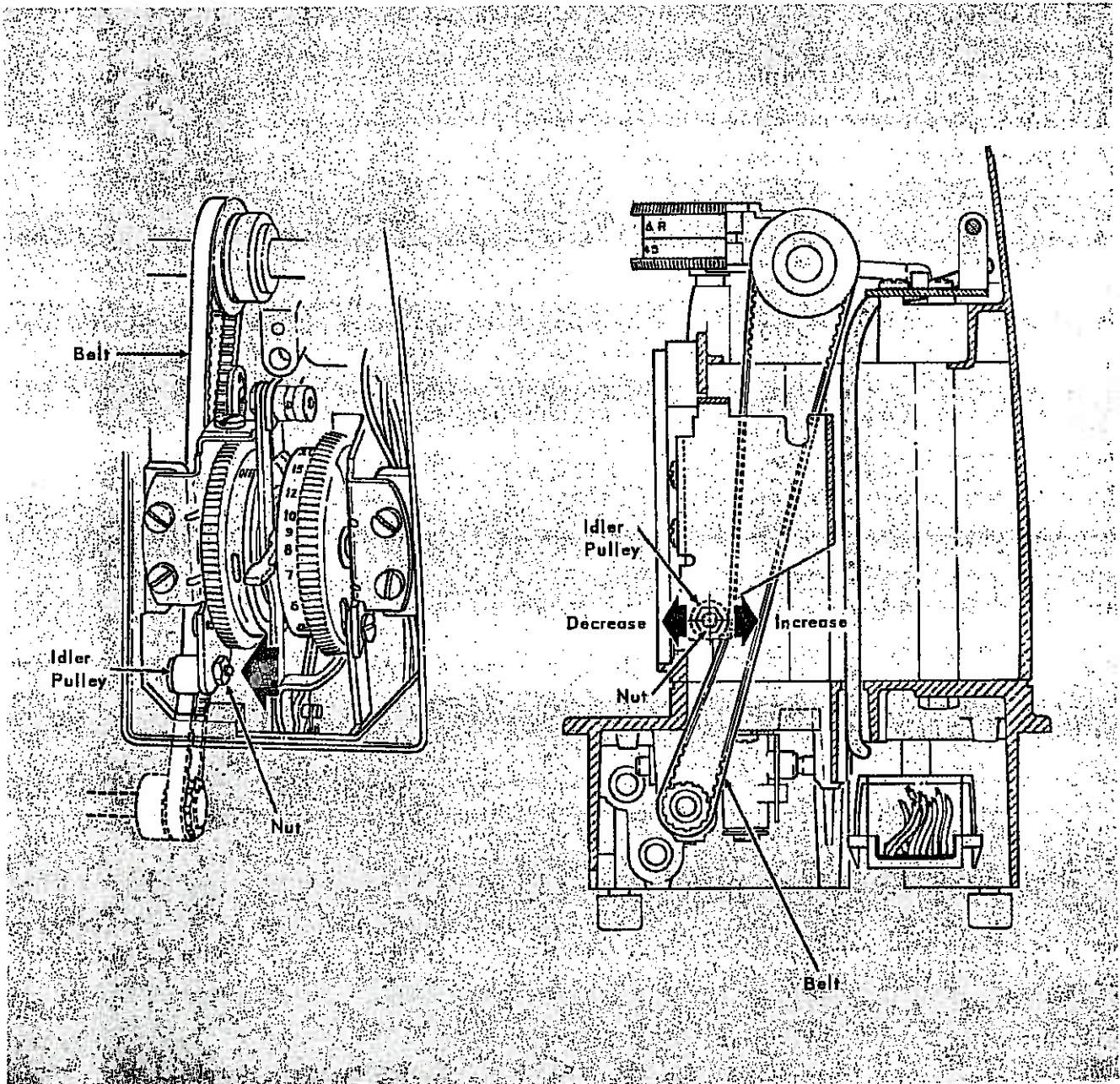
# ADJUSTMENT PROCEDURES

## ROTATING HOOK (Cont.)

### ADJUSTING TENSION ON DRIVE BELT

1. Remove control panel.
2. Loosen nut that holds idler pulley.
3. Run machine at full speed and push idler pulley in until machine starts to slow down. As soon as machine begins to slow down, gradually release pressure on pulley until machine begins to run at full speed. Tighten nut that holds idler pulley.

NOTE: If the thread jams when the belt is too loose, belt will skip a tooth and cause the hook to be out of time. If belt is too tight, machine may slow down at full speed.





# ADJUSTMENT PROCEDURES

## ROTATING HOOK (Cont.)

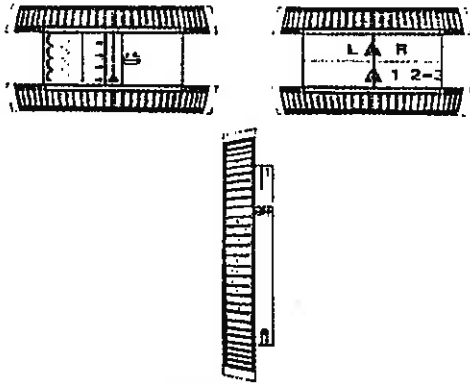
### POSITIONING HOOK TO OR FROM NEEDLE

#### Remove

1. Throat Plate
2. Bed Slide
3. Bobbin Case
4. Bottom Cover
5. Presser Foot

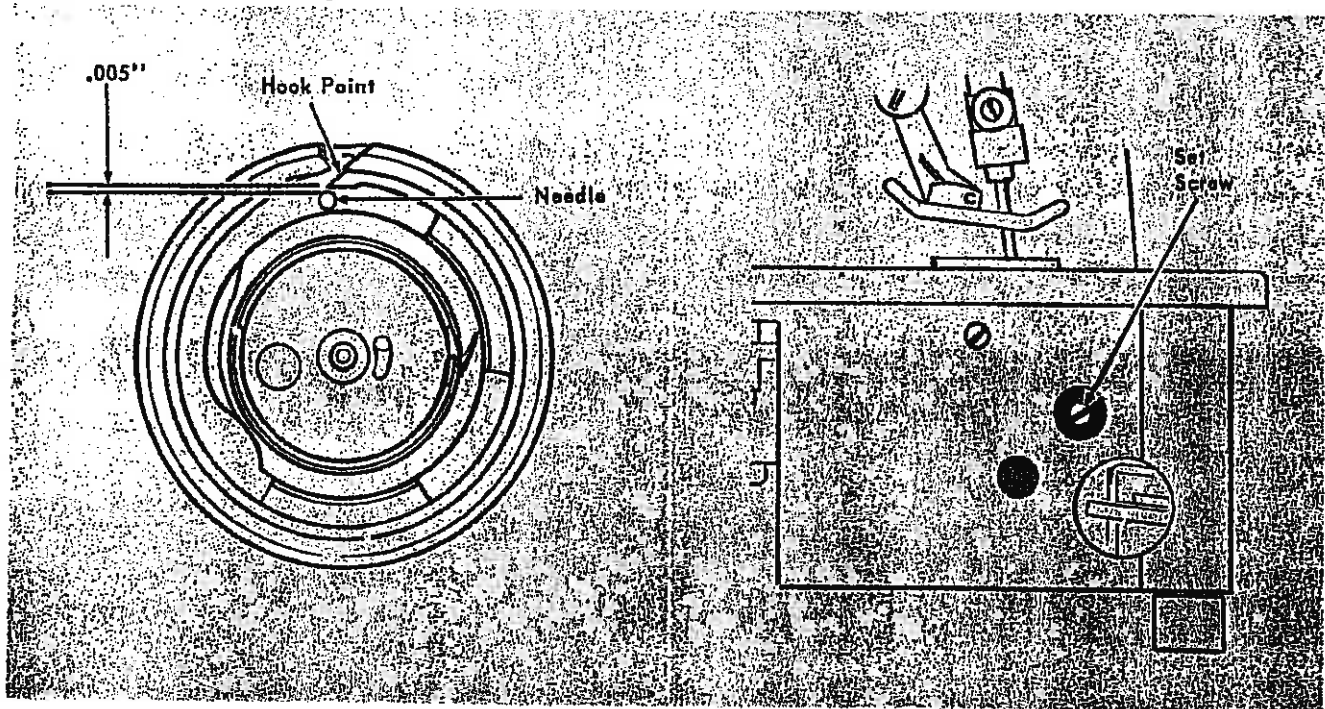
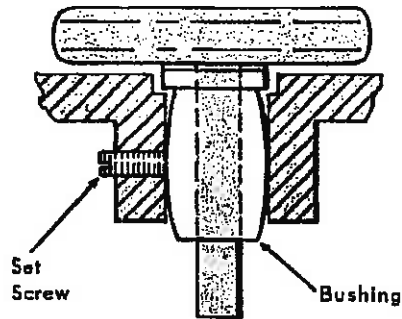
#### Machine Settings

1. Pattern Selector Dial: Straight Stitch
2. Needle Position Dial: "C"
3. Stitch Width Dial: "0"
4. Buttonhole Dial: "OFF"



#### Adjustment

1. Check hook timing, page 29.
2. Turn hand wheel toward front of machine until point of hook is directly behind needle. When correctly set, the distance between the needle and the hook point should be no more than .005", as illustrated.
3. Loosen set screw that holds rotating hook bushing and tilt hook forward or backward until hook is as close to needle as possible without striking.
4. Tighten set screw that holds rotating hook bushing.
5. Recheck setting and re-adjust if necessary.



# ADJUSTMENT PROCEDURES

## PRESSER BAR

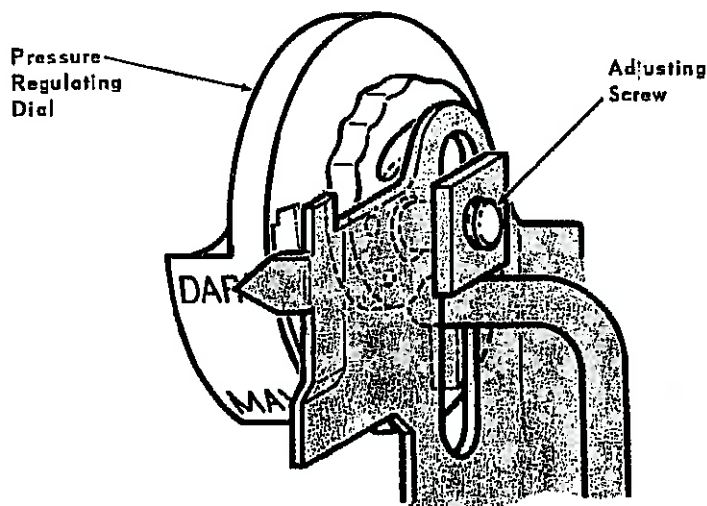
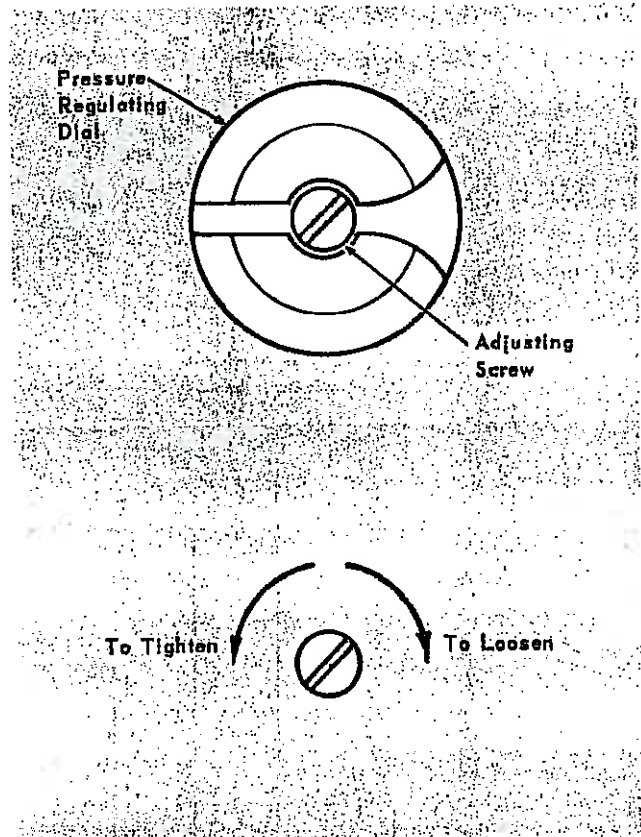
### ADJUSTING PRESSURE

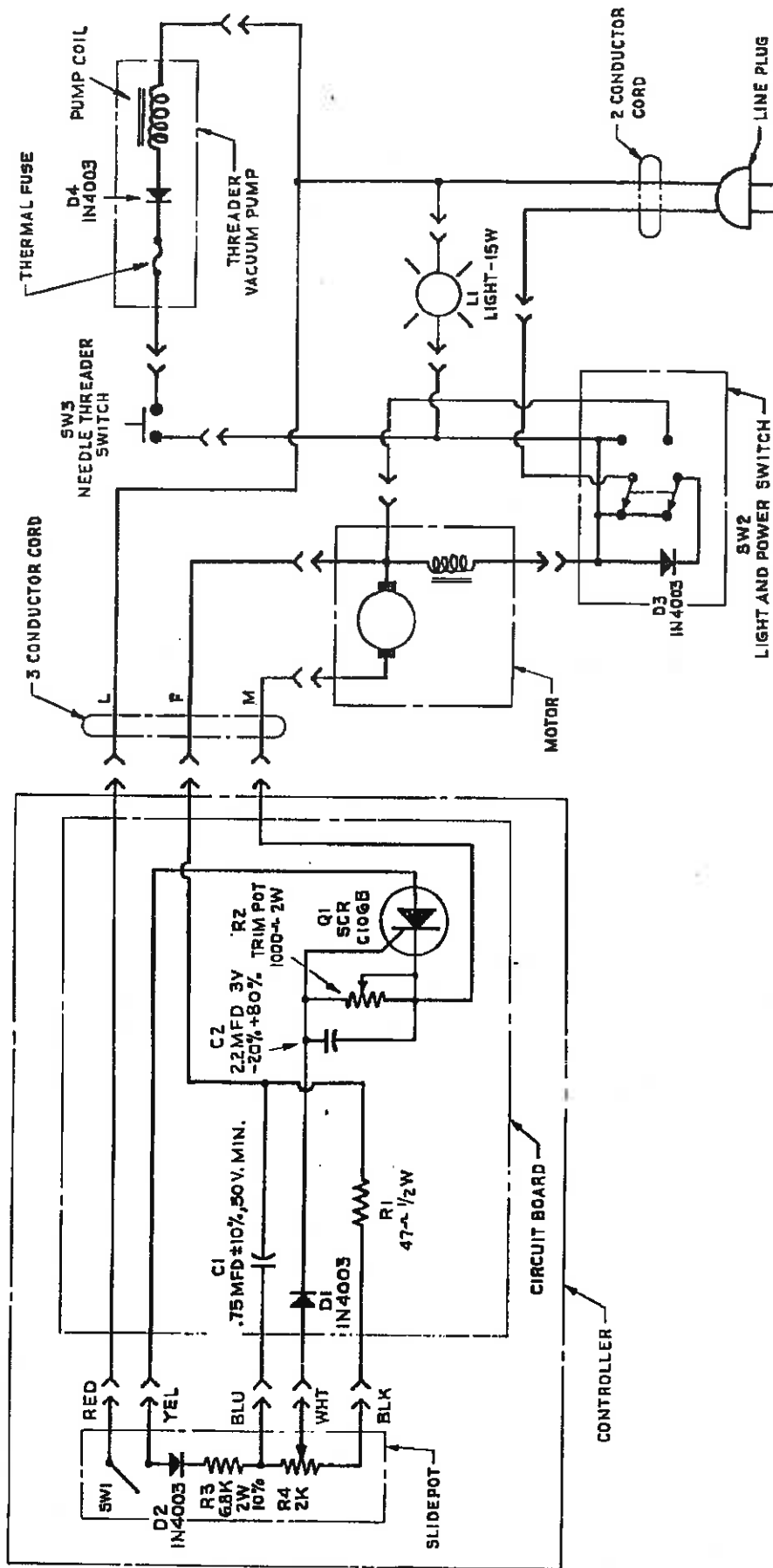
#### Adjustment

1. Attach presser foot and lower the presser bar.
2. Turn hand wheel toward front of machine until feed dog is below throat plate.
3. Turn pressure regulating dial to "DARN".

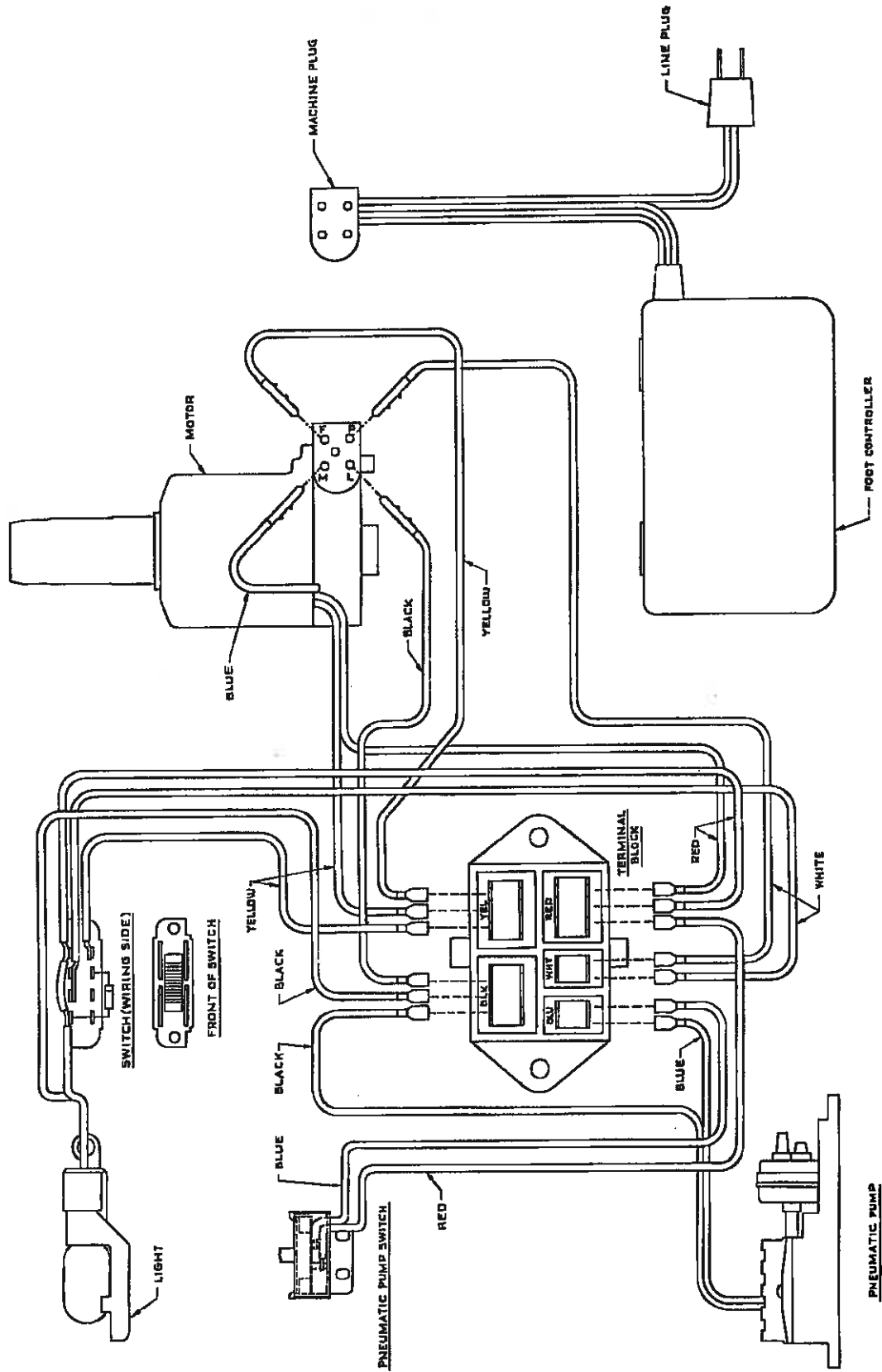
NOTE: All adjustments of the presser bar must be made with the pressure regulating dial in the "DARN" position. If they are not made in the "DARN" position pressure in the "MAX" position will be too great.

4. Loosen screw (left hand) in dial.
5. Apply delicate downward pressure to dial until very slight pressure is felt in the presser foot. If too much pressure is exerted in the "DARN" position, movement of the dial into "MAX" will be restricted.
6. Tighten screw (left hand) in dial.
7. Recheck pressure in the "Darn" position and the "Max" position. If pressure is too great in "Darn", or movement of dial into "Max" is restricted, re-adjust dial.

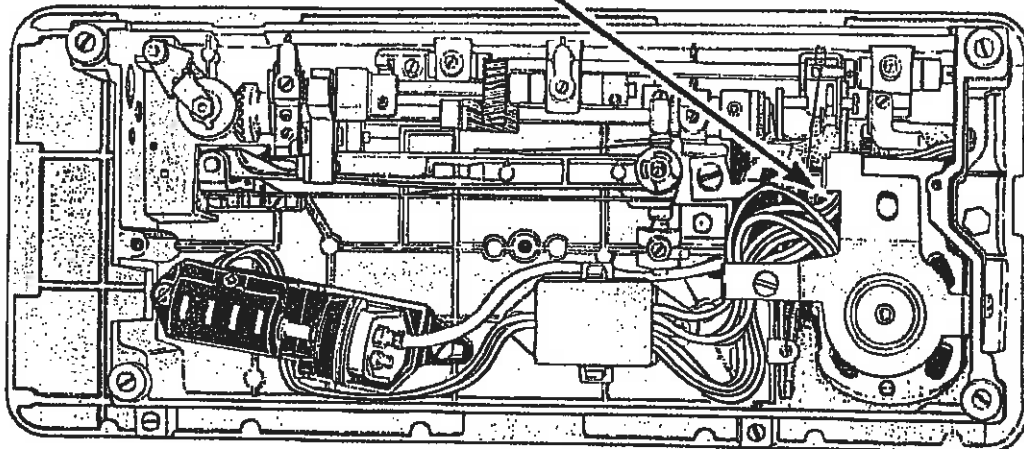
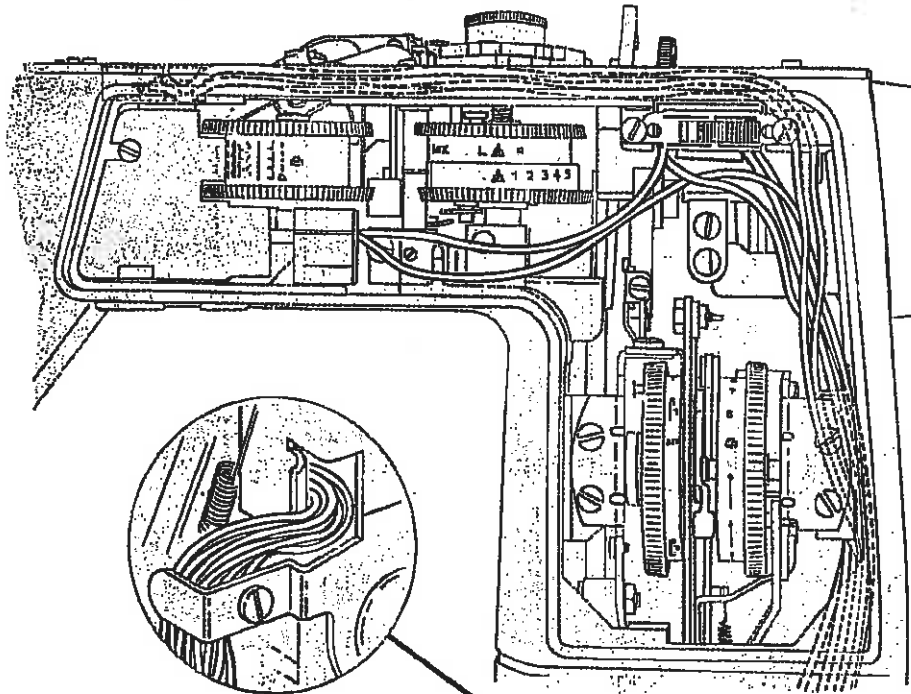
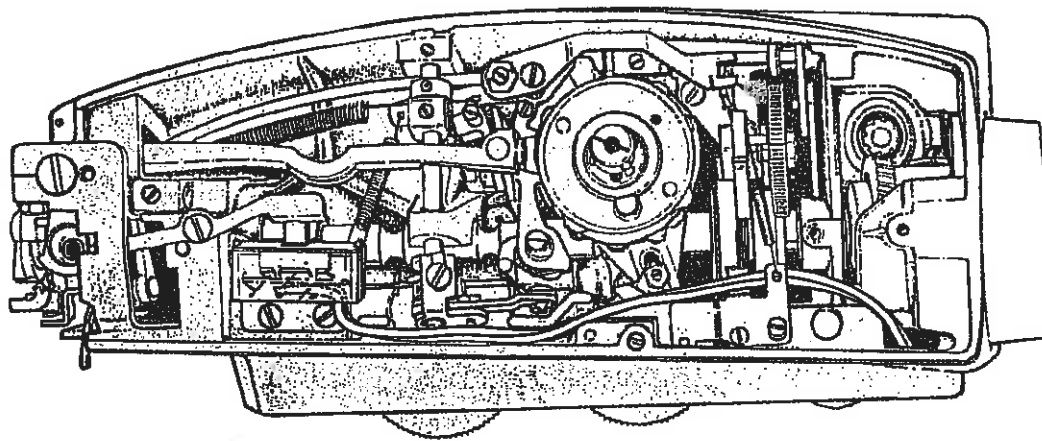




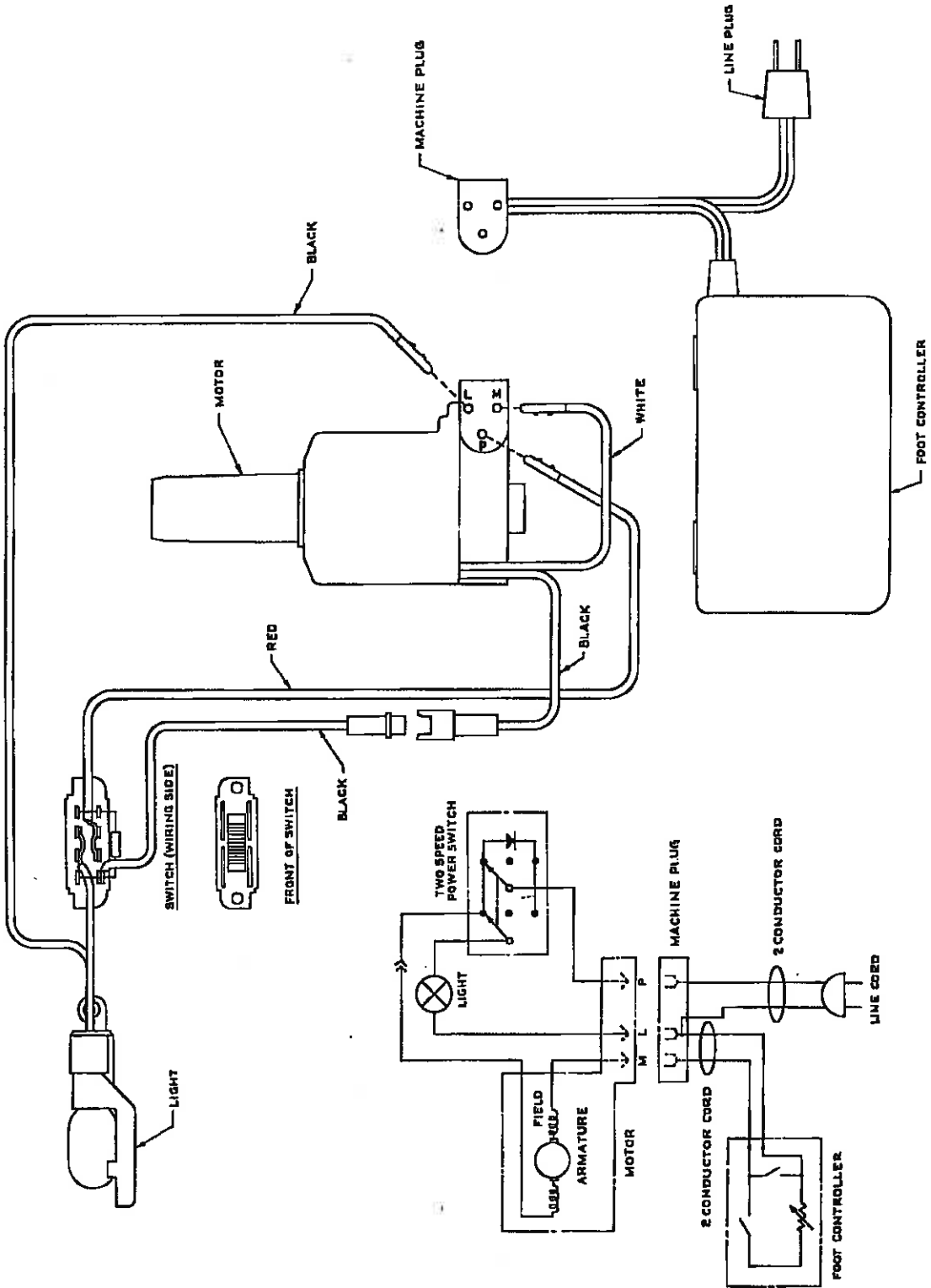
750 MACHINE SCHEMATIC



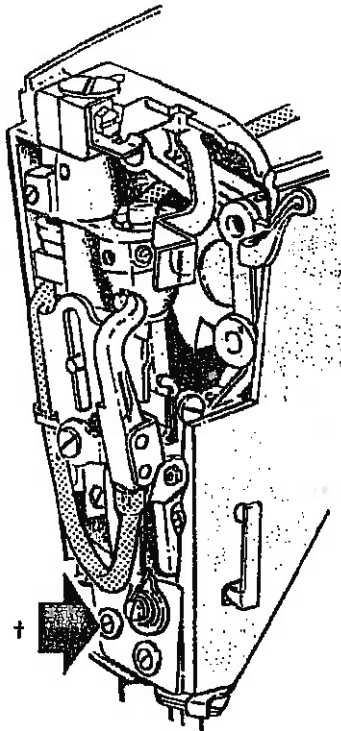
750 MACHINE WIRING DIAGRAM



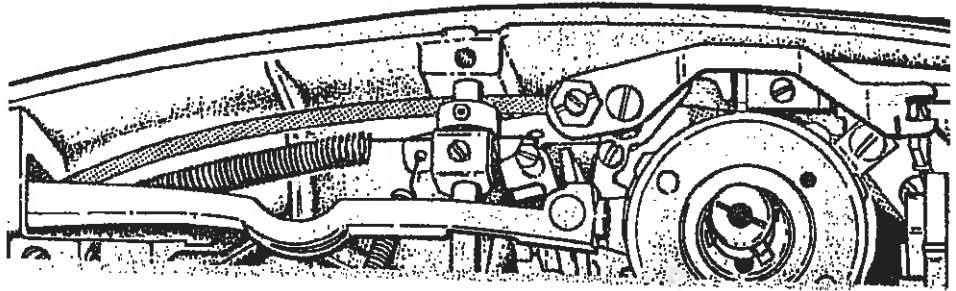
**ROUTING OF WIRE HARNESS 750 MACHINE**



756, 758, 759 and 709 MACHINES  
WIRING DIAGRAM



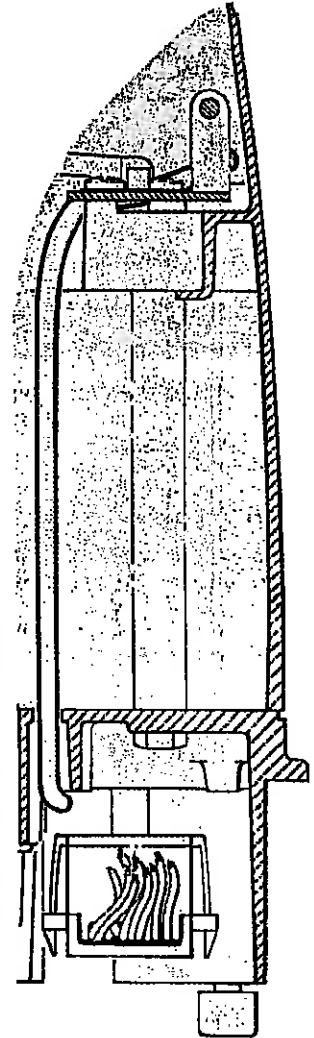
End View



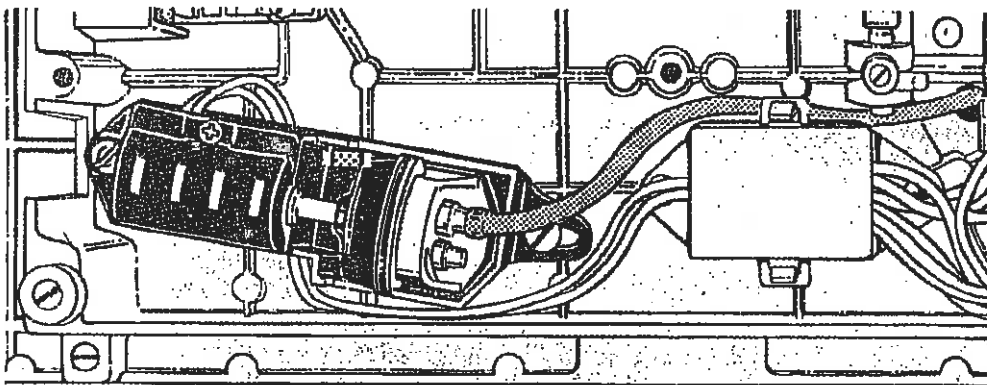
Top View



† Bend of Tubing Must Be Above Presser Bar Set Screw Location



End View



Bottom View

**TUBE ROUTING FOR PNEUMATIC NEEDLE THREADER  
750 MACHINE**

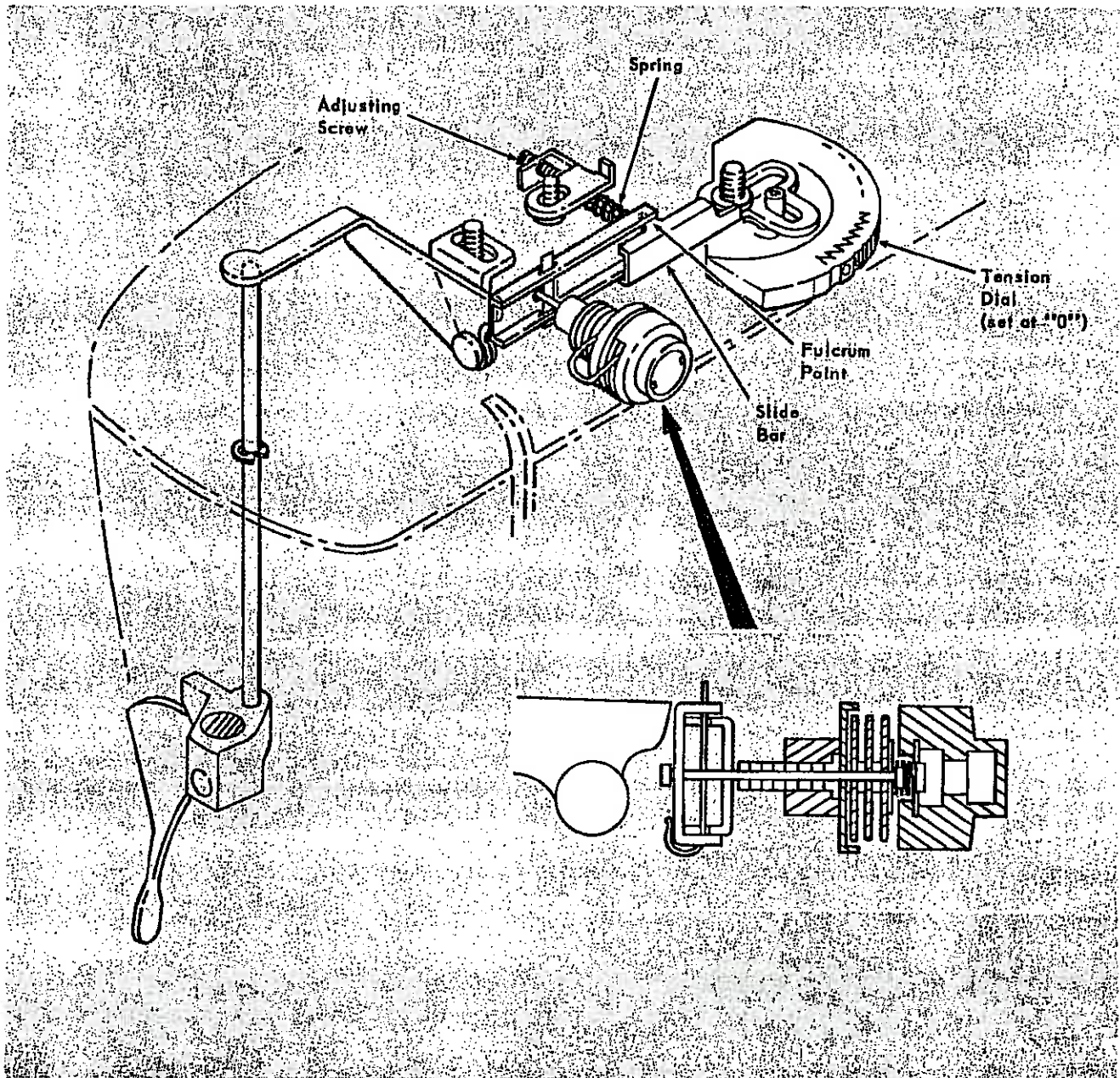
# THEORY of OPERATION

## TOP COVER TENSION

A correctly set needle thread tension is essential for good stitching performance on all sewing machines. Because of the many variables which can affect the thread tension, the 750 Series machines were designed with a new Universal Type thread tension assembly which has a numerically marked tension dial to eliminate guesswork when duplicating tension settings. A single turn of this dial enables the operator to change the tension setting from a minimum of 0 to a maximum of 9.

All pressure in the tension system is initiated by the spring on the adjusting screw which is pre-set at the factory. **DO NOT TOUCH ADJUSTING SCREW.** Although the spring tension is constant, thread tension varies as the fulcrum point of the slide is moved. Moving the fulcrum point increases the leverage of the slide channel.

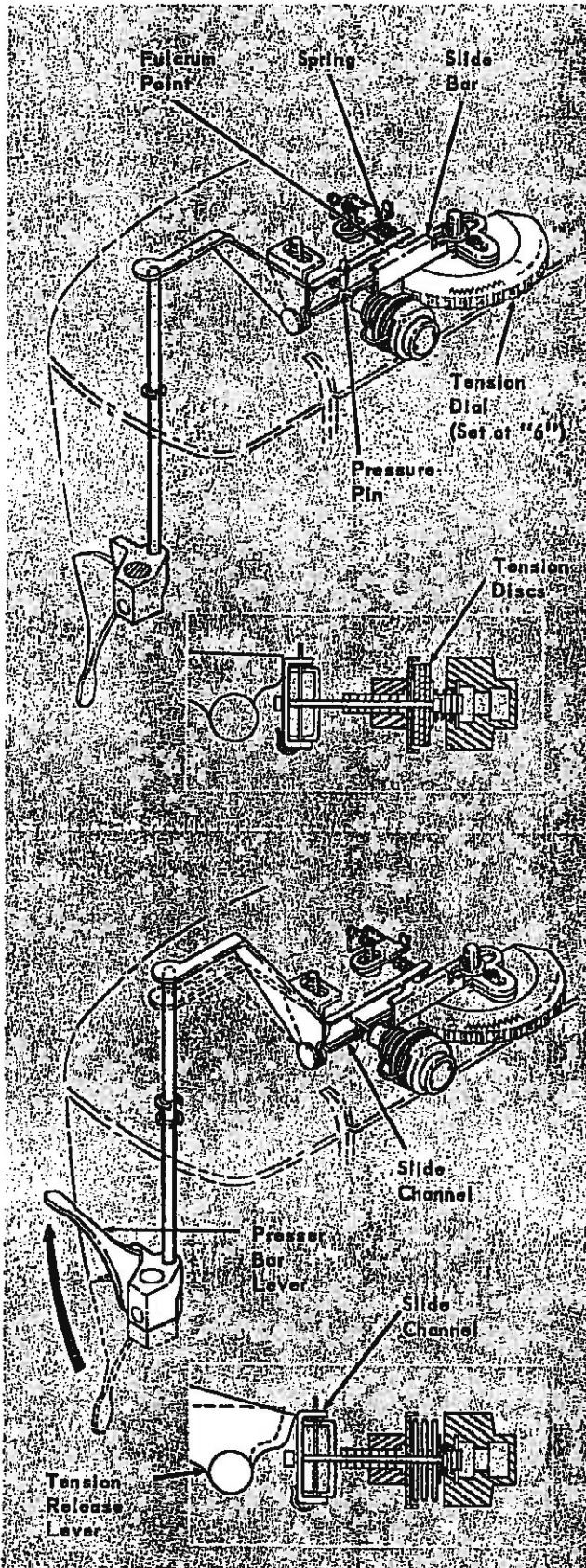
In the "0" position, the fulcrum point is directly in front of the spring. At this point, there is minimum thread tension.





# THEORY of OPERATION

## TOP COVER TENSION (Cont.)



As the tension dial is turned toward "9", the fulcrum point of the slide bar moves, and the pressure from the spring is transmitted through the slide channel to the pressure pin. This pin pulls the tension discs closer together to increase resistance on the thread as it passes between the discs.

Thread tension is automatically released, regardless of the tension dial setting, when the presser bar lever is raised. The tension release lever moves against the slide channel, relieves pressure on the pressure pin and allows thread to slide freely through the discs.

