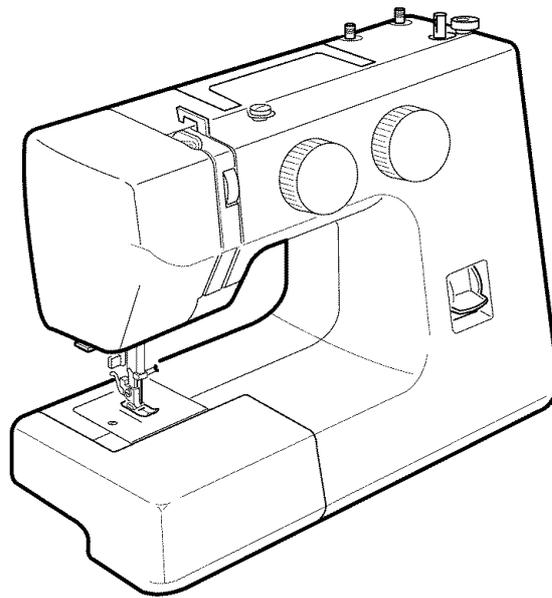


# ***SERVICE MANUAL***

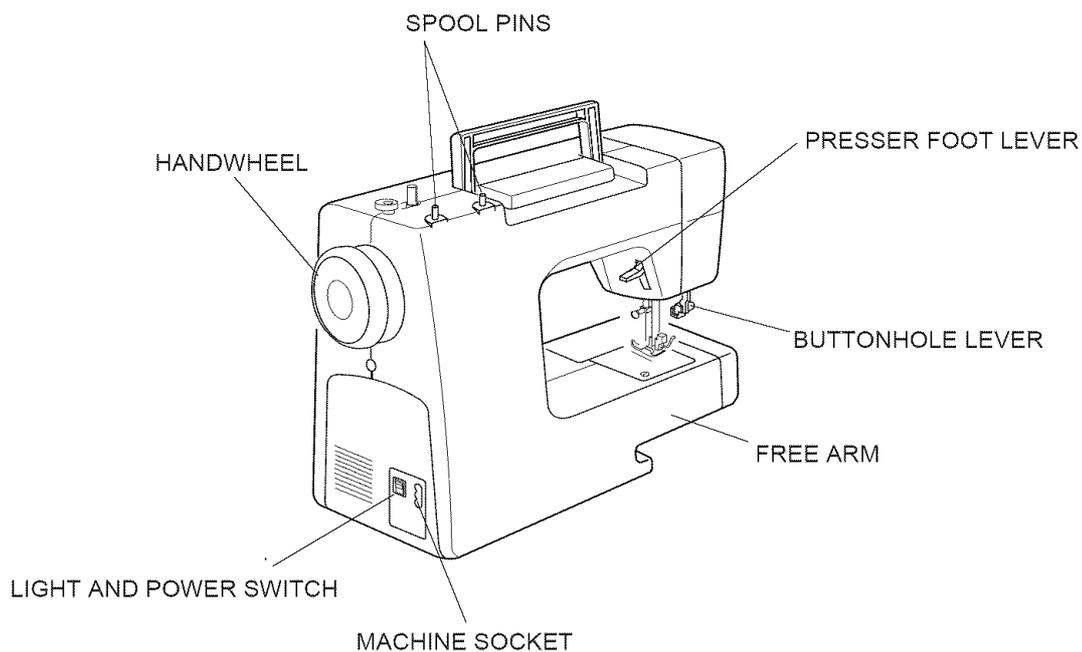
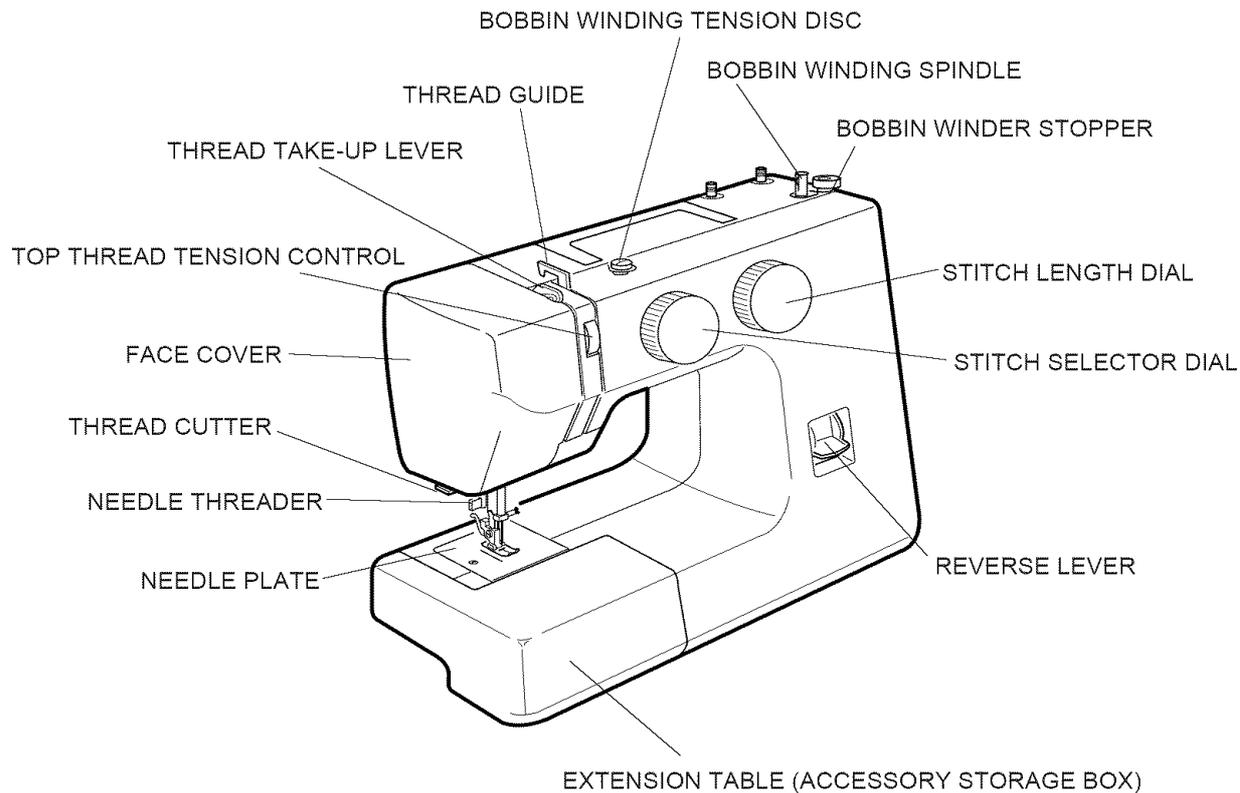


**SEWING MACHINE MODEL  
385. 15358  
SEPTEMBER, 2006**

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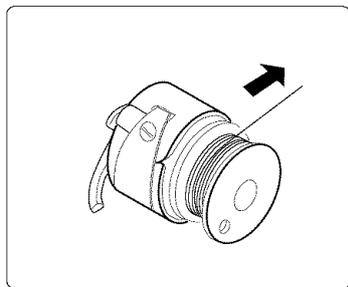
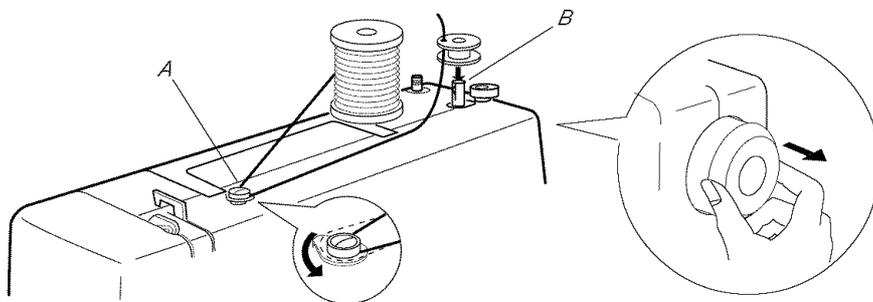
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# LOCATE AND IDENTIFY THE PARTS

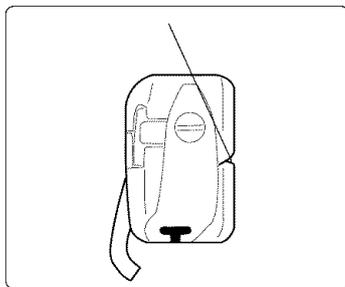


## WIND THE BOBBIN

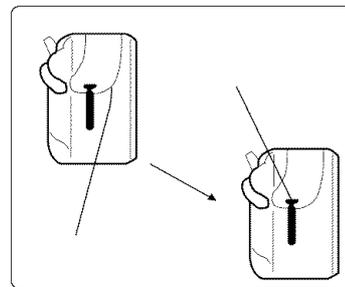
1. PULL THE HANDWHEEL OUT.
2. DRAW THREAD FROM THE SPOOL. GUIDE THE THREAD AROUND THE THREAD GUIDE. THREAD THROUGH THE BOBBIN WINDER TENSION DISK "A" AND THE HOLE IN THE BOBBIN FROM THE INSIDE TO THE OUTSIDE.
3. PLACE BOBBIN ONTO BOBBIN WINDING SPINDLE "B" WITH END OF THREAD COMING FROM THE TOP OF THE BOBBIN. PUSH BOBBIN WINDING SPINDLE TO THE RIGHT UNTIL IT CLICKS.
4. HOLDING THE END OF THREAD, START MACHINE. WHEN BOBBIN IS SLIGHTLY FILLED, SNIP OFF THE END OF THREAD.
5. WIND THREAD UNTIL BOBBIN STOPS. REMOVE BOBBIN.
6. PUSH THE HANDWHEEL TO THE LEFT.



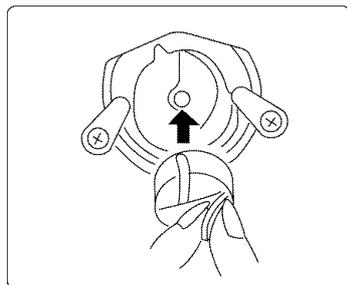
1 PLACE BOBBIN IN BOBBIN CASE MAKING SURE THREAD FEEDS CLOCKWISE AND IS COMING FROM BOBBIN AS SHOWN.



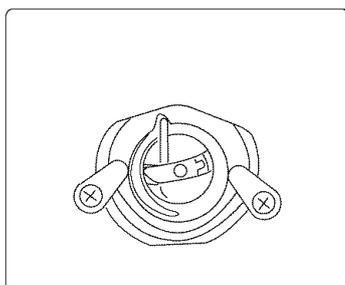
2 PULL THREAD THROUGH SLIT OF CASE AS SHOWN.



3 PULL THREAD UNDER TENSION SPRING AND THROUGH THE OPENING AS SHOWN ABOVE.



4 HOLDING LATCH OPEN, POSITION CASE INTO SHUTTLE AND RELEASE LATCH.



5 CASE SHOULD LOCK INTO PLACE WHEN LATCH IS RELEASED.

## PREPARE YOUR TOP THREAD

FOR THREADING THE MACHINE, FOLLOW THE NUMBERS IN ORDER AS SHOWN ON THE ILLUSTRATION.

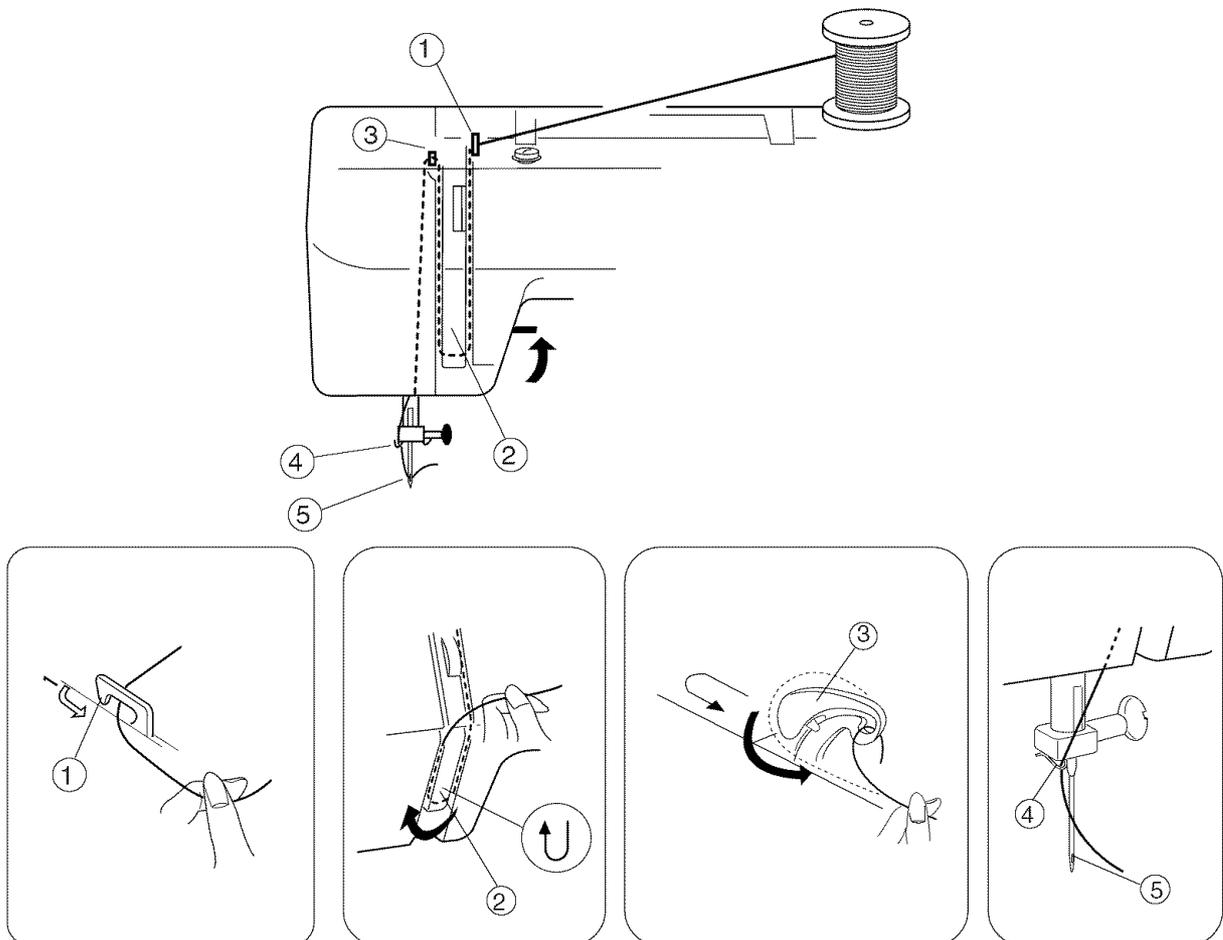
DOTTED LINES SHOW THE PLACES WHERE THE THREAD LOOPS AND THEN IS PULLED TIGHT.

RAISE THE PRESSER FOOT LEVER.

PLACE A SPOOL ON THE SPOOL PIN, WITH THREAD COMING OFF AS SHOWN.

1. DRAW THREAD THROUGH THE THREAD GUIDE.
2. HOLDING THREAD TAUT WITH RIGHT HAND, DRAW THREAD DOWN INTO THE TENSION AREA AND THEN AROUND THE CHECK SPRING HOLDER.
3. FIRMLY DRAW THREAD UP AND THROUGH THE TAKE-UP LEVER FROM RIGHT TO LEFT.
4. DRAW THREAD DOWN AGAIN AND SLIP IT INTO THE NEEDLE BAR THREAD GUIDE.
5. TREAD NEEDLE FROM FRONT TO BACK.

NOTE: YOU MAY WANT TO CUT THE END OF THREAD WITH SHARP SCISSORS FOR EASIER NEEDLE THREADING.



## WHAT TO DO WHEN

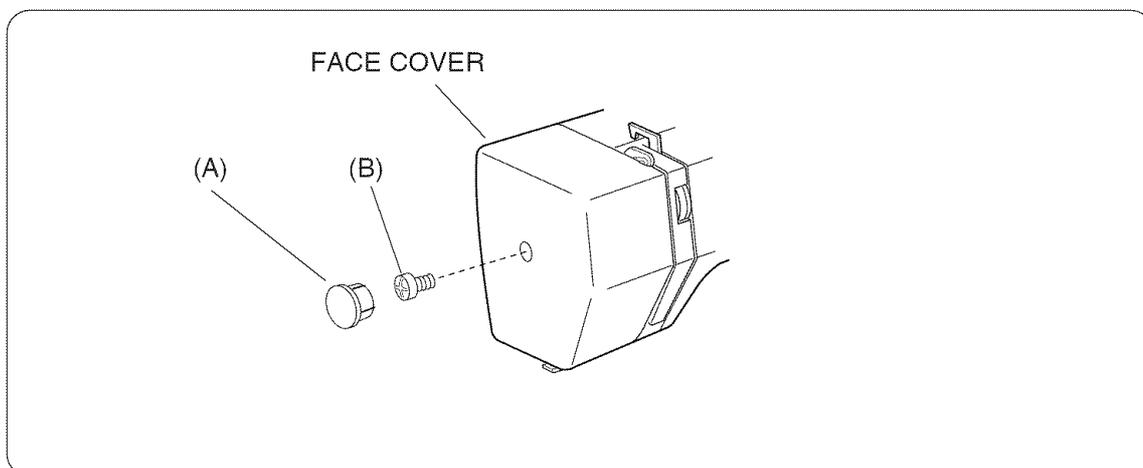
CONDITION	CAUSE	HOW TO FIX	REFERENCE
<p>1. SKIPPING STITCHES</p>	<p>1. NEEDLE IS NOT INSERTED PROPERLY.</p> <p>2. NEEDLE IS BENT OR WORN.</p> <p>3. INCORRECTLY THREADED</p> <p>4. NEEDLE OR THREAD ARE INAPPROPRIATE FOR FABRIC BEING SEWN.</p> <p>5. SEWING ON STRETCH FABRIC</p> <p>6. INAPPROPRIATE NEEDLE BAR HEIGHT</p> <p>7. INAPPROPRIATE NEEDLE TO HOOK TIMING</p> <p>8. INAPPROPRIATE NEEDLE TO HOOK CLEARANCE</p>	<p>INSERT THE NEEDLE PROPERLY.</p> <p>CHANGE THE NEEDLE.</p> <p>RETHREAD.</p> <p>USE THE RECOMMENDED SEWING NEEDLE AND THREAD.</p> <p>USE A #11 BLUE TIP NEEDLE.</p> <p>SEE MECHANICAL ADJUSTMENT "NEEDLE BAR HEIGHT."</p> <p>SEE MECHANICAL ADJUSTMENT "NEEDLE TIMING TO SHUTTLE."</p> <p>SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK."</p>	<p>P.19</p> <p>P.20</p> <p>P.16,17</p>
<p>2. FABRIC NOT MOVING</p>	<p>1. INCORRECT FEED DOG HEIGHT</p> <p>2. THREAD ON BOTTOM SIDE OF FABRIC IS JAMMED UP.</p> <p>3. FEED DOG TEETH ARE WORN.</p>	<p>SEE MECHANICAL ADJUSTMENT "FEED DOG HEIGHT."</p> <p>MAKE SURE TO BRING BOTH NEEDLE AND BOBBIN THREADS UNDER THE FOOT WHEN STARTING SEWING.</p> <p>CHANGE THE FEED DOG.</p>	<p>P.18</p>

CONDITION	CAUSE	HOW TO FIX	REFERENCE
3. BREAKING UPPER THREAD	<ol style="list-style-type: none"> <li>1. INITIAL SEWING SPEED IS TOO FAST.</li> <li>2. THREAD PATH IS INCORRECT.</li> <li>3. NEEDLE IS BENT OR DULL.</li> <li>4. UPPER THREAD TENSION IS TOO STRONG.</li> <li>5. NEEDLE SIZE IS INAPPROPRIATE FOR FABRIC.</li> <li>6. NEEDLE EYE IS WORN.</li> <li>7. NEEDLE HOLE IN NEEDLE PLATE IS WORN OR BURRED.</li> </ol>	<p>START WITH MEDIUM SPEED.</p> <p>USE THE PROPER THREAD PATH.</p> <p>REPLACE WITH A NEW NEEDLE.</p> <p>ADJUST UPPER THREAD TENSION CORRECTLY.</p> <p>USE APPROPRIATE NEEDLE AND THREAD FOR FABRIC IN USE.</p> <p>CHANGE THE NEEDLE.</p> <p>REPAIR THE HOLE OR REPLACE THE NEEDLE PLATE.</p>	P.11
4. BREAKING BOBBIN THREAD	<ol style="list-style-type: none"> <li>1. INCORRECTLY THREADED BOBBIN CASE.</li> <li>2. TOO MUCH THREAD IS WOUND ON THE BOBBIN.</li> <li>3. LINT IS STUCK INSIDE THE HOOK RACE.</li> <li>4. THREAD QUALITY IS TOO LOW.</li> <li>5. THREAD IS JAMMING AROUND THE BOBBIN.</li> <li>6. BOBBIN THREAD TENSION IS TOO STRONG.</li> </ol>	<p>THREAD BOBBIN CASE CORRECTLY.</p> <p>ADJUST THE POSITION OF STOPPER.</p> <p>CLEAN THE HOOK RACE.</p> <p>CHANGE TO A HIGH QUALITY SEWING THREAD.</p> <p>CLEAR OUT THE JAMMING THREAD.</p> <p>ADJUST BOBBIN THREAD TENSION CORRECTLY.</p>	P.12
5. NEEDLE BREAKS	<ol style="list-style-type: none"> <li>1. NEEDLE IS HITTING THE NEEDLE PLATE.</li> <li>2. NEEDLE IS BENT OR WORN.</li> <li>3. NEEDLE IS HITTING THE HOOK RACE.</li> <li>4. THE FABRIC MOVES WHILE THE NEEDLE IS PIERCING IT, OR THE NEEDLE ZIGZAGS WHILE IN FABRIC.</li> <li>5. FABRIC IS BEING PULLED TOO STRONGLY WHILE SEWING.</li> </ol>	<p>SEE MECHANICAL ADJUSTMENT "NEEDLE DROP."</p> <p>CHANGE THE NEEDLE.</p> <p>SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK".</p> <p>SEE MECHANICAL ADJUSTMENT "NEEDLE SWING".</p> <p>GUIDE THE FABRIC GENTLY WHILE SEWING.</p>	<p>P.15</p> <p>P.16, 17</p> <p>P.14</p>

CONDITION	CAUSE	HOW TO FIX	REFERENCE
<p>6. NOISY OPERATION</p>	<p>1. BACKLASH BETWEEN SHUTTLE HOOK GEAR AND LOWER SHAFT GEAR IS TOO GREAT.</p>	<p>SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK (NO.2)".</p>	<p>P.17</p>
	<p>2. LOWER SHAFT GEAR IS LOOSE.</p>	<p>ELIMINATE THE LOOSENESS.</p>	
	<p>3. INAPPROPRIATE BELT TENSION.</p>	<p>SEE MECHANICAL ADJUSTMENT "MOTOR BELT TENSION".</p>	<p>P.26</p>
	<p>4. UPPER SHAFT GEAR IS LOOSE.</p>	<p>ELIMINATE THE LOOSENESS.</p>	
	<p>5. NOT ENOUGH OIL.</p>	<p>OIL ALL MOVING PARTS.</p>	
<p>7. DEFORMATION PATTERN</p>	<p>1. INAPPROPRIATE ZIGZAG SYNCHRONIZATION.</p>	<p>SEE MECHANICAL ADJUSTMENT "NEEDLE SWING".</p>	<p>P.14</p>
	<p>2. INAPPROPRIATE DISENGAGEMENT OF CAM FOLLOWER.</p>	<p>SEE MECHANICAL ADJUSTM "DISENGAGEMENT OF CAM FOLLOWER".</p>	<p>P.24</p>
	<p>3. UPPER THREAD TENSION IS TOO STRONG.</p>	<p>ADJUST UPPER THREAD TENSION CORRECTLY.</p>	<p>P.11</p>

## SERVICE ACCESS

### FACE COVER



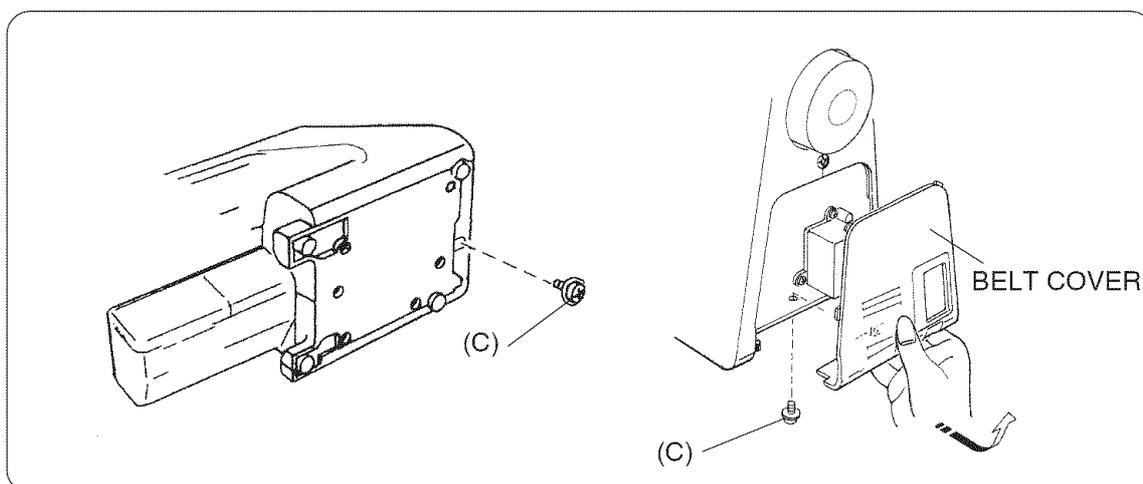
#### TO REMOVE:

1. REMOVE THE FACE COVER BY REMOVING THE CAP (A) AND SETSCREW (B).

#### TO ATTACH:

2. FOLLOW THE ABOVE PROCEDURE IN REVERSE.

### BELT COVER



#### TO REMOVE:

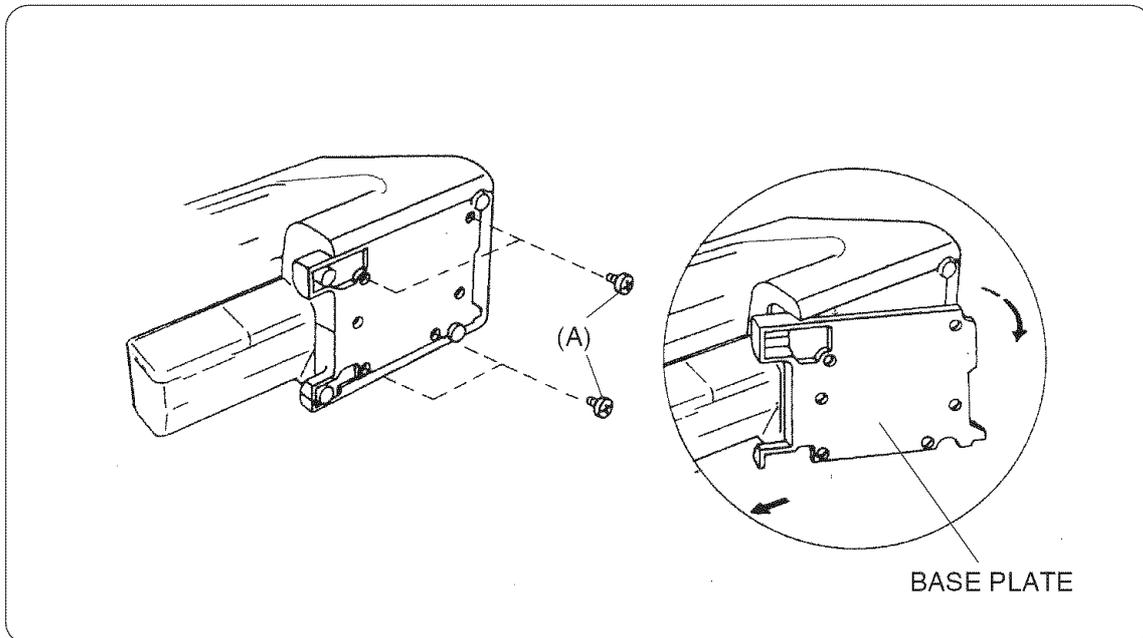
1. LOOSEN SETSCREW (C).
2. TAKE THE BELT COVER OUT.

#### TO ATTACH:

3. FOLLOW THE ABOVE PROCEDURE IN REVERSE.

## SERVICE ACCESS

### BASE PLATE



#### TO REMOVE:

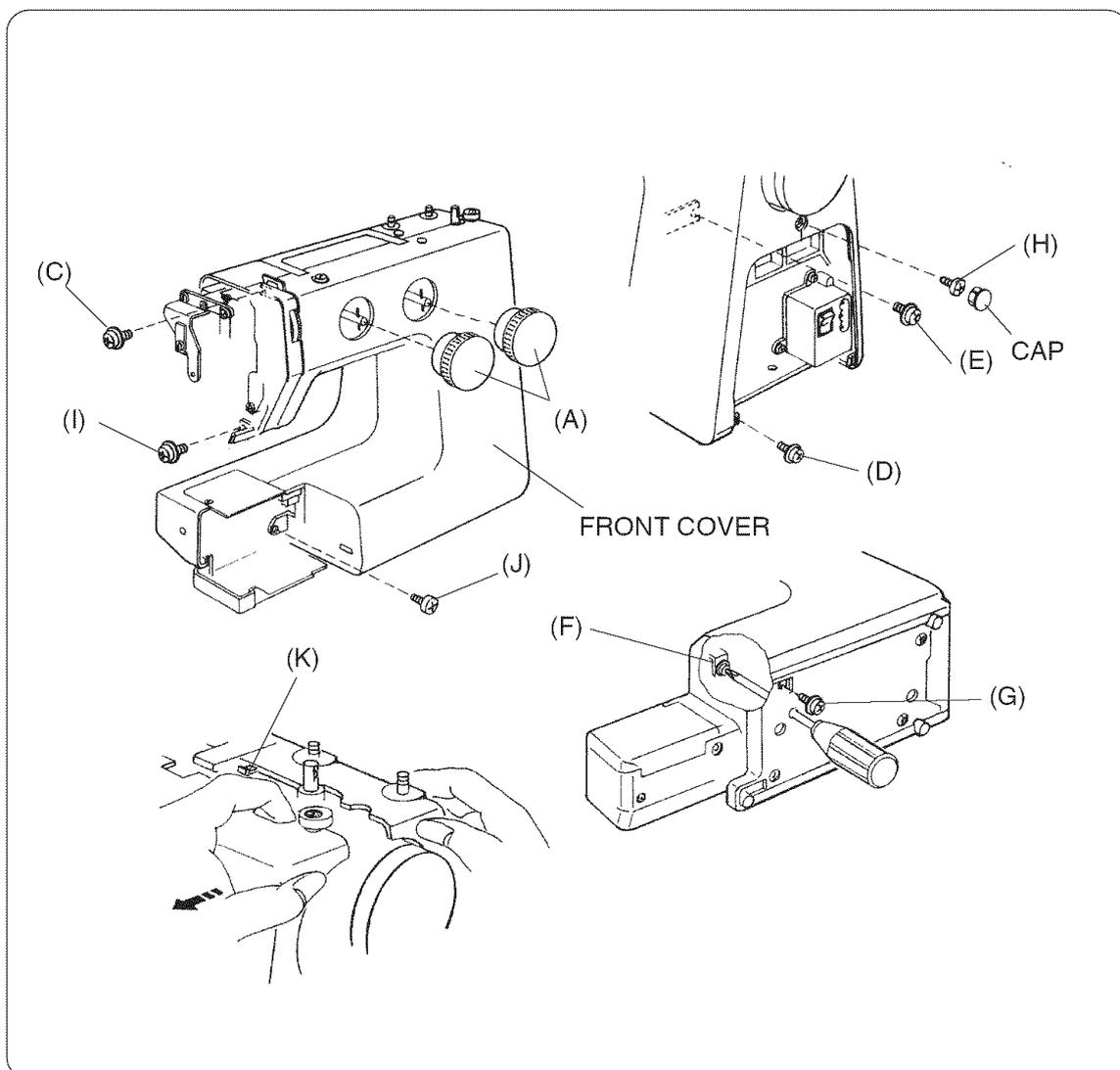
1. LOOSEN THE SETSCREWS (A).
2. REMOVE THE BASE PLATE.

#### TO ATTACH:

3. MOUNT THE BASE PLATE AND SECURE IT WITH FOUR SETSCREWS.

# SERVICE ACCESS

## FRONT COVER



### TO REMOVE:

1. REMOVE THE FACE COVER, AND REMOVE THE BELT COVER (SEE PAGE 7).
2. REMOVE DIALS (A).
3. LOOSEN SETSCREWS (C), (D), (E), (F), AND (G), REMOVE SETSCREWS (H), (I) AND (J), AND THEN, REMOVE THE FRONT COVER.

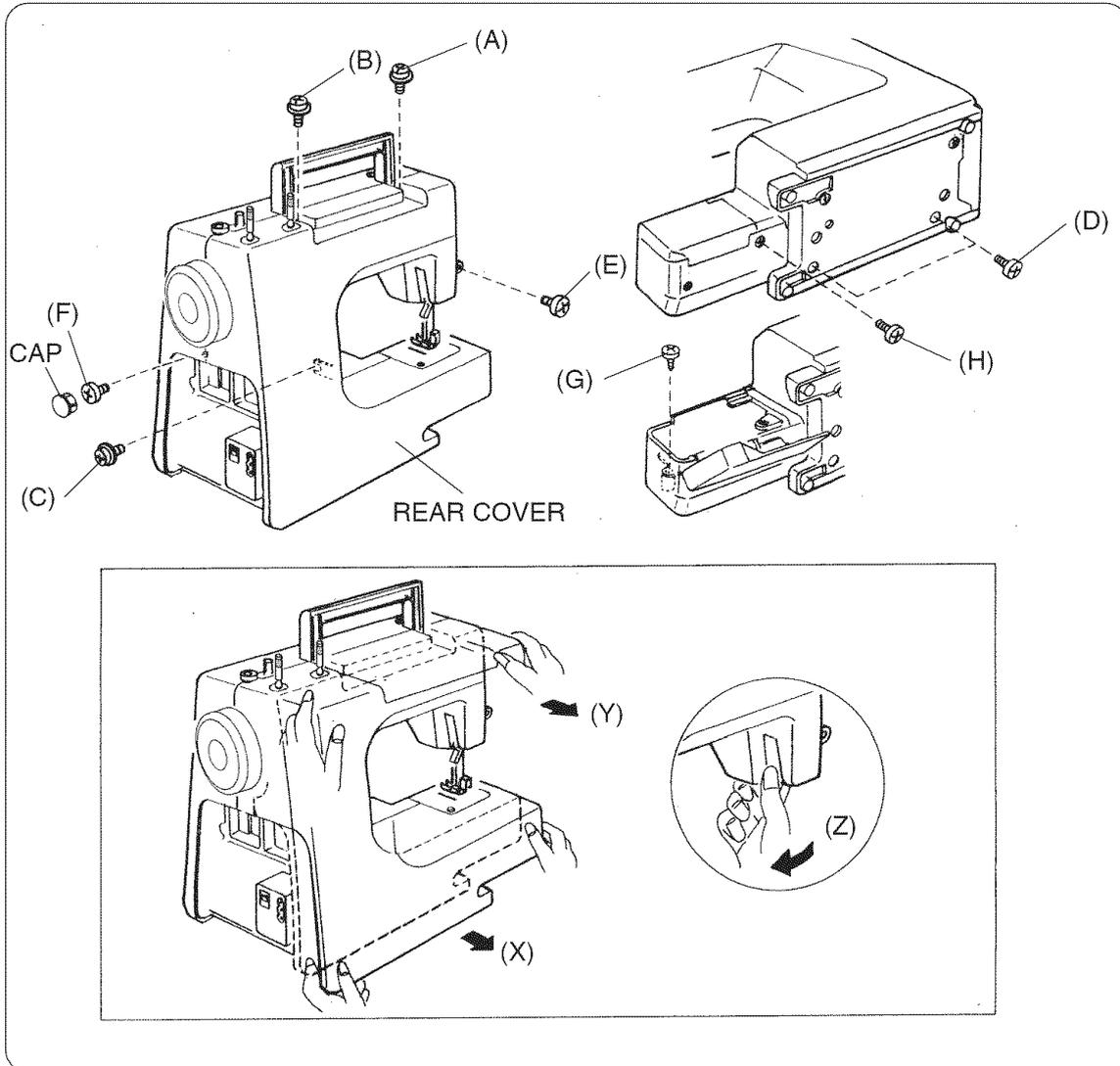
**NOTE:** UNHOOK THE TAB (K) OF THE REAR COVER WHEN REMOVING THE FRONT COVER.

### TO ATTACH:

4. MOUNT THE FRONT COVER IN REVERSE PROCEDURE OF THE REMOVING.

# SERVICE ACCESS

## REAR COVER



### TO REMOVE:

1. REMOVE THE FACE COVER AND BELT COVER (SEE PAGE 7).  
**NOTE:** PULL UP THE SPOOL PINS.
2. LOOSEN SETSCREWS (A), (B), (C) AND (D) (2 PCS.), REMOVE SETSCREWS (E), (F), (G) AND (H), AND THEN, REMOVE THE REAR COVER.  
**NOTE:** REMOVE THE REAR COVER IN THE ORDER OF (X) (LOWER PART) → (Y) (UPPER PART) → (Z) (PRESSER FOOT LIFTER PART). (REMOVE THE BED COVER TOGETHER.)

### TO ATTACH:

3. MOUNT THE REAR COVER IN REVERSE PROCEDURE OF THE REMOVING.

# MECHANICAL ADJUSTMENT

## NEEDLE THREAD TENSION

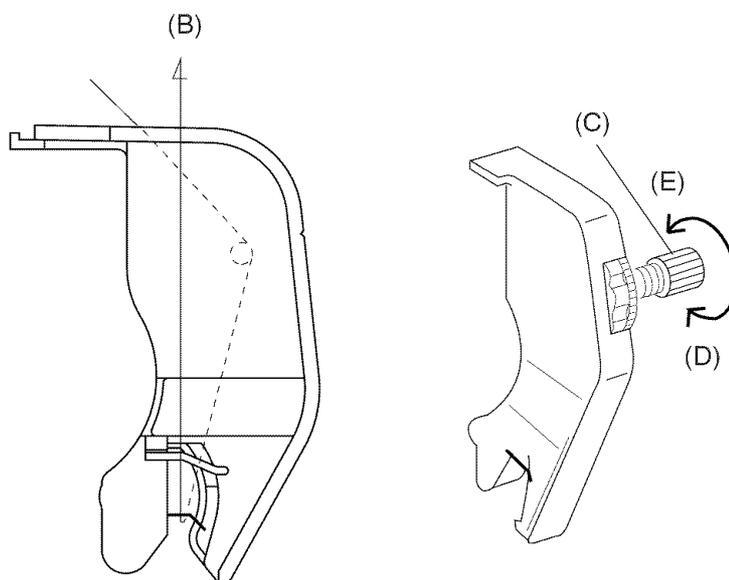
### TO CHECK:

THE STANDARD UPPER THREAD TENSION SHOULD BE 65–95 g WHEN PULLING THE THREAD (COTTON THREAD #50) IN THE DIRECTION OF (B) WITH SETTING THE TENSION DIAL AT “3.” (MAKE SURE THE FOOT SHOULD BE LOWERED.)

IF THE TENSION IS OUT OF THE STANDARD RANGE, ADJUST IT AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. REMOVE THE FRONT COVER UNIT (SEE PAGE 9).
2. TURN THE ADJUSTING NUT (C) IN THE DIRECTION OF (D) WHEN THE UPPER THREAD TENSION IS TOO TIGHT.  
TURN THE ADJUSTING NUT (C) IN THE DIRECTION OF (E) WHEN THE UPPER THREAD TENSION IS TOO LOOSE.
3. ATTACH THE FRONT COVER UNIT.



# MECHANICAL ADJUSTMENT

## BOBBIN TENSION

### TO CHECK:

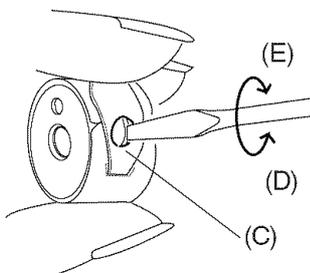
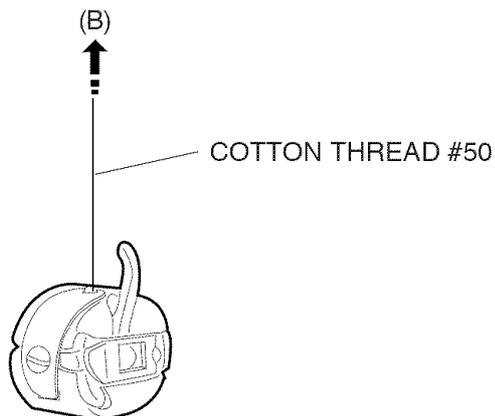
SET THE BOBBIN IN THE BOBBIN CASE AND PASS THE THREAD (COTTON #50) THROUGH THE TENSION SPRING.

THE BOBBIN THREAD TENSION SHOULD BE 45–55g WHEN PULLING THE THREAD IN THE DIRECTION OF (B).

IF THE TENSION IS OUT OF THE RANGE, ADJUST IT AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. TURN THE ADJUSTING SCREW (C) IN THE DIRECTION OF (D) WHEN THE BOBBIN THREAD TENSION IS TOO TIGHT.
2. TURN THE ADJUSTING SCREW (C) IN THE DIRECTION OF (E) WHEN THE BOBBIN THREAD TENSION IS TOO LOOSE.



# MECHANICAL ADJUSTMENT

## PRESSER BAR HEIGHT AND ALIGNMENT

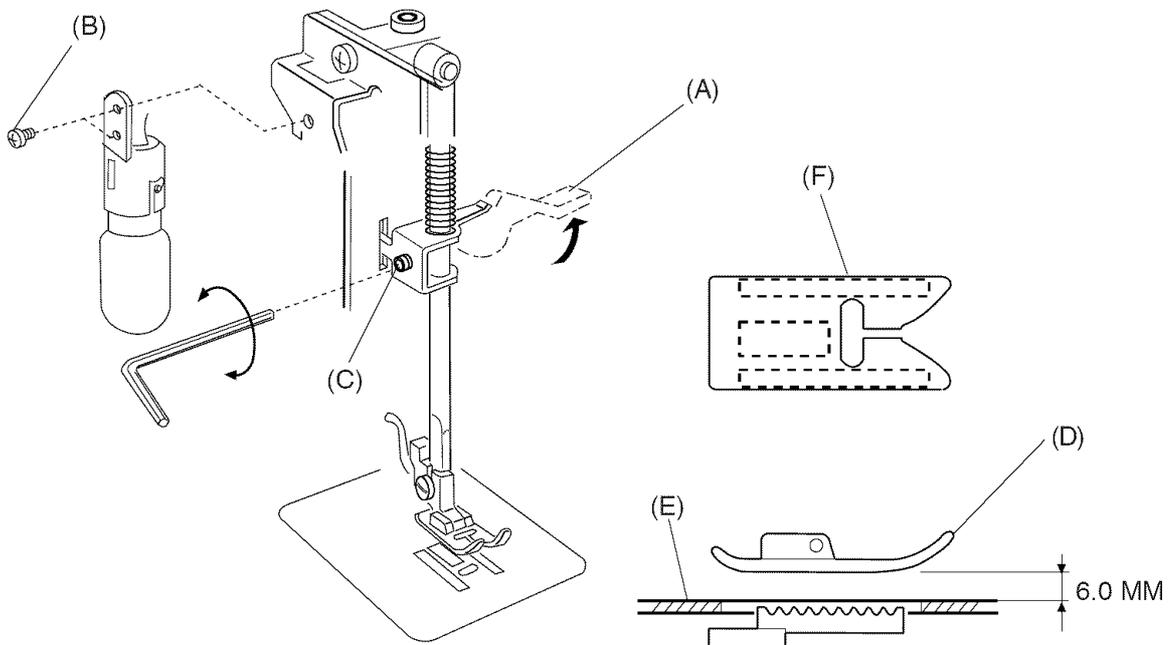
### TO CHECK:

1. RAISE THE PRESSER FOOT LIFTER (A).
2. THE DISTANCE BETWEEN THE PRESSER FOOT (D) AND THE NEEDLE PLATE (E) SHOULD BE 6.0 MM (0.24").

### ADJUSTMENT PROCEDURE:

1. REMOVE THE FACE COVER (SEE PAGE 7).
2. REMOVE THE SCREW (B) AND THE LAMP SOCKET, THEN LOOSEN THE SCREW (C) ON THE PRESSER BAR HOLDER.  
ADJUST THE DISTANCE BETWEEN THE PRESSER FOOT (D) AND THE NEEDLE PLATE (D) TO 6.0 MM (0.24").
3. TIGHTEN THE SCREW (C) SECURELY.
4. TIGHTEN THE SCREW (B) TO SECURE THE LAMP SOCKET.
5. ATTACH THE FACE COVER.

**NOTE:** WHEN YOU TIGHTEN THE SCREW (B), MAKE SURE THAT BOTH SIDES OF THE PRESSER FOOT ARE PARALLEL TO THE FEED DOG SLOTS (F) IN THE NEEDLE PLATE.



# MECHANICAL ADJUSTMENT

## NEEDLE SWING

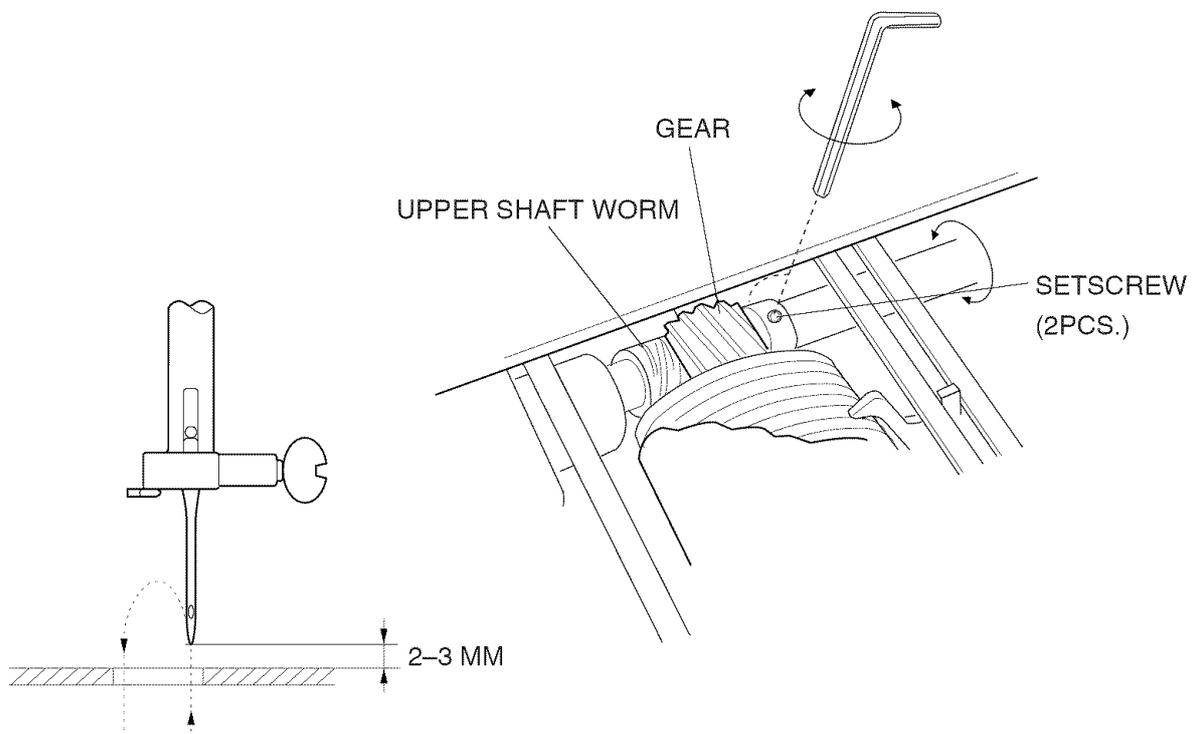
### TO CHECK:

ADJUST THE NEEDLE SWING ACCORDING TO THE FOLLOWING PROCEDURE, IF THE NEEDLE BAR STARTS MOVING SIDWAYS WHILE THE NEEDLE IS IN THE FABRIC AT SEWING THE ZIGZAG PATTERN (WITH MAXIMUM ZIGZAG WIDTH).

### ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL WITH MAXIMUM ZIGZAG WIDTH, AND REMOVE THE FRONT COVER (SEE PAGE 9).
2. LOOSEN TWO SETSCREWS.
3. ADJUST THE NEEDLE SWING BY TURNING THE HANDWHEEL, WHILE HOLDING THE WORM SO AS NOT TO ROTATE IT, UNTIL THE NEEDLE SWING STARTS 2-3 MM ABOVE THE NEEDLE PLATE AFTER THE NEEDLE HAS COME OUT OF THE RIGHT SIDE OF THE NEEDLE HOLE.
4. TIGHTEN TWO SETSCREWS.
5. MOUNT THE FRONT COVER.

**NOTE:** AFTER ADJUSTING THE NEEDLE SWING, CHECK THAT THE UPPER SHAFT WORM AND GEAR ROTATE SMOOTHLY WITHOUT ANY BACKLASH BETWEEN THEM.



# MECHANICAL ADJUSTMENT

## NEEDLE DROP

### TO CHECK:

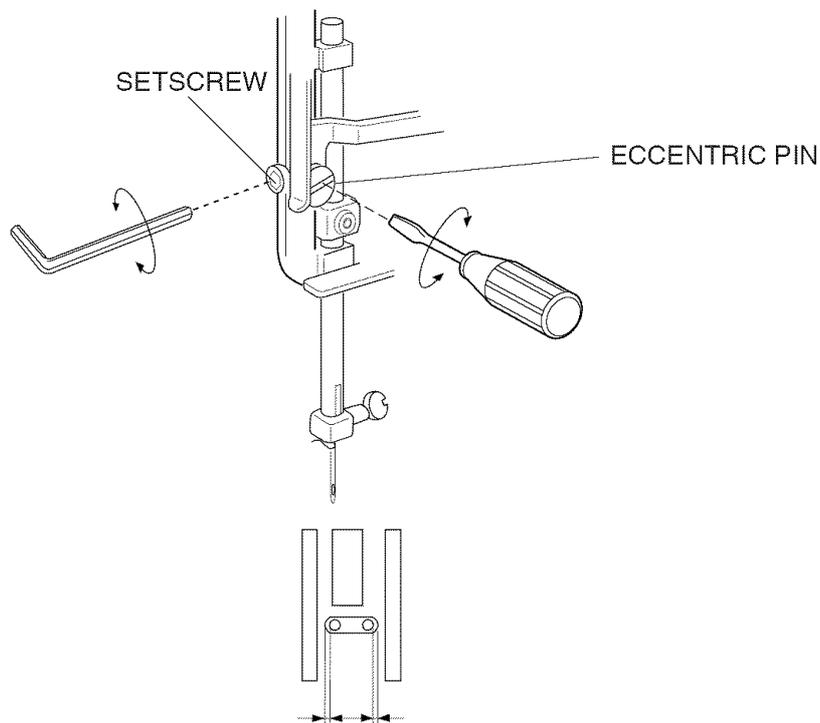
WHEN THE NEEDLE SWINGS IN MAXIMUM ZIGZAG WIDTH, THE DISTANCE BETWEEN BOTH ENDS OF THE NEEDLE HOLE IN THE NEEDLE PLATE AND THE NEEDLE DROP POSITIONS SHOULD BE EQUAL.

IF NOT, ADJUST AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. REMOVE THE FACE COVER (SEE PAGE 7).
2. SET THE PATTERN SELECTOR DIAL AT MAXIMUM ZIGZAG WIDTH.
3. LOOSEN THE SETSCREW.
4. TURN THE ECCENTRIC PIN TO ADJUST THE NEEDLE DROP.
5. TIGHTEN THE SETSCREW.
6. ATTACH THE FACE COVER.

**NOTE:** CHECK THE HOOK TIMING AFTER THIS ADJUSTMENT.



BOTH CLEARANCES SHOULD BE EQUAL

# MECHANICAL ADJUSTMENT

## CLEARANCE BETWEEN NEEDLE AND HOOK (ADJUSTMENT METHOD NO. 1)

### TO CHECK:

THE CLEARANCE BETWEEN THE NEEDLE AND SHUTTLE RACE SHOULD BE  $-0.05$  TO  $+0.10$  MM.

IF NOT, ADJUST AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. REMOVE THE FACE COVER (SEE PAGE 7).
2. SET THE PATTERN SELECTOR DIAL AT " 1 C D ".
3. LOOSEN SCREW (A), AND MOVE THE NEEDLE BAR SUPPORTER IN THE DIRECTION OF THE ARROWS TO GET A CLEARANCE BETWEEN  $-0.05$  TO  $+0.10$  MM.

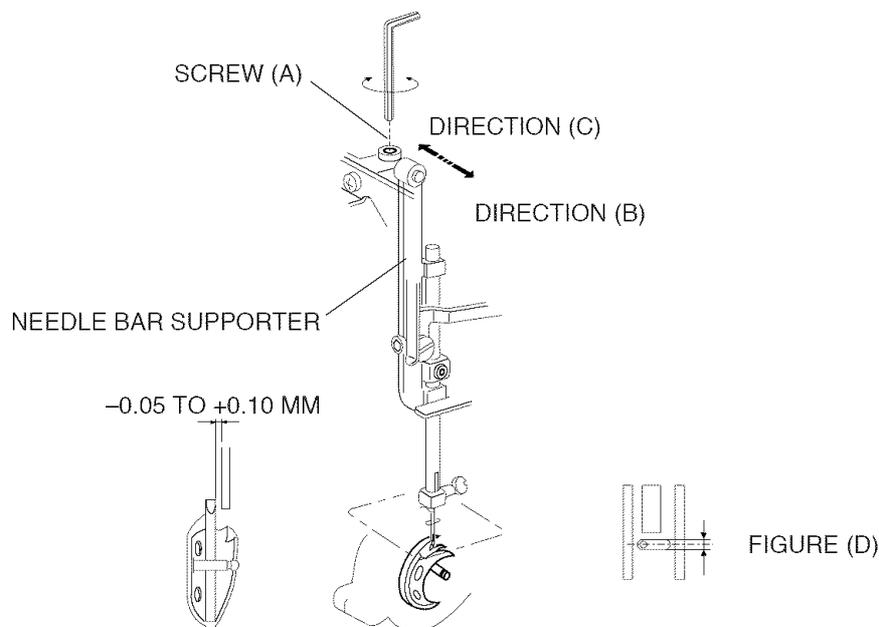
\* IF CLEARANCE IS TOO WIDE, MOVE THE NEEDLE BAR SUPPORTER IN THE DIRECTION (B).

\* IF CLEARANCE IS TOO NARROW, MOVE THE NEEDLE BAR SUPPORTER IN THE DIRECTION (C).

**NOTE:** AFTER THIS ADJUSTMENT, CHECK THAT THE CLEARANCE BETWEEN THE NEEDLE AND NEEDLE PLATE IS  $0.15$  MM OR MORE AS SHOWN IN FIGURE (D).

IF NOT, ADJUST THE CLEARANCE BETWEEN NEEDLE AND SHUTTLE RACE BY USING ADJUSTMENT METHOD NO. 2 (SEE PAGE 17).

4. ATTACH THE FACE COVER.



CLEARANCE BETWEEN NEEDLE AND NEEDLE PLATE SHOULD BE  $0.15$  MM OR MORE.

# MECHANICAL ADJUSTMENT

## CLEARANCE BETWEEN NEEDLE AND HOOK (ADJUSTMENT METHOD NO.2)

### TO CHECK:

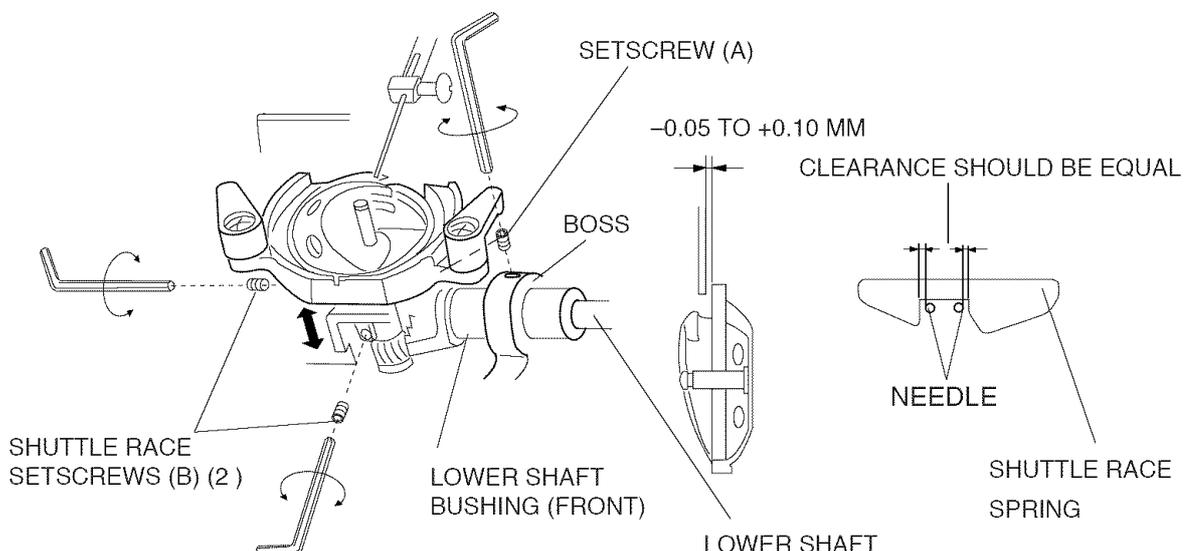
USE THIS ADJUSTMENT METHOD NO. 2 IF THE CLEARANCE CANNOT BE ADJUSTED BY METHOD NO.1.

THE CLEARANCE BETWEEN THE NEEDLE AND SHUTTLE RACE SHOULD BE  $-0.05$  TO  $+0.10$  MM.

### ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL AT "1C|D".
2. REMOVE THE REAR COVER (SEE PAGE 10).
3. LOOSEN THE SCREW (A) ON THE LOWER SHAFT BUSHING AND SLIDE THE GEAR ABOUT 0.5 MM TO THE RIGHT TO CREATE SOME BACKLASH BETWEEN THE GEARS.
4. LOWER THE NEEDLE AND LOOSEN THE TWO SHUTTLE RACE SETSCREWS (B). PULL UP OR PUSH DOWN THE SHUTTLE RACE TO ADJUST THE CLEARANCE BETWEEN THE NEEDLE AND THE SHUTTLE RACE IN THE RANGE OF  $-0.05$  TO  $+0.10$  MM.
5. SET THE PATTERN SELECTOR DIAL AT "3 $\approx$ ", TURN THE HANDWHEEL TO CHECK IF THE CLEARANCE BETWEEN THE NEEDLE AND INNER EDGES OF THE SHUTTLE RACE SPRING AT THE LEFT AND RIGHT NEEDLE DROPS ARE EQUAL. IF NOT, ADJUST BY TURNING THE SHUTTLE RACE UNIT.
6. TIGHTEN THE TWO SHUTTLE RACE SETSCREWS (B).
7. SLIDE THE GEAR BACK TO THE ORIGINAL POSITION WHILE ADJUSTING THE BACKLASH.
8. TIGHTEN SCREW (A) FIRMLY.
9. ATTACH THE REAR COVER.

**NOTE:** THE ROTARY PLAY OF THE TIP OF THE SHUTTLE DRIVER SHOULD BE 0.3 MM OR LESS AND THE LOWER SHAFT SHOULD TURN SMOOTHLY. AFTER THE ADJUSTMENT, CHECK THE HOOK TIMING.



# MECHANICAL ADJUSTMENT

## FEED DOG HEIGHT

### MACHINE SETTING

1. STITCH SELECTOR: " 1C|D "
2. NEEDLE BAR: AT ITS HIGHEST POSITION.

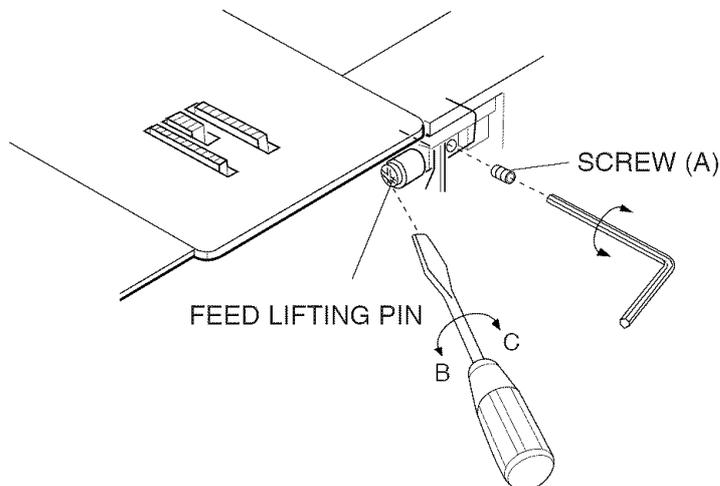
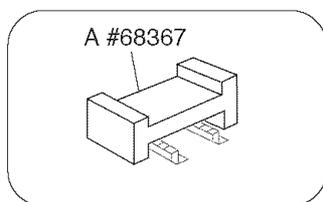
### TO CHECK:

1. RAISE THE PRESSER FOOT.
2. PLACE THE FEED DOG HEIGHT GAUGE #68367 "A" ON THE NEEDLE PLATE.
3. TURN THE HANDWHEEL TOWARD YOU BY HAND AND CHECK THE FEED DOG HEIGHT. REFER TO CHART BELOW.

### ADJUSTMENT PROCEDURE:

1. OPEN THE SHUTTLE COVER. LOOSEN THE SCREW (A).
2. ADJUST THE FEED DOG HEIGHT BY TURNING THE FEED LIFTING PIN.
- \* WHEN THE FEED DOG HEIGHT IS HIGHER THAN THE STANDARD RANGE, TURNS THE FEED LIFTING PIN IN THE DIRECTION OF "B".
- \* WHEN THE FEED DOG HEIGHT IS LOWER THAN THE STANDARD RANGE, TURN THE FEED LIFTING PIN IN THE DIRECTION OF "C".

GAUGE		FEED DOG HEIGHT
FACE (A) 1.25 MM	FACE (B) (RED) 1.00 MM	
NOT MOVING	MOVING	CORRECT
NOT MOVING	NOT MOVING	LOW
MOVING	MOVING	HIGH



# MECHANICAL ADJUSTMENT

## NEEDLE BAR HEIGHT

### MACHINE SETTING:

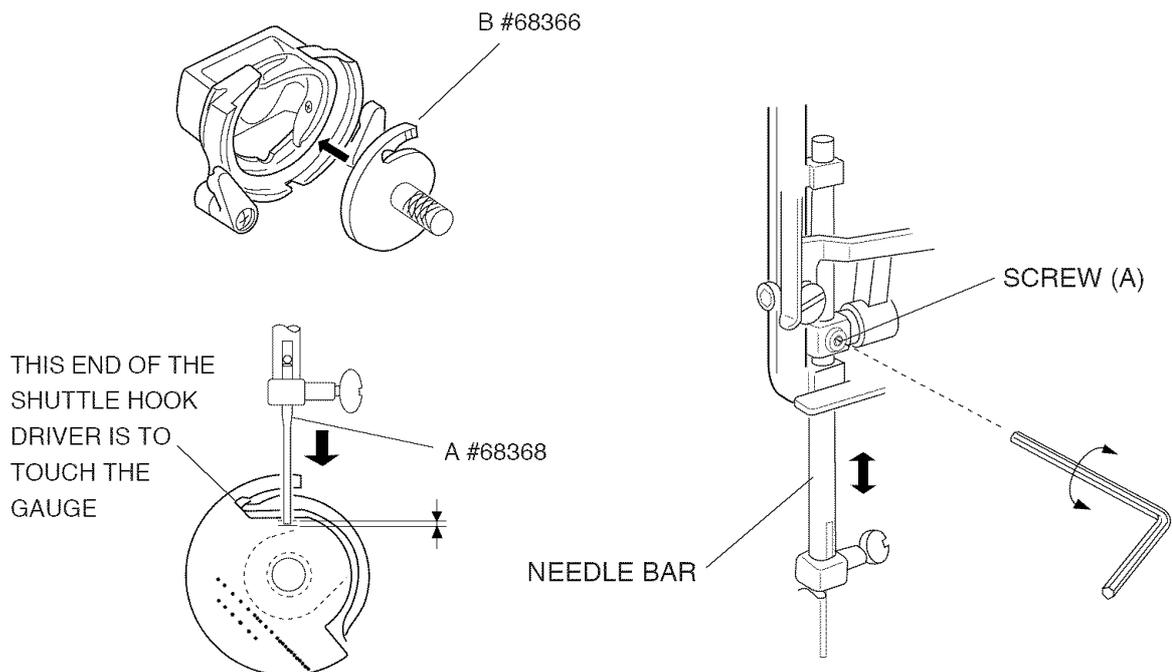
1. SET SELECTOR: "1C|D"

### TO CHECK:

1. OPEN THE SHUTTLE COVER.
2. REPLACE THE NEEDLE WITH THE TEST PIN #68368 "A".
3. REMOVE THE SHUTTLE HOOK AND INSERT THE RADIAL TIMING GAUGE #68366 "B" ONTO THE SHUTTLE DRIVER.
4. TURN THE HANDWHEEL TOWARD YOU BY HAND UNTIL THE NEEDLE BAR REACHES ITS LOWEST POSITION.
5. THE TIP OF THE TEST PIN #68368 "A" SHOULD BE IN BETWEEN THE TWO HORIZONTAL LINES ENGRAVED ON THE RADIAL TIMING GAUGE #68366 "B".

### ADJUSTMENT PROCEDURE:

1. REMOVE FACE COVER (SEE PAGE 7).
2. LOOSEN THE SCREW (A) OF THE NEEDLE BAR HOLDER.
3. MOVE THE NEEDLE BAR UP OR DOWN BY HAND UNTIL THE TIP OF THE TEST PIN #68368 "A" COMES IN BETWEEN THE TWO HORIZONTAL PARALLEL LINES ENGRAVE ON THE RADIAL TIMING GAUGE #68366 "B".
4. TIGHTEN THE SCREW (A) SECURELY.
5. ATTACH THE FRONT COVER.



# MECHANICAL ADJUSTMENT

## NEEDLE TIMING TO SHUTTLE

### MACHINE SETTING

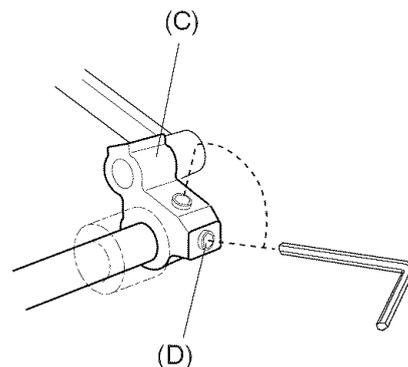
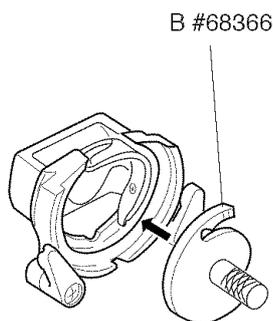
1. STITCH SELECTOR: " 1C D "

### TO CHECK:

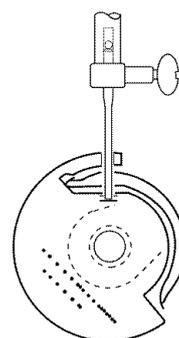
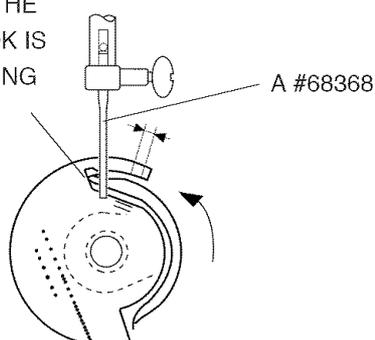
1. OPEN THE SHUTTLE COVER.
2. REPLACE THE NEEDLE WITH THE TEST PIN #68368 (A).
3. REMOVE THE SHUTTLE HOOK AND INSERT THE RADIAL TIMING GAUGE #68366 (B) ONTO THE SHUTTLE DRIVER.
4. TURN THE HANDWHEEL TOWARD YOU BY HAND UNTIL THE NEEDLE BAR REACHES ITS LOWEST POSITION.
5. THE TEST PIN #68368 (A) SHOULD BE IN BETWEEN THE TWO VERTICAL LINES ENGRAVED ON THE RADIAL TIMING GAUGE #68366 (B).

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BASE PLATE (SEE PAGE 8).
2. LOOSEN THE SCREWS (C) AND (D).
3. ROTATE THE SHUTTLE DRIVER UNTIL THE TIP TEST PIN #68368 (A) COMES IN BETWEEN THE TWO VERTICAL LINES ENGRAVED ON THE RADIAL TIMING GAUGE #68366 (B).
4. TIGHTEN THE SCREWS (C) AND (D) SECURELY.
5. ATTACH THE FRONT COVER, THE BASE PLATE, AND THE BELT COVER.



THIS END OF THE SHUTTLE HOOK IS TO BE TOUCHING THE GAUGE



# MECHANICAL ADJUSTMENT

## BUTTONHOLE FEED BALANCE

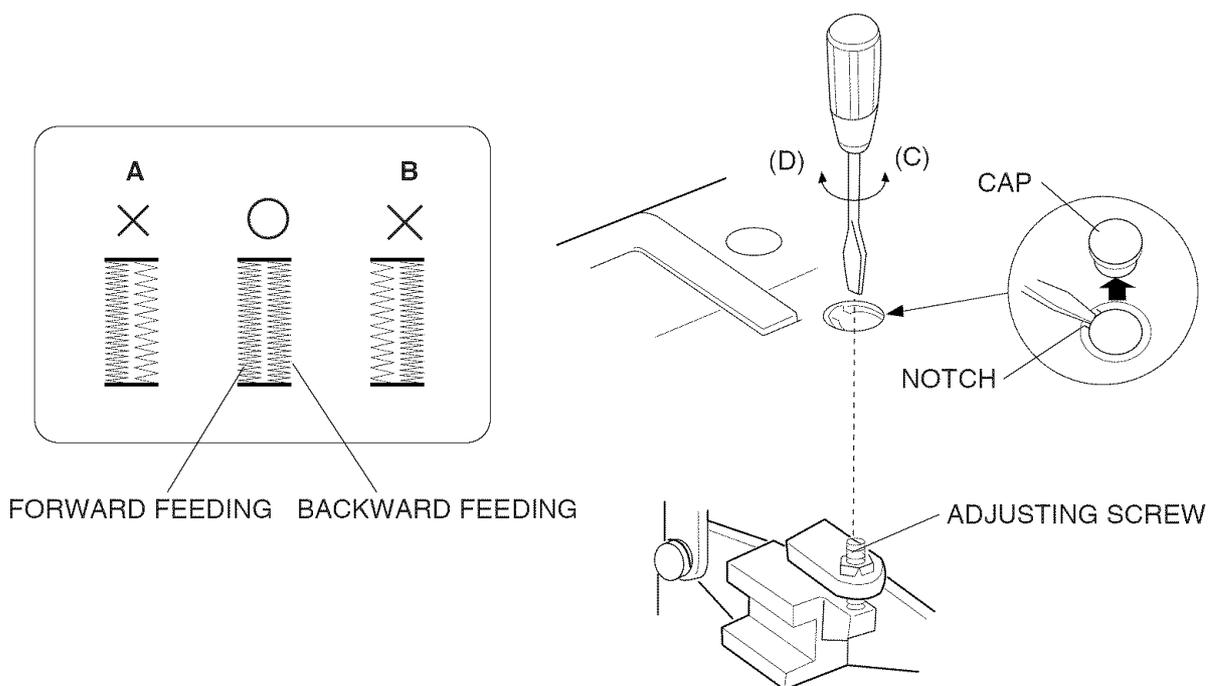
### TO CHECK:

WHEN SEWING BUTTONHOLE, THE STITCHES ON EACH SIDE OF BUTTONHOLE SHOULD BE THE SAME STITCH DENSITY.

THE RANGE OF 9-12 STITCHES IN THE RIGHT SIDE ROW (BACKWARD FEEDING) AGAINST 10 STITCHES IN THE LEFT SIDE ROW (FORWARD FEEDING) IS CONSIDERED ACCEPTABLE.

### ADJUSTMENT PROCEDURE:

1. CHECK THE FEED BALANCE BY SEWING BUTTONHOLES.
2. REMOVE THE CAP ON THE FRONT COVER.
3. TURN THE ADJUSTING SCREW IN THE DIRECTION OF (C) IN CASE OF (A) (RIGHT STITCHES ARE COARSE), OR IN THE DIRECTION OF (D) IN CASE OF (B) (LEFT STITCHES ARE COARSE).
4. MOUNT THE CAP.



# MECHANICAL ADJUSTMENT

## DISTORTED PATTERN

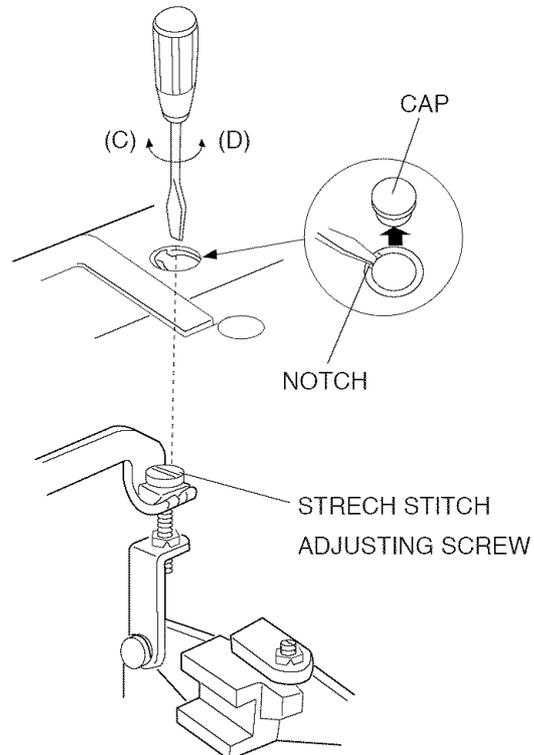
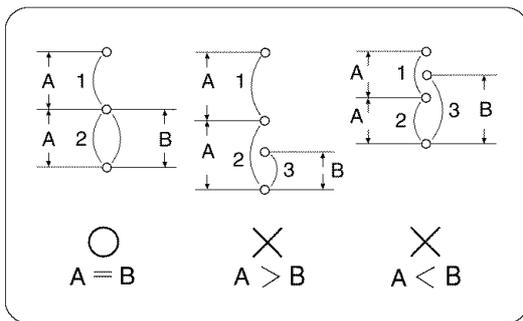
### TO CHECK:

IF THE STRETCH STITCH PATTERNS ARE DISTORTED WITH SETTING THE STITCH LENGTH DIAL AT “ ▼ ”.

(IN CASE OF BEING A DIFFERENCE BETWEEN FORWARD FEEDING AND BACKWARD FEEDING DURING STRETCH STITCH PATTERNS), MAKE AN ADJUSTMENT AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. REMOVE THE CAP.
2. SET THE PATTERN SELECTOR DIAL AT “ 1 ⊕ ”, AND THE STITCH LENGTH DIAL AT “ ▼ ”.
3. TURN THE STRETCH STITCH ADJUSTING SCREW IN THE DIRECTION OF (C) WHEN  $A > B$ , OR IN THE DIRECTION OF (D) WHEN  $A < B$ .
4. MOUNT THE CAP.



# MECHANICAL ADJUSTMENT

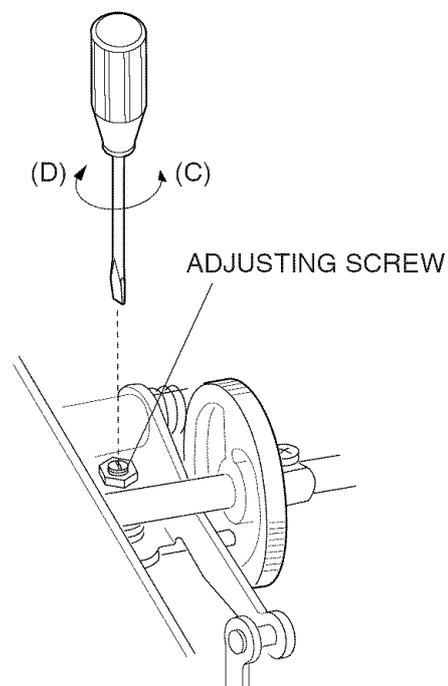
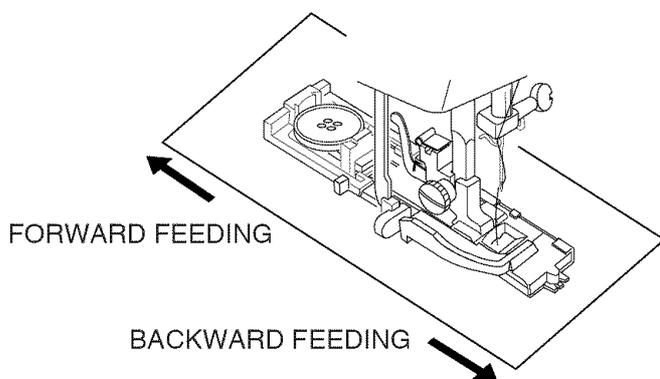
## BARTACK FEED OF BUTTONHOLE

### TO CHECK:

IF THE MATERIAL IS FED FORWARD OR BACKWARD WHEN SEWING BARTACK ON BUTTONHOLE, MAKE AN ADJUSTMENT AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL AT "□" AND THE STITCH LENGTH DIAL AT "4".
2. REMOVE THE FRONT COVER (SEE PAGE 9).
3. PLACE A PIECE OF PAPER UNDER THE FOOT AND TURN THE HANDWHEEL.  
IF THE PAPER IS FED FORWARD, TURN THE ADJUSTING SCREW IN THE DIRECTION OF (C).  
IF THE PAPER IS FED BACKWARD, TURN THE ADJUSTING SCREW IN THE DIRECTION OF (D).
4. ATTACH THE FRONT COVER.



# MECHANICAL ADJUSTMENT

## DISENGAGEMENT OF CAM FOLLOWER

### TO CHECK:

IF THE CLEARANCE BETWEEN THE CAM FOLLOWER AND THE TOP CONVEX OF THE ZIGZAG CAM IS NOT ENOUGH, THE PATTERN SELECTOR DIAL IS BLOCKED OR WILL NOT SELECT THE CORRECT PATTERN.

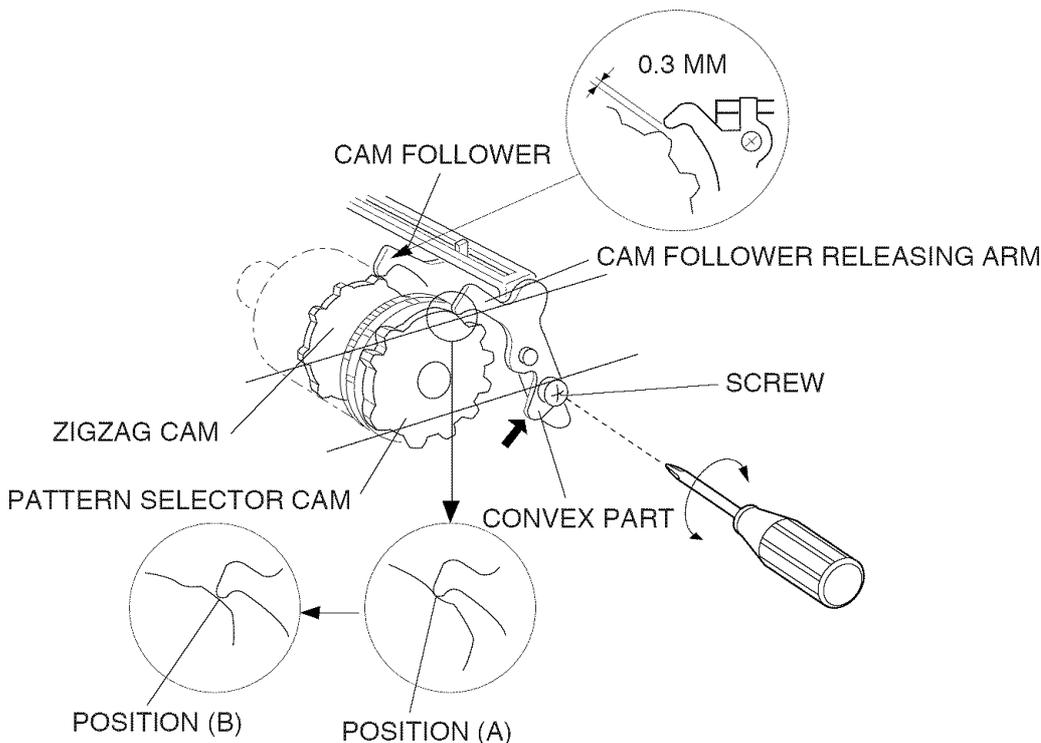
### ADJUSTMENT PROCEDURE:

1. REMOVE THE FRONT COVER (SEE PAGE 9).
2. SET THE PATTERN SELECTOR DIAL AT PATTERN "1C:D".
3. PUT THE CAM FOLLOWER TO THE ZIGZAG CAM AND PUT THE CAM FOLLOWER RELEASING ARM TO THE PATTERN SELECTOR CAM.
4. LOOSEN THE SET SCREW.
5. PUSH THE CONVEX PART OF THE CAM FOLLOWER RELEASING ARM IN THE DIRECTION OF ARROW UNTIL THE CAM FOLLOWER RELEASING ARM TOUCHES POSITION (A) OF THE PATTERN SELECTOR CAM, AND THEN, TIGHTEN THE SETSCREW.

**NOTE:** AFTER THIS ADJUSTMENT, CHECK THAT THE CLEARANCE BETWEEN THE ZIGZAG CAM AND THE CAM FOLLOWER IS ABOUT 0.3 MM WHEN SETTING THE CAM FOLLOWER RELEASING ARM ONTO POSITION (B) OF PATTERN SELECTOR CAM.

6. MOUNT THE FRONT COVER.

NOTE: CHECK THE NEEDLE MOVEMENT FOR STRAIGHT STITCH.



# MECHANICAL ADJUSTMENT

## BUTTONHOLE FUNCTION

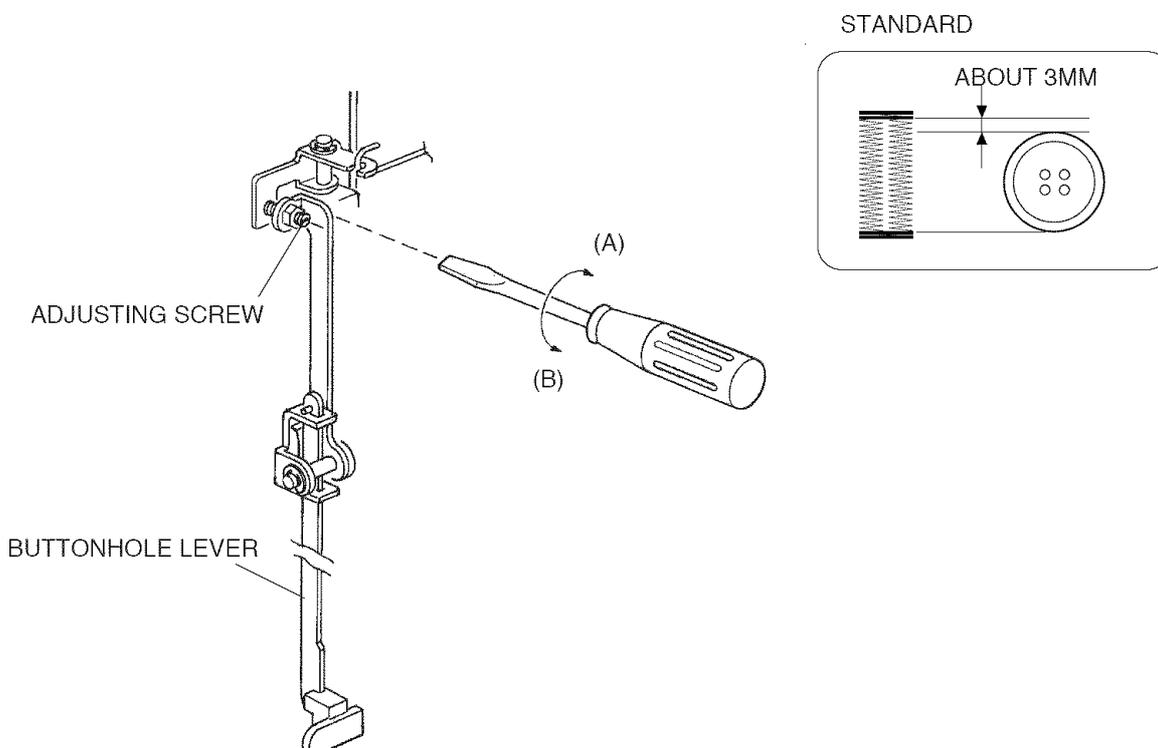
### TO CHECK:

BUTTONHOLES SHOULD BE ABOUT 3MM LONGER THAN THE LENGTH SET BY THE FOOT.

IF THIS LENGTH CANNOT BE OBTAINED, THEN CHECK AND ADJUST AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. OPEN THE FACE COVER (SEE PAGE 4).
2. TURN THE ADJUSTING SCREW IN THE DIRECTION OF (A) IF THE BUTTONHOLE STITCH LENGTH IS LONGER THAN THE STANDARD, OR IN THE DIRECTION OF (B) IF THE BUTTONHOLE STITCH LENGTH IS SHORTER THAN THE STANDARD.
3. ATTACH THE FACE COVER.



# MECHANICAL ADJUSTMENT

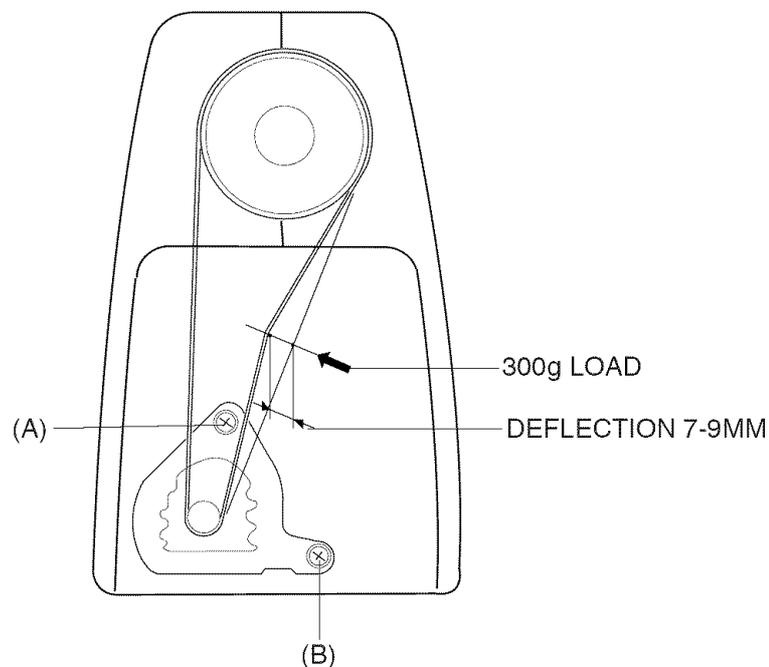
## MOTOR BELT TENSION

### TO CHECK:

1. IMPROPER BELT TENSION MAY CAUSE NOISE, OVERLOAD OF MOTOR, SLOW RUNNING OR MOTOR BELT JUMPING.
2. THE BELT DEFLECTION SHOULD BE 7 MM - 9 MM WHEN PRESSING THE MIDDLE OF THE MOTOR BELT WITH APPROXIMATELY 300 GRAMS OF PRESSURE.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BELT COVER (SEE PAGE 7).
2. LOOSEN THE SCREWS (A) AND (B).
3. MOVE THE MOTOR UP OR DOWN TO ADJUST THE DEFLECTION ABOUT 7 MM -9 MM.
4. TIGHTEN THE SCREWS (A) AND (B).
5. ATTACH THE BELT COVER.



# MECHANICAL ADJUSTMENT

## TO REPLACE NEEDLE THREADER PLATE

### TO REMOVE

1. REMOVE THE FOOT HOLDER.
2. PULL OUT THE THREADER PLATE UNIT (A).

### TO ATTACH

3. PUSH THE THREADER PLATE UNIT (A) UP TO SNAP IT WITH THE PIN (B) AS SHOWN IN FIG.1.
4. ATTACH THE FOOT HOLDER.

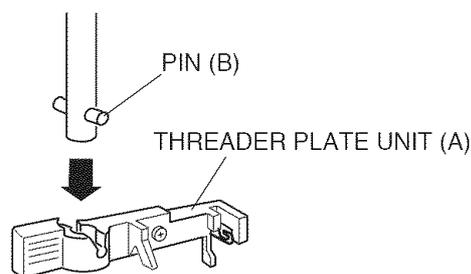
### TO ADJUST THE POSITION OF THE THREADER PLATE (C)

IF THE THREADER PLATE IS SLIGHTLY OUT OF ALIGNMENT, LOOSEN THE SETSCREW (D) AND ADJUST THE POSITION AS SHOWN IN FIG.2.

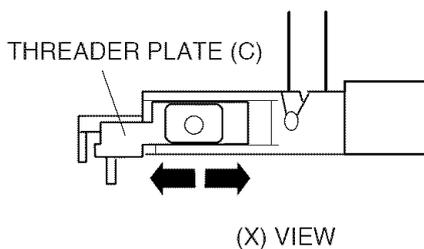
IF THE ABOVE WAY OF ADJUSTMENT IS NOT APPLICABLE, MAKE THE ADJUSTMENT AS SHOWN IN FIG. 3 AS FOLLOWS:

1. OPEN THE FACE PLATE.
2. WHEN THE THREADER PLATE IS:  
TOO HIGH, LOOSEN THE HEXAGONAL SOCKET SCREW (E) AND LOWER THE SETTING PLATE (F).  
TOO LOW, LOOSEN THE HEXAGONAL SOCKET SCREW (E) AND RAISE THE SETTING PLATE (F).
3. TIGHTEN THE HEXAGONAL SOCKET SCREW (E).

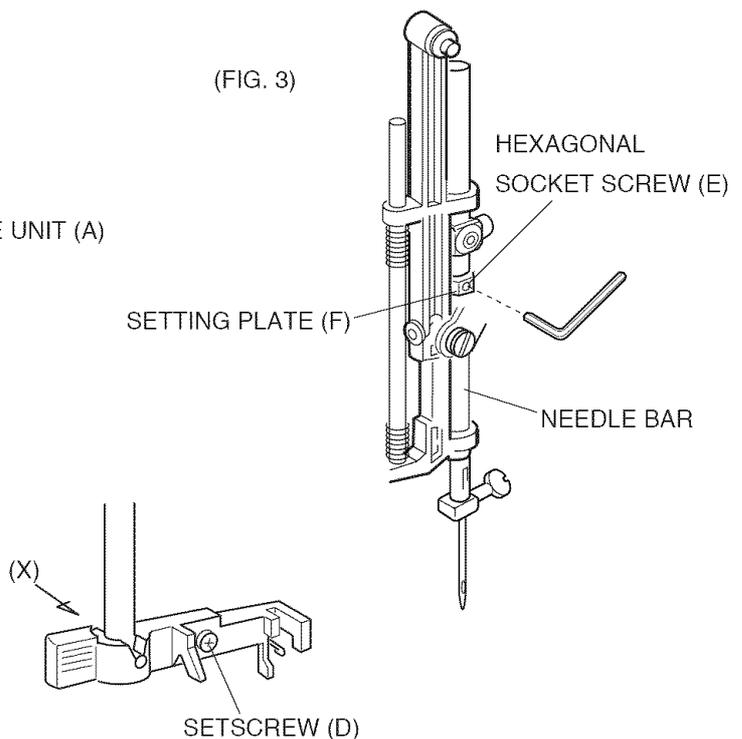
(FIG.1)



(FIG. 2)

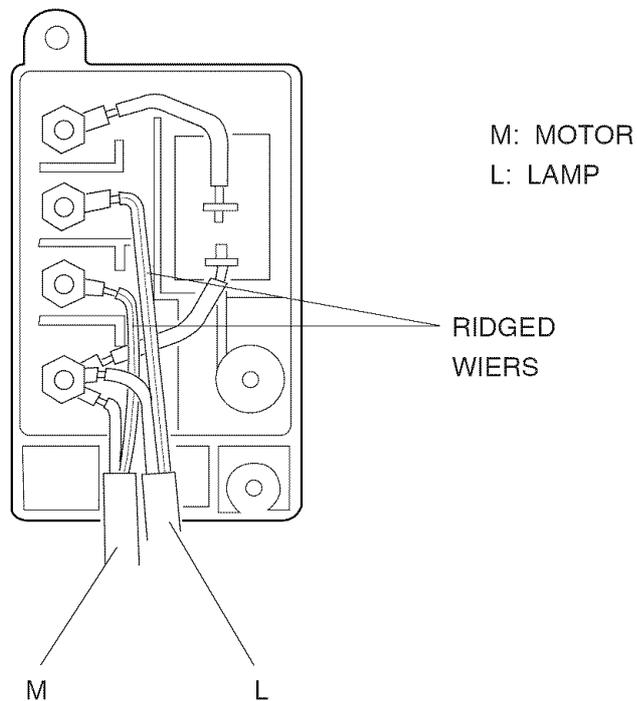


(FIG. 3)

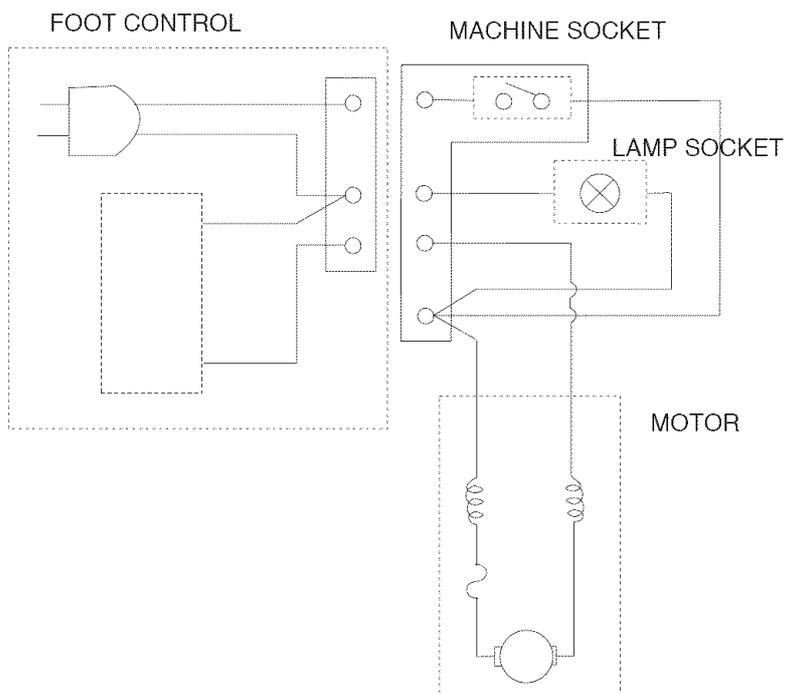


# WIRING

## 1. WIRING FOR MACHINE SOCKET UNIT



## 2. WIRING DIAGRAM



# OILING

FACTORY LUBRICATED PARTS WILL PROVIDE YEARS OF HOUSEHOLD SEWING WITHOUT ROUTINE OILING. HOWEVER, WHENEVER THE MACHINE IS BEING SERVICED, CHECK TO SEE IF ANY PARTS NEED TO BE LUBRICATED.

## OIL

APPLY GOOD QUALITY SEWING MACHINE OIL TO THE POINTS (A, B, C, D, E) INDICATED BY BLACK ARROWS.

## GREASE

WHITE GREASE IS RECOMMENDED FOR USE ON GEARS AND CAM SURFACES. IT IS AN IMPROVED GREASE, AND IT CAN BE USED ON THE METAL AND PLASTIC PARTS WHICH POINTS ARE INDICATED BY THE WHITE ARROWS (F,G, & H).

### HOW TO ORDER

PARTS NO.

DESCRIPTION

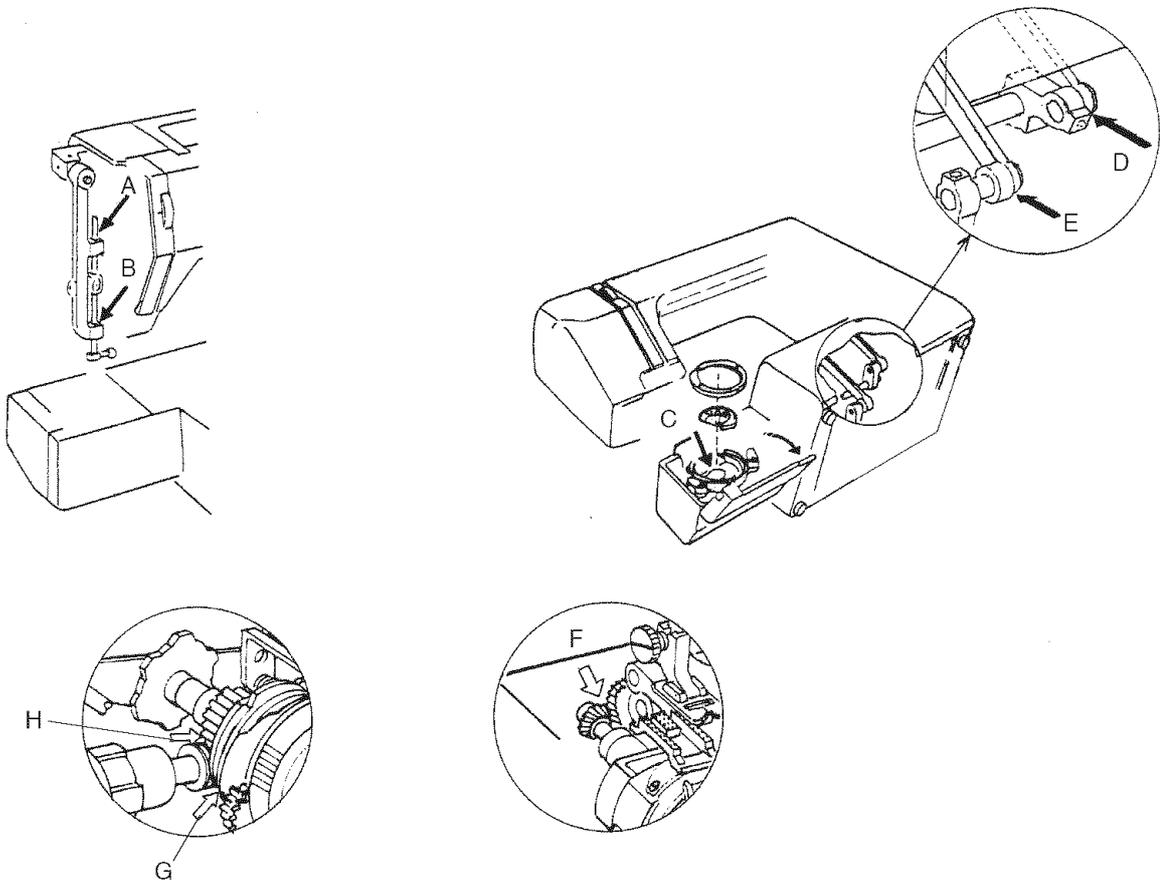
PRICE

SEWING MACHINE OIL

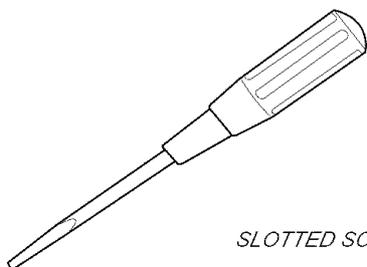
EM / 40M

WHITE GREASE

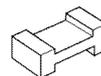
ORDER THROUGH YOUR RPDC IN THE USUAL MANNER; DIVISION 20, SOURCE 158.



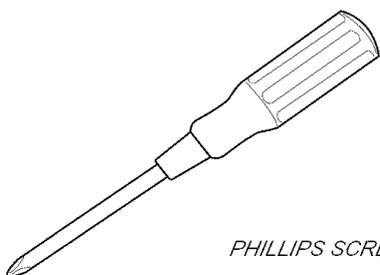
# SPECIAL TOOLS REQUIRED



*SLOTTED SCREW DRIVER*



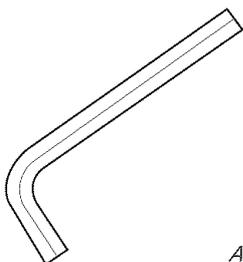
*FEED DOG HEIGHT GAUGE  
#68367*



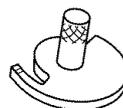
*PHILLIPS SCREW DRIVER*



*TEST PIN  
#68368*



*ALLEN WRENCH*



*RADIAL TIMING GAUGE  
#68366*