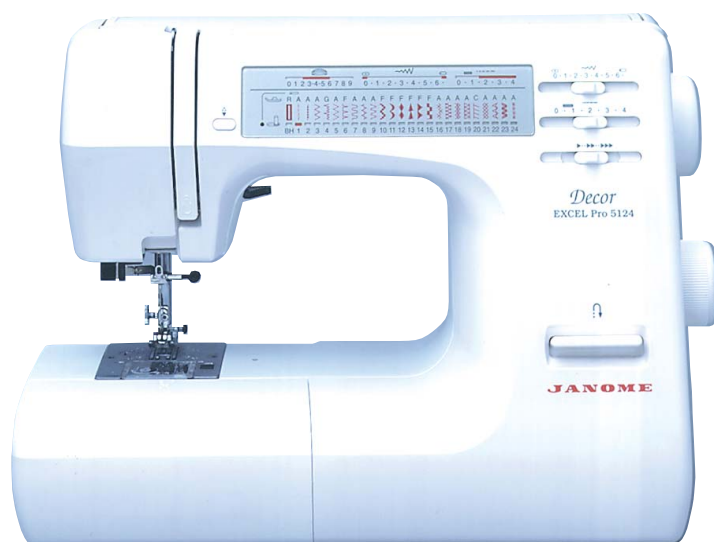


# SERVICING MANUAL



MODEL 5124

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# SERVICE ACCESS

## FACE COVER

1. OPEN THE FACE COVER (A).
2. REMOVE THE SCREWS (B).
3. TAKE THE FACE COVER (A) OFF.

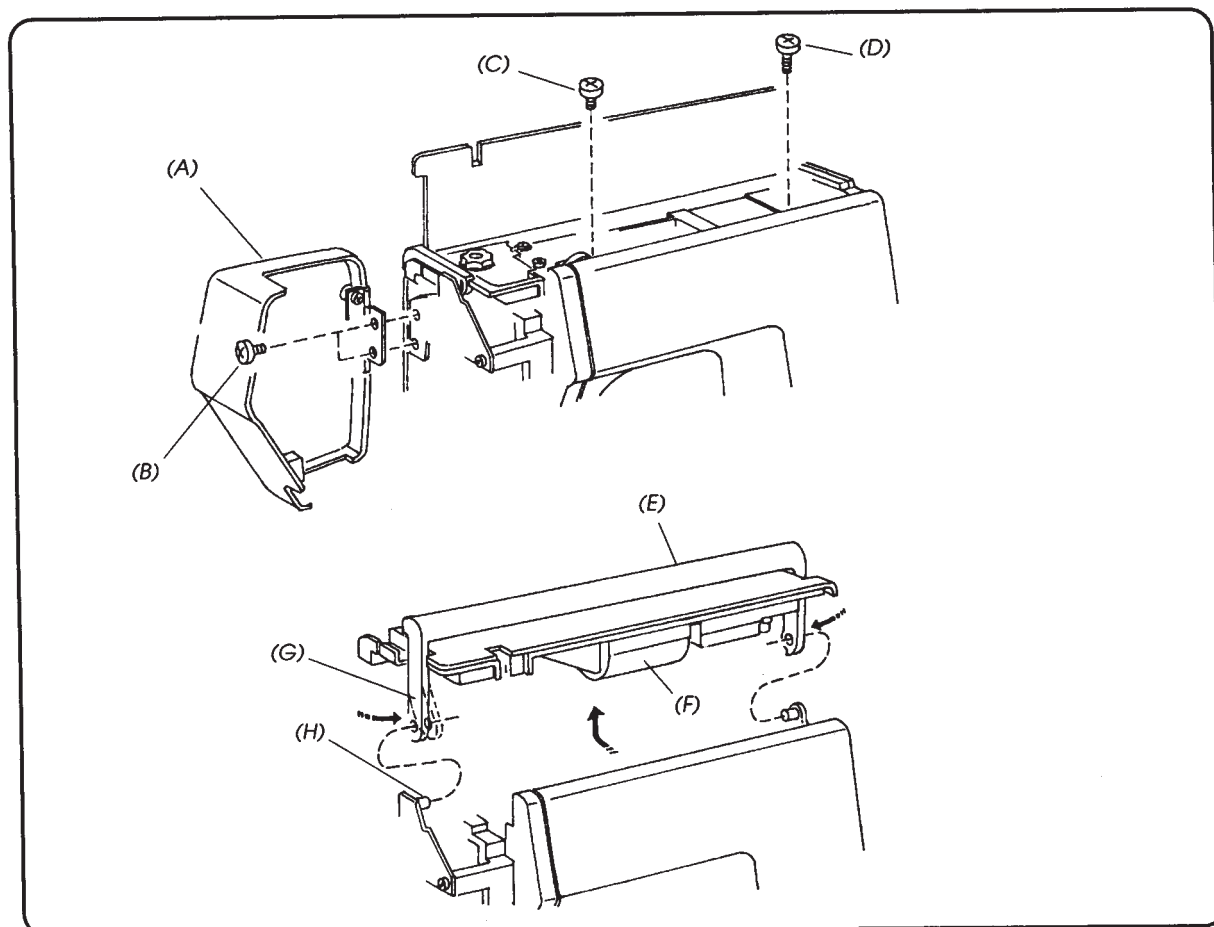
## TOP COVER

(TO REMOVE)

1. REMOVE SCREWS (C) AND (D).
2. RAISE THE CARRYING HANDLE (E), LIFT THE TOP COVER (F), AND SEPARATE THE CARRYING HANDLE STAYS (G) FROM EACH PIN (H) BY PUSHING THEM FROM BOTH SIDES.
3. DETACH THE TOP COVER TOGETHER WITH THE CARRYING HANDLE.

(TO ATTACH)

4. PUT THE TOP COVER AND CARRYING HANDLE TOGETHER, AND FIT THE CARRYING HANDLE STAYS TO EACH PIN WHILE PUSHING THEM FROM BOTH SIDES.
5. ATTACH THE TOP COVER WITH THE SET SCREWS (C) AND (D).  
(THERE SHOULD NO INTERFERENCE WITH THE PRESSURE DIAL AND THE CLEARANCE BETWEEN THE FRONT PANEL AND TOP COVER SHOULD BE UNIFORM.)



# SERVICE ACCESS

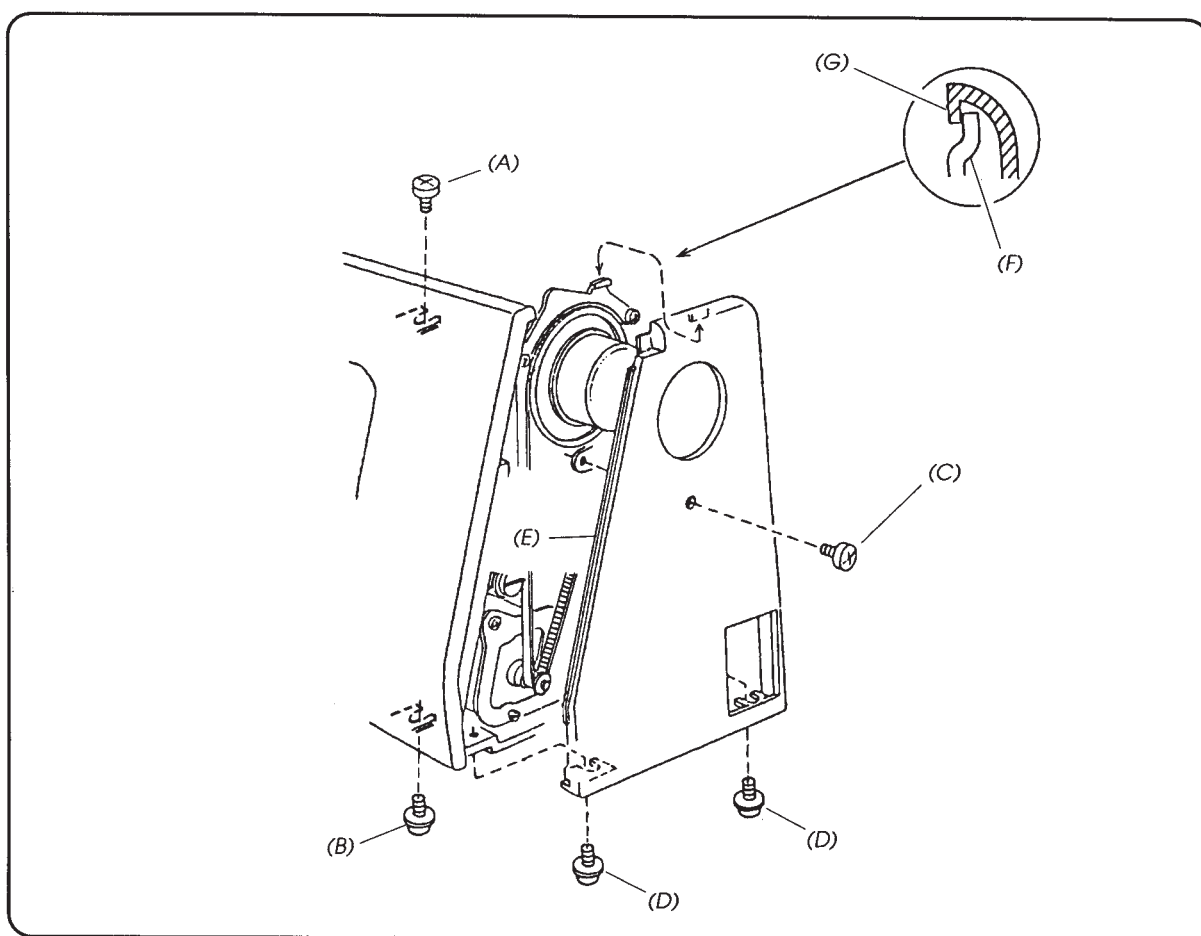
## BELT COVER

(TO REMOVE)

1. REMOVE THE TOP COVER (SEE PAGE 2).
2. LOOSEN THE SCREWS (A) AND (B) FROM THE FRONT COVER.
3. REMOVE THE SCREW (C), THEN LOOSEN THE TWO SCREWS (D).

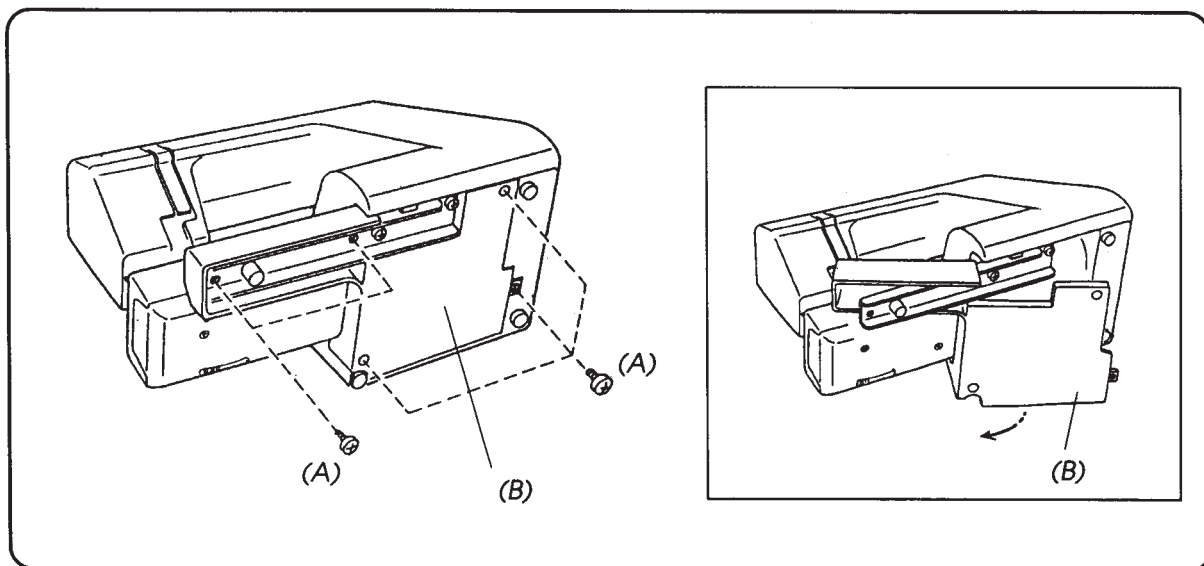
(TO ATTACH)

- \* SLIDE RIB (E) ON THE BELT COVER OUT OF THE FRONT COVER, THEN LIFT THE BELT COVER (G) OFF THE HOOK (F) TO REMOVE.
4. FOLLOW THE ABOVE PROCEDURE IN REVERSE.



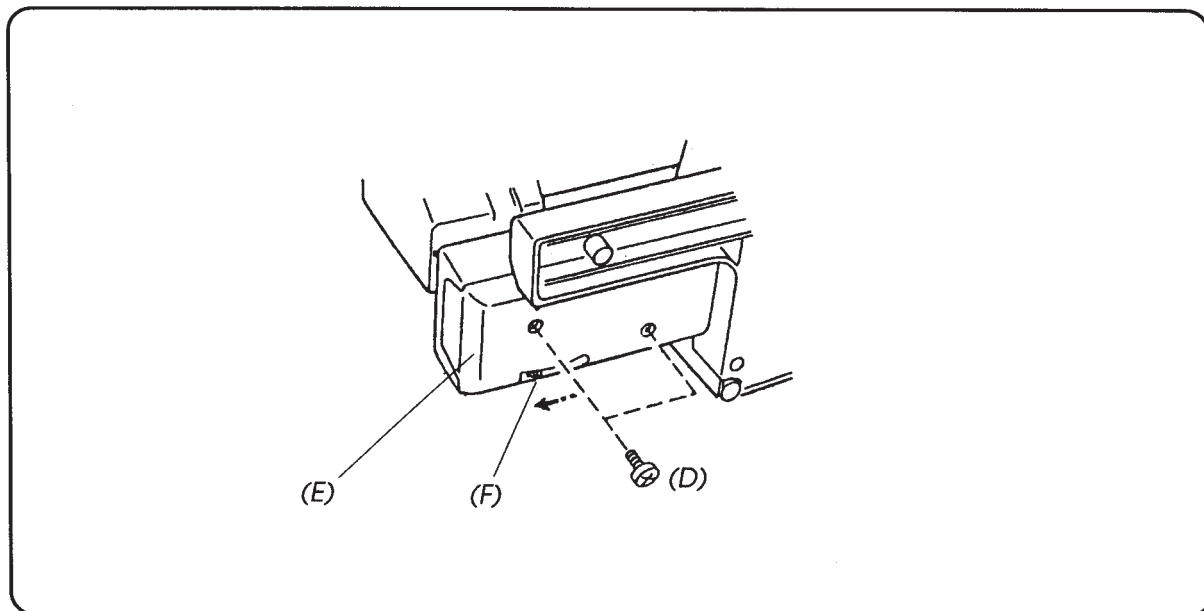
# SERVICE ACCESS

## BASE



1. REMOVE 4 SCREWS (A).
2. REMOVE THE BASE (B).

## BED COVER



1. REMOVE 2 SCREWS (D).
  2. REMOVE THE BED COVER (E).
- \* WHEN YOU REPLACE THE BED COVER, SET THE DROP LEVER (F) IN THE LEFT POSITION.

# SERVICE ACCESS

## FRONT COVER

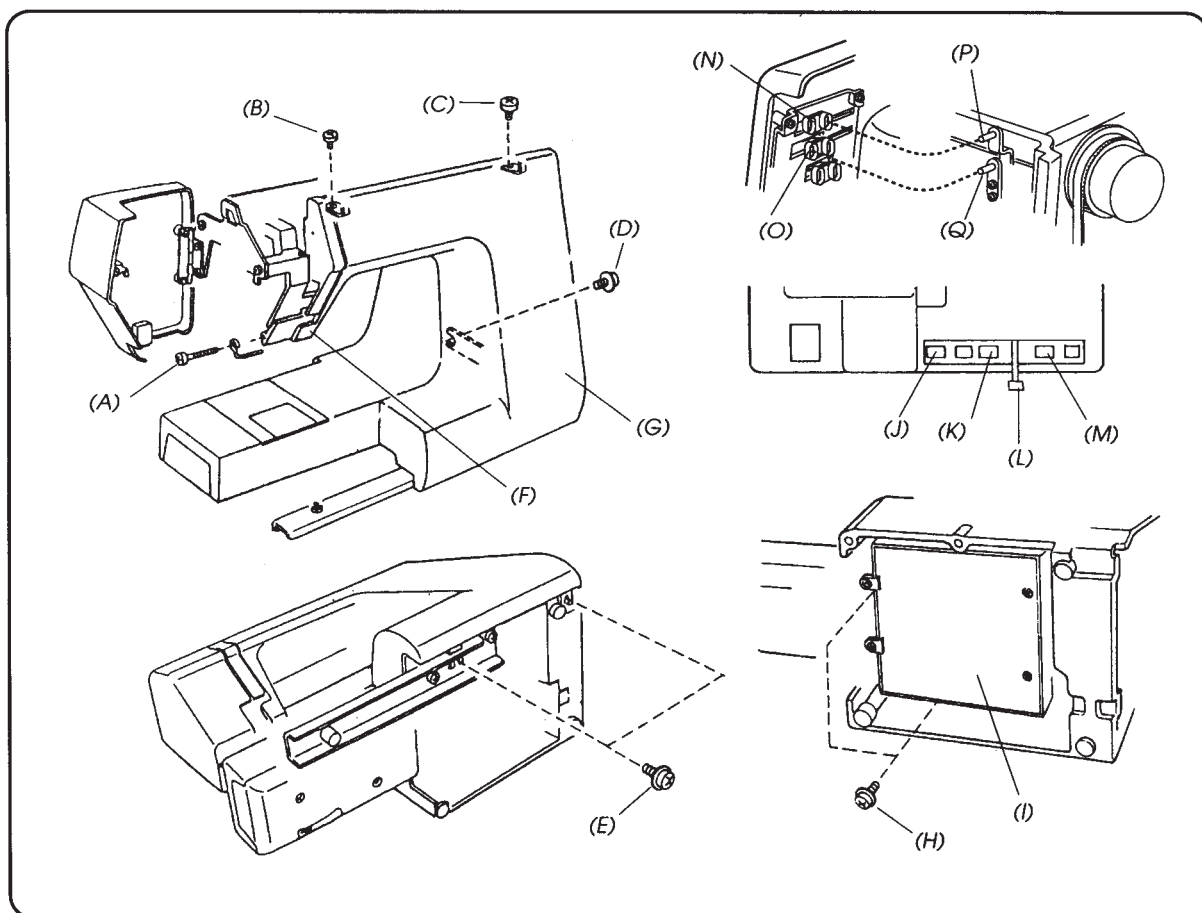
(TO REMOVE)

1. REMOVE THE TOP COVER, BELT COVER AND BASE (SEE PAGE 2-4).
2. SET THE PATTERN SELECTOR DIAL AT . (WHEN YOU TURN THE PATTERN SELECTOR DIAL, YOU CAN SEE THE POSITION OF SCREW (D).)
3. REMOVE THE SCREWS (A) AND (B), THEN LOOSEN THE SCREWS (C), (D) AND (E).
4. PUSH AND LOWER THE PART (F) GENTLY, THEN PULL IT TOWARD YOU TO REPLACE THE FRONT COVER UNIT (G).
5. REMOVE THE TWO SCREWS (H), THEN REMOVE CIRCUIT BOARD B.
6. PULL OUT THE FOUR PORTION CONNECTERS (UP/DOWN NEEDLE (J), SLIDE VOLUME (K), LD2 (L) (M) FROM CIRCUIT BOARD B.

(TO ATTACH)

7. FOLLOW THE ABOVE PROCEDURE IN REVERSE.

\* WHEN YOU ATTACH THE FRONT COVER, INSERT THE ZIGZAG MECHANISM PINS (P) AND (Q) INTO THE RECESSES OF THE WIDTH (N), LENGTH BUTTONS (O).



# MECHANICAL ADJUSTMENT

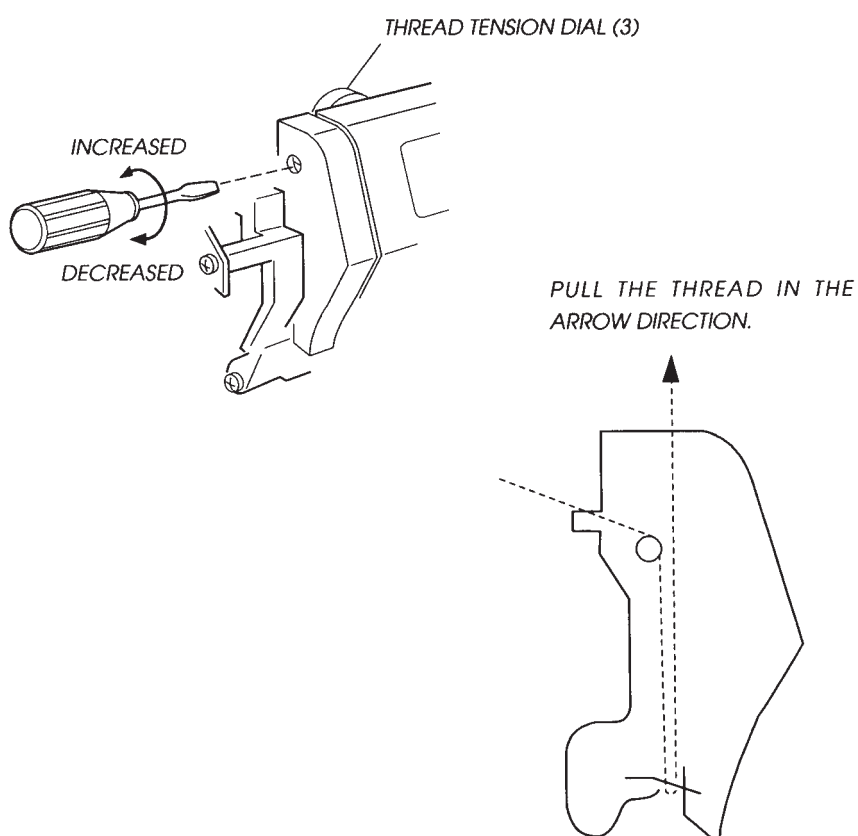
## TOP TENSION

### TO CHECK:

WHEN POLYESTER SEWING THREAD #50 (WHITE) IS PASSED AS SHOWN IN THE FIGURE BELOW AND PULLED UPWARDS, THE TENSION SHOULD BE 75 TO 90 G WITH THE THREAD TENSION DIAL SET AT " 3. "

### ADJUSTMENT PROCEDURE:

1. SET THE THREAD TENSION DIAL AT " 3 , " AND PASS THE THREAD AS SHOWN.
2. OPEN THE FACE COVER, AND LOWER THE PRESSURE FOOT LIFTER.
3. ADJUST THE TENSION BY TURNING THE SHAFT WITH A REGULAR SCREWDRIVER.



# MECHANICAL ADJUSTMENT

## PRESSER BAR HEIGHT AND ALIGNMENT

### TO CHECK:

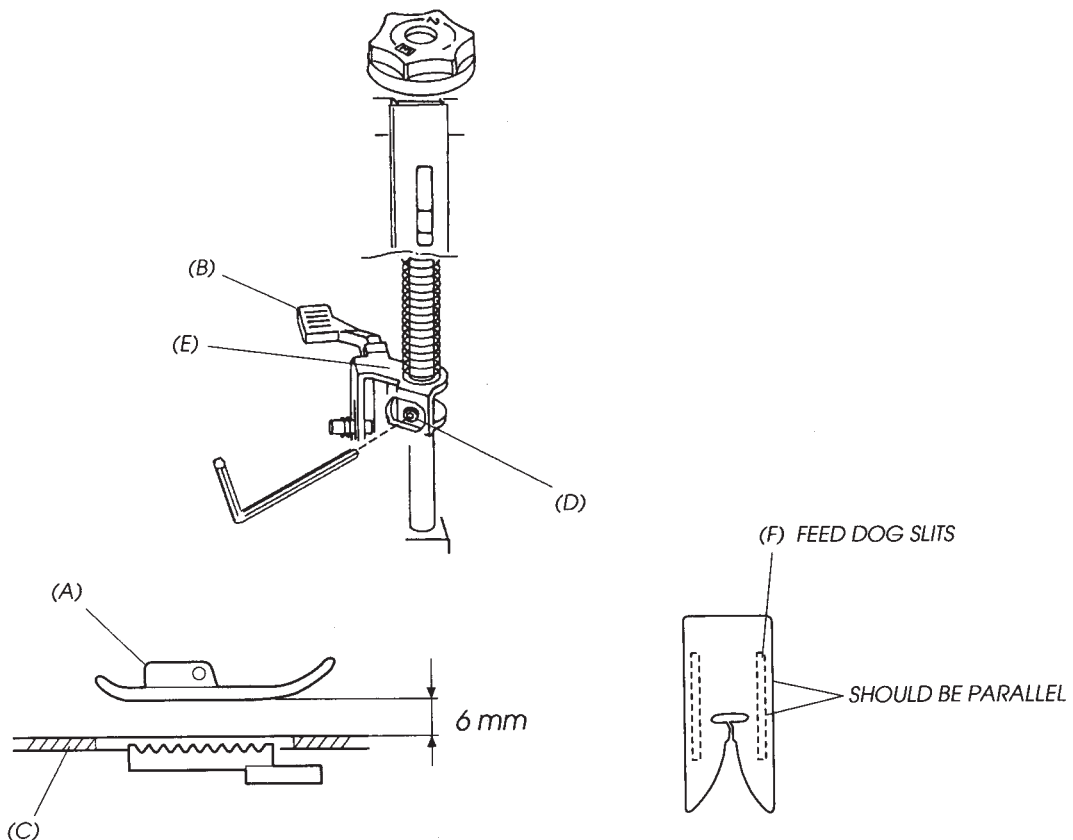
1. RAISE THE PRESSER FOOT LEVER (B).
2. THE DISTANCE BETWEEN THE ZIGZAG FOOT (A) AND THE NEEDLE PLATE (C) SHOULD BE 6.0 MM.

\* IF THIS IS NOT THE CASE, ADJUST AS FOLLOWS.

### ADJUSTMENT PROCEDURE:

1. OPEN THE FACE COVER.
2. RAISE THE PRESSER FOOT LEVER (B) AND LOOSEN THE HEXAGONAL SOCKET SCREW (D) ON THE PRESSER BAR BRACKET (E).
3. ADJUST THE DISTANCE BETWEEN THE ZIGZAG FOOT (A) AND THE NEEDLE PLATE (C) TO 6.0 MM.
4. TIGHTEN THE HEXAGONAL SOCKET SCREW (D) SECURELY.

NOTE: WHEN YOU TIGHTEN THE HEXAGONAL SOCKET SCREW (D), MAKE SURE THE ZIGZAG FOOT (A) RUNS PARALLEL WITH THE FEED DOG.



# MECHANICAL ADJUSTMENT

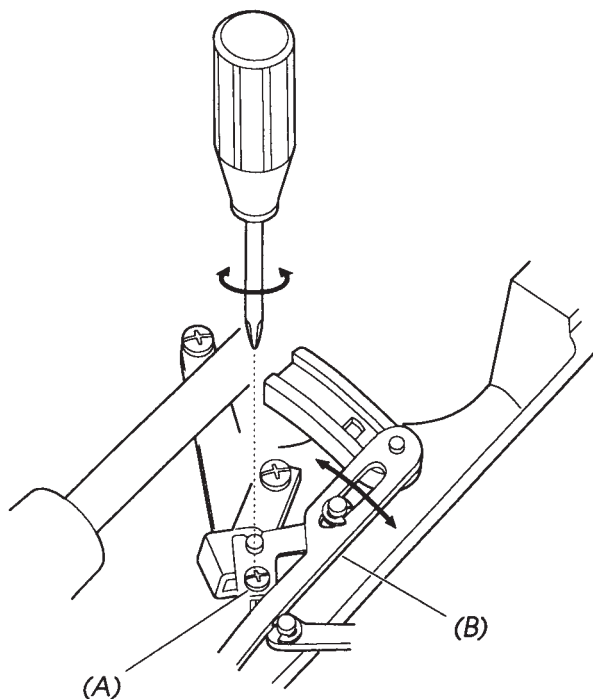
## STRAIGHT STITCHING

### TO CHECK:

1. SET THE STITCH WIDTH DIAL AT " 0 " AND THE STITCH SELECTOR AT .
2. TURN THE HANDWHEEL BY HAND.
3. THE NEEDLE SHOULD NOT SWING SIDE TO SIDE AT THIS SETTING.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE TOP COVER (SEE PAGE 2).
2. LOOSEN SCREW (A).
3. MOVE THE ZIGZAG WIDTH ROD (B) UNTIL THE NEEDLE CEASES ITS ZIGZAG MOVEMENT WHEN YOU TURN THE HANDWHEEL TOWARD YOU.
4. TIGHTEN SCREW (A) SECURELY.



# MECHANICAL ADJUSTMENT

## NEEDLE SWING

### TO CHECK:

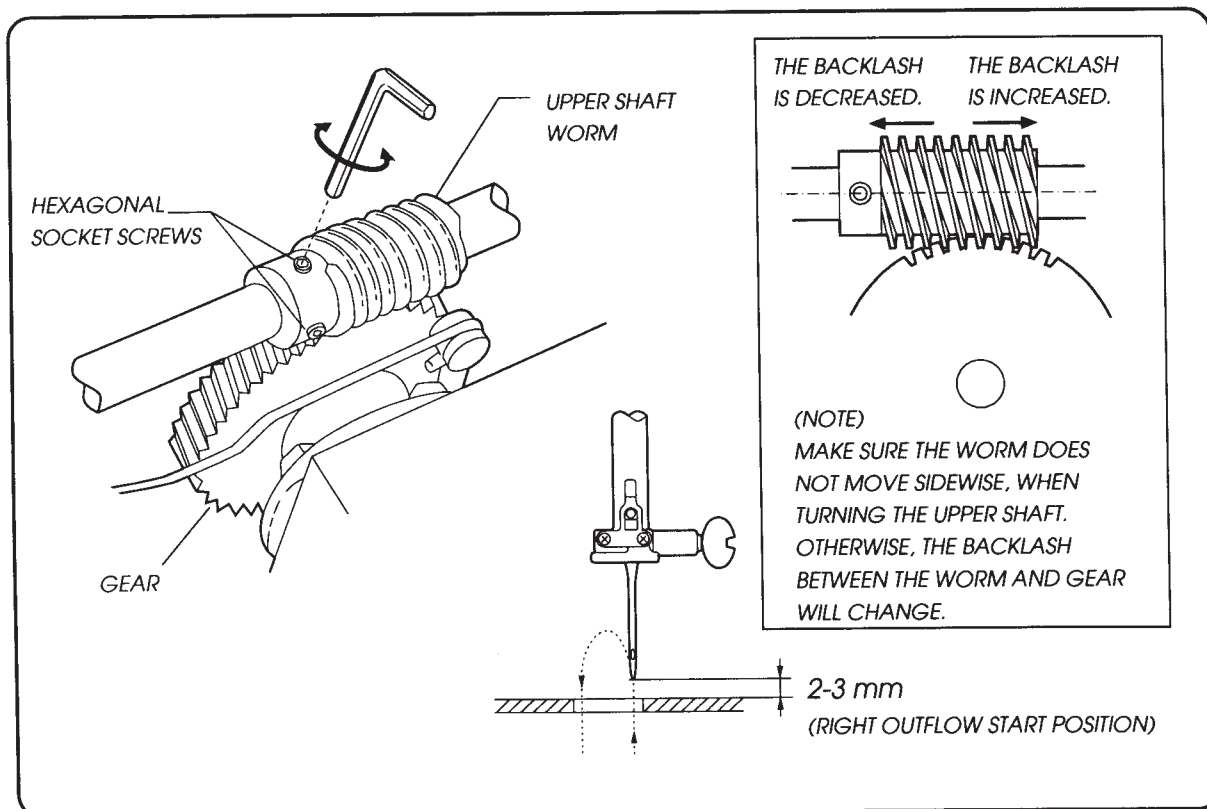
IF THE NEEDLE BAR MOVES SIDEWISE WHILE THE NEEDLE IS IN THE FABRIC IN ZIGZAG STITCHING, ADJUST AS FOLLOWS:

(THE NEEDLE SHOULD START SWINGING WHEN 2 TO 3MM ABOVE THE NEEDLE PLATE.)

### ADJUSTMENT PROCEDURE:

1. REMOVE THE TOP COVER (SEE P.2), SET THE PATTERN SELECTOR DIAL AT "  " AND SELECT THE MAXIMUM ZIGZAG WIDTH.
2. LOOSEN THE TWO HEXAGONAL SOCKET SCREWS ON THE UPPER SHAFT WORM.
3. WHILE HOLDING THE UPPER SHAFT WORM IN PLACE, CAREFULLY TURN THE HAND-WHEEL AND ADJUST SO THAT LATERAL NEEDLE SWING STARTS FROM A POSITION 2 TO 3MM ABOVE THE NEEDLE PLATE IN RIGHT OUTFLOW.
4. TIGHTEN THE TWO HEXAGONAL SOCKET SCREWS ON THE UPPER SHAFT WORM.
5. ATTACH THE TOP COVER.

NOTE: FOR REMOVAL AND REPLACEMENT OF THE TOP COVER. AFTER ADJUSTMENT OF THE TIMING OF LATERAL NEEDLE SWING, MAKE SURE THAT THERE IS NO BACKLASH BETWEEN THE UPPER SHAFT WORM AND THE OTHER GEAR AND THAT SMOOTH ROTATION IS OBTAINED.



# MECHANICAL ADJUSTMENT

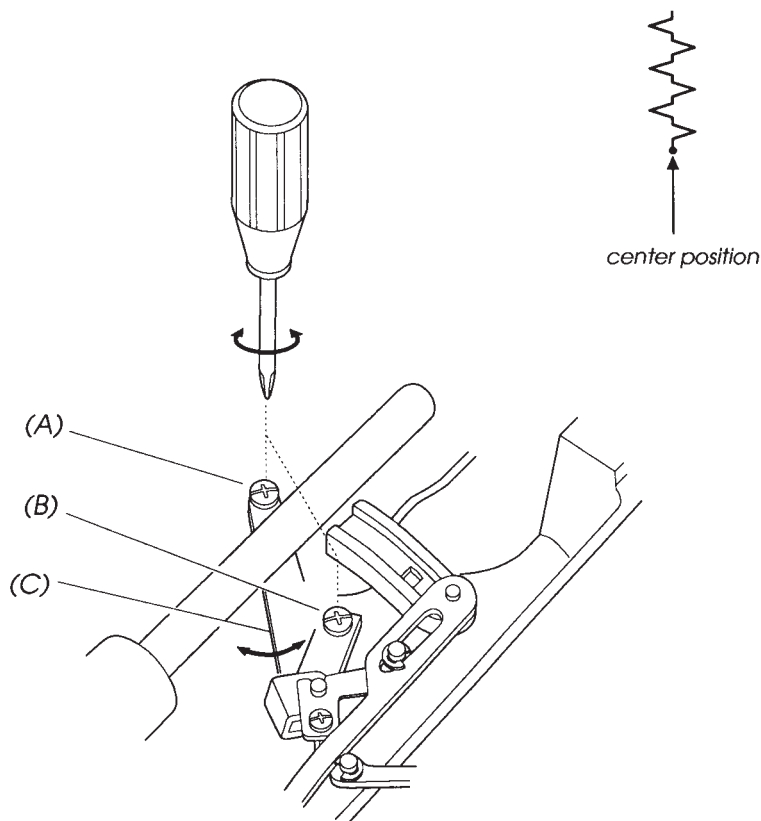
## NEEDLE POSITION

### TO CHECK:

1. SET THE MACHINE AS FOLLOWS:  
STITCH SELECTOR .....   
STITCH WIDTH CONTROL ... 6.5
2. TURN THE HANDWHEEL TOWARD YOU UNTIL THE NEEDLE COMES TO CENTER POSITION.
3. THE NEEDLE SHOULD NOT MOVE WHEN YOU TURN THE STITCH WIDTH CONTROL TO " 0. "

### ADJUSTMENT PROCEDURE:

1. REMOVE THE TOP COVER (SEE PAGE 2).
2. TURN THE HANDWHEEL TOWARD YOU UNTIL THE NEEDLE COMES TO THE CENTER OF THE SLIT IN THE NEEDLE PLATE.
3. LOOSEN SCREWS (A) AND (B).
4. TIGHTEN SCREW (A) SLIGHTLY.
5. MOVE THE PLATE (C) IN EITHER DIRECTION AS SHOWN BY THE ARROW UNTIL THE NEEDLE CEASES MOVEMENT, EVEN IF THE DIAL IS MOVED FROM MAXIMUM ZIGZAG WIDTH TO ZERO.



# MECHANICAL ADJUSTMENT

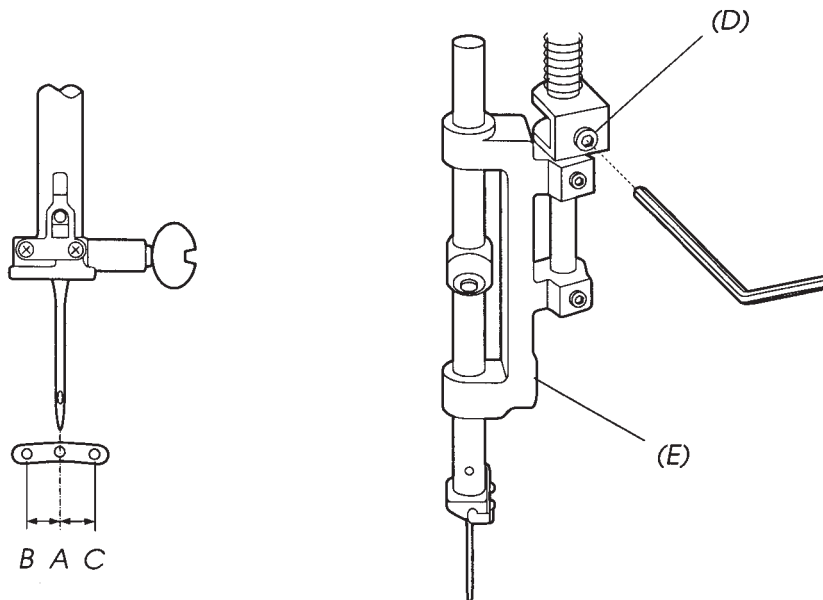
## DISTRIBUTION OF NEEDLE SWING

### TO CHECK:

1. SET THE STITCH WIDTH CONTROL TO " 0 " AND THE STITCH SELECTOR AT .
2. RAISE THE NEEDLE TO ITS HIGHEST POSITION.
3. PLACE THE DARNING PLATE ON THE NEEDLE PLATE.
4. PLACE A PIECE OF PAPER ON THE DARNING PLATE AND LOWER THE PRESSER FOOT.
5. LOWER THE NEEDLE TO MARK THE NEEDLE POINT (A) ON A PIECE OF PAPER BY TURNING THE HANDWHEEL.
6. RAISE THE NEEDLE TO ITS HIGHEST POSITION.
7. TURN THE STITCH WIDTH CONTROL TO 6.5.
8. LOWER THE NEEDLE TO MARK NEEDLE POINTS (B) AND (C) ON THE PIECE OF PAPER BY TURNING THE HANDWHEEL.
9. THE DISTANCE BETWEEN A-B AND A-C SHOULD BE EQUAL.

### ADJUSTMENT PROCEDURE:

1. OPEN THE FACE COVER AND LOOSEN HEXAGONAL SOCKET SCREW (D).
2. MOVE THE NEEDLE BAR SUPPORTER (E) IN EITHER DIRECTION UNTIL THE DISTANCES A TO B AND A TO C BECOME EQUAL.
3. TIGHTEN HEXAGONAL SOCKET SCREW (D) SECURELY.



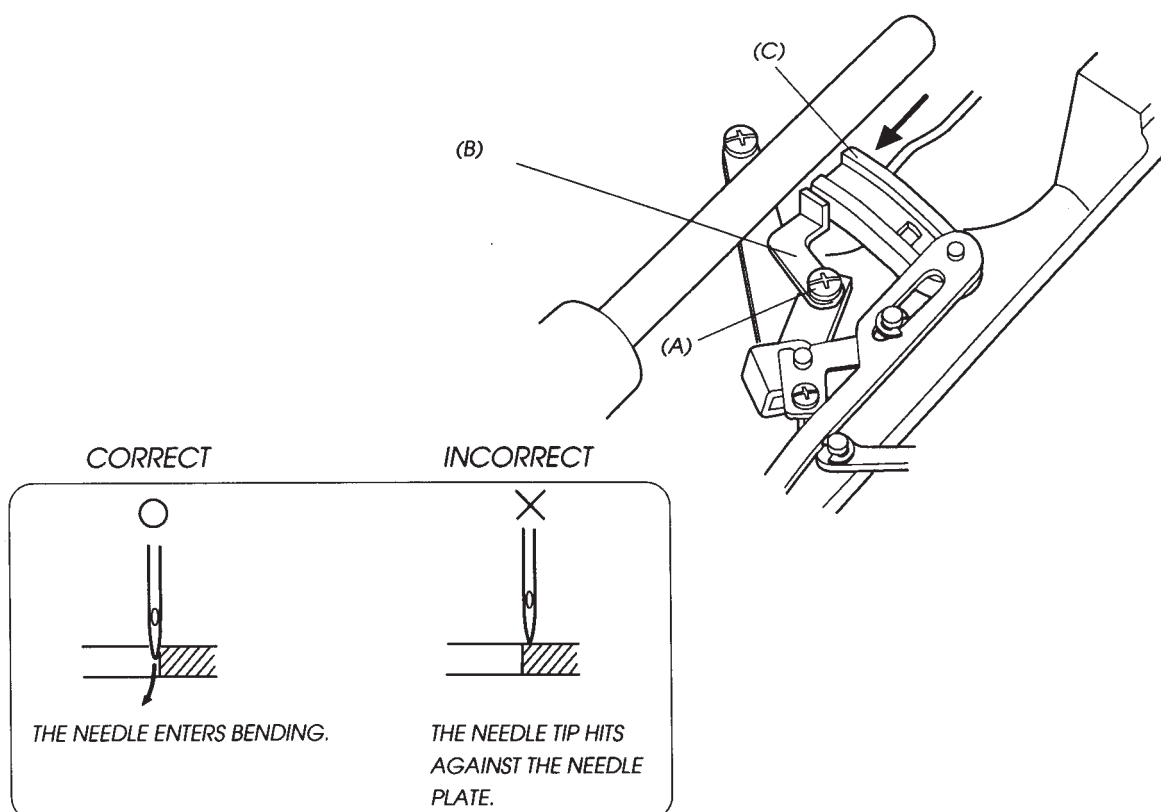
# MECHANICAL ADJUSTMENT

## ZIGZAG STOPPER

IF THE NEEDLE TIP HITS THE NEEDLE PLATE WHEN THE NEEDLE SWINGS TO THE RIGHT AT THE MAXIMUM ZIGZAG WIDTH, THEN ADJUST AS FOLLOWS.

(WHEN THE NEEDLE DROP POSITION IN THE NEEDLE PLATE HOLE DEVIATES TOWARD THE RIGHT OF THE HOLE, REFER TO "DISTRIBUTION OF NEEDLE SWING".)

1. SET THE STITCH SELECTOR  , ZIGZAG WIDTH AT " 6.5 ".
2. REMOVE THE TOP COVER (SEE PAGE 2).
3. TURN THE HANDWHEEL UNTIL THE NEEDLE TIP IS LOCATED ABOVE THE TOP SURFACE OF THE NEEDLE PLATE (IN DESCENDING TRAVEL) AT THE RIGHT NEEDLE POSITION.
4. SLIGHTLY LOOSEN SCREW (A), LIGHTLY PRESS THE STOPPER (B) AGAINST THE ZIGZAG WIDTH CRANK (C), AND THEN TEMPORARILY TIGHTEN THE SET SCREW.
5. PUSH THE ZIGZAG WIDTH CRANK (C) IN THE DIRECTION OF THE ARROW AND TURN THE HANDWHEEL TO MAKE SURE THAT THE NEEDLE TIP COMES INTO CONTACT WITH THE NEEDLE PLATE, AND THEN COMPLETELY TIGHTEN SCREW (A).
6. RUN THE SEWING MACHINE AND MAKE SURE THAT THERE IS NO SOUND MADE BY INTERFERENCE BETWEEN THE ZIGZAG WIDTH CRANK AND THE ZIGZAG STOPPER. AFTER THAT, ATTACH THE TOP COVER.



# MECHANICAL ADJUSTMENT

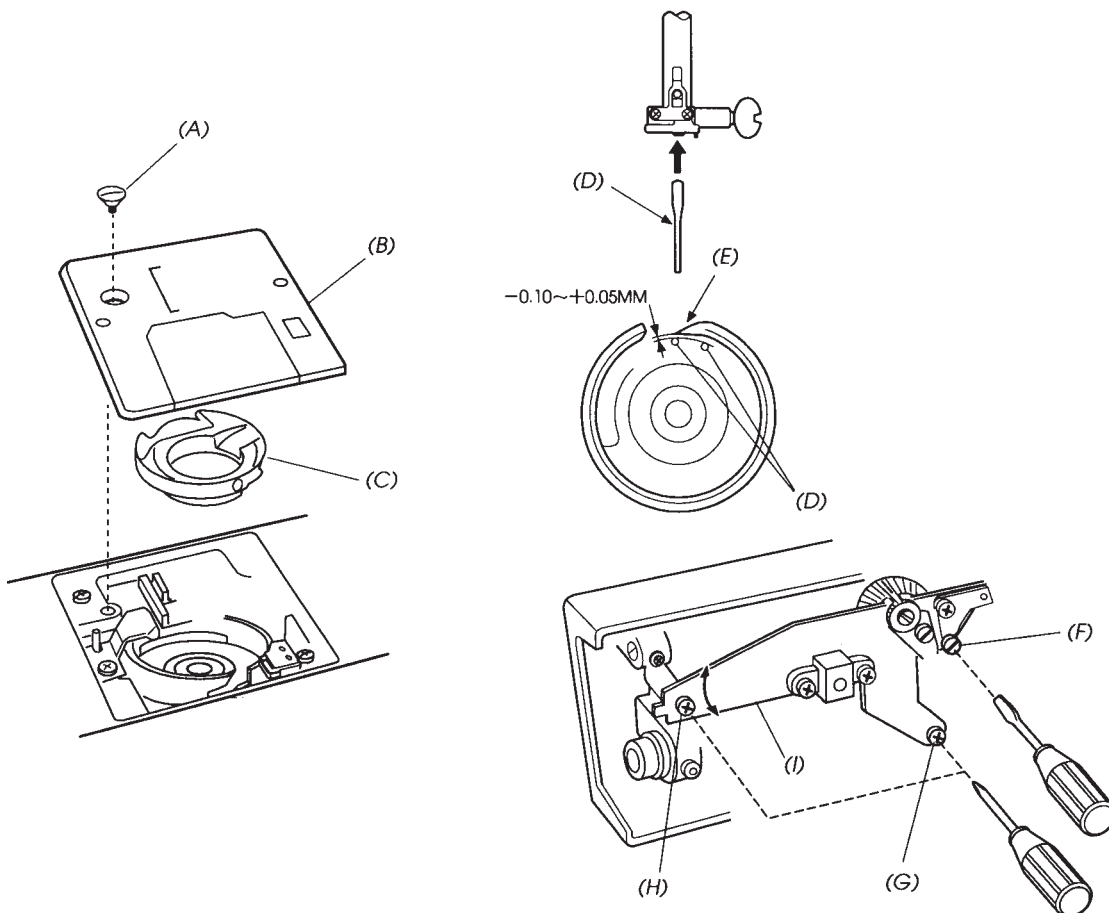
## NEEDLE CLEARANCE TO SHUTTLE

### TO CHECK:

1. SET THE STITCH SELECTOR AT .
2. REMOVE THE SET SCREW (A) OF THE NEEDLE PLATE, AND DETACH THE NEEDLE PLATE (B) AND BOBBIN HOLDER (C).
3. REPLACE THE NEEDLE WITH THE MASTER NEEDLE (D).
4. TURN THE HANDWHEEL SLOWLY BY HAND UNTIL THE NEEDLE BAR REACHES ITS LOWEST POSITION.
5. THE CLEARANCE BETWEEN THE MASTER NEEDLE (D) AND THE SHARP END (E) OF THE SHUTTLE HOOK SHOULD BE BETWEEN  $-0.10$  AND  $+0.05$  MM.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BED COVER (SEE PAGE 4).
2. LOOSEN SET SCREWS (F), (G) AND (H).
3. TIGHTEN SET SCREW (F) TEMPORARILY.
4. MOVE PLATE (I) TO EITHER DIRECTION AS SHOWN BY THE ARROW UNTIL THE CLEARANCE BETWEEN THE MASTER NEEDLE (D) AND THE SHARP END (D) OF THE SHUTTLE HOOK IS BETWEEN  $-0.10$  AND  $+0.05$  MM.
5. TIGHTEN THE SET SCREWS (F), (G) AND (H) SECURELY.



# MECHANICAL ADJUSTMENT

## BACKLASH ( LOWER SHAFT GEAR )

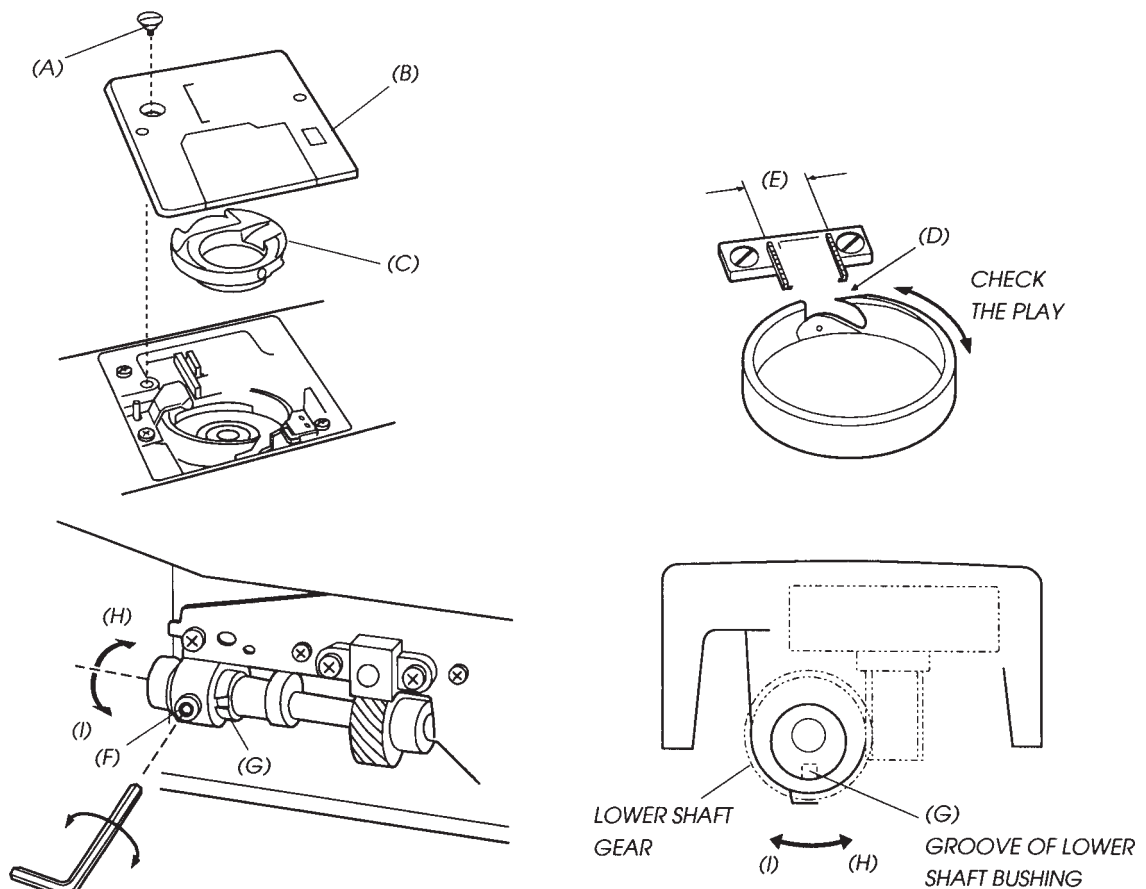
### TO CHECK:

1. REMOVE SCREW (A) FROM THE NEEDLE PLATE, AND REMOVE THE NEEDLE PLATE (B) AND BOBBIN HOLDER (C).
2. TURN THE HANDWHEEL SLOWLY TOWARD YOU UNTIL THE TIP OF THE SHUTTLE HOOK (D) IS BETWEEN BOTH ENDS (E) OF THE FEED DOG.
3. ROTATE THE HOOK RACE CLOCKWISE AND COUNTERCLOCKWISE BY HAND AND CHECK THE PLAY. IT SHOULD BE WITHIN 0.8 MM.

\* IF THERE IS MORE THAN 0.8 MM BACKLASH BETWEEN THE GEARS, ADJUST AS FOLLOWS.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BED COVER (SEE P.4) AND LOOSEN HEXAGONAL SOCKET SCREW (F).
2. TURN THE LOWER SHAFT BUSHING (ECCENTRIC BUSHING) (G) IN DIRECTION (H) WHEN THE PLAY AT THE SHUTTLE HOOK TIP IS TOO SMALL.
3. TURN THE LOWER SHAFT BUSHING (ECCENTRIC BUSHING) (G) IN DIRECTION (I) WHEN THE PLAY AT THE SHUTTLE HOOK TIP IS TOO LARGE.
4. TIGHTEN HEXAGONAL SOCKET SCREW ( F ) SECURELY AFTER ADJUSTMENT.

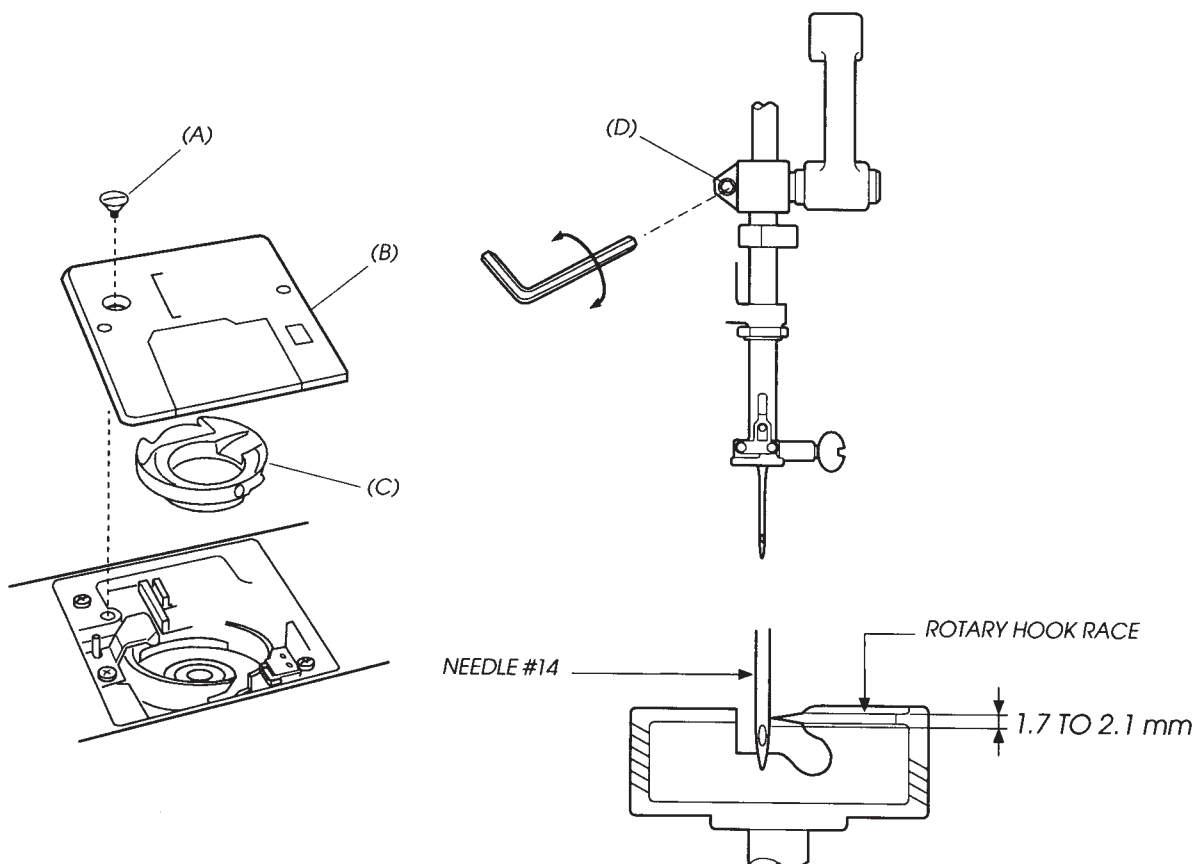


# MECHANICAL ADJUSTMENT

## NEEDLE BAR HEIGHT

WHEN THE TIP OF THE ROTARY HOOK EXACTLY MEETS THE RIGHT OF THE NEEDLE IN ASCENDING TRAVEL OF THE NEEDLE BAR FROM ITS LOWEST POSITION AT THE LEFT NEEDLE DROP POSITION WITH THE PATTERN SELECTOR DIAL SET AT "  " AND THE MAXIMUM ZIGZAG WIDTH SELECTED, THE DISTANCE BETWEEN THE UPPER EDGE OF THE NEEDLE EYE AND THE RACE OF ROTARY HOOK SHOULD BE 1.7 TO 2.1MM.

1. SET THE STITCH SELECTOR  , ZIGZAG WIDTH AT " 6.5 ".
2. REMOVE THE SET SCREW (A) OF THE NEEDLE PLATE, AND DETACH THE NEEDLE PLATE (B) AND BOBBIN HOLDER (C).
3. TILT THE HEAD BACKWARD, AND OPEN THE FACE COVER.
4. TURN THE HANDWHEEL TOWARD YOU UNTIL THE ROTARY HOOK TIP EXACTLY MEETS THE RIGHT SIDE OF THE NEEDLE AT THE LEFT NEEDLE DROP POSITION.
5. LOOSEN THE SET SCREW (D) OF THE NEEDLE BAR CONNECTING STUD.
6. MOVE THE NEEDLE BAR TO PROVIDE A DISTANCE OF 1.7 TO 2.1 MM BETWEEN THE UPPER EDGE OF NEEDLE EYE AND THE RACE OF THE ROTARY HOOK.
7. TIGHTEN THE SET SCREW OF THE NEEDLE BAR CONNECTING STUD.
8. ATTACH THE BOBBIN HOLDER AND NEEDLE PLATE.



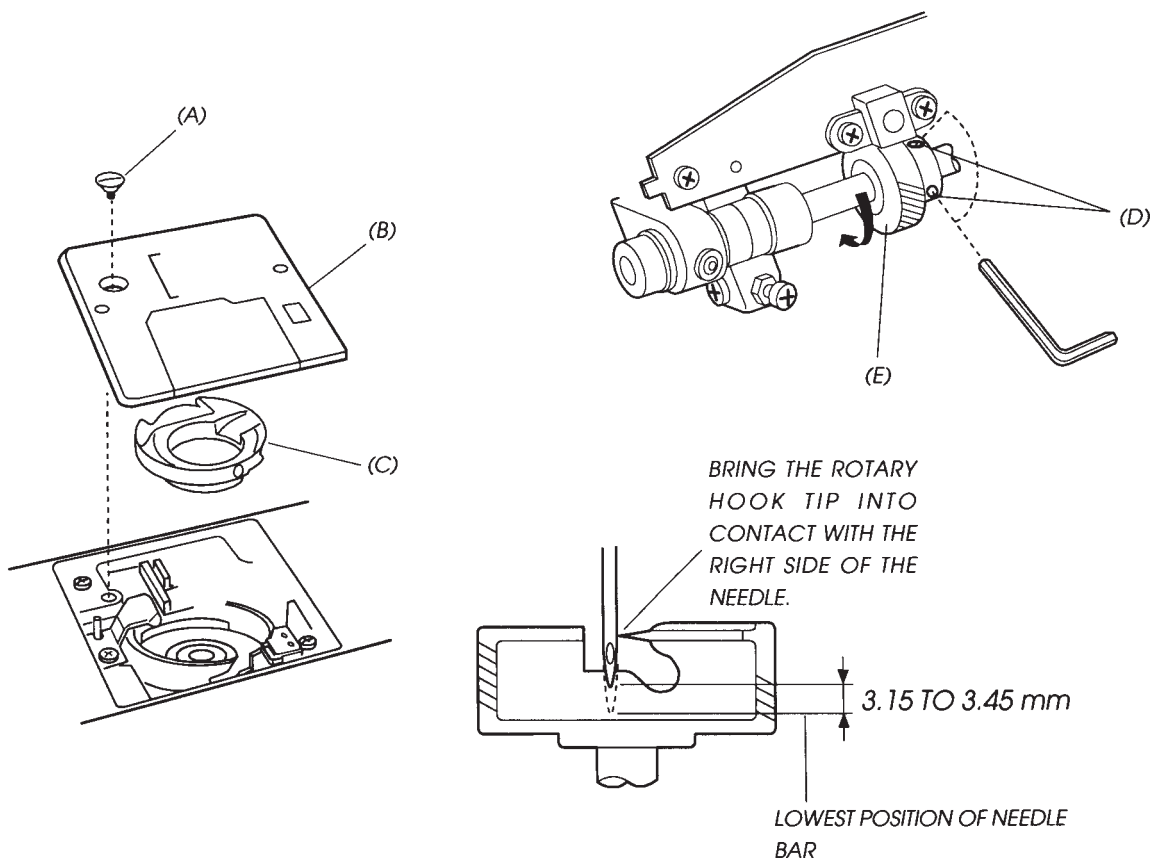
# MECHANICAL ADJUSTMENT

## NEEDLE TO SHUTTLE TIMING

WITH THE NEEDLE BAR SWUNG TO THE LEFT AT THE MAXIMUM ZIGZAG WIDTH, THE AMOUNT OF ASCENDING TRAVEL OF THE NEEDLE BAR FROM ITS LOWER POSITION TO THE POSITION WHERE THE TIP OF THE ROTARY HOOK EXACTLY MEETS THE RIGHT SIDE OF THE NEEDLE SHOULD BE 3.15 TO 3.45MM.

BEFORE THE ADJUSTMENT, BE SURE TO CHECK THE NEEDLE BAR HEIGHT.

1. SET THE STITCH SELECTOR , ZIGZAG WIDTH AT " 6.5 ".
2. REMOVE SCREW (A) ON THE NEEDLE PLATE, AND REMOVE THE NEEDLE PLATE (B) AND BOBBIN HOLDER (C).
3. REMOVE THE BED COVER (SEE PAGE 4).
4. LOOSEN SET SCREWS (D) ON THE LOWER SHAFT GEAR (E).
5. TURN THE HANDWHEEL TOWARD YOU TO RAISE THE NEEDLE BAR 3.15 TO 3.45MM FROM ITS LOWEST POSITION WITH THE NEEDLE SWUNG TO THE LEFT.
6. WHILE HOLDING THE HANDWHEEL BY HAND TO PREVENT THE NEEDLE BAR FROM MOVING, TURN THE LOWER SHAFT GEAR IN THE ARROW DIRECTION UNTIL THE TIP OF THE ROTARY HOOK EXACTLY MEETS THE RIGHT SIDE OF THE NEEDLE.
7. TAKING CARE NOT TO AFFECT THE RELATIONSHIP BETWEEN THE ROTARY HOOK TIP AND THE NEEDLE, TIGHTEN THE SET SCREWS ON THE LOWER SHAFT GEAR.
8. ATTACH THE BED COVER, BOBBIN HOLDER AND NEEDLE PLATE.

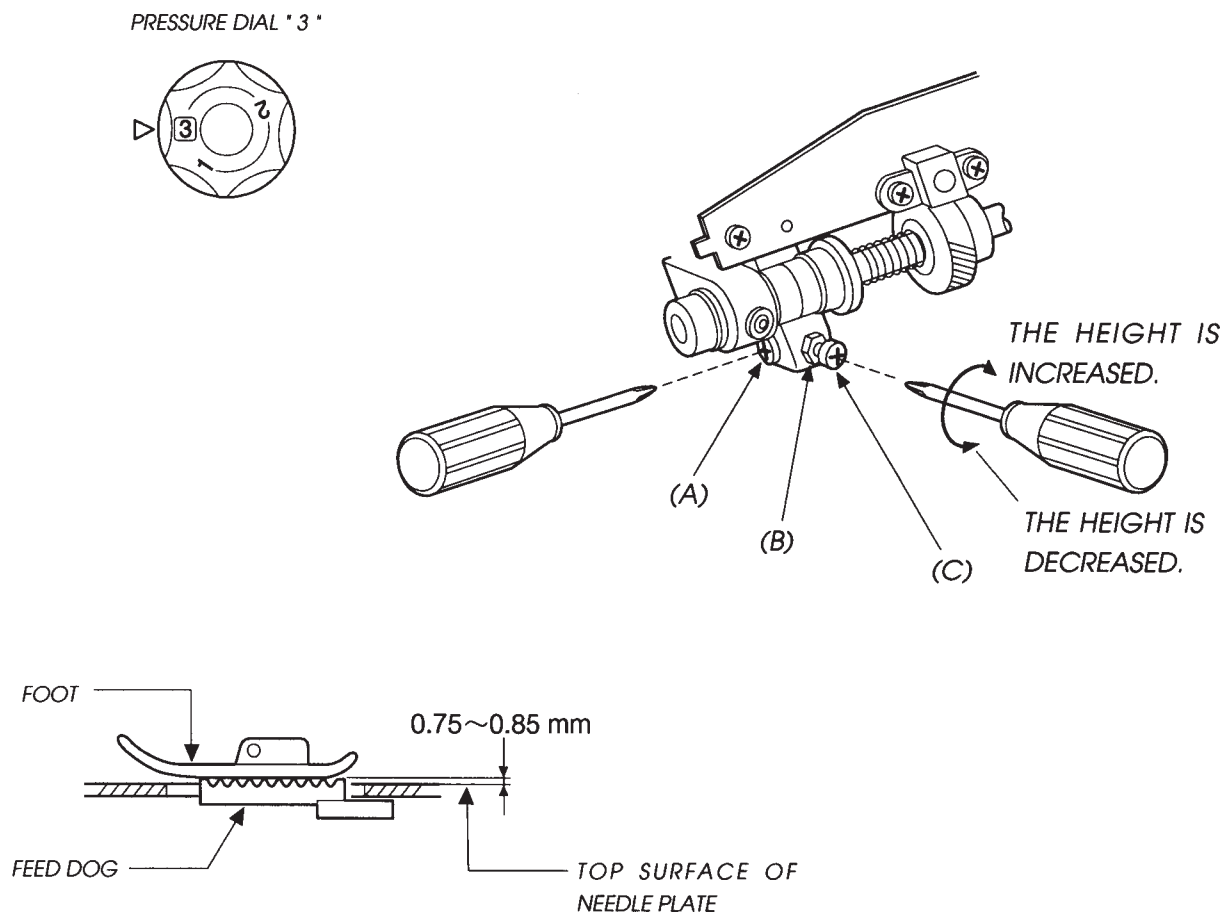


# MECHANICAL ADJUSTMENT

## FEED DOG HEIGHT

WHEN THE PRESSER FOOT IS LOWERED WITH THE PRESSURE DIAL SET AT " 3 , " THE HIGHEST POSITION OF THE FEED DOG SHOULD BE 0.75 TO 0.85MM ABOVE THE TOP SURFACE OF THE NEEDLE PLATE.

1. SET THE PRESSURE DIAL AT " 3 , " AND LOWER THE PRESSER FOOT.
2. TURN THE HANDWHEEL UNTIL THE FEED DOG COMES TO ITS HIGHEST POSITION.
3. REMOVE THE BED COVER (SEE PAGE 4).
4. LOOSEN SCREW (A) AND NUT (B).
5. TURN THE ADJUSTING SCREW (C) SO THAT THE FEED DOG HEIGHT IS 0.75 TO 0.85MM ABOVE THE TOP SURFACE OF THE NEEDLE PLATE.
6. TIGHTEN THE NUT.
7. TIGHTEN SCREW (A) AND ATTACH THE BED COVER.

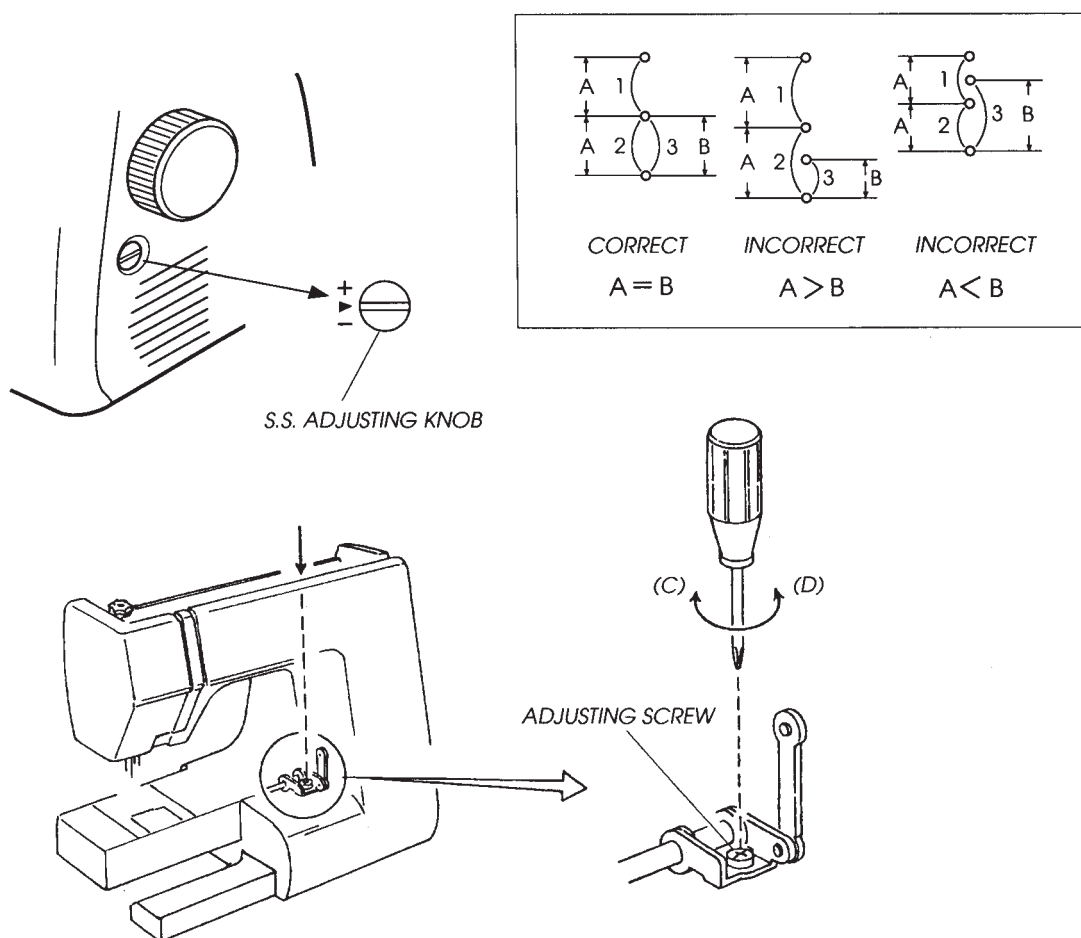


# MECHANICAL ADJUSTMENT

## STRETCH STITCH BALANCE

WHEN A STRETCH STITCH PATTERN "  " IS SEWED WITH THE SS ADJUSTING KNOB AT THE " ► " MARK, THE PATTERN SHOULD BE FORMED AS SHOWN IN THE FIGURE BELOW. IF NOT (IF THERE IS NO BALANCE BETWEEN FORWARD FEEDING AND BACKWARD FEEDING) THEN MAKE ADJUSTMENT IN THE FOLLOWING PROCEDURE.

1. REMOVE THE TOP COVER (SEE P. 2), AND SET THE SS ADJUSTING KNOB AT THE " ► " MARK.
2. PUT A PIECE OF PAPER UNDER THE PRESSER FOOT, AND TURN THE HANDWHEEL TO CHECK THE NEEDLE DROP POSITION IN FORWARD (A) AND BACKWARD FEEDING (B).
3. IF  $(A) > (B)$ , THEN TURN THE ADJUSTING SCREW IN DIRECTION (C).  
IF  $(A) < (B)$ , THEN TURN THE ADJUSTING SCREW IN DIRECTION (D).
4. ATTACH THE TOP COVER.



# MECHANICAL ADJUSTMENT

## BUTTONHOLE STITCH BALANCE

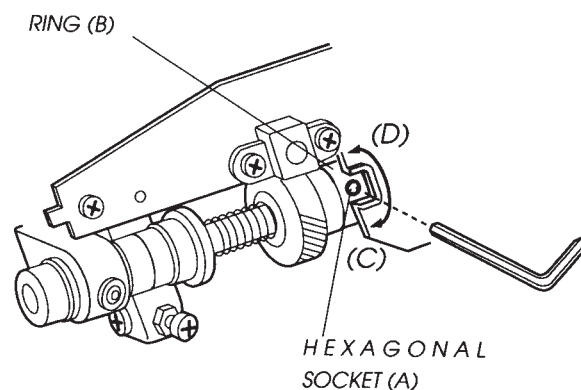
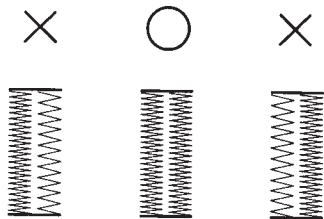
### TO CHECK:

1. SET THE MACHINE AS FOLLOWS:  
STITCH SELECTOR ..... **I**  
STITCH LENGTH DIAL ..... BLUE ZONE  
STITCH WIDTH DIAL ..... 6.5
2. ATTACH THE AUTOMATIC BUTTONHOLE FOOT.
3. SEW BUTTONHOLE AND CHECK THE STITCH BALANCE BETWEEN THE RIGHT SIDE AND LEFT SIDE OF BUTTONHOLE.
4. THE CORRECT BUTTONHOLE STITCH BALANCE IS WHEN THERE IS THE SAME DENSITY ON THE RIGHT AND LEFT SIDES OF THE BUTTONHOLE.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BED COVER (SEE PAGE 4).
2. LOOSEN HEXAGONAL SOCKET SCREW (A).
3. IF THE RIGHT SIDE OF THE BUTTONHOLE IS TOO SPARSE, TURN THE RING (B) IN THE DIRECTION OF (C).  
IF THE LEFT SIDE OF THE BUTTONHOLE IS TOO SPARSE, TURN THE RING (B) IN THE DIRECTION OF (D).
4. TIGHTEN HEXAGONAL SOCKET SCREW (A) SECURELY.

INCORRECT    CORRECT    INCORRECT



# MECHANICAL ADJUSTMENT

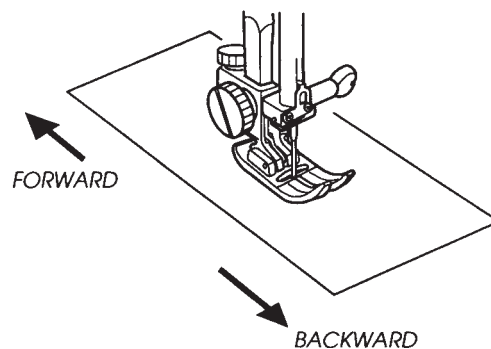
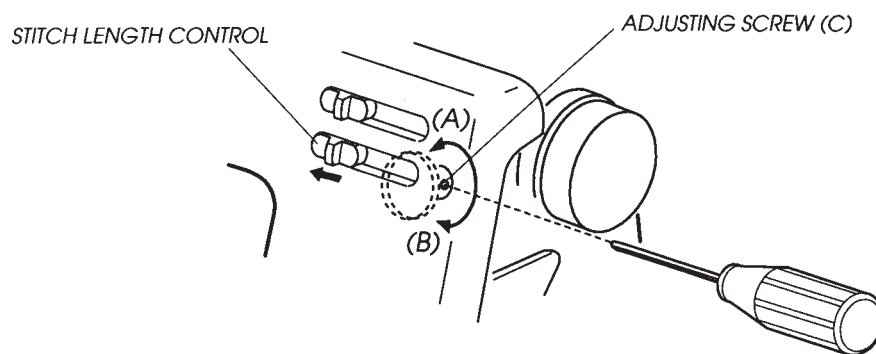
## ZERO FEEDING

### TO CHECK:

1. SET THE STITCH SELECTOR TO  AND THE STITCH LENGTH CONTROL TO "0."
2. PLACE A PIECE OF PAPER ON THE NEEDLE PLATE.
3. CHECK IF THE PAPER MOVES FORWARD OR BACKWARD WHEN YOU TURN THE HANDWHEEL TOWARD YOU.
4. THE MACHINE SHOULD NOT FEED A PIECE OF PAPER AT THIS SETTING.

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BELT COVER (SEE PAGE 3).
2. SET THE STITCH SELECTOR AT  AND THE STITCH LENGTH CONTROL AT "0".
3. PLACE A PIECE OF PAPER ON THE NEEDLE PLATE.
4. IF THE PAPER MOVES FORWARD, TURN ADJUSTING SCREW (C) IN DIRECTION (A).  
IF THE PAPER MOVES BACKWARD, TURN ADJUSTING SCREW (C) IN DIRECTION (B).



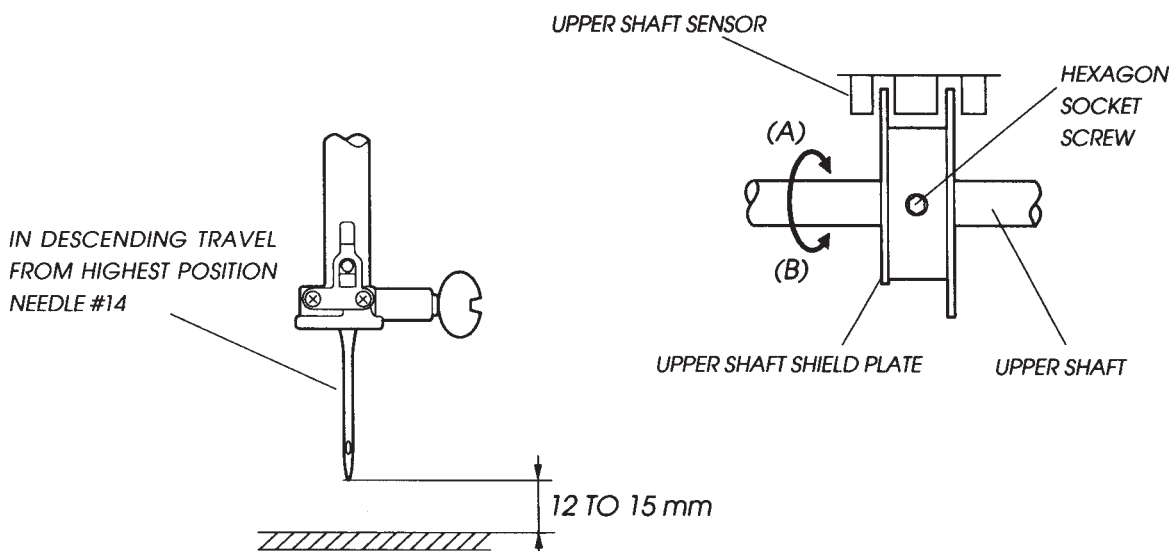
# MECHANICAL ADJUSTMENT

## NEEDLE BAR STOP POSITION

THE NEEDLE BAR SHOULD STOP WHEN THE NEEDLE POINT IS 12 TO 15 MM ABOVE THE TOP SURFACE OF THE NEEDLE PLATE.

1. REMOVE THE TOP COVER (SEE P.2), AND TURN ON THE POWER SWITCH.
2. STOP THE NEEDLE AT ITS HIGHEST POSITION BY PRESSING THE UP/DOWN NEEDLE POSITION BUTTON.
3. IF THE NEEDLE POINT IS HIGHER THAN 15MM ABOVE THE TOP SURFACE OF THE NEEDLE PLATE, LOOSEN THE HEXAGON SOCKET SCREW AND TURN THE UPPER SHAFT SHIELD PLATE IN DIRECTION (A).  
IF THE NEEDLE POINT IS LOWER THAN 12MM ABOVE THE TOP SURFACE OF THE NEEDLE PLATE, LOOSEN THE HEXAGON SOCKET SCREW AND TURN THE UPPER SHAFT SHIELD PLATE IN DIRECTION (B).
4. CHECK THE NEEDLE BAR STOP POSITION, AND ATTACH THE TOP COVER.

(NOTE) THE STANDARD NEEDLE BAR STOP POSITION IS AT A DISTANCE OF 12 TO 15MM BETWEEN THE NEEDLE POINT AND THE TOP SURFACE OF NEEDLE PLATE. HOWEVER, THE POSITION CAN BE JUDGED FUNCTIONALLY BY THE FOLLOWING: WHETHER THE NEEDLE CAN BE THREADED BY THE THREADER AND THE THREAD CAN BE PASSED THROUGH THE THREAD TAKE-UP LEVER.



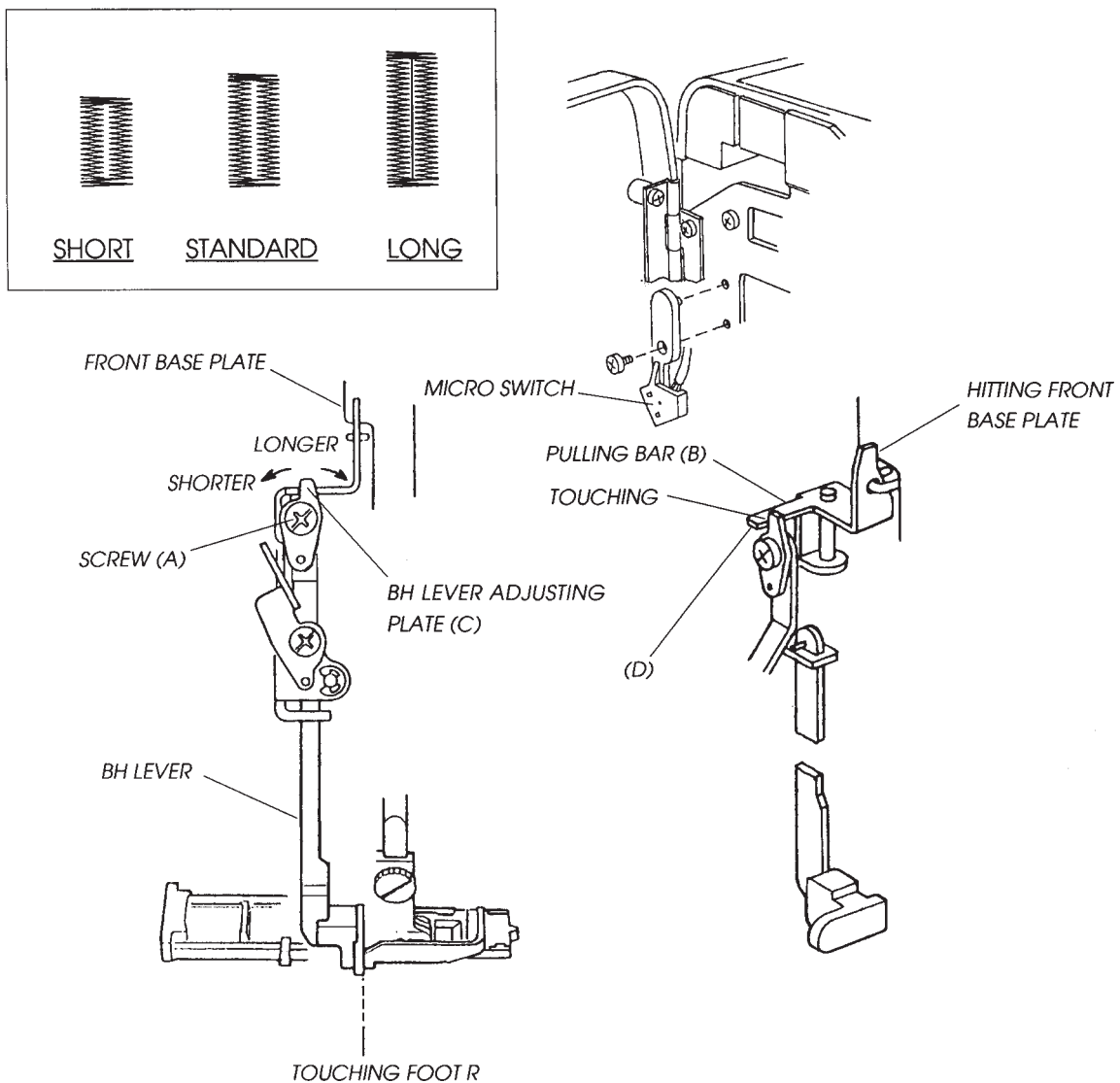
# MECHANICAL ADJUSTMENT

## BUTTONHOLE FUNCTION (1)

\* A BUTTONHOLE SEWN WITH THE AUTOMATIC BUTTONHOLE FOOT WILL BE 3MM LONGER THAN THE ACTUAL BUTTON. THE LENGTH CAN BE ADJUSTED AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. LOWER THE FEED DOG AND ATTACH FOOT R, THEN LOWER THE PRESSER BAR.
2. OPEN THE FACE COVER, AND REMOVE THE MICRO SWITCH.
3. LOOSEN SCREW (A).
4. PULL DOWN THE BH LEVER UNTIL IT TOUCHES FOOT R, AND BAR (B) HITS THE FRONT BASE PLATE. ALSO, MAKE SURE BH LEVER ADJUSTING PLATE (C) TOUCHES FINGER (D). TIGHTEN SCREW (A).
5. UPPER THE FEED DOG AND SEW A BUTTONHOLE. THEN, CHECK THE LENGTH.
6. ATTACH THE MICRO SWITCH.



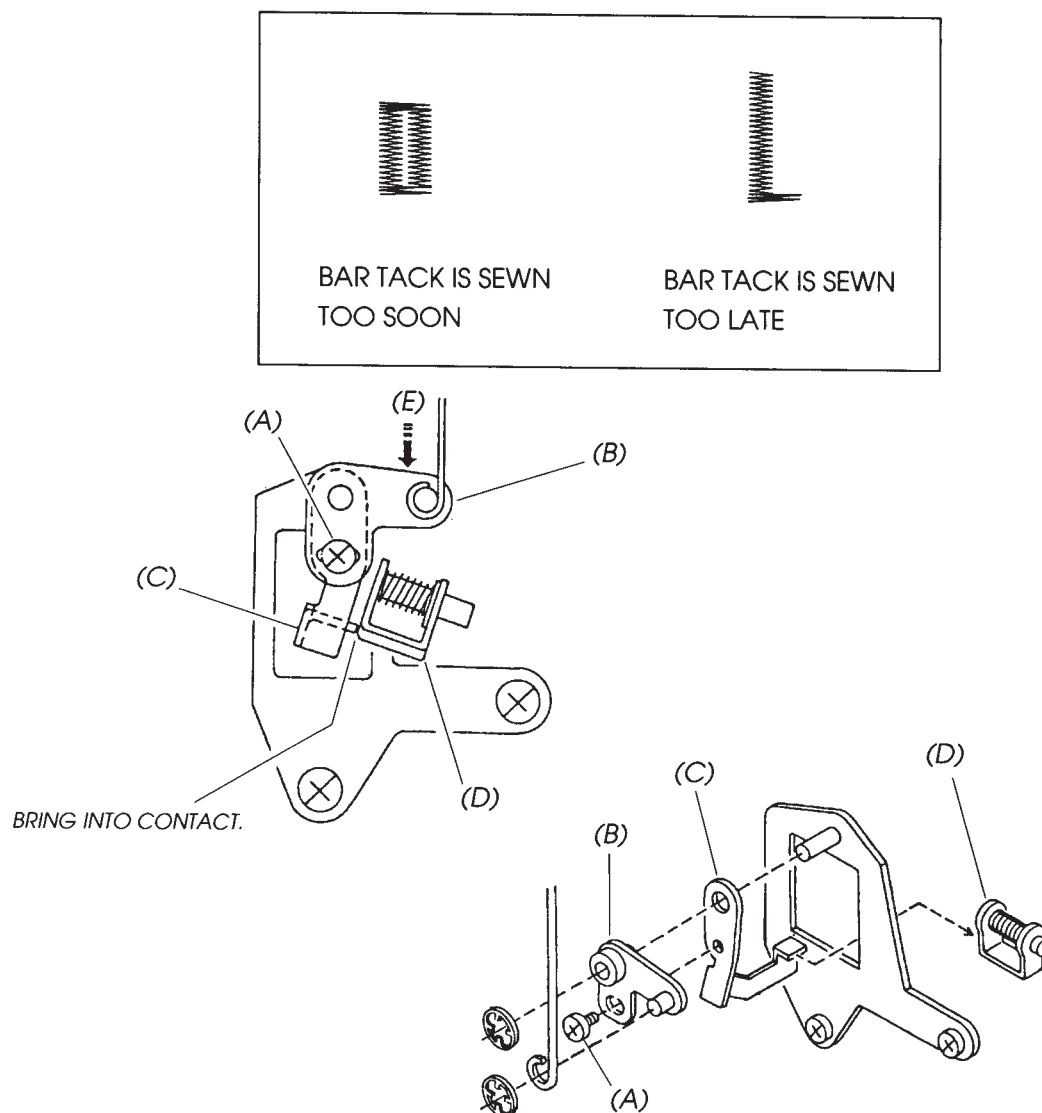
# MECHANICAL ADJUSTMENT

## BUTTONHOLE FUNCTION (2)

\* IF THE BAR TACK ON THE BUTTONHOLE OCCURS TOO EARLY, OR IF NO BAR TACK IS SEWN AT ALL, ADJUST AS FOLLOWS:

### ADJUSTMENT PROCEDURE:

1. REMOVE THE BELT COVER (SEE PAGE 3).
2. LOOSEN SET SCREW (A).
3. MAKE ADJUSTMENT SO THAT PLATE (C) TOUCHES PLATE (D) WITH PLATE (B) LIGHTLY PUSHED IN DIRECTION (E).
4. ATTACH THE BELT COVER.



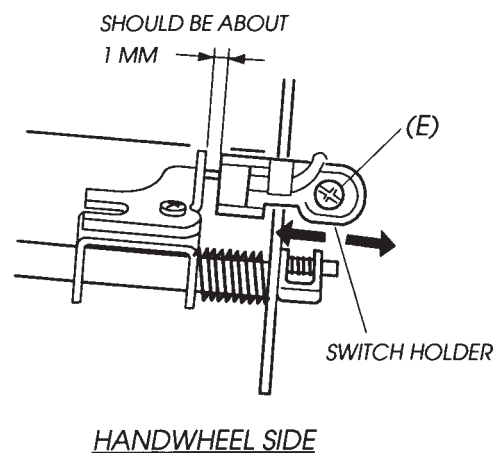
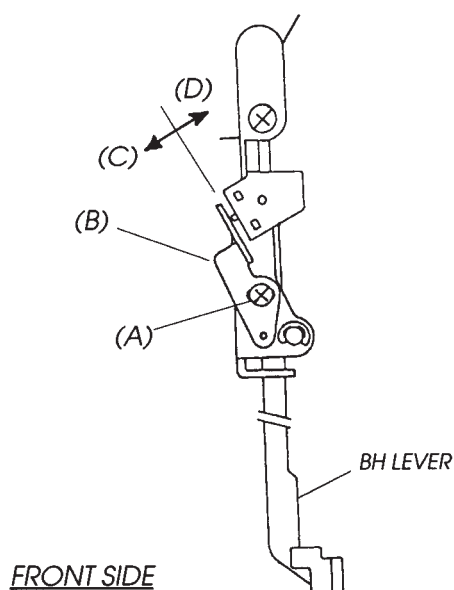
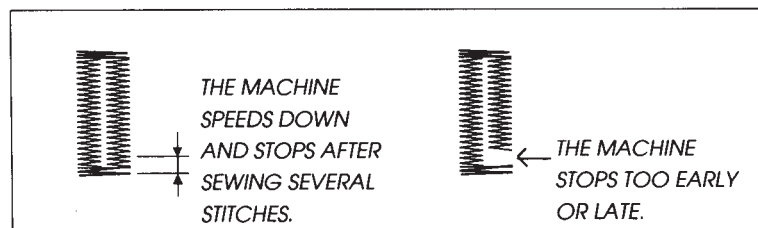
# MECHANICAL ADJUSTMENT

## BUTTONHOLE FUNCTION (3)

\* IF BH STITCHING WITH THE BH FOOT DOES NOT STOP PROPERLY, THEN CHECK AND ADJUST IN THE FOLLOWING MANNER:

### ADJUSTMENT PROCEDURE:

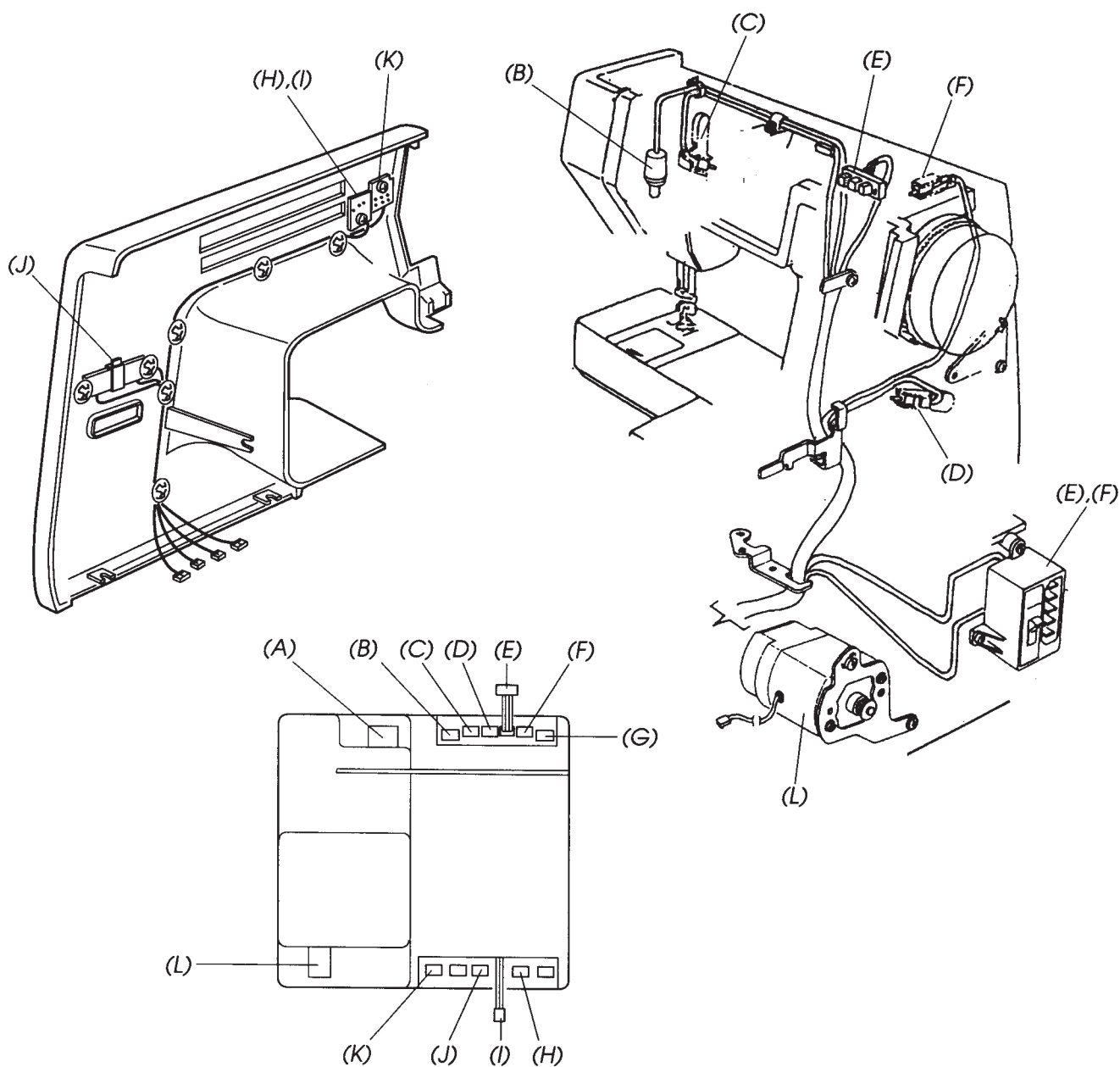
1. OPEN THE FACE COVER, AND LOOSEN SCREW (A).
2. IF AUTOMATIC STOP OF BH STITCHING IS TOO EARLY, MOVE ADJUSTING PLATE (B) IN DIRECTION (C).  
IF AUTOMATIC STOP OF BH STITCHING IS TOO LATE, MOVE ADJUSTING PLATE (B) IN DIRECTION (D).
3. FIX ADJUSTING PLATE (B) WITH THE SCREW, AND CHECK THE BH STITCHING.  
\* IF AUTOMATIC STOP IN STEP BH4 CONTINUES TO MALFUNCTION AFTER PUSHING THE BH LEVER IN THE DIRECTION OF THE ARROW WITH A FINGER, THE FOLLOWING SHOULD ALSO BE CHECKED.
4. REMOVE THE BELT COVER, SELECT BH STITCHING, AND PROCEED TO STEP BH4.
5. LOOSEN SCREW (E), ADJUST THE POSITION OF THE SWITCH HOLDER (SO THAT THE SWITCH IS TURNED ON IN STEP BH4), AND THEN TIGHTEN THE SCREW.
6. SEW A BUTTONHOLE AND CHECK THE AUTOMATIC STOP FUNCTION.
7. ATTACH THE BELT COVER.



# WIRING DIAGRAM

## CORD CONNECTION

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| (A) MACHINE SOCKET (PRIMARY SIDE)   | (H) LD2 (CONNECTOR BLUE)           |
| (B) LAMP SOCKET                     | (I) LD2 (CONNECTOR BLACK)          |
| (C) BH LIMIT SWITCH                 | (J) SLIDE POTENTIOMETER            |
| (D) BH SELECTOR SWITCH              | (K) UP/DOWN NEEDLE POSITION BUTTON |
| (E) UPPER SHAFT SENSOR              | (L) MOTOR                          |
| (F) BOBBIN WINDER SWITCH            |                                    |
| (G) MACHINE SOCKET (SECONDARY SIDE) |                                    |



# PART REMOVAL AND REPLACEMENT

## BOARD "B" AND FUSE

### TO REMOVE:

1. REMOVE THE BASE (SEE PAGE 4).
2. REMOVE THE TWO SET SCREWS (A). REMOVE THE CIRCUIT BOARD CASE, AND UNPLUG THE TWELVE CONNECTORS.
3. REMOVE THE THREE SET SCREWS (B), REMOVE THE CIRCUIT BOARD COVER.
4. REMOVE THE FOUR SET SCREWS (C), AND REMOVE CIRCUIT BOARD B.

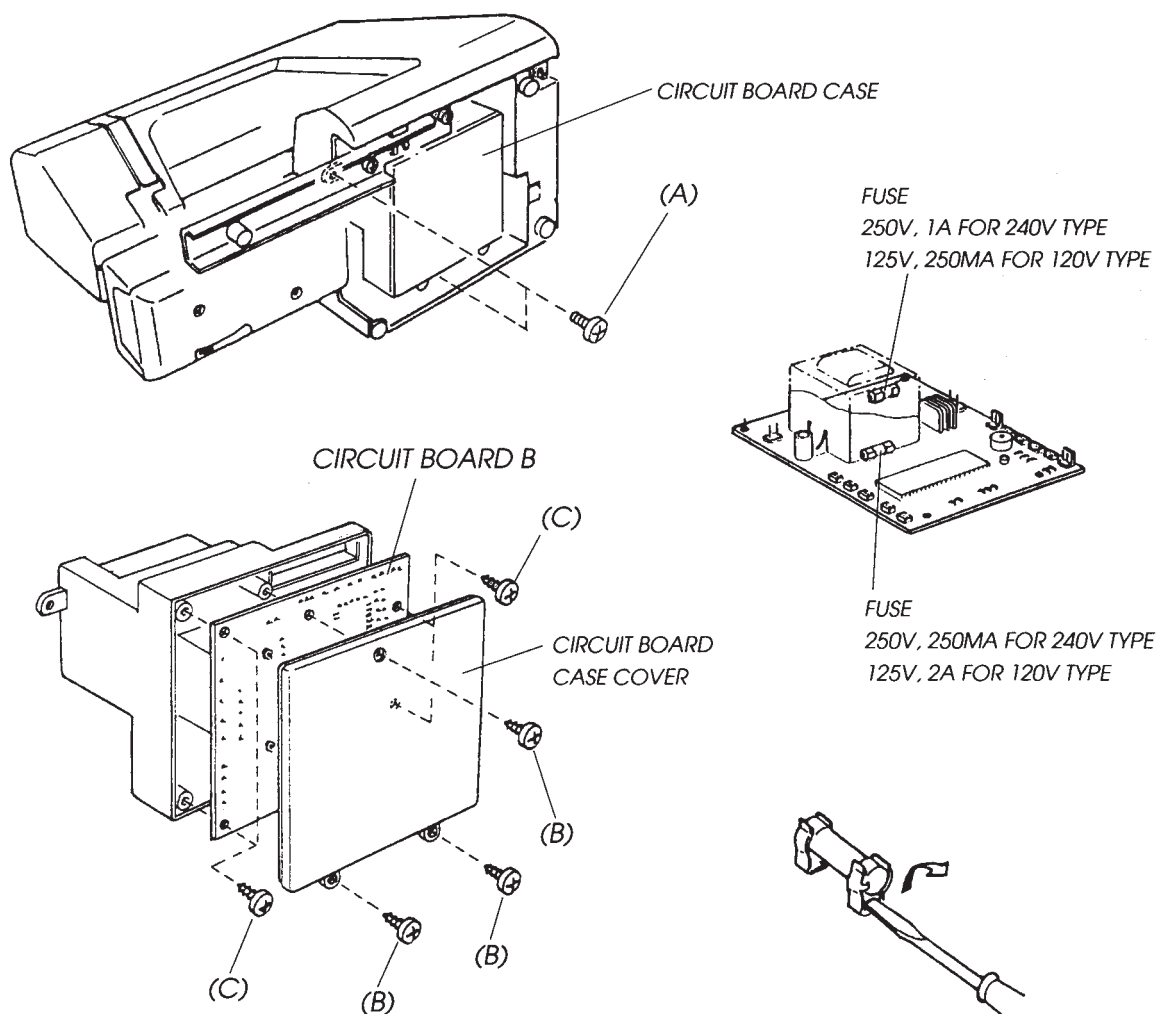
### TO ATTACH:

5. FOLLOW THE ABOVE PROCEDURE IN REVERSE.

### TO CHANGE THE FUSE

TO REPLACEMENT THE FUSE, REMOVE IT FROM CIRCUIT BOARD B FROM THE SIDE OF THE FUSE HOLDER WITH A SCREWDRIVER OR THE LIKE.

TWO KINDS OF FUSES ARE USED ON CIRCUIT BOARD B SO TAKE CARE NOT TO MISTAKE THEM FOR EACH OTHER.



# PART REMOVAL AND REPLACEMENT

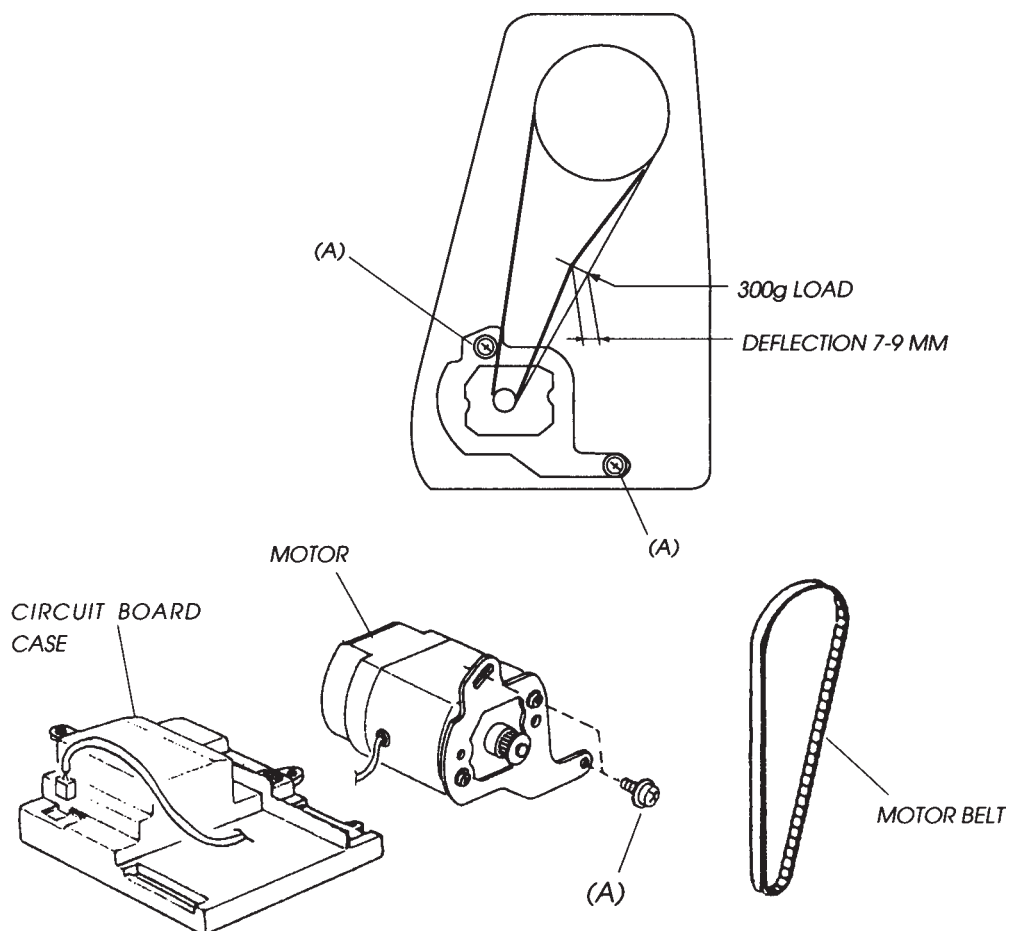
## MOTOR

### TO REMOVE:

1. REMOVE THE BELT COVER (SEE PAGE 3), AND BASE (SEE PAGE 4).
2. DETACH THE CIRCUIT BOARD CASE, AND UNPLUG THE CONNECTOR.
3. REMOVE THE MOTOR BELT.
4. REMOVE THE SET SCREWS (A), THEN TAKE OUT AND REPLACE THE MOTOR.

### TO ATTACH:

5. ATTACH THE MOTOR BY TEMPORARILY TIGHTENING THE SET SCREWS (A).
6. ATTACH THE MOTOR BELT, AND ADJUST THE BELT TENSION.
7. PLUG IN THE CONNECTOR (IN EITHER DIRECTION).
8. ATTACH THE CIRCUIT BOARD CASE.
9. ATTACH THE BASE AND BELT COVER.



# PART REMOVAL AND REPLACEMENT

## THREADER PLATE

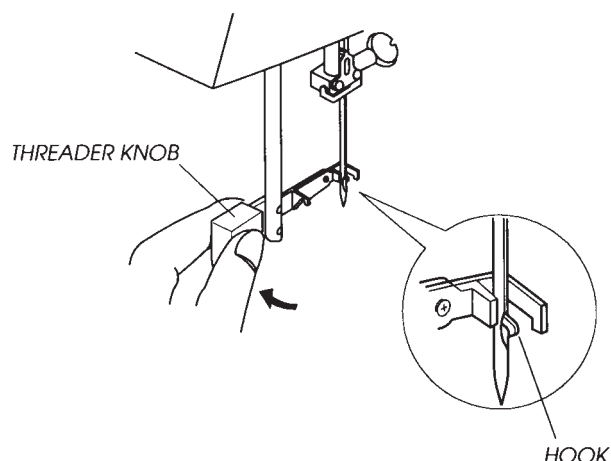
WHEN THE HOOK OF THE THREADER PLATE IS DAMAGED, CHANGE OR ADJUST THE PART AS FOLLOWS.

### TO CHANGE THE THREADER PLATE:

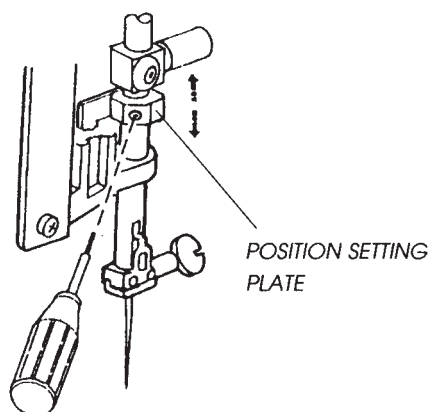
1. RAISE THE NEEDLE TO ITS HIGHEST POSITION AND LOWER THE THREADER KNOB TO ITS LOWEST POSITION.
2. LOOSEN THE SCREW AND REMOVE THE THREADER PLATE (FIG.A).

### TO CHANGE THE NEEDLE THREADER:

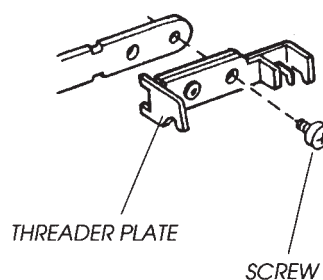
1. IF THE HOOK OF THE THREADER PLATE TOUCHES THE LEFT OR RIGHT SIDE, LOOSEN THE SCREW AND ADJUST THE HOOK POSITION (FIG.B).
2. IF THE HOOK OF THE THREADER PLATE TOUCHES THE TOP OR BOTTOM SIDE OF THE NEEDLE HOLE, LOOSEN THE SCREW AND ADJUST THE HOOK POSITION (FIG.C).



ADJUST THE VERTICAL POSITION (FIG.C)



TO CHANGE THE THREADER PLATE (FIG.A).



ADJUST THE HORIZONTAL POSITION (FIG.B)

