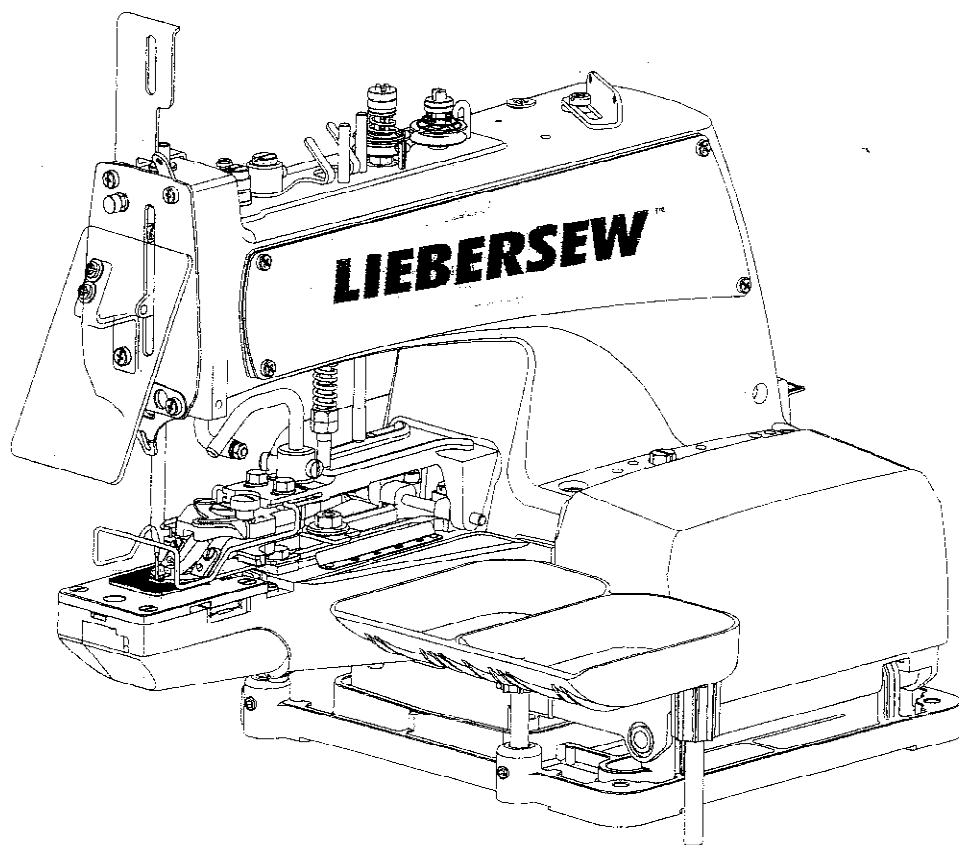


Single Thread, Chainstitch Button Attaching Machine
CMB-373NC



INSTRUCTION MANUAL
PARTS LIST



NOTE: Carefully read and understand all safety instructions before beginning use of this machine.
Retain this Instruction Manual for future reference.

373000
NO.070802-1

FOR SAFE OPERATION

	<p>1. To avoid electrical shock hazards, neither open the cover of the electrical box for the motor nor touch the components mounted inside the electrical box.</p>
	<p>1. To avoid personal injury, never operate the machine with any of the belt cover, finger guard, eye protection cover or safety devices removed.</p> <p>2. To prevent possible personal injuries caused by being caught in the machine, keep your fingers, head and clothes away from the handwheel, V belt and the motor while the machine is operating. In addition, place nothing around them.</p> <p>3. To avoid personal injury, never put your hand under the needle when you turn "ON" the power switch or operate the machine.</p> <p>4. To avoid possible personal injuries, be careful not to allow your fingers to place in the machine when tilting/raising the machine head.</p> <p>5. To avoid possible accidents because of abrupt start of the machine, turn OFF the power to the machine when tilting the machine head or removing the belt cover and the V belt.</p> <p>6. To avoid electrical shock hazards, never operate the sewing machine with the ground wire for the power supply removed.</p> <p>7. To prevent possible accidents because of electric shock or damaged electrical component(s), turn OFF the power switch in prior to the connection/disconnection of the power plug.</p>

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IMPORTANT SAFETY INSTRUCTIONS

Putting sewing systems into operation is prohibited until it has been ascertained that the sewing systems in which these sewing machines will be built into, have conformed with the safety regulations in your country. Technical service for those sewing systems is also prohibited.

1. Observe the basic safety measures, including, but not limited to the following ones, whenever you use the machine.
2. Read all the instructions, including, but not limited to this instruction Manual before you use the machine. In addition, keep this Instruction Manual so that you may read it at anytime when necessary.
3. Use the machine after it has been ascertained that it conforms with safety rules/standards valid in your country.
4. All safety devices must be in position when the machine is ready for work or in operation. The operation without the specified safety devices is not allowed.
5. This machine shall be operated by appropriately-trained operators.
6. For your personal protection, we recommend that you wear safety glasses.
7. For the following, turn off the power switch or disconnect the power plug of the machine from the receptacle.
 - 7-1 For threading needle(s), looper, spreader etc. and replacing bobbin.
 - 7-2 For replacing part(s) of needle, presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, cloth guide etc.
 - 7-3 For repair work.
 - 7-4 When leaving the working place or when the working place is unattended.
 - 7-5 When using clutch motors without applying brake, it has to be waited until the motor stopped totally.
8. If you should allow oil, grease, etc. used with the machine and devices to come in contact with your eyes or skin or swallow any of such liquid by mistake, immediately wash the contacted areas and consult a medical doctor.

9. Tampering with the live parts and devices, regardless of whether the machine is powered, is prohibited.
10. Repair, remodeling and adjustment works must only be done by appropriately trained technicians or specially skilled personnel. Only spare parts designated by us can be used for repairs.
11. General maintenance and inspection works have to be done by appropriately trained personnel.
12. Repair and maintenance works of electrical components shall be conducted by qualified electric technicians or under the audit and guidance of specially skilled personnel. Whenever you find a failure of any of electrical components, immediately stop the machine.
13. Before making repair and maintenance works on the machine equipped with pneumatic parts such as an air cylinder, the air compressor has to be detached from the machine and the compressed air supply has to be cut off. Existing residual air pressure after disconnecting the air compressor from the machine has to be expelled. Exceptions to this are only adjustments and performance checks done by appropriately trained technicians or specially skilled personnel.
14. Periodically clean the machine throughout the period of use.

15. Grounding the machine is always necessary for the normal operation of the machine. The machine has to be operated in an environment that is free from strong noise sources such as high-frequency welder.
16. An appropriate power plug has to be attached to the machine by electric technicians. Power plug has to be connected to a grounded receptacle.

17. The machine is only allowed to be used for the purpose intended. Other uses are not allowed.
18. Remodel or modify the machine in accordance with the safety rules/standards while taking all the effective safety measures. Assumes no responsibility for damage caused by remodeling or modification of the machine.

19. Warning hints are marked with the two shown symbols.



Danger of injury to operator or service staff

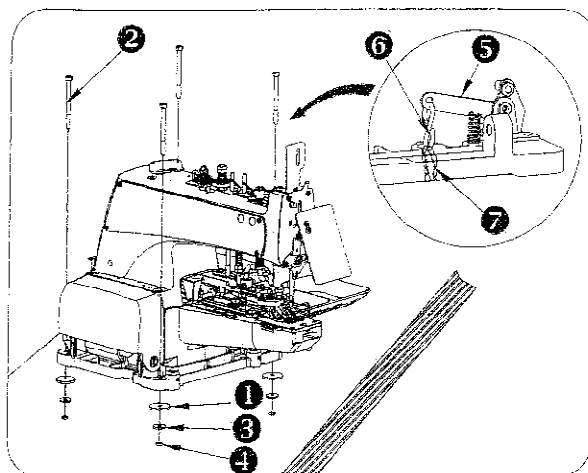


Items requiring special attention

1. SPECIFICATIONS

CMB-373NC	
Sewing speed	Max. 1,500 rpm (Normal 1,300 rpm)
Number of stitches	8, 16 and 32 stitches (6, 12 and 24 by changing the cam)
Feed amount	Lateral feed 2.5 to 6.5 mm Longitudinal feed 0, 2.5 to 6.5 mm
Button size	10 to 28 mm
Needle used	TQx1 #16 (#14 to #18) TQx7 #16 (#14 to #20)
Lubricating oil	New Defrix Oil No. 1

2. INSTALLATION OF MACHINE HEAD



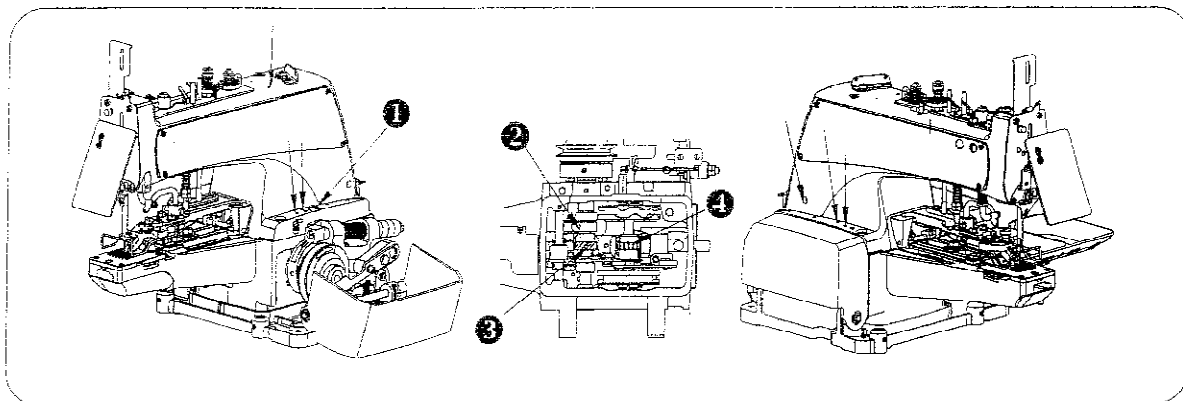
Put rubber cushion **1** on the table, place the machine head on the rubber cushion and fix it to the table using screws **2**, plain washers **3** and nuts **4**. Attach "S" chain hook **6** and chain **7** to stop motion trip lever **5**.

3. LUBRICATION



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



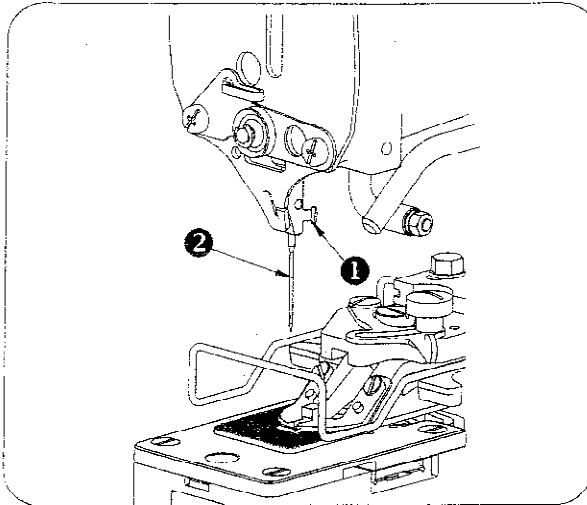
1. Apply New Defrix Oil No.1 to the components shown by the arrows.
(Once or twice a week)
2. Loosen clamping screw **1**, tilt the head backward and apply some grease to driving worm gear **4** and gear **3**.
3. Check, approximately once a week, that oil amount is sufficient to reach the top of oil felt placed inside the head mounting base. If the amount of oil is insufficient, add an adequate amount of oil. At this time, also apply oil to crank rod **2**.

4. ATTACHING THE NEEDLE



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



★ Use a standard needle of TQx7 #16.

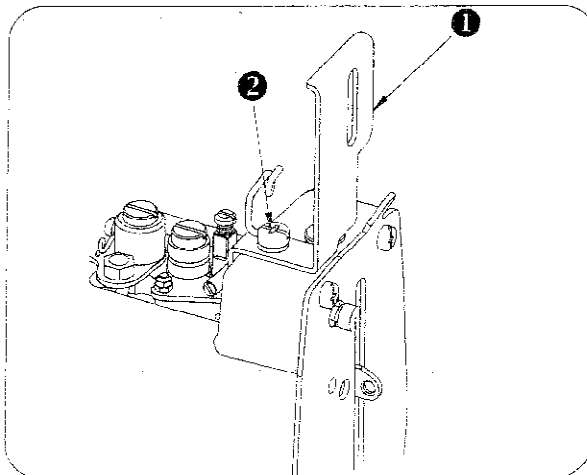
1. Loosen screw **1**.
2. Insert needle **2** up into the needle hole in the needle bar until it comes in contact with the deepest end of the needle hole.
3. Tighten screw **1** firmly.

5. ATTACHING THE NEEDLE BAR GUARD



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

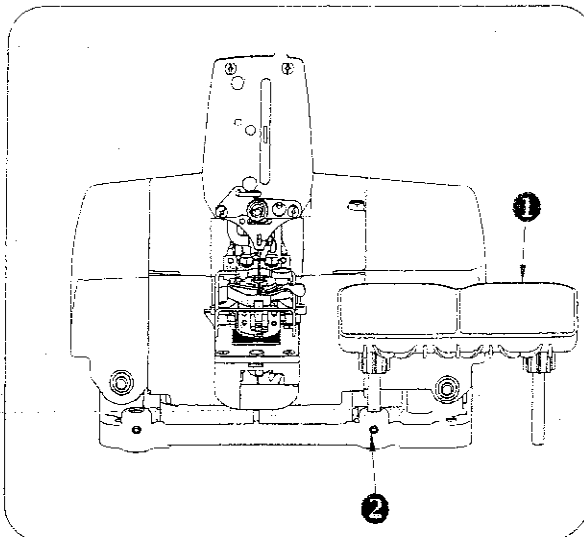


1. Loosen screw **2** and remove the thread guide No. 2.
2. Place needle bar guard **1** under the thread guide No. 2.
3. Fix the thread guide No. 2 and needle bar guard **1** together using screw **2**.



If your machine has a wiper magnet, attach the needle bar guard onto the wiper magnet base.

6. ATTACHING THE BUTTON TRAY ASSEMBLY



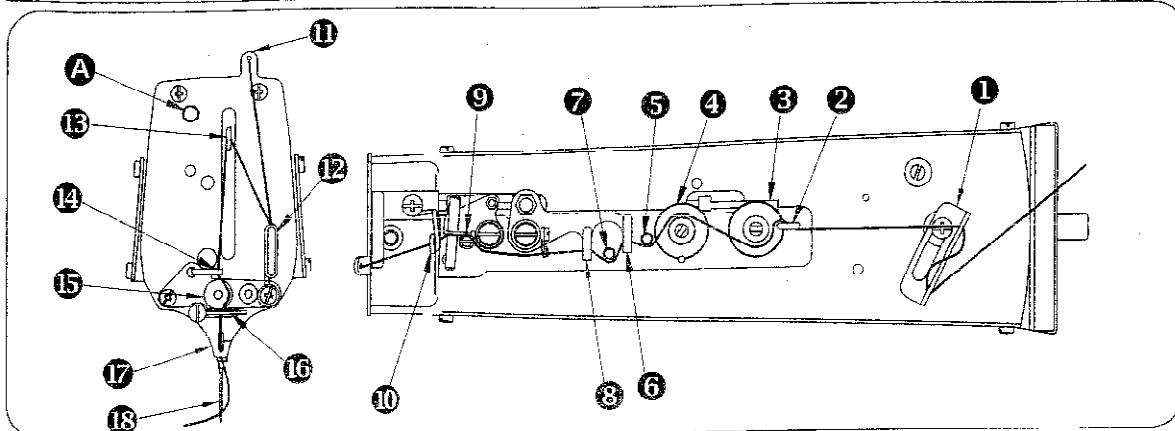
- Insert the posts of button tray **1** in hole on the right of the machine sub-base and tighten each setscrew **2**. You may use also the installation hole on the left if the operator wants.

7.THREADING THE MACHINE



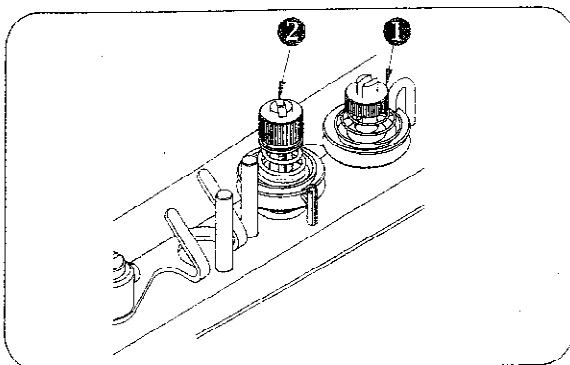
WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



Thread the machine in the order of ① to ⑱ as illustrated and pass the thread through the needle eye from the front for 60 to 70 mm as you depress nipper releasing knurled thumb nut **A**.

8.THREAD TENSION ADJUSTMENT



Tension post No.1 ① is used to adjust the thread tension to sew on the button and a relatively low tension will be enough. Tension post No.2 ② is used to adjust the thread tension applied to the root of the button sewing stitches.

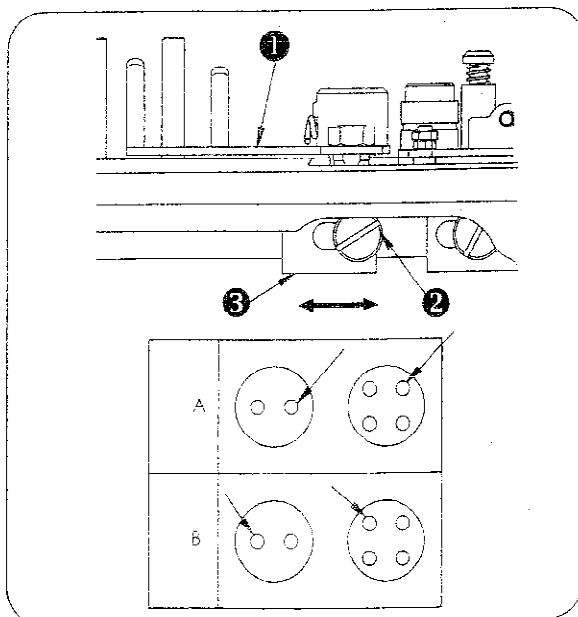
This tension must be determined according to the type of thread, fabric and thickness of the button and must be higher than that of tension post No.1 ①. Turn the tension nuts clockwise to increase or counter clockwise to reduce the thread tension.

9.ADJUSTMENT OF THE THREAD PULL-OFF LEVER



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



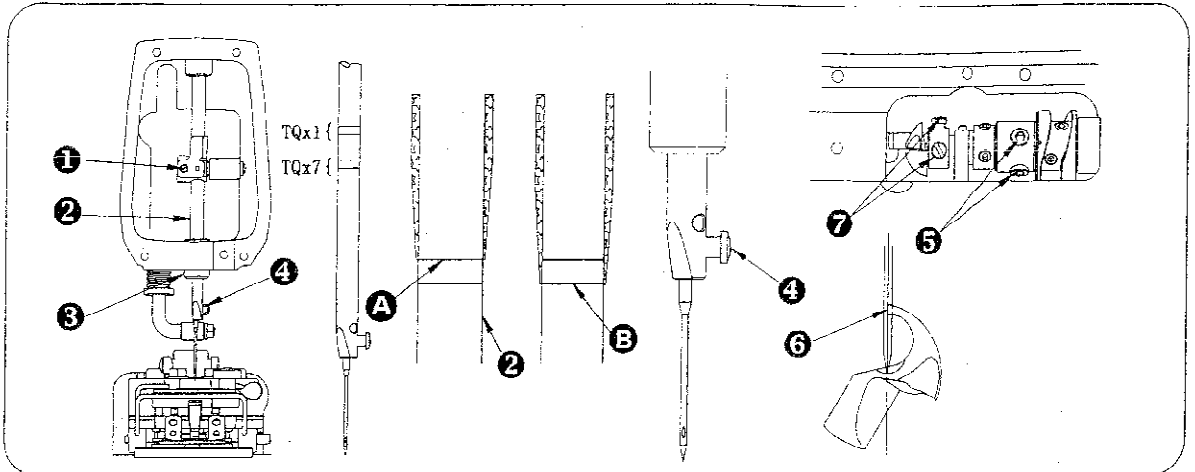
To adjust the thread pull-off lever ①, insert a screwdriver through an opening in the machine arm side cover(left), loosen screw ② and adjust the position of nipper bar block(rear) ③ to the left or the right. If the end of thread is drawn from arrow hole A in the button after sewing, change the position of nipper bar block(rear) ③ to the left. Move the lever to the right when the thread end comes out from arrow hole B.

10. NEEDLE-TO-LOOPER RELATION



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



★ Adjust the needle-to-looper relation as follows:

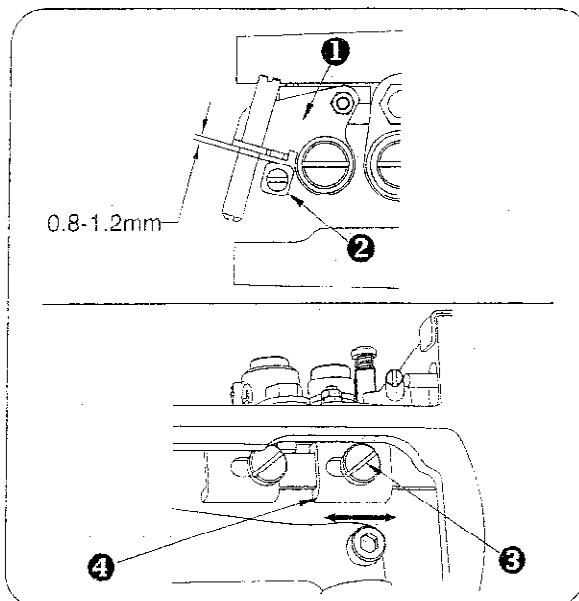
1. Depress the pedal fully forward, turn the needle driving pulley in the normal sewing direction to bring down the needle bar to the lowest point of its stroke and loosen screw **1**.
(Adjusting the needle bar height)
2. Adjust the height of the needle bar using top two lines engraved on the needle bar for the TQx1 needle and using the bottom two lines for the TQx7 needle. Align the upper line **A** with the bottom end face of needle bar bushing(lower) **3** and tighten screw **1** in the way that needle clamp screw **4** rests in the slot of the needle bar bushing(lower) **3**.
(Looper position)
3. Loosen screws **5** and turn by hand the needle driving pulley until lower line **B** of two lines aligns with the bottom end face of needle bar bushing(lower) **3**.
4. By keeping the machine in this state, align looper blade **6** with the center of the needle and tighten screws **5**.
5. Loosen screws **7** and provide a 0.01 to 0.1 mm clearance between the looper and the needle. Tighten screws **7**.

11. ADJUSTMENT OF THE NIPPER



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



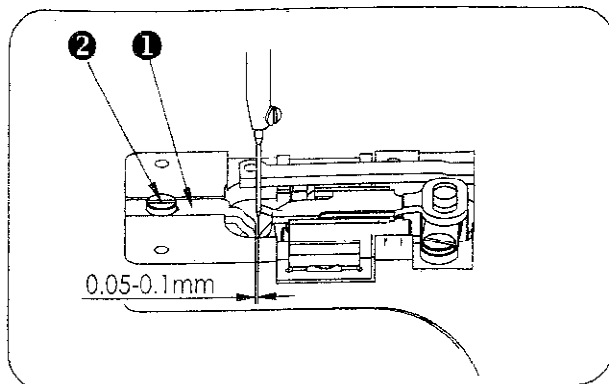
Provide a 0.8 to 1.2 mm clearance between nipper **1** and nipper block **2** to prevent the nipper from nipping the thread while stitching. Loosen screw **3** and move nipper bar block **4** to the left or the right.

12.POSITION OF THE NEEDLE GUIDE



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



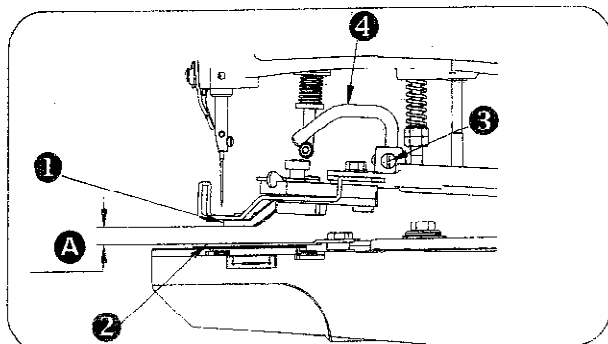
Loosen screw **2** and provide a 0.05 to 0.1 mm clearance between the needle guide **1** and the needle by moving the needle guide **1** to the left or the right when the needle is in the lowest position.

13.HEIGHT OF THE BUTTON CLAMP



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



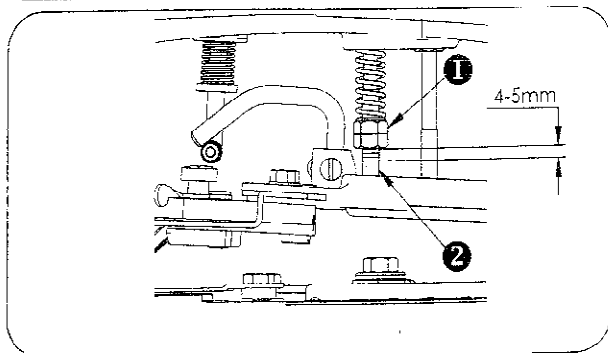
The standard clearance **A** between the bottom face of button clamp jaw lever **1** and the top face of feed plate **2** is 9 mm for CMB-373NC. Loosen screw **3** and adjust the height of button clamp lifting hook **4**.

14.WORK PRESSING FORCE



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



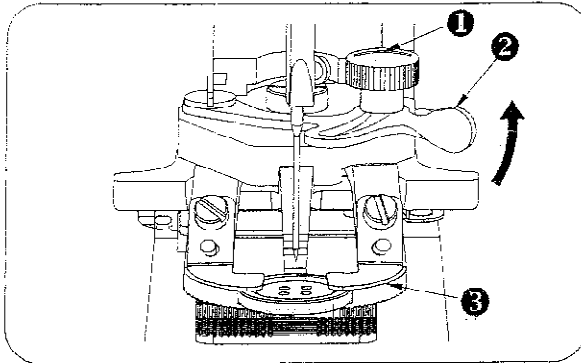
The standard work pressing force is obtained by providing a 4 to 5 mm clearance between the bottom face of nut **1** and the bottom end of the screw of pressure adjusting bar **2**.

15. ADJUSTMENT OF THE BUTTON CLAMP STOP LEVER



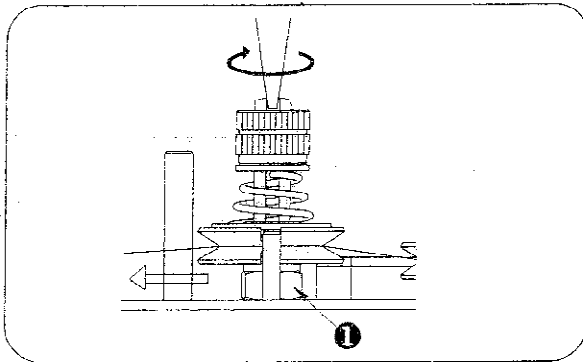
WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



Set the machine for stop-motion state, loosen clamp screw **1**, place a button correctly in the sewing position and adjust button clamp stop lever **2** to permit the button properly to rest on button clamp jaw levers **3**. Tighten clamp screw **1** after determining the distance between the left and right jaw levers **3**.

16. TIMING THREAD TENSION RELEASE



Turn the needle driving pulley as you draw the thread in the direction of the arrow as illustrated and you will find a point at which the tension disc on the tension post No.2 release the thread. At this moment, the standard distance from the top end of the needle bar to the top end of the needle bar bushing (upper) is 53 to 56 mm for CMB-373NC. Perform the following adjustments especially when the undermentioned troubles occur frequently.

Loosen nut **1**, insert the blade of a screwdriver to the top slot of tension post No.2 and turn it in the direction of the arrow to lower the needle bar, (to reduce the said distance), and vice versa.

Your adjustment is required when following troubles are frequently:

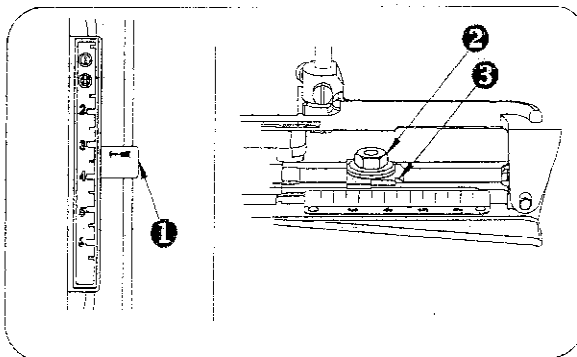
Phenomena	Height of needle bar
1. When the stitch hole on the wrong side of the workpiece is too loose.	Make the needle bar slightly higher.
2. When the thread is broken at the time of stop motion.	Make the needle bar slightly higher.
3. When the thread is broken frequently.	Make the needle bar slightly lower.

17. SETTING FOR 2-OR 4-HOLE BUTTONS



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



[In case of CMB-373]

Measure the distance between two holes in a button and set equally crosswise and lengthwise feed regulators (4-hole buttons).

★Lengthwise feed

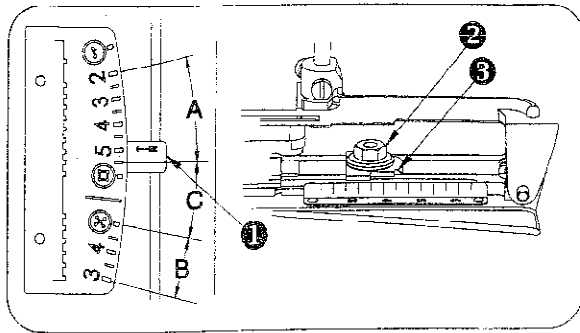
Push down lengthwise feed adjusting lever **1** and set it to "0" for 2-hole buttons or a corresponding amount for 4-hole buttons.

★Crosswise feed

Loosen nut **2** and set pointer **3** to a corresponding amount indicated by the crosswise feed regulation plate. Tighten finally nut **2**.



Before operating the machine, ensure that the needle enters the center of each hole in the button.



[In case of CMB-2378]

★ Lengthwise feed

Push down lengthwise feed adjusting lever ① and set it to "0" for -2-hole buttons or a corresponding amount for 4-hole buttons by the respective procedures below according to the sewing methods.

X stitch: Set the lengthwise feed adjusting lever to the position corresponding to the amount for the button within the range of A.

U-sharp stitch: Set the lengthwise feed adjusting lever to the position corresponding to the amount for button within the range of B.



When setting the lengthwise feed adjusting lever to the position of C (outside of range of setting the lever), not only the sewing cannot be performed but also trouble will be caused. Do not set the feed adjusting lever at the position of C.

18. SETTING A NUMBER OF STITCHES

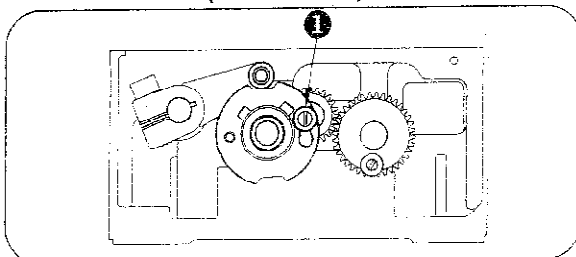


WARNING:

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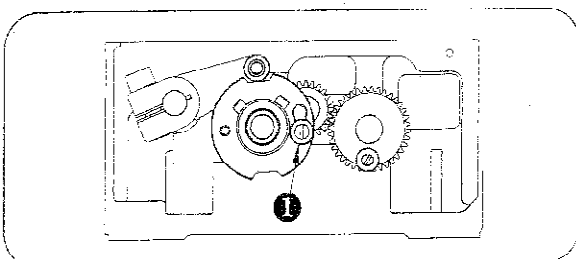
To change the number of stitches, open the left-hand side cover and change the number of stitches using stitch number adjusting knob ① and stitch number adjusting lever ④ (optional). The illustration gives the machine with the auxiliary stop device removed. The number of stitches can be changed with ease with the auxiliary stop device attached.

★ 8 stitches (6 stitches)



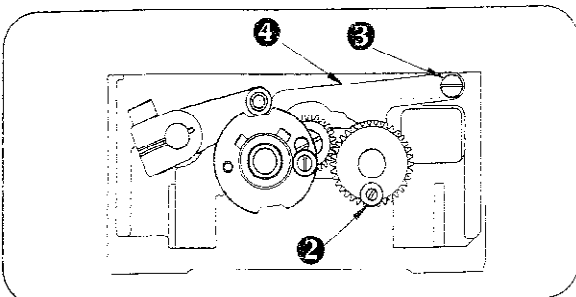
Pull stitch number adjusting cam knob ① and set it as shown in the illustration.

★ 16 stitches (12 stitches)



When stitch number adjusting cam knob ① being set for "8 stitches" has arrived at the right end as illustrated, set knob ① in the illustrated position.

★ 32 stitches (24 stitches)



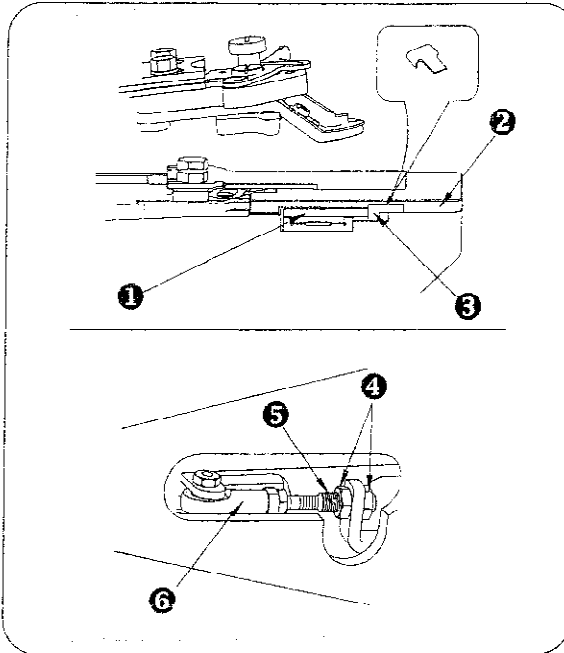
When the number of stitches is to 16, move stitch number adjusting gear roller ② to the lower position. Now, attach stitch number adjusting lever ④ (optional) in position using screw ③ (optional).

19. AUTOMATIC THREAD TRIMMER



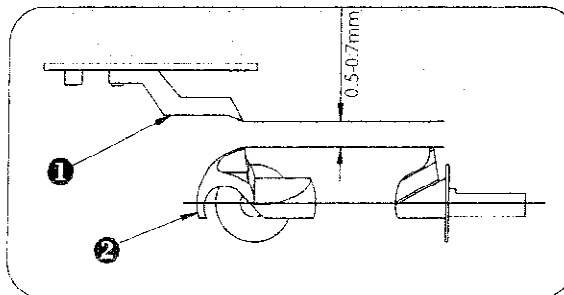
WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



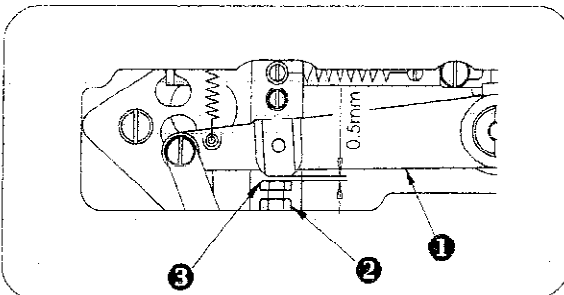
★ Position of moving knife

When the machine stops in the state of "stop motion" and its button clamp assembly rests in the highest position, there must be a standard clearance of 12.5 mm between thread trimming connecting link (front) ① and the end face of the slit in throat plate ②. This clearance is determined by gauge ③ which is stored in the accessory box; tilt the head backwards, remove the bed oil shield, loosen two nuts ④ and adjust the clearance by moving connecting screw ⑤ in the axial direction. When you tighten two nuts ④, ensure that joint ⑥ stays in the horizontal position.



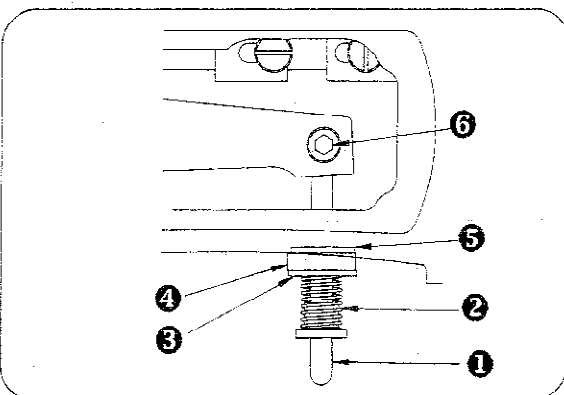
★ Height of the moving knife separation nail

There must be a 0.5 to 0.7 mm clearance between looper blade point ② and thread separation nail ①. If nail ① does not provide the necessary clearance, bend the nail slightly and adjust the clearance.



★ Clearance between the button clamp lifting lever and the adjusting screw

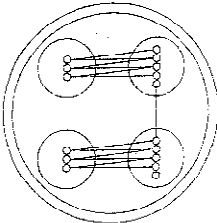
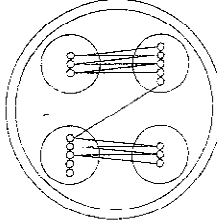
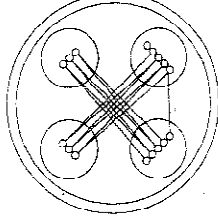
Provide a 0.5 mm clearance between button clamp lifting lever ① and adjusting screw ② and then tighten nut ③.



★ How to set the L-shaped lifting rod

Put moving knife push-back spring ②, stop-motion rubber cushion washer ③, stop-motion rubber cushion ④ and stop-motion rubber cushion washer ⑤, in this order, to L-shaped lifting rod ①. After making sure that the stop-motion mechanism has engaged completely, fix the L-shaped lifting rod by tightening screw ⑥ in the way that the end face of the stop-motion rubber cushion washer come into close contact with the jaw of the machine arm.

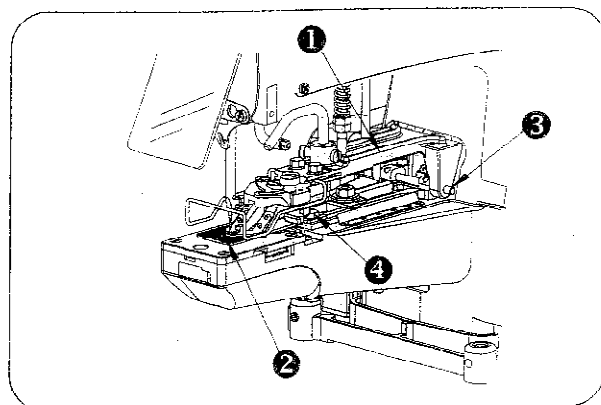
20.SUBCLASS MODELS

CMB-373NC	CMB-373NC-10	CMB-373NC-11
8, 16, 32stitches	8, 16, 32stitches	8, 16, 32stitches
		



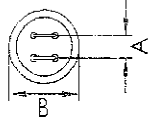
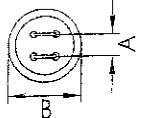
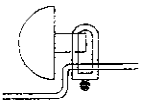
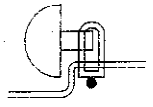
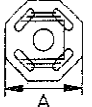
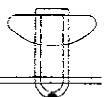
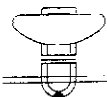
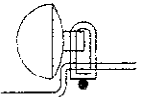
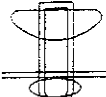

WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



In order to install the attachment on the machine, you may have to remove the button clamp mechanism **1** or feed plate **2**. Dislocate a snap ring from button clamp installing stud **3**, and you will be able to remove button clamp mechanism assembly **1**. Loosen setscrews **4**, and you can remove feed plate **2**.

21.ATTACHMENTS

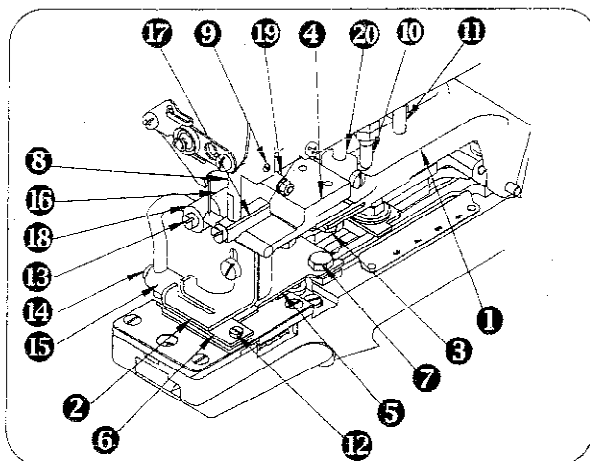
Use	Flat buttons		Shank buttons		Snaps
	Large-size	Medium-size	General	Lewis type	
CMB-373NC	Z031	Z032	Z033	Z040	Z037
Schematic drawing					
Remarks	Button size: A: 3 to 6.5mm B: $\varnothing 20$ to $\varnothing 28$ mm	Button size: A: 3 to 5mm B: $\varnothing 12$ to $\varnothing 20$ mm	Button diameter: Less than 16mm Shank size: Thickness: 6.5mm Width: 3 or 2.5mm	Button size: Same as Z033, but possible to sew buttons having some variations of shank in shape.	Snap size: A: 8mm
Use	Wrapped-around buttons		Metal buttons	Stay button	Labels
	First process	Second process	General		
CMB-373NC	Z004	Z035	Z038	Z039	Z044
Schematic drawing					
Remarks	Thread shank height: A: 3.5mm			Common to Z004	Stitch width: 3 to 6.5mm

★ Attachments for shank buttons (Pearl buttons) (Z033,Z040)



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(INSTALLATION)

Remove both the button clamp mechanism assembly and the feed plate from the machine and install attachment **1** in place. Loosen screws **3** and adjust button clamp bracket **4** to permit the needle to come down in the middle of the needle slot in shank button adaptor **2**. Attach button clamp feed plate **5** using screws **7** in the way that it permits the needle to come down in the middle of the needle slot in feed plate **6**. Insert the top end of button clamp stud **8** into an opening in the jaw of the machine arm and fasten it by screw **9**.

(When attaching Z040, you must change also button clamp pressure adjusting bar **10** and button clamp stopper pin **11** at the same time.)

(ADJUSTMENT AND OPERATION)

1. Loosen screw **12**, let feed plate **6** recede 0.5 to 1.0 mm from the left end of button clamp jaw lever **2** and retighten screw **12**.
2. Set a button in place, loosen screws **13** and **14** and align shank button holding clamp **15** with the center of the button.
3. Shank button holding clamp **15** must give proper pressure to the button so that the button stays steadily in position while being sewn. Loosen a setscrew in thrust collar **16** and rotate the thrust collar until shank button holding clamp **15** provides proper pressure.
4. You may fix button clamp block in a convenient position for operation.



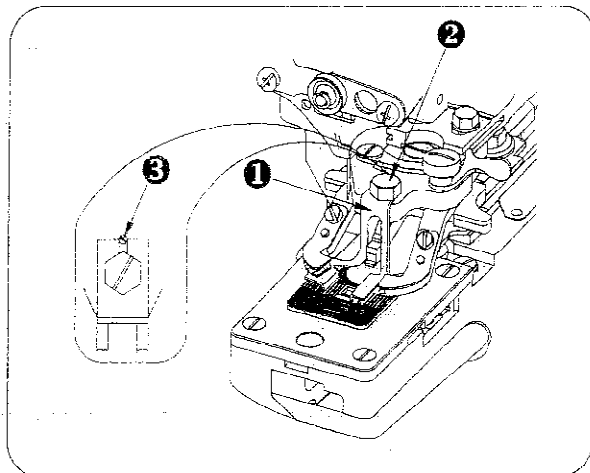
1. When you fix the thrust collar, ensure that button clamp rotating shaft **18** does not play axially in its bracket.
2. Adjust lifting hook **20** and stopper pin **11** so that L-shaped lifting rod roller **19** does not come in contact with button clamp bracket **4**.

★ Attachment for the first process of wrapped-around buttons (Z004)



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(INSTALLATION)

Attach wrapped-around button foot **1** to the ordinary button clamp jaw levers using screw **2** and guide pin screw **3**. Align foot **1** with the jaw levers so that they permit a button to rest in the middle.

(ADJUSTMENT AND OPERATION)

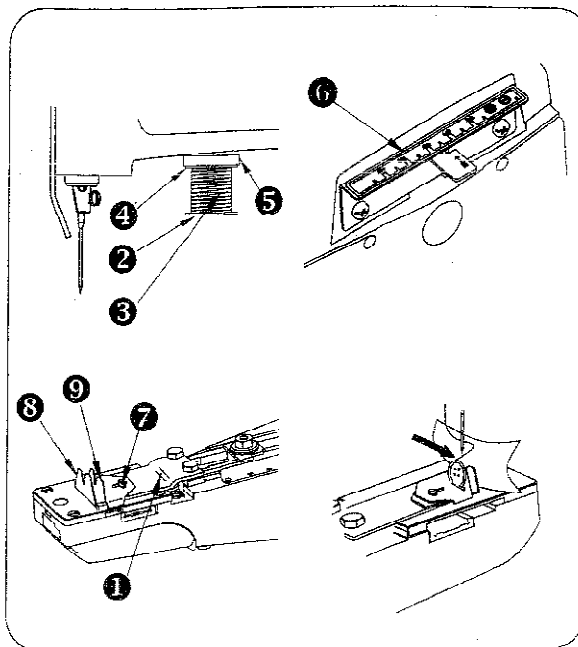
Adjustment and operation are almost same as those for the flat buttons, but you must adjust the thread pull-off lever to provide more amount of thread in order to make the thread loose below the button for thread shank formation. (See 9. Adjustment of the thread pull off lever.)

★ Attachment for the second process of wrapped-around buttons (Z035)



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(INSTALLATION)

Remove the button clamp mechanism assembly, button clamp pressure adjusting bar and feed plate from the machine and install attachment for the second process of wrapped-around buttons **1**. When you install a Z035 attachment, you must remove also the L-shaped lifting rod. Insert moving knife push-back spring **3**, washer **4**, cushion **5** and washer **4** in spring guide shaft **2** in this order. Make certain that the stop motion mechanism has completely engaged, and install the attachment assembly in place in the way that cushion **5** comes in close contact with the surface of the machine arm without play. Then, replace lengthwise feed graduated plate **6**.

(ADJUSTMENT AND OPERATION)

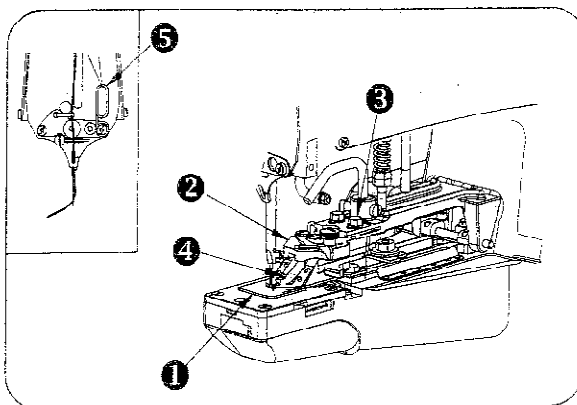
1. Loosen screw **7** and adjust the thread shank length by moving guide (large) **8** and guide (small) **9** in line with the point of needle entry.
2. Set a button (tilt it slightly for easy insertion) and pass the thread as the arrow shows.
3. Set the lengthwise feed to "0".
When you sew 16 stitches with Z035, set it to "1.5 mm" instead of "0".

★ Attachment for snaps (Z037)



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(INSTALLATION)

Remove the button clamp mechanism assembly and the feed plate. Set both the crosswise feed and lengthwise feed graduated plates to "4 mm". Install snap clamp feed plate **1** in the way that the needle drops evenly at four corners of its square opening. Install snap attachment assembly **2** on the machine, place a snap on the snap clamp jaw levers and make sure that the needle drops accurately in each hole in the snap. If necessary, loosen hex head screws **3** and adjust the position accurately.

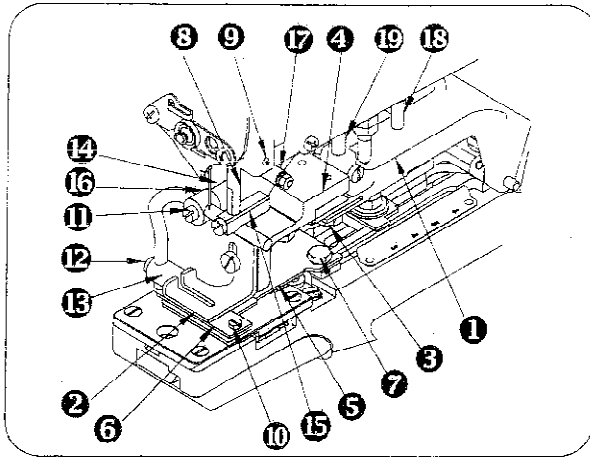
Lastly, make sure that the concave section on the bottom face of snap clamp slide guide **4** accurately matches the convex section on snap clamp feed plate **1**. Replace thread guide No. 3 **5**.

★ Attachment for metal buttons (Z038)



WARNING:

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(INSTALLATION)

Remove both the button clamp mechanism assembly and the feed plate from the machine and install attachment **1** in place. Loosen screws **3** and adjust button clamp bracket **4** to permit the needle to come down in the middle of the needle slot in metal button adaptor **2**. Attach button clamp foot plate **5** using screws **7** in the way that it permits the needle to come down in the middle of the needle slot in feed plate **6**. Insert the top end of button clamp stud **8** into an opening in the jaw of the machine arm and fasten it by screw **9**.

(ADJUSTMENT AND OPERATION)

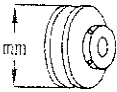
1. Loosen screw **10**, let feed plate **6** recede 1.0 to 1.5 mm from the left end of button clamp jaw lever **2** and retighten screw **10**.
2. Set a button in place, loosen screws **11** and **12** and align metal button holding clamp **13** with the center of the button.
3. Metal button holding clamp **13** must give proper pressure to the button so that the button stays steadily in position while being sewn. Loosen a setscrew in thrust collar **14** and rotate the thrust collar until metal button holding clamp **13** provides proper pressure.
4. You may fix button clamp block **15** in a convenient position for operation.



1. When you fix the thrust collar, ensure that button clamp rotating shaft **16** does not play axially in its bracket.
2. Adjust lifting hook **19** and stopper pin **18** so that L-shaped lifting rod roller **17** does not come in contact with button clamp bracket **4**.

22. MOTOR PULLEY AND BELT

- (1) For this machine a single-phase or 3 phase 200 watts (1/4 HP) induction motor is used.
- (2) A round leather belt (7x650 mm) is used.
- (3) The sewing speed depends on the diameter of the motor pulley as listed below:

Hz	rpm	Motor pulley part No.	
50	1500	302150A	71
	1250	302150B	59.2
60	1500	302150B	59.2
	1300	302150C	51.3

- ★ The effective diameter of motor pulley is obtained by subtracting 1 mm from its outer diameter.
- ★ The motor must revolve in the counterclockwise direction when viewed from the motor pulley side. Take care not to let it run in the reverse direction.

23. TROUBLES AND CORRECTIVE MEASURES

TROUBLES	CAUSES	CORRECTIVE MEASURES
1. Thread breakage	(1) The yoke slide does not move in the correct way (2) The thread tension post No. 2 fails to release the thread at correct timing (3) The thread nipper catches the thread (4) The needle does not enter the center of the holes in the button (5) The needle is too thick for the diameter of the hole in the button	○ Adjust the timing of the motion of the yoke slide at each end ○ Make the thread release timing slightly earlier ○ Adjust the position of the nipper bar block ○ Adjust the button clamp jaw lever holder ○ Replace the needle by a thinner one
2. Buttons are not sewn tightly	(1) The yoke slide does not move in the correct way (2) The thread tension post No. 2 fails to release the thread at correct timing (3) The thread tension post No. 2 does not give sufficient tension (4) The needle does not enter the center of the holes in the button (5) The work pressing force is too high or too low	○ Adjust the timing of the motion of the yoke slide at each end ○ Make the thread release timing slightly later ○ Tighten the tension nut of tension post No. 2 ○ Adjust the button clamp jaw lever holder ○ Adjust the work pressing force properly
3. The first stitch trails relatively long thread from the right side of the button	The thread pull-off lever does not work properly	○ Adjust the thread pull-off lever by the nipper bar block (rear)
4. Thread trimming failure in the state of stop motion	(1) The thread tension post No. 2 fails to release the thread at correct timing (2) The needle hits the edge of the holes in the button (3) The button clamp assembly does not rise to the necessary height (4) The thread nipper fails to press the thread (5) The work pressing force is too high	○ Make the thread release timing slightly later to give more tension to the stitches ○ Adjust the button clamp jaw lever holder ○ Provide a 12 mm clearance between the feed plate and the button clamp jaw levers when rose ○ Adjust the nipper bar block ○ Adjust the work pressing force by the pressure adjusting nut
5. Thread trimming failure	(1) The moving knife does not separate the thread on the fabric with its separation nail (2) The needle does not the center of the holes in the button (3) The last stitch skips (4) The moving knife thread separation nail is too high or too low	○ Adjust the position of the moving knife ○ Adjust the button clamp jaw lever holders ○ Adjust the looper ○ Adjust the height of the moving knife thread separation nail
6. The needle thread is cut in two places on the wrong side of the fabric	(1) The moving knife is set in wrong place (2) The moving knife thread separation nail is too high or too low	○ Adjust the position of the moving knife when the machine is in the stop-motion state ○ Adjust the height of the thread separation nail
7. Button trails too long thread after thread trimming	(1) Timing of the moving knife motion is wrong (2) The button clamp assembly rises too much	○ Adjust the position of the moving knife ○ Reduce the button clamp lift down to 9 mm

Single Thread, Chainstitch Button Attaching Machine
CMB-373NC

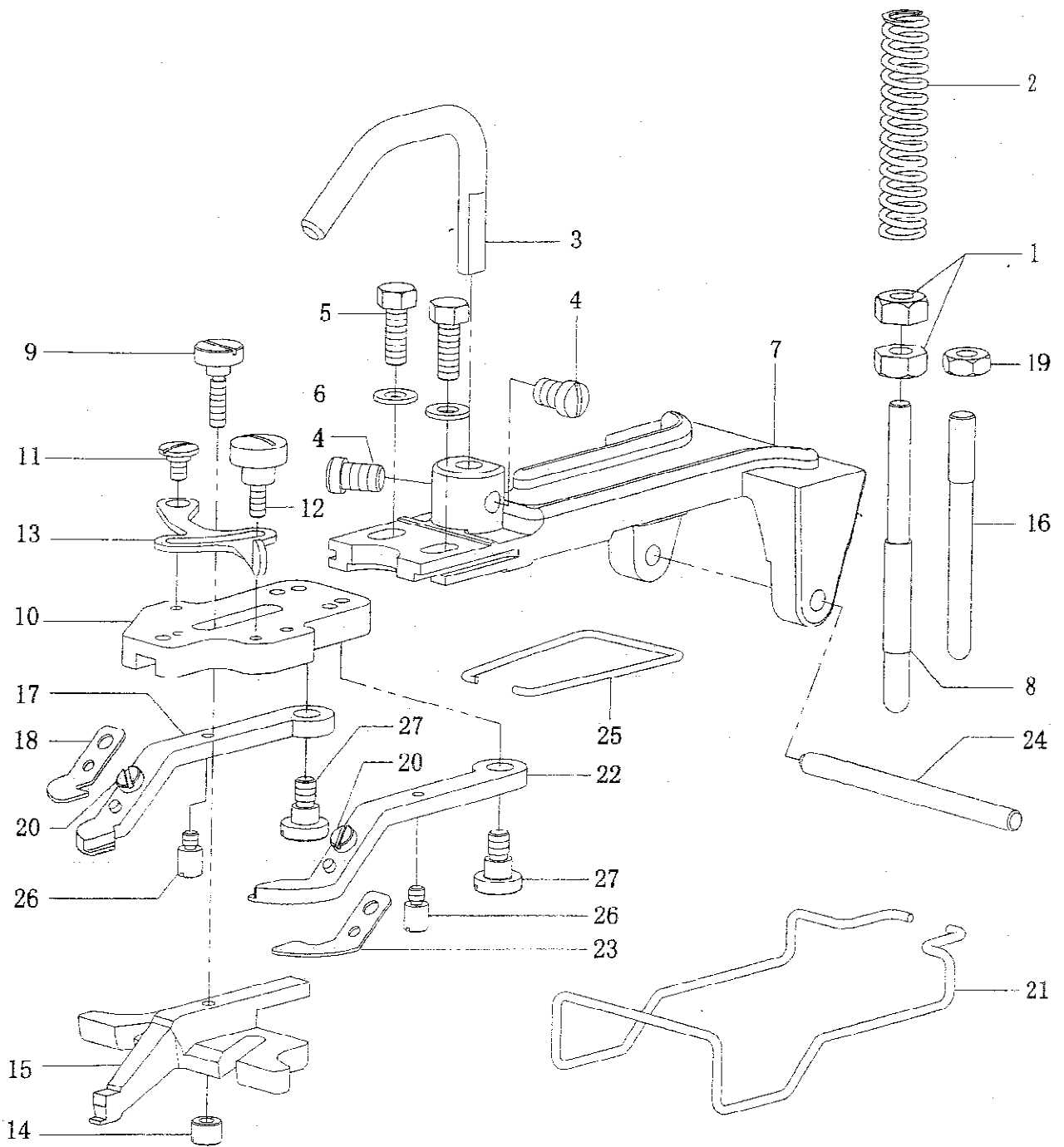
PARTS LIST

373000
No. 050118-1

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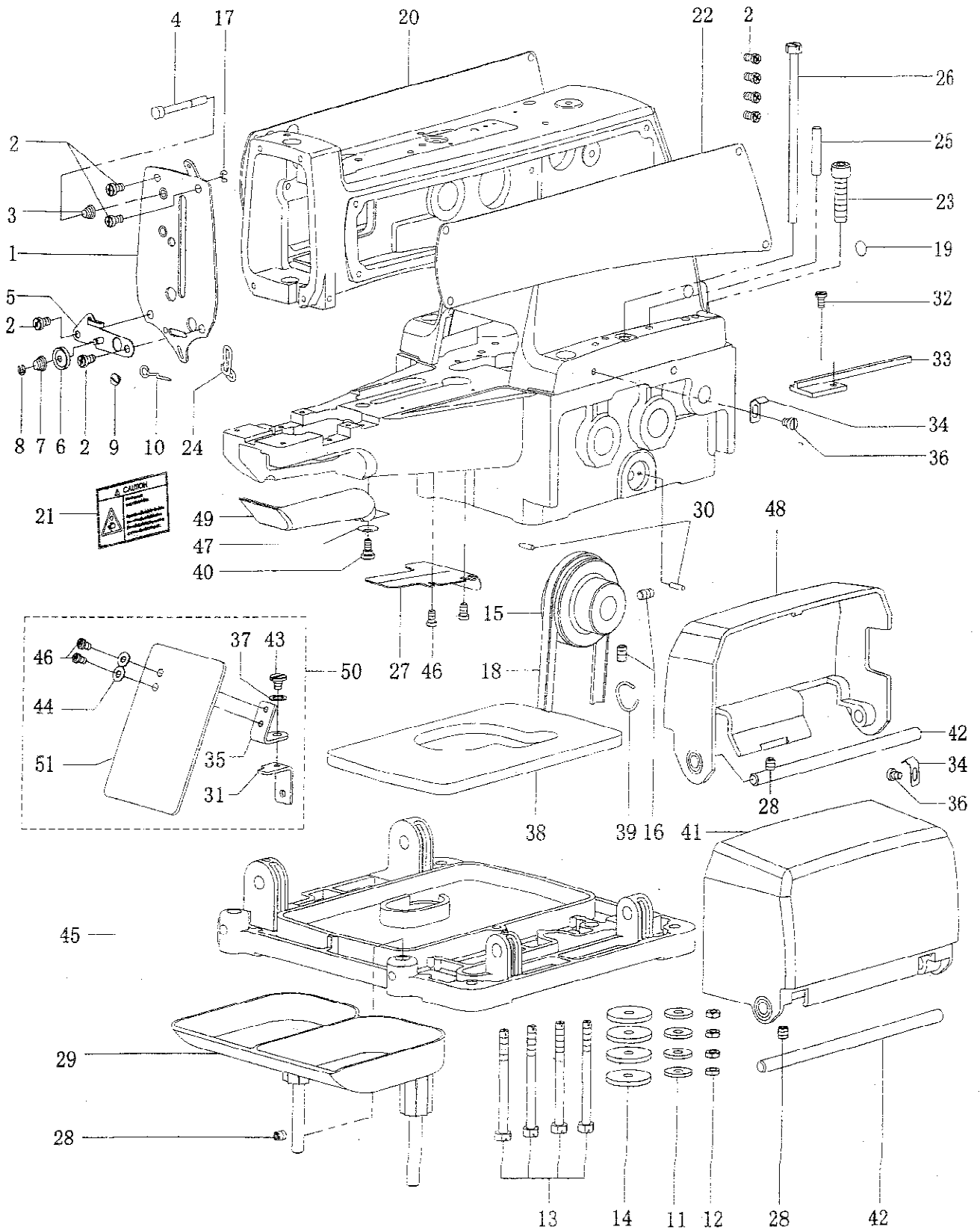
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1. BUTTON CLAMP MECHANISM COMPONENTS



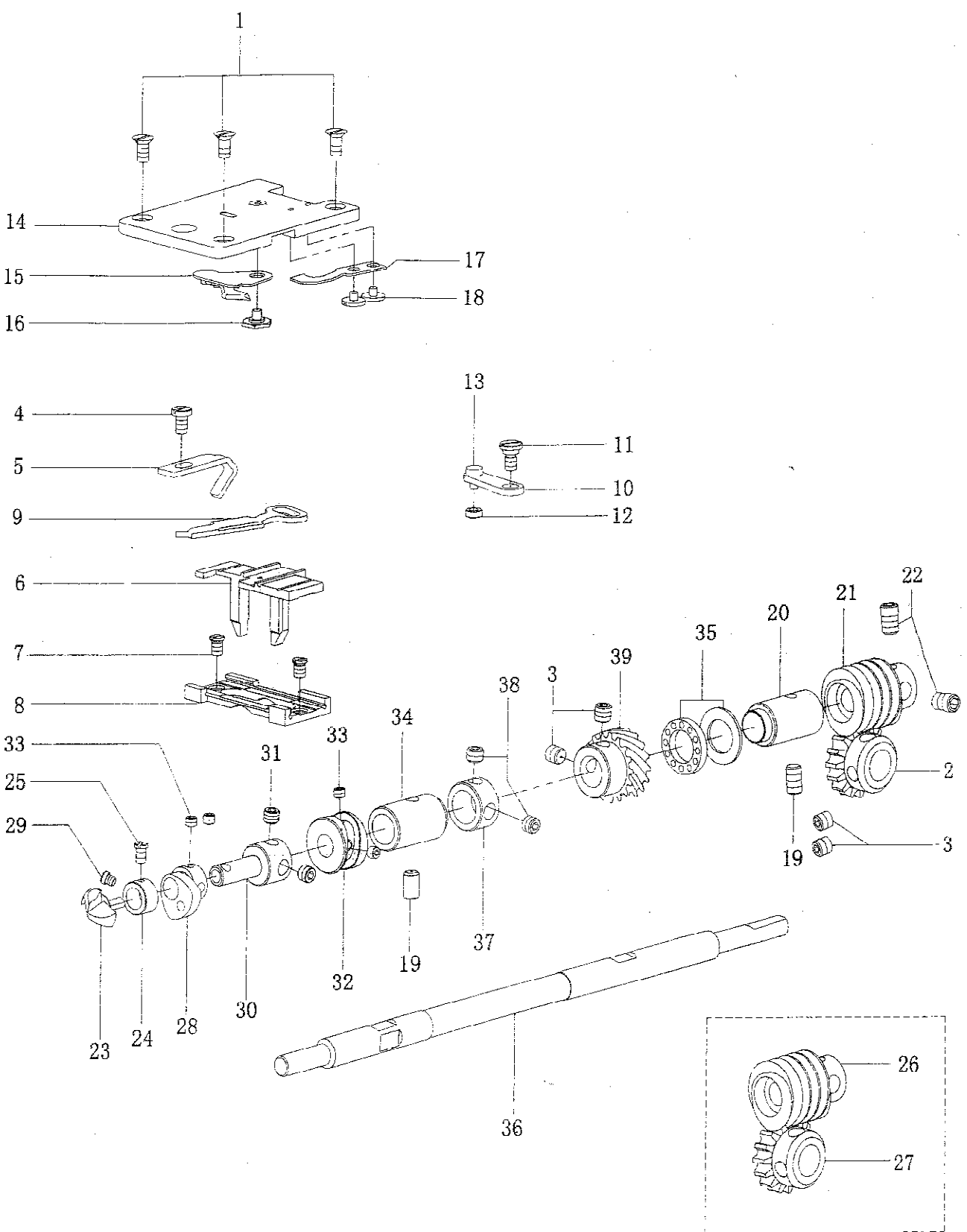
REF NO.	PART NO.	DESCRIPTION	Qty
1	301010	NUT 1/4"-40 W=5X11	2
2	301020	PRESSURE ADJUSTING SPRING	1
3	301030	BUTTON CLAMP LIFTING ROD	1
4	301041	SCREW 15/64"-28 L=9 D=8X3.5	2
5	301051	SCREW 3/16"-32 L=13.5 T=8X4	2
6	301060	WASHER 5X10X1	2
7	301070	BUTTON CLAMP HOLDER	1
8	301081	BUTTON CLAMP PRESSURE ADJUSTING	1
9	301091	HINGE SCREW =5.4 H=3 T=11X3.5C	1
10	301100	JAW LEVER HOLDER	1
11	301111	HINGE SCREW =5.5 H=1.7 D=9X1.5C	1
12	301121	CLAMP SCREW A	1
13	301130	SNAP FASTENER CLAMP STOP LEVER	1
14	301140	NUT	1
15	301150	BUTTON CLAMP SLIDE	1
16	301161	PICK-UP DEVICE STOPPER PIN	1
17	301170	BUTTON CLAMP LEVER JAW (LEFT)	1
18	301180	BUTTON HOLDING SPRING, LEFT	1
19	301190	NUT 15/64"-28 W=4X10	1
20	301201	SCREW 9/64"-40 L=3.6 D=6X2.5	2
21	301210	FINGER GUARD	1
22	301220	BUTTON CLAMP LEVER JAW RIGHT	1
23	301230	BUTTON HOLDING SPRING, RIGHT	1
24	301240	HINGE PIN	1
25	301250	BUTTON CLAMP SPRING	1
26	301261	BUTTON CLAMP STOP PIN	2
27	301271	HINGE SCREW =6.35 H=3.9 T=11X3A	2

2.ARM & MISCELLANEOUS COVERS COMPONENTS



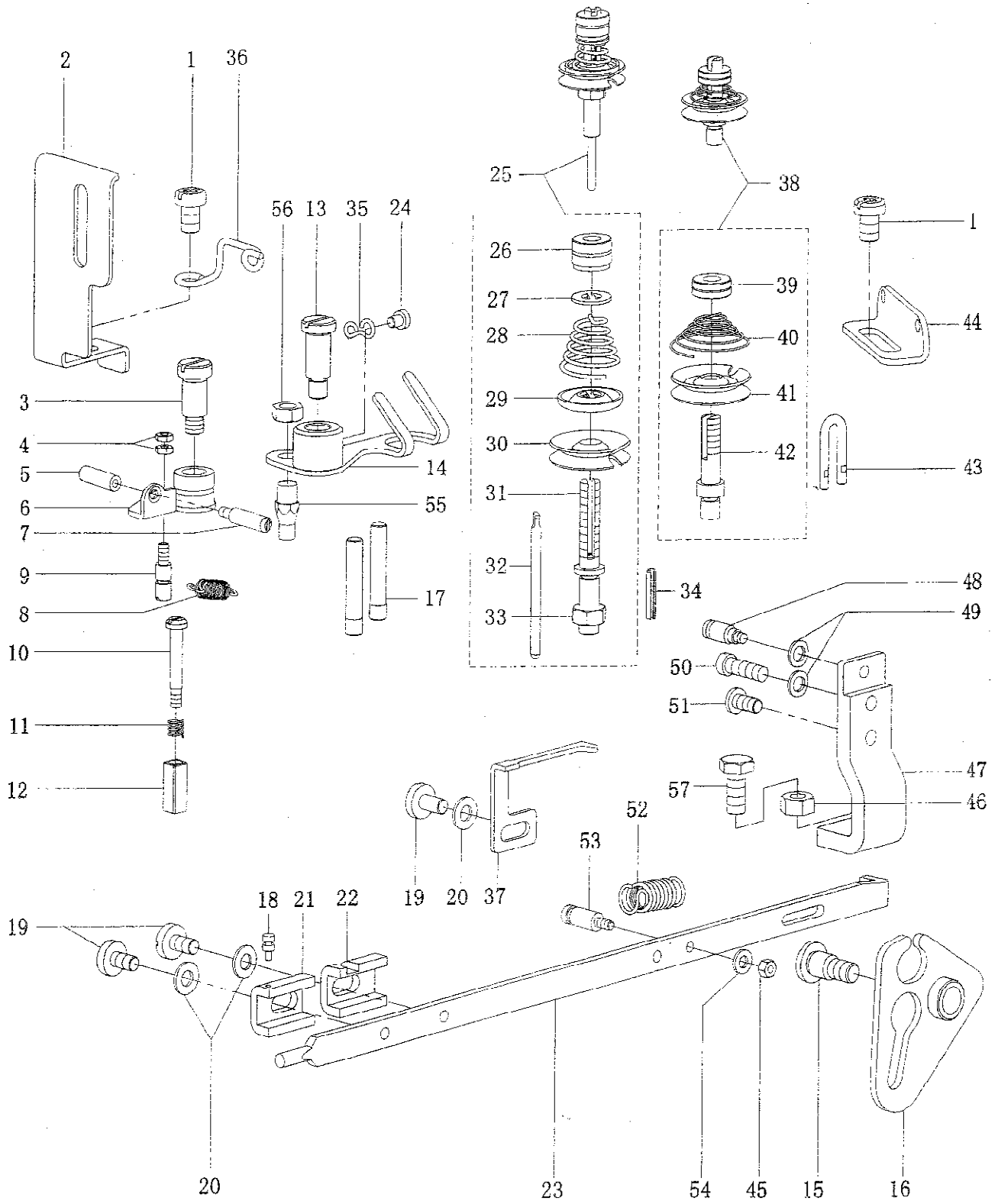
REF NO.	PRAT NO.	DESCRIPTION	Qty
1	302010	FACE PLATE	1
2	302021	SCREW 3/16"-28 L=9 D=8x3	12
3	302030	TENSION SPRING	1
4	302040	NIPPER RELEASING STUD	1
5	302050	THREAD TENSION GUIDE NO. 3 ASM.	1
6	302060	THREAD TENSION DISC NO. 3	2
7	302070	THREAD TENSION SPRING NO. 3	1
8	302080	E-RING 3	1
9	302091	SCREW 11/64"-40 L=3.2 D=8X1.5	1
10	302100	THREAD GUIDE NO. 4	1
11	302110	WASHER	4
12	302120	NUT 15/64"-28 W=3X9	4
13	302131	LONGER SCREW 15/64"-28 L=68 T=10X5	4
14	302143	WASHER	4
15	302150	NEEDLE DRIVING PULLEY	1
16	302161	SCREW 15/64"-28 L=10	2
17	302170	E-RING BW=3	1
18	302180	BELT	1
19	302190	GROUND MARK	1
20	302200	SIDE PLATE, LEFT	1
21	302210	SAFETY LABEL 12	1
22	302220	SIDE PLATE, RIGHT	1
23	302231	SCREW M8 L=24	4
24	302240	STOPPER	1
25	302250	GUIDE PIN	2
26	302261	SET SCREW	1
27	302270	BED OIL SHIELD	1
28	302281	SCREW 15/64"-28 L=7	4
29	302290	BUTTON TRAY ASM.	1
30	302300	CAM INDICATING PIN	2
31	302310	SAFETY PLATE INSTALLING BASE	1
32	302321	SCREW 11/64"-40 L=8 D=8X3	1
33	302330	OIL SUPPLY FELT	1
34	302340	SIDE COVER SPRING	2
35	302350	SAFETY PLATE INSTALLING PLATE	1
36	302361	SCREW 3/16"-28 L=6 D=8X3	3
37	302370	WASHER 7.4X11.8X0.5	1
38	302380	OIL DRIP FELT (A) 7MM	1
39	302390	C SHAPED HOOK	1
40	302401	HINGE SCREW =6 H=2.7 T=9X2.5C	1
41	302410	SIDE COVER, RIGHT	1
42	302420	SIDE COVER HINGE	2
43	302431	HINGE SCREW =6 H=2.5 T=11X2C	1
44	302440	WASHER 4.5X10X0.8	2
45	302450	MACHINE SUB-BASE	1
46	302461	SCREW 11/64"-40 L=7 D=7X2.5	4
47	302470	SPRING WASHER 4.5X10X0.8	1
48	302480	SIDE COVER, LEFT	1
49	302490	LOOPER COVER	1
50	302500	SAFETY PLATE ASM.	1
51	302510	SAFETY PLATE	1

3.LOOPER SHAFT MECHANISM COMPONENTS



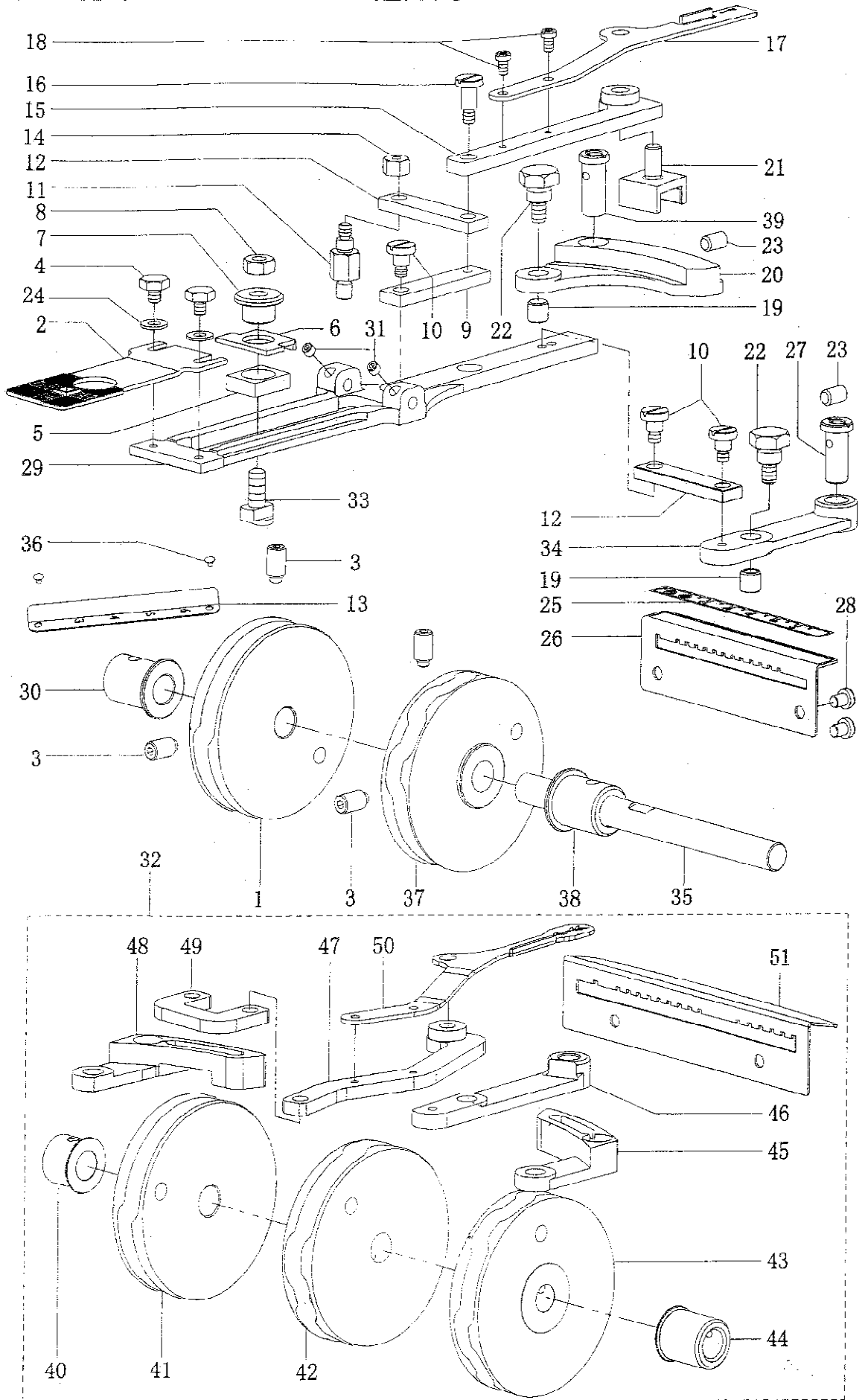
REF NO.	PART NO.	DESCRIPTION	Qty
1	303011	SCREW 11/64"-40 L=9 T=7.3	3
2	303020	CAM SHAFT DRIVEN GEAR	1
3	303031	SCREW 1/4"-40 L=6	4
4	303041	SCREW 11/64"-40 L=8 T=8X2	1
5	303050	NEEDLE GUARD	1
6	303060	POSITIONING FINGER YOKE SLIDE	1
7	303071	SCREW 11/64"-40 L=7 T=6	2
8	303080	YOKE SLIDE INSERT	1
9	303090	YOKE SLIDE	1
10	303100	LOOP POSITIONING FINGER LEVER -3X6.5M W=2.6	1
11	303111	HINGE SCREW =6.35 H=2.4 T=9X1.5A	1
12	303120	LOOP POSITIONING FINGER LEVER	1
13	303130	PIN	1
14	303140	THROAT PLATE	1
15	303150	MOVING KNIFE ASM.	1
16	303161	HINGE SCREW -6 H=0.85 T=11X1.3A	1
17	303170	COUNTER KNIFE	1
18	303181	SCREW 1/8"-44 L=3.0 D=9X1.2	2
19	302161	SCREW 15/64"-28 L=10	2
20	303200	LOOPER SHAFT BUSHING, REAR	1
21	303210	DRIVEN WORM GEAR	1
22	303221	SCREW 1/4"-40 L=7.0 TU=7X4	2
23	303230	LOOPER	1
24	303240	THRUST COLLAR =7.94X13 W=7	1
25	303251	SCREW 9/64"-40 L=5.5 T=5.2X2.5	1
26	303260	DRIVEN WORM GEAR 378	1
27	303270	CAM SHAFT DRIVEN GEAR 378	1
28	303280	LOOP POSITIONING FINGER CAM	1
29	303291	SCREW 9/64"-40 L=3 T=5.2X2.5	1
30	303300	CAM & LOOPER SLEEVE	1
31	303311	SCREW 15/64"-28 L=4.0	2
32	303320	LOOP POSITIONING FINGER CAM RE	1
33	303331	SCREW 11/64"-40 L=3.5	4
34	303340	LOOPER SHAFT BUSHING, FRONT	1
35	303352	THRUST BALL BEARING	1
36	303360	LOOPER SHAFT	1
37	303370	THRUST COLLAR =11.11X19 W=10L	1
38	303381	SCREW 1/4"-40 L=5	2
39	303390	LOOPER SHAFT DRIVEN GEAR ASM.	1

4. NIPPER & THREAD TENSION PARTS COMPONENTS



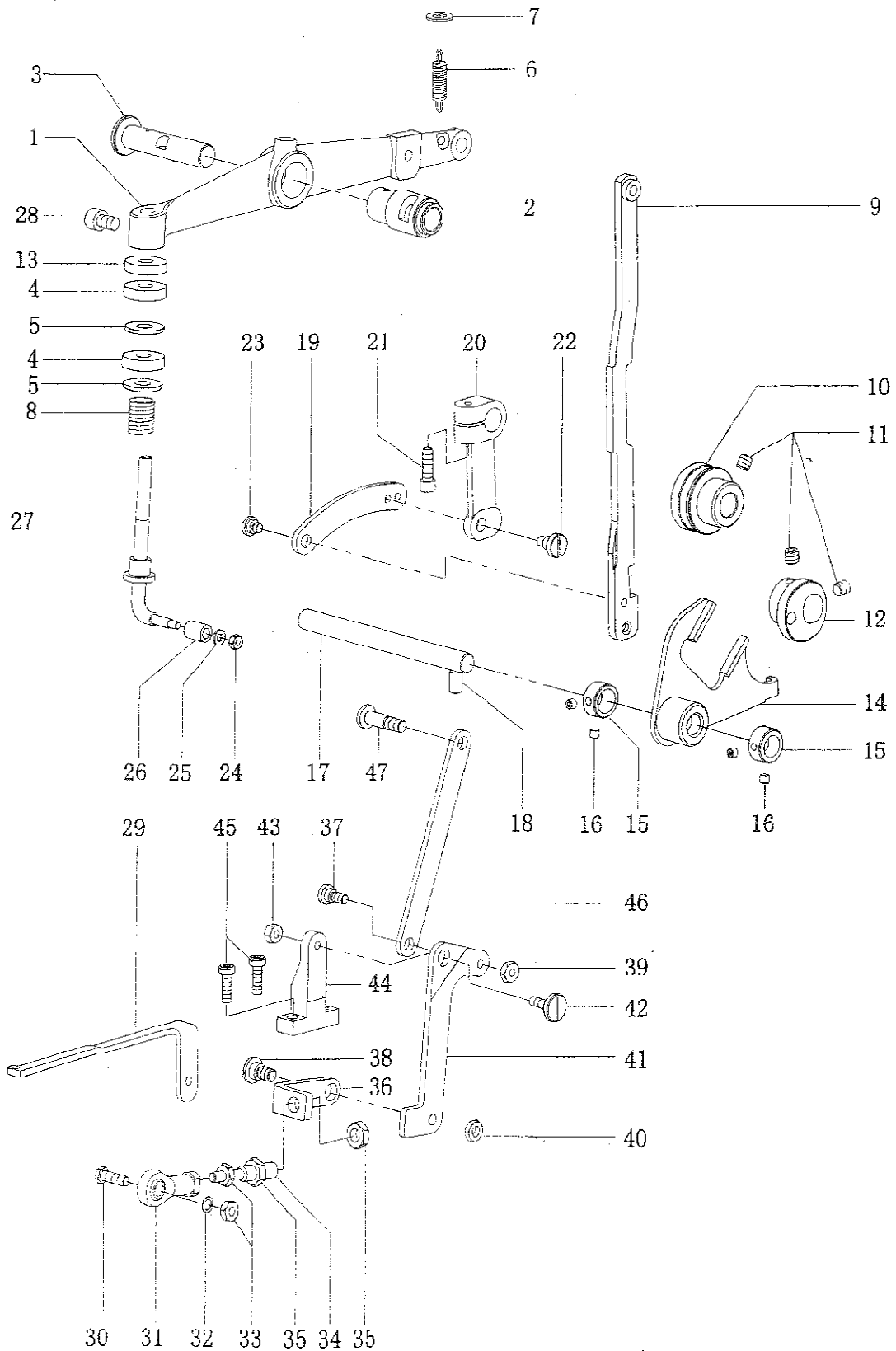
REF NO.	PART NO.	DESCRIPTION	Qty
1	304011	SCREW 15/64"-28 L=9 D=10X4	1
2	304020	NEEDLE BAR GUARD	1
3	304031	HINGE SCREW =7.94 H=12.7 T=11X4B	1
4	304040	NUT 1/8"-44 W=2X5	2
5	304050	NUT	1
6	304060	NIPPER COMPL.	1
7	304071	THREAD RELEASING SCREW STUD	1
8	304080	NIPPER BAR BLOCK SPRING	1
9	304091	NIPPER BAR BLOCK SPRING SCREW	1
10	304101	HINGE SCREW =1 H=20 T=7X2.5B	1
11	304110	NIPPER BLOCK SPRING	1
12	304120	NIPPER BLOCK	1
13	304131	HINGE SCREW =7.94 H=15 T=11X3B	1
14	304140	THREAD PULL-OFF LEVER ASM.	1
15	304151	HINGE SCREW =7.94 H=8.0 T=13X3A	1
16	304160	NIPPER BAR ACTUATING LEVER ASM.	1
17	304170	THREAD GUIDE PIN	2
18	304180	NIPPER BAR BLOCK SPRING PIN	1
19	304191	SCREW 3/16"-28 L=9 T=11X3.5	4
20	301060	WASHER 5X10X1	2
21	304210	NIPPER BAR BLOCK	1
22	304220	TENSION LEVER ROCKING PIECE	1
23	304230	NIPPER BAR	1
24	304241	SCREW 9/64"-40 L=4 D=6X2.5	1
25	304250	TENSION POST ASM., NO. 2	1
26	304260	TENSION NUT	1
27	304270	ROTATION STOPPER	1
28	304280	THREAD TENSION SPRING NO. 2	1
29	304290	TENSION DISC HOLDER	1
30	304300	TENSION DISC	2
31	304310	TENSION POST NO. 2	1
32	304320	TENSION RELEASE PIN	1
33	304330	NUT 1/4"-24 W=5X10	1
34	304340	SPRING PIN 3X16	1
35	304350	THREAD GUIDE	1
36	304360	THREAD GUIDE NO. 2	1
37	304370	THREAD TENSION RELEASING LEVER	1
38	304380	THREAD TENSION ASM. (NO. 1)	1
39	304390	THREAD TENSION NUT	1
40	304400	TENSION SPRING NO. 1	1
41	304410	TENSION DISC	2
42	304420	THREAD TENSION START NO. 1	1
43	304430	THREAD GUIDE	1
44	304440	THREAD GUIDE NO. 1	1
45	304450	NUT 1/8"-44 W=3X5	1
46	304460	NUT M6 W=5X10	1
47	304470	NIPPER BAR BEARING BLOCK	1
48	304481	ADJUSTING SCREW	1
49	304490	WASHER 4.8X8.4X0.8	2
50	304501	SCREW 3/16"-28 L=15.5 T=7X3.5	1
51	304511	SCREW 3/16"-28 L=9.5 T=8.5X2	1
52	304520	THREAD TENSION SPRING	1
53	304531	NIPPER BAR SPRING SCREW	1
54	304540	WASHER 3.7X8X1	1
55	304551	SCREW	1
56	304560	NUT 1/4"-40 W=4X9	1
57	304571	SCREW M6 L=14 T=10X3.5	1

5. FEED PLATE COMPONENTS



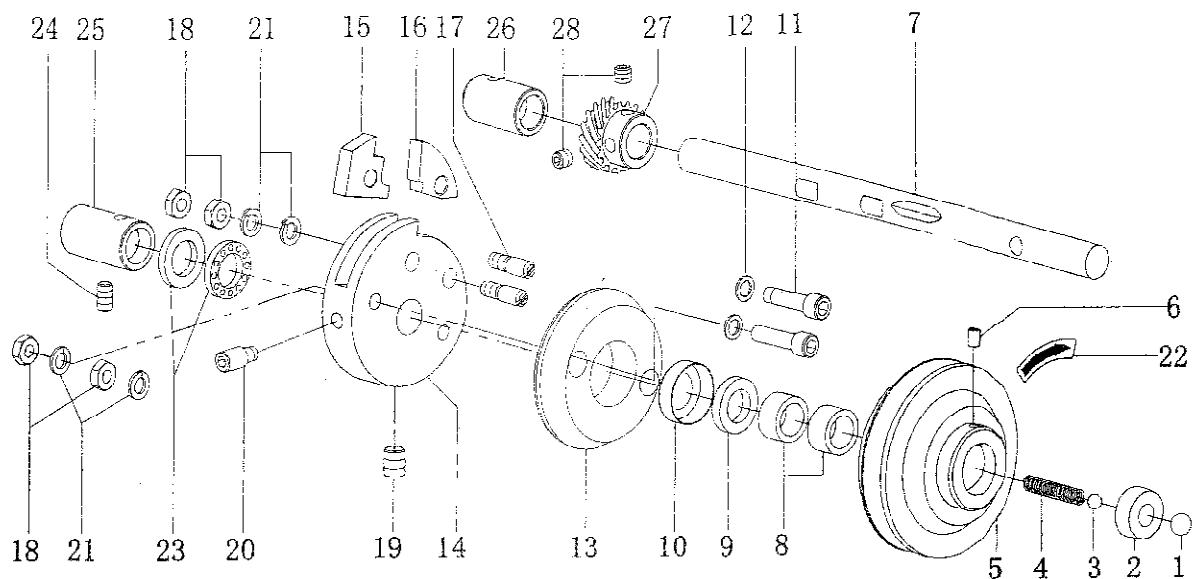
REF NO.	PART NO.	DESCRIPTION	Qty
1	305010	LONGITUDINAL FEED CAM	1
2	305020	FEED PLATE, SMALL BUTTON	1
3	305031	SCREW 9/32"-28 L=13.5	4
4	305041	SCREW 3/16"-28 L=6 T=10X3.5	2
5	305050	INDICATOR PIN BEARING BLACK	1
6	305060	CROSSWISE FEED INDICATOR	1
7	305070	CROSSWISE FEED INDICATOR PIN	1
8	305080	NUT 1/4"-24 W=5X11	1
9	305090	SLIDE PLATE CONNECTING LINK A	1
10	305101	HINGE SCREW =6.35 H=4.8 T=11X3A	3
11	305111	STUD	1
12	305120	INTERMEDI CONNECTING LINK	2
13	305130	CROSSWISE FEED CRADVATED PLATE	1
14	305140	NUT 3/16"-28 W=4X7	1
15	305150	INDICATOR SPRING CONNECTING LI	1
16	305161	HINGE SCREW / =6.35 H=9.6 T=11X2.5A	1
17	305170	HANDLE & INDICATOR SPRING	1
18	305181	SCREW 9/64"-40 L=6 D=6X2.5	2
19	305190	CAM ROLL / 5.5X7.94M W=7.5	2
20	305200	LENGTHWISE FEED LEVER ASM.	1
21	305210	LENGTHWISE FEED LEVER SLIDE BL	1
22	305221	CAM ROLL SCREW STUD	2
23	302161	SCREW 15/64"-28 L=10	2
24	305240	SPACER	2
25	305250	LENGTHWISE FEED GRADUATE PLATE	1
26	305260	PLATE BASE	1
27	305270	FEED STUD	1
28	302361	SCREW 3/16"-28 L=6 D=8X3	2
29	305290	FEED PLATE	1
30	305300	CAM SHAFT BUSHING, LIEFT	1
31	303331	SCREW 11/64"-40 L=3.5	2
32	305320	2377 PARTS	
33	305330	HINGE SCREW FOR CROSSWISE FEED	1
34	305340	CROSSWISE FEED LEVER	1
35	305350	CAM SHAFT	1
36	305360	RIVET	2
37	305370	LATERAL FEED CAM	1
38	305380	CAM SHAFT BUSHING, RIGHT	1
39	305390	FEED STUD	1
40	305400	CAM SHAFT BUSHING, LIFT	1
41	305410	LONGITUDINAL FEED CAM	1
42	305420	LATERAL FEED CAM	1
43	305430	LATERAL FEED CAM	1
44	305440	CAM SHAFT BUSHING, RIGHT	1
45	305450	LENGTHWISE FEED LEVER ASM, RIGHT	1
46	305460	CROSSWISE FEED LEVER	1
47	305470	INDICATOR SPRING CONNECTING LI	1
48	305480	LENGTHWISE FEED LEVER ASM, LEFT	1
49	305490	INTERMEDI CONNECTING LINK	2
50	304500	HANDLE & INDICATOR SPRING	1
51	304510	PLATE BASE	1

6.BUTTON CLAMP LIFTER COMPONENTS



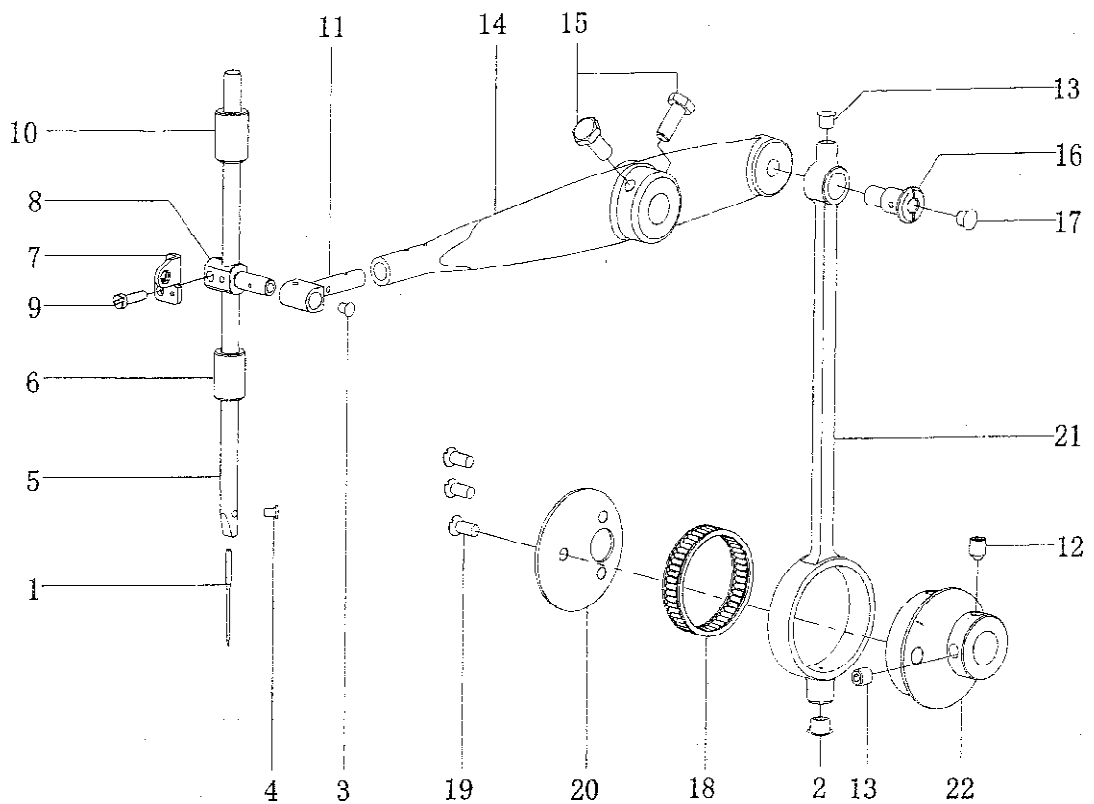
REF NO.	PART NO.	DESCRIPTION	Qty
1	306010	LIFTING LEVER	1
2	306020	BUSHING	1
3	306030	LIFTING LEVER SHAFT	1
4	306043	WASHER 7X20X5	1
5	306050	WASHER 7X20X1.5	1
6	306060	NIPPER BAR ACTUATING LEVER SPR	1
7	306070	WASHER	1
8	306080	SAFETY MAGNET	1
9	306090	BUTTON CLAMP LIFTING LINK	1
10	306100	SLIDING ROLLER	1
11	303031	SCREW 1/4"-40 L=6	3
12	306120	ECCENTRIC CAM ASM.	1
13	306130	WASHER 7X20X4.5	1
14	306140	BUTTON CLAMP LIFING LINK	1
15	306150	THRUST COLLAR =9.52X16 W=8L	2
16	303331	SCREW 11/64"-40 L=3.5	4
17	306170	LEVER SHAFT	1
18	302161	SCREW 15/64"-28 L=10	1
19	306190	LIFTING LINK CONNECTING LINK	1
20	306200	LIFTING PLATEGUIDE ROD	1
21	306211	SCREW 3/16"-28 L=15.0 TU=7.4X5	1
22	306221	HINGE SCREW =6.35 H=4.9 T=11X3B	1
23	306231	HINGE SCREW =6.35 H=2.0 T=9X2B	1
24	306240	LIFTING BAR ASM.	2
25	304540	WASHER 3.7X8X1	1
26	306260	BUTTON CLAMP LIFTING ROD ROLL 5X7.94M W=11	1
27	306270	BUTTON CLAMP LIFTING ROD COMPL	1
28	306281	SCREW M=6 L=10	1
29	306290	CONNECTING LINK, FRONT	1
30	306301	JOINT STUD	1
31	306312	FEED ADJUSTING JOINT	1
32	306320	WASHER 5.1X7.5X0.5	1
33	306330	NUT M5 W=3.5X9	2
34	306341	CONNECTING SCREW	1
35	306350	NUT 9/32"-28 W=4X11	2
36	306360	CONNECTING LINK, REAR	1
37	306371	HINGE SCREW =6.35 H=3.1 T=9X2.5B	1
38	306381	HINGE SCREW =7.94 H=4 T=12X2B	1
39	306390	NUT 3/16"-32 W=3X9	1
40	302120	NUT 15/64"-28 W=3X9	1
41	306410	THREAD TRIMMING LEVER	1
42	306421	HINGE SCREW =7.94 H=3.1 T=13X2.5A	1
43	306430	NUT 11/64"-40 W=4X8	1
44	306440	THREAD TRIM LEVER BASE	1
45	306451	SCREW 11/64"-40 L=14 D=7X2.5	2
46	306460	THREAD TRIMMING LINK	1
47	306471	HINGE SCREW =6.35 H=13.2 T=11X2.5B	1

7.NEEDLE DRIVING PULLEY SHAFT COMPONENTS



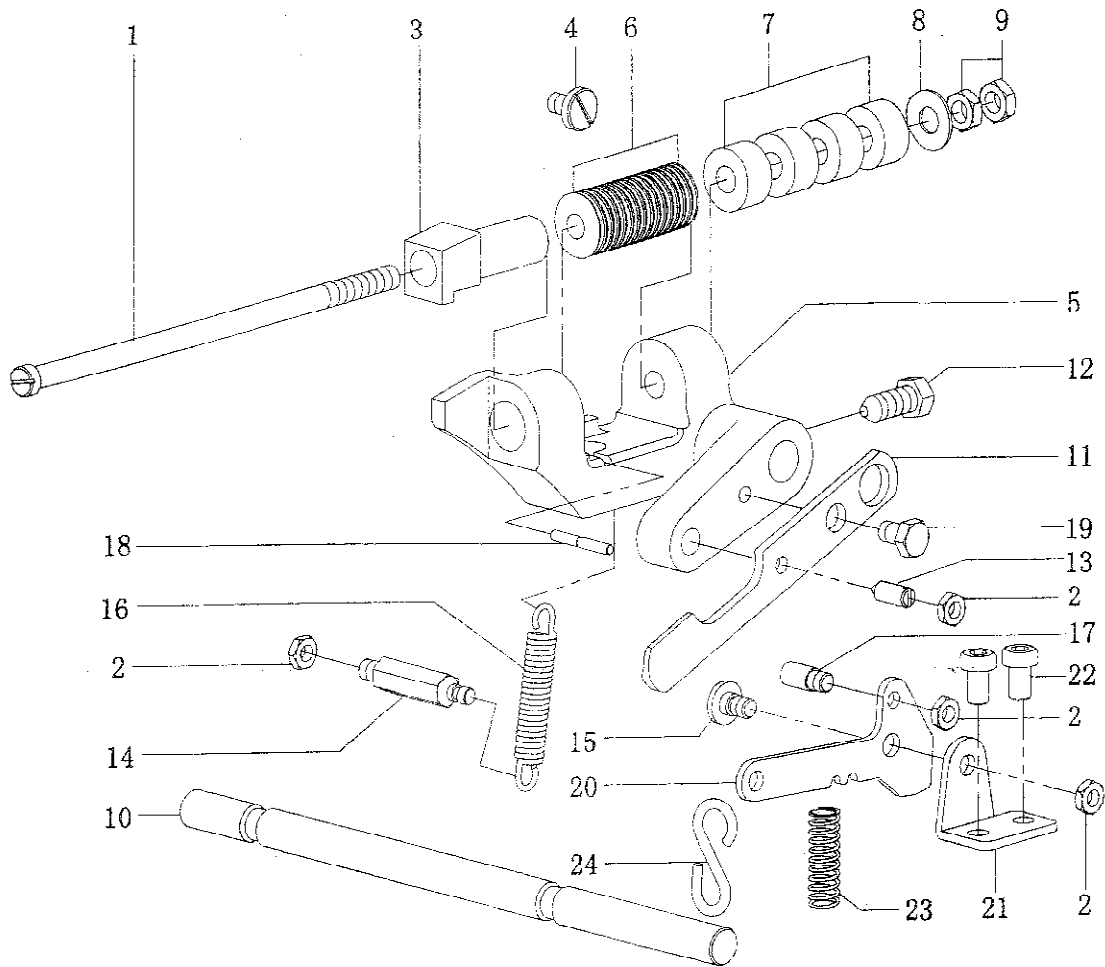
REF NO.	PART NO.	DESCRIPTION	Qty
1	307012	BALL LARGE 7.94	1
2	307022	PULLEY INSERT	1
3	307030	BALL SMALL 5.55	1
4	307040	SPRING	1
5	307050	NEEDLE DRIVING PULLEY	1
6	307061	SCREW 11/64"-40 L=5	1
7	307070	NEEDLE DRIVING PULLEY SHAFT	1
8	307082	NEEDLE BEARING	2
9	307090	GREASE RETAINING WICK	1
10	307100	RETAING WASHER	1
11	307111	SCREW 15/64"-28 L=23.5 TU=9X6.5	2
12	307120	WASHER 6.2X9.5X1	2
13	307130	NEEDLE DRIVING PULLEY CLUTCH D	1
14	307140	STOP MOTTON DISC	1
15	307150	STOP MOTION DISC PAWL (A)	1
16	307160	STOP MOTION DISC LATCH (B)	1
17	307171	SCREW	2
18	301190	NUT 15/64"-28 W=4X10	4
19	307191	SCREW 5/16"-24 L=10.0	1
20	307201	SCREW 5/16"-24 L=17.0H	1
21	307210	SPRING WASHER 6.5X11X1.3	4
22	307220	DIRECTION LABEL	1
23	307232	THRUST BALL BERING	1
24	302161	SCREW 15/64"-28 L=10	1
25	307250	PULLEY SHAFT BUSHING, RIGHT	1
26	307260	PULLEY SHAFT BUSHING, LEFT	1
27	307270	DRIVING GEAR ASM.	1
28	303031	SCREW 1/4"-40 L=6	2

8.NEEDLE BAR DRIVING MECHANISM COMPONENTS



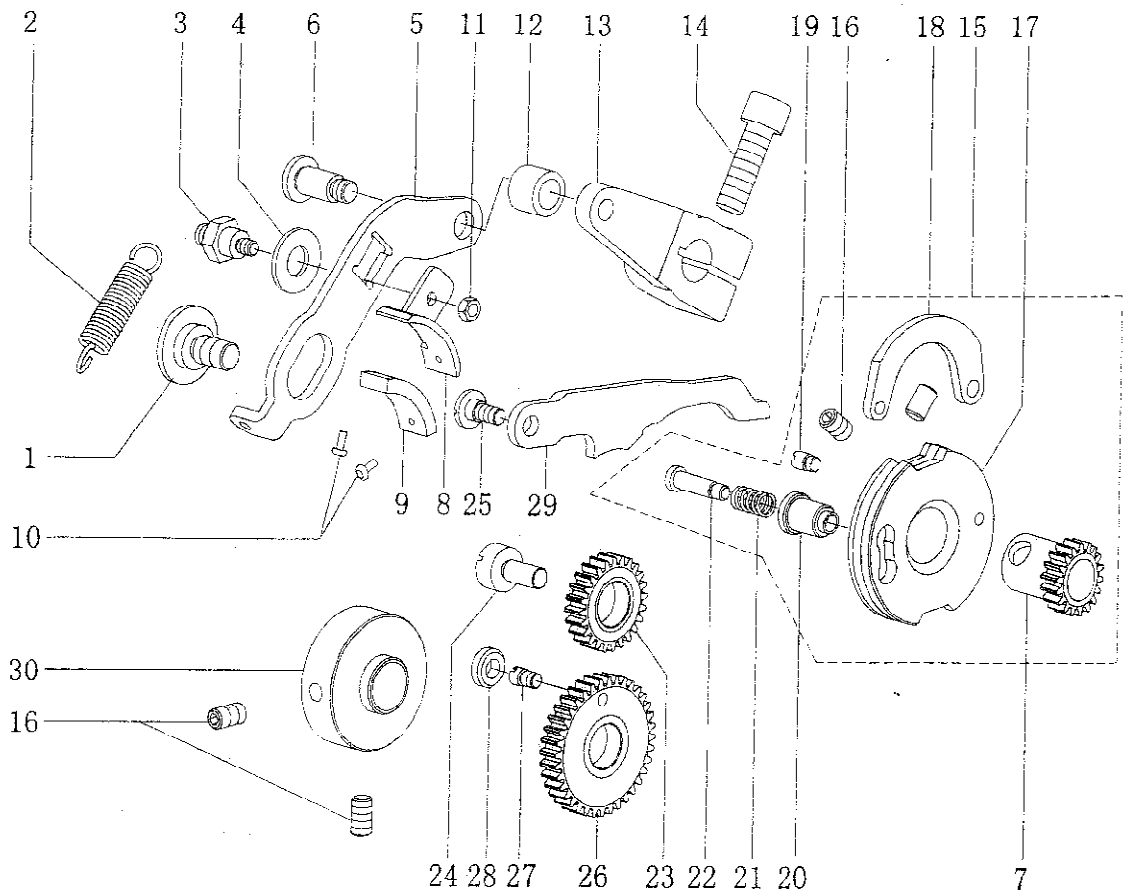
REF NO.	PART NO.	DESCRIPTION	Qty
1	308010	NEEDLE TQX7	1
2	308020	OIL WICK	1
3	308030	OIL WICK	1
4	308041	SCREW 1/8"-44 L=5 T=5X2	1
5	308050	NEEDLE BAR	1
6	308060	NEEDLE BAR BUSHING LOWER	1
7	308070	NEEDLE BAR BLANCE	1
8	308080	NEEDLE BAR CLAMP	1
9	308091	SCREW 9/64"-40 L=12 T=6X2.5	1
10	308100	NEEDLE BAR BUSHING, UPPER	1
11	308110	NEEDLE BAR BEARING BLOCK	1
12	308121	SCREW 1/4"-40 L=9A	1
13	303031	SCREW 1/4"-40 L=6	1
14	308140	NEEDLE BAR ROCKING PIPE	1
15	304571	SCREW M6 L=14 T=10X3.5	2
16	308161	HINGE SCREW =9.53 H=11 T=14X2A	1
17	308173	OIL WICK	2
18	308182	NEEDLE BEARING	1
19	303011	SCREW 11/64"-40 L=9 T=7.3	3
20	308200	THRUST HOLDER	1
21	308210	CRANK ROD	1
22	308220	ECCENTRIC CAM	1

9.STOP MOTION MECHNISM COMPONENTS



REF NO.	PART NO.	DESCRIPTION	Qty
1	309011	STOP MOTION PLUNGER ROD	1
2	302120	NUT 15/64" 28 W=3X9	4
3	309030	STOP MOTION PLUNGER	1
4	309041	SCREW 15/64"-28 L=10 T=12.7X10	1
5	309050	STOP MOTION PLUNGER LEVER	1
6	309060	STOPMOTION DISC SPRING	30
7	309073	RUBBER CUSHION	4
8	309080	WASHER 8X18X1	1
9	306350	NUT 9/32"-28 W=4X11	2
10	309100	STOP-MOTION SHAFT	1
11	309110	STOP MOTION DISC PRESSURE LEVE	1
12	309121	SCREW 5/16"-18 L=19 T=11X5A	1
13	309131	SCREW 15/64"-28 L=18.0A	1
14	309141	SCREW STUD	1
15	309151	HINGE SCREW ?=6.80 H=2.7 T=13X3C	1
16	309160	STOP MOTION LEVER SPRING	1
17	309171	STOP SCREW	1
18	309180	STOP MOTION LEVER SPRING PIN	1
19	309191	SCREW M6 L=10 T=10X5	1
20	309200	STOP MOTION TRIP LEVER	1
21	309210	STOP MOTION TRIP LEVER BRACKET	1
22	309221	SCREW 15/64"-28 L=8	2
23	309230	SPRING	1
24	309240	S SHAPED HOOK	1

10. STITCH SELECTING PARTS COMPONENTS



REF NO.	PART NO.	DESCRIPTION	Qty
1	310011	HINGE SCREW $\phi=12.70$ H=3.2 D=22X3C	1
2	310020	SPRING FOR FRICTION PLATE	1
3	310031	FRICTION PLSTE ROTATING SHAFT	1
4	310040	WASHER 8.5X18X1.5	1
5	310050	SPEED SOLWING LEVER	1
6	310061	HINGE SCREW $\phi=7.94$ H=13.3 T=13X3B	1
7	310070	STOP MOTION CAM GEAR	1
8	310080	FRICTION PLATE KOLDER	1
9	310090	SPEED SLOWING FRICTION PLATE	1
10	310100	POSITIONING PIN	2
11	310110	NUT 11/64"-40 W=3X6	1
12	310120	STOP MOTION TRIPPING LEVER CAM $\phi=7.94$ X12.7M W=10.2	1
13	310130	STOP MOTION TRIPPING LEVER ASM	1
14	302231	SCREW M8 L=24	1
15	310150	STOP MOTION CAM ASM.	1
16	302161	SCREW 15/64"-28 L=10	4
17	310170	STOP MOTION CAM SHOE	1
18	310180	STOP MOTION CAM SHOE	1
19	310191	SCREW FOR STOP MOTION CAM SHOE	1
20	310200	STOP MOTION CAM KNOB	1
21	310210	SPRING	1
22	310221	HINGE SCREW $\phi=4.8$ H=14.5 D=7X2.5B	1
23	310230	STITCH SELECTING SPUR GEAR, MI	1
24	310241	INTERMEDIATE GEAR SHAFT	1
25	310251	HINGE SCREW $\phi=6$ H=3.2 T=11X2C	1
26	310260	GEAR, LARGE	1
27	310271	SCREW	1
28	310280	ROLL $\phi=4.90$ X11M W=3.5	1
29	310290	STITCH ADJUSTING LEER	1
30	310300	SPEED SLOWING FRICTION WHEEL	1