

MODEL 305.1664191

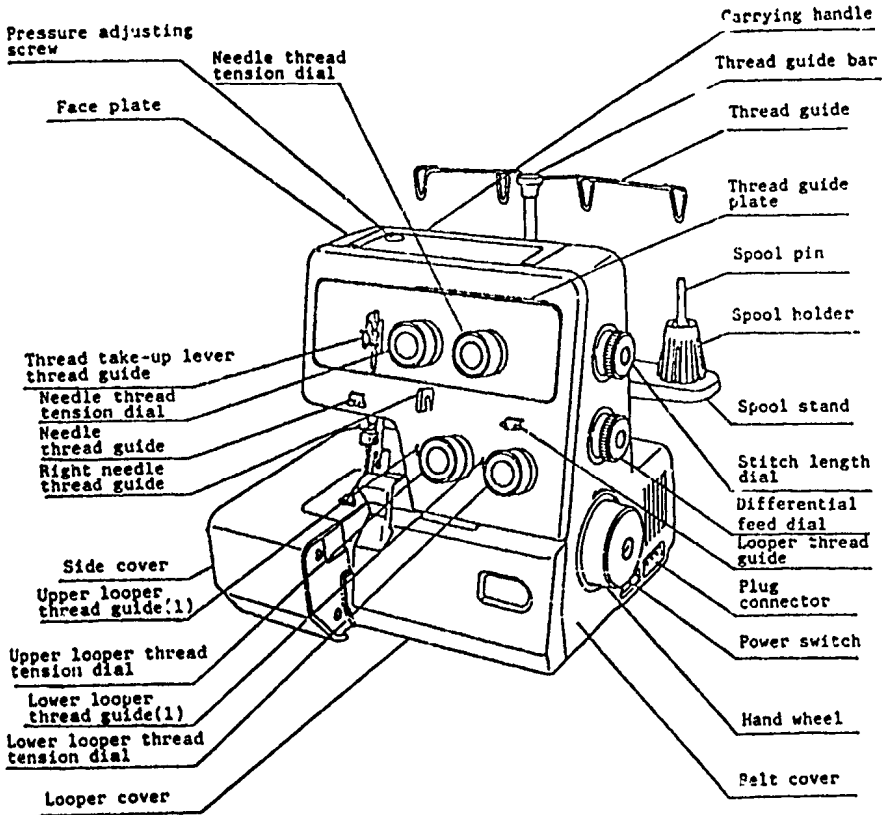
MEMPHI OVERLOCK SEWING MACHINE

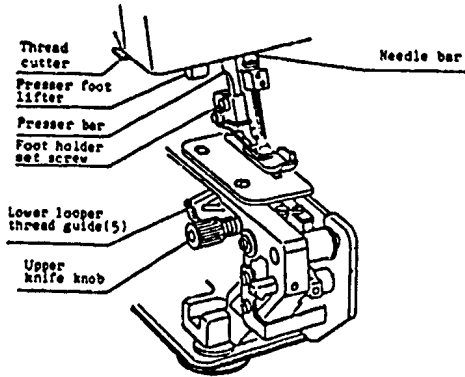
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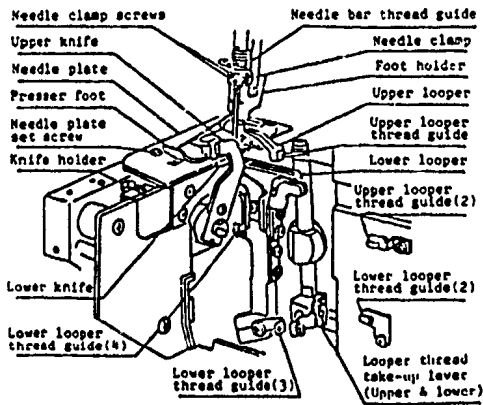


LOCATE AND IDENTIFY THE PARTS





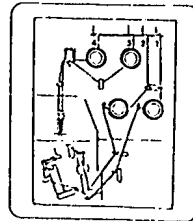
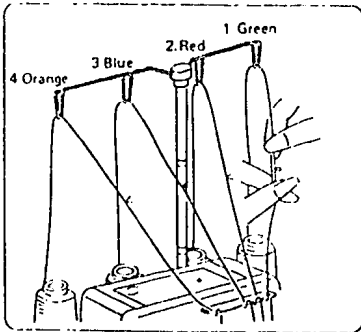
IN GENERAL, THE PRESSER FOOT SHOULD BE LEFT DOWN. THERE IS NO NEED TO RAISE AND LOWER THE FOOT WHEN SEWING.



USE STANDARD KENMORE NEEDLE SIZE 11 OR 14.

THIS PROCEDURE IS CALLED "TYING OFF".

TO THREAD THE MACHINE FOR THE FIRST TIME REFER TO PAGE #3.



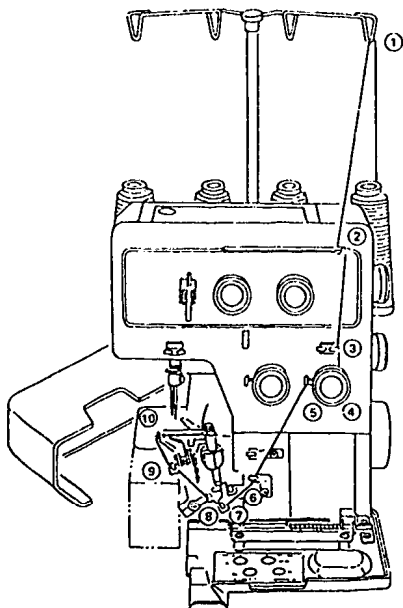
THREADING CHART

(LOCATED BEHIND LOOPER COVER)

FOR YOUR CONVENIENCE, YOUR KENMORE OVERLOCK HAS BEEN PRE-THREADED. TO PREPARE TO SEW WITH YOUR CHOICE OF THREADS, FOLLOW THESE SIMPLE INSTRUCTIONS:

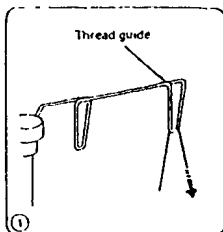
- MAKE SURE UNIT IS UNPLUGGED FROM THE WALL OUTLET AND/OR MACHINE.
- RAISE TELESCOPING THREAD GUIDE BAR.
- OPEN LOOPER COVER.
- PLACE SPOOL CONES ON SPOOL HOLDER.
- TIE FARTHEST CONE ON THE RIGHT TO GREEN, 2ND FROM RIGHT TO RED, 3RD FROM RIGHT TO BLUE AND REMAINING SPOOL ON LEFT TO ORANGE.
- RAISE PRESSER FOOT.
- SET TENSION DIALS TO 0.
- TURN HAND WHEEL AWAY FROM YOU ONCE OR TWICE UNTIL NEEDLES ARE IN THE FULL UP POSITION. THIS RELEASES THREADS.
- PULL ALL THREADS OUT UNTIL EITHER THE ORANGE OR BLUE THREAD APPROACHES THE NEEDLE EYE.
- CUT OUT NEEDLE THREAD KNOT AND PULL ADDITIONAL THREAD TO THREAD NEEDLE.
- PULL THREAD UNTIL THE REMAINING THREAD IS CLOSE TO THE OTHER NEEDLE EYE.
- THREAD NEEDLE.
- PULL THREAD UNTIL THE KNOTS HAVE GONE THROUGH THE UPPER AND LOWER LOOPER.
- ALL THREADS SHOULD BE UNDER THE PRESSER FOOT AND PULLED TO THE BACK.
- SET ALL TENSION DIALS BACK TO 3.
- LOWER PRESSER FOOT AND TURN HAND WHEEL TOWARD YOU TO CHAIN OFF 3 OR 4 STITCHES.
- PLUG UNIT IN WALL OUTLET AND MACHINE AND TURN POWER SWITCH ON.
- YOU ARE READY TO SERGE.

THREADING THE LOWER LOOPER

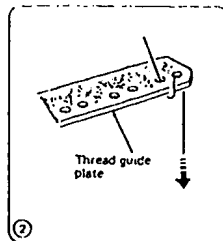


OPEN THE LOOPER AND SIDE COVERS.
 LOOSEN SCREW AND REMOVE PRESSER FOOT
 ASSEMBLY.
 PLACE THE SPOOL OF THREAD ON THE
 RIGHT SIDE SPOOL PIN.

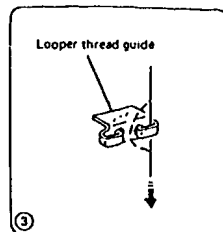
* POINTS TO THREAD FOR LOWER LOOPER
 ARE MARKED IN GREEN.



① DRAW THE THREAD
 THROUGH 1st RIGHT
 SIDE THREA. GUIDE
 FROM BACK TO
 FRONT.

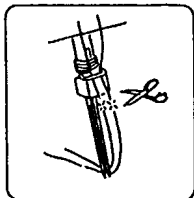


② PASS THE THREAD
 THROUGH HOLES ON
 THE RIGHT SIDE OF
 THREAD GUIDE PLATE
 AS ILLUSTRATED.



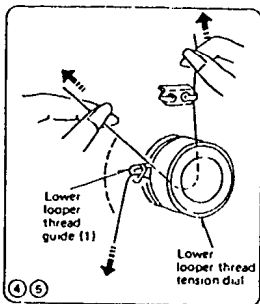
③ PASS THE THREAD
 THROUGH THE RIGHT
 SIDE OF THREAD
 GUIDE SLIDING THE
 THREAD FROM LEFT
 TO RIGHT.

HOW TO THREAD ONLY THE LOWER LOOPER

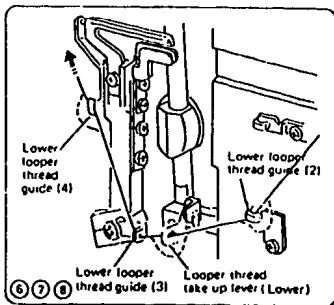


CUT BOTH NEEDLE THREADS AS SHOWN IN THE FIGURE AND
 REMOVE THEM FROM THE NEEDLES.

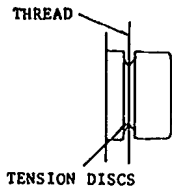
THREAD THE LOWER LOOPER AND THEN RE-THREAD THE
 NEEDLES.



- ④ INSERT THE THREAD BETWEEN TENSION DISCS FROM THE RIGHT. THEN PULL BOTH SIDES OF THE THREAD FIRMLY BETWEEN TENSION DISCS.
- ⑤ PASS THE THREAD THROUGH LOWER LOOPER THREAD GUIDE (1).



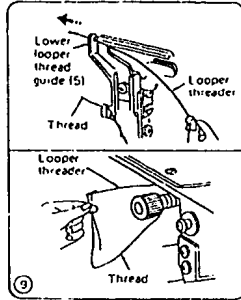
- ⑥ PASS THE THREAD THROUGH THE LOWER LOOPER THREAD GUIDE (2).
- ⑦ PASS THE THREAD THROUGH THE LOOPER THREAD TAKE-UP LEVER (LOWER).
- ⑧ PASS THE THREAD THROUGH THE LOWER LOOPER THREAD GUIDES (3) AND (4).



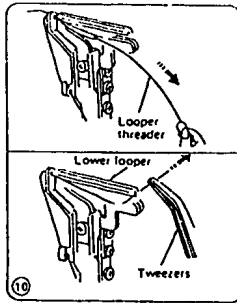
* MAKE SURE THAT THE THREAD IS BETWEEN THE TENSION DISCS.

NOTE: IF YOU REMOVE THE NEEDLE PLATE, THE THREADING POINTS OF LOWER LOOPER ARE EASIER TO SEE.

IN THIS CASE, MAKE SURE THE THREAD IS NOT CAUGHT BY THE NEEDLE PLATE WHEN REPLACING THE PLATE AFTER THREADING.

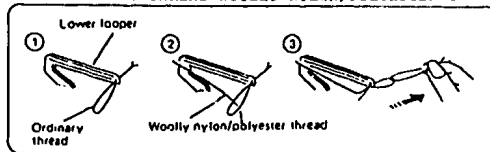


⑨ TURN THE HAND WHEEL TOWARD YOU UNTIL THE LOWER LOOPER COMES TO THE RIGHT AND PASS THE THREADER THROUGH HOLE ON LOWER LOOPER THREAD GUIDE (5). HOOK THE END OF THREAD ON THE THREADER. (SEE NOTE.)



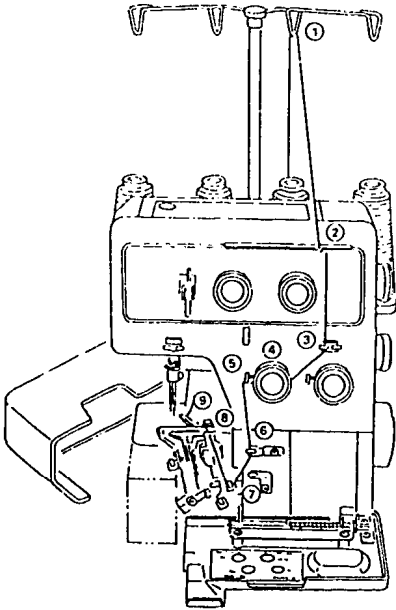
⑩ PULL THE THREADER TO PASS THE THREAD THROUGH THE HOLE OF LOWER LOOPER THREAD GUIDE (5). REMOVE THE THREAD FROM THE THREADER, AND DRAW THE THREAD THROUGH THE HOLE ON LOWER LOOPER TO THE BACK 10 MM (4") OR MORE WITH A PAIR OF TWEEZERS.

NOTE: HOW TO THREAD WOOLLY NYLON/POLYESTER THREAD



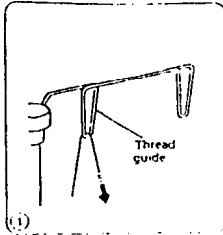
* SHOWN ABOVE IS ONE OF THE EASIEST WAYS TO PASS WOOLLY NYLON/POLYESTER THREAD THROUGH THE NEEDLE.
 * USE THE SAME METHOD FOR THE UPPER LOOPER.

THREADING THE UPPER LOOPER

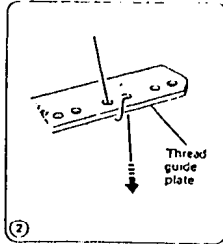


PLACE THE SPOOL OF THREAD ON THE SPOOL PIN SECOND FROM THE RIGHT.

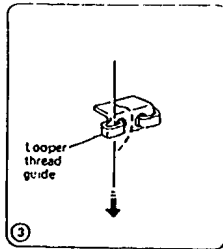
* POINTS TO THREAD FOR UPPER LOOPER ARE MARKED IN RED.



① DRAW THE THREAD THROUGH THE THREAD GUIDE SECOND FROM THE RIGHT FROM BACK TO FRONT.

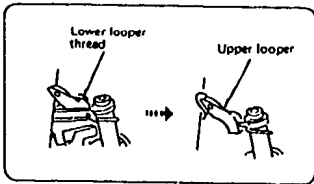


② PASS THE THREAD THROUGH THE HOLES IN THE SECOND ROW FROM THE RIGHT OF THREAD GUIDE PLATE AS ILLUSTRATED.



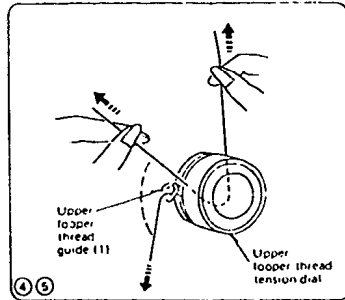
③ PASS THE THREAD THROUGH THE LEFT SIDE OF THREAD GUIDE SLIDING THE THREAD FROM RIGHT TO LEFT.

HOW TO THREAD ONLY THE UPPER LOOPER



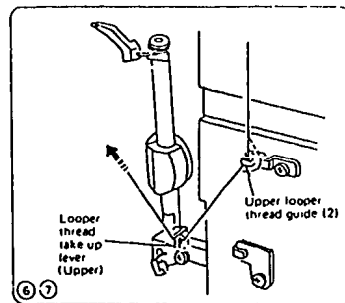
TURN THE HAND WHEEL TOWARD YOU UNTIL THE UPPER LOOPER COMES TO THE MIDDLE POINT OF ITS TRAVEL, AND UNHOOK THE THREAD OF THE LOWER LOOPER FROM THE UPPER LOOPER.

THREAD THE UPPER LOOPER.



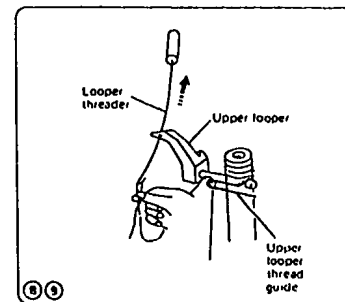
④ INSERT THE THREAD BETWEEN TENSION DISCS FROM THE RIGHT. THEN PULL BOTH SIDES OF THREAD.

⑤ PASS THE THREAD THROUGH UPPER LOOPER THREAD GUIDE (1).



⑥ PASS THE THREAD THROUGH UPPER LOOPER THREAD GUIDE (2).

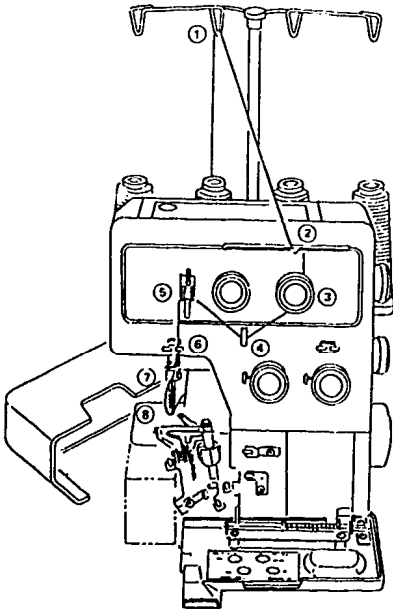
⑦ TURN THE HAND WHEEL TOWARD YOU UNTIL THE UPPER LOOPER COMES TO THE MIDDLE POSITION OF ITS TRAVEL, THEN PASS THE THREAD THROUGH THE LOOPER THREAD TAKE-UP LEVER (UPPER).



⑧ PASS THE THREAD THROUGH UPPER LOOPER THREAD GUIDE.

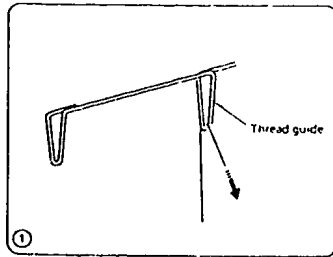
⑨ PASS THE THREADER THROUGH THE HOLE ON THE UPPER LOOPER. THEN HOOK THE END OF THREAD ON THE THREADER. PULL OUT THE THREADER TO PASS THE THREAD THROUGH THE HOLE. REMOVE THE THREAD FROM THREADER, AND DRAW THE FREE END OF THREAD 10 CM (4") OR MORE.

THREADING THE NEEDLE ON THE RIGHT

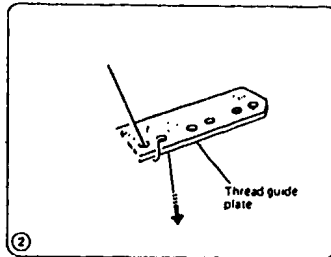


PLACE THE SPOOL OF THREAD ON THE SPOOL PIN SECOND FROM THE LEFT.

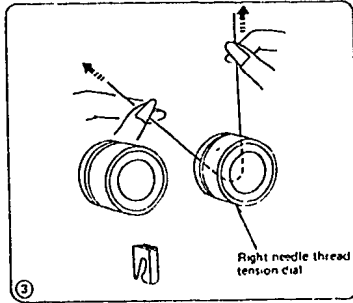
* POINTS TO THREAD FOR NEEDLE ON THE RIGHT ARE MARKED IN BLUE.



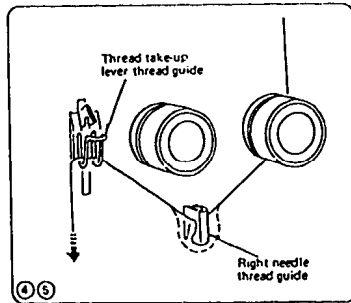
DRAW THE THREAD THROUGH THE THREAD GUIDE SECOND FROM THE LEFT FROM BACK TO FRONT.



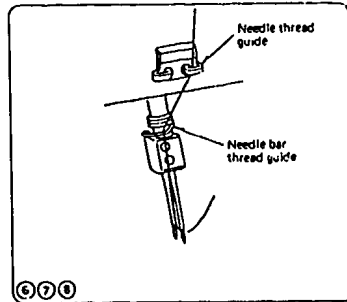
PASS THE THREAD THROUGH THE HOLES IN THE SECOND ROW FROM THE LEFT OF THREAD GUIDE PLATE AS ILLUSTRATED.



- ③ INSERT THE THREAD BETWEEN TENSION DISCS FROM THE RIGHT. THEN PULL BOTH SIDES OF THREAD.



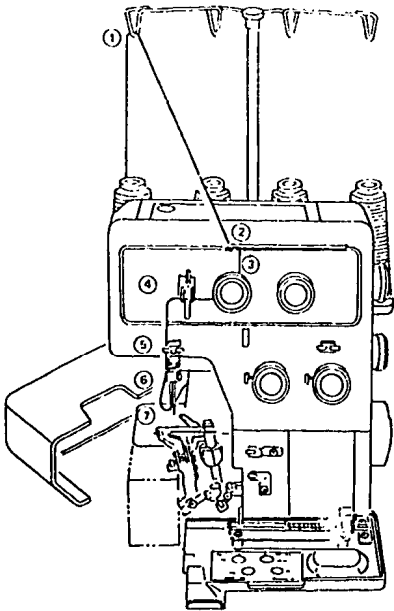
- ④ ⑤ TURN THE HAND WHEEL TOWARD YOU TO BRING NEEDLE BAR TO ITS HIGHEST POSITION, THEN PASS THE THREAD THROUGH RIGHT NEEDLE THREAD GUIDE AND THREAD TAKE-UP LEVER THREAD GUIDE.



- ⑥ PASS THE THREAD THROUGH THE NEEDLE THREAD GUIDE SLIDING THE THREAD FROM LEFT TO RIGHT.
 ⑦ PASS THROUGH NEEDLE BAR THREAD GUIDE FROM LEFT TO RIGHT.
 ⑧ THREAD THE RIGHT NEEDLE FROM THE FRONT TO THE BACK, AND PULL THE THREAD ABOUT 10 CM (4") FROM THE EYE OF THE NEEDLE TO THE BACK UNDER THE FOOT.

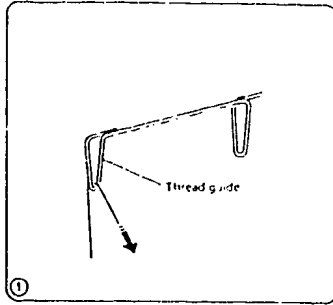
NOTE: NEEDLE MAY BE EASIER TO THREAD IF YOU REMOVE PRESSER FOOT AND LOWER THE KNIFE.

THREADING THE NEEDLE ON THE LEFT

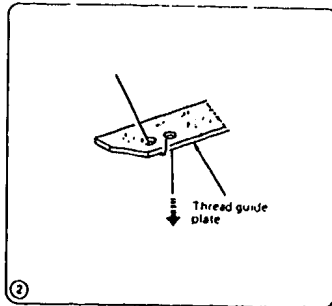


PLACE THE SPOOL OF THREAD ON THE LEFT SIDE SPOOL PIN.

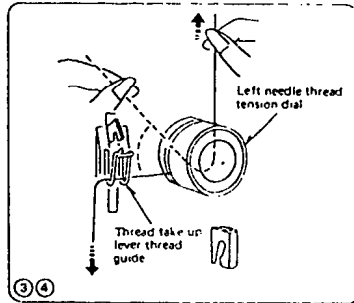
* POINTS TO THREAD FOR NEEDLE ON THE LEFT ARE MARKED IN ORANGE.



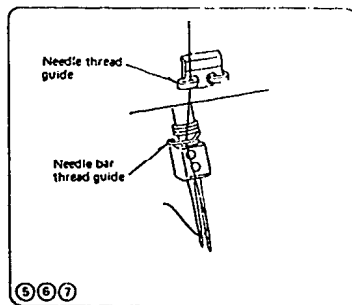
① DRAW THE THREAD THROUGH THE THREAD GUIDE ON THE LEFT FROM BACK TO FRONT.



② PASS THE THREAD THROUGH THE HOLES ON THE LEFT OF THREAD GUIDE PLATE AS ILLUSTRATED.



- ③ INSERT THE THREAD BETWEEN TENSION DISCS FROM THE RIGHT. THEN PULL BOTH SIDES OF THREAD.
- ④ TURN THE HAND WHEEL TOWARD YOU TO BRING NEEDLE BAR TO ITS HIGHEST POSITION, THEN PASS THE THREAD THROUGH THREAD TAKE-UP LEVER THREAD GUIDE.



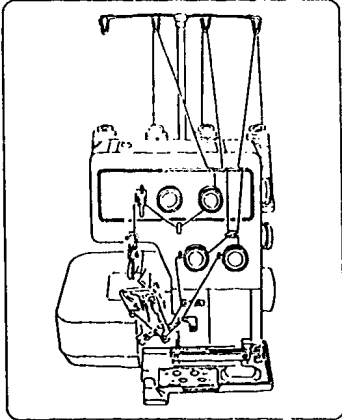
- ⑤ PASS THE THREAD THROUGH THE NEEDLE THREAD GUIDE SLIDING THE THREAD FROM RIGHT TO LEFT.
- ⑥ PASS THROUGH NEEDLE BAR THREAD GUIDE FROM LEFT TO RIGHT.
- ⑦ THREAD THE LEFT NEEDLE FROM THE FRONT TO THE BACK AND PULL THE THREAD ABOUT 10 CM (4") FROM THE EYE OF THE NEEDLE TO THE BACK UNDER THE FOOT.

NOTE: NEEDLE MAY BE EASIER TO THREAD IF YOU REMOVE PRESSER FOOT AND LOWER THE KNIFE.

- GENTLY PULL ALL FOUR THREAD ENDS TOWARDS BACK OF MACHINE.
- REPLACE PRESSER FOOT.
- RUN THREADS UNDER PRESSER FOOT.
- RETURN KNIFE TO UP POSITION.
- CLOSE SIDE AND LOOPER COVERS.
- TURN HAND WHEEL TOWARD YOU TO CHAIN OFF THREE OR FOUR STITCHES.

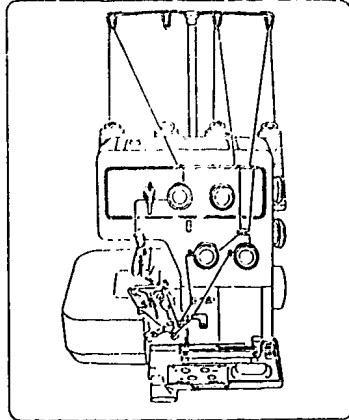
THREADING THE MACHINE (3 THREADS), WIDE/NARROW STITCH

USING THE NEEDLE ON THE RIGHT ONLY
(FOR NARROW THREE-THREAD SERGING) 3.5 MM WIDTH



DISCONNECT THE MACHINE FROM THE POWER SUPPLY. REMOVE THE NEEDLE AND THE THREAD ON THE LEFT. THEN TIGHTEN THE NEEDLE CLAMP SCREW ON THE LEFT SLIGHTLY TO AVOID LOSING THE SCREW.

USING THE NEEDLE ON THE LEFT ONLY
(FOR WIDE THREE-THREAD SERGING) 5.7 MM WIDTH



REMOVE THE NEEDLE AND THE THREAD ON THE RIGHT. THEN TIGHTEN THE NEEDLE CLAMP SCREW ON THE RIGHT SLIGHTLY TO AVOID LOSING THE SCREW.

TO CHANGE TO THE OTHER NEEDLE IN THREE-THREAD SERGING

LOOSEN BOTH NEEDLE CLAMP SCREWS AND REMOVE THE NEEDLE. INSERT THE NEEDLE TO BE USED AND TIGHTEN THE NEEDLE CLAMP SCREW WHILE PUSHING THE NEEDLE UP AS FAR AS IT WILL GO. THEN TIGHTEN THE OTHER NEEDLE CLAMP SCREW ON THE OTHER SIDE SLIGHTLY TO PREVENT THE SCREW FROM DROPPING.

WHAT TO DO WHEN

CONDITION	CAUSE	REFERENCE
THE FABRIC IS NOT BEING FED SMOOTHLY.	<ol style="list-style-type: none"> 1. THE FEED DOG IS PACKED WITH LINT. 2. THE PRESSER FOOT HAS BEEN RAISED. 	SEE PAGE 38 IN OWNER'S MANUAL. LOWER THE PRESSER FOOT.
THE NEEDLE BREAKS.	<ol style="list-style-type: none"> 1. THE NEEDLE IS INCORRECTLY INSERTED. 2. THE NEEDLE IS BENT OR BLUNT. 3. THE FABRIC IS FORCEFULLY PULLED. 	SEE PAGE 28 IN OWNER'S MANUAL. SEE PAGE 28 IN OWNER'S MANUAL. PULL THE FABRIC TIGHTLY.
THE THREAD BREAKS.	<ol style="list-style-type: none"> 1. THE MACHINE IS NOT CORRECTLY THREADED. 2. THE NEEDLE OR LOOPER THREAD TENSION IS TOO TIGHT. 3. THE NEEDLE IS INCORRECTLY INSERTED. 4. THE NEEDLE IS BENT OR BLUNT. 	SEE PAGE 2 - 17. SEE PAGES 21-25 AND 33-37 IN OWNER'S MANUAL. SEE PAGE 28 IN OWNER'S MANUAL. SEE PAGE 28 IN OWNER'S MANUAL.
SKIPPED STITCHES	<ol style="list-style-type: none"> 1. THE MACHINE IS NOT CORRECTLY THREADED. 2. THE NEEDLE IS BENT OR BLUNT. 	SEE PAGE 2 - 17. SEE PAGE 28 IN OWNER'S MANUAL.
THE SEAM IS NOT SEWN NEATLY.	<ol style="list-style-type: none"> 1. THE NEEDLE AND/OR LOOPER THREAD TENSIONS ARE NOT CORRECTLY ADJUSTED. 2. THE MACHINE IS NOT CORRECTLY THREADED. 3. THE NEEDLE AND/OR THE THREAD ARE NOT SUITABLE FOR THE FABRIC BEING SEWN. 4. THE THREAD IS NOT BETWEEN THE TENSION DISCS. 	SEE PAGES 21-25 AND 33-37 IN OWNER'S MANUAL. SEE PAGES 2 - 12. SEE PAGES 31,33 AND 35-37 IN OWNER'S MANUAL. SEE PAGES 11,13,15 AND 17 IN OWNER'S MANUAL.
SEAM PUCKERING.	<ol style="list-style-type: none"> 1. THE NEEDLE OR LOOPER THREAD TENSION IS TOO TIGHT. 2. THE MACHINE IS NOT CORRECTLY THREADED. 3. THE NEEDLE PLATE IS NOT SUITABLE FOR THE USE. 4. THE DIFFERENTIAL FEED DIAL IS NOT SET AT THE PROPER POSITION. 	SEE PAGES 21-25 AND 33-37 IN OWNER'S MANUAL. SEE PAGES 2 - 12. SEE PAGE 30 IN OWNER'S MANUAL. SEE PAGE 26 IN OWNER'S MANUAL.
THE MACHINE DOES NOT OPERATE.	<ol style="list-style-type: none"> 1. THE MACHINE HAS NOT BEEN PLUGGED IN FIRMLY. 2. THE POWER SWITCH IS TURNED OFF. 	SEE PAGE 5 IN OWNER'S MANUAL. SEE PAGE 5 IN OWNER'S MANUAL.

FACE PLATE UNIT AND BELT COVER

FACE PLATE

1. REMOVE THE SET SCREW (A) TO REMOVE THE FACE PLATE (B).

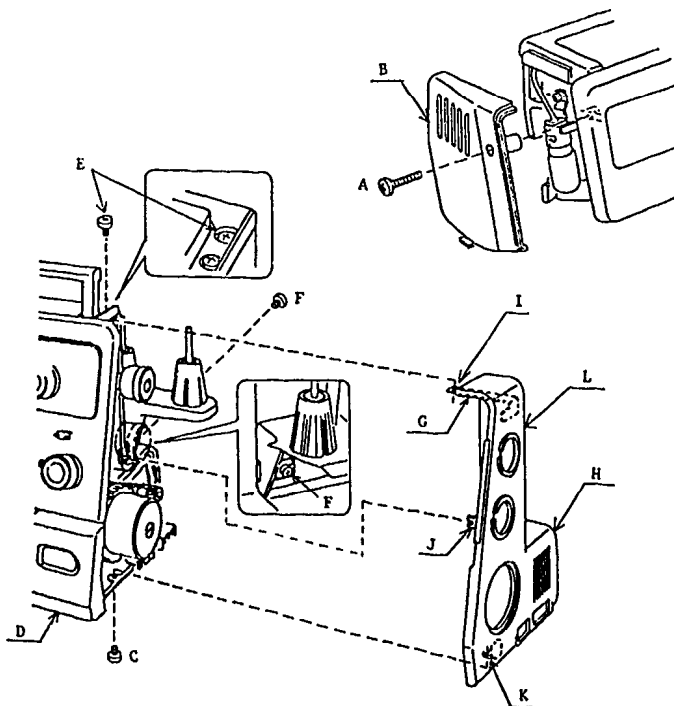
BELT COVER

TO REMOVE

1. REMOVE THE SET SCREW (C).
2. OPEN THE LOOPER COVER (D).
3. LOOSEN THE TWO SET SCREWS (E) AND (F).
4. PULL THE TOP END (G) AND BACK END (H) AT THE SAME TIME.

TO ATTACH

5. WHILE INSERTING THE THREE PROJECTIONS (I, J & K), PUSH THE BELT COVER (L) AGAINST THE MACHINE BODY.
6. TIGHTEN THE THREE SET SCREWS (C, E & F).
7. CLOSE THE LOOPER COVER (D).



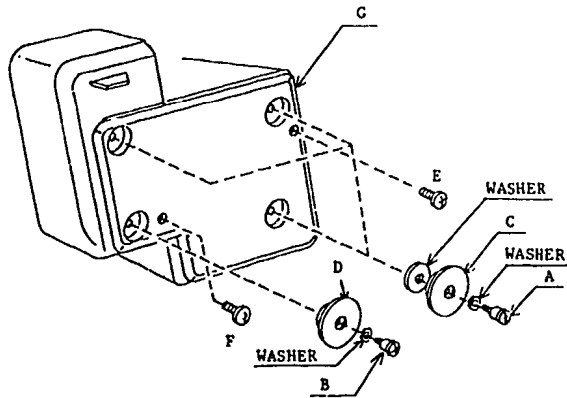
MACHINE BASE

TO REMOVE

1. REMOVE THE FOUR HINGE SCREWS (A) AND (B), AND REMOVE THE BASE CUSHIONS (C) AND (D).
2. REMOVE THE TWO SET SCREWS (E) AND (F).
3. REMOVE THE MACHINE BASE (G).

TO ATTACH

4. ATTACH THE MACHINE BASE (G), AND TIGHTEN THE TWO SET SCREWS (E) AND (F).
5. ATTACH THE BASE CUSHIONS (C) & (D) AND WASHERS, AND TIGHTEN THE FOUR HINGE SCREWS (A) AND (B).



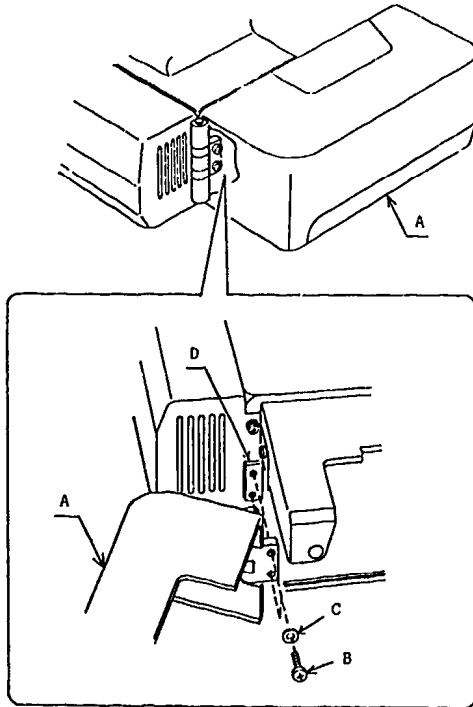
SIDE COVER

TO REMOVE

1. OPEN THE SIDE COVER (A) TO THE LEFT.
2. REMOVE THE TWO SET SCREWS (B) AND WASHERS (C).
3. REMOVE THE SIDE COVER (A).

TO ATTACH

4. ATTACH THE SIDE COVER (A) TO THE SETTING PLATE (D) TEMPORARILY WITH TWO SCREWS (B) AND WASHERS (C).
5. ADJUST THE OPENING AND CLOSING FUNCTION OF SIDE COVER (A).
6. TIGHTEN TWO SCREWS (B) FIRMLY.



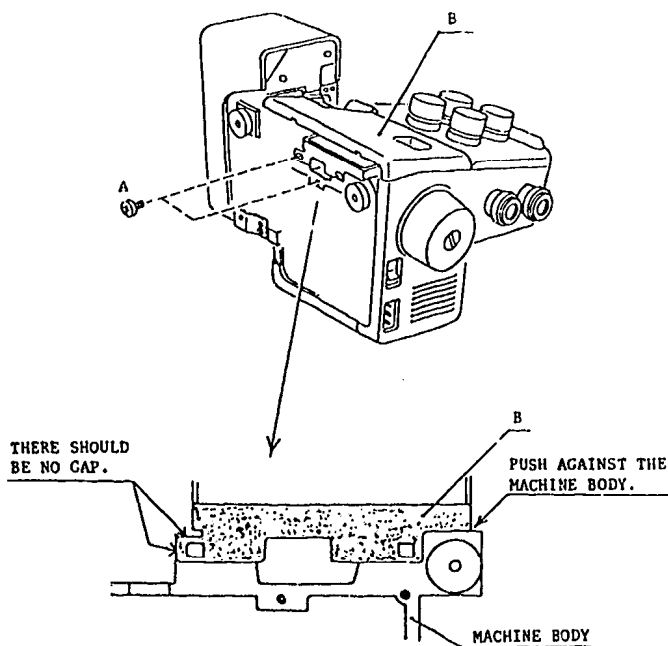
LOOPER COVER UNIT

TO REMOVE

1. REMOVE THE MACHINE BASE.
2. REMOVE THE TWO SCREWS (A), AND REMOVE THE LOOPER COVER UNIT (B),

TO ATTACH

3. ATTACH THE LOOPER COVER UNIT (B) TO THE MACHINE BODY TEMPORARILY WITH TWO SCREWS (A).
4. ADJUST THE OPENING AND CLOSING FUNCTION OF LOOPER COVER (B).
5. TIGHTEN TWO SCREWS (A) FIRMLY.
6. ATTACH THE MACHINE BASE.



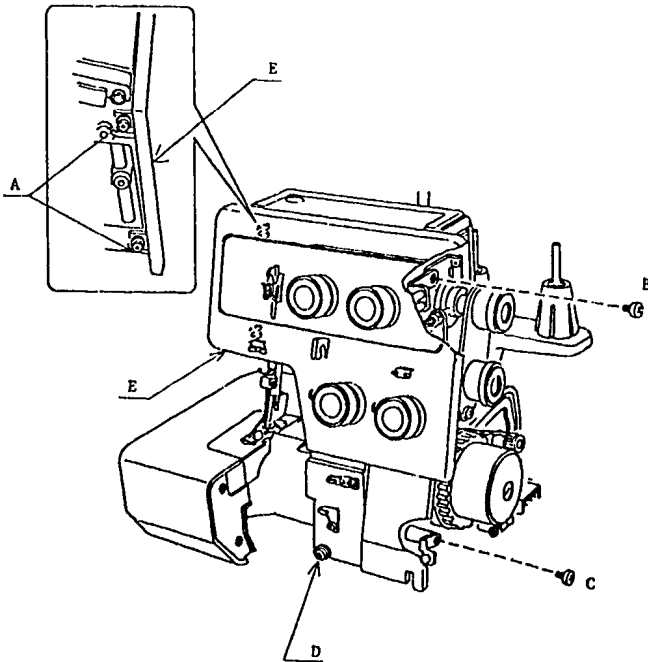
FRONT PANEL UNIT

TO REMOVE

1. REMOVE THE FACE PLATE, BELT COVER, MACHINE BASE AND LOOPER COVER UNIT.
2. LOOSEN THE TWO TP SCREWS (A) AT THE FACE PLATE SIDE.
3. REMOVE THE SCREWS (B) AND (C) AT THE BELT COVER SIDE.
4. LOOSEN THE SCREW (D) WITH WASHER TO REMOVE THE FRONT PANEL UNIT (E).

TO ATTACH

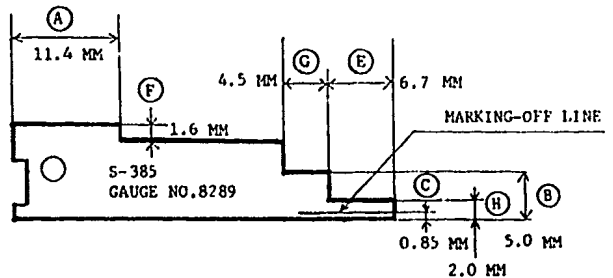
5. ATTACH THE FRONT PANEL UNIT (E) BY FASTENING THE SCREWS (A),(B),(C) AND (D).
6. ATTACH THE LOOPER COVER UNIT, MACHINE BASE, BELT COVER AND FACE PLATE.



GAUGE FOR SERVICING

ADJUSTMENTS CAN BE DONE EFFECTIVELY AND CORRECTLY WITH THIS GAUGE.

USE STANDARD KENMORE NEEDLE SIZE 14, WHEN USING THIS GAUGE.



(D): THICKNESS 1.7 MM

- (A): FOR NEEDLE BAR HEIGHT
- (B): FOR PRESSER BAR HEIGHT
- (C): FOR FEED DOG HEIGHT & POSITION OF KNIVES
- (D): FOR UPPER LOOPER POSITION
- (E): FOR LOWER LOOPER POSITION
- (F): FOR LOWER LOOPER TIMING
- (G): FOR UPPER LOOPER POSITION
- (H): FOR FEED TIMING

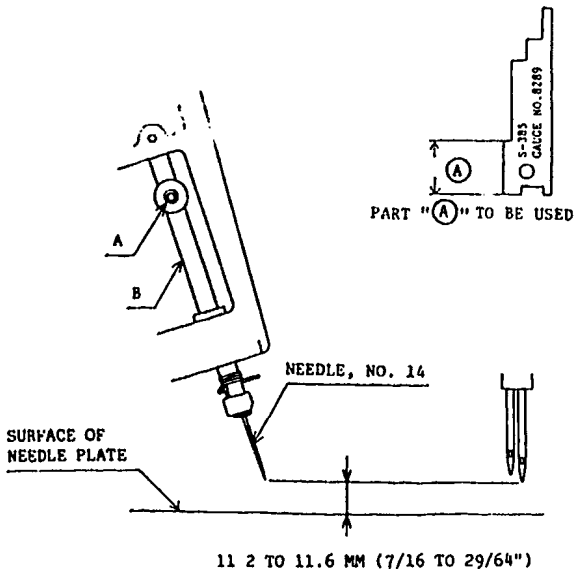
NEEDLE BAR HEIGHT

CORRECT SETTING

THE DISTANCE BETWEEN THE TIP OF NEEDLE ON THE RIGHT AND THE SURFACE OF NEEDLE PLATE SHOULD BE 11.2 TO 11.6 MM (7/16 TO 29/64") WHEN THE NEEDLE BAR IS AT THE HIGHEST POSITION.

TO ADJUST

1. REMOVE THE FACE PLATE (REFER TO PAGE 14.) AND THE PRESSER FOOT.
 2. TURN THE HAND WHEEL TOWARD YOU WITH YOUR HAND, AND SET THE NEEDLE BAR (B) AT THE HIGHEST POSITION.
 3. LOOSEN THE SET SCREW (A) TO ADJUST THE HEIGHT, AND TIGHTEN THE SET SCREW (A) AFTER THE ADJUSTMENT IS DONE.
- NOTE: BE CAREFUL NOT TO TURN THE NEEDLE BAR (B).
4. TURN THE HAND WHEEL TOWARD YOU ONE CYCLE, AND RECHECK THE NEEDLE BAR HEIGHT.
 5. ATTACH THE FACE PLATE (REFER TO PAGE 14.) AND THE PRESSER FOOT.



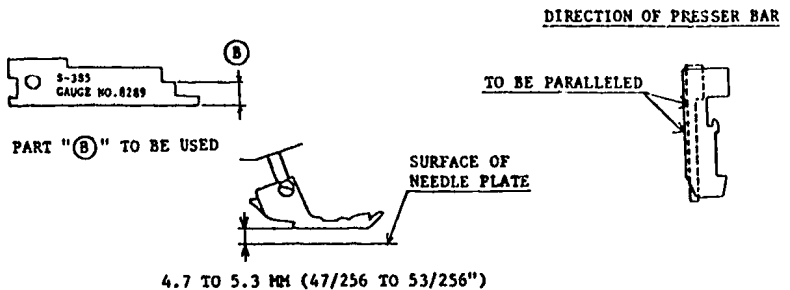
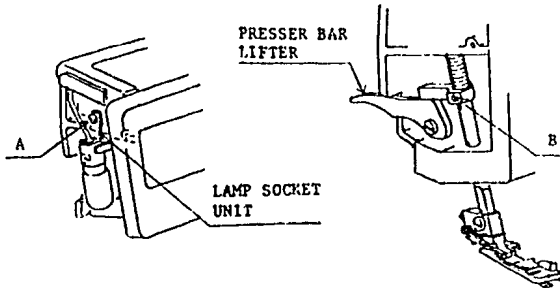
PRESSER BAR HEIGHT

CORRECT SETTING

THE DISTANCE BETWEEN THE SURFACE OF NEEDLE PLATE AND BOTTOM OF PRESSER FOOT SHOULD BE 4.7 TO 5.3 MM (47/256 TO 53/256") WHEN THE PRESSER BAR LIFTER IS RAISED.

TO ADJUST

1. REMOVE THE FACE PLATE. (REFER TO PAGE 14.)
2. REMOVE THE SET SCREW (A) TO MOVE THE LAMP SOCKET UNIT.
3. RAISE THE PRESSER BAR LIFTER, AND LOOSEN THE SET SCREW (B). THEN ADJUST THE PRESSER BAR HEIGHT. THE SIDE OF PRESSER FOOT SHOULD BE PARALLELED WITH THE HOLE OF NEEDLE PLATE.
4. TIGHTEN THE SET SCREW (B).
5. TIGHTEN THE SET SCREW (A).
6. ATTACH THE FACE PLATE. (REFER TO PAGE 14.)



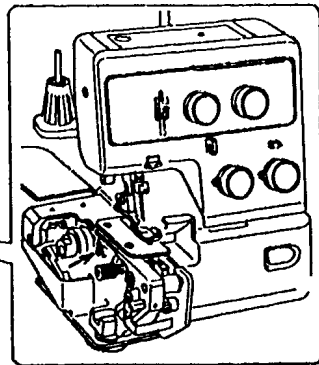
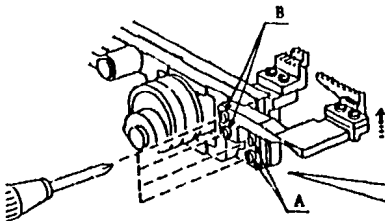
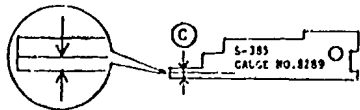
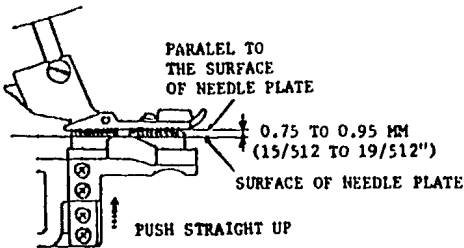
FEED DOG HEIGHT

CORRECT SETTING

WHEN THE PRESSER FOOT IS LOWERED AND THE FEED DOGS ARE AT THEIR HIGHEST POSITION, THE DISTANCE BETWEEN THE SURFACE OF NEEDLE PLATE AND BOTTOM OF PRESSER FOOT SHOULD BE 0.75 AND 0.95 MM (15/512 TO 19/512").

TO ADJUST

1. SET THE STITCH LENGTH DIAL AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
2. LOWER THE PRESSER FOOT AND RAISE THE FEED DOGS TO THEIR HIGHEST POSITION BY TURNING THE HAND WHEEL.
3. LOOSEN THE MAIN & SUB FEED DOG SCREWS (A & B) (4 PCS.).
4. PUSH THE MAIN FEED DOG STRAIGHT UPWARD AND ADJUST THE DISTANCE BETWEEN THE SURFACE OF NEEDLE PLATE AND BOTTOM OF PRESSER FOOT, THEN TIGHTEN THE SET SCREWS (A) (2 PCS.).
5. WHILE KEEPING THE FOOT PARALLEL TO THE SURFACE OF THE NEEDLE PLATE, PUSH THE SUB FEED DOG STRAIGHT UPWARD UNTIL ITS TEETH TOUCH THE BOTTOM OF FOOT. THEN TIGHTEN THE SET SCREWS (B) (2PCS.).
6. CHECK IF THESE TWO FEED DOGS ARE ATTACHED IN PARALLEL TO THE SURFACE OF NEEDLE PLATE WHILE TURNING THE HAND WHEEL.



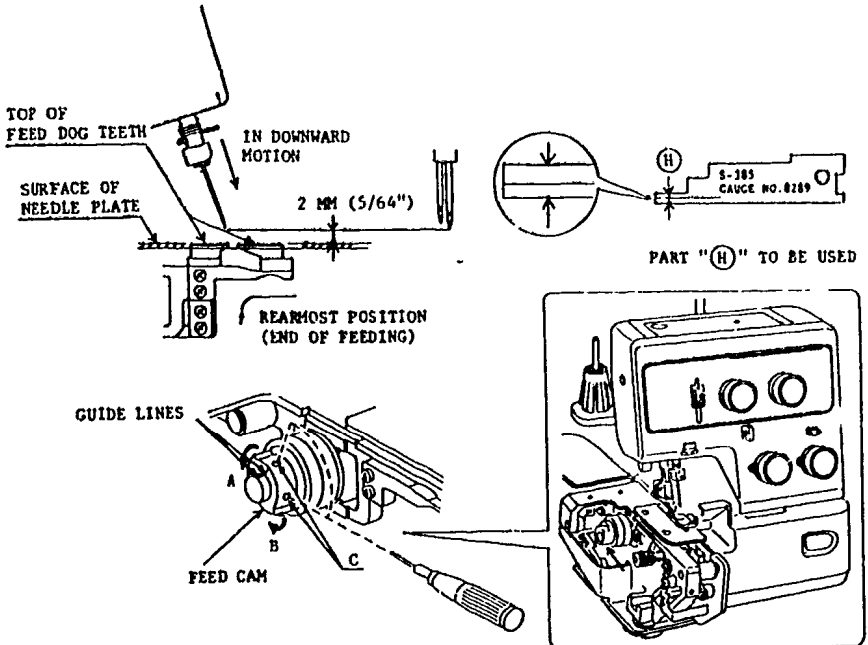
FEED TIMING

CORRECT SETTING

WHEN THE TIP OF RIGHT NEEDLE IS AT 2 MM (5/64") ABOVE THE NEEDLE PLATE IN ITS DOWNWARD MOTION AND LOWERED PRESSER FOOT. THE TOP OF THE FEED DOG TEETH SHOULD BE LEVEL TO THE TOP SURFACE OF NEEDLE PLATE AT THEIR REARMOST POSITION.

TO ADJUST

1. SET THE STITCH LENGTH DIAL AT "4" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
2. RAISE THE PRESSER FOOT AND MOVE THE NEEDLE TO THE POSITION OF THAT THE TIP OF THE RIGHT NEEDLE IS AT 2 MM (5/64") ABOVE THE NEEDLE PLATE IN ITS DOWNWARD MOTION.
3. LOWERED THE PRESSER FOOT AND LOOSEN THE TWO SCREWS (C) AND ADJUST THE POSITION OF THE FEED CAM WHILE AIMING THE GUIDE LINES.
 - TURN THE FEED CAM TO THE DIRECTION "A" IF THE FEED DOGS ARE LOWER THAN THE SURFACE OF THE NEEDLE PLATE.
 - TURN THE FEED CAM TO THE DIRECTION "B" IF THE FEED DOGS ARE HIGHER THAN THE SURFACE OF THE NEEDLE PLATE.
4. TIGHTEN THE TWO SCREWS (C) FIRMLY.



UPPER KNIFE TIMING

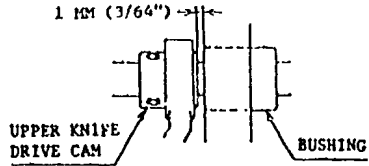
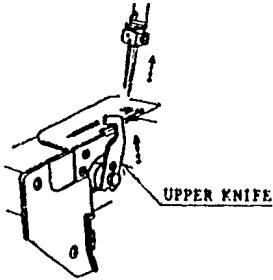
CORRECT SETTING

THE UPPER KNIFE TIMING IS THE SAME AS THAT OF THE NEEDLE BAR. IN FACT, WHEN THE NEEDLE BAR IS AT ITS HIGHEST POSITION THE UPPER KNIFE SHOULD BE ALSO AT ITS HIGHEST POSITION.

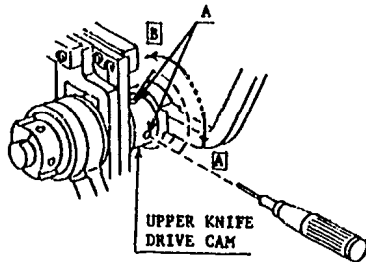
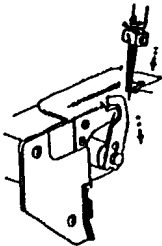
TO ADJUST

1. REMOVE THE MACHINE BASE. (REFER TO PAGE 15.)
2. LOOSEN THE TWO SET SCREWS (A) AND
 - TURN THE UPPER KNIFE DRIVE CAM TO THE DIRECTION "A" WHEN THE UPPER KNIFE TIMING IS BEING DELAY.
 - TURN THE UPPER KNIFE DRIVE CAM TO THE DIRECTION "B" WHEN THE UPPER KNIFE TIMING IS TOO SOON.
3. TIGHTEN THE TWO SET SCREWS (A) FIRMLY. THERE SHOULD BE 1 MM CLEARANCE BETWEEN UPPER KNIFE DRIVE CAM AND BUSHING.
4. TURN THE BALANCE WHEEL TOWARD YOU ONE CYCLE, AND RECHECK THE UPPER KNIFE TIMING.
5. ATTACH THE MACHINE BASE. (REFER TO PAGE 15.)

WHEN THE NEEDLE BAR GOES UP,
THE UPPER KNIFE GOES UP.



WHEN THE NEEDLE BAR GOES DOWN,
THE UPPER KNIFE ALSO GOES DOWN.



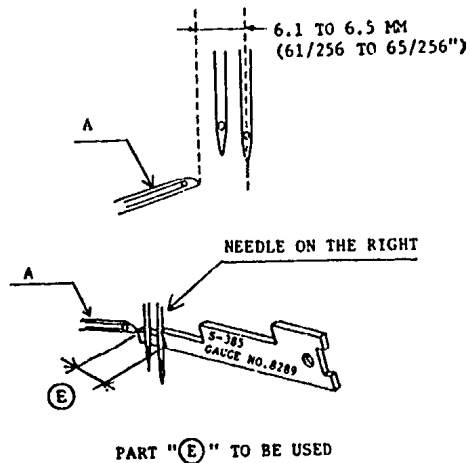
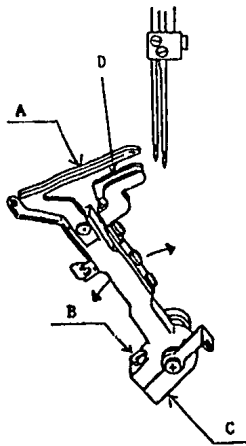
LOWER LOOPER POSITION

CORRECT SETTING

WHEN LOWER LOOPER (A) COMES TO THE LEFTMOST POSITION, THE DISTANCE BETWEEN THE TIP OF LOWER LOOPER AND CENTER OF NEEDLE ON THE RIGHT SHOULD BE 6.1 TO 6.5 MM. (61/256 TO 65/256").

TO ADJUST

1. REMOVE THE PRESSER FOOT AND NEEDLE PLATE.
2. TURN THE HAND WHEEL TOWARD YOU WITH YOUR HAND TO BRING THE LOWER LOOPER (A) TO THE LEFTMOST POSITION. THEN LOOSEN THE HEXAGON BOLT (B) JUST ENOUGH TO MOVE THE LOWER LOOPER DRIVE ARM (C).
3. ADJUST THE DISTANCE BETWEEN THE TIP OF LOWER LOOPER AND CENTER OF THE RIGHT NEEDLE.
4. TIGHTEN THE HEXAGON BOLT (B).
5. CHECK THE CLEARANCES BETWEEN LOWER LOOPER (A) AND BOTH NEEDLES.
6. CHECK THE CLEARANCES BETWEEN THE BOTH NEEDLES AND REAR NEEDLE GUARD.
7. CHECK THE UPPER AND LOWER LOOPERS TIMING. (REFER TO PAGE 3.)
8. ATTACH THE NEEDLE PLATE AND PRESSER FOOT.



CLEARANCE BETWEEN NEEDLE AND LOWER LOOPER/NEEDLE GUARDS

CORRECT SETTING

WHEN THE TIP OF LOWER LOOPER COMES FROM THE LEFT JUST BEHIND THE NEEDLE ON THE LEFT OR RIGHT, THE BOTH CLEARANCES BETWEEN NEEDLES AND LOWER LOOPER SHOULD BE 0 TO 0.1 MM (0 TO 1/256"). IN THIS CONDITION, THE BOTH CLEARANCES BETWEEN NEEDLES AND REAR NEEDLE GUARD SHOULD BE 0 TO 0.2 MM (0 TO 1/128").

TO ADJUST

THE FOLLOWING SEQUENCE IS FOR ONE NEEDLE. APPLY THE SAME SEQUENCE TO THE NEEDLE ON THE OTHER SIDE.

1. REMOVE THE PRESSER FOOT AND NEEDLE PLATE.
REMOVE THE BELT COVER AND FACE PLATE. (REFER TO PAGE 14.)
REMOVE THE LOOPER COVER UNIT AND THE FRONT PANEL UNIT. (REFER TO PAGE 17 & 19.)
2. TURN THE HAND WHEEL TOWARD YOU WITH YOUR HAND TO BRING THE TIP OF LOWER LOOPER JUST BEHIND THE NEEDLE FROM THE LEFT.

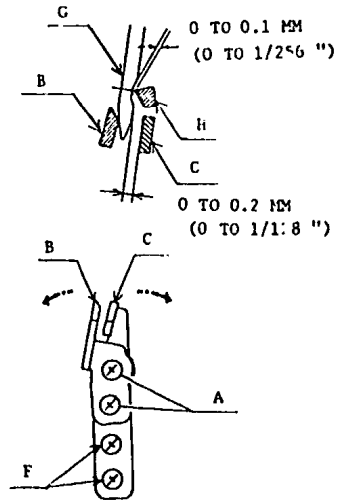
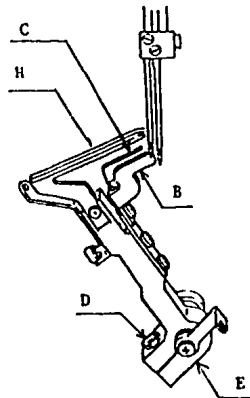
CLEARANCE BETWEEN THE LOWER LOOPER AND NEEDLE

3. LOOSEN THE TWO SET SCREW (A), AND PUSH THE FRONT NEEDLE GUARD (B) SLIGHTLY TO THE FRONT.
IN THIS CONDITION, BOTH NEEDLE GUARDS (B) & (C) SHOULD NOT TOUCH THE NEEDLE, AND THE CLEARANCE BETWEEN TIP OF LOWER LOOPER AND THE NEEDLE SHOULD BE 0.1 TO 0.2 MM (1/256 TO 1/128"). IF NOT, LOOSEN THE HEXAGON BOLT (D) JUST ENOUGH TO MOVE THE LOWER LOOPER DRIVE ARM (E). THEN ADJUST THE CLEARANCE, AND TIGHTEN THE HEXAGON BOLT (D).

CLEARANCE BETWEEN THE NEEDLE AND REAR NEEDLE GUARD

4. LOOSEN THE TWO SET SCREWS (F), AND BRING THE REAR NEEDLE GUARD (C) TO THE FRONT TO SET THE CLEARANCE BETWEEN THE NEEDLE AND REAR NEEDLE GUARD (C) TO 0.1 TO 0.3 MM (1/256 TO 3/256"). THEN TIGHTEN THE TWO SET SCREWS (F).
5. TURN THE HAND WHEEL TOWARD YOU TO UNTIL THE TIP OF LOWER LOOPER COMES JUST BEHIND THE CENTER OF NEEDLE FROM THE LEFT. PUSH THE FRONT NEEDLE GUARD (B) AGAINST THE NEEDLE TO ADJUST THE CLEARANCE BETWEEN THE NEEDLE (G) AND LOWER LOOPER (H). THE CLEARANCE BETWEEN NEEDLE AND THE TIP OF LOWER LOOPER SHOULD BE 0 TO 0.1 MM (0 TO 1/256"). IN THIS CONDITION, THE CLEARANCE BETWEEN THE NEEDLE (G) AND REAR NEEDLE GUARD (C) SHOULD BE 0. TO 0.2 MM (0 TO 1/128"). TIGHTEN THE TWO SET SCREWS (A).

6. CHECK THE LOWER LOOPER POSITION. (REFER TO PAGE 25.)
7. RECHECK THE CLEARANCE BETWEEN THE NEEDLE (G) AND LOWER LOOPER (H).
8. CHECK THE CLEARANCE BETWEEN LOWER AND UPPER LOOPERS. (REFER TO PAGE 31.)
9. ATTACH THE FRONT PANEL UNIT AND THE LOOPER COVER UNIT. (REFER TO PAGE 17 & 18.)
10. ATTACH THE BELT COVER AND FACE PLATE. (REFER TO PAGE 14.)
11. ATTACH THE NEEDLE PLATE AND PRESSER FOOT.



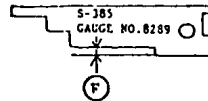
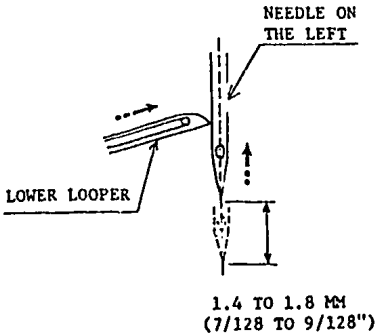
LOWER LOOPER TIMING

CORRECT SETTING

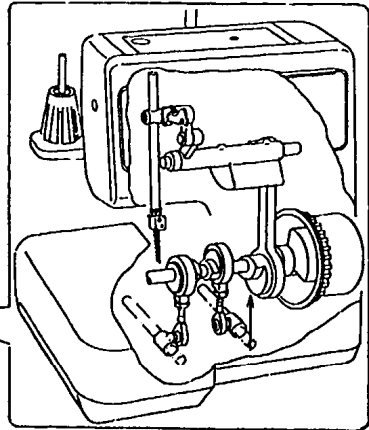
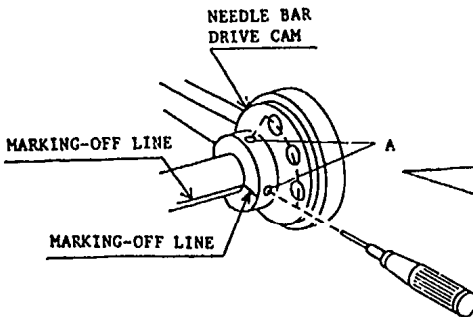
WHEN THE NEEDLE COMES UP 1.4 TO 1.8 MM ($7/128$ TO $9/128$ ") FROM ITS LOWEST POSITION, THE TIP OF LOWER LOOPER COMES JUST LEFT SIDE OF NEEDLE ON THE LEFT.

TO ADJUST

1. REMOVE THE PRESSER FOOT, NEEDLE PLATE AND MACHINE BASE.
2. LOOSEN THE TWO SET SCREWS (A), AND ADJUST THE TIMING.
3. TIGHTEN THE TWO SET SCREWS (A).
4. ATTACH THE MACHINE BASE, NEEDLE PLATE AND PRESSER FOOT.



PART "F" TO BE USED



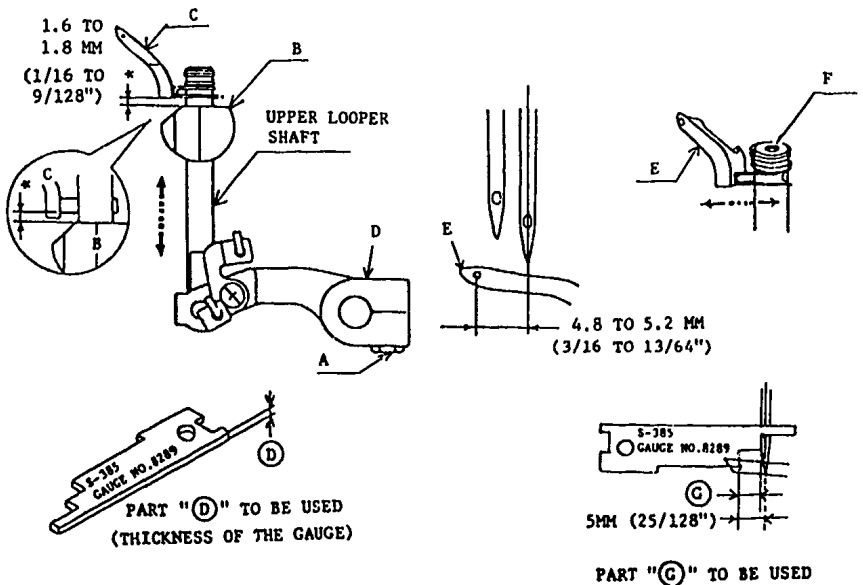
UPPER LOOPER POSITION

CORRECT SETTING

WHEN THE UPPER LOOPER IS AT THE LEFTMOST POSITION, THE DISTANCE BETWEEN THE CENTER OF NEEDLE ON THE RIGHT AND THE CENTER OF LOOPER EYE SHOULD BE 4.8 TO 5.2 MM (3/16 TO 13/64 ").

TO ADJUST

1. REMOVE THE MACHINE BASE. (REFER TO PAGE 15.)
2. MAKE SURE THAT THE MARKING-OFF LINE ON THE UPPER LOOPER DRIVE CAM IS IN LINE WITH THE ONE ON THE MAIN SHAFT. (REFER TO PAGE 30.)
3. REMOVE THE LOOPER COVER UNIT. (REFER TO PAGE 17.)
4. LOOSEN THE HEXAGON BOLT (A), AND ADJUST THE DISTANCE BETWEEN UPPER LOOPER SHAFT GUIDE (B) AND BOTTOM OF UPPER LOOPER (C). THE DISTANCE SHOULD BE 1.6 TO 1.8 MM (1/16 TO 9/128 ") WHEN THE UPPER LOOPER (C) IS AT THE LOWEST POSITION.
5. TIGHTEN THE HEXAGON BOLT (A). BE CAREFUL NOT TO TIGHTEN TOO MUCH, OTHERWISE THE UPPER LOOPER DRIVE ARM (D) WILL BE CRACKED.
6. TURN THE HAND WHEEL AND BRING THE UPPER LOOPER (E) TO THE LEFTMOST POSITION.
7. LOOSEN THE SET SCREW (F), AND ADJUST THE DISTANCE BETWEEN THE CENTER OF NEEDLE AND CENTER OF UPPER LOOPER EYE.
8. TIGHTEN THE SET SCREW (F).
9. CHECK THE UPPER AND LOWER LOOPERS TIMING (REFER TO PAGE 30.) AND CLEARANCE BETWEEN UPPER AND LOWER LOOPERS (REFER TO PAGE 31.)



UPPER & LOWER LOOPERS TIMING

CORRECT SETTING

WHEN LOWER LOOPER (A) MOVES TO THE RIGHT, THE TIP OF UPPER LOOPER (B) MEETS THE LOWER LOOPER (A) WITHIN 1MM (5/128") FROM THE LEFT OF LOWER LOOPER EYE AS SHOWN IN FIG. a .

TO ADJUST

1. BEFORE PROCEEDING THIS ADJUSTMENT, CHECK THE LOWER LOOPER POSITION (REFER TO PAGE 25.), LOWER LOOPER TIMING (REFER TO PAGE 28.) AND THE POSITION OF UPPER LOOPER (REFER TO PAGE 29.)
2. REMOVE THE MACHINE BASE, NEEDLE PLATE AND PRESSER FOOT.
3. LOOSEN THE TWO SET SCREWS (C), AND ADJUST THE TIMING BY TURNING THE UPPER LOOPER DRIVE CAM (D) TO THE DIRECTION OF :

[A] IF THE TIMING OF UPPER LOOPER IS ADVANCED AS SHOWN IN FIG. b .

[B] IF THE TIMING OF UPPER LOOPER IS DELAYED AS SHOWN IN FIG. c .

THE ALLOWANCE IS 1 MM (5/128 ") FROM THE LEFT EDGE OF LOWER LOOPER EYE AS SHOWN IN FIG. a .

4. TIGHTEN THE TWO SET SCREWS (C).
5. CHECK THE CLEARANCE BETWEEN THE LOOPERS. (REFER TO PAGE 31.)
6. ATTACH THE MACHINE BASE, NEEDLE PLATE AND PRESSER FOOT.

NOTE: ADJUSTMENT WOULD BE EASIER IF THE MARKING-OFF LINE ON THE UPPER LOOPER DRIVE CAM (D) IS SET IN LINE WITH THE MARKING-OFF LINE OF THE DRIVE SHAFT (E).

NOTE: THE UPPER LOOPER DRIVE CAM (D) MUST NOT BE MOVED TO LEFT OR RIGHT.

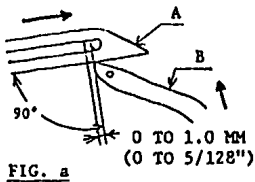


FIG. a

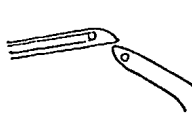


FIG. b

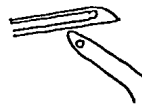
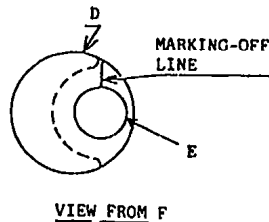
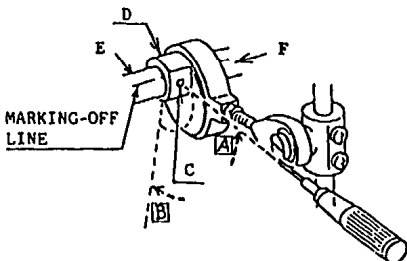


FIG. c



CLEARANCE BETWEEN LOOPERS

CORRECT SETTING

WHEN THE UPPER LOOPER (A) MEETS LOWER LOOPER (B) AS SHOWN IN FIG. a, THE CLEARANCE SHOULD BE 0 TO 0.2 MM (0 TO 1/128 ") AS SHOWN IN FIG. b.

TO ADJUST

1. REMOVE THE PRESSER FOOT AND NEEDLE PLATE.
2. TURN THE HAND WHEEL TOWARD YOU WITH YOUR HAND TO BRING THE LOOPERS AS SHOWN IN FIG. a .
3. LOOSEN THE SET SCREW (C), AND ADJUST THE CLEARANCE BY MOVING THE UPPER LOOPER (A) TO THE BACK OR FRONT AS SHOWN IN FIG. c .
4. TIGHTEN THE SET SCREW (C) FIRMLY.
5. CHECK THE CLEARANCE BETWEEN THE UPPER LOOPER AND NEEDLE PLATE. (REFER TO PAGE 32.)
6. ATTACH THE NEEDLE PLATE AND PRESSER FOOT.

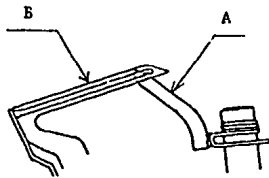


FIG. a

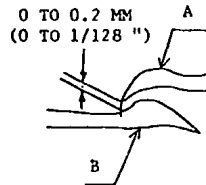


FIG. b

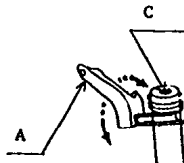


FIG. c

CLEARANCE BETWEEN NEEDLE AND UPPER LOOPER

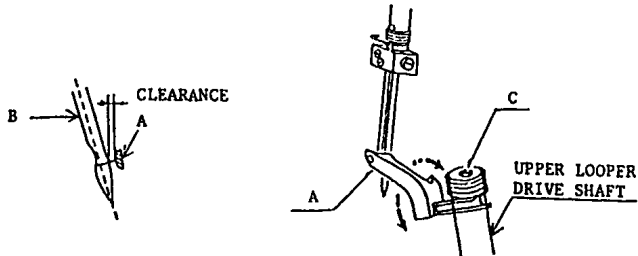
CORRECT SETTING

WHEN THE UPPER LOOPER (A) MEETS WITH NEEDLE (B), THE CLEARANCE SHOULD BE:

- 0.1 TO +0.15 MM (-1/256 TO +3/512 ") AT THE NEEDLE ON THE LEFT.
- 0.2 TO +0.05 MM (-1/128 TO +1/512 ") AT THE NEEDLE ON THE RIGHT.

TO ADJUST

1. TURN THE HAND WHEEL TOWARD YOU WITH YOUR HAND TO BRING THE NEEDLE JUST BEHIND THE UPPER LOOPER (A) IN DOWNWARD TRAVEL.
2. LOOSEN THE SET SCREW (C), AND ADJUST THE CLEARANCE BETWEEN THE BOTH NEEDLES AND UPPER LOOPER (A).
3. TIGHTEN THE SET SCREW (C).
4. CHECK THE CLEARANCE BETWEEN THE LOOPERS. (REFER TO PAGE 31.)
5. CHECK THE UPPER LOOPER POSITION AFTER THE ADJUSTMENT. (REFER TO PAGE 29.)



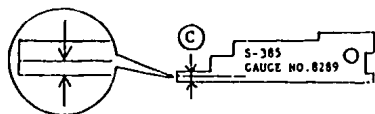
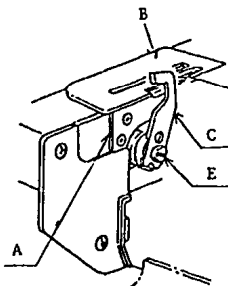
POSITION OF KNIVES

CORRECT SETTING

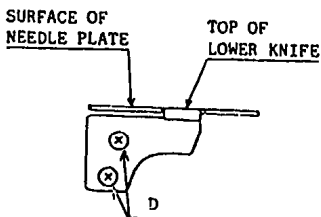
THE TOP OF LOWER KNIFE (A) SHOULD BE LEVELLED WITH THE SURFACE OF NEEDLE PLATE (B).
WHEN THE UPPER KNIFE (C) IS AT THE LOWEST POSITION, THE FRONT LOWER CORNER OF UPPER KNIFE SHOULD BE 0.5 TO 1.0 MM (5/256 TO 5/128 ") BELOW THE EDGE OF LOWER KNIFE.

TO ADJUST

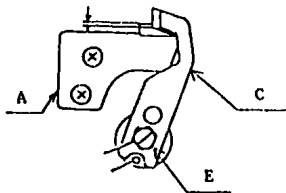
1. BEFORE PROCEEDING THIS ADJUSTMENT, CHECK THE UPPER KNIFE TIMING. (REFER TO PAGE 24.)
2. LOOSEN THE TWO SET SCREWS (D), AND ADJUST THE LOWER KNIFE POSITION. TIGHTEN THE TWO SET SCREWS (D).
3. TURN THE HAND WHEEL TO BRING UPPER KNIFE (C) AT THE LOWEST POSITION.
4. LOOSEN THE HEXAGON BOLT (E), AND ADJUST THE POSITION OF UPPER KNIFE (C).
5. TIGHTEN THE HEXAGON BOLT (E).



PART "C" TO BE USED



0.5 TO 1.0 MM (5/256 TO 5/128 ")



POSITION OF LOOPER THREAD GUIDES

LOWER LOOPER THREAD GUIDE

LOOSEN THE SET SCREW (A), AND ADJUST THE LOWER LOOPER THREAD GUIDE (B) SO THAT THE HOLE OF THREAD GUIDE IS IN LINE WITH THE GROOVE OF LOWER LOOPER (C) AS SHOWN IN FIG. a .

LOOPER THREAD TAKE-UP LEVER

LOOSEN THE SET SCREW (D), AND ADJUST THE POSITION OF LOOPER THREAD TAKE-UP LEVER (E) SO THAT THE SIDE OF LOOPER THREAD TAKE-UP LEVER (E) COMES OVER THE CENTER OF HOLE AS SHOWN IN FIG. b .

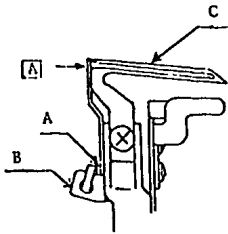


FIG. a

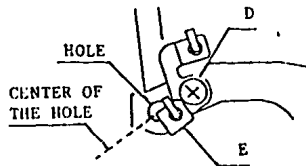
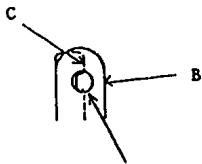


FIG. b



THE HOLE IS IN LINE
WITH THE GROOVE OF
LOWER LOOPER.

VIEW FROM **A**

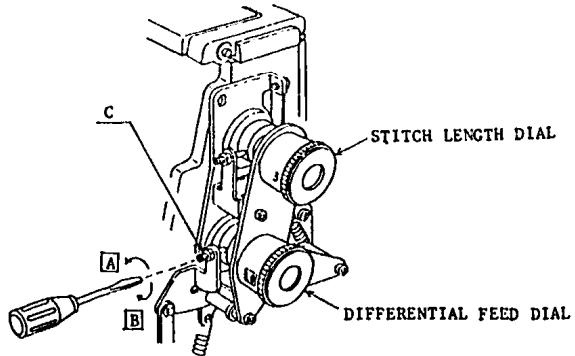
DIFFERENTIAL FEED RATIO

CORRECT SETTING

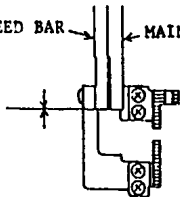
WHEN THE STITCH LENGTH DIAL IS SET AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0", THE DIFFERENCE OF THE AMOUNT OF MOVEMENT BETWEEN THE MAIN FEED DOG AND SUB FEED DOG SHOULD BE LESS THAN 0.15 MM (1/128").

TO ADJUST

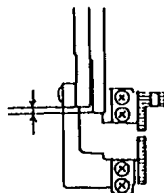
1. REMOVE THE FRONT PANEL UNIT AND NEEDLE PLATE. (REFER TO PAGE 18)
2. SET THE STITCH LENGTH DIAL AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
3. ADJUST THE DIFFERENCE OF THE AMOUNT OF MOVEMENT BETWEEN MAIN FEED DOG AND SUB FEED DOG.
 - * IF THE AMOUNT OF MOVEMENT OF SUB FEED DOG IS LARGER THAN THAT OF MAIN FEED DOG, TURN THE ADJUST SCREW (C) COUNTER-CLOCKWISE (DIRECTION [A]).
 - * IF THE AMOUNT OF MOVEMENT OF SUB FEED DOG IS SMALLER THAN THAT OF MAIN FEED DOG, TURN THE ADJUST SCREW (C) CLOCKWISE (DIRECTION [B]).
4. ATTACH THE FRONT PANEL UNIT AND NEEDLE PLATE. (REFER TO PAGE 18)



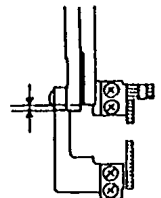
SUB FEED BAR MAIN FEED BAR



THE DIFFERENCE OF THE AMOUNT OF MOVEMENT BETWEEN THE MAIN FEED DOG AND SUB FEED DOG SHOULD BE LESS THAN 0.15 MM (1/128").



THE AMOUNT OF MOVEMENT OF SUB FEED DOG IS LARGER THAN THAT OF MAIN FEED DOG.



THE AMOUNT OF MOVEMENT OF SUB FEED DOG IS SMALLER THAN THAT OF MAIN FEED DOG.

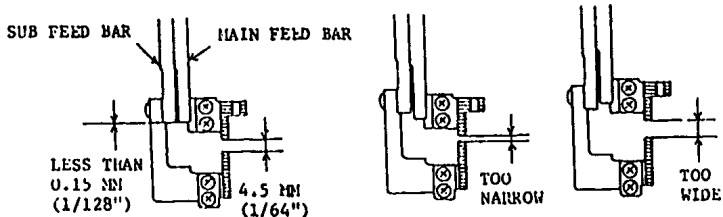
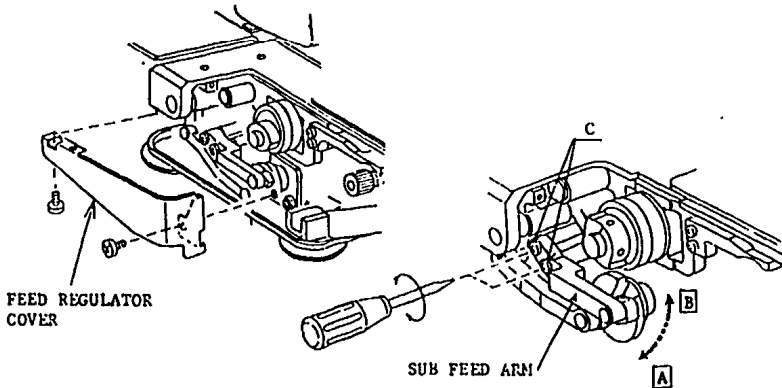
CLEARANCE BETWEEN MAIN & SUB FEED DOGS

CORRECT SETTING

WHEN THE DIFFERENTIAL FEED DIAL IS SET AT "1.0", THE FRONT ENDS OF BOTH MAIN AND SUB FEED BARS SHOULD BE LEVEL (LESS THAN 0.15 MM) OR THE CLEARANCE BETWEEN BOTH FEED DOGS SHOULD BE 4.5 MM (1/64").

TO ADJUST

1. SET THE STITCH LENGTH DIAL AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
2. REMOVE THE FEED REGULATOR COVER AND NEEDLE PLATE.
3. ADJUST THE CLEARANCE BETWEEN THE MAIN AND SUB FEED DOGS. CHECK IF THE BOTH FRONT ENDS OF MAIN FEED BAR AND SUB FEED BAR ARE LEVEL.
 - [A]. IF THE FRONT END OF THE SUB FEED BAR STANDS BACK FROM THAT OF MAIN FEED BAR (THE CLEARANCE IS TOO NARROW), LOOSEN THE TWO SCREWS (C) AND LOWER THE SUB FEED ARM.
 - [B]. IF THE FRONT END OF THE MAIN FEED BAR STANDS BACK FROM THAT OF SUB FEED BAR (THE CLEARANCE IS TOO WIDE), LOOSEN THE TWO SCREWS (C) AND RAISE THE SUB FEED ARM.
4. TIGHTEN THE TWO SCREWS (C) FIRMLY.
5. ATTACH THE FEED REGULATOR COVER AND NEEDLE PLATE.



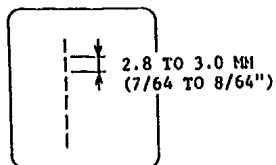
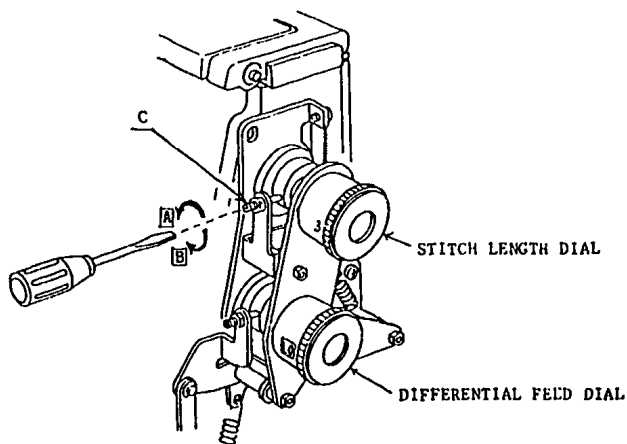
STITCH LENGTH

CORRECT SETTING

THE ACTUAL STITCH LENGTH SHOULD BE 2.8 TO 3.0 MM (7/64 TO 8/64") WHEN THE STITCH LENGTH DIAL IS SET AT "3".

TO ADJUST

1. REMOVE THE FRONT PANEL UNIT. (REFER TO PAGE 18.)
2. SET THE STITCH LENGTH DIAL AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
3. IF ACTUAL STITCH LENGTH IS LONGER THAN 3.0 MM (8/64"), TURN THE ADJUST SCREW (C) TO THE DIRECTION "[A]".
IF ACTUAL STITCH LENGTH IS SHORTER THAN 2.8 MM (7/64"), TURN THE ADJUST SCREW (C) TO THE DIRECTION "[B]".
4. ATTACH THE FRONT PANEL UNIT. (REFER TO PAGE 18.)

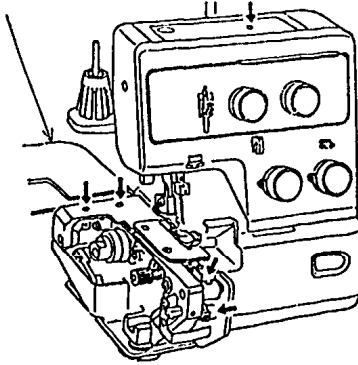


OILING

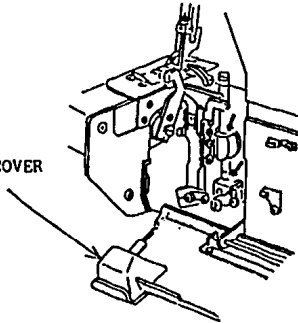
APPLY A FEW DROPS OF FINE QUALITY SEWING MACHINE OIL TO THE PARTS INDICATED WITH ARROWS.

IT IS RECOMMENDED TO APPLY OIL ONCE A WEEK IN NORMAL USE, ONCE IN TEN HOURS IN CONTINUOUS USE.

OPEN THE SIDE COVER
AND APPLY OIL.



OPEN THE LOOPER COVER
AND APPLY OIL.



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