

**KANSAI SPECIAL**

**S-6803 PD SERIES**

**TECHNICAL  
INSTRUCTION MANUAL**

**PUBLISHED FEB. '93**

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## INTRODUCTION:

THANK YOU FOR PURCHASING A KANSAI SPECIAL S SERIES MACHINE. THIS INSTRUCTION MANUAL IS A TECHNICAL SERVICE MANUAL FEATURING SPECIFIC INFORMATION REGARDING THE ADJUSTMENTS AND SETTINGS OF THE MACHINE.

## 1. MACHINE CLASSIFICATION

### 1.1 MACHINE NAME AND TYPE

S-6803PD . . . . 3 NEEDLE, 3 LOOPER, 6 THREAD, DOUBLE CHAINSTITCH  
FEED-OFF-THE-ARM MACHINE WITH PULLER (FEED ROLLER)  
AND DIFFERENTIAL FEEDING FOR DOUBLE LAPPED SEAMING  
ON HEAVY OR EXTRA HEAVY GOODS.

### 1.2 MACHINE SPECIFICATIONS

STITCH TYPE: TYPE 401, DOUBLE CHAINSTITCH

MACHINE SPEED: RECOMMENDED OPERATING SPEED OF 4,000 S.P.M.

STITCH LENGTH RANGE: ADJUSTABLE FROM 2.1 TO 4.2 mm

STITCH DENSITY RANGE: ADJUSTABLE FROM 6 TO 12 STITCHES PER INCH

GAUGE WIDTH: AVAILABLE IN EITHER 1/4" OR 9/32" (OVERALL WIDTH)

NEEDLE SYSTEM: TV X 3 (ORGAN BRAND) OR UY-128 (SCHMETZ BRAND)

NEEDLE STROKE: 33 mm

MAXIMUM FOOT LIFT: 8 mm

FEED ADJUSTMENT: BY LEVER

DIFFERENTIAL ADJUSTMENT: BY DIAL

DIFFERENTIAL RATIO: NORMAL DIFFERENTIAL 1.0 TO 1.3  
REVERSE DIFFERENTIAL 1.0 TO 0.7

FEED ROLLER OPERATION: INTERMITTENT FEEDING BY CLUTCH

LUBRICATION: AUTOMATIC OILING BY TROCROID PUMP; SOME MANUAL  
OILING REQUIRED, SEE SECTION 5.4 .

## 2. MACHINE INSTALLATION

NOTE: THE MACHINE MUST BE INSTALLED CORRECTLY ACCORDING TO THE ILLUSTRATIONS. PEDESTAL MOUNTING SHOWN.

- 1) ATTACH THE MACHINE ARM ONTO THE PEDESTAL MOUNT USING MOUNT BOLTS (A); SEE FIG. 1.
- 2) CONNECT THE PRESSER FOOT LIFTING LINK (B) ON THE PEDESTAL TO THE PRESSER BAR LIFTER LEVER (C) WITH SCREW (D); SEE FIG. 2.

FIG. 1

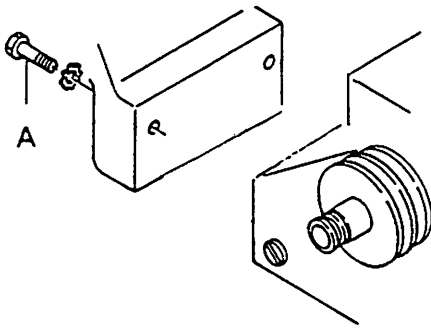
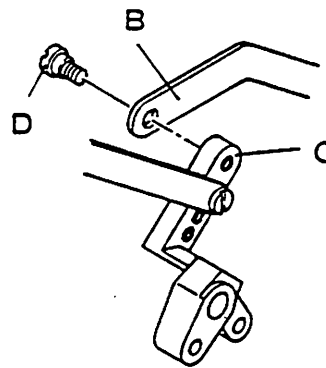


FIG. 2



- 3) TO ADJUST THE AMOUNT OF PRESSER LIFT:

WHILE THE PRESSER FOOT IS RESTING FLAT ON THE NEEDLE PLATE, ADJUST A CLEARANCE OF 0.5 mm BETWEEN THE PRESSER BAR CONNECTING LINK (E) AND THE SCREW (F) OF THE PRESSER BAR CONNECTING BRACKET (DO NOT DEPRESS PEDAL AT THIS TIME); SEE FIG. 3. THIS ADJUSTMENT IS MADE BY MOVING THE PRESSER BAR LIFTING LEVER (C) TO THE RIGHT OR LEFT AFTER LOOSENING SCREWS (H) OF THE PRESSER FOOT LIFTING SHAFT LEVER; SEE FIG. 4.

FIG. 3

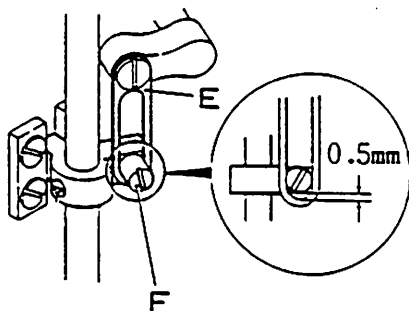
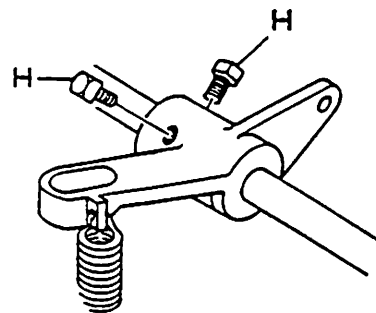
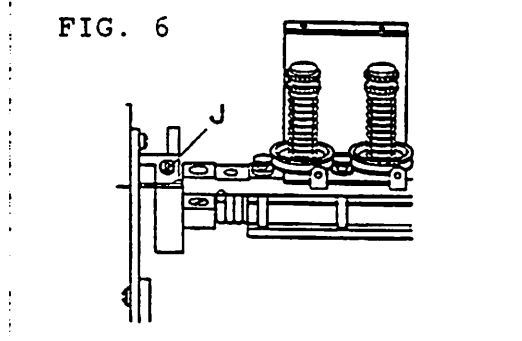
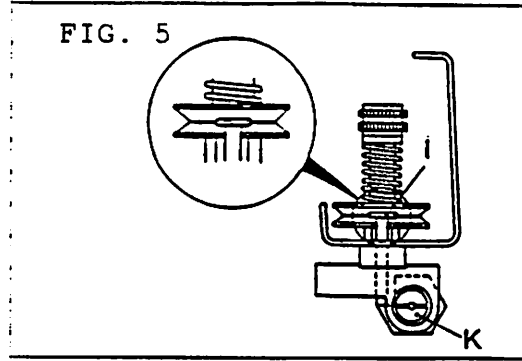


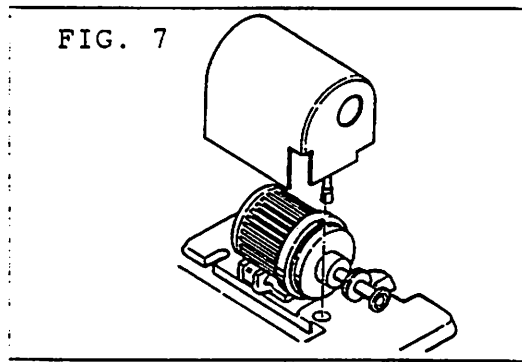
FIG. 4



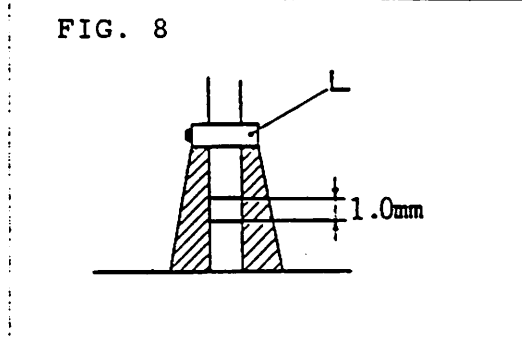
- 4) **ADJUSTING THE TENSION RELEASE PIN:**  
 WITHOUT DEPRESSING THE PEDAL, ADJUST THE UPPER PART OF THE TENSION RELEASE PIN (I) SO IT IS IN THE CENTER OF THE UPPER AND LOWER TENSION DISCS (SEE FIG. 5). THIS ADJUSTMENT IS MADE BY LOOSENING SCREW (J) OF THE PRESSER BAR LIFTER LEVER (SEE FIG. 6) AND TURNING THE TENSION RELEASE SHAFT (K) WITH A SCREWDRIVER; SEE FIG. 5.



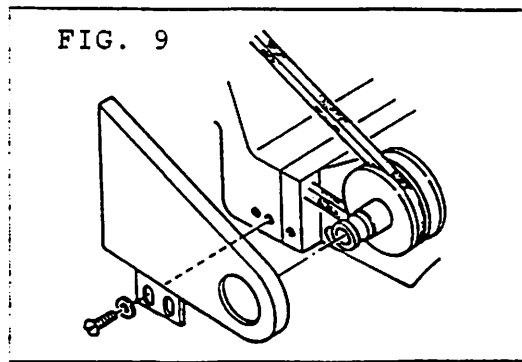
- 5) **PLACING THE MOTOR COVER:**  
 LOWER THE COVER OVER THE TOP OF THE MOTOR AS SHOWN IN FIG. 7.



AS SHOWN IN FIG. 8, POSITION THE COLLAR (L) SO THERE IS 1.0 mm FROM THE FOOT OF THE MOTOR COVER TO THE TOP OF PEDESTAL PIN.



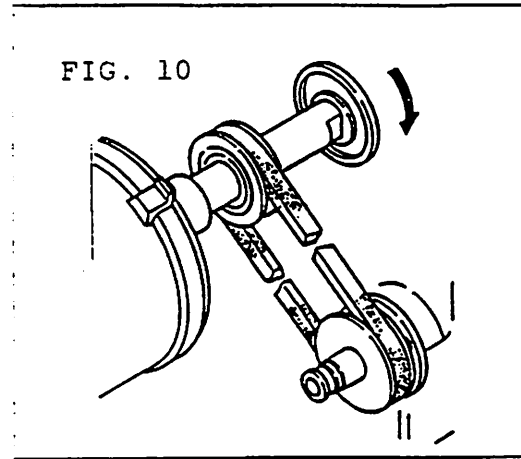
- 6) **ATTACH THE BELT COVER AS SHOWN IN FIG. 9.**



### 3. MACHINE SPEED AND DIRECTION

THE RECOMMENDED SPEED OF OPERATION FOR THE S-6803PD IS 4,000 S.P.M. FOR MAINTAINING MACHINE DURABILITY IT IS FURTHER RECOMMENDED TO OPERATE THE MACHINE AT ABOUT 3,500 S.P.M. FOR THE FIRST 200 HOURS OF OPERATION.

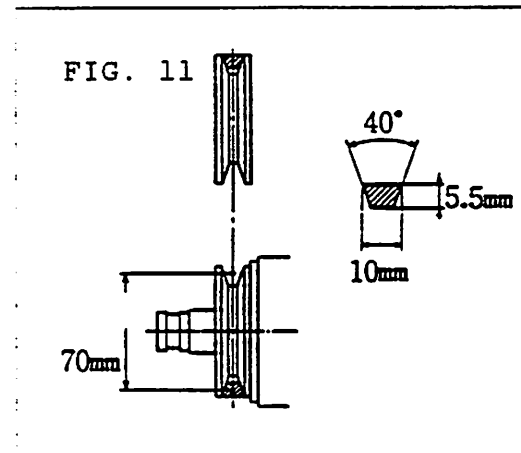
THE MOTOR MUST TURN CLOCKWISE AS SHOWN IN FIG. 10.



### 4. MOTOR AND BELT

THE RECOMMENDED MOTOR TYPE IS A THREE PHASE CLUTCH MOTOR WITH A POWER RATING OF 600 WATTS (3/4 H.P.). THE BELT SHOULD BE A V-BELT OF CLASS "M" OR "3L".

AS SHOWN IN FIG. 11, THE MOTOR MUST BE POSITIONED SO THAT THE CENTER LINES OF BOTH THE MOTOR PULLEY AND THE MACHINE PULLEY LINE UP WHEN THE MOTOR IS TURNING.



MOTOR PULLEY OUTER DIAMETER	MACHINE SPEED (S.P.M.)	
	50 HZ	60 HZ
75 mm	XXXXX	3,500
85 mm	XXXXX	4,000
90 mm	3,500	XXXXX
95 mm	XXXXX	XXXXX
100 mm	4,000	XXXXX

## 5. LUBRICATION SYSTEM

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### 5.1 LUBRICANT

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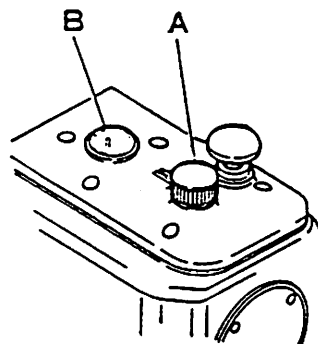
THE RECOMMENDED OIL IS TELESSO # 68.

### 5.2 PUTTING OIL IN THE MACHINE

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THE MACHINE HAS BEEN DRAINED OF OIL PRIOR TO SHIPMENT. THEREFORE, BEFORE INITIAL OPERATION, PLACE FRESH OIL IN THE MACHINE. REMOVE THE OIL CAP (A), AS SHOWN IN FIG. 12. POUR OIL INTO THE OIL FILL HOLE UNTIL THE OIL REACHES THE UPPER LINE OF THE OIL GAUGE (C); SEE FIG. 13.

FIG. 12

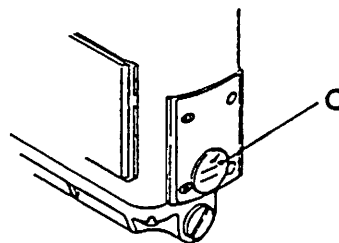


### 5.3 OIL GAUGE AND OIL FLOW

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EVERY DAY, PRIOR TO OPERATION, CHECK THE OIL GAUGE (C), AS SHOWN IN FIG. 13. OPERATE THE MACHINE ONLY IF THE OIL LEVEL IS CORRECTLY BETWEEN THE TWO LINES OF THE GAUGE. ADD OIL IF NECESSARY. DURING MACHINE OPERATION, BE SURE THAT OIL IS FLOWING IN THE OIL SPLASH SIGHT WINDOW (B) AS SHOWN IN FIG. 12.

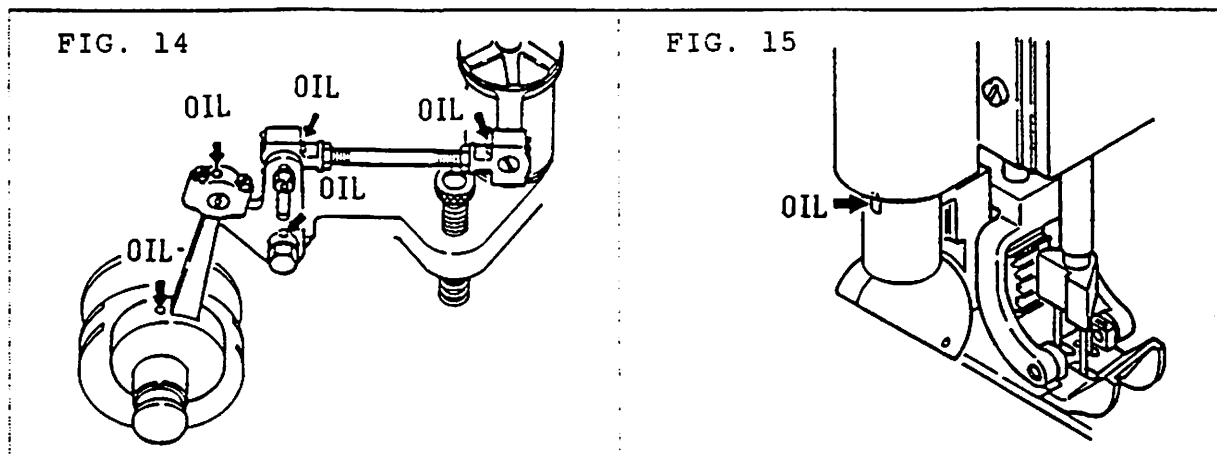
FIG. 13





## 5.4 MANUALLY OILED AREAS

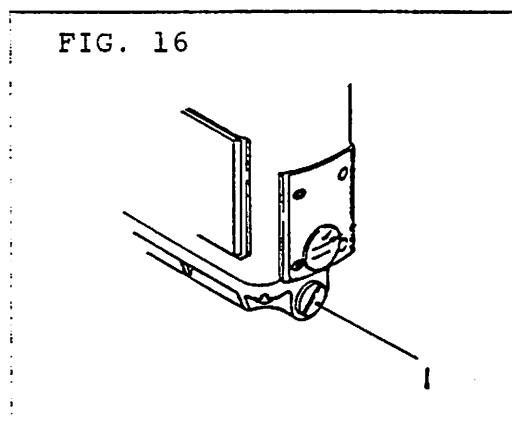
AT THE START OF EVERY WORK DAY, A FEW DROPS OF OIL SHOULD BE PLACED AT EVERY POINT AS SHOWN IN FIG. 14 AND FIG. 15.



## 5.5 CHANGING THE OIL

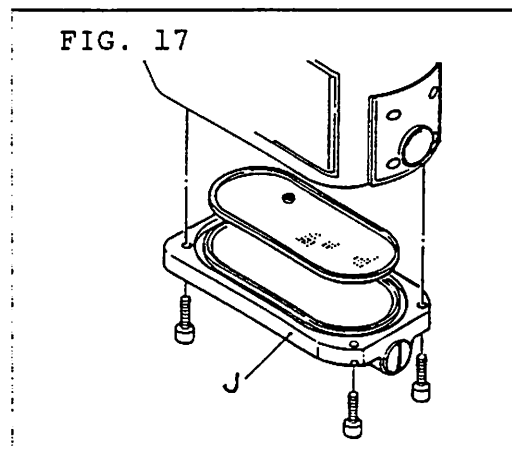
THE SEWING MACHINE OIL SHOULD BE CHANGED AFTER THE THE FIRST 200 HOURS OF OPERATION. THEREAFTER, THE MACHINE OIL SHOULD BE CHANGED TWO TO THREE TIMES EVERY YEAR.

TO DRAIN THE OIL, REMOVE DRAIN PLUG (I) AS SHOWN IN FIG. 16. CATCH THE USED OIL IN A BASIN. REPLACE THE DRAIN PLUG AND REFILL AS IN SECTIONS 5.2 AND 5.3.



## 5.6 CLEANING THE FILTER SCREEN

AT THE TIME OF THE OIL CHANGE (EVERY TWO OR THREE TIMES PER YEAR), REMOVE THE OIL RESERVOIR (J) AS SHOWN IN FIG. 17 AND CLEAN THE SCREEN AND THE RESERVOIR AS WELL AS THE MECHANISMS OF THE LOWER PORTION OF THE CYLINDER.



## 6. PROPER OPERATION

### 6.1 PROPER NEEDLES

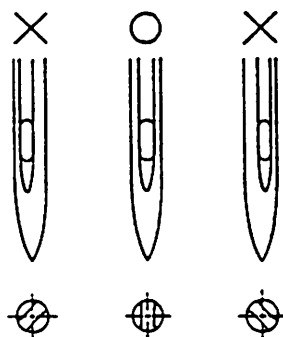
THE APPROPRIATE NEEDLE SYSTEMS FOR THE S-6803PD ARE: ORGAN BRAND TV X 3 OR SCHMETZ BRAND UY 128 GAS. THE NEEDLE SIZE RANGE CHART BELOW SHOWS THE SIZES IN BOTH SINGER SYSTEM AND METRIC SYSTEM.

SINGER SYSTEM	14	16	18	19	20	21	22	23
METRIC SYSTEM	90	100	110	120	125	130	140	160

### 6.2 SETTING THE NEEDLES

THE SEWING NEEDLES MUST BE SET SO THAT THEY ARE FACING STRAIGHT FORWARD. THE NEEDLE SCARF MUST BE FACING THE REAR OF THE MACHINE. SEE FIG. 18. THE NEEDLES MUST BE SET SO THAT THE LOOPERS PASS PARALLEL ACROSS THE SCARF SURFACE.

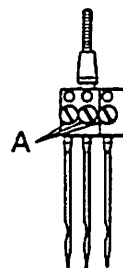
FIG. 18



### 6.3 CHANGING THE NEEDLES

TURN THE HANDWHEEL AND RAISE THE NEEDLES TO THEIR HIGHEST POSITION. NEXT LOOSEN THE SET SCREWS (A) SHOWN IN FIG. 19. PULL THE NEEDLES DOWNWARD. NEXT, INSERT THE FRESH NEEDLES BEING CAREFUL TO POSITION THE NEEDLES STRAIGHT AS EXPLAINED IN SECTION 6.2. ALSO, BE SURE THAT THE NEEDLES ARE PUSHED ALL THE WAY UP IN THE NEEDLE CLAMP SO AS TO SEAT PROPERLY. RETIGHTEN THE SET SCREWS (A).

FIG. 19



## 6.4 THREADING THE MACHINE

THE MACHINE SHOULD BE THREADED STRICTLY ACCORDING TO THE PATHWAYS SHOWN IN FIGURE 20. VARIOUS TROUBLES SUCH AS SKIPPED STITCHES, THREAD BREAKAGE, AND STITCH FORMATION WHICH IS NOT UNIFORM MAY RESULT FROM IMPROPER THREADING. IF ANY OF THESE PROBLEMS HAPPEN, CHECK FOR PROPER THREADING AND THREAD FLOW FROM THE THREAD STAND BEFORE ALL ELSE.

NOTE: AS SHOWN IN FIG. 20, THREADS A, B, AND C ARE THE NEEDLE THREADS; THREADS D, E, AND F ARE THE LOOPER THREADS.

TO THREAD THE LOOPERS: TURN THE HANDWHEEL UNTIL THE LOOPERS ARE AT THEIR LEFTMOST POSITION AND PRESS THE LOOPER DROP-DOWN PLUNGER (G); SEE FIG. 21. DON'T FORGET TO PUSH THE LOOPERS BACK UP IN PLACE BEFORE RESUMING SEWING.

FIG. 21

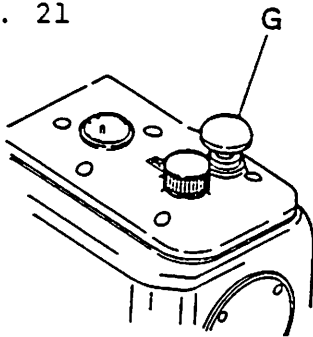
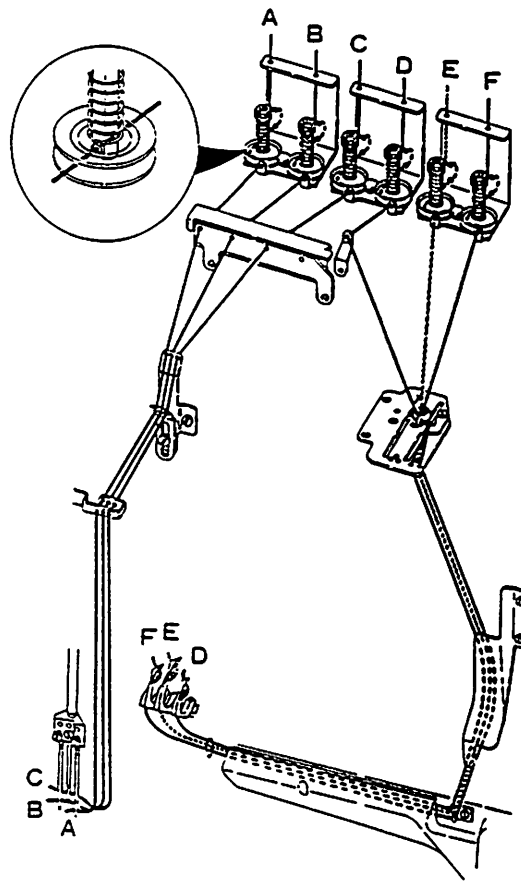


FIG. 20

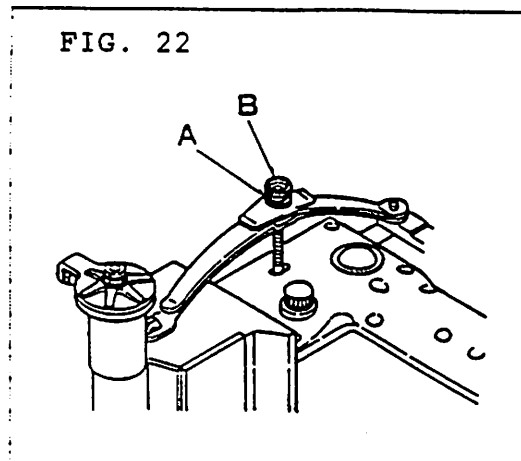


## 6.5 THREAD TENSION

AS A GENERAL RULE, THE THREAD TENSION MUST BE ADJUSTED AS LIGHTLY AS POSSIBLE TO FORM A PROPER STITCH. THE AMOUNT OF TENSION ON THE THREAD WILL VARY DUE TO THE KIND OF FABRIC BEING SEWN AND THE TYPE OF THREAD BEING USED. FOR FURTHER DETAILS SEE SECTION 7.1 AND 7.2 REGARDING TENSION ADJUSTMENTS.

## 6.6 ADJUSTMENT OF PRESSER PRESSURE

ADJUST THE TENSIONING NUT (A) TO THE RIGHT TO INCREASE THE PRESSURE AND TO THE LEFT TO DECREASE THE PRESSURE; SEE FIG. 22. ADJUST THE PRESSURE SO THAT THE FOOT IS HOLDING THE MATERIAL FIRMLY AND YET THE FOOT MAY BE OPERATED SMOOTHLY. DON'T OVERPRESSURIZE THE PRESSER. ALSO NOTE THAT IF THE PRESSURE IS TOO LIGHT, IT MAY CAUSE UNEVEN FEEDING AND THEREFORE POOR SEAM AND/OR STITCH QUALITY. AFTER ADJUSTING THE PRESSURE TENSION NUT (A) TO THE APPROPRIATE POSITION, TIGHTEN LOCKNUT (B); SEE FIG. 22 .



## 6.7 STITCH LENGTH

THE STITCH LENGTH OF THE S-6803PD MAY BE ADJUSTED FROM 2.1 mm TO 4.2 mm (12 STITCHES PER INCH TO 6 STITCHES PER INCH).

THE TABLE ON THE RIGHT SHOWS A COMPARISON OF STITCH LENGTHS AND STITCHES PER INCH.

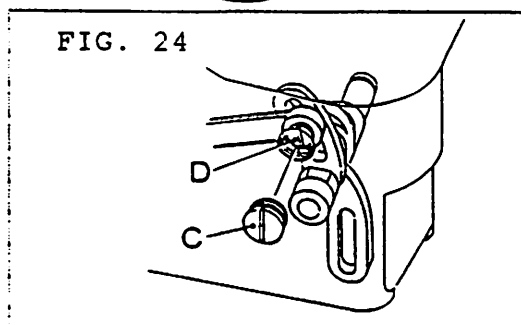
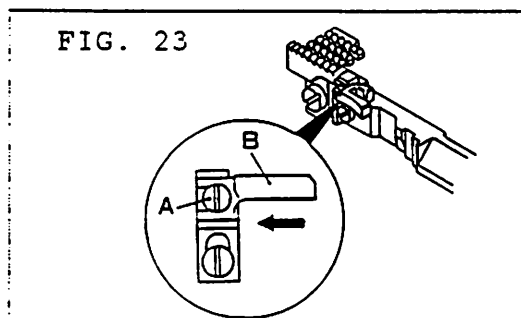
STITCH LENGTH (mm)	STITCH DENSITY (S.P.I.)
4.2	6
3.6	7
3.2	8
2.8	9
2.5	10
2.3	11
2.1	12

TO CHANGE THE STITCH LENGTH:

LOOSEN THE SET SCREW (A) AS SHOWN IN FIG. 23 AND MOVE THE NEEDLE GUARD (B) COMPLETELY TO THE REAR. RETIGHTEN TEMPORARILY. NEXT, REMOVE THE CAP (C) AS SHOWN IN FIG. 24.

LOOSEN SCREW (D) AND MOVE THE LEVER UP TO INCREASE THE STITCH LENGTH OR MOVE THE LEVER DOWN TO DECREASE THE STITCH LENGTH. AFTER SETTING THE APPROPRIATE STITCH LENGTH, RETIGHTEN THE SCREW (D) SECURELY AND REPLACE THE CAP (C).

REPOSITION THE NEEDLE GAURD (B) FOLLOWING THE INSTRUCTIONS AS SHOWN IN SECTION 7.11 . RETIGHTEN THE SET SCREW (A).



## 6.8 ADJUSTING THE DIFFERENTIAL FEED MECHANISM

THE DIFFERENTIAL FEEDING MAY BE ADJUSTED BY MOVING THE LEVER (A) TO THE LEFT OR TO THE RIGHT; SEE FIG. 25.

AT THE TIME THE DIFFERENTIAL ADJUSTMENT LEVER (A) IS SET STRAIGHT UP (BETWEEN THE 4 AND 5), THE DIFFERENTIAL FEEDER AND THE MAIN FEEDER ARE FEEDING AT THE SAME RATE.

**NORMAL DIFFERENTIAL SEWING:**  
LOOSEN SET SCREWS (B) AS SHOWN IN FIG. 25 AND MOVE THE LEVER TO THE RIGHT (TOWARD THE "9"). THE FURTHER TO THE RIGHT, THE MORE DIFFERENTIAL FEEDING (MAXIMUM RATIO OF 1 : 1.3 AT "9"). RETIGHTEN SCREWS (B) AGAINST THE LEVER TO MAINTAIN THE POSITION.

**REVERSE DIFFERENTIAL SEWING:**  
LOOSEN SCREWS (B) AND MOVE THE LEVER TO THE LEFT (TOWARD THE "1"). THE MORE TO THE LEFT, THE MORE REVERSE DIFFERENTIAL FEEDING (MINIMUM RATIO OF 1 : 0.7 AT "1"). RETIGHTEN SCREWS (B) AGAINST THE LEVER TO MAINTAIN THE POSITION.

## 6.9 PULLER ADJUSTMENT

TO ADJUST THE PULLER, LOOSEN THE NUT (C) SHOWN IN FIG. 26. MOVE THE BALL JOINT CONNECTION (D) UP TO INCREASE THE PULLING ACTION OR MOVE IT DOWN TO DECREASE.

## 6.10 PULLER PRESSURE

THE PULLER PRESSURE MAY BE ADJUSTED TO SUIT THE SEWING CONDITIONS. TURNING PRESSURE SCREW (E) CLOCKWISE INCREASES PRESSURE. TURNING THE SCREW (E) COUNTER CLOCKWISE DECREASES THE PRESSURE; SEE FIG. 26.

FIG. 25

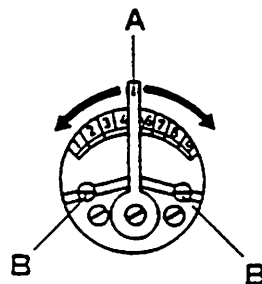
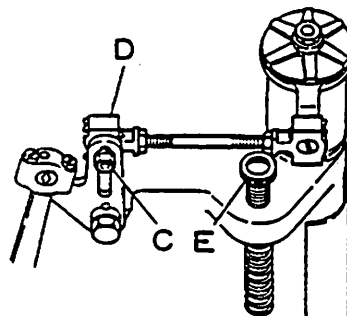


FIG. 26



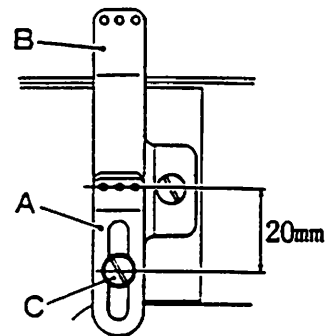
## 7. MACHINE ADJUSTMENTS

### 7.1 NEEDLE THREAD TENSION

THE LOWER NEEDLE THREAD EYELET (A) SHOULD BE SET IN ITS STANDARD POSITION SUCH THAT IT IS PLACED OVER THE UPPER THREAD EYELET (B) AND THE DISTANCE FROM THE EYELET HOLES TO THE CENTER OF THE SET SCREW (C) IS 20 mm AS SHOWN IN FIG. 27.

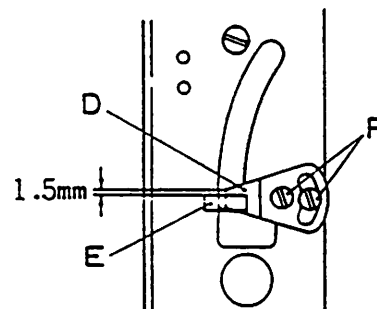
NOTE: TO INCREASE THE TENSION OF THE NEEDLE THREAD, MOVE THE EYELET (A) DOWNWARD. TO DECREASE TENSION, MOVE EYELET (A) UPWARD.

FIG. 27



THE NEEDLE THREAD STRIKE-OFF BAR (D) HELPS TO MAINTAIN TENSION ON THE NEEDLE THREADS TO FORM PROPER LOOPS UNDER THE NEEDLE PLATE. TO SET THE STANDARD POSITION: AT THE TIME THE NEEDLES ARE AT THEIR LOWEST POSITION, THE TOP OF THE NEEDLE THREAD STRIKE-OFF BAR (D) SHOULD BE 1.5 mm ABOVE THE TOP OF THE NEEDLE LEVER EYELET (E), AS SHOWN IN FIG. 28. TO ADJUST, LOOSEN SCREWS (F) AND POSITION AS NECESSARY. MOVING THE BAR (D) UPWARD INCREASES THE LOOP SIZE. MOVING THE BAR DOWNWARD DECREASES NEEDLE LOOP SIZE.

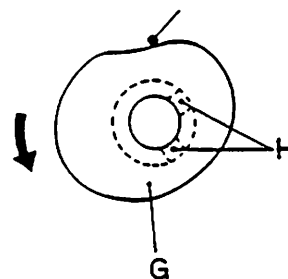
FIG. 28



### 7.2 LOOPER THREAD TENSION

NOTE: FIG. 29 IS SHOWN FROM THE OPERATOR'S VIEWPOINT. TURN THE HANDWHEEL SLOWLY UNTIL THE LOOPERS ARE AT THEIR RIGHTMOST POSITION. AT THIS TIME, THE LOOPER THREAD TAKE-UP CAM (G) SHOULD JUST CONTACT THE LOOPER THREADS. TO ADJUST THE POSITION, LOOSEN THE SET SCREWS (H), AND SET ACCORDINGLY. RETIGHTEN THE SET SCREWS (H).

FIG. 29

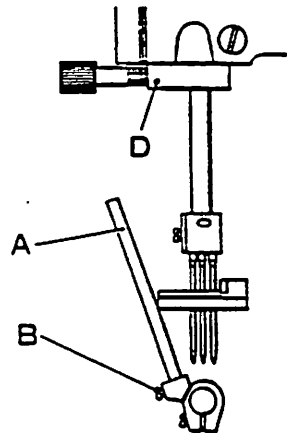


### 7.3 LOOPER AND NEEDLE TIMING

TO ADJUST THE LOOPER AND NEEDLE TIMING FOLLOW THESE PROCEDURES:

- 1) REMOVE THE NEEDLES, NEEDLE PLATE, MAIN FEEDERS, THE LOOPERS AND THE FEED ROLLER.
- 2) PLACE A TEST BAR (A) OF 5/32" (4 mm) DIAMETER INTO A LOOPER HOLDER AS SHOWN IN FIG. 30. A 5/32" OR 4 mm DRILL BLANK MAY BE USED. TIGHTEN SCREW (B).
- 3) TURN THE HANDWHEEL IN THE NORMAL DIRECTION OF OPERATION. AT THE TIME THE LOOPER HOLDER WITH THE TEST BAR MOVES TO THE RIGHTMOST POSITION, LOOSEN THE SCREW (C) AND POSITION THE TEST BAR SO THAT IT IS VERTICAL (90 DEG.).
- 4) TURN THE HANDWHEEL UNTIL THE TEST BAR IS AT ITS LEFTMOST POSITION. REPLACE THE NEEDLE PLATE.
- 5) TURN THE HANDWHEEL SLOWLY UNTIL THE TEST BAR GENTLY TOUCHES THE EDGE OF THE NEEDLE PLATE.
- 6) ATTACH THE NEEDLE BAR TIMING GAUGE (D) ONTO THE NEEDLE BAR SO THAT IT TOUCHES FLAT AGAINST THE UNDERSIDE OF THE MACHINE HEAD.

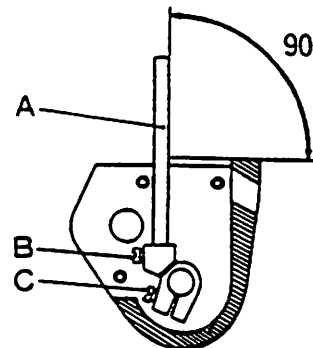
FIG. 30



- 7) TURN THE HANDWHEEL SLOWLY IN THE OPPOSITE DIRECTION UNTIL EITHER THE TIMING GAUGE (D) TOUCHES THE SEWING HEAD OR THE TEST BAR (A) TOUCHES THE NEEDLE PLATE.

SINCE THE TIMING FOR THE S-6803 MACHINE IS THE SAME FOR THE LEFTWARD MOTION OF THE LOOPERS AS THE RIGHTWARD, THE GAP BETWEEN THE TIMING GAUGE AND THE MACHINE HEAD OR THE GAP BETWEEN THE TEST BAR AND THE NEEDLE PLATE MUST BE LESS THAN 0.1 mm. IF NOT, ADJUST ACCORDING TO THE STEPS OUTLINED IN SECTION 7.3-8 .

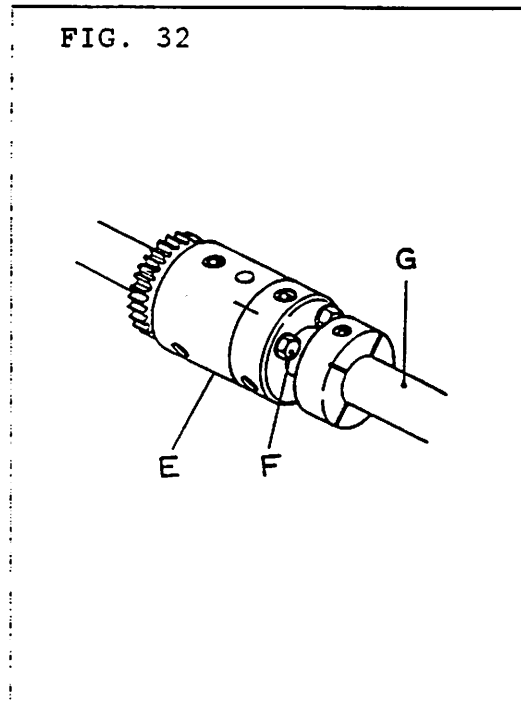
FIG. 31



- 8) TO ADJUST THE TIMING, REMOVE THE TOP FORWARD COVER (CRANK CHAMBER COVER) TO REVEAL THE TIMING UNION (E) ON THE MAIN SHAFT (G) AS SHOWN IN FIG. 32. LOOSEN BOLTS (F). TURN THE HANDWHEEL SLOWLY TO THE RIGHT. IF THE TIMING GAUGE (D) TOUCHES THE MACHINE HEAD BEFORE THE TEST BAR (A) TOUCHES THE NEEDLE PLATE, TURN THE MAIN SHAFT (G) TO THE RIGHT TO RETARD THE LOOPER MOVEMENT. HOWEVER, IF THE TEST BAR (A) TOUCHES THE NEEDLE PLATE BEFORE THE TIMING GAUGE TOUCHES THE MACHINE HEAD, TURN THE MAIN SHAFT (G) TO THE LEFT TO SPEED UP THE LOOPER MOVEMENT.

NOTE: REPEAT STEPS 6, 7, AND 8 UNTIL THE LOOPER AND NEEDLE TIMING IS CORRECT. AFTER EACH ADJUSTMENT AND BEFORE CHECKING, IT IS ADVISABLE TO SNUG THE BOLTS (F). LOOSEN THEM AGAIN IF FURTHER ADJUSTMENT IS NEEDED. AFTER ACHIEVING THE CORRECT TIMING ADJUSTMENT RETIGHTEN THE BOLTS (F). AFTER THE FINAL INSPECTION OF THE LOOPER AND NEEDLE TIMING, REMOVE THE TEST BAR (A) AND THE TIMING GAUGE (D).

- 9) REPLACE THE LOOPERS. INSERT FRESH NEEDLES AND READJUST THE LOOPER HOLDER, WHICH WAS HOLDING THE TEST BAR (A), TO THE APPROPRIATE LOOPER- NEEDLE DISTANCE AND CLEARANCE. ALSO, AT THIS TIME RECHECK THE OTHER TWO LOOPERS FOR PROPER LOOPER-NEEDLE DISTANCES AND CLEARANCES AS SHOWN IN SECTION 7.7 AND SECTION 7.9.





#### 7.4 INSERTING THE NEEDLE CLAMP

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THE SHANK OF THE NEEDLE CLAMP IS THREADED. THIS SCREWS INTO THE NEEDLE BAR. IT SHOULD BE TIGHTENED TO A TORQUE OF 20 Kg/cm. SEE FIG. 33.

FIG. 33

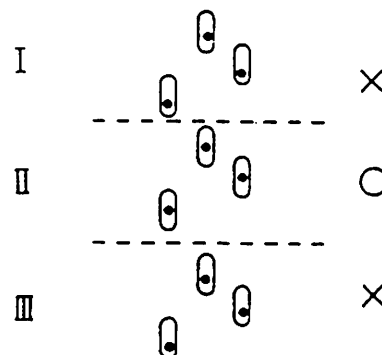


#### 7.5 THE NEEDLES AND THE NEEDLE PLATE

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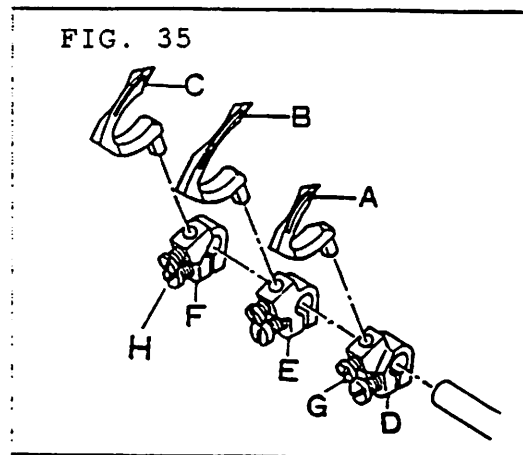
THE NEEDLES MUST PASS THROUGH THE CENTER OF THE NEEDLE HOLES IN THE NEEDLE PLATE SO THAT THERE IS EQUAL SPACE CLEARANCE ON ALL SIDES OF THE NEEDLE. THIS IS SHOWN CLEARLY IN FIG. 34-II. BOTH IN FIG. 34-I AND 34-III THE NEEDLES ARE MOVING TOO CLOSELY TO THE SIDES OF THE NEEDLE HOLES IN THE NEEDLE PLATE. TO ADJUST, LOOSEN THE SET SCREW (J) ON THE NEEDLE BAR CLAMP AS SHOWN IN FIG. 38 AND ROTATE LEFT OR RIGHT UNTIL THE CORRECT SPACING IS ATTAINED. RETIGHTEN THE SET SCREW (J)

FIG. 34



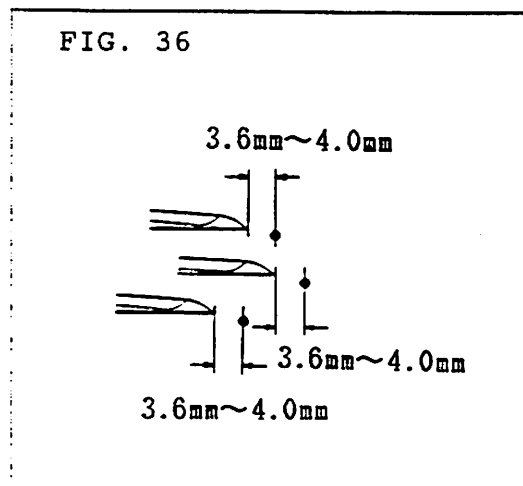
## 7.6 INSERTING THE LOOPERS

AS SHOWN IN FIG. 35, LOOPERS (A), (B), AND (C) MUST BE SET INTO LOOPER HOLDERS (D), (E), AND (F). BE SURE THAT THE LOOPERS ARE FULLY SEATED DOWN INTO THE LOOPER HOLDER AND TIGHTEN THE SET SCREW (G) ONTO THE FLAT PORTION OF THE LOOPER SHANK OF EACH LOOPER. THE PROPER ANGLE OF 3 DEGREES IS AUTOMATICALLY SET.



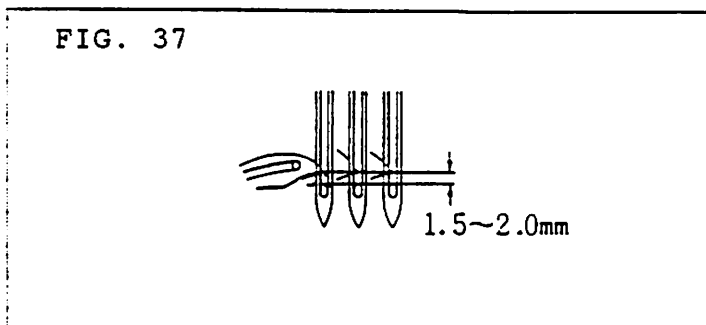
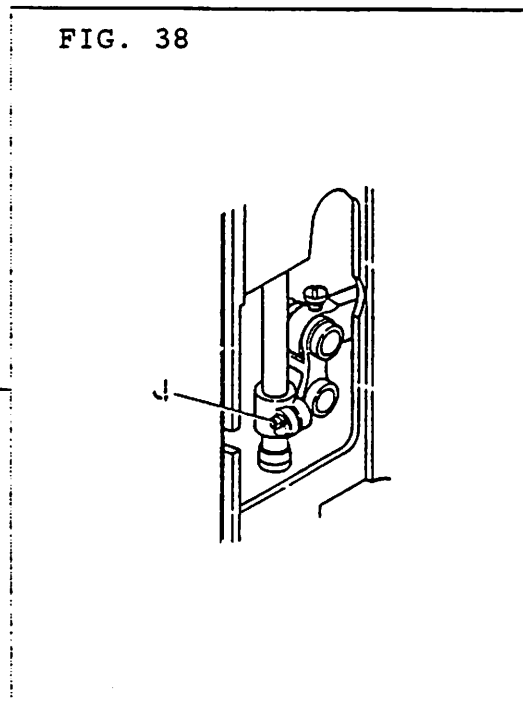
## 7.7 LOOPER-NEEDLE DISTANCE

AT THE TIME THE LOOPERS ARE AT THEIR LEFTMOST POSITION, THE DISTANCE FROM THE TIP OF THE LOOPER TO THE CENTER OF THE NEEDLE MUST BE 3.6 mm TO 4 mm, AS SHOWN IN FIG. 36. TO ADJUST, LOOSEN SCREW (H) AND ADJUST THE LOOPER TO ITS PROPER POSITION. NOTE: EACH LOOPER MUST BE ADJUSTED INDIVIDUALLY.



## 7.8 NEEDLE BAR HEIGHT

AS THE LOOPERS MOVE TO THE RIGHT, THEY MOVE BEHIND THE NEEDLES. AT THE TIME THE TIP OF THE LOOPER REACHES THE CENTER OF THE NEEDLE, THE NEEDLE BAR HEIGHT SHOULD BE AS FOLLOWS: AS SHOWN IN FIG. 37, THE DISTANCE FROM THE TIP OF THE LOOPER TO THE TOP OF THE EYE OF THE NEEDLE SHOULD BE 1.5 mm TO 2.0 mm. TO ADJUST, LOOSEN THE NEEDLE BAR CLAMP SCREW (J) AS SHOWN IN FIG. 38, ADJUST THE NEEDLE BAR UP OR DOWN AS NEEDED AND RETIGHTEN THE SCREW (J).



## 7.9 LOOPER-NEEDLE CLEARANCE AND NEEDLE DEFLECTION

AS THE LOOPER MOVES TO THE RIGHT, IT MOVES BEHIND THE NEEDLE. AS IT DOES THIS, THE TIP OF THE LOOPER MUST PASS ACROSS THE SCARF OF THE NEEDLE WITH A CLEARANCE OF 0 TO 0.1 mm (AS CLOSE AS POSSIBLE WITHOUT TOUCHING); SEE FIG. 39. TO ADJUST, LOOSEN THE SET SCREW (K) ON THE LOOPER HOLDER AS SHOWN IN FIG. 40, AND ADJUST ACCORDINGLY. BE CAREFUL NOT TO LOSE THE LOOPER-NEEDLE DISTANCE AT THIS TIME. RETIGHTEN THE SCREW (K).

NEXT, CONTINUE TO TURN THE HANDWHEEL SLOWLY UNTIL THE NEEDLE STARTS TO DESCEND ON THE BACK OF THE LOOPER. THE TIP OF THE NEEDLE MUST DEFLECT LIGHTLY ON THE BACK OF THE LOOPER ON ITS DESCENT; SEE FIG. 39. IF THERE IS TOO MUCH DEFLECTION, THE NEEDLE MAY BEND OR BREAK. NOT ENOUGH DEFLECTION MAY CAUSE SKIP STITCHING. THIS MAY BE ADJUSTED ACCORDING TO THE AMOUNT OF LOOPER AVOID. SEE BELOW.

## 7.10 ADJUSTMENT OF LOOPER AVOID

REMOVE THE SIDE COVER FROM THE BASE OF THE CYLINDERBED AS SHOWN IN FIG. 41. THIS WILL EXPOSE THE LOOPER AVOID CONNECTING ROD. LOOSEN SCREW (L) AS SHOWN IN FIG. 41. MOVE THE ROD UP TO DECREASE THE LOOPER AVOID AND MOVE THE ROD DOWN TO INCREASE THE LOOPER AVOID MOTION.

## 7.11 ADJUSTMENT OF NEEDLE GUARD

AT THE TIME THE TIP OF THE LOOPER IS BEHIND THE CENTER OF THE NEEDLE, THE NEEDLE GUARD (M) SHOULD BE LIGHTLY PUSHING THE NEEDLE FORWARD BY 0 TO 0.5 mm; SEE FIG. 42. TO ADJUST, LOOSEN SCREW (N) AND MOVE FRONT TO BACK AS NEEDED. RETIGHTEN THE SCREW (N). THE NEEDLE SHOULD MAINTAIN CONTACT WITH THE NEEDLE GUARD UNTIL THE TIP OF THE LOOPER PASSES THE RIGHT SIDE OF THE NEEDLE; SEE FIG. 43. LOOSEN SCREW (O) TO ADJUST THE HEIGHT. NOTE: THE ADJUSTMENTS OF THE NEEDLE GUARD MUST BE CHANGED IF THE STITCH LENGTH IS CHANGED.

FIG. 39

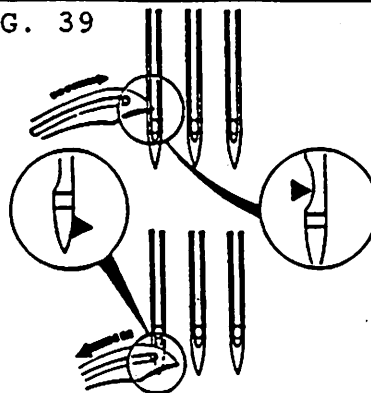


FIG. 40

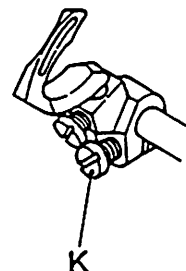


FIG. 41

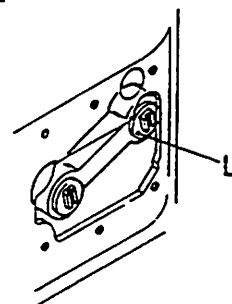


FIG. 42

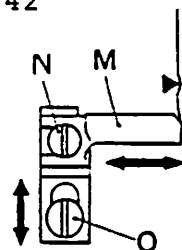
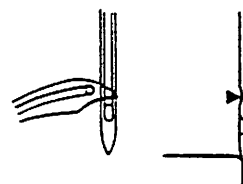


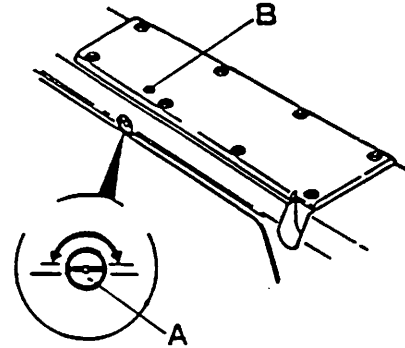
FIG. 43



## 7.12 ADJUSTING THE FEEDERS

- 1) **ADJUSTMENT OF THE FEED BAR ECCENTRIC PIN:**  
THE PIN (A) IS LOCATED APPROXIMATELY IN THE CENTER OF THE LENGTH OF THE CYLINDER BED, AS SHOWN IN FIG. 44. THE PIN (A) IS USED FOR MAKING FINE ADJUSTMENT TO THE HEIGHT AND LEVEL OF THE FEEDERS. BEFORE INSERTING THE FEEDERS, THE SLOT ON THE HEAD OF THE PIN SHOULD BE HORIZONTAL. SET THE POSITION WITH THE SCREW (B) AS SHOWN IN FIG. 44. TURNING THE PIN (A) CLOCKWISE RAISES THE FEEDERS. TURNING THE PIN (A) COUNTER-CLOCKWISE LOWERS THE FEEDERS.

FIG. 44



- 2) **SETTING THE FEEDERS**

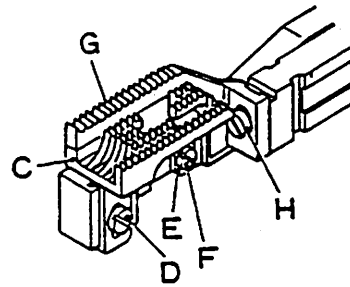
ATTACH THE MAIN FEEDER (C) WITH THE SET SCREW (D) AS SHOWN IN FIG. 45.

ATTACH THE MAIN FEEDER SUPPORT (E) WITH THE SET SCREW (F).

SET THE DIFFERENTIAL FEEDER (G) ON TOP OF THE MAIN FEEDER AND ATTACH IT INTO PLACE WITH SET SCREW (H).

TURN THE HANDWHEEL TO MAKE SURE THAT THE FEEDERS ARE MOVING SMOOTHLY.

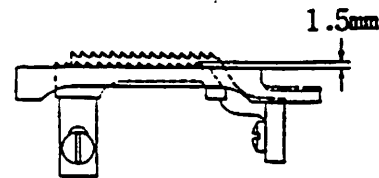
FIG. 45



- 3) **FEEDER HEIGHT**

AT THE TIME THE FEEDERS ARE AT THEIR HIGHEST POSITION, SET THE FRONT FIRST TEETH OF THE MAIN FEEDER 1.5 mm ABOVE THE TOP SURFACE OF THE NEEDLE PLATE. THIS ADJUSTMENT IS MADE BY LOOSENING SET SCREWS (D), (F), AND (H). REPOSITION THE MAIN FEEDER APPROPRIATELY AND REPOSITION THE MAIN FEEDER SUPPORT AFTERWARDS. RETIGHTEN ALL SCREWS.

FIG. 46



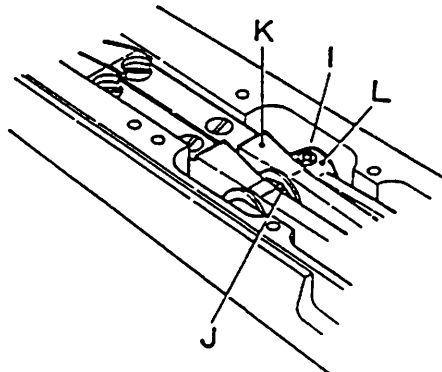
#### 4) FRONT TO BACK POSITION OF THE FEEDERS

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TURN THE HANDWHEEL. IF IT IS OBSERVED THAT THE FEEDERS ARE HITTING THE NEEDLE PLATE EITHER ON THE FRONT SIDE OR THE BACK SIDE, THE FRONT TO BACK POSITION OF THE FEEDERS MUST BE BALANCED. THIS MAY BE DONE BY ADJUSTING THE POSITION OF THE FEED BAR (K) WITH THE ECCENTRIC PIN (J) AS SHOWN IN FIG. 47.

LOOSEN SET SCREW (I) AND TURN THE ECCENTRIC PIN (J). THIS MAY BE DONE BY TAPPING GENTLY ON THE NOTCH WITH A PIN PUNCH OR OTHER TAPERED TOOL. AFTER TURNING, RETIGHTEN THE SCREW (I) AND CHECK THE BALANCE OF THE FEEDER MOTION. AFTER THE FINAL ADJUSTMENT BE SURE THERE IS NO PLAY IN THE FEED BAR (K) AND THE FEED BAR DRIVING LINK (L).

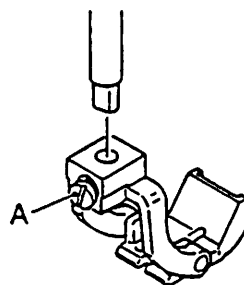
FIG. 47



## 7.13 SETTING, ADJUSTING, AND REMOVING THE PRESSER

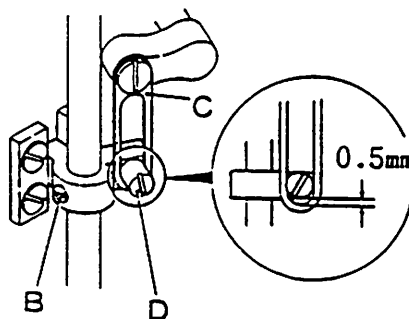
- 1) TO SET THE PRESSER FOOT:  
RAISE THE PRESSER BAR TO ITS FULL HEIGHT BY DEPRESSING THE PRESSER FOOT LIFT PEDAL. INSERT THE PRESSER ONTO THE PRESSER BAR AND TIGHTEN THE SCREW (A) ON THE FLAT OF THE PRESSER BAR AS SHOWN IN FIG. 48. CHECK TO BE SURE THAT THE NEEDLES PASS THROUGH THE NEEDLE HOLES IN THE PRESSER WITH EQUAL CLEARANCE SPACE ON ALL SIDES. IF NOT, ADJUST THE POSITION BY LOOSENING THE SCREW (B) ON THE CONNECTING BRACKET, AS SHOWN IN FIG. 49, AND TURN THE PRESSER BAR UNTIL THE ALIGNMENT IS CORRECT. RETIGHTEN SCREW (B).

FIG. 48



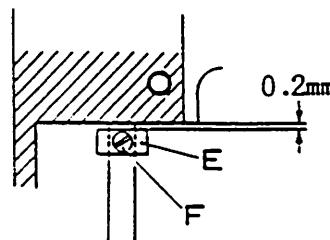
- 2) TO REMOVE THE PRESSER FOOT:  
RAISE THE PRESSER BAR TO ITS FULL HEIGHT BY DEPRESSING THE PRESSER FOOT LIFT PEDAL. LOOSEN SCREW (A) AND PULL DOWNWARD ON THE PRESSER.
- 3) ADJUSTING THE CONNECTING BRACKET:  
AS THE PRESSER FOOT LIES RESTING FLAT ON THE NEEDLE PLATE SURFACE, LOOSEN SCREW (B) ON THE CONNECTING BRACKET. NEXT, RAISE OR LOWER THE BRACKET SO THAT THERE IS A CLEARANCE OF 0.5 mm FROM THE BOTTOM OF THE CONNECTING BRACKET SCREW (D) AND THE CONNECTING LINK (C); SEE FIG. 49.

FIG. 49



- 4) POSITION OF THE PRESSER STOP COLLAR:  
AT THE TIME THE PRESSER FOOT REACHES ITS HIGHEST POSITION, 8.0 mm ABOVE THE TOP OF THE NEEDLE PLATE SURFACE, THERE SHOULD BE A CLEARANCE GAP OF 0.2 mm BETWEEN THE INNER SURFACE OF THE MACHINE HEAD AND THE STOP COLLAR (E); SEE FIG. 50. TO ADJUST, LOOSEN THE SET SCREW (F) AND POSITION ACCORDINGLY. RETIGHTEN THE SCREW (F).

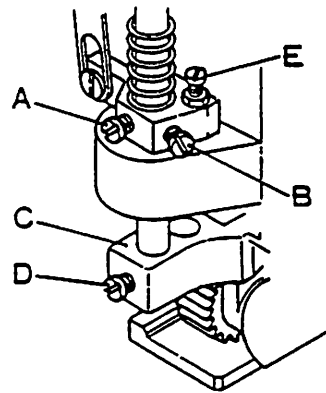
FIG. 50



## 7.14 SETTING, ADJUSTING, AND REMOVING THE FEED ROLLER

- 1) **SETTING AND ADJUSTING:**  
RAISE UP THE FEED ROLLER PRESSER BAR, SET THE FEED ROLLER BRACKET (C) INTO PLACE AND LOWER THE PRESSER BAR INTO THE HOLE IN THE FEED ROLLER BRACKET (C). TIGHTEN THE SCREW (D); SEE FIG. 51. TIGHTEN THE SCREW (A) OF THE PRESSER BAR CONNECTION ONTO THE SPOT ON THE PRESSER BAR. NEXT TIGHTEN SCREW (B). NEXT TURN THE ADJUSTING SCREW (E) AGAINST THE BOSS OF THE MACHINE HEAD SO THAT IT LIFTS THE FEED ROLLER ASSEMBLY UNTIL THERE IS A GAP OF 0.1 mm BETWEEN THE FEED ROLLER AND THE NEEDLE PLATE SURFACE. TIGHTEN THE LOCK NUT (F).

FIG. 51



- 2) **REMOVING THE FEED ROLLER:**  
REMOVE SCREW (A) AND LOOSEN SCREW (B) OF THE PRESSER BAR CONNECTION. NEXT, LOOSEN SCREW (D) OF THE FEED ROLLER BRACKET (C). NEXT, LIFT THE FEED ROLLER PRESSER BAR AND REMOVE THE FEED ROLLER BRACKET.

- 3) **FEED ROLLER AND PRESSER LINK:**  
AT THE TIME THE PRESSER IS LIFTED, THE FEED ROLLER IS ALSO LIFTED BY MEANS OF A CONNECTING LINK. THE STANDARD ADJUSTMENT FROM THE FACTORY IS SUCH THAT THE PRESSER FOOT LIFTS SLIGHTLY EARLIER THAN THE FEED ROLLER. IF ANY CHANGE OF ADJUSTMENT IS NECESSARY, FOLLOW THESE STEPS:

- A. LOOSEN SCREW (D) ON THE FEED ROLLER BRACKET (C).
- B. LOOSEN THE LOCK NUT (F).
- C. BY TURNING THE ADJUSTING SCREW (E) COUNTER-CLOCKWISE, THE FEED ROLLER RISES EARLIER; BY TURNING THE SCREW (E) CLOCKWISE, THE FEED ROLLER RISES LATER. ADJUST AS NEEDED.
- D. TIGHTEN LOCK NUT (F).
- E. RESET THE GAP OF 0.1 mm BETWEEN THE FEED ROLLER AND THE TOP SURFACE OF THE NEEDLE PLATE AS OUTLINED IN SEC 7.14-1.
- F. RETIGHTEN THE SET SCREW (D).

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