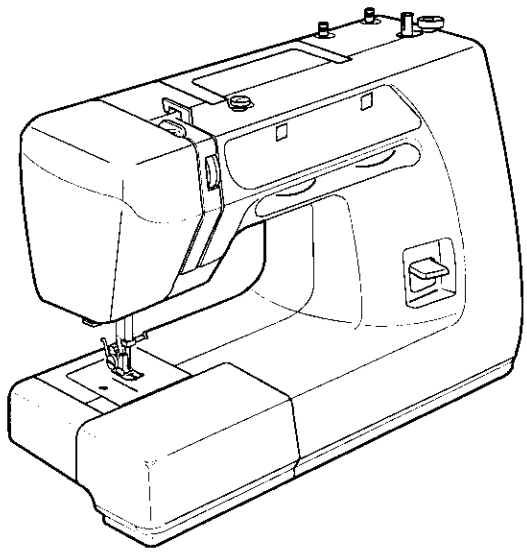
SERVICE MANUAL



SEWING MACHINE MODEL
385. 15108200
JUNE, 2002

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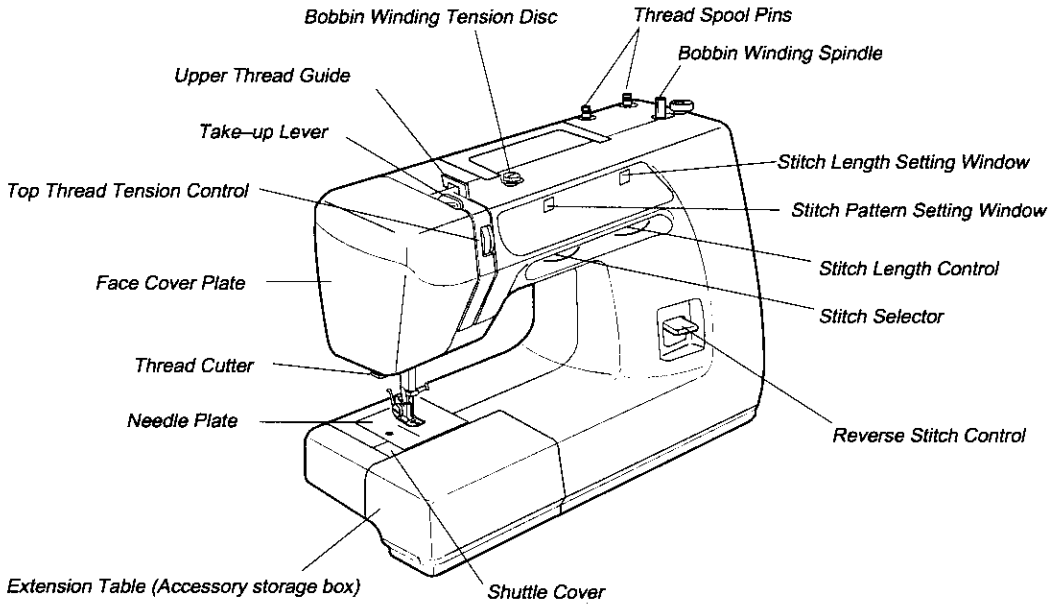
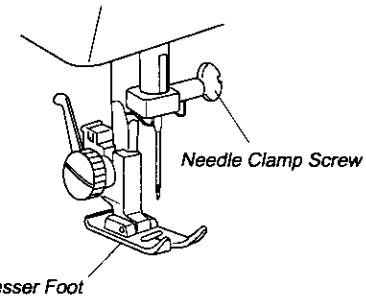
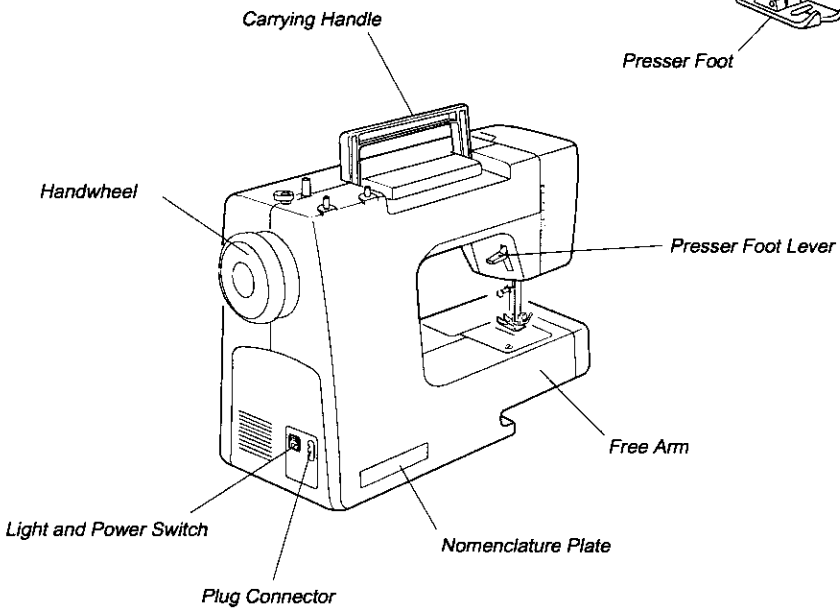
LOCATE AND IDENTIFY THE PARTS

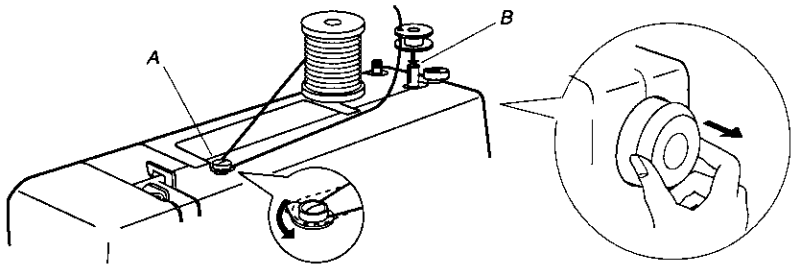


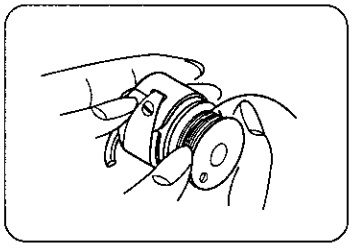




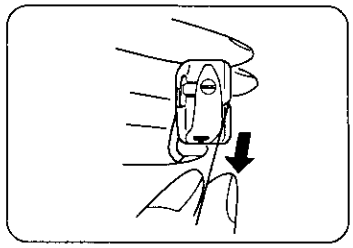
WIND THE BOBBIN

1. PULL THE HANDWHEEL OUT.
2. DRAW THE THREAD FROM THE SPOOL THROUGH THE BOBBIN WINDING TENSION DISCS (A).
3. PULL THE END OF THE THREAD THROUGH THE BOBBIN AS SHOWN.
   PLACE THE BOBBIN ONTO THE BOBBIN WINDING SPINDLE, (B) WITH THE END OF THE THREAD COMING FROM THE TOP OF THE BOBBIN.
   PUSH THE BOBBIN WINDING SPINDLE TO THE RIGHT UNTIL IT CLICKS.
4. HOLDING THE END OF THREAD, START THE MACHINE. WHEN THE BOBBIN IS SLIGHTLY FILLED, SNIP OFF THE END OF THE THREAD.
5. WIND THE THREAD UNTIL THE BOBBIN STOPS. REMOVE THE BOBBIN.
6. PUSH THE HANDWHEEL TO THE LEFT.

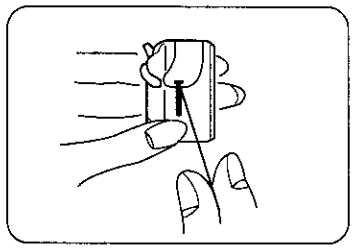




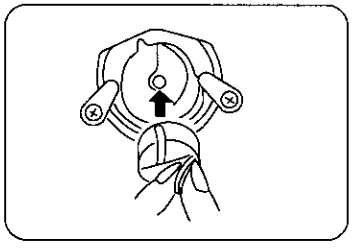
1 PLACE THE BOBBIN IN THE BOBBIN CASE MAKING SURE THE THREAD FEEDS CLOCKWISE, AND IS COMING FROM THE BOBBIN AS SHOWN.



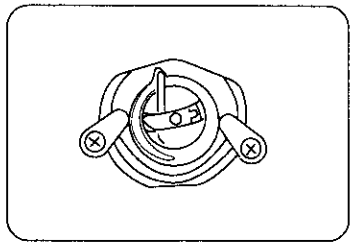
2 PULL THE THREAD THROUGH THE SLOT OF THE CASE AS SHOWN.



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



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



5 THE CASE SHOULD LOCK INTO PLACE WHEN THE LATCH IS RELEASED.

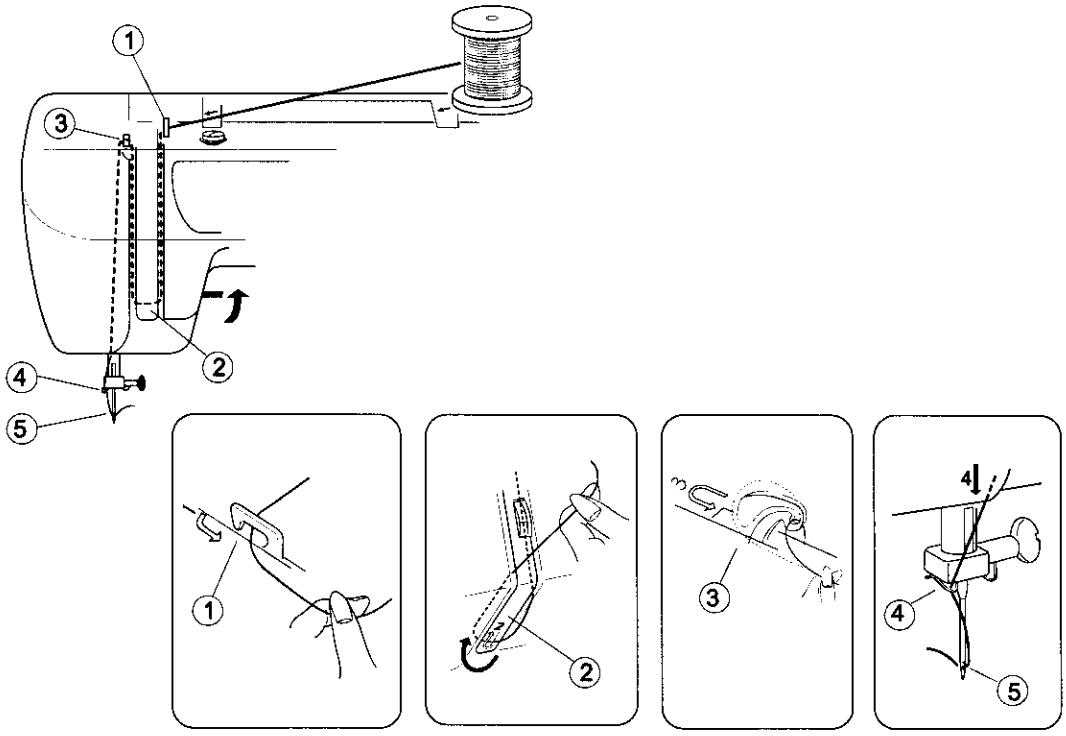
PREPARE YOUR TOP THREAD

THE NUMBERED STEPS BELOW FOLLOW THE NUMBERS ON THE ILLUSTRATIONS. THE DOTTED LINES SHOW PLACES WHERE THE THREAD LOOPS, AND IS PULLED TIGHT.

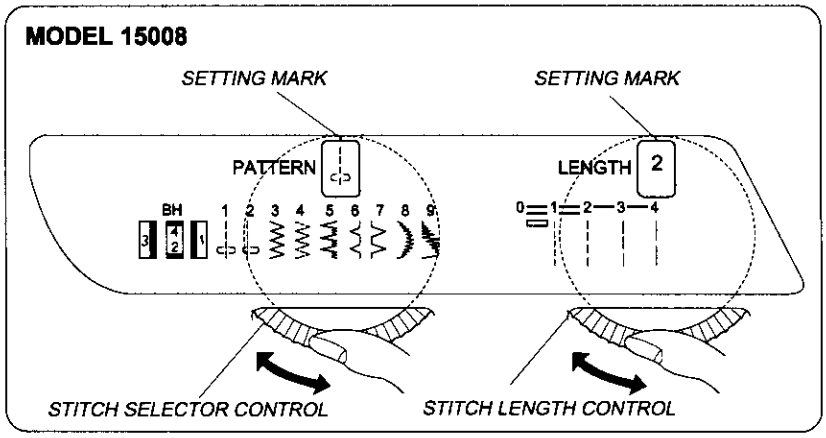
RAISE THE TAKE-UP LEVER TO ITS HIGHEST POSITION BY TURNING THE HANDWHEEL TOWARD YOU.
RAISE THE PRESSER FOOT LEVER.
PLACE THE SPOOL ON THE PIN, WITH THE THREAD COMING FROM THE BACK OF THE SPOOL.

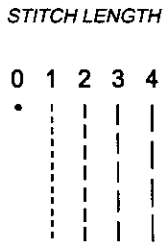
1. DRAW THE THREAD THROUGH THE THREAD GUIDE.
2. HOLDING THE THREAD TAUT WITH YOUR RIGHT HAND, DRAW THE THREAD DOWN INTO THE TENSION AREA AND THEN AROUND THE CHECK SPRING HOLDER.
3. FIRMLY DRAW THE THREAD UP AND THROUGH THE TAKE-UP LEVER, FROM RIGHT TO LEFT.
4. DRAW THE THREAD DOWN AGAIN, AND SLIP IT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

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

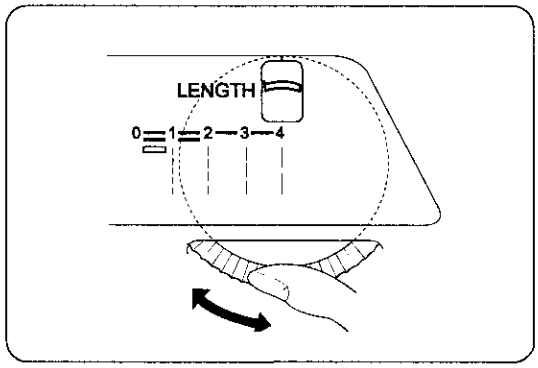


STITCH SELECTOR / STITCH LENGTH CONTROLS





BUTTON HOLES



REFER TO THE AUTOMATIC MECHANISM, FOR THE ADJUSTMENT OF STITCH DENSITY IN THE BUTTONHOLES.

WHAT TO DO WHEN

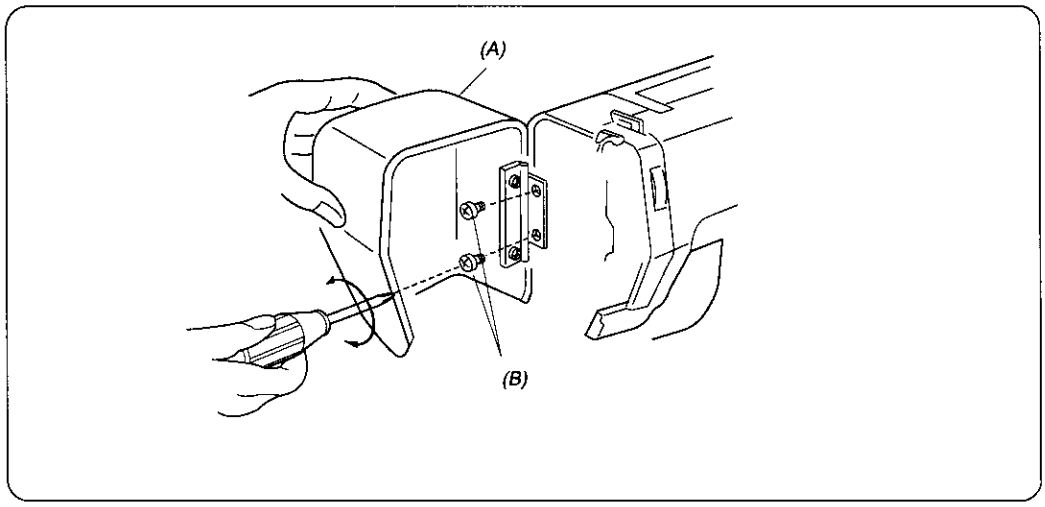
CONDITION	CAUSE	HOW TO FIX	REFERENCE
1. SKIPPING STITCHES	1. NEEDLE IS NOT INSERTED PROPERLY.	INSERT THE NEEDLE PROPERLY.	
	2. NEEDLE IS BENT OR WORN.	CHANGE THE NEEDLE.	
	3. INCORRECTLY THREADED	RETHREAD.	
	4. NEEDLE OR THREAD ARE INAPPROPRIATE FOR FABRIC BEING SEWN.	USE THE RECOMMENDED SEWING NEEDLE AND THREAD.	
	5. SEWING ON STRETCH FABRIC	USE A #11 BLUE TIP NEEDLE.	
	6. INAPPROPRIATE NEEDLE BAR HEIGHT.	SEE MECHANICAL ADJUSTMENT "NEEDLE BAR HEIGHT".	P.20
	7. INAPPROPRIATE NEEDLE TO HOOK TIMING	SEE MECHANICAL ADJUSTMENT "NEEDLE TIMING TO SHUTTLE".	P.21
	8. INAPPROPRIATE NEEDLE TO HOOK CLEARANCE	SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK".	P.17,18
2. FABRIC NOT MOVING	1. INCORRECT F.D. HEIGHT	SEE MECHANICAL ADJUSTMENT "FEED DOG HEIGHT".	P.19
	2. THREAD ON BOTTOM SIDE OF FABRIC IS JAMMED UP.	MAKE SURE TO BRING BOTH NEEDLE AND BOBBIN THREAD UNDER THE FOOT WHEN STARTING SEWING.	
	3. FEED DOG TEETH ARE WORN.	CHANGE THE FEED DOG.	

CONDITION	CAUSE	HOW TO FIX	REFERENCE
3. BREAKING UPPER THREAD	1. INITIAL SEWING SPEED IS TOO FAST.	START WITH MEDIUM SPEED.	
	2. THREAD PATH IS INCORRECT.	USE THE PROPER THREAD PATH.	
	3. NEEDLE IS BENT OR DULL.	REPLACE WITH A NEW NEEDLE.	
	4. UPPER THREAD TENSION IS TOO STRONG.	ADJUST UPPER THREAD TENSION CORRECTLY.	P.12
	5. NEEDLE SIZE IS INAPPROPRIATE FOR FABRIC.	USE APPROPRIATE NEEDLE FOR FABRIC AND THREAD IN USE.	
	6. NEEDLE EYE IS WORN.	CHANGE THE NEEDLE.	
	7. NEEDLE HOLE IN NEEDLE PLATE IS WORN OR BURRED.	REPAIR THE HOLE OR REPLACE THE NEEDLE PLATE.	
4. BREAKING BOBBIN THREAD	1. INCORRECTLY THREADED BOBBIN CASE.	THREAD BOBBIN CASE CORRECTLY.	
	2. TOO MUCH THREAD IS ON THE BOBBIN.	ADJUST THE POSITION OF STOPPER.	
	3. LINT IS STUCK INSIDE THE BOBBIN HOLDER.	CLEAN THE HOOK RACE.	
	4. THREAD QUALITY IS TOO LOW.	CHANGE TO A HIGH QUALITY SEWING THREAD.	
	5. THREAD IS JAMMING ON THE BOBBIN.	CLEAR OUT THE JAMMING THREAD.	
	6. BOBBIN THREAD TENSION IS TOO STRONG.	ADJUST BOBBIN THREAD TENSION CORRECTLY.	P.13
5. NEEDLE BREAKS	1. NEEDLE IS HITTING THE NEEDLE PLATE.	SEE MECHANICAL ADJUSTMENT "NEEDLE DROP."	P.16
	2. NEEDLE IS BENT OR WORN.	CHANGE THE NEEDLE.	
	3. NEEDLE IS HITTING THE HOOK RACE.	SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK".	P.17, 18
	4. THE FABRIC MOVES WHILE THE NEEDLE IS PIERCING IT, OR THE NEEDLE ZIGZAGS WHILE IN THE FABRIC.	SEE MECHANICAL ADJUSTMENT "NEEDLE SWING".	P.15
	5. FABRIC IS BEING PULLED TOO STRONGLY WHILE SEWING.	GUIDE THE FABRIC GENTLY WHILE SEWING.	

CONDITION	CAUSE	HOW TO FIX	REFERENCE
6. NOISY OPERATION	1. BACKLASH BETWEEN SHUTTLE HOOK GEAR AND LOWER SHAFT GEAR IS TOO GREAT.	SEE MECHANICAL ADJUSTMENT "CLEARANCE BETWEEN NEEDLE AND HOOK (NO.2)".	P.18
	2. LOWER SHAFT GEAR IS LOOSE.	ELIMINATE THE LOOSENESS.	
	3. INAPPROPRIATE BELT TENSION.	SEE MECHANICAL ADJUSTMENT "MOTOR BELT TENSION".	P.25
	4. UPPER SHAFT GEAR IS LOOSE.	ELIMINATE THE LOOSENESS.	
	5. NOT ENOUGH OIL.	OIL ALL MOVING PARTS.	
7. DEFORMATION PATTERN	1. INAPPROPRIATE ZIGZAG SYNCHRONIZATION.	SEE MECHANICAL ADJUSTMENT "NEEDLE SWING".	P.15
	2. INAPPROPRIATE DISENGAGEMENT OF CAM FOLLOWER.	SEE MECHANICAL ADJUSTMENT "DISENGAGEMENT OF CAM FOLLOWER".	P.24
	3. UPPER THREAD TENSION IS TOO STRONG.	ADJUST UPPER THREAD TENSION CORRECTLY.	P.12

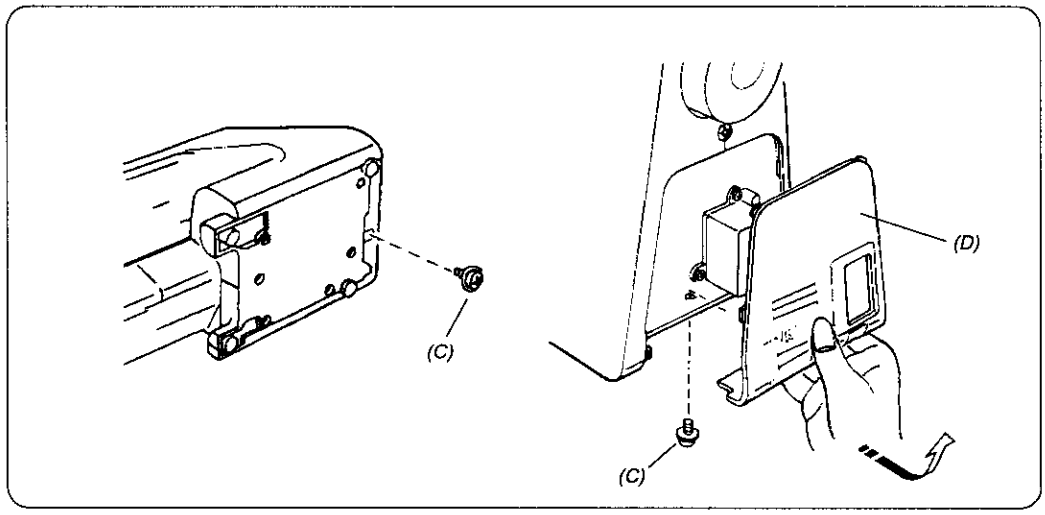
SERVICE ACCESS

FACE COVER



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

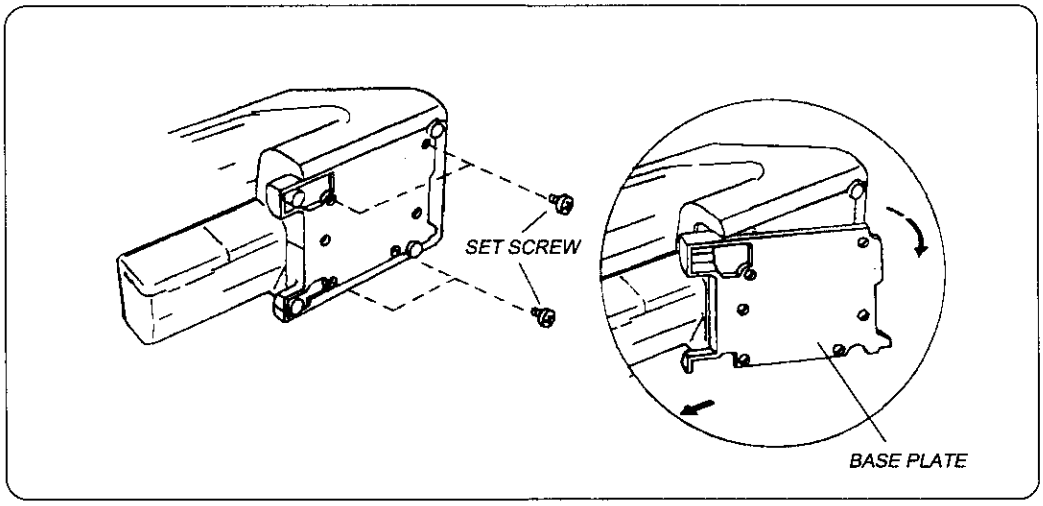
BELT COVER



1. LOOSEN THE SCREW (C).
2. TAKE THE BELT COVER (D) OFF.

SERVICE ACCESS

BASE PLATE



TO REMOVE

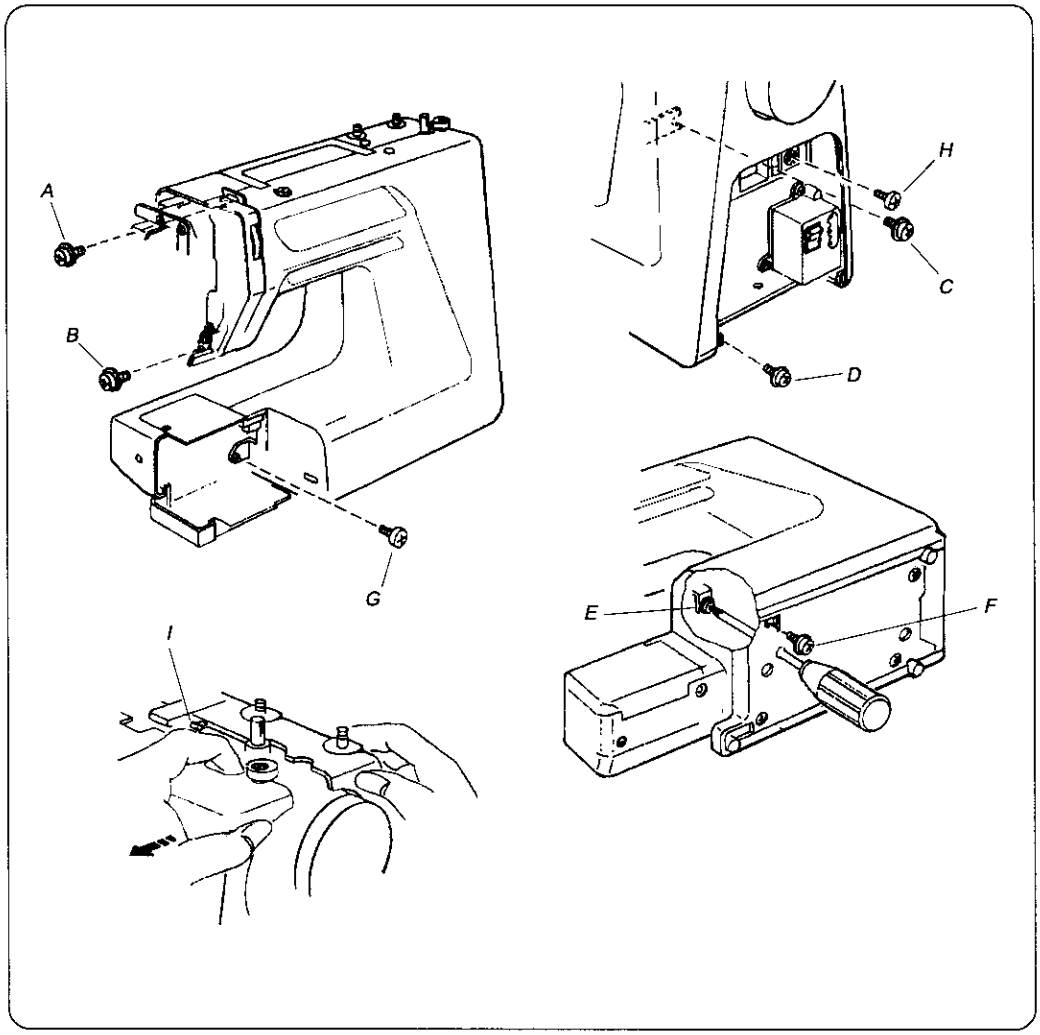
1. LOOSEN THE SET SCREWS.
2. REMOVE THE BASE PLATE.

TO ATTACH

3. MOUNT THE BASE PLATE WITH THE FOUR SET SCREWS.

SERVICE ACCESS

FRONT COVER



TO REMOVE

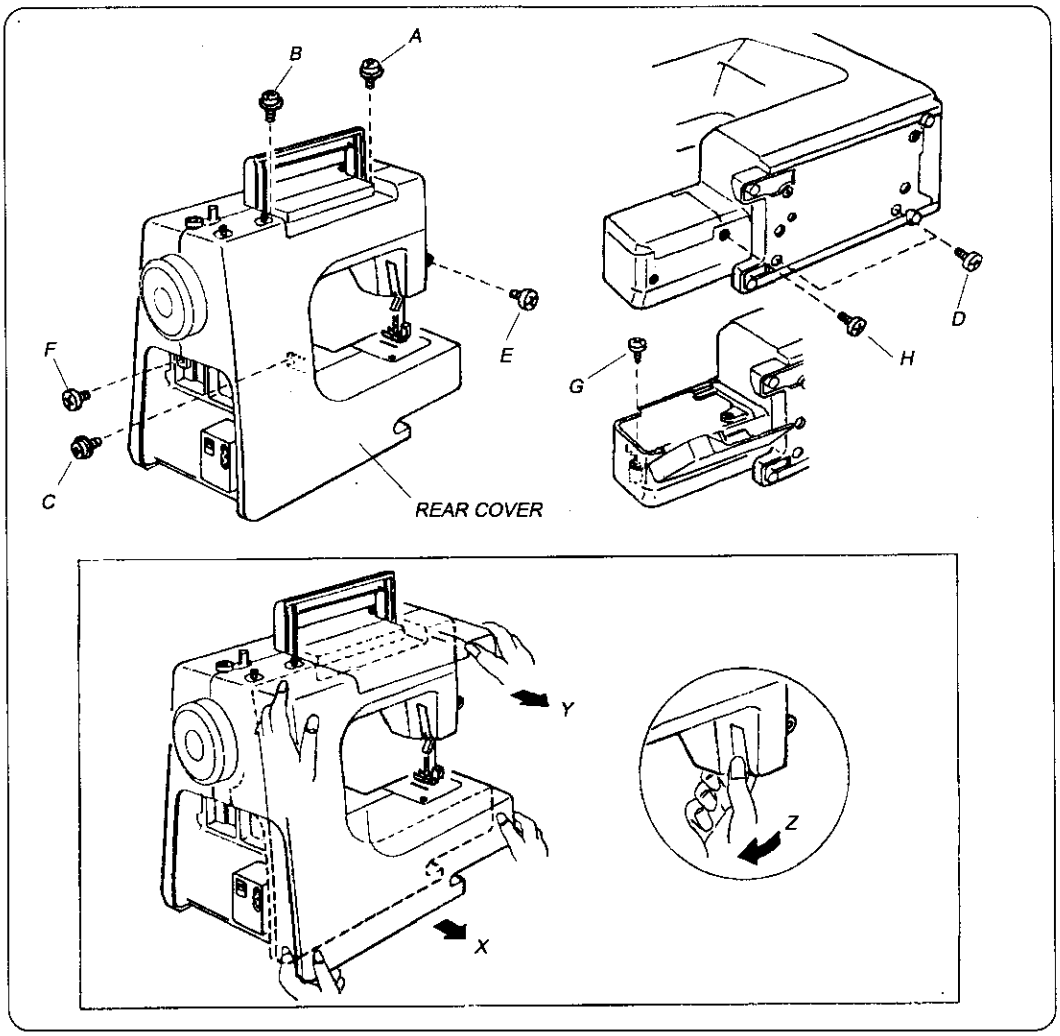
1. OPEN THE FACE COVER PLATE, AND REMOVE THE BELT COVER. (SEE PAGE 8.)
2. LOOSEN THE SET SCREWS (A), (B), (C), (D),(E)AND (F), AND THEN, REMOVE THE FRONT COVER BY REMOVING THE SET SCREWS (G) AND (H).
   NOTE: PULL TO RELEASE FROM THE HOOK (I).

TO ATTACH

3. MOUNT THE FRONT COVER BY THE REVERSE PROCEDURE OF THE REMOVAL.

SERVICE ACCESS

REAR COVER



TO REMOVE

1. REMOVE THE FACE COVER PLATE AND THE BELT COVER. (SEE PAGE 8.)
   NOTE: PULL UP THE SPOOL PINS.
2. LOOSEN THE SET SCREWS (A), (B), (C) AND (D) (2 PCS.), AND THEN, REMOVE THE REAR COVER BY REMOVING THE SET SCREWS (E), (F), (G) AND (H).
   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 BY THE REVERSE PROCEDURE OF THE REMOVAL.

MECHANICAL ADJUSTMENT

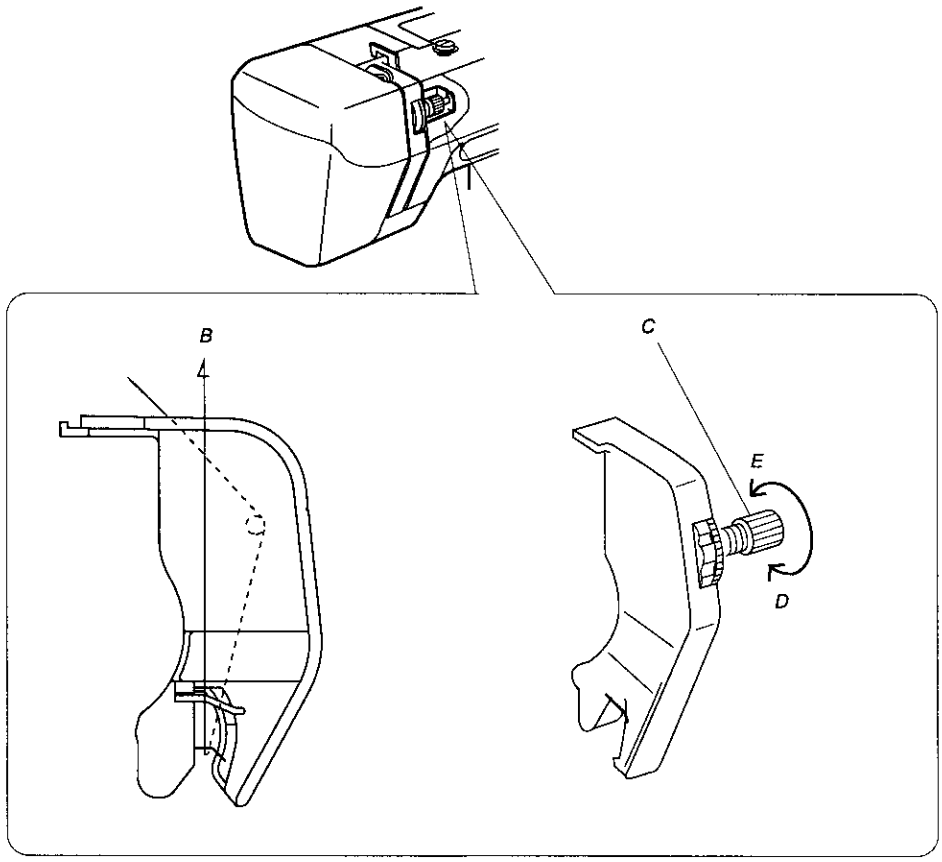
TOP TENSION

TO CHECK:

THE STANDARD UPPER THREAD TENSION SHOULD BE BETWEEN 65 - 95g, WHEN PULLING THE THREAD (COTTON THREAD #50) IN THE DIRECTION OF (B) WITH THE TENSION DIAL SETTING AT "3". (MAKE SURE THE FOOT IS LOWERED.)
IF THE TENSION IS OUT OF THE STANDARD RANGE, ADJUST IT AS FOLLOWS:

ADJUSTMENT PROCEDURE:

1. REMOVE THE FRONT PANEL COVER UNIT. (SEE PAGE 10.)
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 PANEL COVER UNIT.



MECHANICAL ADJUSTMENT

BOBBIN TENSION

TO CHECK:

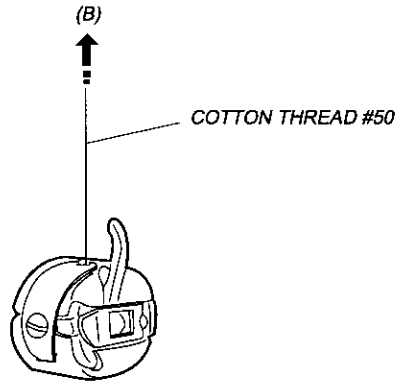
SET THE BOBBIN IN THE BOBBIN CASE, AND PASS THE THREAD (COTTON #50) THROUGH THE TENSION SPRING.

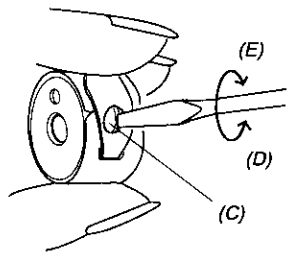
THE BOBBIN THREAD TENSION SHOULD BE BETWEEN 45 - 55g, WHEN PULLING THE THREAD IN THE DIRECTION OF (B).

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

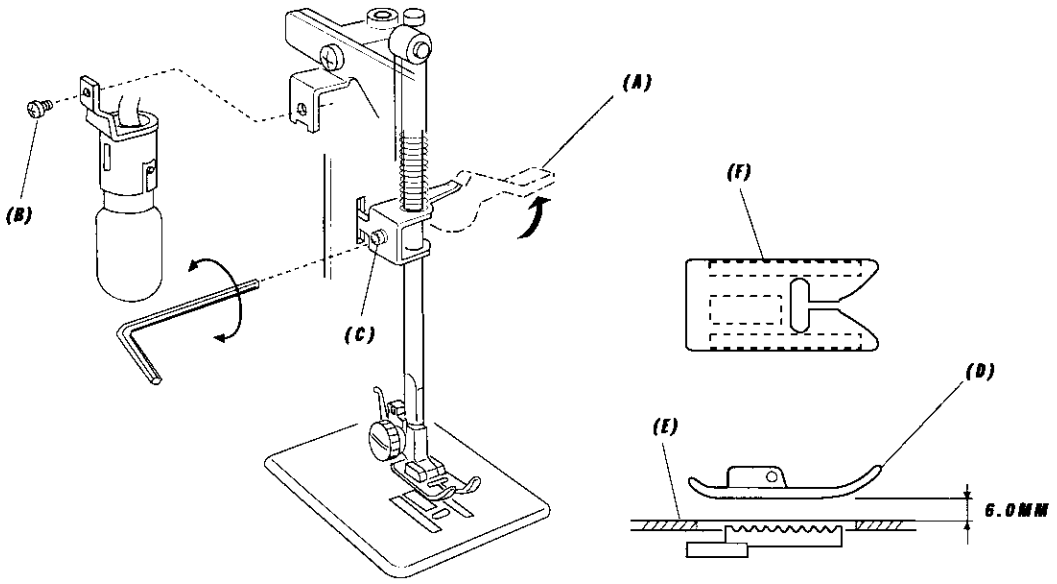
TO CHECK:

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

ADJUSTMENT PROCEDURE:

1. REMOVE THE SCREW (B), AND TAKE THE LAMP SOCKET OFF.
2. RAISE THE PRESSER FOOT LEVER, AND LOOSEN THE SCREW (C) ON THE PRESSER BAR
   HOLDER.
   ADJUST THE DISTANCE BETWEEN THE PRESSER FOOT (D) AND THE NEEDLE PLATE (E) TO
   6.0MM (0.24").
3. TIGHTEN THE SCREW (C) SECURELY.
4. TIGHTEN THE SCREW (B) TO SECURE THE LAMP SOCKET.

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



MECHANICAL ADJUSTMENT

NEEDLE SWING

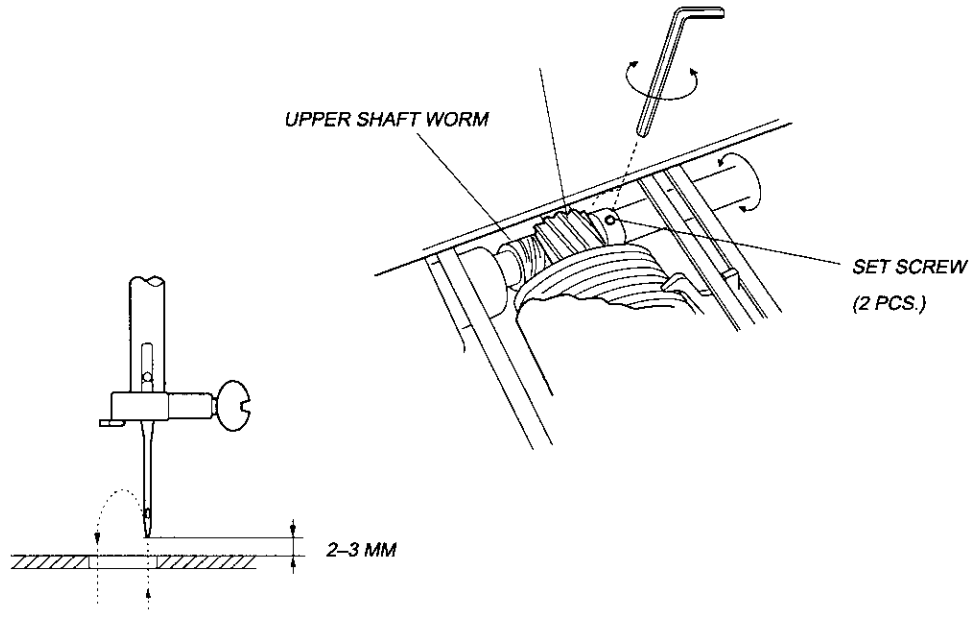
TO CHECK:

IF THE NEEDLE BAR STARTS MOVING SIDEWAYS WHILE THE NEEDLE IS IN THE FABRIC (WHEN SEWING A ZIGZAG PATTERN WITH THE MAXIMUM ZIGZAG WIDTH), ADJUST THE NEEDLE SWING BY THE FOLLOWING PROCEDURE:

ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL TO THE MAXIMUM ZIGZAG WIDTH, AND REMOVE THE FRONT COVER. (SEE PAGE 10.)
2. LOOSEN THE TWO SET SCREWS.
3. ADJUST THE NEEDLE SWING BY TURNING THE HANDWHEEL WHILE HOLDING THE WORM (SO AS NOT TO ROTATE IT) UNTIL THE NEEDLE SWING STARTS AT 2 - 3MM ON THE NEEDLE PLATE (AFTER THE NEEDLE HAS COME OUT OF THE RIGHT SIDE OF THE NEEDLE HOLE).
4. TIGHTEN THE TWO SET SCREWS.
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

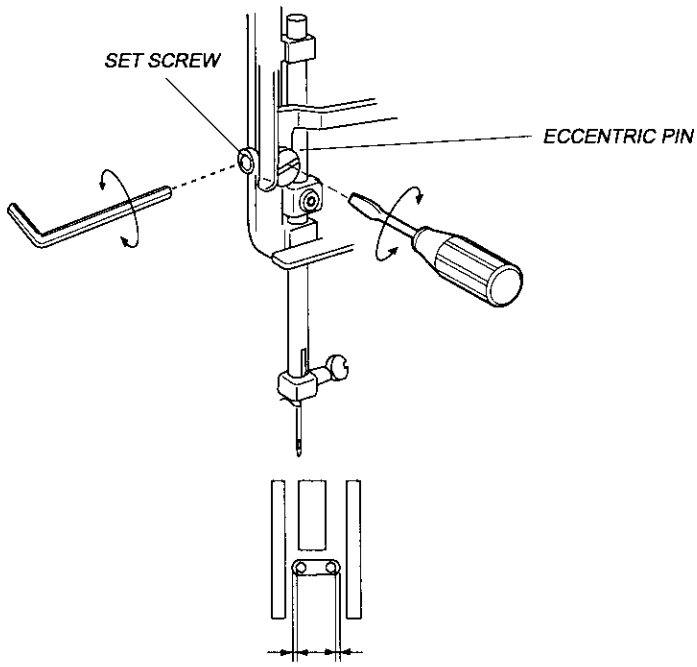
TO CHECK:

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

IF NOT, MAKE THE FOLLOWING ADJUSTMENTS:

ADJUSTMENT PROCEDURE:

1. OPEN THE FACE PLATE.
2. SET THE PATTERN SELECTOR DIAL AT THE MAXIMUM ZIGZAG WIDTH.
3. LOOSEN THE SET SCREW.
4. TURN THE ECCENTRIC PIN TO ADJUST THE NEEDLE DROP POSITION.
5. TIGHTEN THE SET SCREW.
   NOTE:CHECK THE HOOK TIMING AFTER THIS ADJUSTMENT.



BOTH CLEARANCE SHOULD BE EQUAL

MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN NEEDLE AND HOOK (NO.1)

TO CHECK:

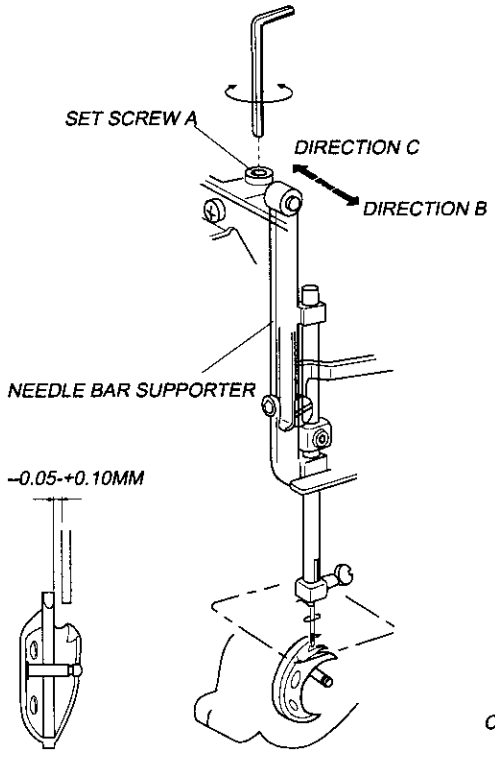
THE CLEARANCE BETWEEN NEEDLE AND THE SHUTTLE RACE SHOULD BE BETWEEN – 0.05 – +0.10MM.

IF NOT, MAKE THE FOLLOWING ADJUSTMENTS:

ADJUSTMENT PROCEDURE:

1. OPEN THE FACE COVER PLATE.
2. SET THE PATTERN SELECT DIAL " ⊂⊃ ".
3. LOOSEN THE SET SCREW (A), AND MOVE THE NEEDLE BAR SUPPORTER TOWARD THE ARROWS, TO GET A CLEARANCE BETWEEN –0.05 TO +0.10MM.
   * WHEN THE CLEARANCE IS TOO WIDE, MOVE THE NEEDLE BAR SUPPORTER TOWARD DIRECTION (B).
   * WHEN THE CLEARANCE IS TOO NARROW, MOVE THE NEEDLE BAR SUPPORTER TOWARD DIRECTION (C).

   NOTE: AFTER THIS ADJUSTMENT, CHECK IF THE CLEARANCE BETWEEN THE NEEDLE AND NEEDLE PLATE IS MORE THAN 0.15MM, AS SHOWN IN FIGURE (D). IF NOT, ADJUST THE CLEARANCE BETWEEN THE NEEDLE AND THE SHUTTLE RACE BY USING THE ADJUSTMENT METHOD NO.2 ON PAGE 13. AFTER READJUSTMENT, THE CLEARANCE BETWEEN THE NEEDLE AND THE NEEDLE PLATE SHOULD BE MORE THAN 0.15MM.



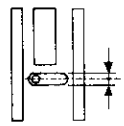


FIGURE D

CLEARANCE BETWEEN THE NEEDLE AND THE NEEDLE PLATE IS MORE THAN 0.15MM

MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN NEEDLE AND HOOK (NO.2)

TO CHECK:

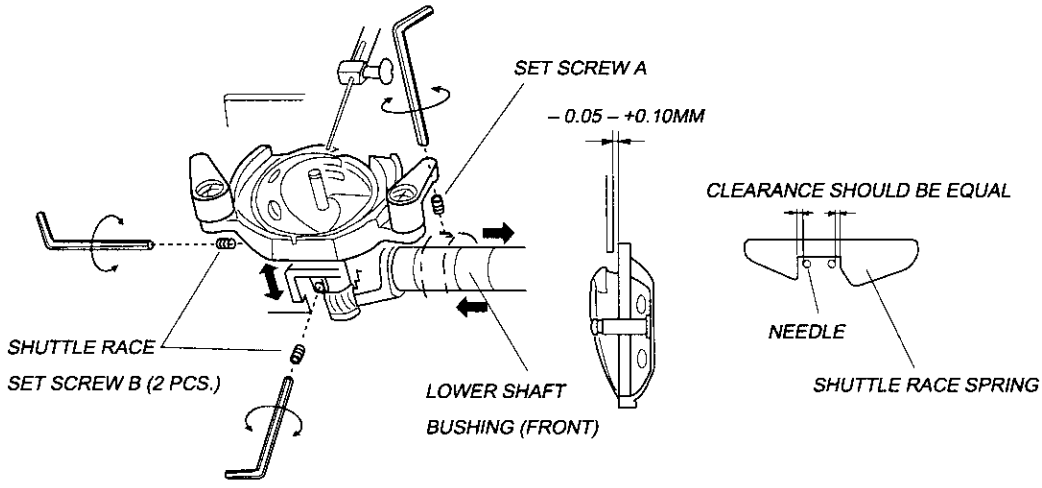
USE THIS ADJUSTMENT (NO.2) WHEN ADJUSTMENT NO.1 CAN NOT BE USED.
THE CLEARANCE BETWEEN THE NEEDLE AND THE SHUTTLE RACE SHOULD BE BETWEEN – 0.05 – +0.10mm.

ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL AT " ⊂⊃ ". (STITCH LENGTH DIAL AT ANY POSITION.)
2. REMOVE THE REAR COVER. (SEE PAGE 11.)
3. LOOSEN THE SCREW (A) ON THE LOWER SHAFT BUSHING, AND SLIDE THE GEAR ABOUT 0.5MM TO THE RIGHT TO MAKE A SLACK BETWEEN THE GEARS.
4. LOWER THE NEEDLE, AND LOOSEN THE TWO SHUTTLE RACE SET SCREWS (B). MOVE THE SHUTTLE RACE UNIT AXIALLY, EITHER FORWARD OR BACKWARD, TO ADJUST THE CLEARANCE BETWEEN THE NEEDLE AND THE SHUTTLE RACE IN THE RANGE OF – 0.05 – +0.10MM.
5. SET THE PATTERN SELECT DIAL AT " ≋ ", TURN THE HANDWHEEL TO CHECK IF THE CLEARANCE BETWEEN THE NEEDLE, AND THE INNER EDGES OF THE SHUTTLE RACE SPRING AT THE LEFT AND RIGHT NEEDLE DROPS, ARE EQUAL. IF NOT, MAKE AN ADJUSTMENT BY TURNING THE SHUTTLE RACE UNIT.
6. TIGHTEN THE TWO SHUTTLE RACE SET SCREWS (B).
7. LOOSEN THE SET SCREW ON THE LOWER SHAFT BUSHING, AND SLIDE THE GEAR BACK TO THE ORIGINAL POSITION WHILE ADJUSTING THE BACKLASH.
8. TIGHTEN THE SCREW (A) FIRMLY.
9. ATTACH THE REAR COVER.

NOTE: THE BACKLASH PLAY SHOULD BE LESS THAN 0.3MM SO THE LOWER SHAFT CAN TURN SMOOTHLY.

AFTER THE ADJUSTMENT, CHECK THE HOOK TIMING.



MECHANICAL ADJUSTMENT

FEED DOG HEIGHT

MACHINE SETTING

1. STITCH LENGTH: SET AT 4.
2. NEEDLE BAR: AT ITS HIGHEST POSITION.

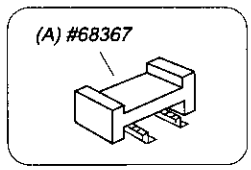
TO CHECK:

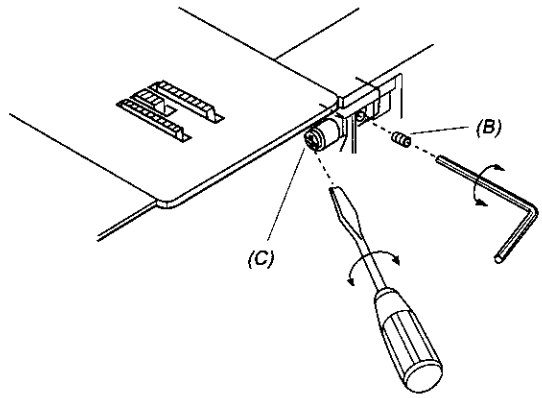
1. RAISE THE PRESSER FOOT.
2. PLACE THE FEED DOG HEIGHT GAUGE #68367 (A) ON THE NEEDLE PLATE.
3. TURN THE HANDWHEEL TOWARD YOU BY HAND, AND CHECK THE FEED DOG HEIGHT. (REFER TO CHART BELOW.)

ADJUSTMENT PROCEDURE:

1. OPEN THE SHUTTLE COVER.
2. LOOSEN THE SCREW (B), AND TURN THE ECCENTRIC PIN (C) IN EITHER DIRECTION TO ADUST THE FEED DOG HEIGHT AS REQUIRED.
3. TIGHTEN THE SCREW (B) SECURELY.

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





MECHANICAL ADJUSTMENT

NEEDLE BAR HEIGHT

MACHINE SETTING

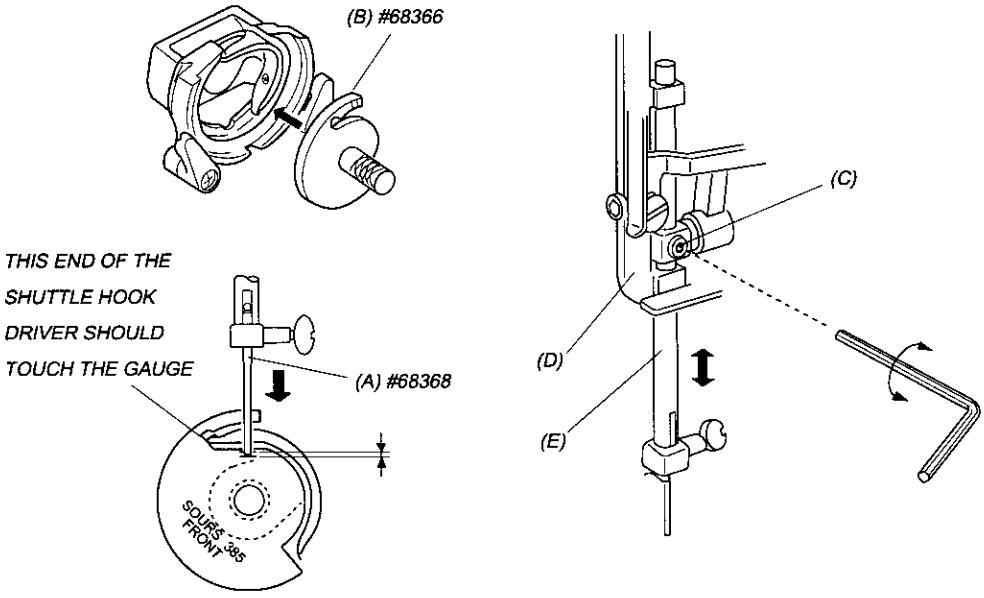
1. STITCH SELECTOR: "⊂⊃".

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. LOOSEN THE SCREW (C) OF THE NEEDLE BAR HOLDER (D).
2. MOVE THE NEEDLE BAR (E) UP OR DOWN BY HAND UNTIL THE TIP OF THE TEST PIN #68368 (A) COMES IN BETWEEN THE TWO HORIZONTAL PARALLEL LINES ENGRAVED MARKED ON THE RADIAL TIMING GAUGE #68366 (B).
3. TIGHTEN THE SCREW (C) SECURELY.



MECHANICAL ADJUSTMENT

NEEDLE TIMING TO SHUTTLE

MACHINE SETTING

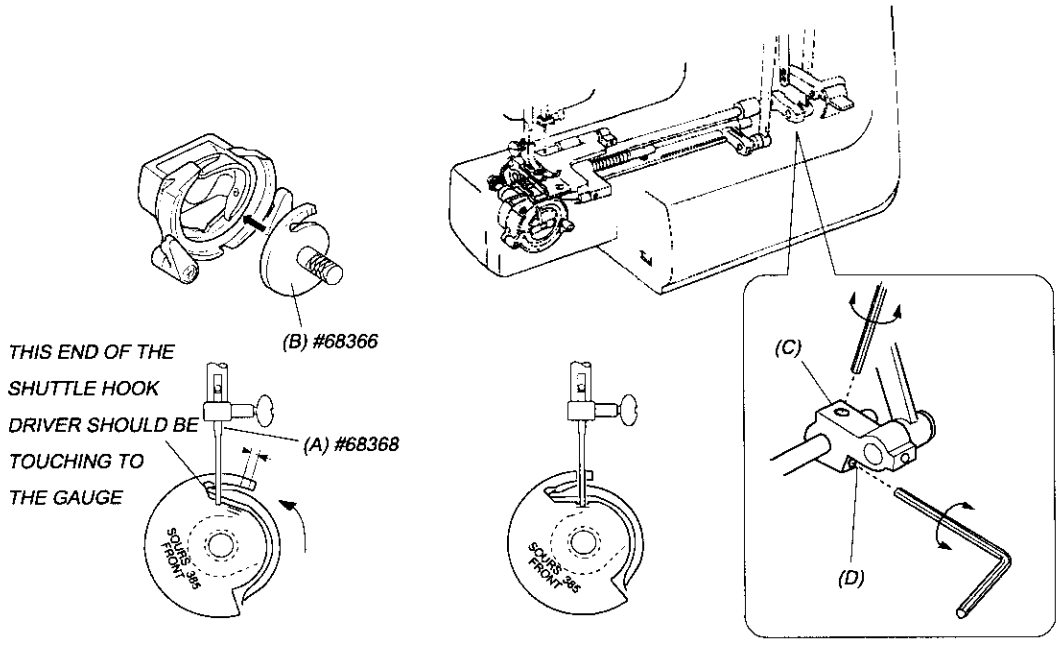
1. STITCH SELECTOR: "⊂⊃".

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 VERTICAL LINES ENGRAVED ON THE RADIAL TIMING GAUGE #68366 (B).

ADJUSTMENT PROCEDURE:

1. REMOVE THE BELT COVER AND THE FRONT COVER.
2. LOOSEN THE SCREWS (C) AND (D).
3. ROTATE THE SHUTTLE DRIVER UNTIL THE TIP OF THE 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.



MECHANICAL ADJUSTMENT

BUTTONHOLE FEED BALANCE

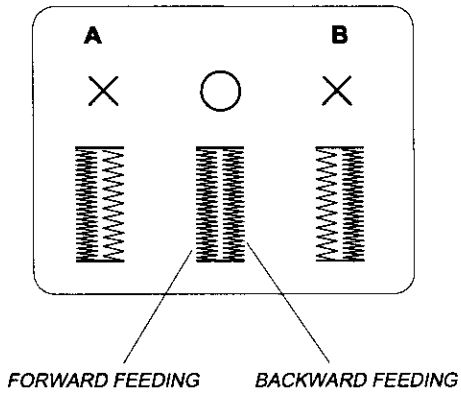
TO CHECK:

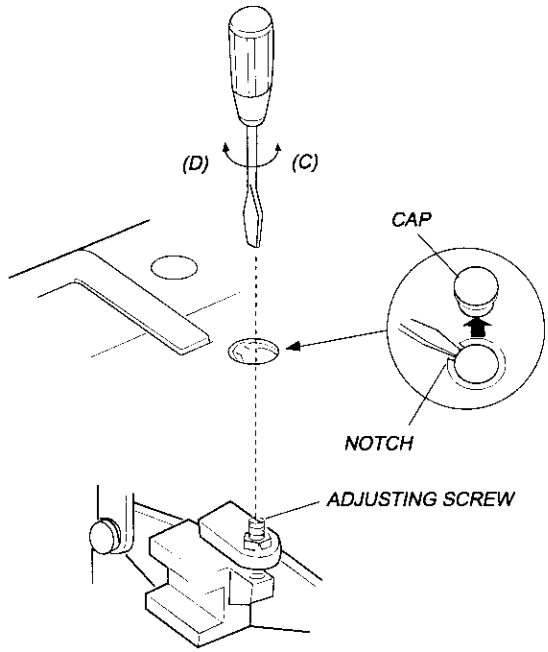
WHEN SEWING THE BUTTONHOLE, THE STITCHES ON EACH SIDE OF THE BUTTONHOLE SHOULD BE THE SAME STITCH DENSITY.

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. CONFIRM THE STITCHES BY SEWING BUTTONHOLES, AND REMOVE THE CAP.
2. TURN THE ADJUSTING SCREW IN THE DIRECTION OF (C) IN THE CASE OF **A** (RIGHT STITCHES ARE ROUGH), OR IN THE DIRECTION OF (D) IN THE CASE OF **B** (LEFT STITCHES ARE ROUGH).
3. MOUNT THE CAP.





MECHANICAL ADJUSTMENT

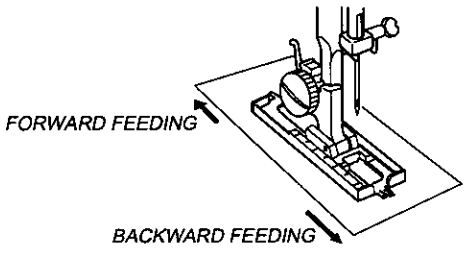
BARTACK FEED OF BUTTONHOLE

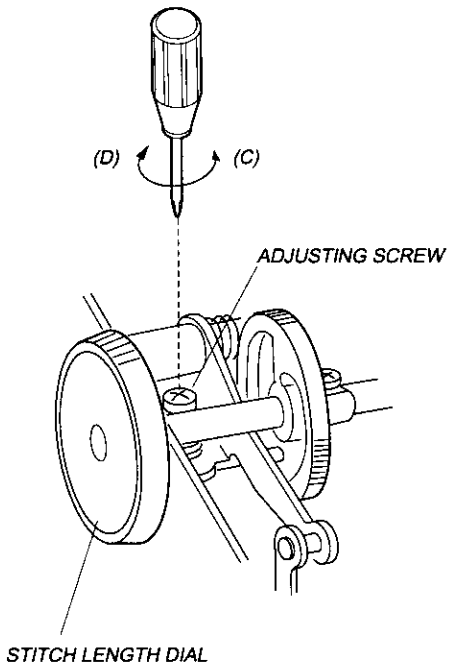
TO CHECK:

IF THE MATERIAL IS FED FORWARD OR BACKWARD WHEN SEWING A BARTACK ON BUTTONHOLE, MAKE THE FOLLOWING ADJUSTMENT:

ADJUSTMENT PROCEDURE:

1. SET THE PATTERN SELECTOR DIAL AT " 4-2 " AND THE STITCH LENGTH DIAL AT " 4 ".
2. REMOVE THE FRONT COVER. (SEE PAGE 10.)
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. MOUNT THE FRONT COVER.





MECHANICAL ADJUSTMENT

DISENGAGEMENT OF CAM FOLLOWER

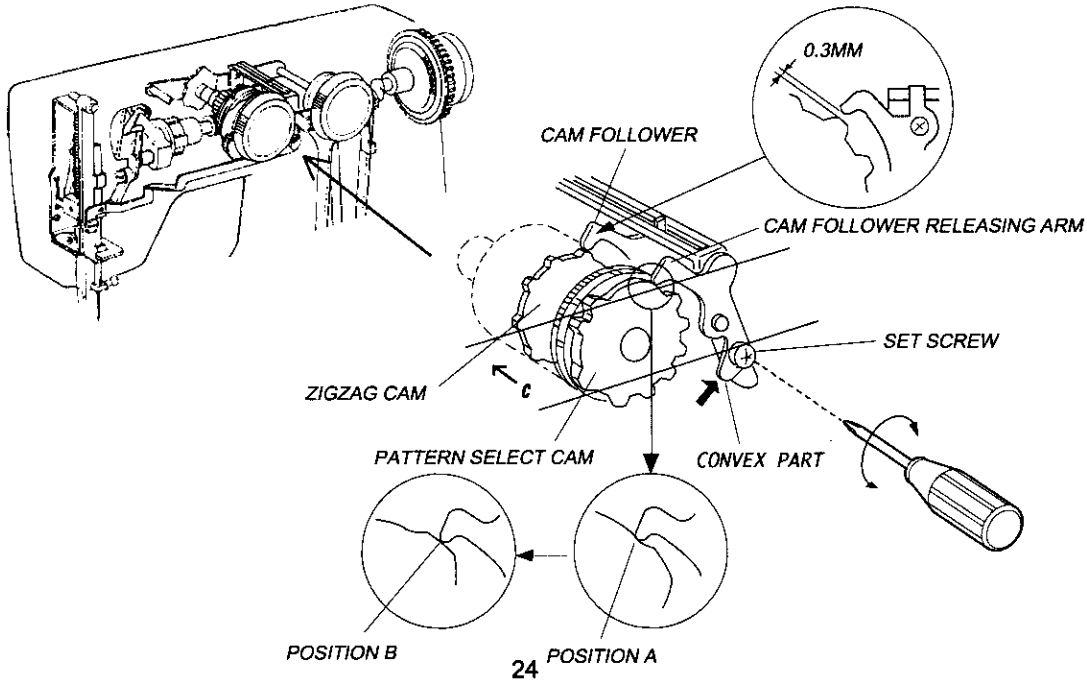
TO CHECK:

A CLEARANCE THAT IS TOO NARROW BETWEEN THE CAM FOLLOWER AND THE TOP CONVEX OF ZIGZAG CAM, MAY OFTEN CAUSE DIFFICULTY IN TURNING THE PATTERN SELECTOR DIAL. THIS CAN ALSO CAUSE UNINTENDED PATTERNS TO BECOME SELECTED, OR MAKE ZIGZAG STITCH IN STRAIGHT STITCH SETTING.

ADJUSTMENT PROCEDURE:

1. REMOVE THE FRONT COVER. (SEE PAGE 10.)
2. MOUNT THE PATTERN SELECTOR DIAL, AND SET IT AT PATTERN " ⊂⊃ ". (5TH CAM AS VIEWED FROM (C).)
3. TURN THE HANDWHEEL TO PUT THE CAM FOLLOWER ONTO THE TOP CONVEX OF THE ZIGZAG CAM.
4. LOOSEN THE SET SCREW.
5. PUSH THE CONVEX PART OF THE CAM FOLLOWER RELEASING ARM, IN THE DIRECTION OF THE ARROW UNTIL THE CAM FOLLOWER RELEASING ARM TOUCHES POSITION (A) OF THE PATTERN SELECT CAM, AND THEN, TIGHTEN THE SET SCREW.

   NOTE: AFTER THIS ADJUSTMENT, CHECK THAT THE CLEARANCE BETWEEN THE ZIGZAG CAM AND THE CAM FOLLOWER IS 0.3MM (WHEN THE CAM FOLLOWER RELEASING ARM HAS MOVED TO POSITION (B)). THIS CAN BE DONE BY TURNING THE PATTERN SELECTOR DIAL COUNTERCLOCKWISE. THE CLEARANCE BETWEEN THE CAM FOLLOWER AND THE ZIGZAG CAM SHOULD BE 0.3MM.
6. REMOVE THE PATTERN SELECTOR DIAL, AND MOUNT THE FRONT COVER.



MECHANICAL ADJUSTMENT

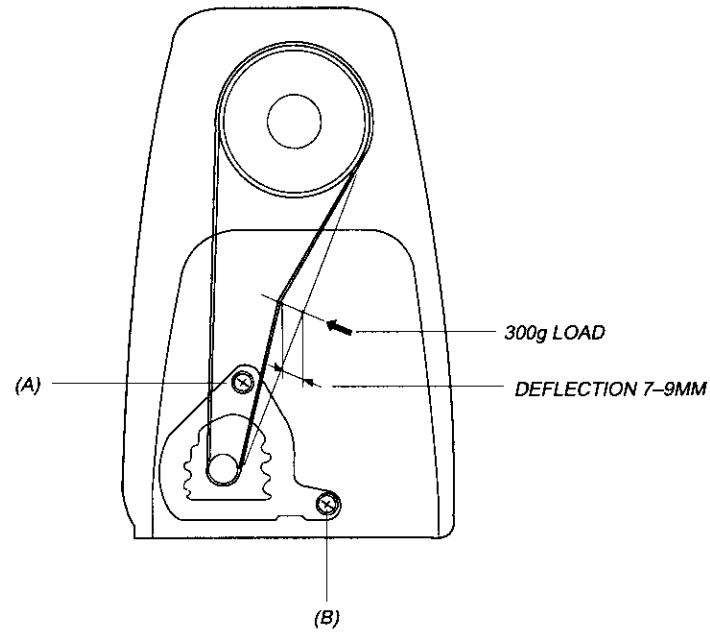
MOTOR BELT TENSION

TO CHECK:

1. IF THE MOTOR BELT TENSION IS TOO TIGHT OR TOO LOOSE, IT CAN CREATE A BELT NOISE: IF THE TENSION IS TOO TIGHT, IT CAN CAUSE THE MACHINE TO RUN SLOWLY AND THE MOTOR TO OVERLOAD; IF THE TENSION IS TOO LOOSE; IT CAN CAUSE THE BELT TEETH ON THE MOTOR PULLEY TO JUMP.
2. THE CORRECT MOTOR BELT TENSION IS WHEN THE DEFLECTION OF MOTOR BELT IS ABOUT 7MM (0.28") - 9MM (0.36"). (WHEN PUSHING THE MOTOR BELT BY FINGER WITH A 300 GRAM LOAD.)

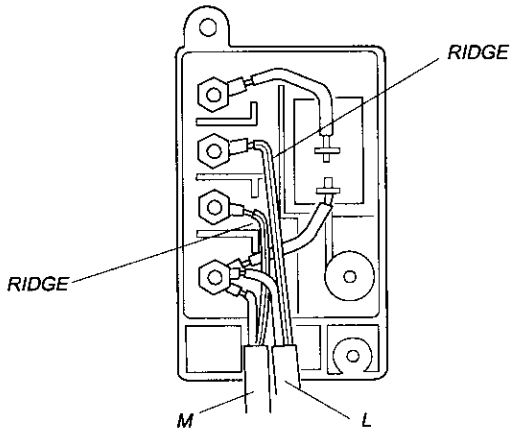
ADJUSTMENT PROCEDURE:

1. REMOVE THE BELT COVER.
2. LOOSEN THE SCREWS (A) AND (B).
3. MOVE THE MOTOR UP OR DOWN TO ADJUST THE DEFLECTION ABOUT 7MM (0.28") - 9MM (0.36").
4. TIGHTEN THE SCREWS (A) AND (B).



WIRING

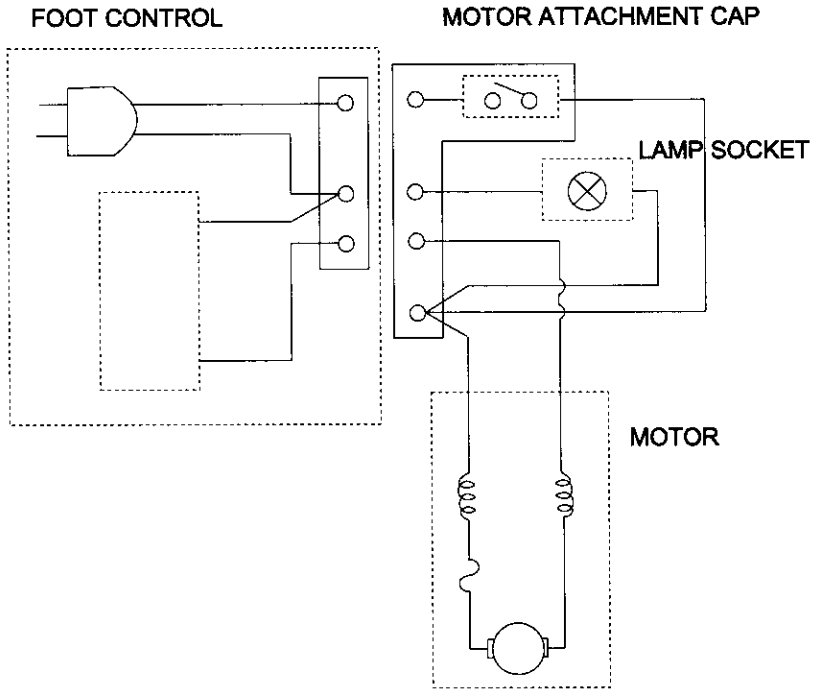
1. WIRING FOR MACHINE SOCKET UNIT



M : MOTOR

L : LAMP

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

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

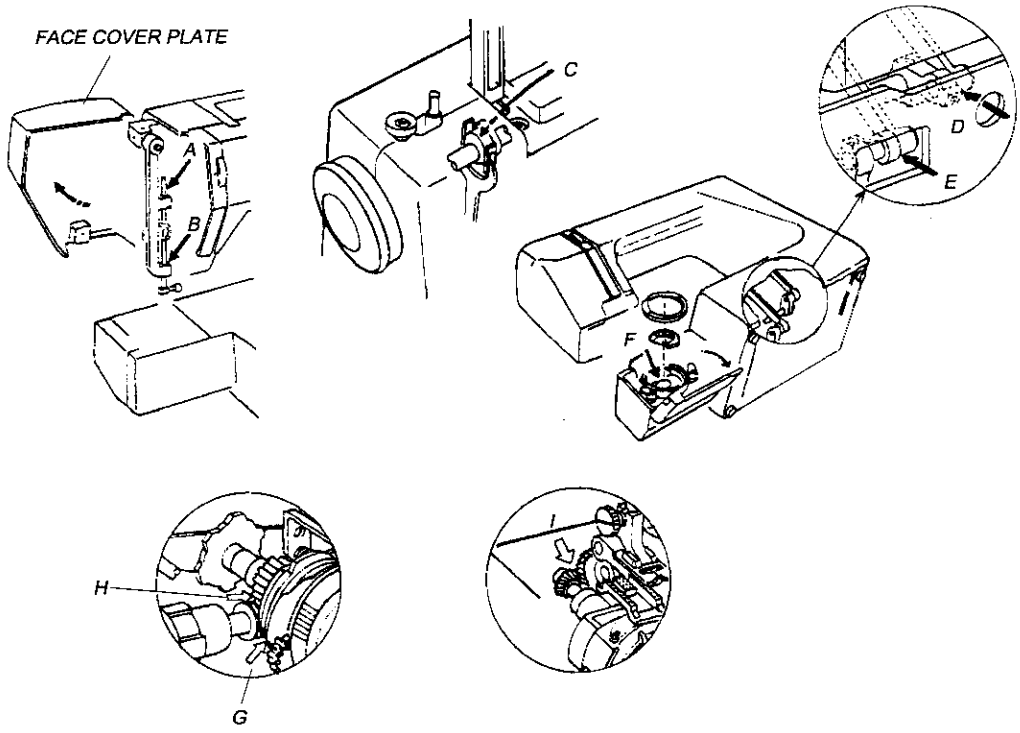
GREASE

WHITE GREASE IS RECOMMENDED FOR USE ON ALL MODEL SEWING MACHINES. IT IS AN IMPROVED GREASE, AND IT CAN BE USED ON THE METAL AND PLASTIC PARTS WHICH POINTS ARE INDICATED BY THE WHITE ARROWS (G, H & I).

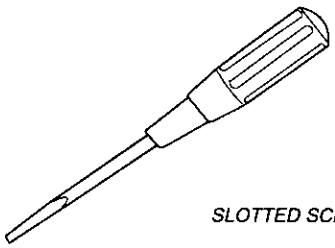
HOW TO ORDER

PARTS NO.	DESCRIPTION	PRICE
	SEWING MACHINE OIL	
EM / 40M	WHITE GREASE	

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

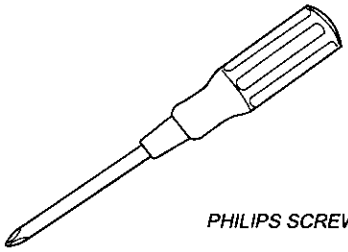


SPECIAL TOOLS REQUIRED



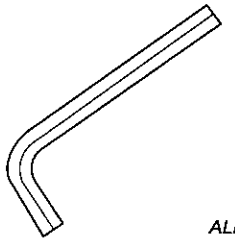
SLOTTED SCREW DRIVER

FEED DOG HEIGHT GAUGE
#68367



PHILIPS SCREW DRIVER

TEST PIN
#68368



ALLEN WRENCH

RADIAL TIMING GAUGE
#68366