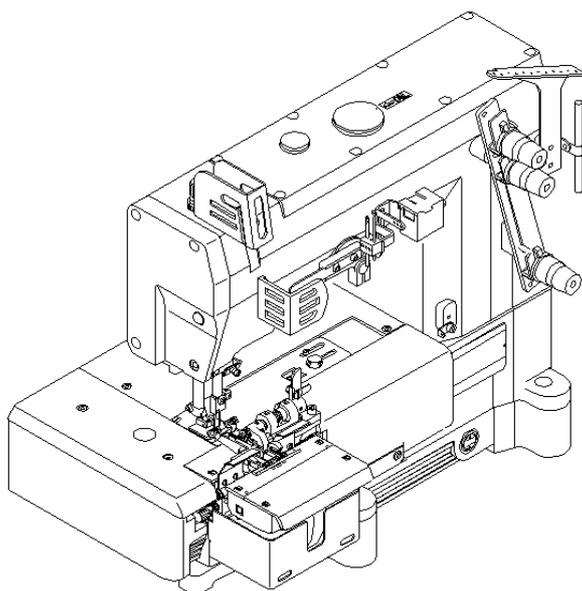


# INSTRUCTION

# *BLX* SERIES

Industrial Sewing Machines

*BLX2202*  
*BLX2202C*  
*BLX2202PC*



*First published : September 2003*

No. 030159

**KANSAI**  
SPECIAL®

## **INTRODUCTION**

*Thank you for your purchasing Kansai Special's BLX Series.*

*Read and study this instruction manual carefully before beginning any of the procedures and save it for later use.*

1. This instruction manual describes adjustments and maintenance procedures on this machine.
2. Before starting the machine, check to make sure the pulley cover, safety cover, etc. are secured.
3. Before adjusting, cleaning, threading the machine or replacing the needle, be sure to turn off the power.
4. Never start the machine with no oil in the reservoir.
5. Refer to the parts list as well as this instruction manual before performing preventive maintenance.
6. The contents described in this instruction manual are subject to change without notice.

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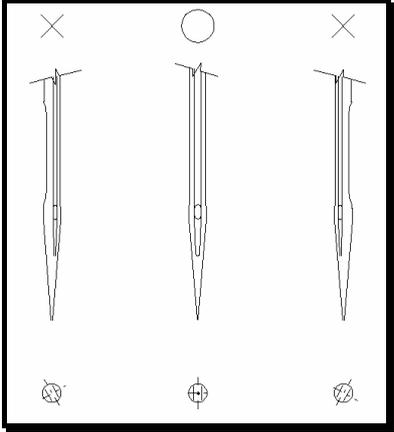
# 【1】 NEEDLES & THREADING THE MACHINE

## 1-1 Needles

UY128GAS of Schmetz or Organ  
 Select the proper needle for the fabric and thread.

< Needles and needle size >

Schmetz UY128GAS	Nm75	Nm80	Nm90	Nm100	Nm110
Organ UY128GAS	#11	#12	#14	#16	#18



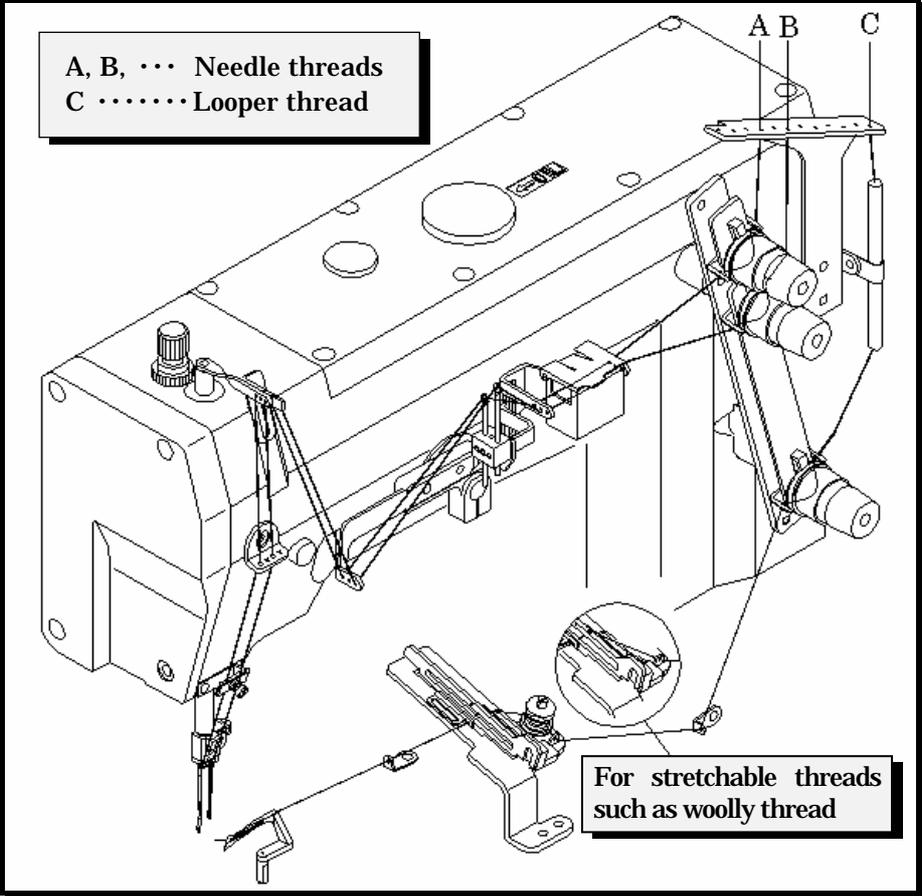
## 1-2 Replacing the needle

To replace the needle, check the needle carefully to see that the scarf is turned to the rear of the machine (see the illustration). Then install the needle correctly.

< Note >  
 Before replacing the needle, be sure to turn off the machine.  
 A clutch motor continues running for a while after the machine is turned off.  
 Therefore keep on pressing the pedal until the machine stops.

## 1-3 Threading the machine

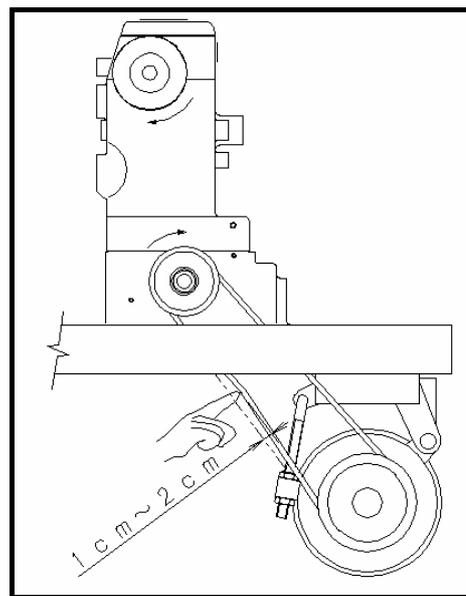
Thread the machine correctly by referring to the illustration below.  
 Threading the machine incorrectly may cause skip stitching, thread breakage and/or uneven stitch formation. Thread tension should be changed according to various kinds of conditions such as the thread to be used and/or the feeding amount (see Chapter 10 for "Stitch formation").



## 【2】 MACHINE SPEED

### 2-1 Machine speed & direction in which the machine pulley runs

Refer to the table below for maximum and standard speeds of the Series. To extend machine life, run the machine approximately 15~20% below the maximum speed for the first 200 hours of operation (approx. 1 month). Then run the machine at the standard speed. The machine pulley turns clockwise as the handwheel does as seen from the machine pulley.



### 2-2 Motor & belt

Motor : 3-phase, 2-pole, 400W clutch motor

Belt : M type V belt

Select the proper motor pulley according to the machine speed (refer to the motor pulley outer diameter on the table below).

Adjust where to position the motor by pressing the finger onto the middle of the belt so that 1~2cm deflection can be obtained (see the illustration on the right).

#### < Machine speed >

TYPE	MAXIMUM SPEED	STANDARD SPEED
BLX2202	6000SPM	5500SPM
BLX2202C	5000SPM	4500SPM
BLX2202PC	5000SPM	4500SPM

#### < Motor pulley selection table >

Motor pulley outer diameter (mm)	Machine speed (SPM)	
	50Hz	60Hz
80	3300	3900
90	3700	4400
100	4100	4900
110	4500	5400
120	5000	5900
130	5300	6400
140	5800	(6900)
150	6200	

## **【3】 LUBRICATION**

### **3-1 Oil**

Use Kansai Special's genuine oil.  
(Part No. 28-613 : 1000cc)

### **3-2 Oiling**

To fill the machine with oil

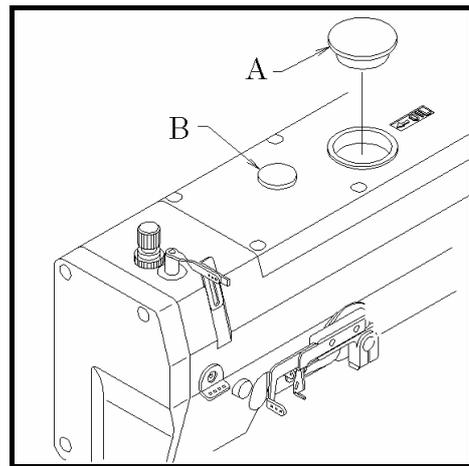
Remove rubber plug A from the oil hole.

Fill the machine with oil until the oil level is at the top line (see H in the illustration) on oil gauge C.

After the first lubrication, add oil so that the oil level will be between H and L.

To check for proper oil flow

After filling the machine with oil, run the machine to check the oil is splashing to oil flow sight window B.

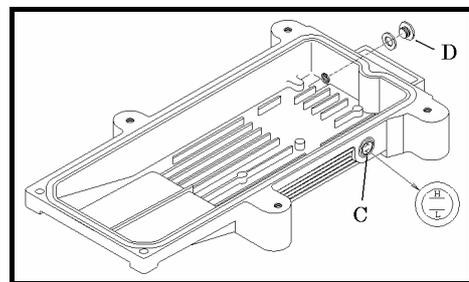


### **3-3 Replacing the oil and the oil element**

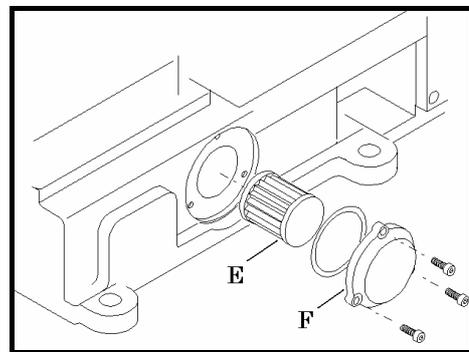
To extend machine life, be sure to replace the oil after the first 250 hours of operation.

To replace the oil, follow the procedures below.

1. Remove the V belt from the motor pulley and then remove the machine from the table.
2. Remove screw D and then drain the oil.  
Be careful not to stain V belt with the oil.
3. After draining the oil, be sure to tighten screw D.
4. Fill the machine with oil by referring to 3-2 shown above.



If element E is contaminated, proper oiling may not be performed. Clean the filter element every six months. If just a little or no oil flows out from the nozzle with the proper amount of oil in the machine, check the element. To do so, remove oil filter cap F. Replace the element if necessary.



*< Note >*

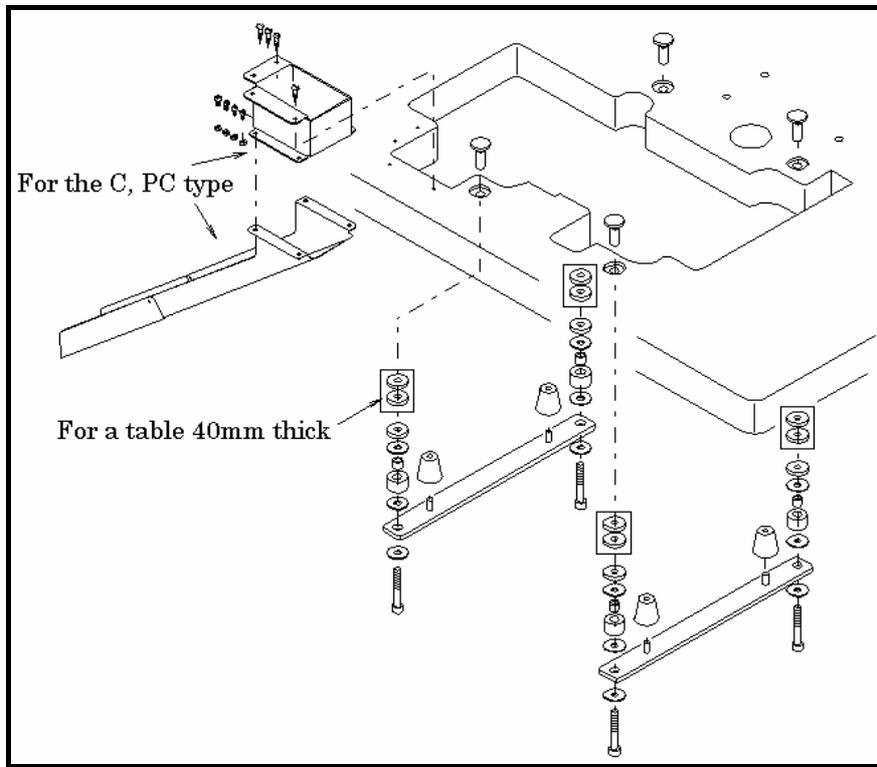
*When the oil filter cap is removed, the oil collected on the element drips. Be careful.*



#### 4-2 Installing the machine

Install the machine correctly by referring to the illustration below.

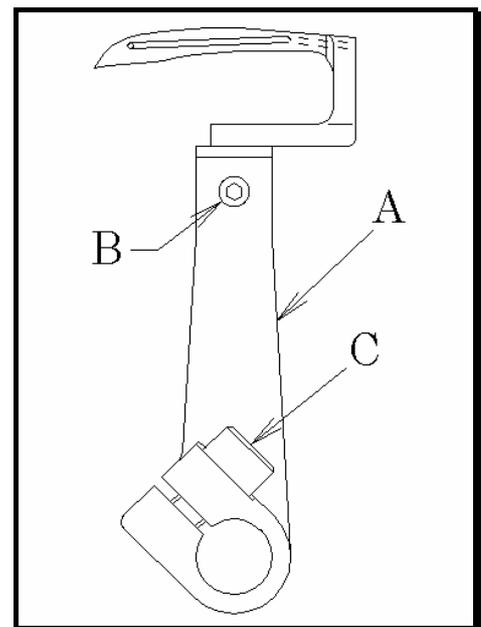
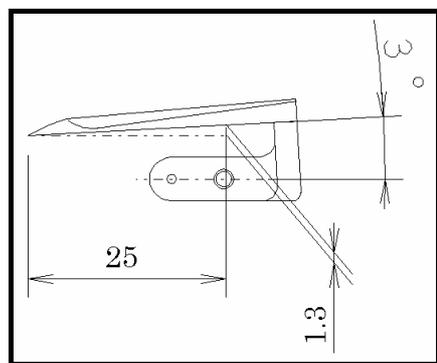
Secure the bolts in place with the nuts tightened against the underside of the machine table. Fit the rubber cushions onto the bolts. Then mount the machine properly onto the rubber cushions. Install the chute for the C , PC type (see below).



### 【5】TIMING OF THE LOOPER TO THE NEEDLES

#### 5-1 Angle and height for installing the looper

To obtain the proper angle and height, insert the looper fully into looper holder A and then tighten screw B. BLX Series Angle : 3° Distance at 25mm from the point of the looper between the bottom of the looper blade and the extension line from the point of the looper : Approximately 1.3mm.

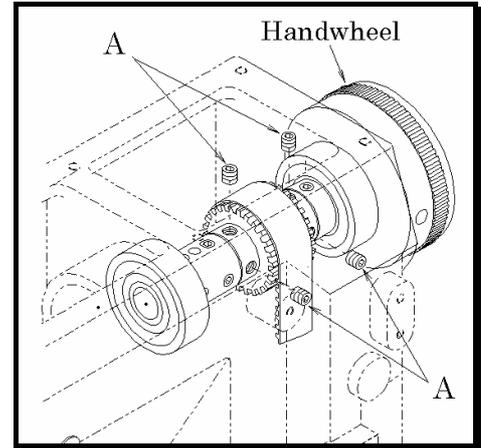
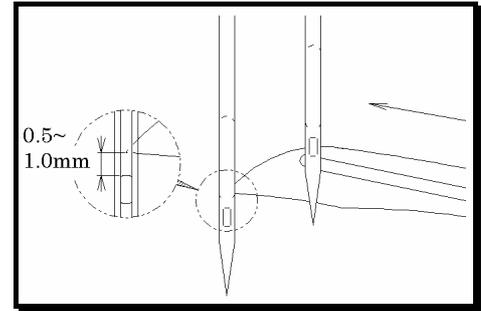


### 5-2 Loper left-to-right movement

The point of the looper should pass the center of the left needle and 0.5~1mm above the top of its needle's eye when the looper moves to the left or right on the front or back side of the needles (see the illustration below). Refer to 5-4 for the height of the needle.

To adjust the timing of the looper to the needles,

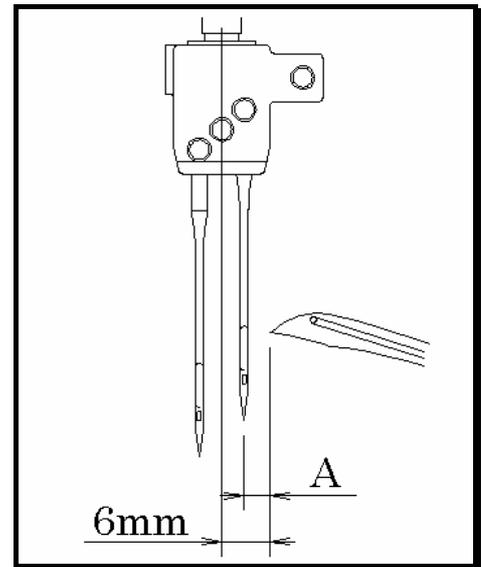
1. Remove the machine cover.
2. Loosen screws A on the timing pulley (upper).
3. Shift the timing pulley (upper) by turning the handwheel while holding the timing pulley (upper) by hand.



### 5-3 Loper setting distance

Set the looper so that the distance from the point of the looper to the center of the needle bar is 6mm when the looper is at its farthest position to the right. The table below shows setting distance A from the point of the looper to the center of the right needle when the needle is at the bottom of its stroke and the looper is at its farthest position to the right. Setting distance A varies according to the needle space. To make this adjustment, loosen screw C (see 5-1) on the looper holder.

NEEDLE SPACE (INCH)	LOOPER SETTING DISTANCE A
4.8mm (3/16)	3.6mm
5.6mm (7/32)	3.2mm
6.4mm (1/4)	2.8mm



#### 5-4 Needle height

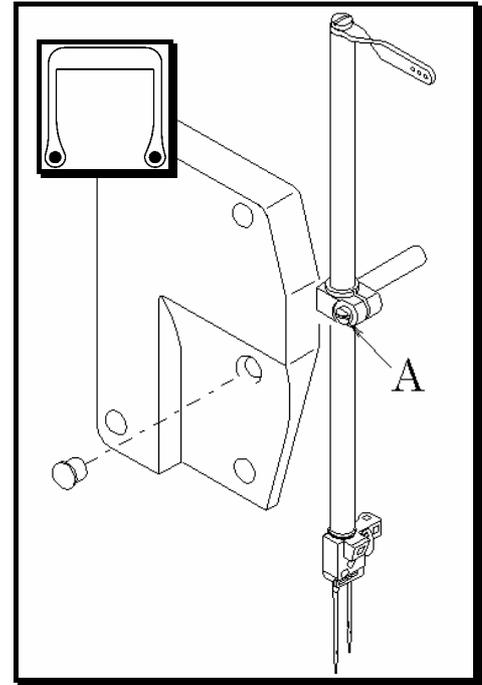
The point of the looper should be 0.5~1mm above the top of the left needle's eye on the back side of the needle when the point of the looper has reached the center of the left needle with the machine pulley turning in the operating direction (see 5-2).

To adjust the height of the needle,

1. Set the needle bar at the top of its stroke.
2. Remove the plug on the head cover.
3. Loosen screw A.
4. Move the needle bar up or down.

< Note >

After the above adjustment, check to make sure each needle drops into the center of each needle hole.



#### 5-5 Needle/looper front-to-back relationship

The point of the looper is 0.5~1mm above the top of the left needle's eye on the back side of the needle when it has reached the center of the left needle.

With the point of the looper at this position, set the clearance between the left needle and the point of the looper at approximately 0.2mm.

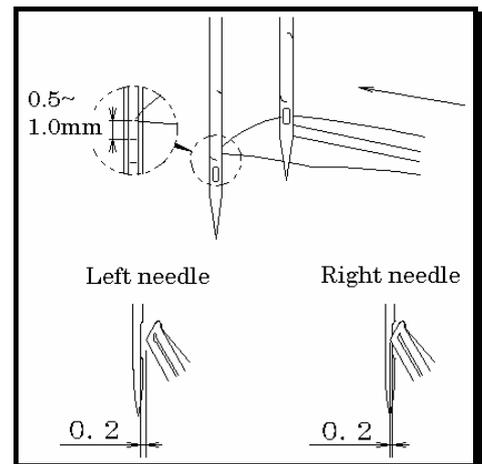
Then the looper should barely touch the right needle (approximately 0.2mm).

To make the above adjustment,

1. Loosen screw C (see 5-1).
2. Move the looper holder front or back.

< Note >

When moving the looper holder front or back, be careful not to change the looper setting distance.



## 5-6 Changing the looper orbit

When the looper moves around the needles, the point of the looper barely touches the right needle and the clearance between the point of the looper and the left needle is approximately 0.2mm.

< Note >

To sew under good conditions, adjust the looper orbit after changing the amount of the looper front-to-back movement by moving the timing mark slightly to X or Y.

To change the looper's orbit,

1. Loosen screw B on eccentric A.
2. Shift the timing mark by moving eccentric A front or back.

The timing mark is factory-set for standard.

Do not change the orbit extremely.

The timing mark is at the standard position.

The 3 o'clock end of the orbit is at a slightly up position.

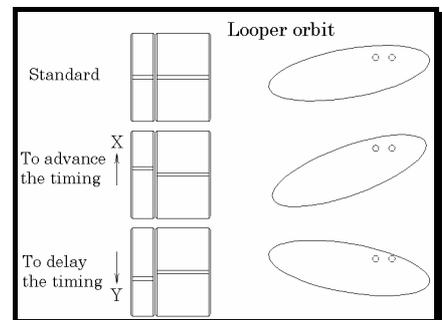
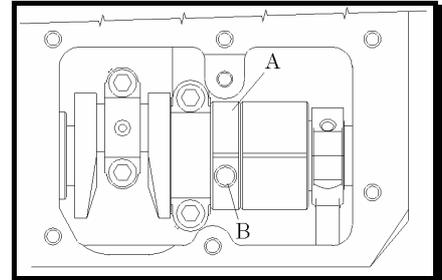
To advance the timing of the looper to the needle

Shift the timing mark to X. Skip stitching may occur when the looper moves to the right.

A thread chain is not produced smoothly.

To delay the timing of the looper to the needle Shift the timing mark to Y.

Skip stitching may occur when the looper moves to the left. The needle extremely touches the back of the looper, causing needle breakage.



## 5-7 Changing the amount of the looper front-to-back movement

The clearance between the point of the left needle and the back side of the looper when the looper moves to the right from the extreme left end of its travel should be 0.05~0.1mm. The clearance between the point of the right needle and the back side of the looper should be 0.2~0.3mm. The amount of the looper front-to-back movement is factory-set properly for needle counts #14~#16. If you use needle counts #11, #12 adjust the amount as required (see below).

1. Remove rear bed cover A.
2. Loosen the nut on the looper front-to-back rod pin.

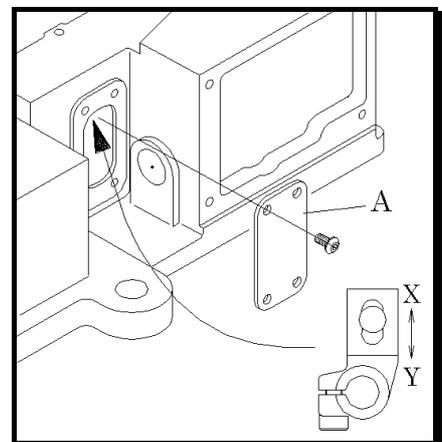
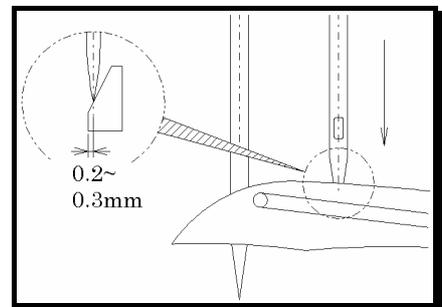
To decrease the amount, move the rod pin to X.

To increase the amount, move the rod pin to Y.

The amount range is from 2.3 to 3.1mm.

Adjust according to the needle count.

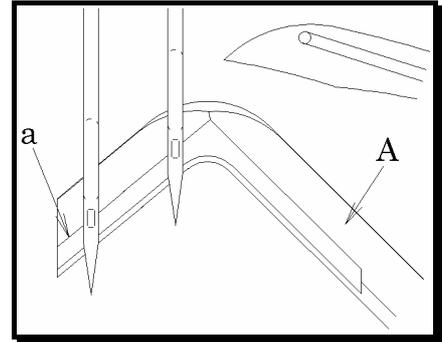
If the amount is excessively decreased, the needle will rub against the back of the looper, causing needle breakage. If the amount is excessively increased, the clearance between the needle and the back of the looper will increase and then skip stitching may occur when the looper moves to the left.



## 【6】 FRONT AND REAR NEEDLE GUARDS

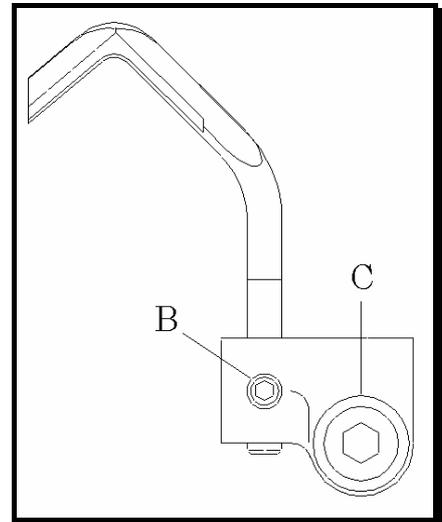
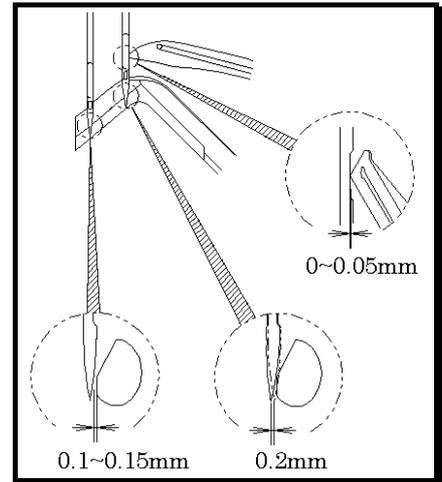
### 6-1 Position of the needle guard (rear)

Align line (a) on needle guard (rear) A with the center of the right needle hole when the needle guard (rear) is at the bottom of the stroke. When point of the looper passes the back side of the needles, the needle guard (rear) should push the right needle slightly toward the front and the clearance between the point of the looper and the left needle should be approximately 0.2mm.



Set the clearance between the right needle and the point of the looper at 0~0.05mm when the point of the looper has reached the center of the right needle from the extreme right end of its travel.

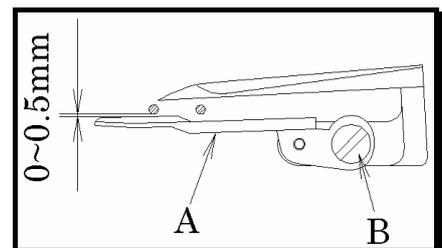
When the point of the looper has reached the center of the left needle, make sure the left needle does not touch the looper by pressing the left needle backward. Then turn the needle guard (rear) with screw B to set the clearance between the needle guard (rear) and the needle at 0.1~0.15mm. Adjust the needle guard (rear) front to back with screw C.



### 6-2 Position of the needle guard (front)

Set the clearance between the needles and needle guard (front) A when the point of the looper has reached the center of the right and left needles at 0~0.05mm.

To make this adjustment, loosen screw B.



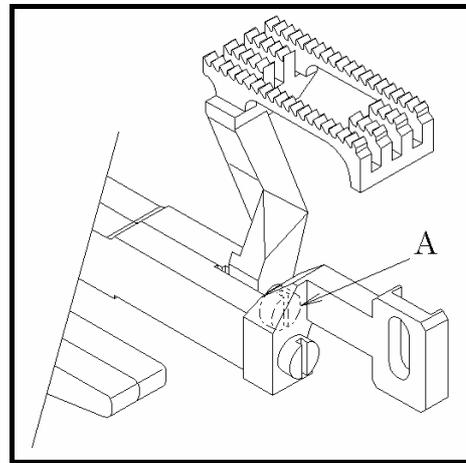
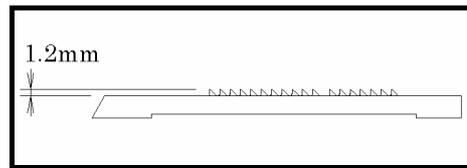
## 【7】 FEED DOGS & STITCH LENGTH

### 7-1 Feed dog height & tilt

#### Height

When the feed dogs are at the top of their stroke, the feed dog teeth should be parallel with and 1.2mm above the top surface of the needle plate.

To make this adjustment, loosen screw A and move the main and differential feed dogs up or down.

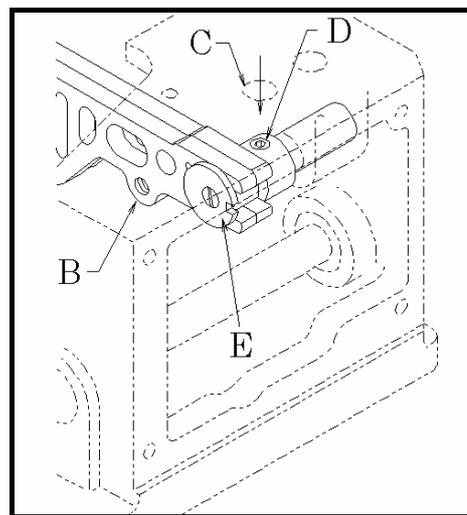


#### Tilt

Remove the cover from the rear side of the bed.

Loosen screw D from hole C with a 2.5mm hex. wrench. When the feed dogs are at their top of their stroke, the feed dogs should be parallel with the top surface of the needle plate.

Adjust by turning eccentric pin E with a screwdriver.



#### < Note >

*When turning the eccentric pin, tighten screw D with the pin slightly touching feed bar B while checking that the shaft is not shifted to the left.*

## 7-2 Stitch length

The stitch length is adjustable from 1.4 to 3.6mm as follows :

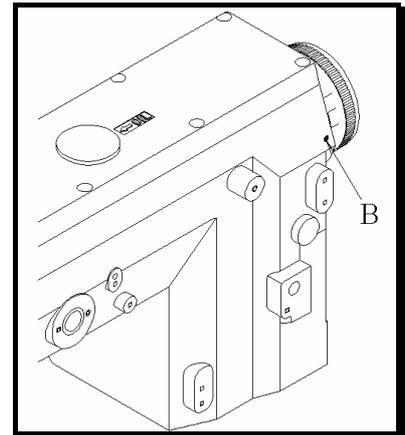
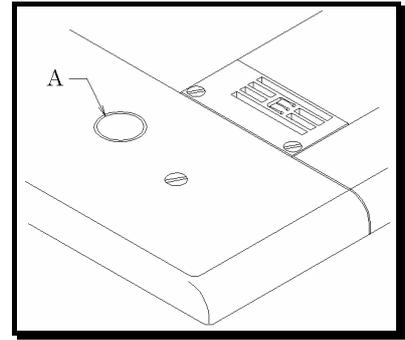
Stitch length	No. of stitches (within 1")	No. of stitches (within 30mm)
4.2mm	6.0	7.0
2.8mm	9.0	10.5
1.4mm	18.0	21.0

To adjust the stitch length

1. Press push button A lightly until its end touches the inside part and clicks.
2. Turn the handwheel by hand while pressing the push button lightly until the push button goes further into the depth.
3. Then press down the push button strongly again. Adjust the stitch length as required by turning the handwheel.
4. Align the required stitch length with alignment mark B. Then release the push button.

< Note >

To adjust the stitch length, be sure to turn off the power first.



## 7-3 Differential feed

Normal differential feed (to gather the fabric)

To make this adjustment, loosen nut A, move lever B up or down and tighten nut A at the required position.

To obtain a feed ratio of 1:1, align lever B with reading C.

To obtain the normal differential feed, raise lever B above reading C. To obtain a feed ratio of 1:2, set lever B at 2.

Reverse differential feed (to stretch seam the fabric)

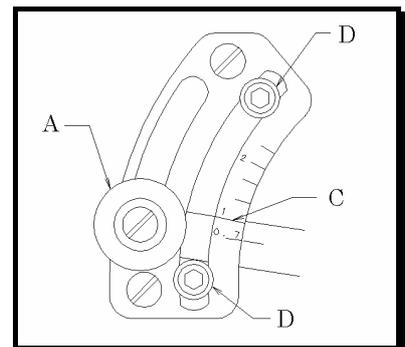
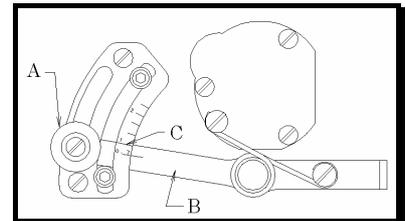
To obtain the reverse differential feed, lower lever B below reading C. To obtain a feed ratio of 1:0.7, set lever B at 0.7.

To adjust the differential feed ratio during sewing Connect a chain, etc. to the lever. Set the upper and lower limits with two stoppers (D). To adjust the differential feed ratio during sewing, move lever B up or down within this range and then set lever B at the required position.

The differential feed ratio varies according to the stitch length. See the table below.

< Differential feed ratio >

Stitch length	Max. normal diff. feed	Max. reverse diff. feed
4.2mm	1:1	1:0.7
3.6mm	1:1.2	1:0.7
2.5mm	1:1.6	1:0.7
2.0mm	1:1.8	1:0.7



< Note >

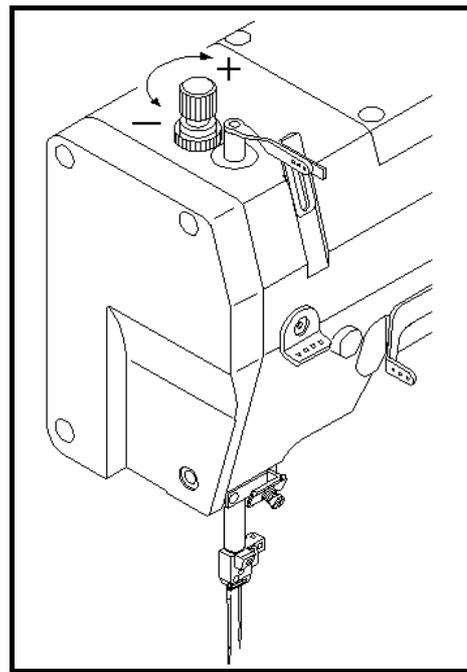
To use the machine with the normal differential feed, check to make sure the feed dogs do not touch the needle plate.

## 【8】 PRESSER FOOT

### 8-1 Presser foot pressure

The presser foot pressure should be as light as possible, yet be sufficient to feed the fabric and produce uniform stitches.

To increase the presser foot pressure, turn the adjusting knob clockwise.



### 8-2 Position of the presser foot & foot lift

Fit the presser foot onto the presser bar so that the needle can drop correctly to the center of the presser foot needle drop hole.

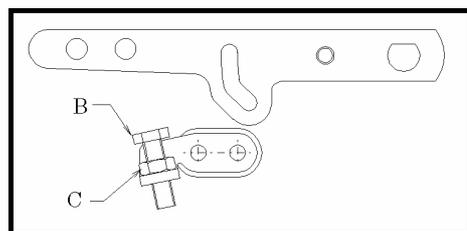
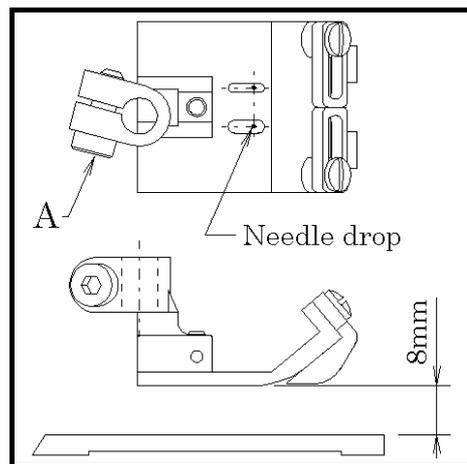
**Position of the presser foot**

Loosen screw A.

Adjust by moving the presser foot left or right while checking to make sure the needle drops correctly to the center of the presser foot needle drop hole.

The lift in presser foot is 8mm from surface of needle plate.

Set stopper B at the required position. Fasten the presser foot lift lever with nut C so that the lever cannot be lowered.



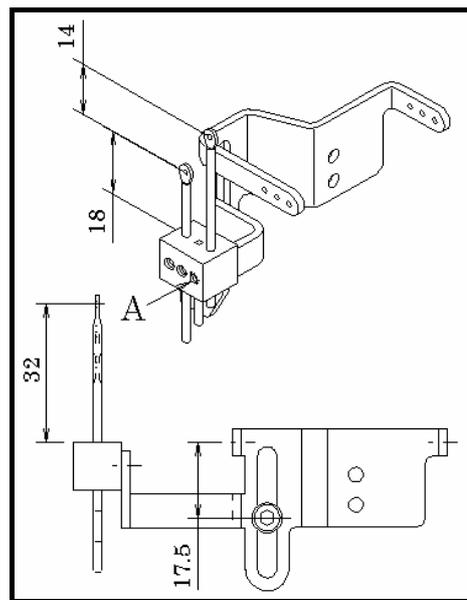
## 【9】 STITCH FORMATION

### 9-1 Position of the needle thread guides

The distance from the center of the eyelet of the needle thread guide to that of the set screw should be approximately 17.5mm (see the illustration).

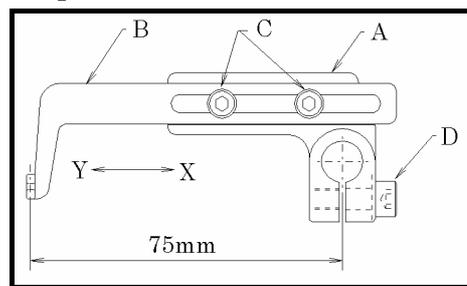
Adjust the height of the thread guides by loosening screws A and moving each thread guide up or down (refer to the distances shown in the illustration).

If the stitch formation cannot be changed extremely by adjusting the height of the thread guides because of the thread to be used, unravel the thread after test sewing and adjust the height of the thread guides while checking the tension of the needle thread.



### 9-2 Position of the thread guide on the needle thread take-up

When the needle bar is at the bottom of its stroke, needle thread take-up bracket A should be level and the distance from the center of the shaft to the thread guide of needle thread take-up B should be 75mm. To make this adjustment, loosen screws C and D. To tighten the needle thread, move needle thread take-up to Y. To loosen the needle thread, move needle thread take-up to X.



### 9-3 Position of the needle thread guard

When the needle bar is at the bottom of its stroke, the center of the eyelet of thread guide A should be level with the top surface of needle thread guard B.

In addition, A should be parallel with B.

To adjust the height of needle thread guard B, loosen screw C and move needle thread guard B up or down.

To tighten the needle thread, move up B.

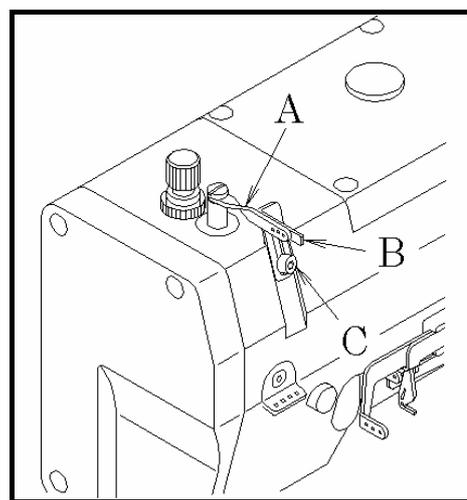
To loosen the needle thread, move down B.

For cotton threads (non-stretchable threads)

Bring the needle thread guard 2.0mm below the standard, or remove it. Loosen screw C and move down the needle thread guard.

For woolly threads (stretchable threads)

Raise the needle thread guard as high as possible.

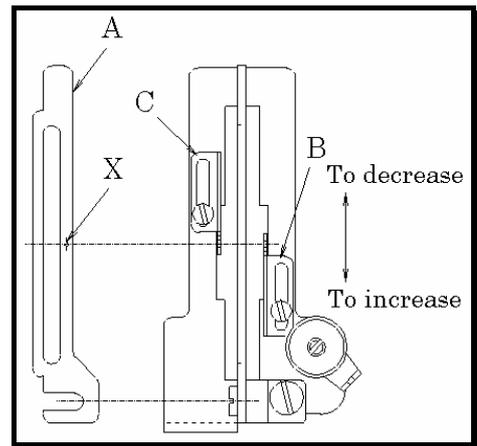


#### 9-4 Position of the thread guide of the looper thread take-up

The eyelets on thread guides B and C should be aligned with mark X on thread guide A.

To increase the amount of the looper thread supplied by the looper thread take-up, loosen screws of thread guides B and C and move the thread guides to the front. To decrease it, move the thread guides to the back. Adjust according to the thread and stitch length to be used. For woolly threads, move thread guides B and C to the front.

Do not thread the tension disk.

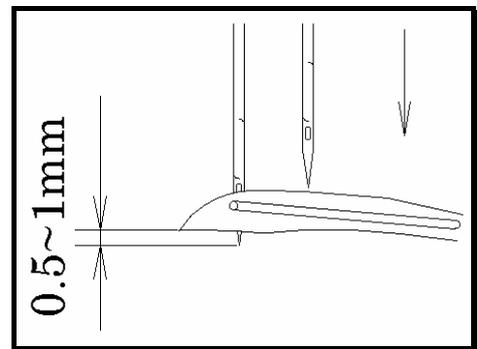
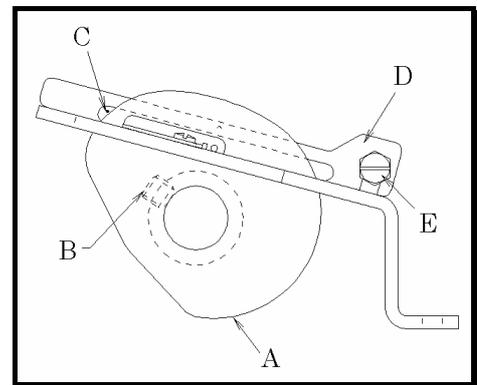


#### 9-5 Position of the looper thread take-up

Thread guide D should be at the center of the groove of looper thread take-up A.

When the point of the left needle has reached 0.5~1mm above the bottom surface of the looper blade while the looper is moving from the extreme left end of its travel, the looper thread should be removed from position C on the looper thread take-up. To make this adjustment, loosen screw B and adjust the looper thread take-up.

To adjust the height of thread guide D, loosen screw E and then align the bottom of the slot of thread guide D with the top surface of the bracket.



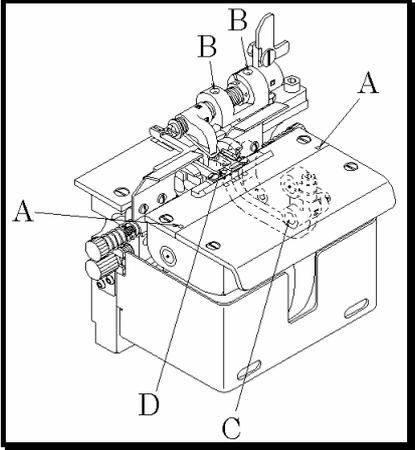
# 【10】 THE ADJUSTMENT OF CUTTING DEVICE

## 10-1 The specifications for C and PC type

1. Needle bar stroke ..... 31mm
2. Upper knife stroke ..... 5.5mm
3. Cutting size ..... 16~44mm
4. Finishing size ..... 8~20mm

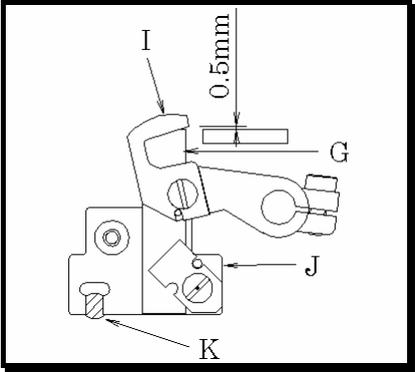
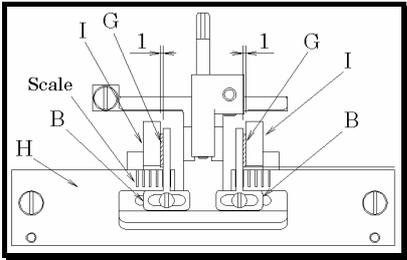
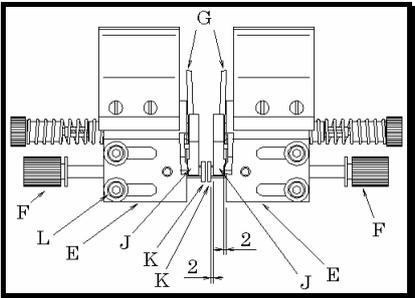
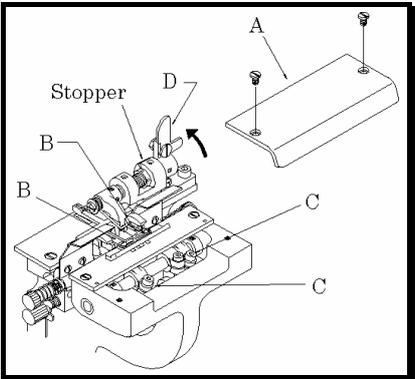
## 10-2 Lubrication

Fall a few oil drops sometime.



## 10-3 Adjustment of cutting width

- a. Remove the base cover of the knife also open the front cover and side cover.
- b. Remove the upper knife shaft's cover A.
- c. Loosen B screw on the support presser foot located on the front presser foot, C screw on upper knife bracket. And push the lever D up for lifting the front presser foot.
- d. Loosen the screw L on the stationary knife bracket E then adjust the stationary knife position by dialing the screw F according to the scale on the front needle plate. After that tighten the screw L temporary.
- e. Turn the hand pulley to position the needle bar at the bottom of its stroke.
- f. Touch the upper knife I with stationary knife G, then tighten up the screw on the upper knife bracket C after place the point of the upper knife I in 0.5mm higher than the stationary knife G.
- g. Loosen the screw on the stationary knife bracket base E for adjustment to have some space between the stationary knife bracket J and the stationary knife bracket base E and more the stationary knife bracket J and the stationary knife bracket supporter K for cutting fabrics well after that re-tighten the screw on the stationary knife bracket E.
- h. The support presser foot B positioned 1mm from the upper knife.



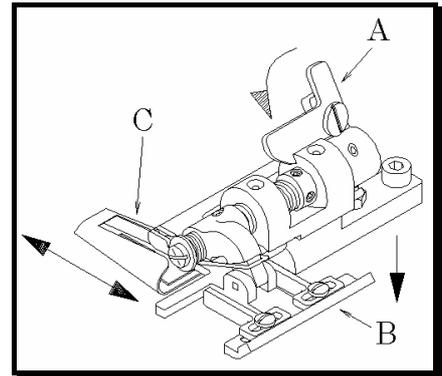
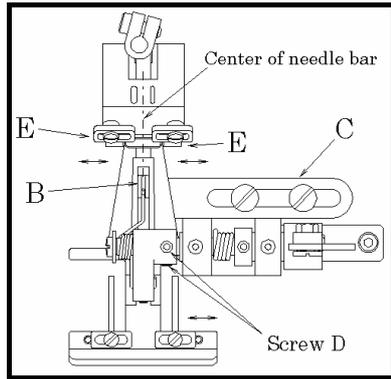
## 10-4 Replacement for folder

<The way of removable>

- Remove the screw on the folder C.
- Positioned the needle bar at bottom of its stroke.
- Lift up the main presser foot then keep the front presser foot up with lever A.
- Remove the folder C with pushing in front part of the front presser foot down.

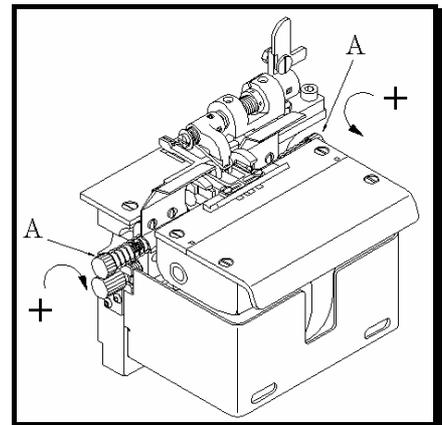
<The way of setting the folder>

- Positioned the center of the folder C against the center of needle bar then tighten the screw on the folder C.
- Positioned the point of back side of front presser foot against the center of the folder C by loosen the screw D.
- Hold the point of folder C between both of guide E.



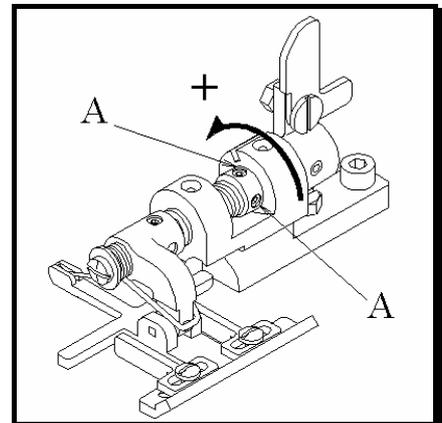
## 10-5 Adjustment of knife pressure

Should be adjusted by dialing the screw A depend on fabrics.



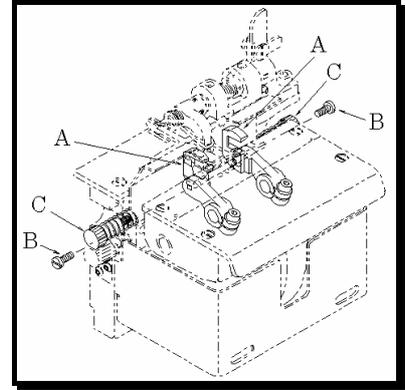
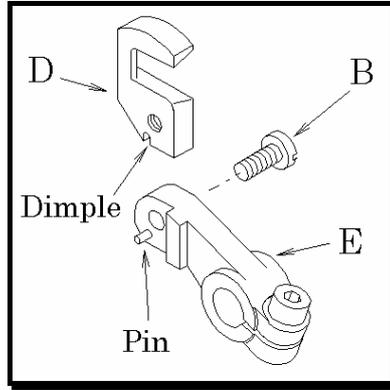
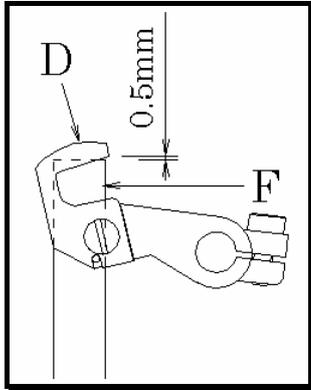
## 10-6 Adjustment of the front presser foot pressure

Loosen the screw A on the color to turn it up or down.  
Turn it up, the pressure are increase.  
Turn it down, the pressure are decrease.



### 10-7 Replacement of upper knife

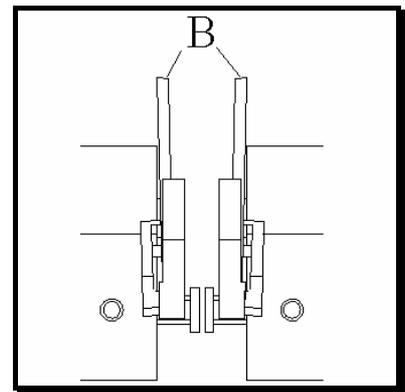
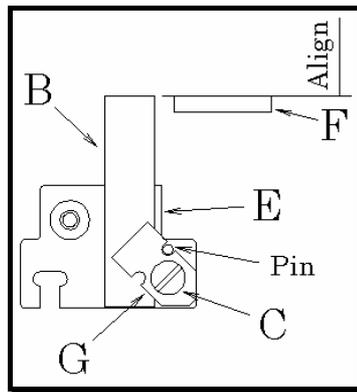
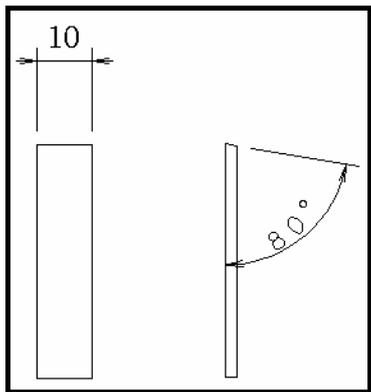
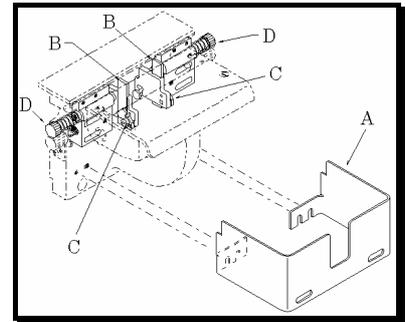
- Remove the upper knife by loosen the screw B and pushing the pressure adjustment dial C.
- Set the dimple of new upper knife in the pin on upper knife bracket E.
- Check the position of upper knife is located in 0.5mm higher than stationary knife.
- Check the sharpness of knife by turning on the hand pulley.



### 10-8 Replacement of stationary knife

- Remove the knife cover base A.
- Remove the stationary knife B by loosen the screw C then pushing the pressure adjustment dial D.
- Set the new stationary knife carefully in the stationary knife bracket E. The position of the point of stationary knife should align with surface of the support needle plate. Then tighten the screw C. In this time, the impel of the stopper for the stationary knife G should be match with the pin.

When the stationary knife was not cutting well, the knife have to be sharpen on a whetstone. Refer to diagram.



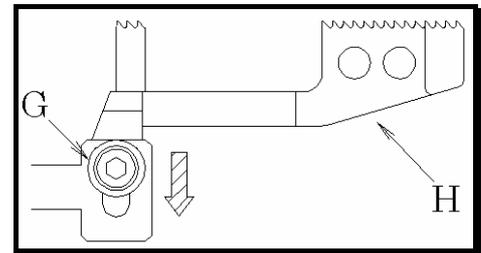
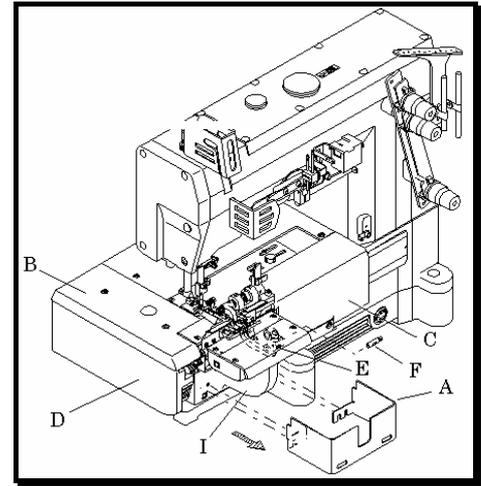
### 10-9 The way of remove of cutting device

Must be remove the cutting device when the gauge conversion or the gauge adjustment are altered. Additionally, in case of the cutting size were fixed less than 20mm width, widen the upper knife bracket and the stationary knife base bracket more than 20mm width.

#### <Remove>

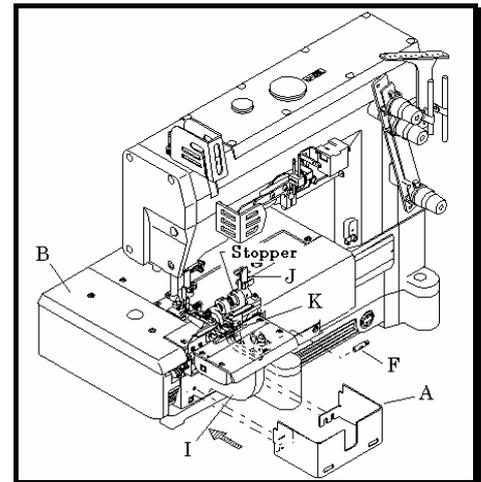
- Remove side base cover B and cutting device cover A.
- Open the front cover C and the side cover D.
- Loosen the screw E then remove the link pin F.
- Turn the hand pulley to positioned the needle bar at the bottom of its stroke then loosen the screw G to make lower position for the support feed dog H.
- Remove the cutting device bracket in front.

A positioning pin is fit the cutting device bracket so that move it off with screwdriver slowly.

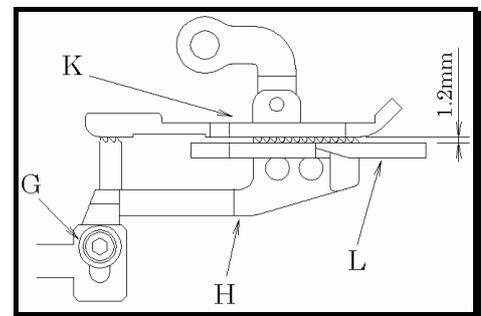
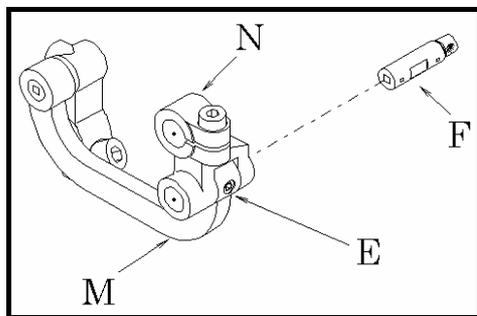


#### <Replacement>

- Replace the cutting device I.
- Turn the hand pulley to positioned the needle bar at the top of its stroke then adjust the tip of support feed dog to positioned 1.2mm higher from the surface of support needle plate in condition of the support presser foot is the down position.
- Fit the connecting link M into the upper knife connecting lever N then put the link pin F into the hole.
- Replace the cutting device bracket cover A and side cover base B.



Re-adjust the cutting width. Refer to 10-3.

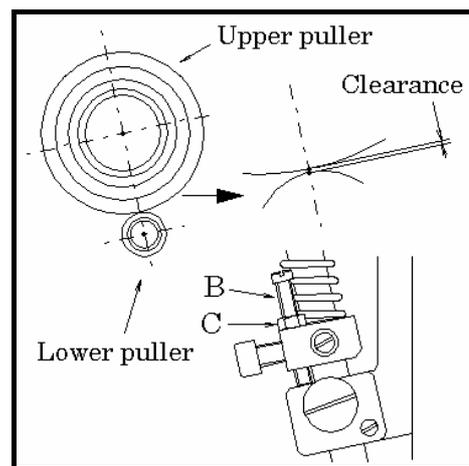


## 【11】 ADJUSTING THE REAR PULLER

### 11-1 Position of the hand lever and the stopper

Pull the upper rear puller up in the time of releasing the fabric. In case of using thick fabric, should have some space between the upper rear puller and the bottom rear puller in condition of the upper rear puller is the bottom of its stroke.

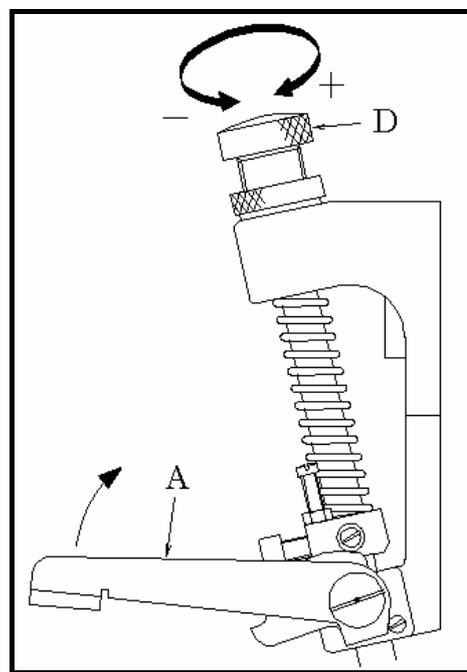
Adjust by stopper B.



### 11-2 To adjust the puller pressure

The puller pressure should be as light as possible, yet be sufficient to feed the fabric smoothly.

To increase the pressure, turn adjusting knob D clockwise. To decrease the pressure, turn adjusting knob D counterclockwise.



### 11-3 To adjust the feeding amount of the rear puller

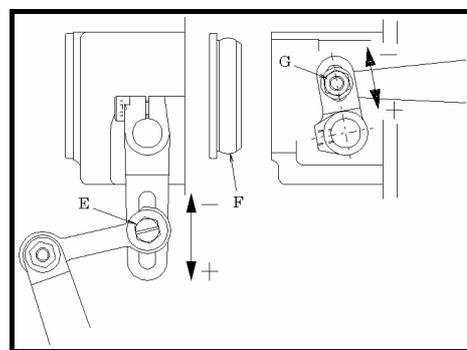
The feeding amount of the rear puller should be the same as that of the feed dog.

Loosen nut E. To decrease the amount, move upward. To increase the amount, move downward.

If the proper feeding amount is still not obtained after the above adjustment, remove rubber plug F and loosen screw G with a hex. wrench.

To decrease the amount, move upward.

To increase the amount, move downward.



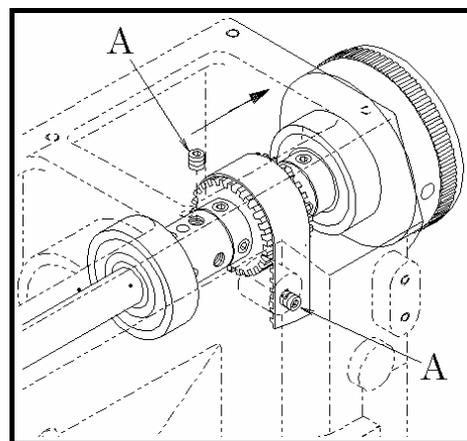
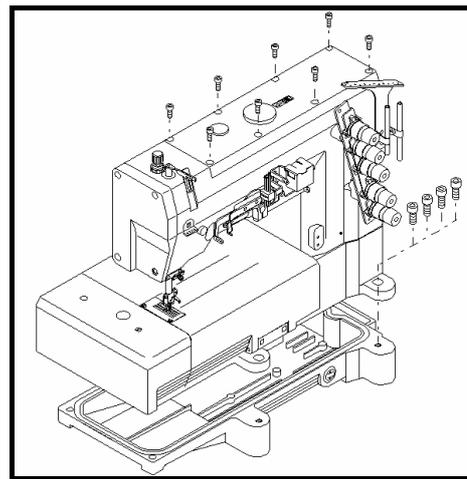
## 【12】 REPLACING THE TIMING BELT

### 12-1 Marks on the timing belts

The X Series is available in timing belts of [A], [B] and [C] according to the distance between the upper and lower shafts. [A] indicates the longest timing belt.

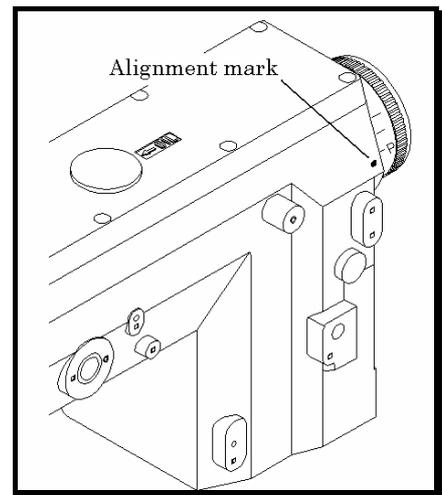
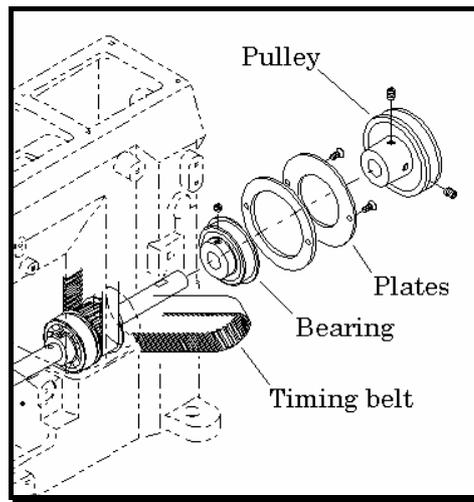
### 12-2 To remove the timing belt

1. Loosen the eight arm cover set screws and the six oil reservoir set screws (see the illustration). Remove each part.
2. Loosen two screws A. Remove the handwheel to the right while turning it slowly (see the illustration).
3. Remove the pulley, plates and bearing in sequence by referring to the illustration. Then remove the timing belt from the hole for the bearing.



### 12-3 To place the timing belt

1. Install the timing belt, bearing, plates space collar, pulley and cover by performing the reverse procedure of 12-2 3.
2. Position the bearing so that the point of the screw is fitted correctly into the positioning hole on the lower shaft. Then tighten the screw to secure the bearing.
3. Move the looper to the extreme right end of its travel by turning the pulley. Bring the needle bar down to the bottom of its stroke by hand.
4. Then place the belt onto the timing pulley on the upper shaft. Tighten two screws A.
5. Bring the needle bar up to the top of its stroke by turning the pulley. Check to make sure mark "P" on the handwheel is aligned with alignment mark "O" on the bed.
6. To make a fine adjustment for the timing of the needle and looper, refer to 5-2.



### 【13】CLEANING THE MACHINE

At the end of each day, remove the needle plate and clean the slots of the needle plate and the area around the feed dogs.

