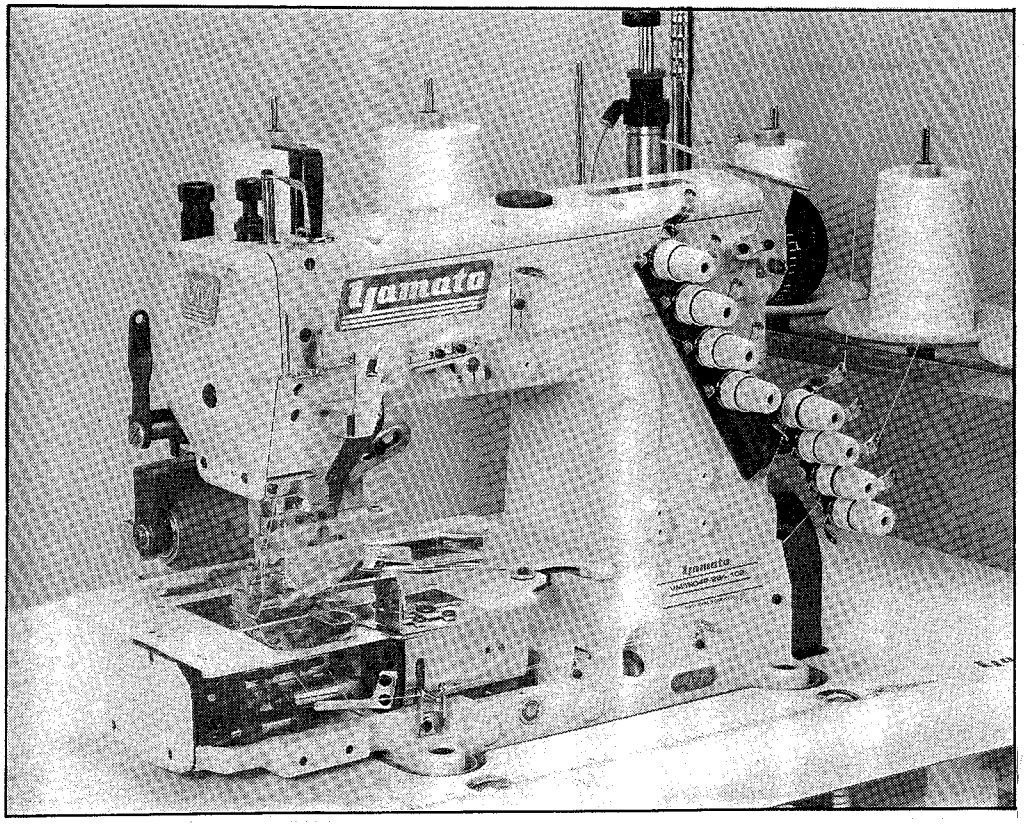
yamato®

INSTRUCTIONS

FOR

CLASS VM1804P

HIGH SPEED CYLINDER BED
LOOPER IN LINE WITH FEED MULTI-NEEDLE
DOUBLE CHAINSTITCH MACHINE WITH PULLER



No. 2

YAMATO SEWING MACHINE MFG. CO.,LTD.

CONTENTS

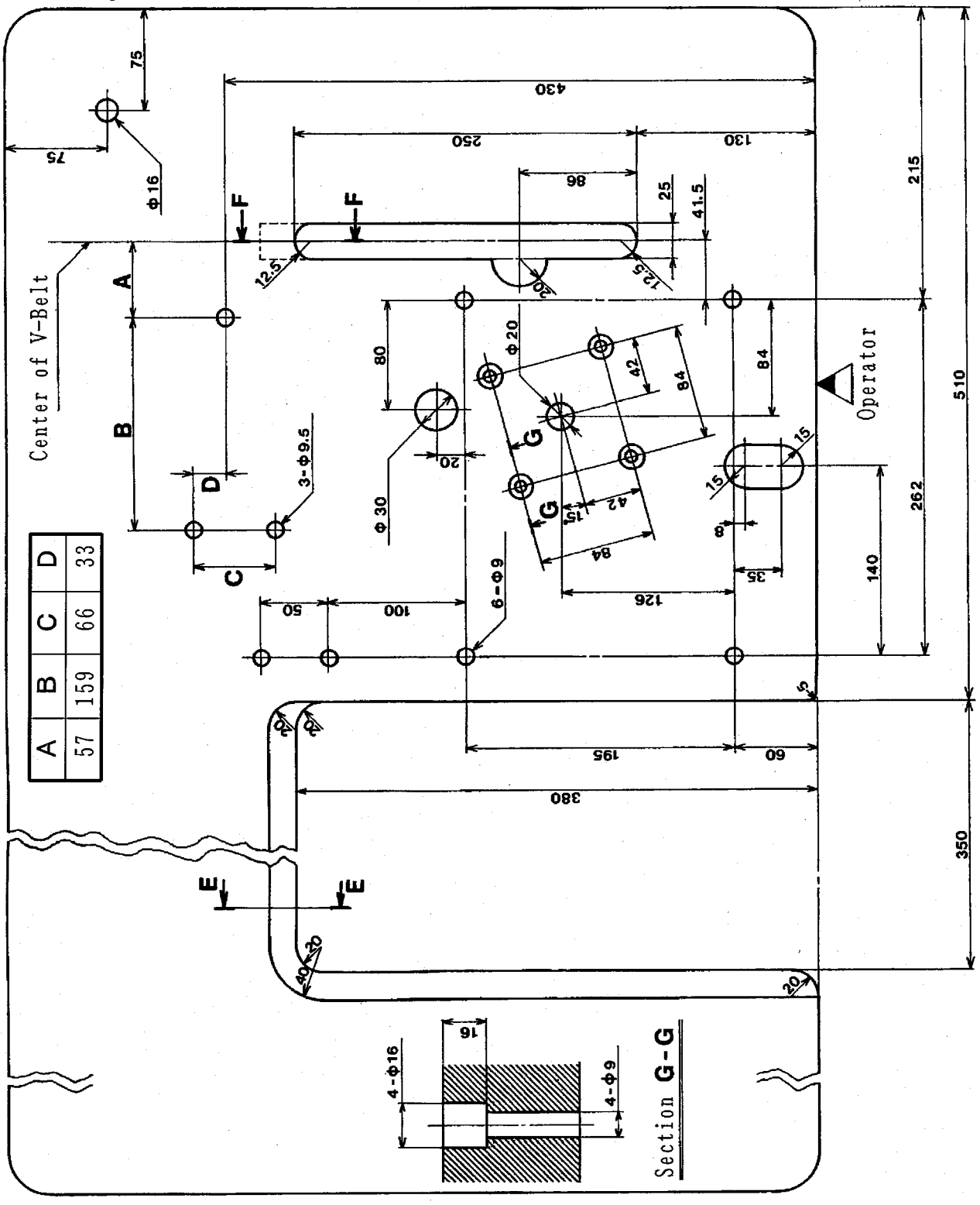
1. Specifications

Description	: High speed cylinder bed looper in line with feed multi-needle double chainstitch machine with puller
Dimension of Bed	: 380(L)×450(H)×240(W) mm
Weight	: 43 kg
Stitch type	: ISO 401
Applications	: mainly for attaching facing to shirt
Sewing speed	: max. 4,500 s.p.m.
Needle distance	: 22.2, 25.4, 30.0, 38.2 mm
Needle Bar stroke	: 33 mm
Needle to be used	: Schmetz UY113GS #70～#110 (light～medium materials) #110～#160 (heavy materials)
Number of needle	: 2～4 needles
Number of thread	: 4～8 threads
Stitch length	: 1.4～3.6 mm, 7～18 stitch/inch(25.4 mm) 8～21 stitch/30 mm
Feed regulation	: by Push-button and by Regulating Eccentric for continuous adjustment of Puller
Looper moving direction	: In line with feed (lengthwise moving type)
Lubrication	: Automatic force-feed lubrication by gear pump, in combination with splash lubrication
Lubrication oil	: YAMATO SF OIL (or TERESSO 46)
Capacity of Oil Reservoir	: 1,100 cc
Installation	: Table top installation and semi-submerged type installation (using exclusive Supporting Board)

2. Installation

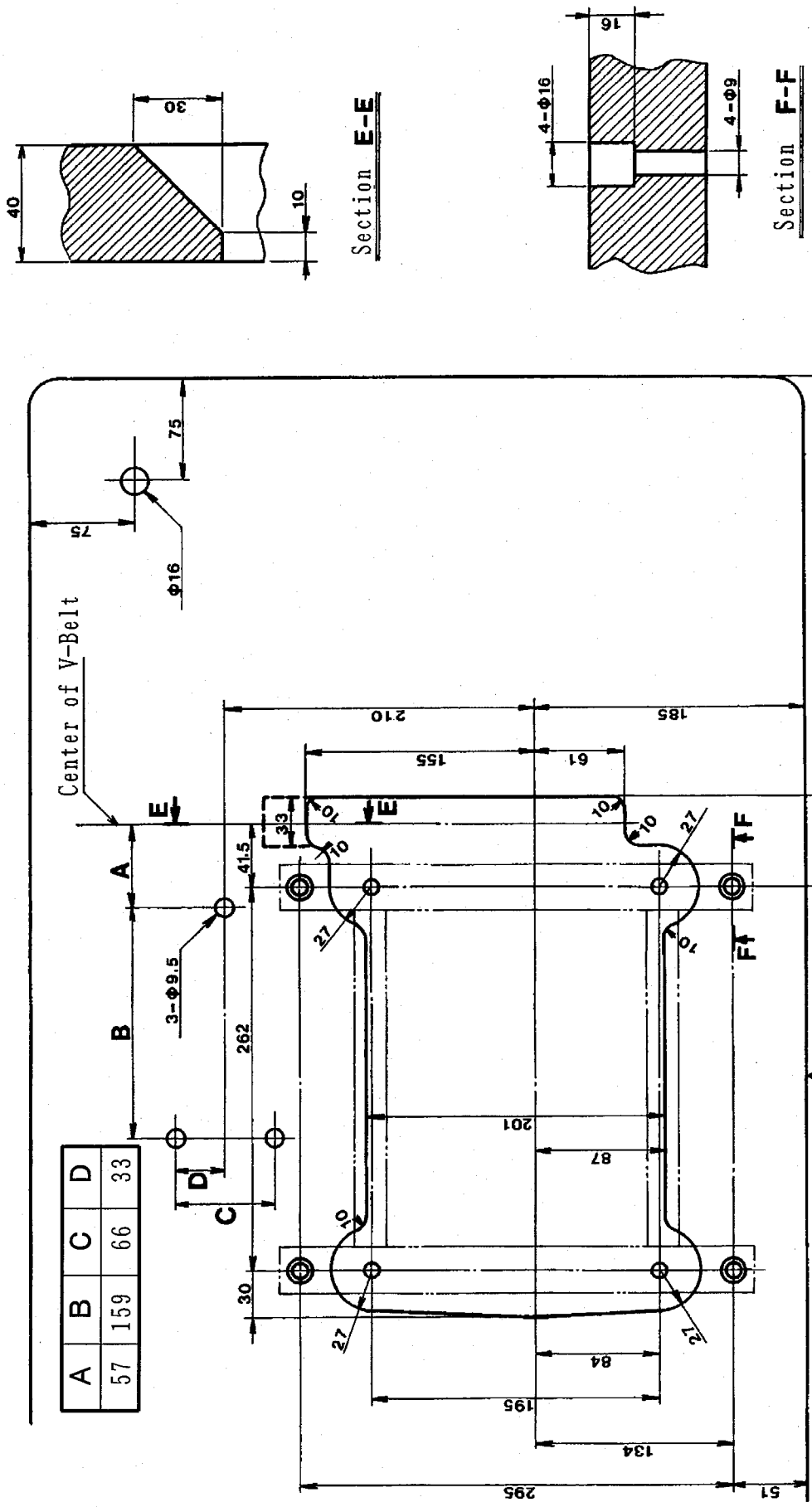
2-1 Drawing of table top cut-out

＊ Table top installation



A	B	C	D
57	159	66	33

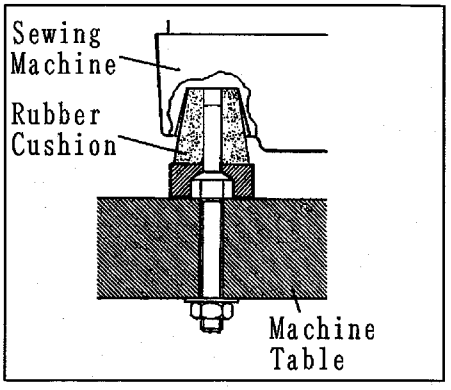
* Semi-submerged installation



A	B	C	D
57	159	66	33

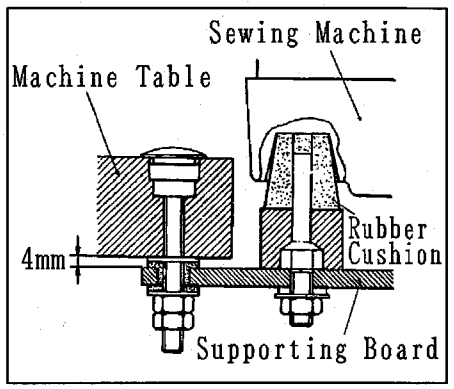
2-2 Table top installation

Install the machine correctly referring to the illustration.
Fix bolts and nuts to the table, put rubber cushions on bolts, and mount the machine securely on them.



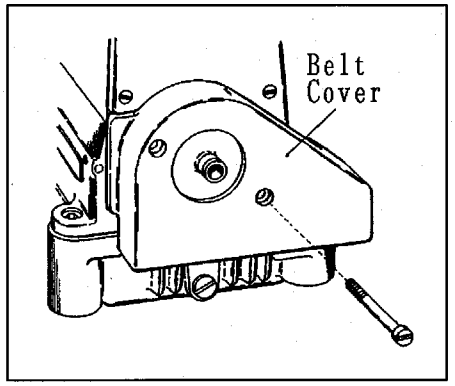
2-3 Semi-submerged installation

Install the machine correctly referring to the illustration.
Fix screws to Supporting Board, which is to be set on the table.



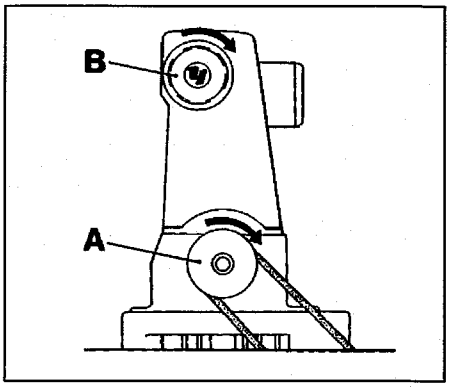
2-4 Installation of Belt Cover

Install Belt Cover as illustrated.



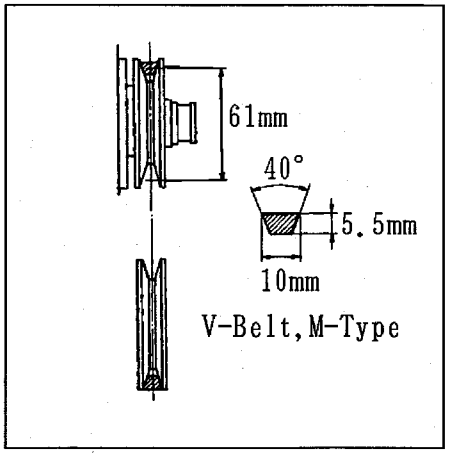
3. Sewing speed and rotating direction

The maximum sewing speed is 4,500 s.p.m. and the ordinary sewing speed is 4,000 s.p.m.
It is recommended for the durability to use a new machine at the speed of 3,500 s.p.m. for an initial 200 hours (about a month) before operate the machine at ordinary speed.
The rotating direction of Pulley(**A**) is clockwise like Handwheel(**B**) as illustrated.



4. Motor and Belt

Use a clutch motor of 3-phase, 2-pole, 400W(1/2HP) and V-belt of M-type.
When Motor Pulley is shifted to the left by treadling Pedal, position the motor so that the centers of Moter pulley and Machine Pulley align.



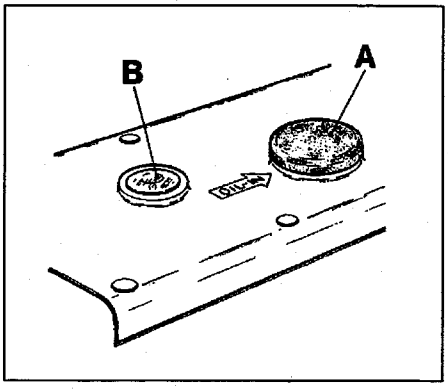
dia. of Motor Pulley(mm)	s.p.m. of Machine	
	50 Hz	60 Hz
65		3,500 s.p.m.
75		4,000 s.p.m.
80	3,500 s.p.m.	
85		4,500 s.p.m.
90	4,000 s.p.m.	
100	4,500 s.p.m.	

※ Diameter of ready-made pulley available on general market is intervals of 5 mm, the diameters shown above are the nearest to the calculated value.

5. Lubrication oil

5-1 Lubrication oil

Use YAMATO SF OIL for lubrication.

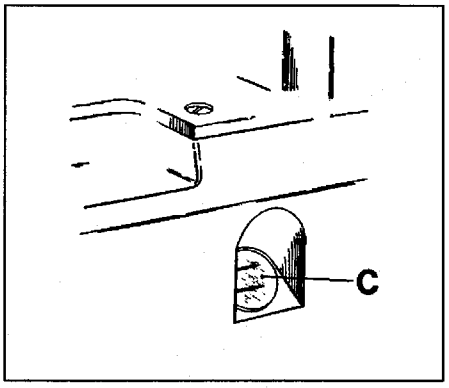


5-2 Feeding of oil

As the machine is completely drained before shipment, remove rubber Top Cover Seal Plug(A) indicated by a mark "OIL-IN" and replenish oil up to the upper line of Oil Sight Gauge(C) before operation of the machine without fail.

5-3 Oil Sight Gauge and Nozzle

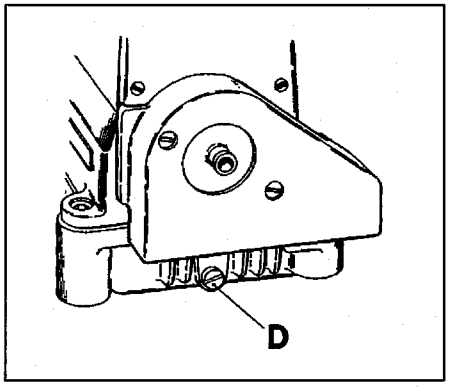
Check Oil Sight Gauge(C) before operation of the machine every day. If the oil level is below two lines of Oil Sight Gauge, feed oil.
Make sure that oil flows out of Nozzle(B) before operating the machine.



5-4 Oil change

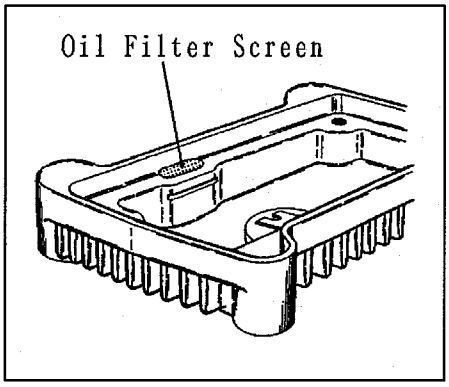
To ensure the long life of machine, change lubrication oil completely after operating new machine for 250 hour.
Oil change should be made following next procedure:

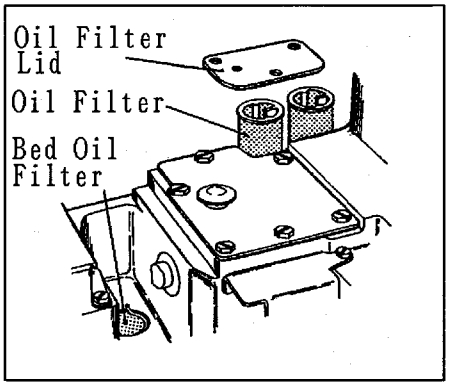
① Remove V-Belt from Motor Pulley then remove the machine from Supporting Board.
② Remove Drain Screw(D) and drain oil. At this time, take care not to smear V-Belt with oil.
③ Tighten Screw(D) after draining without fail.
④ When replenishing oil, refer to "**5-2 Feeding of oil**".



5-5 Cleaning of Oil Filter and Oil Filter Screen

Several times a year, at the time of oil change, remove Oil Reservoir and clean Oil Filter and Oil Filter Screen. To remove Oil Reservoir, remove 4 screws of Oil Reservoir after draining. Clean Oil Filter by removing Oil Filter Lid.
Also clean Oil Filter Screen by opening Front Cover.



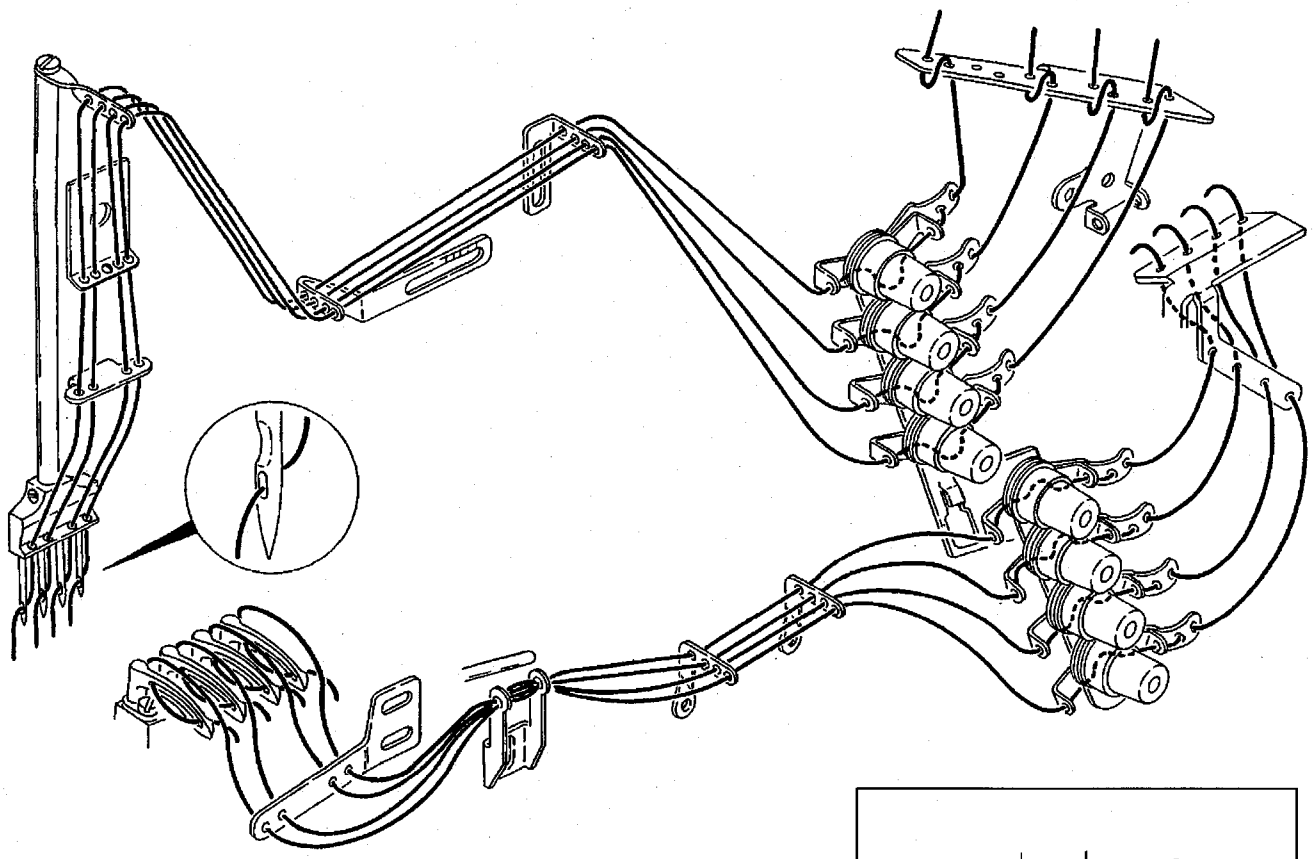


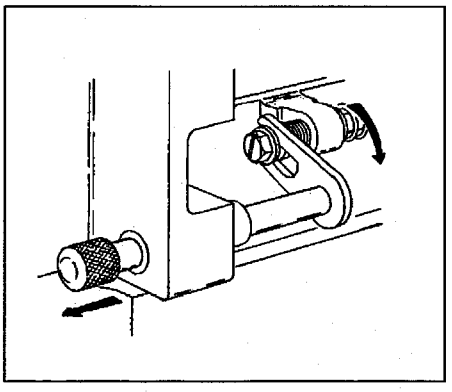
6. Adjustment of sewing machine

6-1 Threading

Make correct threading referring to the illustration. Mis-threading will cause skip-stitch, thread-breakage and unstable thread tension.

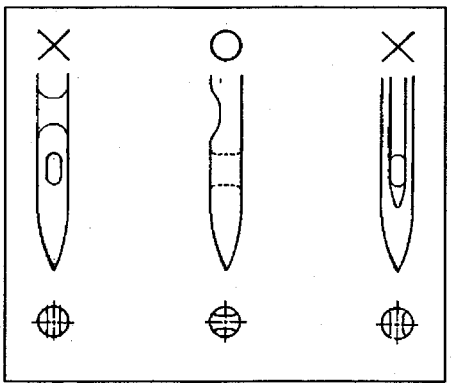
* Threading for looper thread
  With needles at the uppermost position, pull the knob to the arrow direction, and Looper Frame brings down to the operators side enabling easy threading.





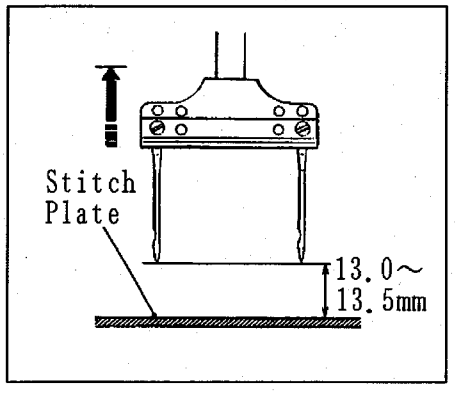
6-2 Setting needle

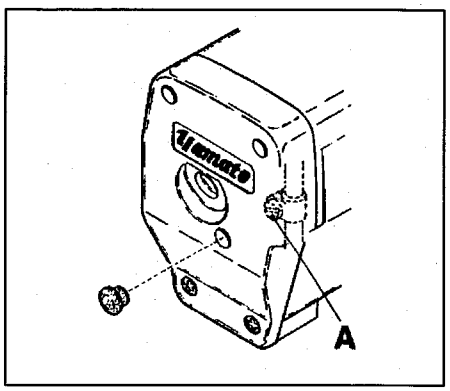
As this is the model with the mechanism of looper moving in line with feed, needle must be set facing correctly to the right.
Incorrect setting of needle will cause not only skip-stitch and thread-breakage but also such troubles as breakage of looper.



6-3 Height of needle

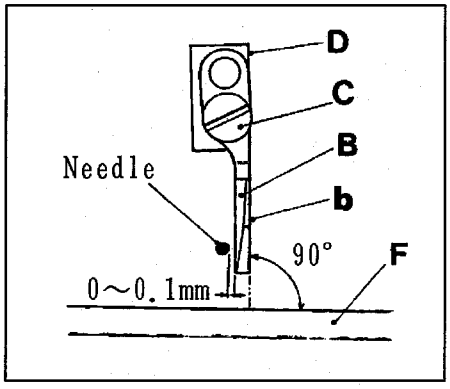
With needle uppermost position, adjust the height of needle tip 13.0～13.5mm above the surface of Stitch Plate. The adjustment is made by loosening Screw (A) of Needle Bar Bracket and moving Needle Bar up and down.

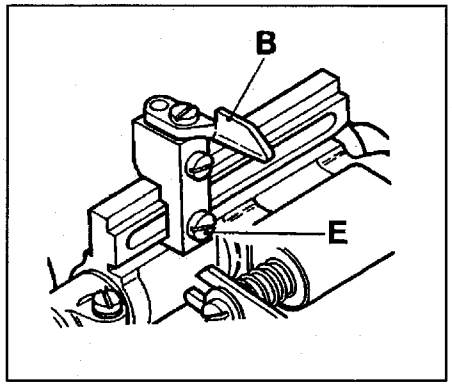




6-4 Needle and Needle Guard

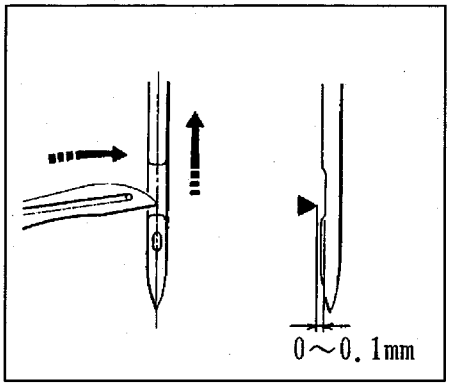
Make surface(D) of Looper Holder even with the surface(b) of Needle Guard.
The adjustment is made by loosening Screw(C).
When the above setting is made, Needle guard is fixed at right angle(90°) against Retainer Holder(F).
With needle at the lowermost position, provide a clearance of 0～0.1mm between needle and Needle Guard(B).
The adjustment is made by loosening Screw(E) and moving Looper Holder.

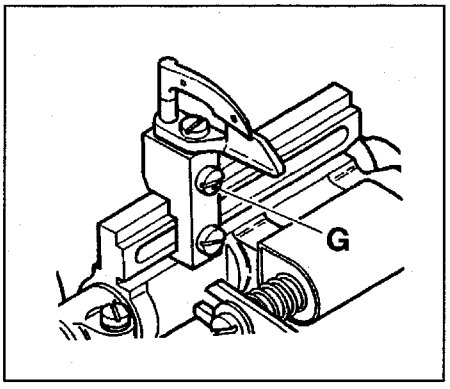




6-5 Setting position of Looper

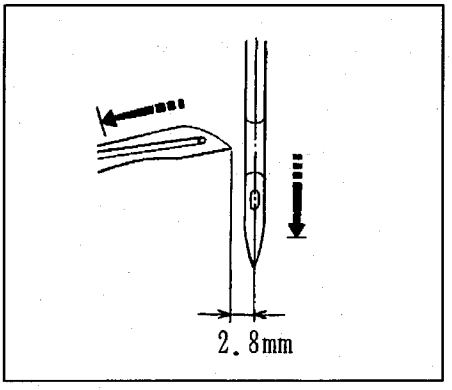
Insert Looper all the way into Looper Holder and tighten Screw(G) tentatively. When needle rises from the lowermost position until the tip of Looper comes to the center of needle, the tip of Looper should be as close as possible to the scarf of needle (about 0～0.1mm). After the adjustment, tighten Screw(G) securely.

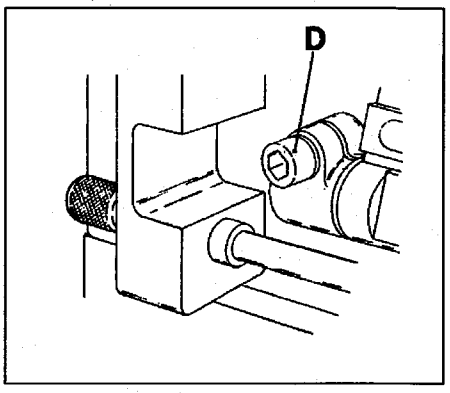




6-6 Moving amount of Looper to the right

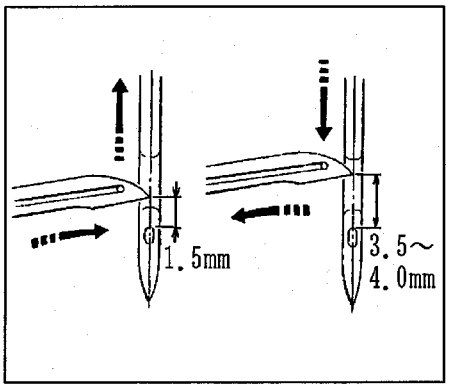
With needle at the lowermost position, the distance between the tip of Looper and the center of needle is 2.8mm.
The adjustment is made by loosening Screw(D) of Looper Driving Lever.

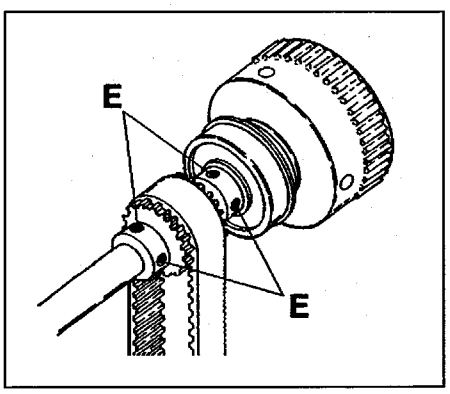




6-7 Timing between needle and Looper

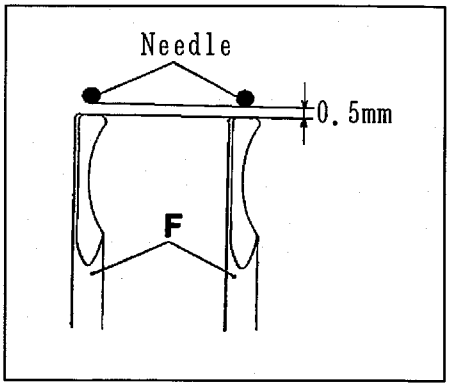
When the tip of Looper reaches to the center of needle after needle rises from the lowermost position, Looper must pass 1.5～2.0mm above the upper end of needle eye. And when the tip of Looper reaches to the center of needle after the needle lowered from the uppermost position, the tip of Looper must pass above 3.5～4.0mm above the upper end of needle eye. That is the standard timing between needle and Looper.
The adjustment is made by removing Top Cover and loosening Screws(4 pcs.) of Belt Pulley.



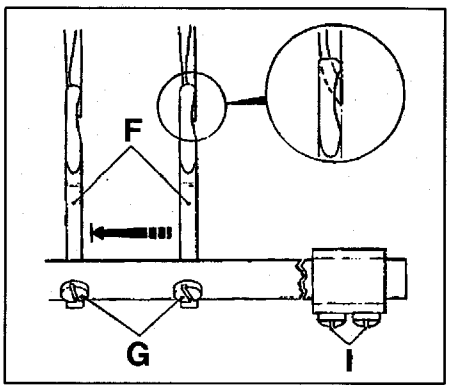


6-8 Setting position of Retainer

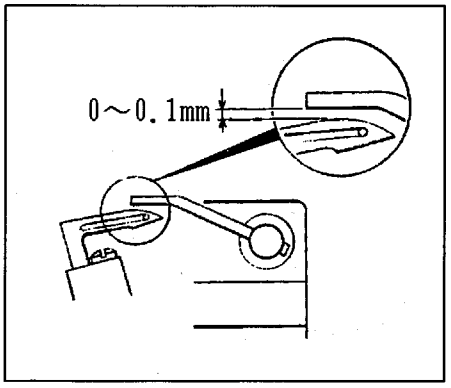
* Longitudinal position of Retainer
  With Needle at the lowermost position, confirming the parallelism of Retainers(F), provide a clearance of 0.5mm between needle and Retainers(F). The adjustment is made by loosening Screw(G).
  Note: When sewing heavy materials like jeans and corduroy, bring Retainers(F) as close as possible to needle. In this case, the clearance between Needle and Retainer should be 0.2～0.5mm.
  The adjustment is made by loosening Screw(G).

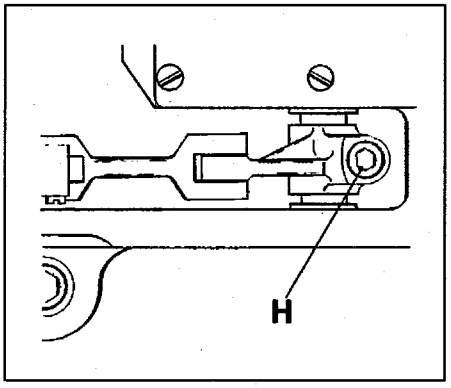


* Lateral position of Retainer
  When Retainer shifts all the way to the left, the right surface of Retainer must be even with the right surface of Looper .
  The adjustment is made by loosening Screw(H) of Retainer.

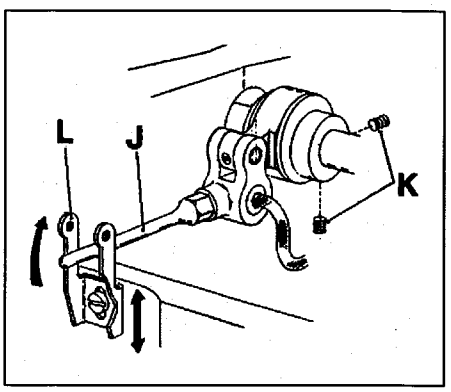


* Height of Retainer
  When upper surface of Looper comes closest to the under surface of Retainer within its movement range, make the two surfaces as close as possible without touch (about 0～0.1mm). The adjustment is made by loosening Screw(I) of Retainer Holder.





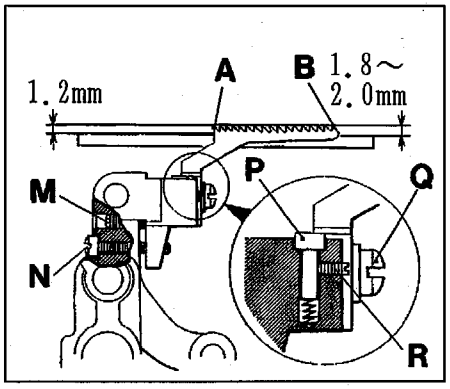
6-9 Timing of Looper Thread Take-up



At the time when Retainer Holder start to move to the left from its extreme right position, Looper Thread Take-up(J) must start to rise from the lowermost position. The adjustment is made by loosening Screws(K) of Looper Thread Take-up Eccentric and turning the Eccentric.
Micro adjustment for sewing performance is made by moving Looper Thread Take-up Eyelet(L) up and down.

Note: For sewing such heavy materials as jeans and corduroy, the timing of Looper Thread Take-up(J) should be adjusted as follows: When Needle Bar is uppermost position, Looper Thread Take-up(J) must be at the lowermost position. The adjustment is made by loosening Screws(K) of Looper Thread Take-up Eccentric and turning Eccentric. At this time, set Looper Thread Take-up Eyelet(L) at the lowermost position.

6-10 Height and lateral tilt of Feed Dog



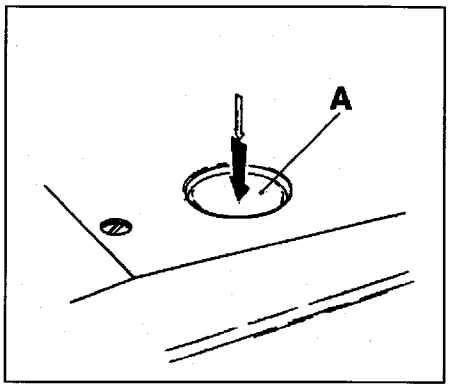
When Feed Dog rises uppermost, the surface of Feed Dog is in the condition with its front up against the surface of Stitch Plate. Adjust the height of part(A) and part(B) at 1.2mm and 1.8～2.0mm above Stitch Plate respectively.
Adjustment of tilt of Feed Dog is made by two Screws(M) and (N) at the rear of Feed Dog Holder. After loosening Screw(M), turn Screw(N) to the right to make front down, and turn it to the left to make front up. After adjustment, tighten Screw(M) without fail.
For the adjustment of lateral tilt of Feed Dog, there are Pins(D) on the left and right sides of Feed Dog Support.
Adjust the height of Pins(P) by loosening Screw (Q) of Feed Dog and Screws(R) of Pins(P).

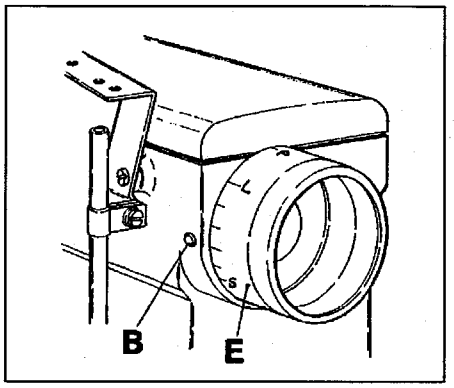
Note: If Screw(R) is loosened while Feed Dog is removed, Pin(P) will springs out.

6-11 Adjustment of stitch length

Stitch length is adjustable continuously from 1.4mm to 3.6mm.
The table below shows the stitch length by stitch number per inch (25.4mm) and per 30mm.

stitch length (mm)	stitch number (per inch)	stitch number (per 30mm)
3.6	7	8
2.5	10	12
2.0	13	15
1.4	16	21

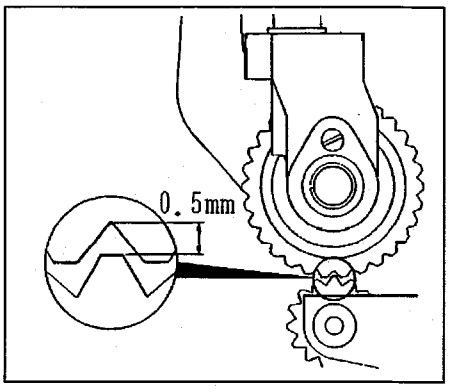




* Change of stitch length
  Press Feed Regulation Push-button(**A**) lightly with left hand and till its tip contact inside part. Keeping pressing the Button lightly, turn Handwheel until the Button falls in, there, press the Button strongly once again and turn Handwheel.
  When bringing graduation "L" closer to Mark(**B**) by turning Handwheel to the left, the stitch length becomes longer. At the graduation "L", the stitch length is 3.6mm.
  When bringing graduation "S" closer to Mark(**B**) by turning Handwheel to the right, the stitch length becomes shorter. At the graduation "S", the stitch length is 1.4mm.
  Even at the same graduation, there may be some difference in the stitch length according to the kind and thickness of materials to be sewn and the amount of differential. In this case, re-adjust the stitch length by turning Handwheel to the proper position.
  Note: When changing stitch length, Motor Switch must be in "OFF" position.

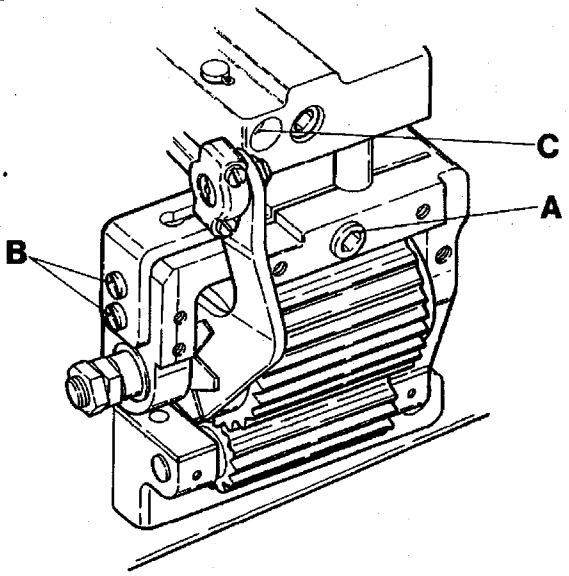
7. Adjustment of Puller Mechanism

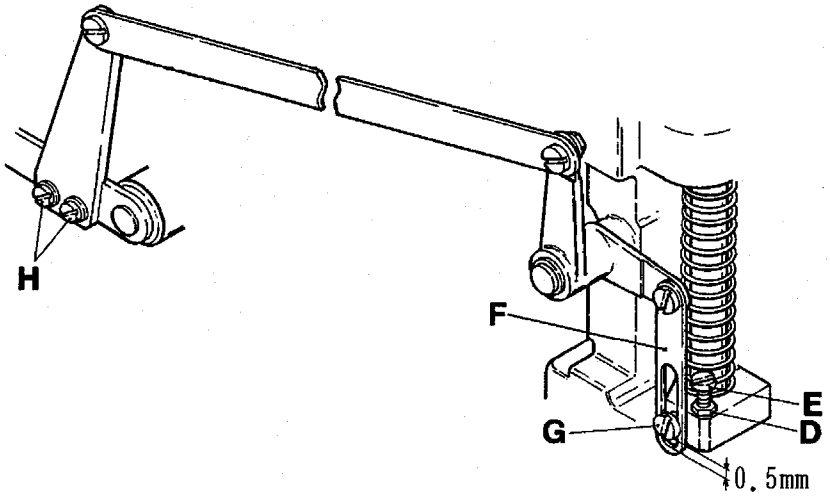
7-1 Position of Upper Feed Roller



The teeth parts of Upper and Lower Feed Roller must be parallel, and provide a clearance of about 0.5mm between Upper and Lower Feed Rollers when Upper Feed Roller lowers. That is the standard adjustment.

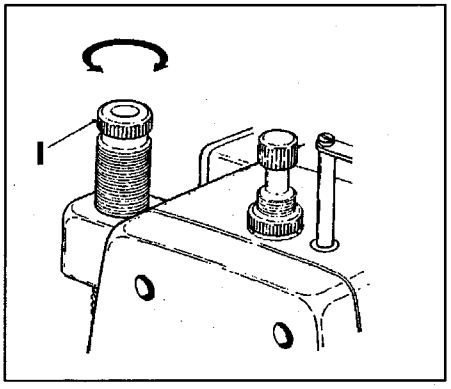
* Adjust so that the teeth parts of Upper Feed Roller and Lower Feed Roller is parallel. The adjustment is made by loosening Screw(A), Screw (B) of Upper Feed Roller Yoke and Screw(C) of Upper Feed Feed Roller Yoke Pin.
  After fixing the position by Screw(A) and (B), make sure that Upper Feed Roller moves smoothly up and down, then tighten Screw(C).
* Adjust to provide a clearance of about 0.5mm between Upper and Lower Feed Roller when Upper Feed Roller lowers. The adjustment is made with Adjusting Screw(E) after loosening Nut(D). Proper clearance should be selected according to the thickness of materials to be sewn.
* Adjust to provide a clearance of 0.5mm between the end of slot of Lifter Connecting Plate(F) and Screw(G) when Presser Foot is on the surface of Stitch Plate.
  The adjustment is made by loosening Screw(H) of Upper Feed Roller Lifter(Right).





7-2 Pressure of Upper Feed Roller

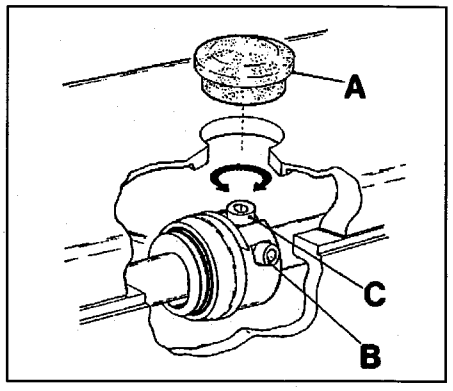
Adjust the pressure to minimum necessary for feeding fabric between Upper and Lower Feed Rollers.
To strengthen the pressure, turn Adjusting Screw(I) clockwise, and to weaken, turn it counterclockwise.

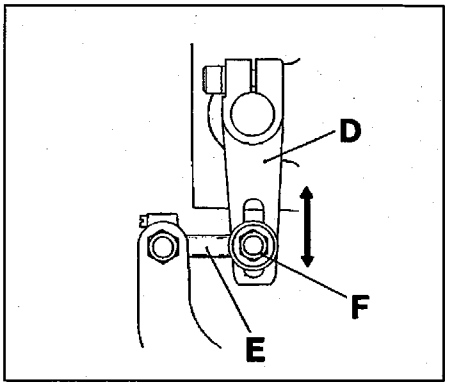


7-3 Adjustment of feed amount of Puller

Adjustment of feed amount is made according to the following procedure:

① Remove Seal Plug(A) of Top Cover.
② Turn Handwheel until Screw(B) of Regulating Eccentric appears at the window, and loosen Screw(B).
③ Turn Handwheel until Adjusting Screw(C) appears at the window.
④ To increase feed amount of Puller, turn Adjusting Screw(C) counterclockwise, and to decrease turn it clockwise.
⑤ Tighten Screw(B) of Regulating Eccentric.
For tightening, use the attached screwdriver with hexagonal key wrench. (Tightening torque is 25kgf·cm.)
For micro-adjustment of feed amount, loosen Nut(F) of Upper Feed Roller Lever Rod(E) which is fixed on Upper Roller Lever(D), and move the Rod(E) upward to decrease feed amount, and downward to increase.
Note: Feed oil to two Oil Hole of Upper Feed Roller Lever(E) Rod before operation.

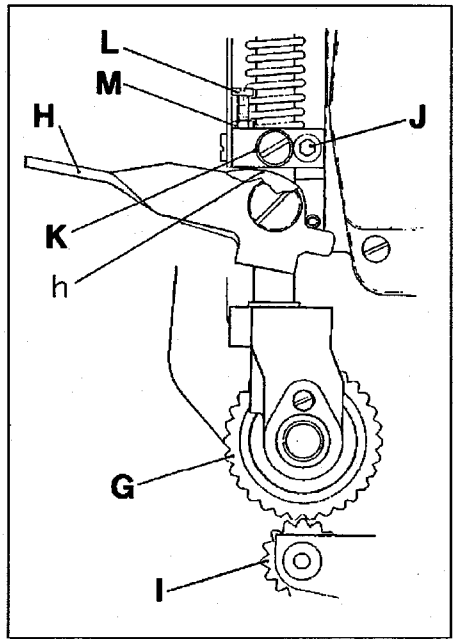


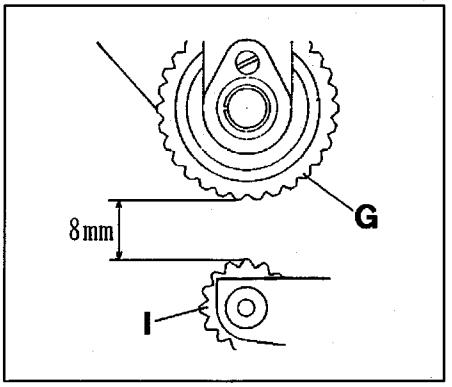


7-4 Adjustment of lift of Upper Feed Roller

At the shipment, Upper Feed Roller(G) is adjusted to be lifted 8mm above the circumference of Lower Feed Roller(I) when Upper Feed Roller Lifting Lever (H) is pulled forward.
For the re-adjustment of lift of Upper Feed Roller, follow the next procedure:

① Bring down Upper Feed Roller Lifting Lever(H) backward.
② Loosen Screw(J) of Roller Press Bar Bracket.
③ Engage teeth of Upper Feed Roller(G) and Lower Feed Roller(I) with a little clearance between them.
(Clearance should be changed according to the thickness of materials to be sewn.)
④ With Screw(J), fix tentatively Lifting Lever Sleeve(K) which is attached to Roller Press Bar Bracket to the part(h) of the Cam with a little clearance.
⑤ Turn Upper Roller Stopper Screw(L), and applying it lightly to Arm, tighten Lock Nut(M).
⑥ Make sure that Upper Feed Roller(G) is 8mm above the circumference of Lower Feed Roller(I) when it is raised by pulling Upper Feed Roller Lifting Lever(H) forward.
Then tighten Screw(J).

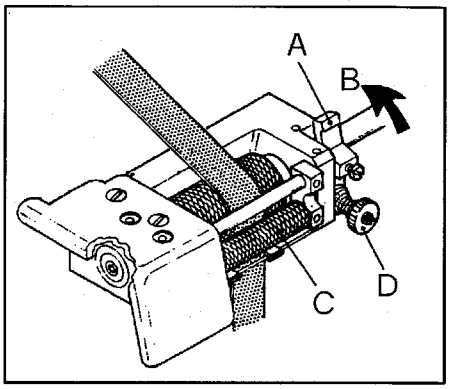




8. VM1804P-□□□-003

8-1 Inserting elastic tape

Press Tension Spring Holder(A) in the direction of arrow(B) to open Roller.
Insert elastic tape between Rollers.

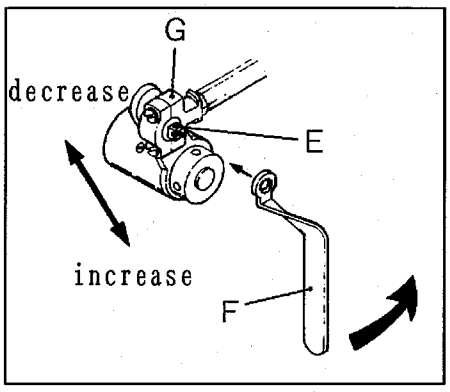


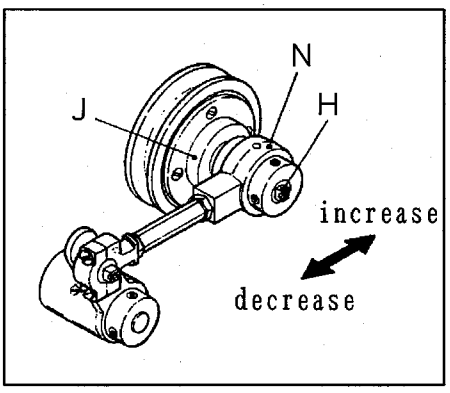
8-2 Adjusting pressure of Tension Roller

To increase pressure of Tension Roller(Small)(C), turn Adjusting Nut(D) clockwise.
To decrease, turn (D) counterclockwise.
Note: Too strong pressure may cause uneven feed.
Proper pressure is as weak as possible.

8-3 Feed amount of elastic tape

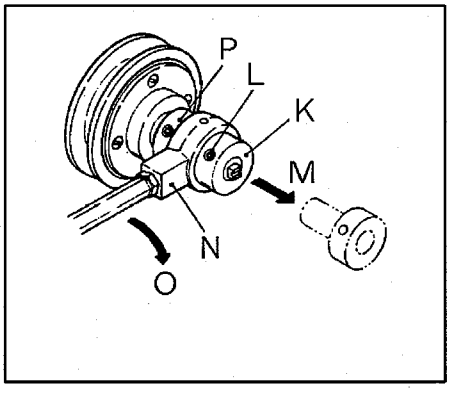
For adjusting feed amount of elastic tape, install Box Wrench(F) to the tip(E) of Adjusting Ball Stud. And, turn it counterclockwise to loosen and then move Rod(G) up and down. To decrease, move (G) up. To increase, move (G) down. After adjustment, tighten (F). If the above adjustment is not enough, install (F) to the tip(H) of Driving Rod Shaft. And then, turn it counterclockwise to loosen and move Rod(N). To decrease, move (N) toward the center of Clutch Driving Eccentric (J). To increase, move (N) away from the center.





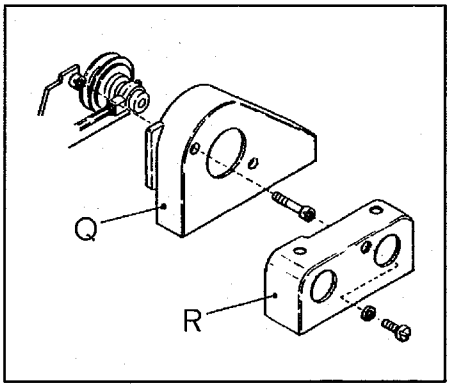
8-4 Setting Belt

Loosen Screw(L) to remove Bearing Holder(K).
Remove (K) in the direction of arrow(M).
Move Rod(N) in the direction of arrow(O) and remove (N).
Set Belt to Pulley.
Note: Do not move Collar(P).



8-5 Fixing Belt Cover and Clutch Driving Rod Cover

Note: Be sure to set Belt prior to Belt Cover(R).
Fix Belt Cover(Q) and then fix (R).



8-6 Metering Device

8-6-1 Notes after replacement and repair

Note: IF Metering Device is improperly installed, tape may be uneven feed. In addition, any sewing troubles such as skipping stitch and needle breakage may be caused.

① When Tension Roller(Large) and Clutch are kept to be set to Sewing Machine, does Tension Roller(Large) rotate smoothly?
When it does not rotate smoothly, check hole of Tension Roller Holder and hole of Clutch are coaxial, and Clutch is not forced to be installed.

② When Clutch Mechanism is connected to Eccentric of Pulley, does Tension Roller (Large) rotate smoothly?
If Connecting Rod is not installed correctly, Tension Roller(Large) does not rotate smoothly.

③ Does Tension Roller(Small) rotate smoothly?
If Tension Roller(Small) does not rotate smoothly, tape may not be fed properly.

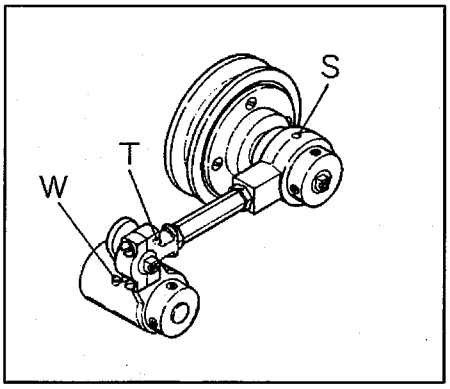
④ Do Tension Rink and its shaft rotate smoothly?

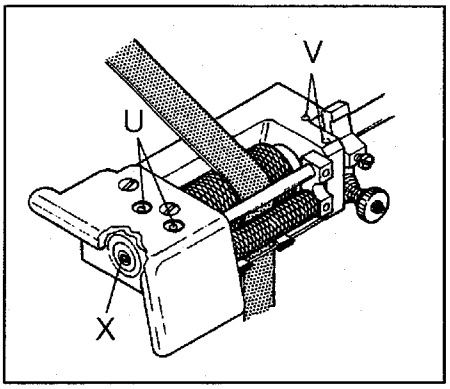
⑤ Pressure of Tension Spring of Tension Roller(Small) should be as weak as possible.

8-6-2 Lubricating

Pour a small quantity of oil into Oil Hole(**S**)(**T**) of Connecting Rod and Oil Hole(**U**)(**V**) of Tension Roller Holder.

Note: Screw(**W**) of Clutch and Screw(**X**) of Roller Shaft should be removed to fill grease twice or three times an year.

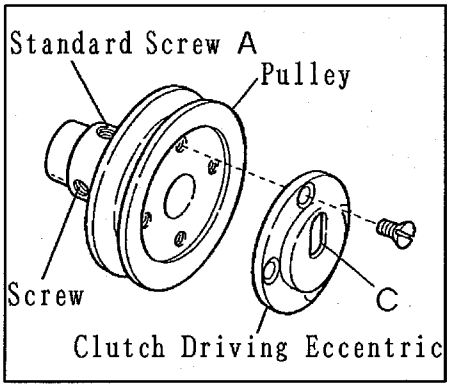




8-7 Fixing position of Clutch Driving Eccentric

Note: When removing Clutch Driving Eccentric for the purpose of repair or maintenance, be careful to the fixing position.

Align Standard Screw(**A**) of Pulley with Slot(**C**) of Clutch Driving Eccentric.



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