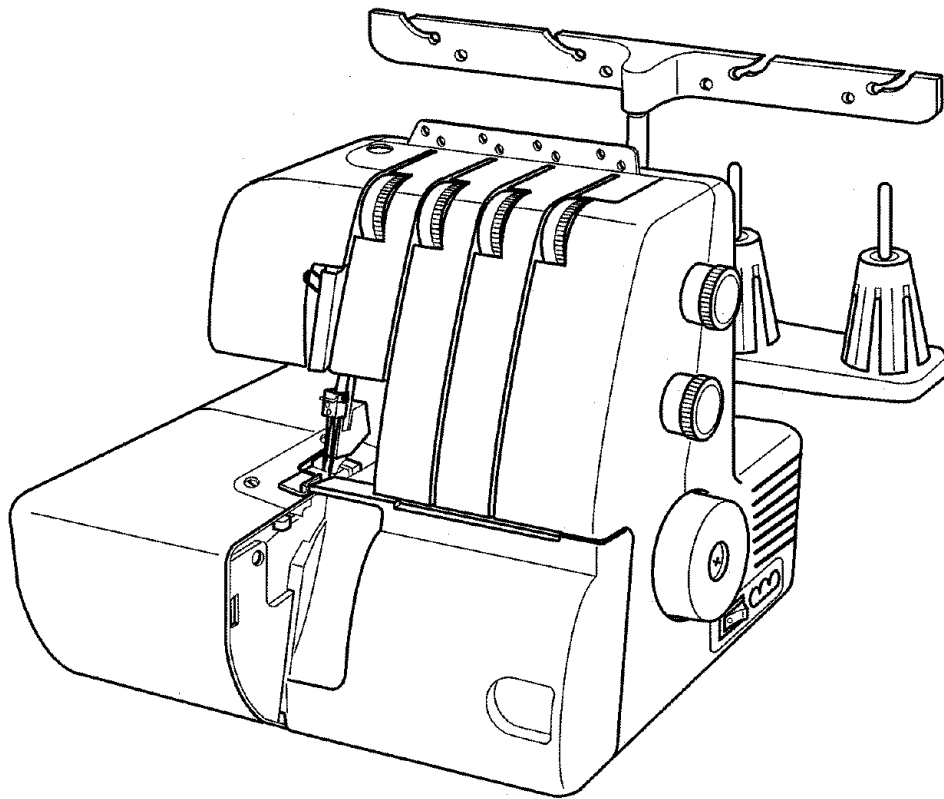


SERVICING MANUAL



SERVICE MANUAL AND PARTS LIST

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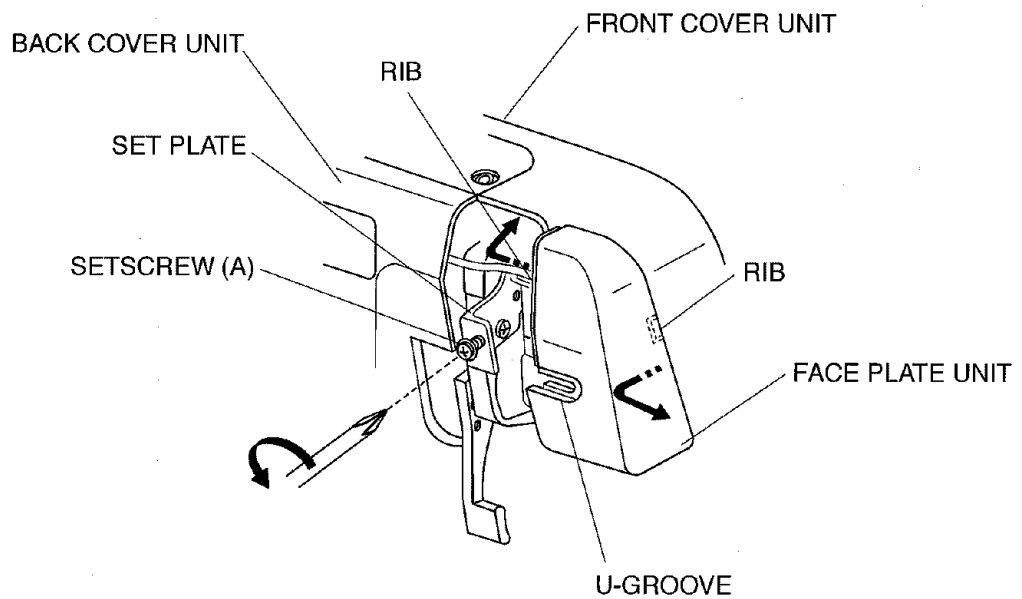
TO CHANGE THE FACE PLATE UNIT

TO REMOVE:

1. LOOSEN SETSCREW (A) AND REMOVE THE FACE PLATE UNIT.

TO ATTACH:

2. FIT THE U-GROOVE BETWEEN SETSCREW (A) AND SET PLATE.
PUT THE RIBS OF FACE PLATE INTO THE FRONT COVER UNIT AND BACK COVER UNIT.
TIGHTEN THE SETSCREW (A).



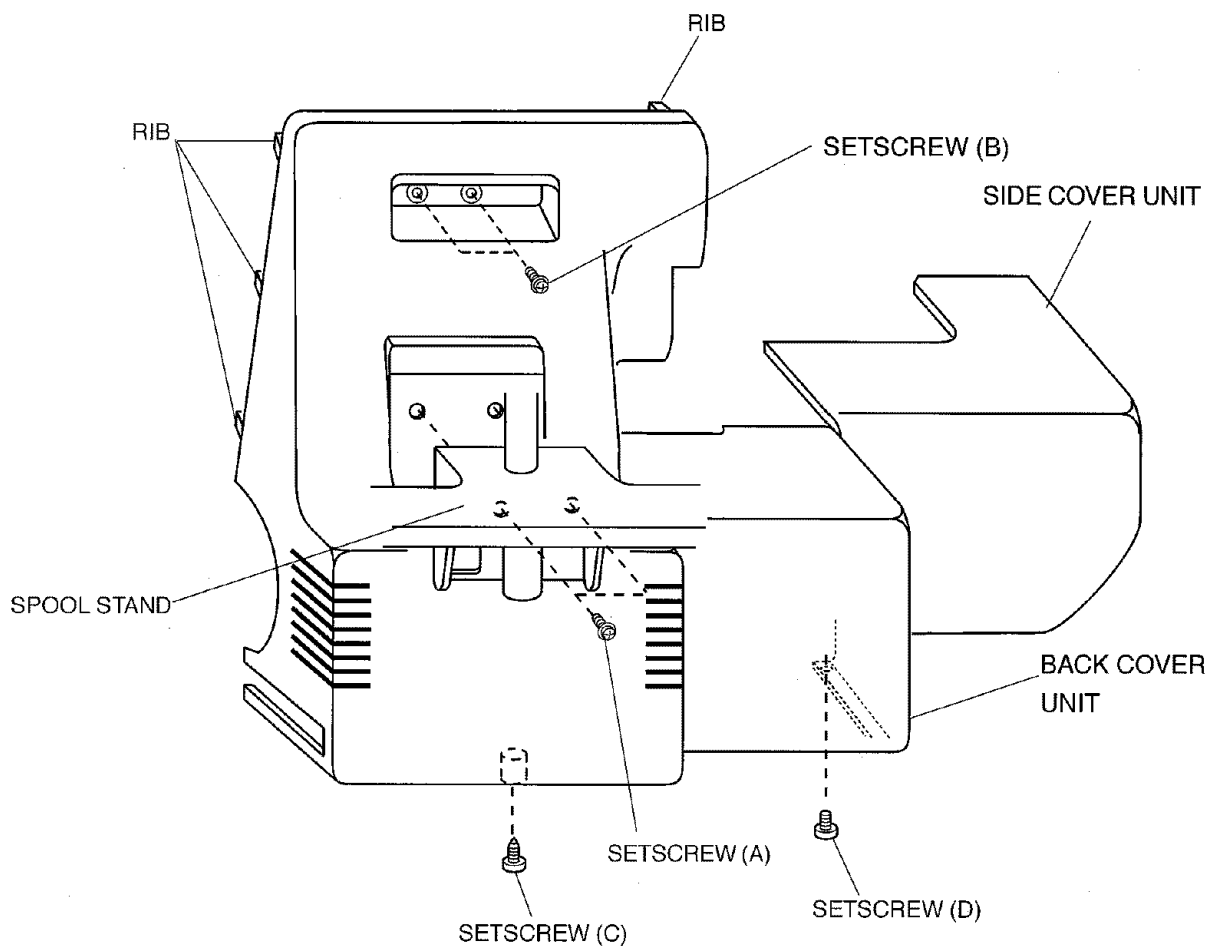
TO CHANGE THE BACK COVER UNIT

TO REMOVE:

1. REMOVE SETSCREWS (A) AND THE SPOOL STAND.
2. REMOVE SETSCREWS (B),(C) AND (D).
3. REMOVE THE BACK COVER UNIT.

TO ATTACH:

4. PUT THE RIBS OF BACK COVER INTO THE FRONT COVER UNIT AND TIGHTEN SETSCREWS (B), (C) AND (D).
5. ATTACH THE SPOOL STAND WITH SETSCREWS (A).



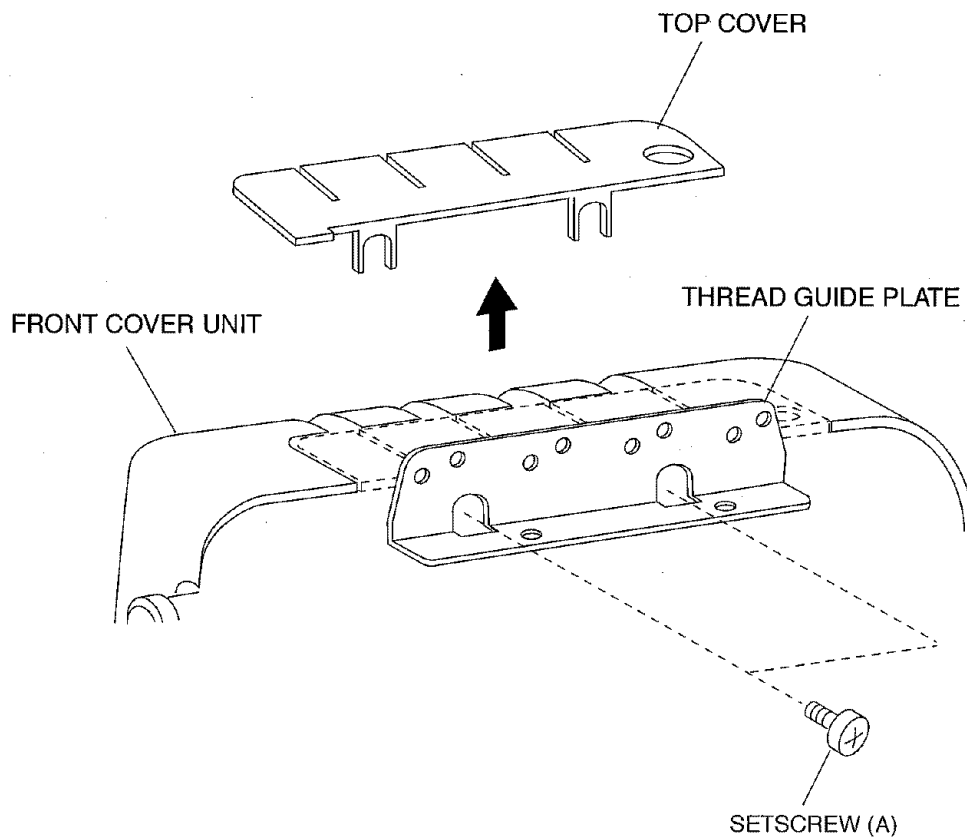
TO CHANGE THE TOP COVER

TO REMOVE:

1. REMOVE THE BACK COVER UNIT.
2. LOOSEN TWO SETSCREWS (A) THROUGH HOLE OF THREAD GUIDE PLATE AS ILLUSTRATED.
REMOVE THE TOP COVER.

TO ATTACH:

3. PUT THE RIBS IN THE FRONT COVER.
4. TIGHTEN TWO SETSCREWS (A).



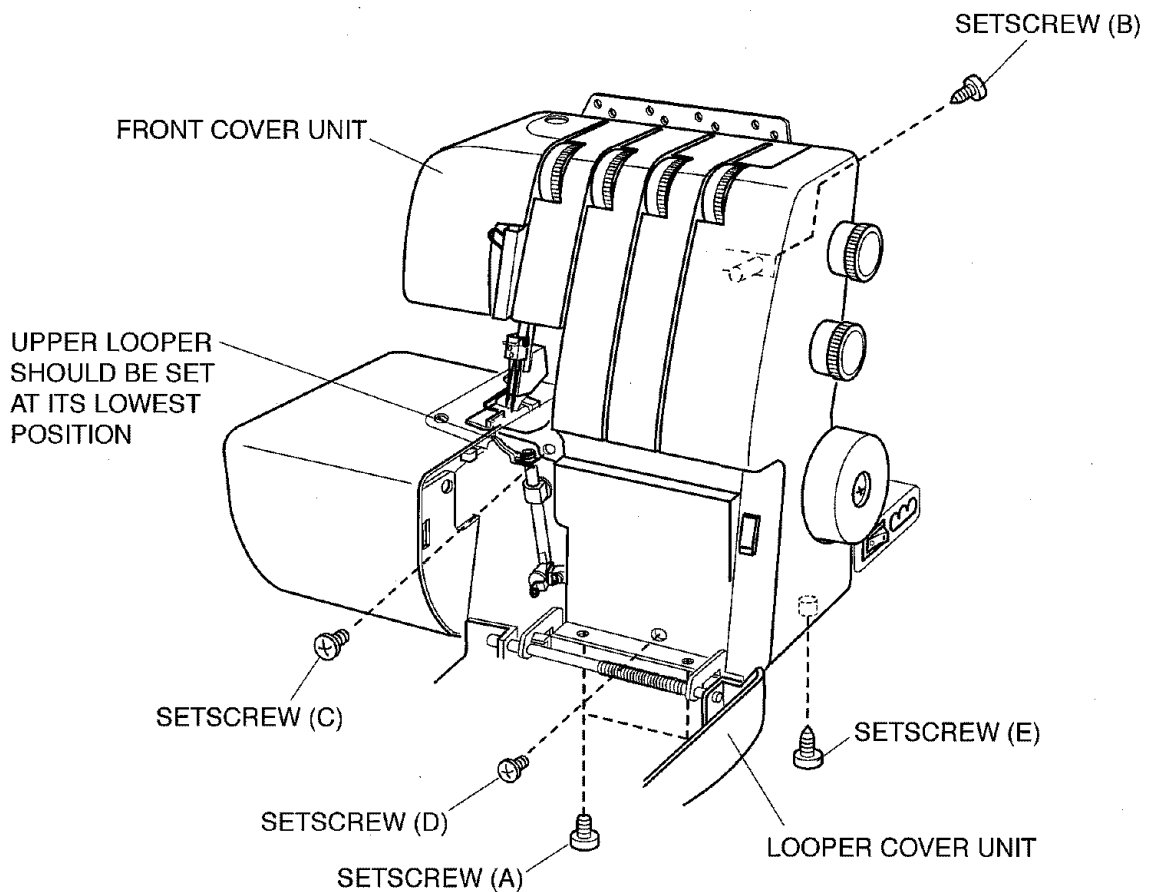
TO CHANGE THE FRONT COVER UNIT

TO REMOVE:

1. REMOVE SETSCREWS (A) AND THE LOOPER COVER UNIT.
2. REMOVE THE FACE PLATE UNIT, THE BACK COVER UNIT AND TOP COVER.
3. TURN THE HAND WHEEL TOWARD YOU TO SET THE UPPER LOOPER AT ITS LOWEST POSITION.
REMOVE SETSCREWS (B), (C), (D), (E) AND THE FRONT COVER UNIT.

TO ATTACH:

4. ATTACH THE FRONT COVER UNIT WITH SETSCREWS (B), (C), (D) AND (E).
5. ATTACH THE LOOPER COVER UNIT WITH SETSCREW (A).
6. ATTACH THE TOP COVER, THE BACK COVER UNIT AND FACE PLATE UNIT.



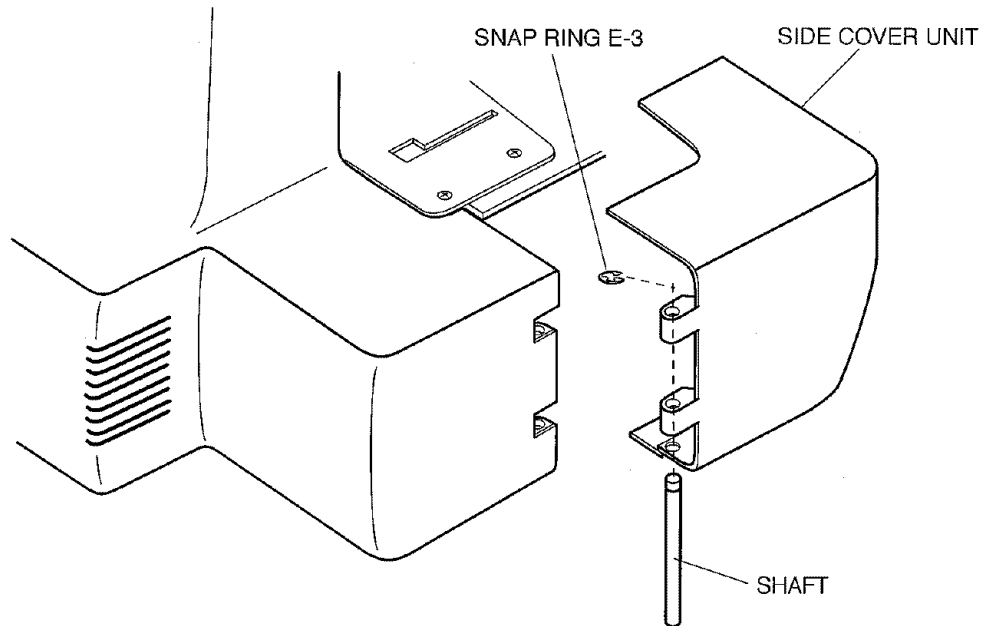
TO CHANGE THE SIDE COVER UNIT

TO REMOVE:

1. OPEN THE SIDE COVER UNIT. REMOVE THE SNAP RING E-3 AND PUSH DOWN THE SHAFT TO REMOVE.

TO ATTACH:

2. ATTACH THE SIDE COVER UNIT.
INSERT THE SHAFT AND ATTACH THE SNAP RING.



TO CHANGE THE MACHINE BASE

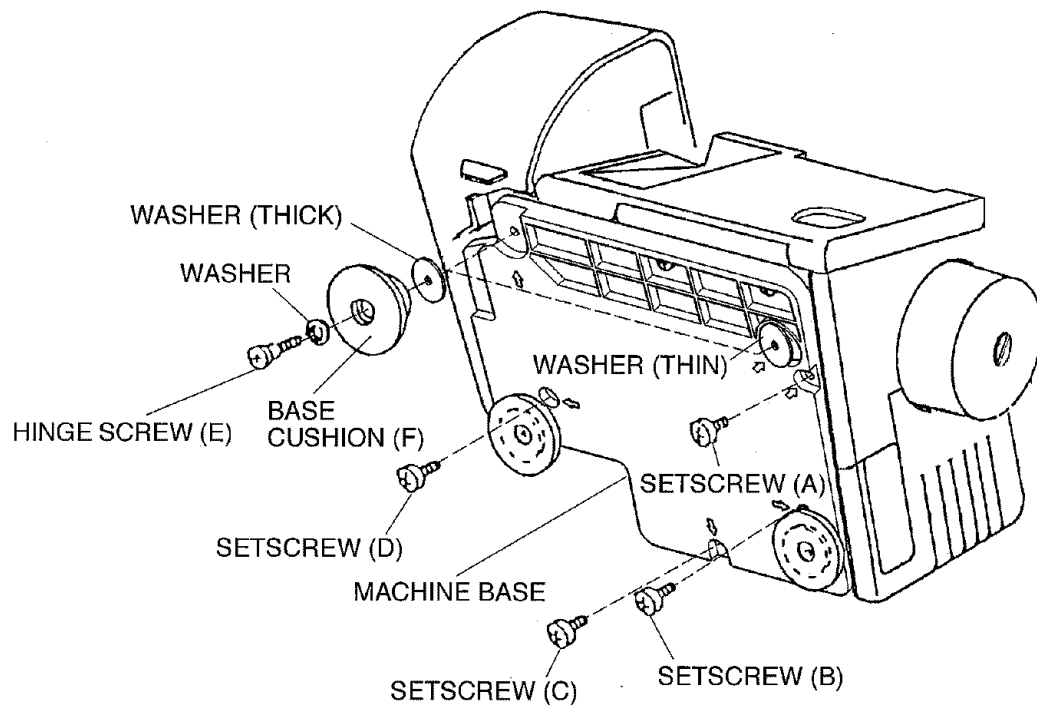
TO REMOVE:

1. REMOVE SETSCREWS (A), (B), (C), (D) AND TWO HINGE SCREWS (E).
REMOVE TWO BASE CUSHIONS (F) AND WASHERS.
2. REMOVE THE MACHINE BASE.

NOTE: DO NOT REMOVE OTHER BASE CUSHIONS.

TO ATTACH:

3. ATTACH THE MACHINE BASE UNIT, AND TIGHTEN SETSCREWS (A), (B), (C) AND (D).
4. ATTACH THE TWO BASE CUSHIONS (F), WASHERS, AND TIGHTEN HINGE SCREWS (E).



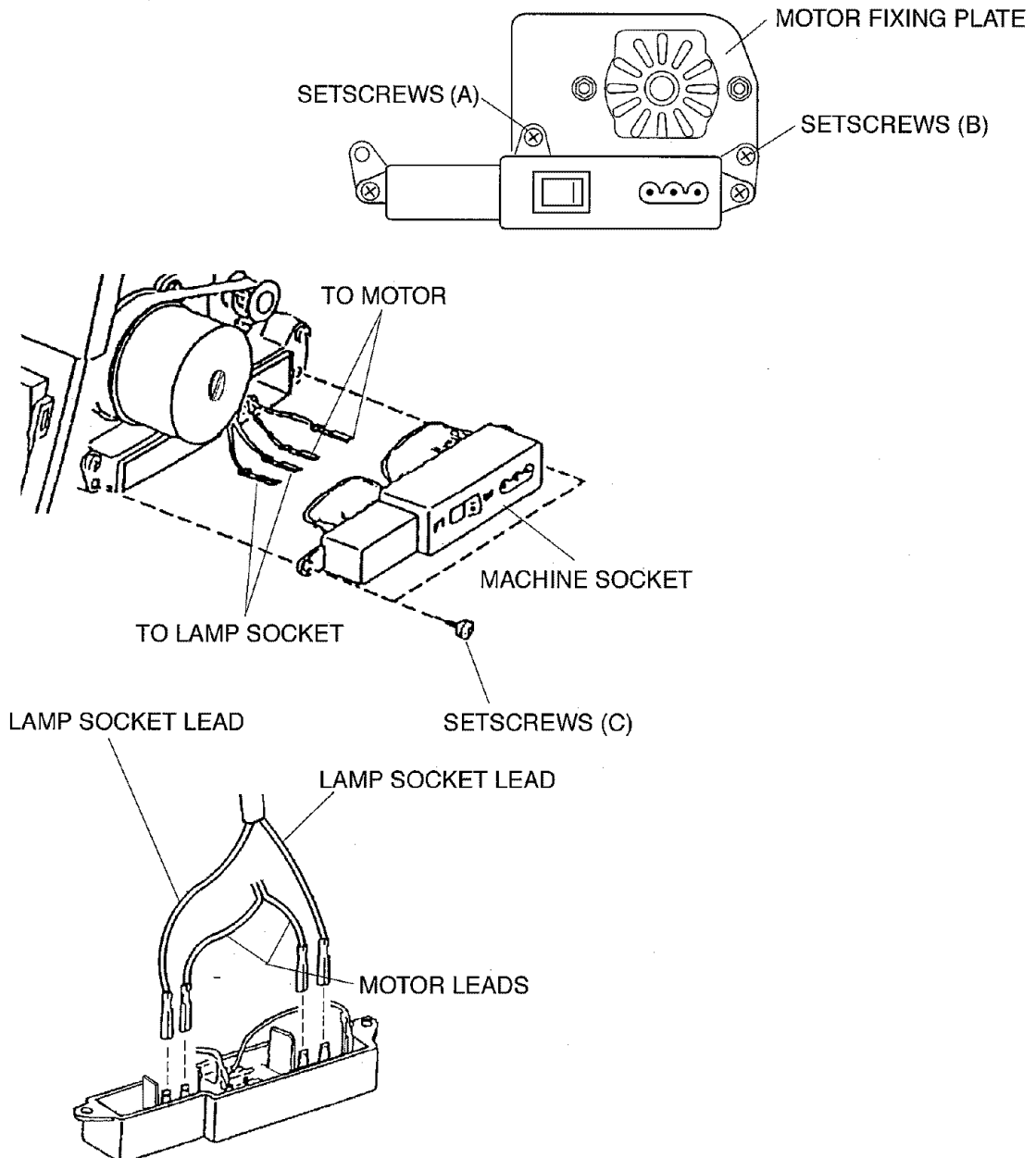
TO CHANGE THE MACHINE SOCKET

TO REMOVE:

1. REMOVE THE BACK COVER UNIT.
2. REMOVE SETSCREWS (A), (B) AND THE MACHINE SOCKET UNIT FROM THE MOTOR FIXING PLATE.
3. REMOVE TWO SETSCREWS (C).
PULL OUT THE CORD CONNECTORS.

TO ATTACH:

4. INSERT THE CORD CONNECTORS AS SHOWN BELOW.
5. ATTACH THE MACHINE SOCKET, AND TIGHTEN TWO SETSCREWS (C).
6. ATTACH THE MACHINE SOCKET UNIT ON THE MOTOR FIXING PLATE. TIGHTEN SET SCREWS (A), (B).
7. ATTACH THE BACK COVER UNIT.



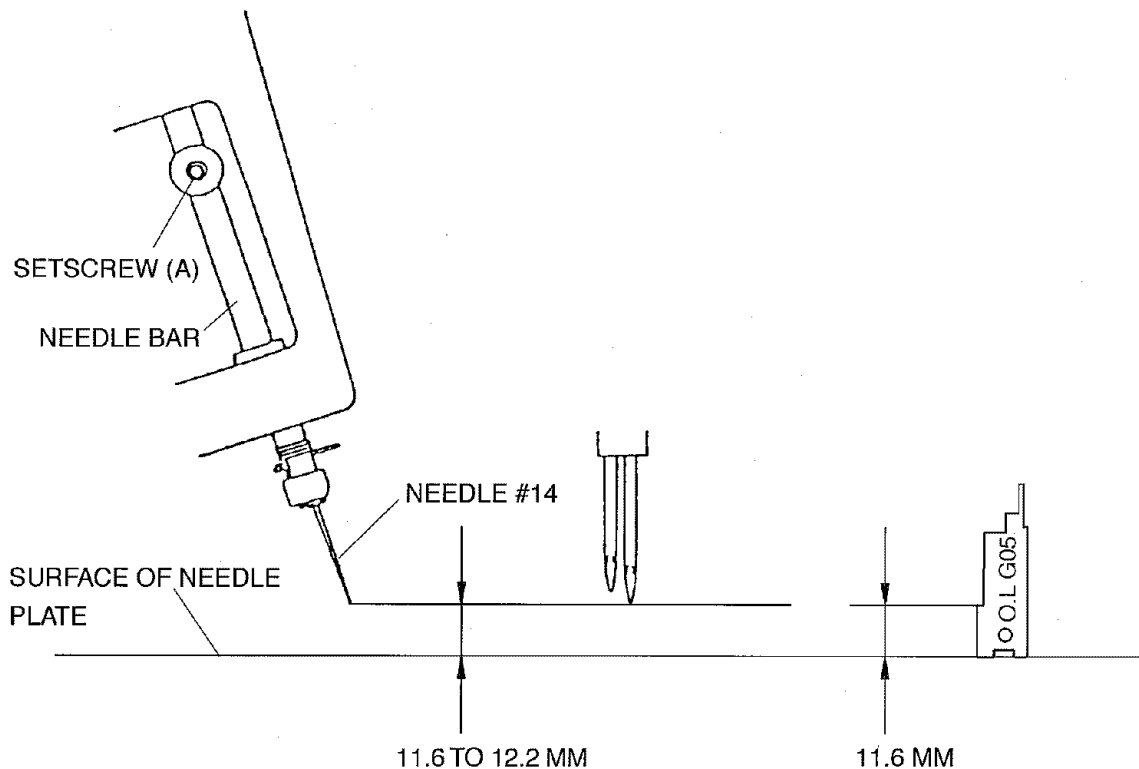
TO ADJUST THE NEEDLE HEIGHT

CORRECT SETTING:

THE DISTANCE BETWEEN THE TIP OF NEEDLE ON THE RIGHT AND THE SURFACE OF NEEDLE PLATE SHOULD BE 11.6 TO 12.2 MM WHEN THE NEEDLE BAR IS AT ITS HIGHEST POSITION.

TO ADJUST:

1. REMOVE THE LOOPER COVER UNIT, FACE PLATE UNIT, BACK COVER UNIT, TOP COVER AND FRONT COVER UNIT.
2. TURN THE HANDWHEEL TOWARD YOU AND SET THE NEEDLE BAR AT ITS HIGHEST POSITION.
3. LOOSEN SETSCREW (A) TO ADJUST THE HEIGHT, AND TIGHTEN SETSCREW (A) AFTER THE ADJUSTMENT IS DONE.
4. TURN THE HANDWHEEL TOWARD YOU ONE CYCLE, AND RECHECK THE NEEDLE BAR HEIGHT.
5. ATTACH THE FRONT COVER UNIT, LOOPER COVER UNIT, TOP COVER, BACK COVER UNIT AND FACE PLATE UNIT.



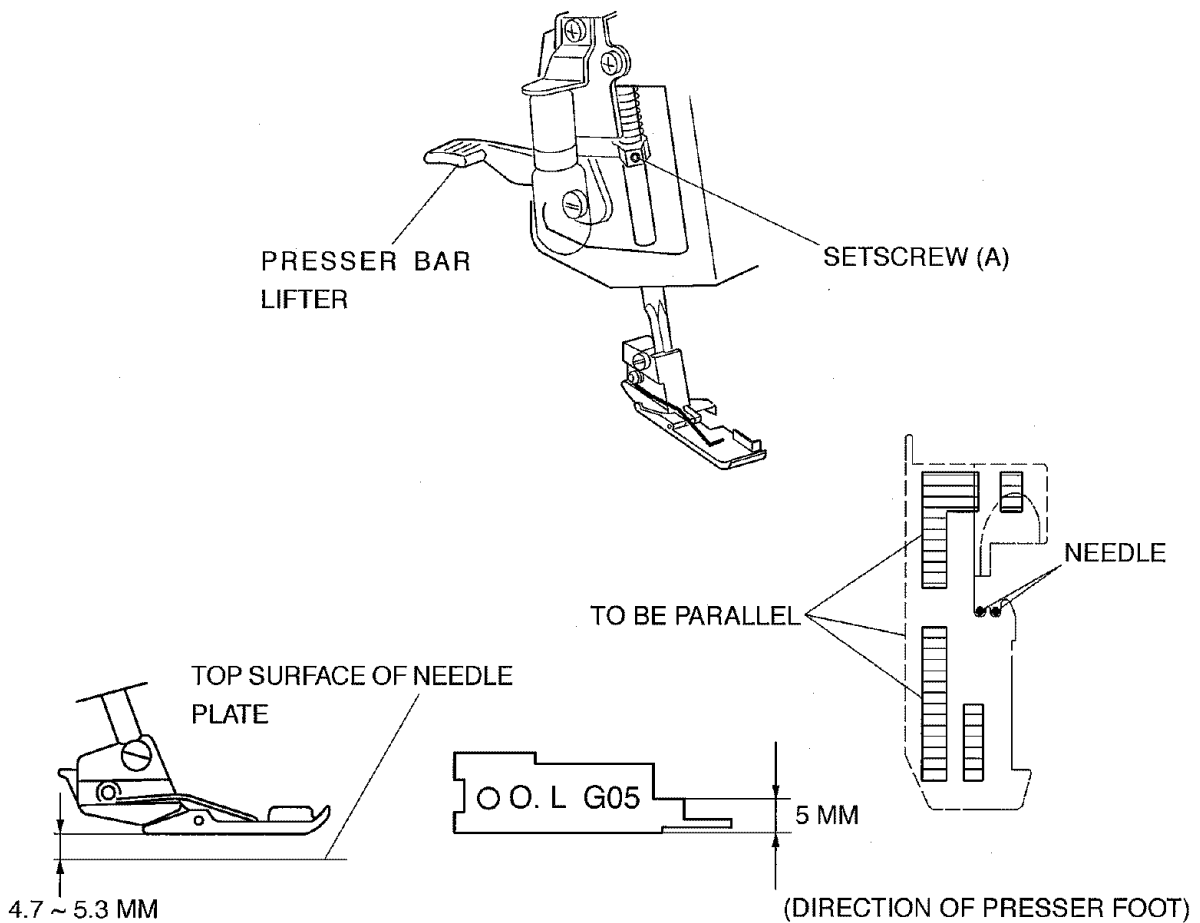
TO ADJUST THE PRESSER BAR HEIGHT

CORRECT SETTING:

THE DISTANCE BETWEEN THE SURFACE OF NEEDLE PLATE AND BOTTOM OF PRESSER FOOT SHOULD BE 4.7 TO 5.3 MM WHEN THE PRESSER BAR LIFTER IS RAISED.

TO ADJUST:

1. REMOVE THE LOOPER COVER UNIT, FACE PLATE UNIT, BACK COVER UNIT, TOP COVER AND FRONT COVER UNIT.
2. RAISE THE PRESSER BAR LIFTER AND LOOSEN SETSCREW (A).
THEN ADJUST THE PRESSER BAR HEIGHT, THE SIDE OF PRESSER FOOT SHOULD BE PARALLEL WITH THE HOLE OF NEEDLE PLATE.
3. TIGHTEN THE SETSCREW (A).
4. ATTACH THE FRONT COVER UNIT, LOOPER COVER UNIT, TOP COVER, BACK COVER UNIT AND FACE PLATE UNIT.



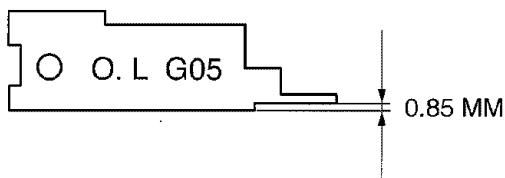
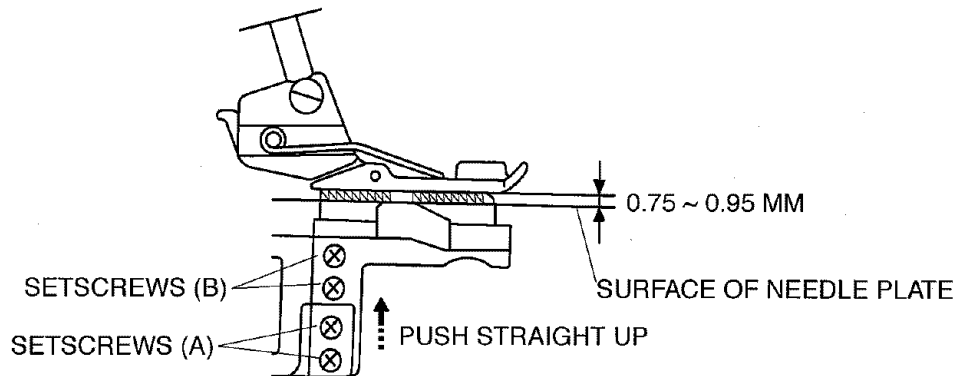
TO ADJUST THE FEED DOG HEIGHT

CORRECT SETTING:

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

TO ADJUST:

1. SET THE STITCH LENGTH DIAL AT " 3 " AND THE DIFFERENTIAL FEED DIAL AT " 1.0 " .
2. REMOVE THE BACK COVER UNIT.
3. LOWER THE PRESSER FOOT AND RAISE THE FEED DOGS TO THEIR HIGHEST POSITION BY TURNING THE HANDWHEEL.
4. LOOSEN THE MAIN & SUB FEED DOG SCREWS (A), (B) (4 PCS.)
5. PUSH THE MAIN FEED DOG STRAIGHT UP AND ADJUST THE DISTANCE BETWEEN THE SURFACE OF NEEDLE PLATE AND BOTTOM OF PRESSER FOOT, THEN TIGHTEN SETSCREWS (A) (2 PCS.)
6. WHEN THE TOP OF THE MAIN FEED DOG IS LEVEL WITH THE TOP SURFACE OF NEEDLE PLATE IN ITS DOWNWARD MOTION BY TURNING THE HANDWHEEL, PUSH THE SUB FEED DOG STRAIGHT UP UNTIL ITS TOP SURFACE IS TO BE LEVELED WITH THE TOP SURFACE OF NEEDLE PLATE. THEN TIGHTEN SETSCREWS (B) OF THE SUB FEED DOG.
7. CHECK IF THE FEED DOGS ARE ATTACHED IN PARALLEL TO THE SURFACE OF NEEDLE PLATE WHILE TURNING THE HANDWHEEL.
8. ATTACH THE BACK COVER UNIT.



TO ADJUST THE TIMING OF THE NEEDLE AND THE FEED DOG

CORRECT SETTING:

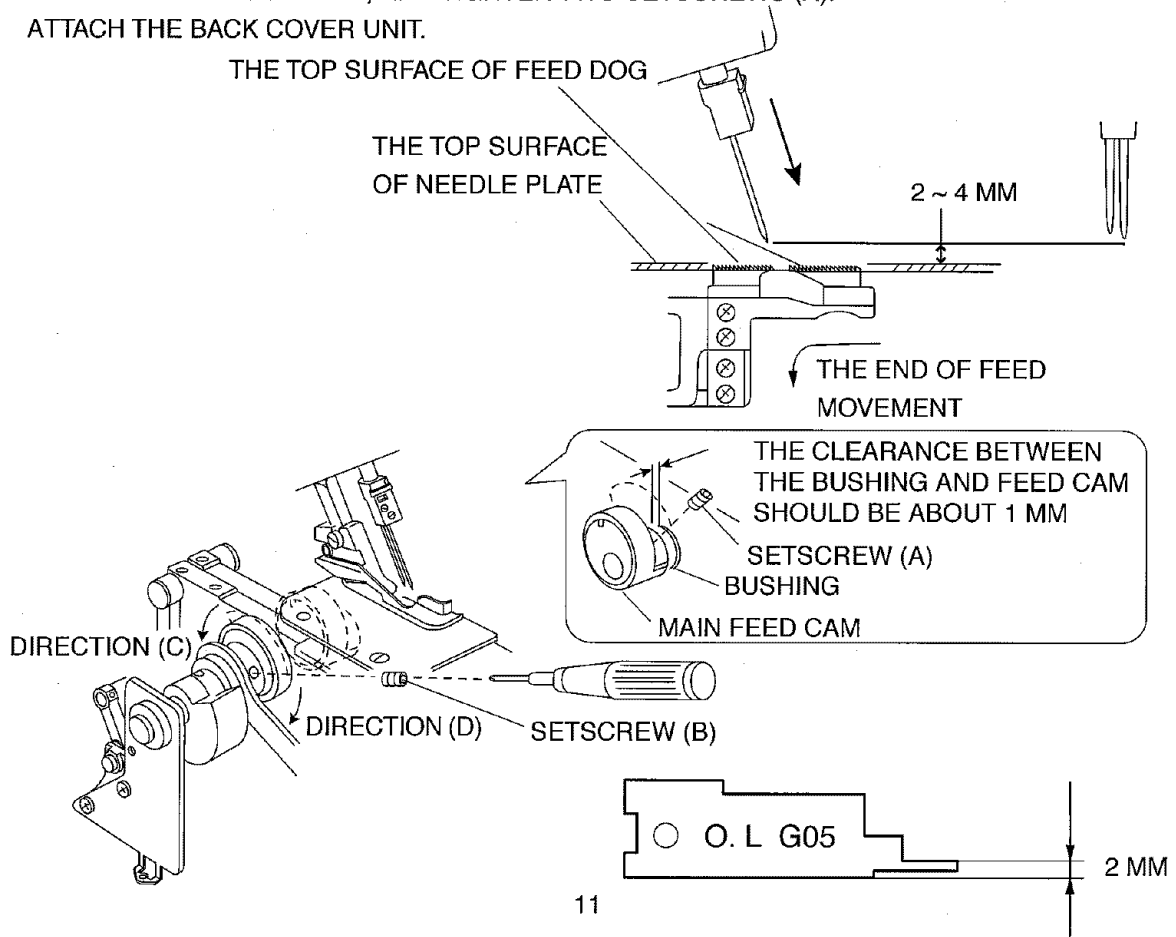
WHEN THE TIP OF RIGHT NEEDLE IS AT 2 TO 4 MM ABOVE THE NEEDLE PLATE IN ITS DOWNWARD MOTION, AND PRESSER FOOT LOWERED, THE TOP OF THE FEED DOG TEETH SHOULD BE LEVEL WITH THE TOP SURFACE OF NEEDLE PLATE AT THEIR REARMOST POSITION. BEFORE ADJUSTMENT, CHECK IF THE NEEDLE BAR HEIGHT AND THE FEED DOG HEIGHT ARE CORRECT.

TO ADJUST:

1. SET THE STITCH LENGTH DIAL AT " 3 " AND DIFFERENTIAL FEED DIAL AT " 1.0 " .
 2. REMOVE THE BACK COVER UNIT.
 3. RAISE THE PRESSER FOOT AND MOVE THE TIP OF RIGHT NEEDLE AT 3 MM ABOVE THE NEEDLE PLATE IN ITS DOWNWARD MOTION BY TURNING THE HANDWHEEL.
 4. LOWER THE PRESSER FOOT, AND LOOSE TWO SETSCREWS (A) ON MAIN FEED CAM, TWO SETSCREWS (B) ON SUB FEED CAM, AND ADJUST THE POSITION OF THE SUB FEED CAM AND TIGHTEN SETSCREWS (B).
- # TURN THE SUB FEED CAM TO THE DIRECTION (C) IF THE FEED DOG IS LOWER THAN THE SURFACE OF THE NEEDLE PLATE.
- # TURN THE SUB FEED CAM TO THE DIRECTION (D) IF THE FEED DOG IS HIGHER THAN THE SURFACE OF THE NEEDLE PLATE.

NOTE: WHEN TURNING THE SUB FEED CAM, PUSH THE SUB FEED CAM TO THE MAIN FEED CAM LIGHTLY.

5. SET THE MAIN FEED CAM TO KEEP THE CLEARANCE BETWEEN THE BUSHING AND MAIN FEED CAM TO ABOUT 1 MM, AND TIGHTEN TWO SETSCREWS (A). ATTACH THE BACK COVER UNIT.



TO ADJUST THE TIMING OF THE NEEDLE AND THE UPPER KNIFE

CORRECT SETTING:

THE UPPER KNIFE TIMING IS THE SAME AS THAT OF THE NEEDLE BAR.

THE UPPER KNIFE SHOULD BE ALSO AT ITS HIGHEST POSITION WHEN THE NEEDLE BAR IS AT HIGHEST POSITION.

TO ADJUST:

1. REMOVE THE BACK COVER UNIT.

2. LOOSEN TWO SETSCREWS (A), AND MOVE THE BALANCE WEIGHT TO LEFT.

3. LOOSEN TWO SETSCREWS (B), AND ADJUST THE NEEDLE AND UPPER KNIFE TIMING.

TURN THE UPPER KNIFE DRIVE CAM TO THE DIRECTION (C) WHEN THE UPPER KNIFE TIMING IS DELAYED.

TURN THE UPPER KNIFE DRIVE CAM TO THE DIRECTION (D) WHEN THE UPPER KNIFE TIMING IS TOO SOON.

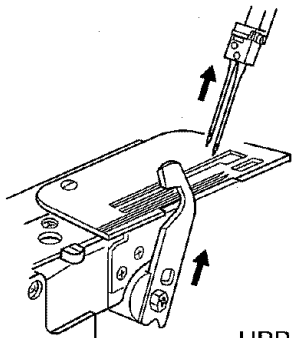
4. TIGHTEN TWO SETSCREWS (B) FIRMLY. MOVE THE BALANCE WEIGHT TO RIGHT.

MATCH THE GUIDE LINE ON THE BALANCE WEIGHT WITH THE ONE ON THE MAIN SHAFT CORRECTLY. THEN TIGHTEN THE TWO SETSCREWS (A).

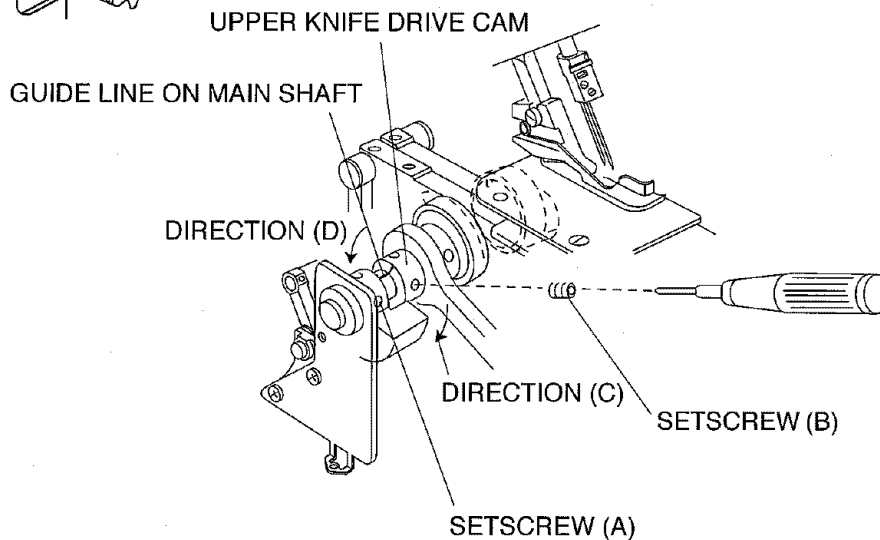
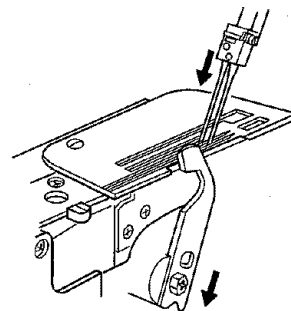
5. TURN THE HANDWHEEL TOWARD YOU ONE CYCLE, AND RECHECK THE NEEDLE AND THE UPPER KNIFE TIMING.

6. ATTACH THE BACK COVER UNIT.

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



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



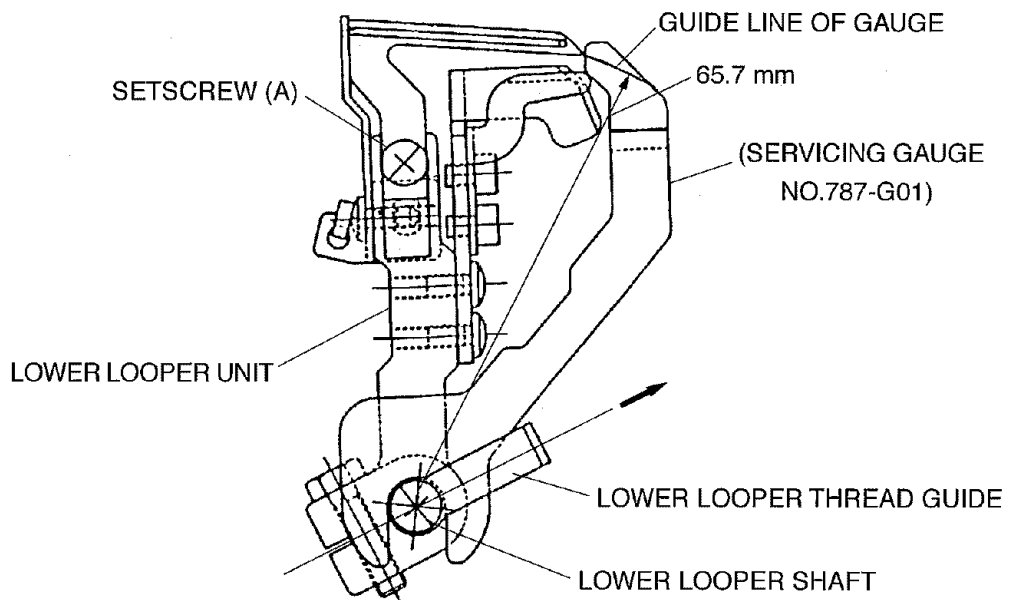
TO ADJUST THE HEIGHT OF THE LOWER LOOPER

CORRECT SETTING:

THE HEIGHT OF LOWER LOOPER IS 65.7 MM FROM CENTER OF LOWER LOOPER SHAFT AS ILLUSTRATED BELOW.

TO ADJUST:

1. SET THE UPPER KNIFE IN DOWN POSITION TO LOOSEN SETSCREW (A).
2. TURN THE HANDWHEEL TO GET THE LOWER LOOPER IN ITS LEFTMOST POSITION.
3. PLACE THE GAUGE ON THE LOWER LOOPER SHAFT AS SHOWN.
4. LOOSEN SETSCREW (A), AND MOVE THE LOWER LOOPER UP OR DOWN TO GET THE TIP OF LOWER LOOPER IS IN LINE WITH GUIDE LINE OF GAUGE.
5. TIGHTEN SETSCREW (A).
6. REMOVE THE GAUGE AND SET THE UPPER KNIFE IN UP POSITION.



TO ADJUST THE CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS (1 of 3)

CORRECT SETTING:

BOTH RIGHT AND LEFT NEEDLES SHOULD HAVE AN EQUAL CLEARANCE FROM THE FRONT EDGE OF THE NEEDLE HOLES ON THE NEEDLE PLATE.

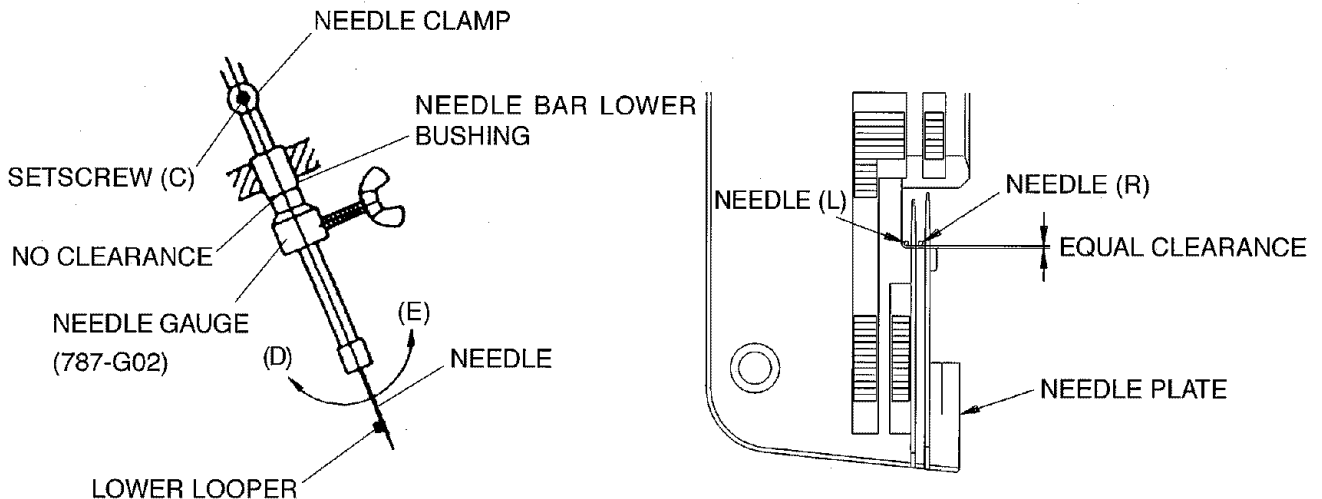
THE STANDARD CLEARANCE BETWEEN THE LEFT AND RIGHT NEEDLE AND THE TIP OF THE LOWER LOOPER IS 0 MM TO 0.05 MM.

THE STANDARD CLEARANCE BETWEEN THE NEEDLE AND THE REAR NEEDLE GUARD IS 0 MM TO 0.2 MM.

THE ABOVE STANDARD CLEARANCE ALLOWS THE NEEDLE TO SLIGHTLY TOUCH THE FRONT NEEDLE GUARD.

TO ADJUST:

1. REMOVE THE LOOPER COVER UNIT, FACE PLATE UNIT, BACK COVER UNIT, TOP COVER, FRONT COVER UNIT, PRESSER FOOT AND NEEDLES.
2. BEFORE LOOSENING SETSCREW (C), ATTACH THE NEEDLE GAUGE #787-G02 TO PREVENT CHANGE OF NEEDLE BAR HEIGHT DURING THE ADJUSTMENT.
ATTACH TWO #11 NEEDLES ON THE NEEDLE CRAMP. LOOSEN SETSCREW (C).
ADJUST THE CLEARANCES BETWEEN NEEDLES AND THE FRONT EDGE OF THE NEEDLE HOLES OF THE NEEDLE PLATE EQUAL BY TURNING THE NEEDLE BAR IN THE (D) OR (E) DIRECTION.
KEEP PUSHING UP THE NEEDLE BAR TO PREVENT CHANGE OF NEEDLE BAR HEIGHT WHILE ADJUSTING.
RETIGHTEN SETSCREW (C) AND REMOVE THE NEEDLE GAUGE.



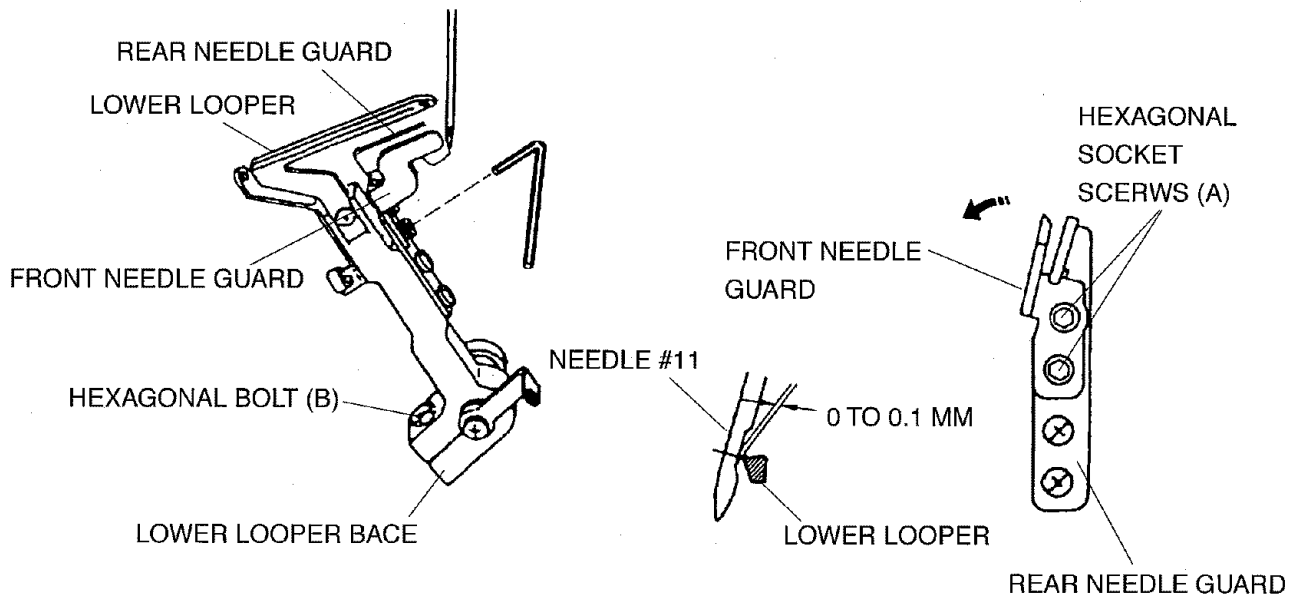
TO ADJUST THE CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS (2 of 3)

CORRECT SETTING:

THE STANDARD CLEARANCE BETWEEN THE RIGHT NEEDLE AND THE TIP OF THE LOWER LOOPER SHOULD BE 0 TO 0.1 MM.

TO ADJUST:

1. REMOVE THE LEFT NEEDLE ONLY.
2. TURN THE HANDWHEEL TOWARDS YOU TO BRING THE TIP OF THE LOWER LOOPER FROM THE LEFT HAND TO THE REAR SIDE OF THE RIGHT NEEDLE.
3. LOOSEN THE HEXAGONAL SOCKET SCREWS (A) ON THE FRONT NEEDLE GUARD. OPEN A SPACE BETWEEN THE FRONT NEEDLE GUARD AND THE NEEDLE.
4. LOOSEN THE HEXAGONAL BOLT (B). ADJUST THE CLEARANCE BETWEEN THE RIGHT NEEDLE AND THE TIP OF THE LOWER LOOPER TO BE 0 MM TO 0.1 MM BY SLIDING THE LOWER LOOPER UNIT TO THE FRONT OR BACK. TIGHTEN THE HEXAGONAL BOLT B.



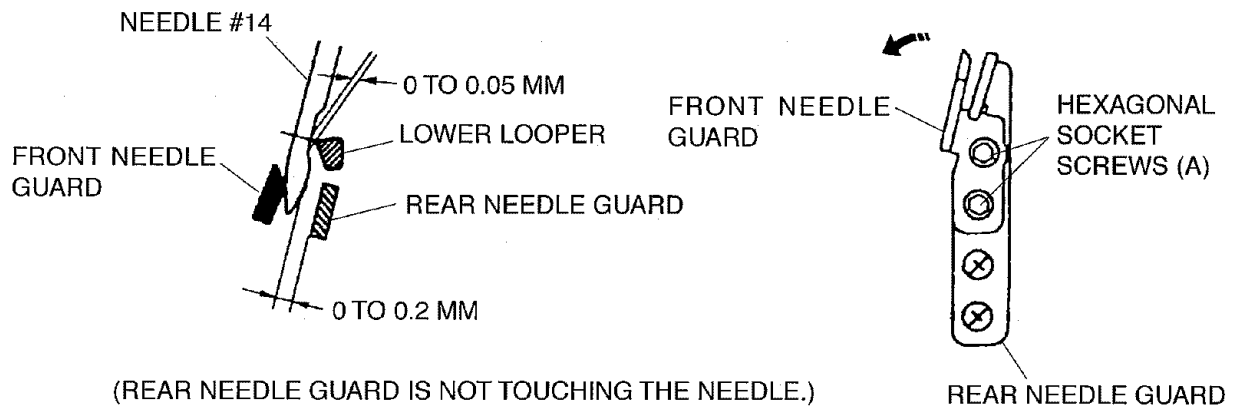
TO ADJUST THE CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS (3 of 3)

CORRECT SETTING:

THE STANDARD CLEARANCE BETWEEN THE NEEDLE AND THE TIP OF THE LOWER LOOPER SHOULD BE 0 MM TO 0.05 MM.

TO ADJUST:

1. CHANGE THE RIGHT NEEDLE FROM #11 TO #14.
LOOSEN THE HEXAGONAL SOCKET SCREW (A).
2. PUSH THE RIGHT NEEDLE WITH THE FRONT NEEDLE GUARD TO ADJUST THE CLEARANCE BETWEEN THE NEEDLE AND THE TIP OF THE LOWER LOOPER. THE CLEARANCE SHOULD BE 0 MM TO 0.05 MM.
TIGHTEN THE HEXAGONAL SOCKET SCREW (A).
3. ATTACH #14 NEEDLE TO THE LEFT NEEDLE CLAMP.
TURN THE HANDWHEEL TOWARDS YOU TO CHECK THE CLEARANCE BETWEEN THE LEFT NEEDLE AND THE TIP OF THE LOWER LOOPER.
MAKE SURE THE FRONT NEEDLE GUARD IS TOUCHING THE NEEDLE SLIGHTLY AND THE REAR NEEDLE GUARD IS NOT TOUCHING THE NEEDLE.
4. CHECK THE TIMING BETWEEN THE NEEDLE AND THE LOWER LOOPER.
5. RECHECK THE NEEDLE BAR HEIGHT AND THE CLEARANCE BETWEEN THE NEEDLE AND THE LOWER LOOPER.



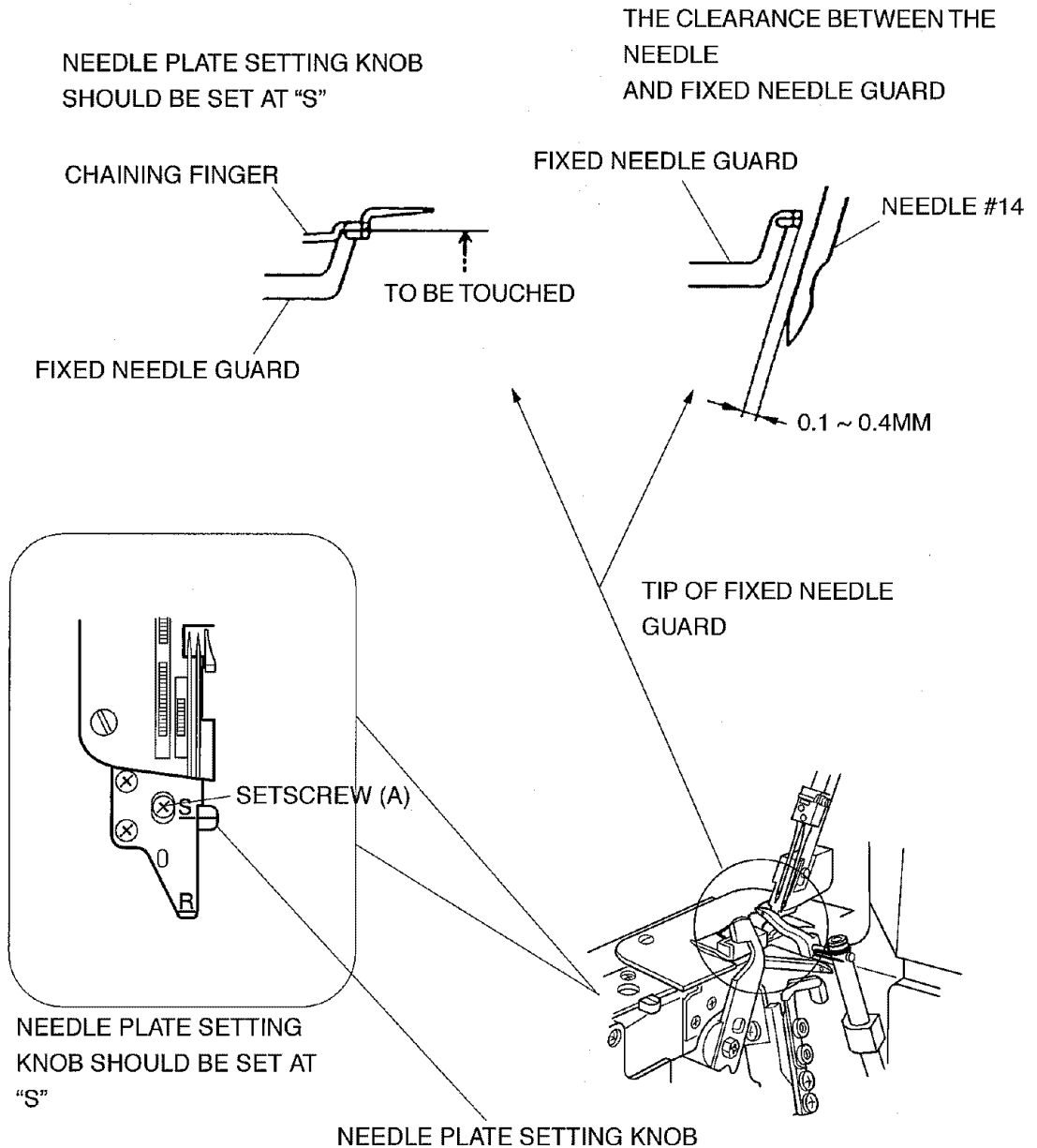
TO ADJUST THE CLEARANCE BETWEEN THE NEEDLES AND THE FIXED NEEDLE GUARD

CORRECT SETTING:

THE CLEARANCE BETWEEN NEEDLE AND THE FIXED NEEDLE GUARD SHOULD BE 0.1 TO 0.4 MM.

TO ADJUST:

1. REMOVE THE PRESSER FOOT AND THE NEEDLE PLATE AND LOWER THE NEEDLE TO ITS LOWEST POSITION.
2. LOOSEN SETSCREW (A) AND ADJUST THE POSITION OF THE FIXED NEEDLE GUARD.
3. TIGHTEN SETSCREW (A).
4. ATTACH THE NEEDLE PLATE AND THE PRESSER FOOT.



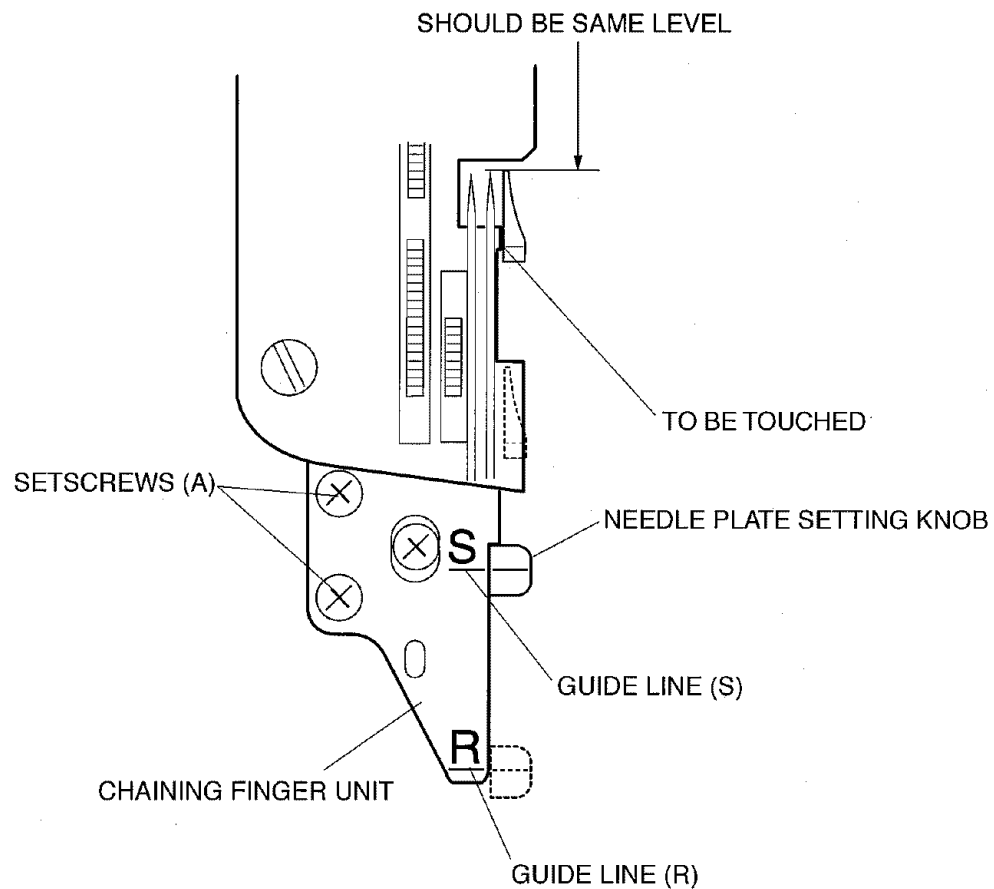
TO ADJUST THE POSITION OF THE CHAINING FINGER

CORRECT SETTING:

WHEN SET THE NEEDLE PLATE SETTING KNOB TO THE GUIDE LINE (S), THE CHAINING FINGER SHOULD TOUCH THE SIDE OF NEEDLE PLATE, AND THE TIP OF CHAINING FINGER SHOULD BE SAME LEVEL WITH THE TIP OF THE NEEDLE ON THE NEEDLE PLATE.

TO ADJUST:

1. REMOVE THE PRESSER FOOT.
2. SET THE NEEDLE PLATE SETTING KNOB TO THE GUIDE LINE (S) ON THE CHAINING FINGER UNIT.
3. LOOSEN TWO SETSCREWS (A), AND MOVE THE CHAINING FINGER UNIT TO CORRECT POSITION.
4. TIGHTEN TWO SETSCREWS (A).
5. SET THE NEEDLE PLATE SETTING KNOB TO THE GUIDE LINE (S) AND (R), AND CHECK THE POSITION OF CHAINING FINGER.
6. ATTACH THE PRESSER FOOT.



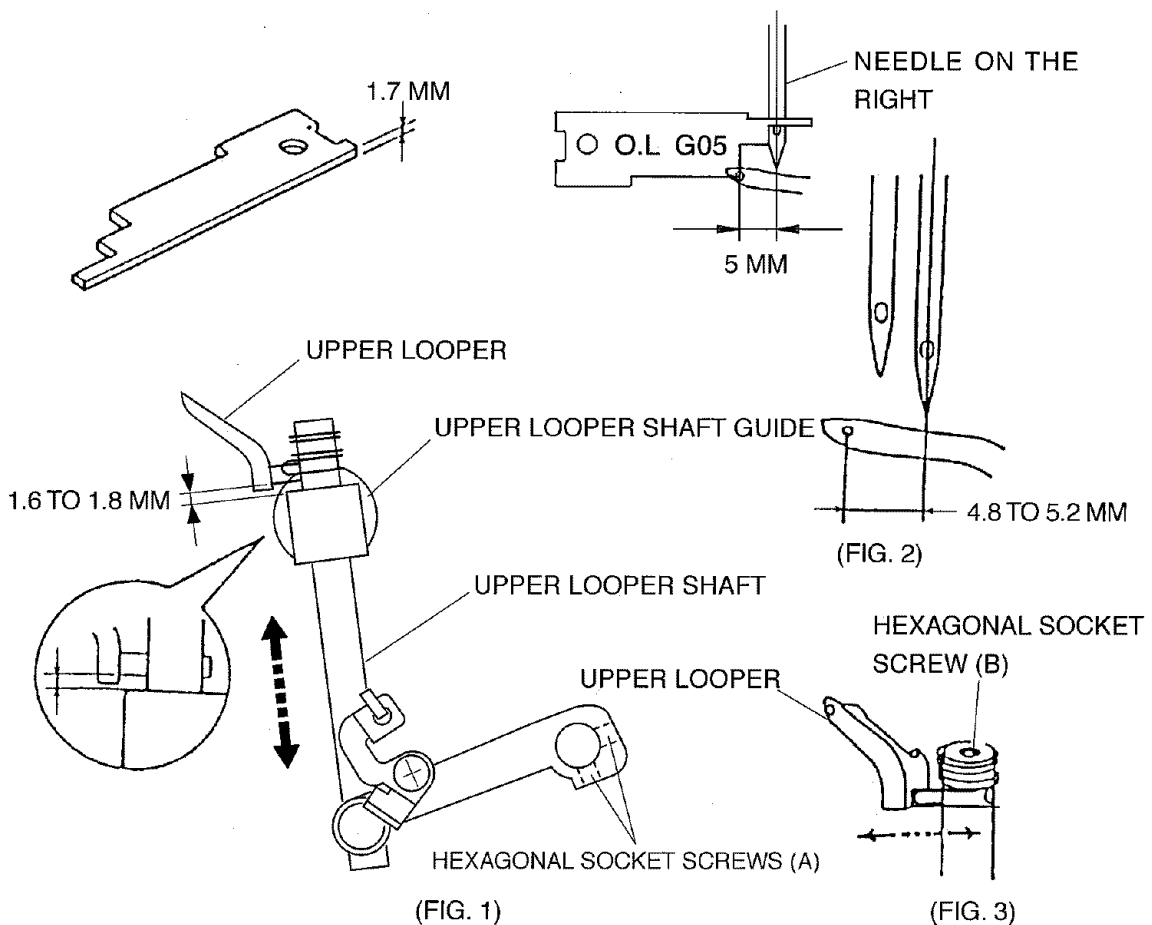
TO ADJUST THE POSITION OF THE UPPER LOOPER

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.

TO ADJUST:

1. REMOVE THE MACHINE BASE.
2. LOOSEN THE HEXAGONAL SOCKET SCREWS (A), AND ADJUST THE DISTANCE BETWEEN UPPER LOOPER SHAFT GUIDE AND BOTTOM OF UPPER LOOPER. THE DISTANCE SHOULD BE 1.6 TO 1.8 MM WHEN THE UPPER LOOPER IS AT THE LOWEST POSITION AS SHOWN IN FIG. 1.
3. TIGHTEN THE HEXAGONAL SOCKET SCREWS (A).
4. TURN THE HANDWHEEL AND BRING THE UPPER LOOPER TO THE LEFTMOST POSITION.
5. LOOSEN THE HEXAGONAL SOCKET SCREW (B), AND ADJUST THE DISTANCE BETWEEN THE CENTER OF NEEDLE AND CENTER OF UPPER LOOPER EYE AS SHOWN IN FIG. 2 AND FIG. 3.
6. TIGHTEN THE HEXAGONAL SOCKET SCREW (B).
7. CHECK THE UPPER AND LOWER LOOPER TIMING AND THE CLEARANCE BETWEEN UPPER AND LOWER LOOPERS.



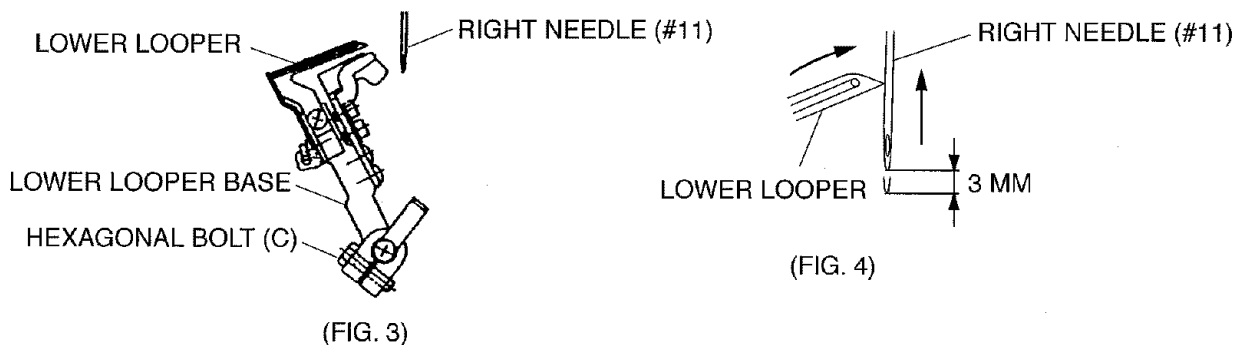
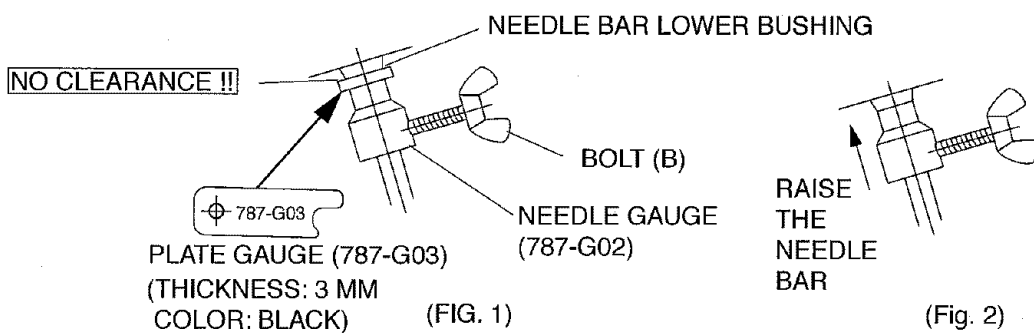
TO ADJUST THE TIMING OF THE NEEDLE AND THE LOWER LOOPER

CORRECT SETTING:

WHEN THE NEEDLE COMES UP 2.8 TO 3.2 MM FROM ITS LOWEST POSITION, THE TIP OF THE LOWER LOOPER COMES JUST LEFT OF THE NEEDLE (#11) ON THE RIGHT.

TO ADJUST:

1. REMOVE THE PRESSER FOOT, NEEDLE PLATE AND LEFT-SIDE NEEDLE.
2. REPLACE RIGHT-SIDE NEEDLE WITH A #11 ONE.
3. TURN THE HANDWHEEL TOWARD YOU TO GET THE LOWEST NEEDLE POSITION.
4. SET THE TWO GAUGES (787-G02, 787-G03), AS SHOWN IN (FIG. 1) AND TIGHTEN BOLT (B).
 - # THIS TIME, THERE SHOULD BE NO CLEARANCE BETWEEN THE GAUGES AND THE NEEDLE BAR LOWER BUSHING.
5. REMOVE PLATE GAUGE (787 - G03). THEN TURN THE HANDWHEEL TOWARD YOU UNTIL THE GAUGE TOUCHES THE NEEDLE BAR LOWER BUSHING, AS SHOWN IN (FIG. 2).
6. IN THIS CONDITION, LOOSEN THE HEXAGONAL BOLT (C) JUST ENOUGH TO MOVE THE LOWER LOOPER BASE.
 - ADJUST THE LOWER LOOPER POSITION IN ORDER TO MEET THE TIP OF LOWER LOOPER WITH LEFT-SIDE OF NEEDLE (#11), AS SHOWN IN (FIG. 3) AND (FIG. 4).
 - TIGHTEN HEXAGONAL BOLT (C).
7. REMOVE THE GAUGE (787 - G02).
 - # CHECK THE CLEARANCE BETWEEN THE NEEDLE AND LOWER LOOPER.
 - # CHECK THE CLEARANCE BETWEEN THE LOOPERS.
8. REPLACE THE RIGHT SIDE NEEDLE WITH A #14 ONE.
9. ATTACH THE LEFT SIDE NEEDLE, NEEDLE PLATE AND PRESSER FOOT.
 - # BE CAREFUL NOT TO TIGHTEN BOLT (B) TOO MUCH.



TO ADJUST THE TIMING OF THE UPPER AND LOWER LOOPERS

CORRECT SETTING:

WHEN THE LOWER LOOPER MOVES TO THE RIGHT, THE TIP OF UPPER LOOPER MEETS THE LOWER LOOPER WITHIN 0.2 TO 1.2 MM FROM THE LEFT OF LOWER LOOPER EYE AS SHOWN IN FIG. 1.

TO ADJUST:

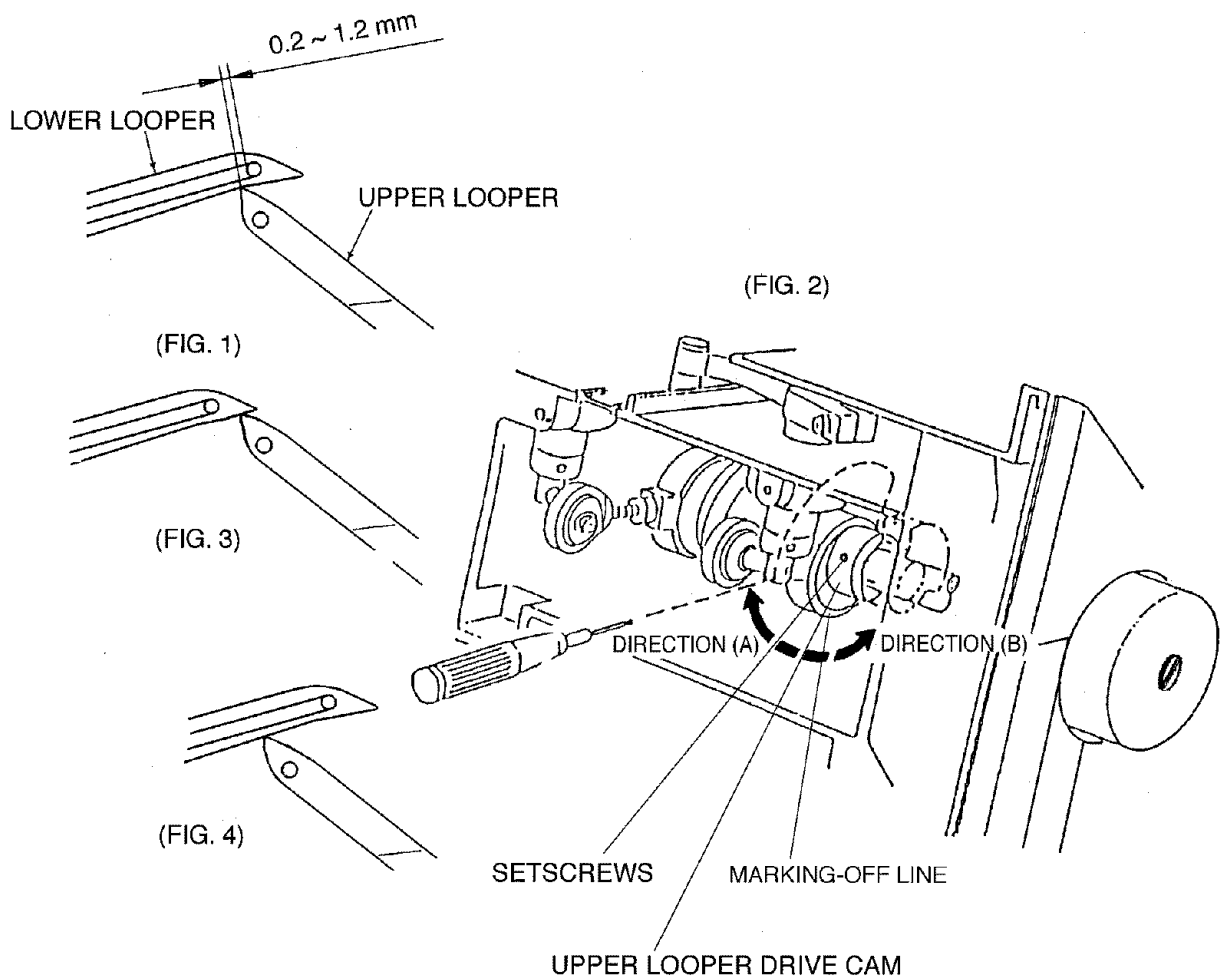
1. BEFORE PROCEEDING WITH THIS ADJUSTMENT, CHECK THE LOWER LOOPER TIMING AND POSITION OF UPPER LOOPER.
2. REMOVE THE MACHINE BASE.
3. LOOSEN TWO SETSCREWS, AND ADJUST THE TIMING BY TURNING THE UPPER LOOPER DRIVE CAM IN THE DIRECTION OF:

(A): IF THE TIMING OF UPPER LOOPER IS ADVANCED AS SHOWN IN FIG. 3.

(B): IF THE TIMING OF UPPER LOOPER IS DELAYED AS SHOWN IN FIG. 4.

THE ALLOWANCE IS 0.2 TO 1.2 MM FROM THE LEFT EDGE OF LOWER LOOPER EYE AS SHOWN IN FIG. 1.

4. TIGHTEN TWO SETSCREWS.
5. CHECK THE CLEARANCE BETWEEN THE LOOPERS.
6. ATTACH THE MACHINE BASE.



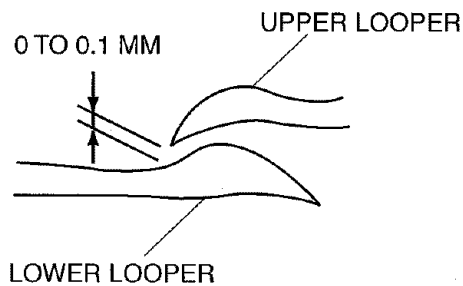
TO ADJUST THE CLEARANCE BETWEEN THE LOOPERS

CORRECT SETTING:

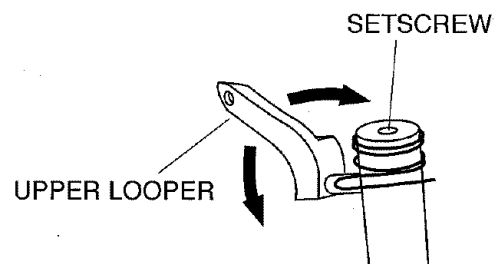
WHEN THE LOOPERS MEET AS SHOWN IN FIG. 2, THE CLEARANCE SHOULD BE 0 TO 0.1 MM AS SHOWN IN FIG. 1.

TO ADJUST:

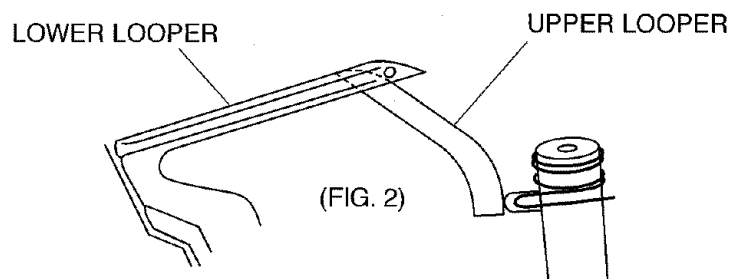
1. REMOVE THE PRESSER FOOT AND NEEDLE PLATE.
2. TURN THE HANDWHEEL TOWARD YOU TO BRING THE LOOPERS AS SHOWN IN FIG. 2.
3. LOOSEN THE SETSCREW, AND ADJUST THE CLEARANCE BY MOVING THE UPPER LOOPER TO THE BACK OR FRONT AS SHOWN IN FIG. 3.
4. TIGHTEN THE SETSCREW FIRMLY.
5. CHECK THE CLEARANCE BETWEEN THE UPPER LOOPER AND NEEDLE.
6. ATTACH THE NEEDLE PLATE AND PRESSER FOOT.



(FIG. 1)



(FIG. 3)



(FIG. 2)

TO ADJUST THE CLEARANCE BETWEEN THE NEEDLE AND THE UPPER LOOPER

CORRECT SETTING:

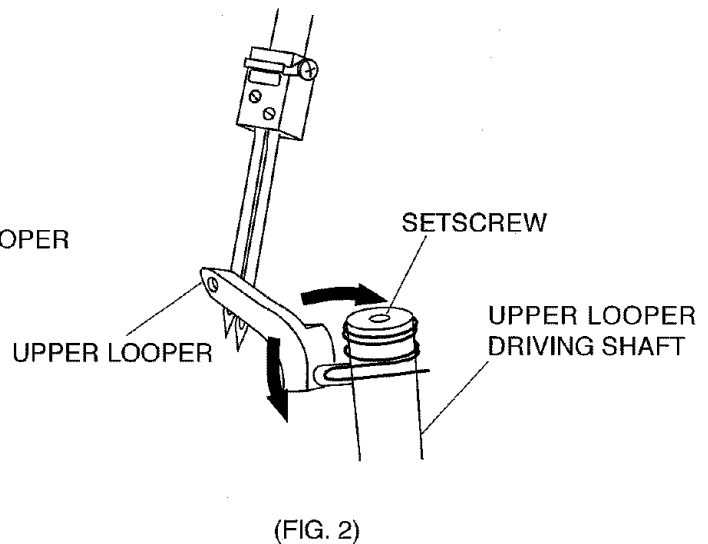
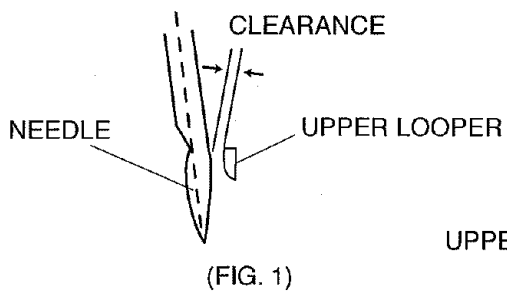
WHEN THE UPPER LOOPER MEETS WITH NEEDLE, THE CLEARANCE SHOULD BE:

0 TO +0.1 MM AT THE NEEDLE ON THE LEFT.

-0.05 TO +0.05 MM AT THE NEEDLE ON THE RIGHT.

TO ADJUST:

1. TURN THE HANDWHEEL TOWARD YOU WITH YOUR HAND TO BRING THE NEEDLE JUST BEHIND THE UPPER LOOPER IN DOWNWARD TRAVEL.
2. LOOSEN THE SETSCREW, AND ADJUST THE CLEARANCE BETWEEN THE BOTH NEEDLES AND UPPER LOOPER.
3. TIGHTEN THE SETSCREW.
4. CHECK THE CLEARANCE BETWEEN LOOPERS.



TO ADJUST THE POSITION OF THE KNIVES

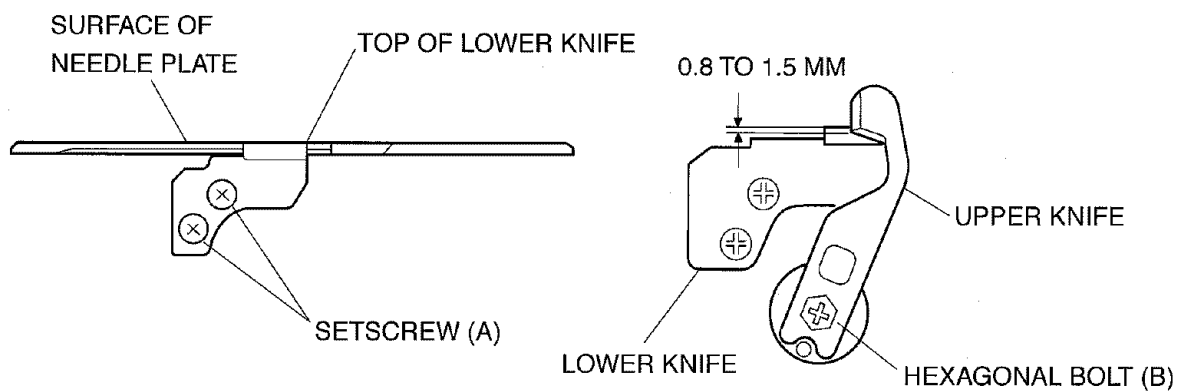
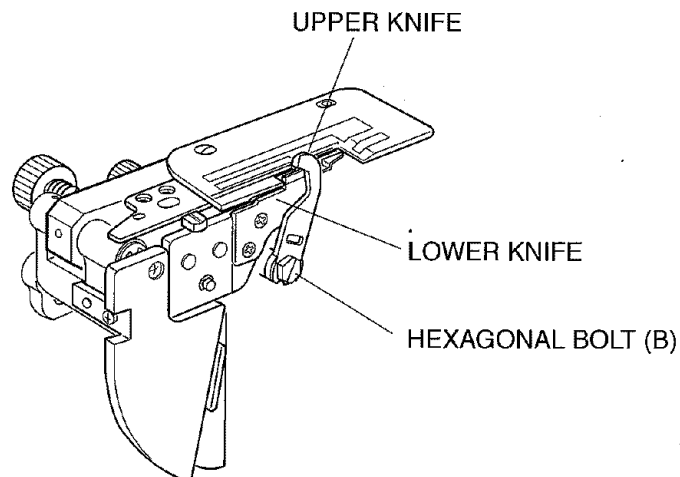
CORRECT SETTING:

THE EDGE OF THE LOWER KNIFE SHOULD BE LEVELED WITH THE SURFACE OF NEEDLE PLATE. WHEN THE UPPER KNIFE IS AT THE LOWEST POSITION, THE FRONT LOWER CORNER OF UPPER KNIFE SHOULD BE 0.8 TO 1.5 MM BELOW THE EDGE OF LOWER KNIFE.

TO ADJUST:

BEFORE PROCEEDING WITH THIS ADJUSTMENT, CHECK THE UPPER KNIFE TIMING.

1. LOOSEN THE TWO SETSCREWS (A), AND ADJUST THE LOWER KNIFE POSITION.
2. TURN THE HANDWHEEL TO BRING UPPER KNIFE TO ITS LOWEST POSITION.
3. LOOSEN THE HEXAGONAL BOLT (B), AND ADJUST THE POSITION OF UPPER KNIFE.
4. TIGHTEN THE HEXAGONAL BOLT (B).



TO ADJUST THE POSITION OF THE LOWER LOOPER THREAD GUIDE

LOWER LOOPER THREAD GUIDE (4)

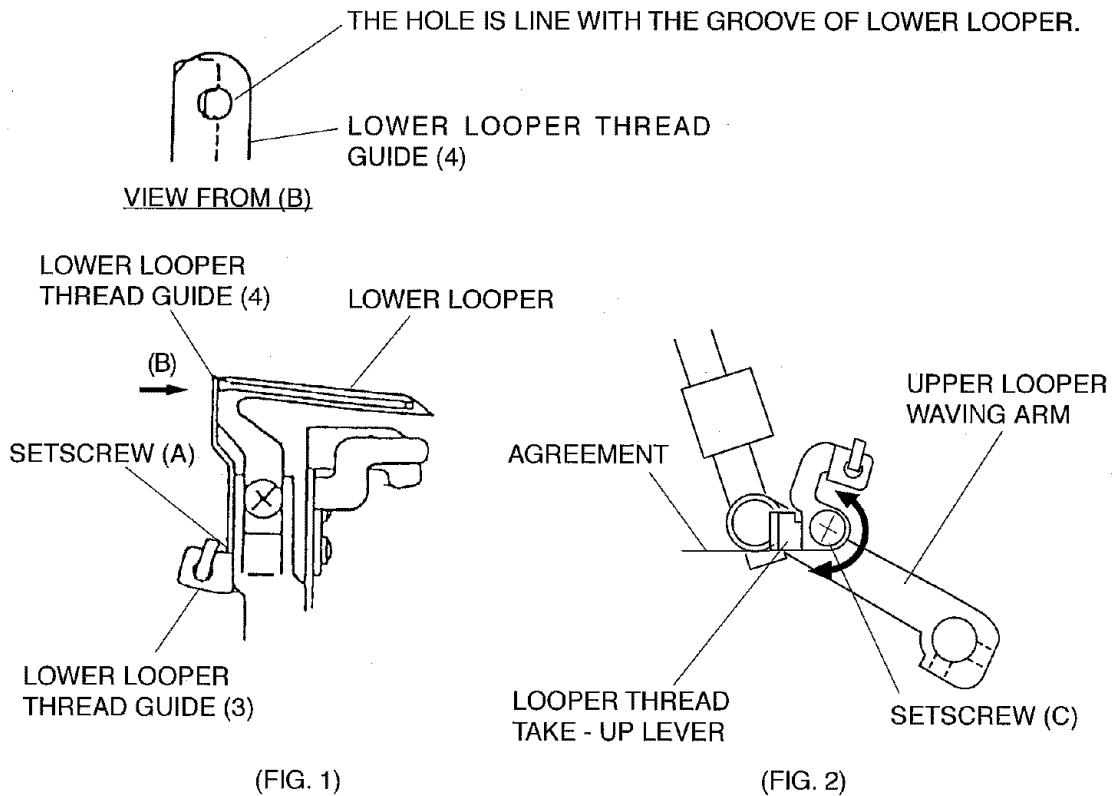
LOOSEN SETSCREW (A), AND ADJUST THE LOWER LOOPER THREAD GUIDE (4) SO THAT THE HOLE OF THREAD GUIDE IS IN LINE WITH THE GROOVE OF LOWER LOOPER AS SHOWN IN FIG. 1.

NOTE: AFTER ADJUSTMENT, CHECK THAT LOWER LOOPER THREAD GUIDE (4) SHOULD NOT TOUCH THE ARM AND FEED DOG.

LOOPER THREAD TAKE-UP LEVER

LOOSEN SETSCREW (C), AND THE BOTTOM SIDE OF THE LOOPER THREAD TAKE-UP LEVER IS IN LINE WITH THE BOTTOM SIDE OF THE UPPER LOOPER WAVING ARM.

TIGHTEN SETSCREW C TO SECURE THE POSITION.



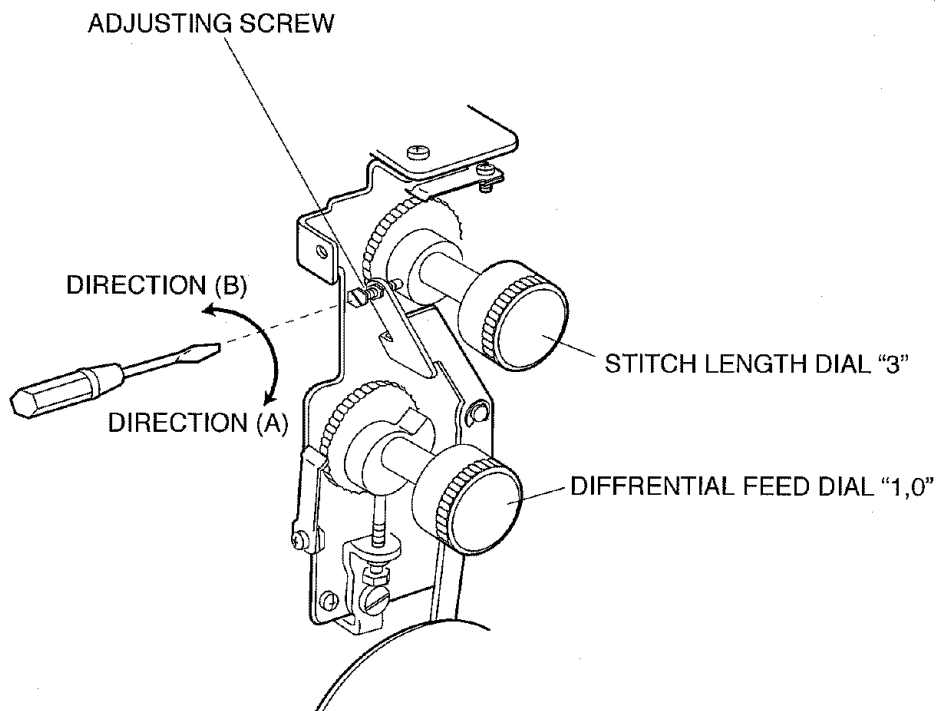
TO ADJUST THE STITCH LENGTH

CORRECT SETTING:

THE ACTUAL STITCH LENGTH SHOULD BE 2.8 TO 3.0 MM WHEN THE STITCH LENGTH DIAL IS SET AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".

TO ADJUST:

1. SET THE STITCH LENGTH DIAL AT "3" AND THE DIFFERENTIAL FEED DIAL AT "1.0".
2. REMOVE THE LOOPER COVER UNIT, FACE PLATE UNIT, BACK COVER UNIT, TOP COVER AND FRONT COVER UNIT.
3. IF THE ACTUAL STITCH LENGTH IS LONGER THAN 3.0 MM, TURN THE ADJUSTING SCREW IN THE DIRECTION (A).
IF THE ACTUAL STITCH LENGTH IS SMALLER THAN 2.8 MM, TURN THE ADJUSTING SCREW IN THE DIRECTION (B).
4. ATTACH THE FRONT COVER UNIT, LOOPER COVER UNIT, TOP COVER, BACK COVER UNIT AND FACE PLATE UNIT.



TO ADJUST THE THREAD TENSION DIALS

TO CHECK:

WHEN THE TENSION DIAL IS SET AT "3", THE STANDARD THREAD TENSION MEASURED WITH WHITE POLYESTER THREAD (#50) SHOULD BE AS FOLLOWS:

- LEFT NEEDLE THREAD 36-48GRAM
- RIGHT NEEDLE THREAD 13-25GRAM
- UPPER LOOPER THREAD 9-19 GRAM
- LOWER LOOPER THREAD 17-27 GRAM

ADJUSTMENT PROCEDURE:

1. REMOVE THE BACK COVER AND THE TOP COVER.
2. ADJUST EACH THREAD TENSION WITH THE ADJUSTING PLATE (A).
 - * IF THE THREAD TENSION IS AT STRONGER LEVEL, SHIFT THE ADJUSTING PLATE IN THE DIRECTION (B).
 - * IF THE THREAD TENSION IS AT WEAKER LEVEL, SHIFT THE ADJUSTING PLATE IN THE DIRECTION (C).
3. ROTATE THE THREAD TENSION DIAL WHILE SEWING TO CHECK THE SEWING PERFORMANCE.
4. ATTACH THE TOP COVER AND THE BACK COVER.

