# PARTS & INSTRUCTION MANUAL

# NC-15L

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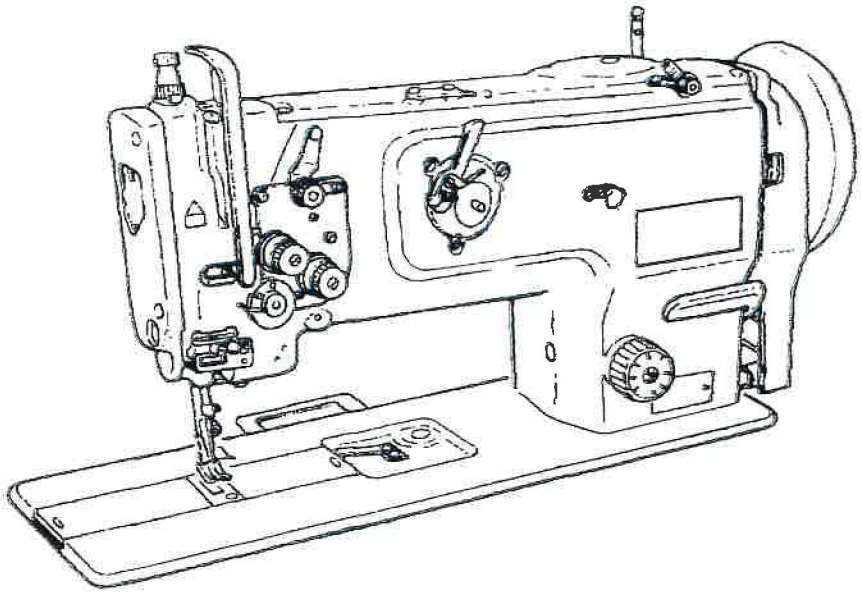


NOTE: Read safety instructions carefully and understand them before using.
Retain this Instruction Manual for future reference.

# IMPORTANT SAFETY INSTRUCTIONS

Putting sewing systems into operation is prohibited until it has been ascertainde 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 folowing 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 used 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

# FOR SAFE OPERATION

1. Keep your hands away from needle when you turn ON the power switch or while the machine is in operation.
2. Do not put your fingers into the thread take – up cover while the machine is operating.
3. Turn OFF the power switch when tilting the machine head, or removing the belt cover or the V belts.
4. During operation, be careful not to allow your or any other person's head, hands or clothes to come close to the handwheel, V belt and motor, Also, do not place anything close to them.
5. Do not operate your machine with the belt cover and finger guard removed.
6. When tilting the machine head, be sure to confirm that the head support bar is properly attached to your machine head, and be careful not to allow your fingers or the like to be pinched in the machine head. In addition, when the machine is used with the control panel, do not tilt or raie the machine head while holding the control panel.

1. To ensure safety, never operate the machine with the ground wire for the power supply removed.
2. When inserting/removing the power plug, the power switch has to be turned OFF in advance.
3. In time of thunder and lightening. stop your work and disconnect the power plug from the receptacle so as to ensure safety.
4. If the machine is suddenly moved from a cold place to a warm place, dew condensation may be observed. In this case, turn ON the power to the machine after you have confirmed that there is no danger of water drops in the machine.

CAUTION:

Note that safety devices such as "eye guard", "finger guard", etc. may be omitted from the illustrations in this Instruction Manual for easy explanation.

When operating the machine, be sure not to remove these safety devices.

# CONTENTS

# BEFORE OPERATION

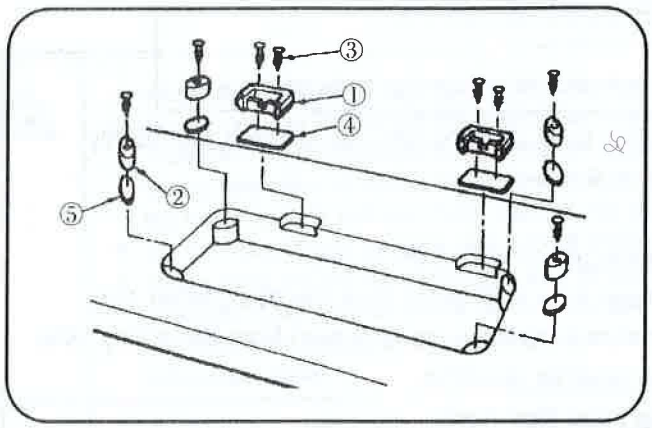
**CAUTION:**
Check the following so as to prevent maloperation of and damage to the machine.

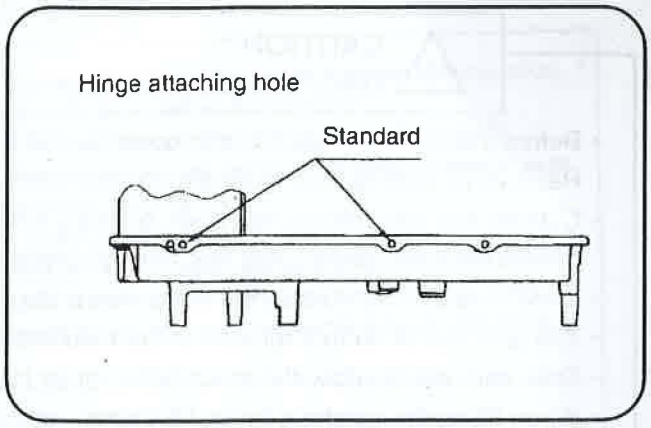
- Before you put the machine into operation for the first time after the set – up, clean it thoroughly. Remove all dust gathering during transportation and oil it well.
- Confirm that the voltage has been correctly set.
  Confirm that the power plug has been properly connected to the power supply.
- Never use the machine in the state where the voltage type is different from the designated one.
- The direction of normal rotation of the machine is counterclockwise as observed from the pulley side. Take care not to allow the machine to rotate in the reverse direction.
- When tilting the machine head, tilt it after removing knee lifter hook.
- Never operate the machine unless the head base has been tilled with oil.
- For a test run, remove the bobbin and the needle thread.
- For the first month, decrease the sewing speed and run 1508N at a speed of 2000 rpm or less and 1508NH 1600 rpm or less.
- Operate the handwheel after the machine has totally stopped.

## SPECIFICATIONS

| | |
|---|---|
| Model | 1560 |
| Sewing speed | Max. 2500 rpm<br>See "21. SEWING SPEED TABLE" on page 12. |
| Stitch length (max.) | Normal feed: 9mm Reverse feed: 9mm |
| Needle | SCHMETZ 135 x 17 (Nm 125 to Nm 180)<br>(Standard: Nm 160) |
| Thread | #30 to #5 (US: #46 to #138, Europe: 20/3 to 60/3) |
| Hook | Vertical – axis 2. 0 – fold capacity hook |
| Lift of presser foot | Hand lifter lever: 9mm |
| | Knee lifter: 16mm |
| Lubricating oil | New Defrix Oil No. 2 |
| Noise | Workplace – related noise at sewing speed<br>$n = 1550 min^{-1}$: $L_{PA} \leqq 84$ dB (A)<br>Noise measurement according to DIN 45635 – 48 – A – 1. |

# 1. INSTALLATION

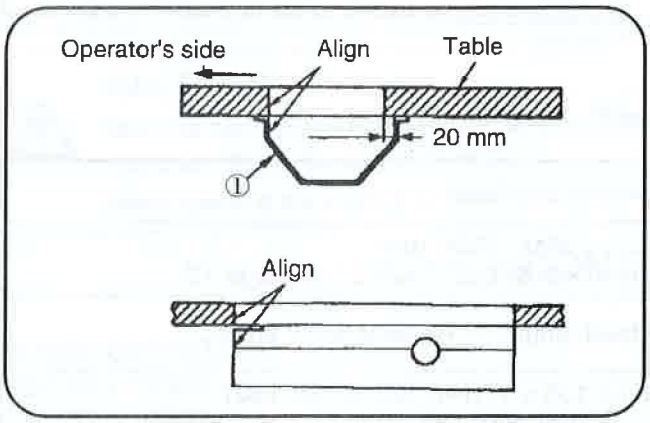



1) Attaching the hinge seats and the support rubbers of the machine head

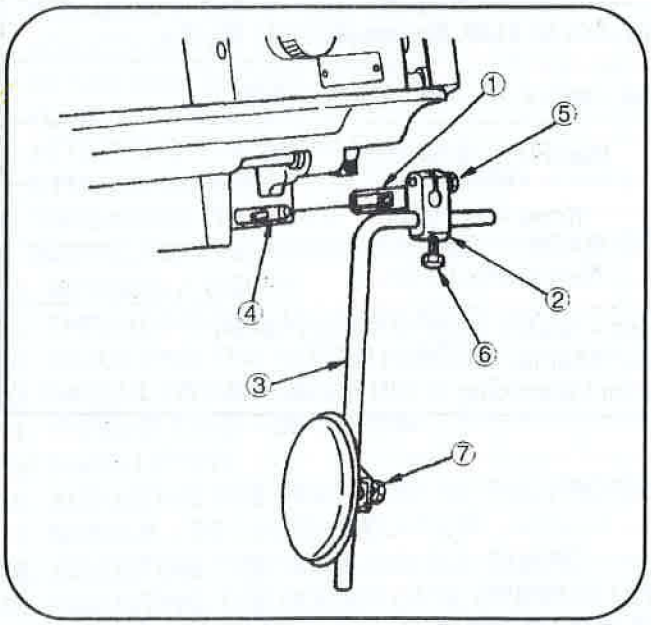
Fix the hinge seats ① and the support rubbers ② supplied with the machine on the table using nails ③.

If the slide plate comes in contact with the table when opening it, place spacer rubbers ④ and ⑤ supplied with the machine under support rubbers ② and hinge seats ①.




2) Attaching the oil pan

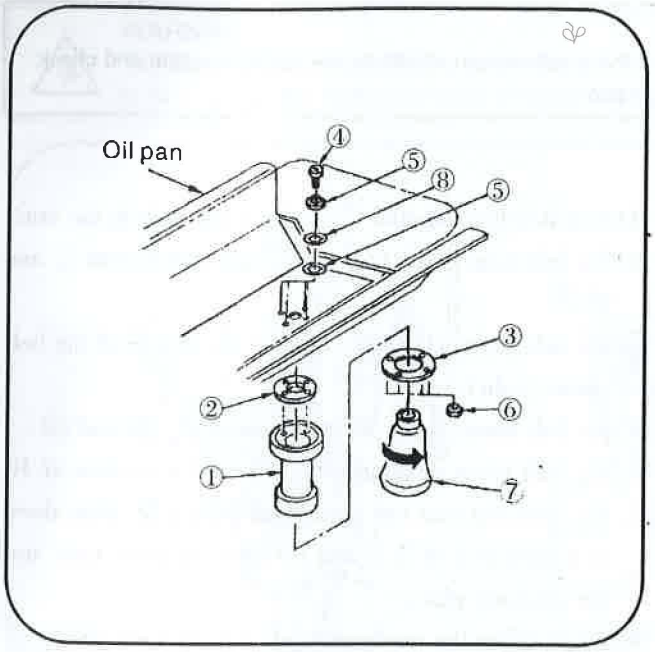
Fix the oil pan ① supplied with the machine by tightening eight wood screws.




3) Adjust knee pad joint ①, knee lifter vertical shaft installing arm ② and knee pad lever ③ to the direction of knee lifter lever shaft ④ and assemble these components.

4) Adjust the direction of the pad with setscrews ⑤, ⑥ and ⑦.

## 2. INSTALLING THE WASTE OIL CONTAINER

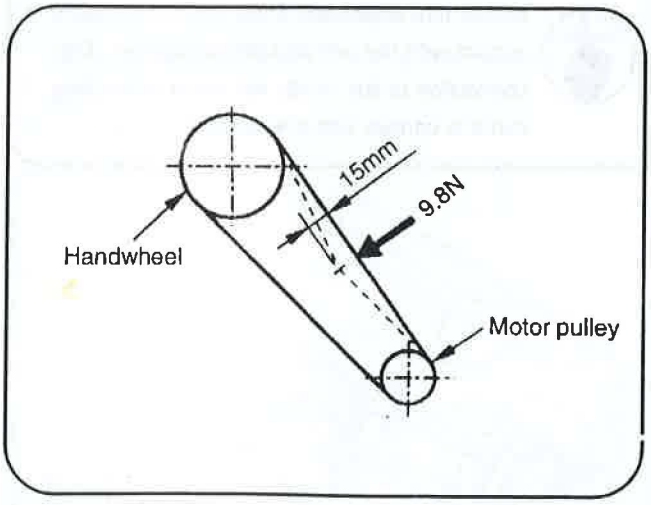



1) Attach drain plug ①, oil seal ② and washer ③ to the oil pan. Attach packing ⑤ and washer ⑧ to screw ④ and fix them with nut ⑥.

2) After they are fixed, screw in waste oil container ⑦ into drain plug ①.

## 3. ADJUSTING THE BELT TENSION

**WARNING:**
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.




Adjust the belt tension with the height of the motor so that the belt sags 15 mm when the center of V belt is applied with a 9. 8 N load.

## 4. ATTACHING THE BELT COVER

**WARNING:**
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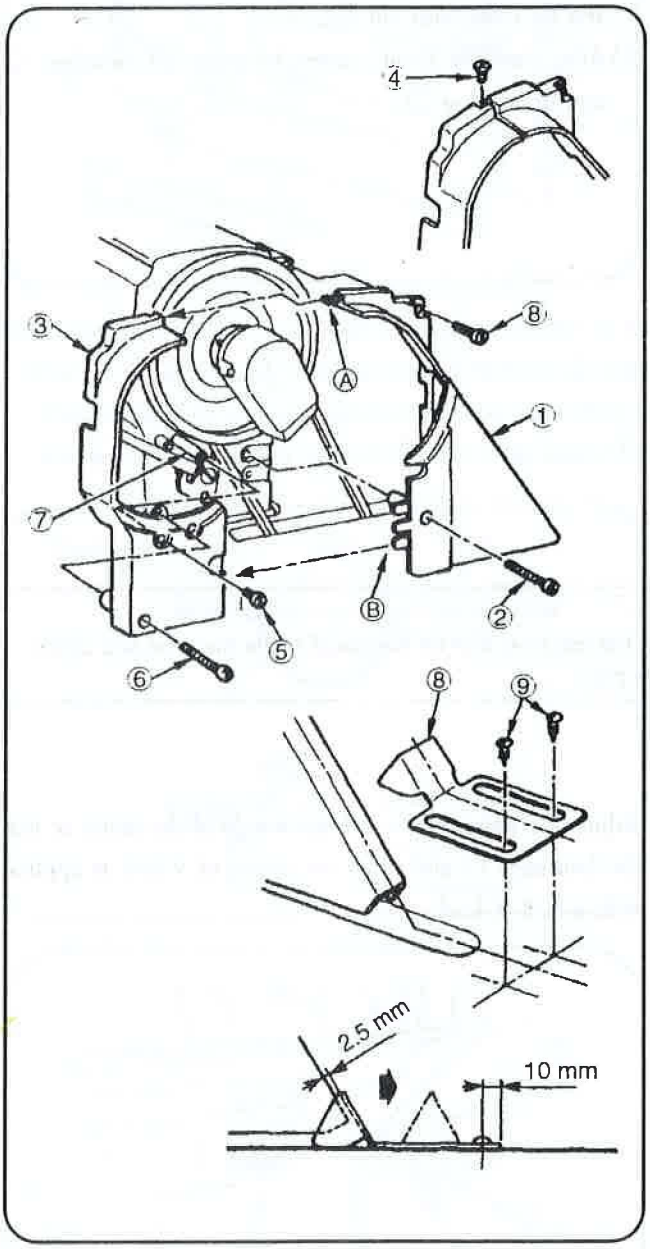


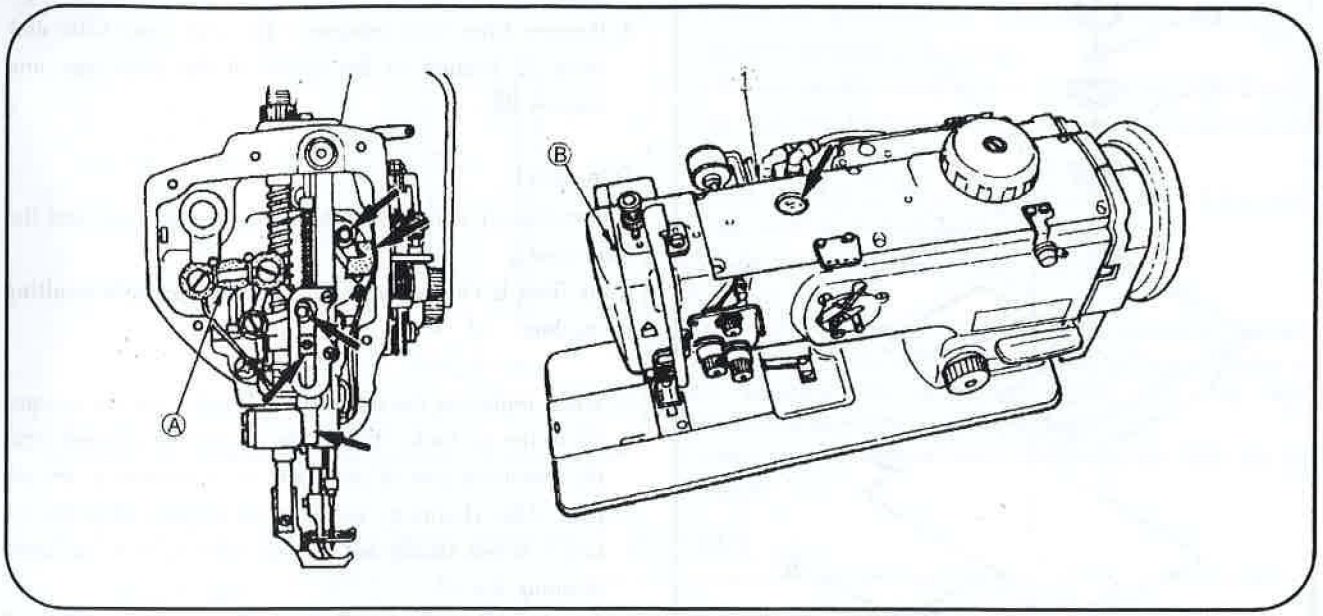

1) Attach belt cover stud ⑦ to the screw hole in the arm.
2) Fix belt cover (right) ① on the arm with screws ② and ⑧.
3) Fit belt cover (left) ③ to notch Ⓐ and Ⓑ of the belt cover (right).
4) Fix belt cover (left) ③ with screws ④, ⑤ and ⑥.
5) Fix belt cover auxiliary plate ⑧ at the position of 10 mm from the rear end with wood screws ⑨ when there is a clearance of 2.5 mm between the belt cover and the auxiliary plate.
6) When tilting the machine head, loosen wood screws ⑨ and move the belt cover auxiliary plate in the direction of the arrow until it stops. Then, tilt the machine head.

Caution

After attaching the belt cover, confirm whether or not the respective cords do not come in contact with the belt and the handwheel. Disconnection of the cords will result when they come in contact with one another.

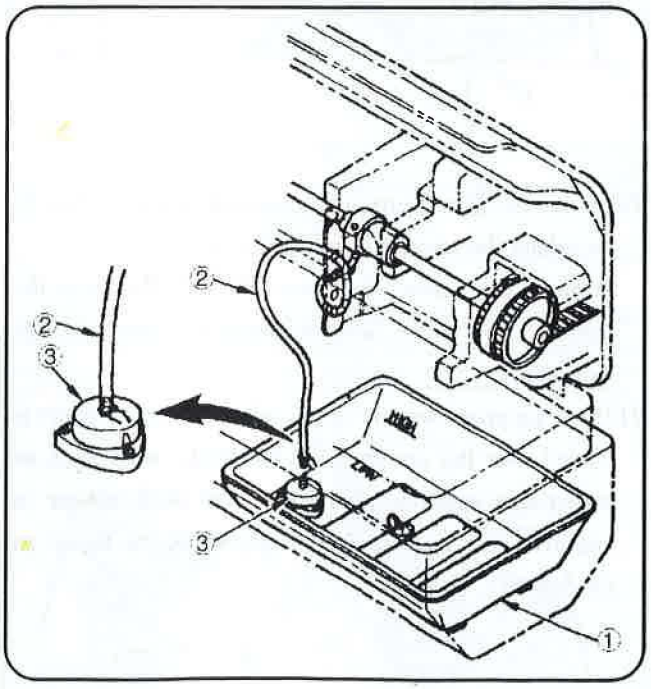
# 5. LUBRICATION

**WARNING:**
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.




1) Prior to operation, apply an adequate amount of oil once a day to the points marked with the arrows Ⓐ.
Prior to operation, apply one drop of oil once a day to the point marked with the arrow Ⓑ.
You can apply oil to the point marked with Ⓐ after removing the rubber cap without removing the face plate.

2) When you operate your machine for the first time after the set – up or after an extended period of disuse, apply an adequate amount of oil to the points marked with the arrows and to each felt and oil wick after removing top cover ①.



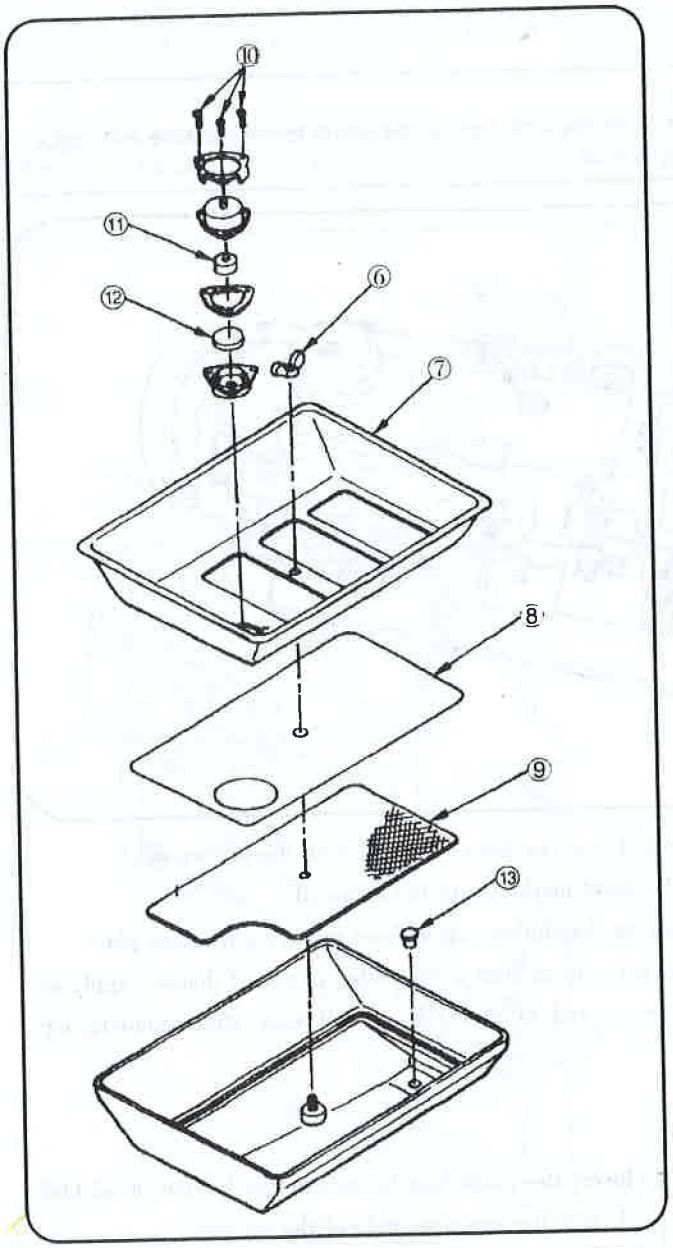

3) Insert the projection located at the bottom of oil tank ① into the waste oil hole of the oil pan.

4) Insert oil pipe ② into filter ③ of the oil tank and fix the pipe with a clip.

5) Four the New Defrix Oil No. 2 into the oil tank until HIGH level is reached.

6) Add the same lubricating oil up to HIGH level as soon as the oil level has come down to LOW level.

7) After the lubrication, you can see from oil sight window ⑤ that the oil rises up when the operation is normal.
(However, the machine should run at 1500 rpm or more.)




■ Cleaning the oil tank

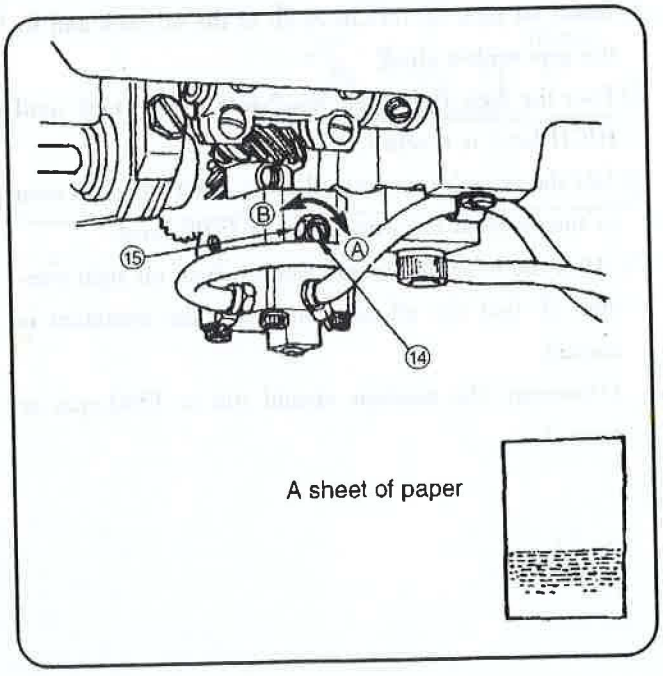
1. Remove the oil pipe from oil tank ①.
2. Remove butterfly nut ⑥ and take out cover (upper) ⑦, filter ⑧ and cover (lower) ⑨ to clean the oil tank.
3. Remove filter case setscrews ⑩, and clean filter element ⑪ located on the inside of the filter case and magnet ⑫.

(Caution)

Approximately once a month, clean the oil tank and the filter case.

If the filter is clogged with soil, lubrication fails resulting in trouble.

4. When replacing the oil in the oil tank, remove stopper ⑬ in the oil tank. Then, the oil can be drained from the installing port of the waste oil container in the oil pan. After draining, securely set stopper ⑬ to the oil tank. When taking out the oil tank take it out after draining the oil.
5. Fix the filter case in which filter element ⑪ and magnet ⑫ are placed to cover (upper) ⑦ with setscrews ⑩.
6. Place cover (lower) ⑨, filter ⑧ and cover (upper) ⑦ in orderin the oil tank, and fix them with butterfly nut ⑥.
7. Insert the oil pipe into the oil tank and fix it with a clip. Fill the oil tank with New Defrix Oil No. 2 up to HIGH level.



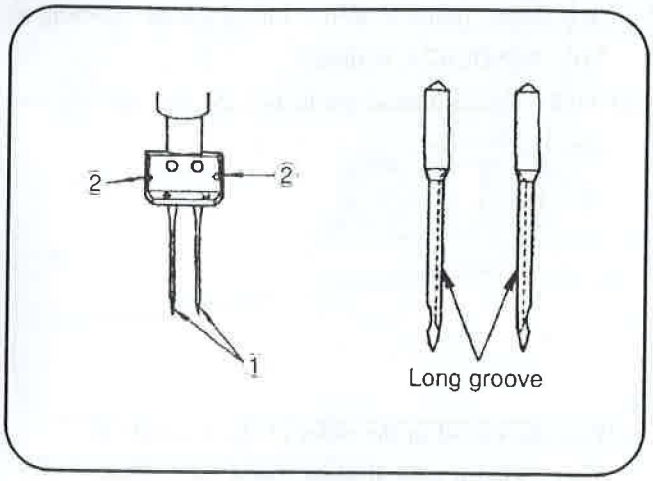

8) Loosen nut ⑮ and turn oil amount adjustment screw ⑭ to adjust the amount of oil in the hook.

Turning the screw clockwise Ⓐ will decrease the amount of oil in the hook or counterclockwise Ⓑ will increase it.

9) The appropriate amount of oil, when a sheet of paper is placed near the periphery of the hook, is to such an extent that splashes of oil from the hook appear in approximately five seconds as shown in the figure on the left.

## 6. ATTACHING THE NEEDLE

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.

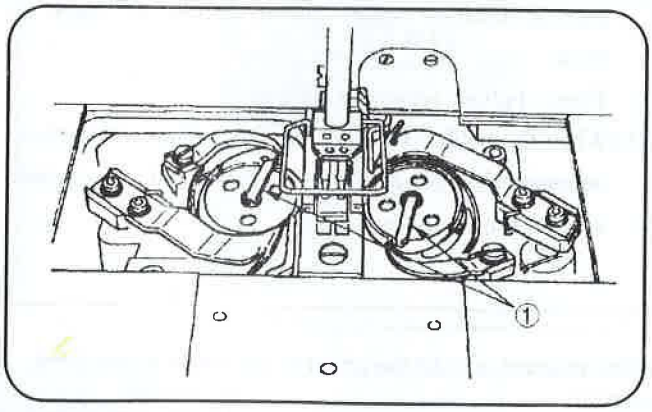



1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
2) Loosen needle clamp screws ②, and hold needles ① so that the long grooves in the needles come inside respectively.
3) Push needles ① deep into the needle clamp holes until they will go no further.
4) Tighten needle clamp screws ② firmly.

(Caution)
When replacing the needle, check the clearance provided between the needle and the blade point of hook. (Refer to "17. NEEDLE – TO – HOOK RELATION" and "18. ADJUSTING THE HOOK NEEDLE GUARD".)
If there is no clearance, the needle and the hook will be damaged.

## 7. ATTACHING AND REMOVING THE BOBBIN

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.




1) Lift latch ① of hook, and take out the bobbin.
2) Put the bobbin into the shaft in the hook correctly and release the latch.

(Caution)
1. Do not make the machine run idle with the bobbin (bobbin thread). The bobbin thread is caught in the hook. As a result, the hook may be damaged.
2. Be careful so as not to get hurt with the top end of the counter knife.

## 8. THREADING THE HOOK

WARNING:
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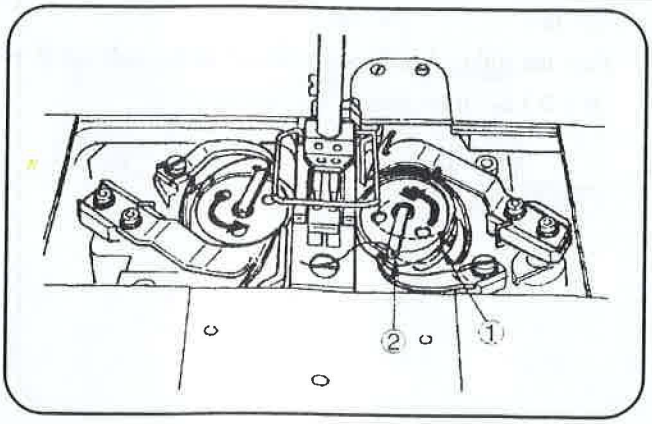
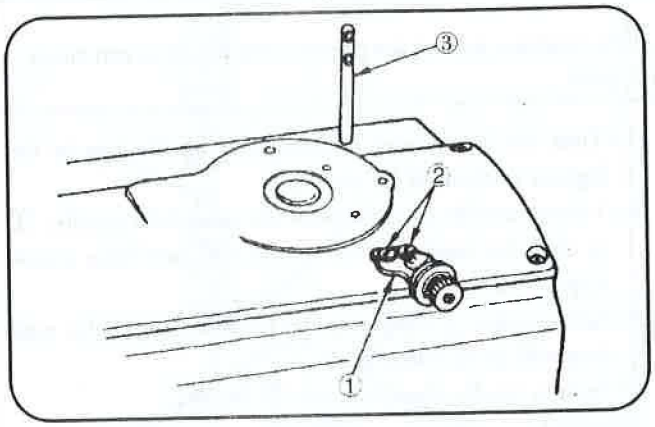



1) Pass the thread through thread path ① in the hook and thread hole ② in the lever, and draw the thread. Now, the thread will be brought to thread hole ② via the tension spring.
2) Make sure that the bobbin revolves in the direction of the arrow when you draw the thread.

## 9. INSTALLING THE BOBBIN WINDER THREAD GUIDE

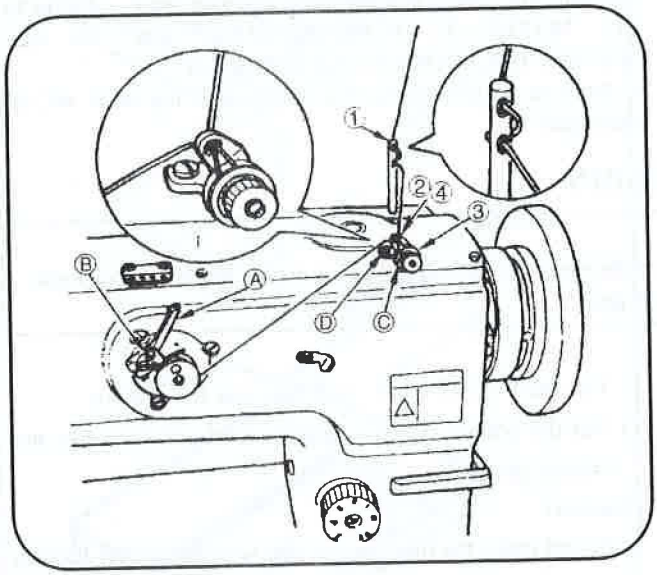



1) Attach bobbin winder thread guide ① to the top cover using screws ② .

2) Adjust the position of the thread guide referring to "10. WINDING A BOBBIN".

3) Strike bobbin thread guide rod ③ into the machine arm.

## 10. WINDING A BOBBIN




1) Pass the thread in the order of ①, through ④ . Then, wind it several turns round the bobbin.

2) Tilt bobbin winder lever Ⓐ .

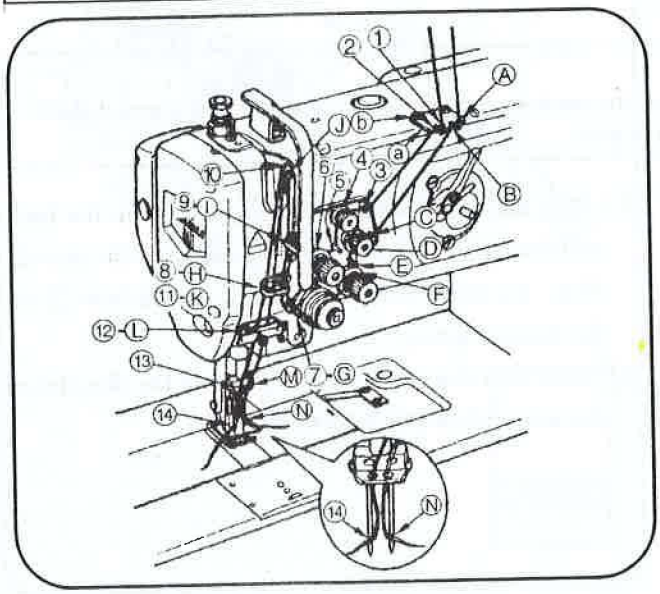
3) Loosen setscrew Ⓑ and adjust the position of the adjusting plate to wind a bobbin about 80% of its capacity.

4) If the bobbin is wound unevenly, correct it by moving bobbin winder thread guide Ⓒ back or forth.
Then, tighten setscrews Ⓓ .

5) When the bobbin is filled up, the bobbin winder lever automatically releases the bobbin and the bobbin winder stops running.

## 11. THREADING THE MACHINE HEAD

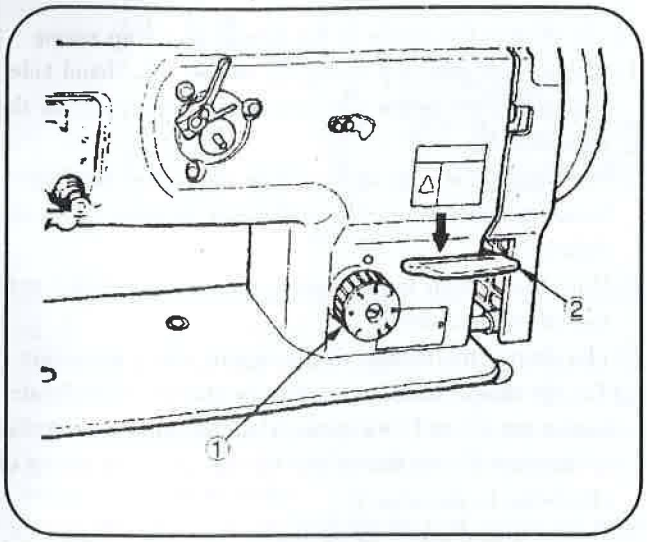
**WARNING:**
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.




1. Attach arm thread guide ⓐ to the top cover with setscrew ⓑ .

2. Pass the left – hand needle thread in the order of ① to ⑭ ⑮ .
Pass the right – hand needle thread in the order of Ⓐ to N ( O ) as illustrated in the figure.

## 12. ADJUSTING THE STITCH LENGTH




Turn stitch dial ① counterclockwise (clockwise) so that the number corresponding to the desired stitch length is brought to the top until the marking spot is reached.

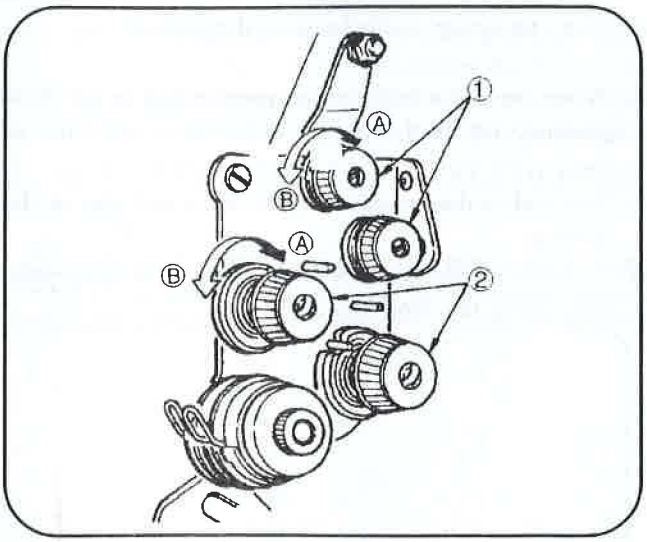
(1) Reverse feed stitchng

1) Press down reverse feed control lever ②.

2) Reverse feed stitches are made as long as you keep pressing the lever down.

3) Release the lever, and the machine will run in the normal feed direction.

## 13. THREAD TENSION




(1) Adjusting the needle thread tension

1) Turn thread tension nut No. 1 ① clockwise Ⓐ to shorten the length of thread remaining on the top of needle after thread trimming. Turn the nut counter-clockwise Ⓑ to lengthen it.

2) Turn thread tension nut No. 2 ② clockwise Ⓐ to increase the needle thread tension, or counter-clockwise Ⓑ to decrease it.

**WARNING:**
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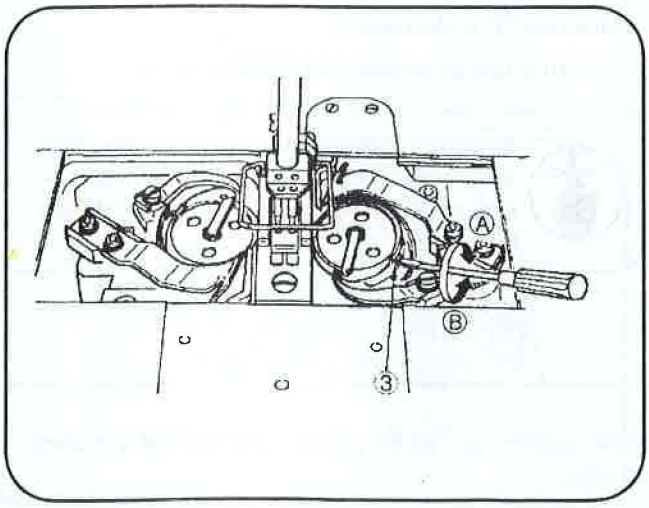


(2) Adjusting the bobbin thread tension

Turn tension adjustment screw ③ clockwise Ⓐ to increase the bobbin thread tension, or counterclockwise Ⓑ to decrease it.

## 20. ADJUSTING THE LIFTING AMOUNT OF THE PRESSER FOOT AND THE WALKING FOOT

**WARNING:**
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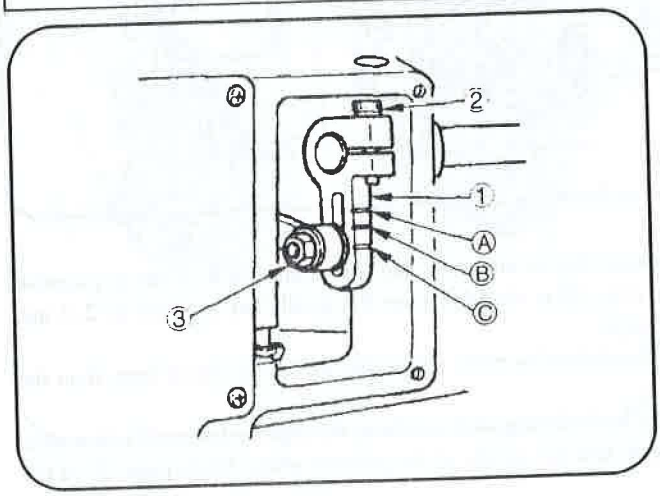



| Standard of the amount of exernate vertical movement | |
|---|---|
| Engraved marker line Ⓐ | Aporox. 5mm |
| Engraved marker line Ⓑ | Aporox. 4mm |
| Engraved marker line Ⓒ | Aporox. 3mm |

The amount of alternate vertical movement of the presser foot and the walking foot is normally equal. To increase the amount of alternate vertical movement, move upper feed arm ① upward in the range of the slot.
To decrease it, move the upper feed arm downward. Then, tighten the nut ③.
To change the lifting amount of the presser foot and that of the walking foot, loosen screw ② in the upper feed arm, turn the handwheel to this side and tighten screw ② when the bottom faces of the presser foot and the walking foot are flush at the top surface of the throat plate.
Then, the lifting amount of the presser foot becomes more than that of the walking foot. Or, turn the handwheel in the reverse direction to increase the lifting amount of the walking foot more than that of the presser foot.
You will find upper feed arm O when removing the right side of the window, plate.

## 21. SEWING SPEED TABLE

The maximum sewing speed has been specified in accordance with sewing conditions as shown in the table below. Set the maximum sewing speed appropriately in accordance with the sewing conditions given taking care not to exceed the corresponding specified value.

1) Maximum sewing speed in accordance with the amount of alternate vertical movement of the walking foot and presser foot

| Amount of alternate vertical movement of the walking foot and presser foot | Stitch length: 6 mm or less | Stitch length: More than 6 mm and 9 mm or less |
|---|---|---|
| Less than 3 mm | 2500 rpm | 2000 rpm |
| 3 mm to less than 4 mm | 2000 rpm | 2000 rpm |
| 4 mm to less than 6. 5 mm | 1600 rpm | 1600 rpm |

2) Maximum sewing speed in accordance with the needle gauge

| Needle gauge | Max. Sewing speed |
|---|---|
| 3. 2mm(1/8) to 9. 5mm(3/8) | 2500 rpm |
| 12. 7mm(1/2) to 19. 1mm(3/4) | 2000 rpm |
| 22. 2mm(7/8) to 31. 8mm(1 -1/4) | 1600 rpm |

## 22. MOTOR PULLEY AND V BELT

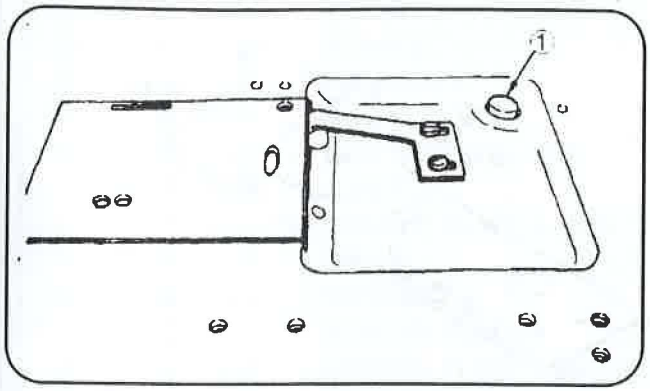
Use an M type V belt.
The following table shows the relationship among the motor pulley, belt length and the rotational speed of the sewing machine.

| Rotational speed of sewing machine | Effective diameter of handwheel | Number of poles | Frequency | Rotational speed of motor | Effective diameter of motor pulley | Size of V belt |
|---|---|---|---|---|---|---|
| 2500 rpm | ϕ93. 3mm | 2 | 50Hz | 2840rpm | ϕ 80 | M 44 |
| | | | 60Hz | 3400 rpm | ϕ 65 | M 43 |
| | | 4 | 50Hz | 1430 rpm | ϕ 160 | M 47 |
| | | | 60Hz | 1715 rpm | ϕ 135 | M 46 |

For the motor, use a 2P or 4P clutch motor of 3 – phase 400W (1/2 HP).

## 23. RESETING THE SAFETY CLUTCH

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.




The safety clutch functions when an excessive load is applied to the hook or the other components during sewing. At this time, the hook will never rotate even if turning the handwheel.

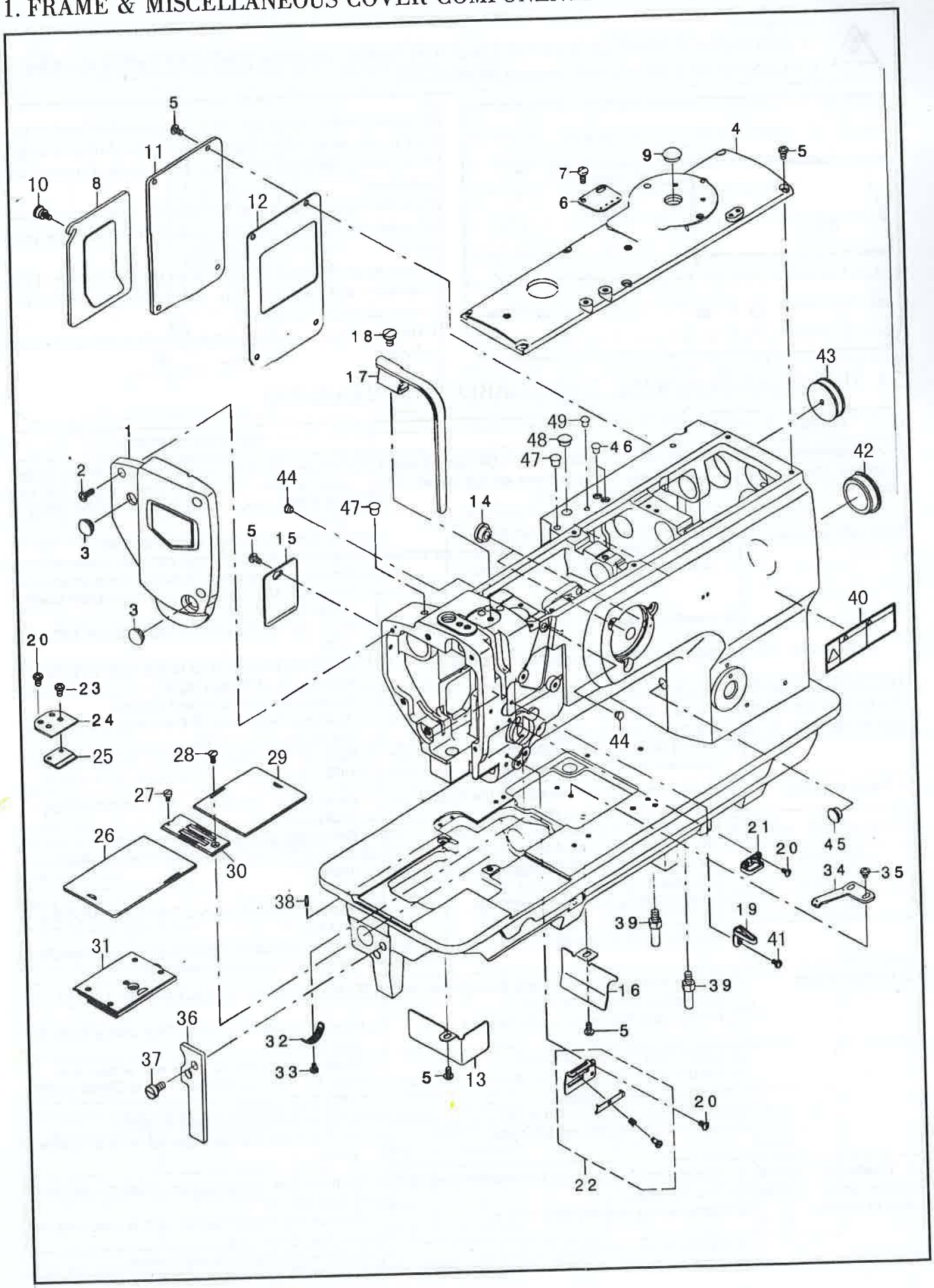
When the safety clutch has functioned, remove the cause and reset the safety clutch as given in the following procedure.

1) Pressing push button ① located on the top surface of the machine bed, strongly turn the handwheel in the reverse direction of rotation.
2) The resetting procedure completes when the handwheel clicks.

## 24. TROUBLES IN SEWING AND CORRECTIVE MEASURES

| Troubles | Causes | Corrective measures |
|---|---|---|
| 1、Thread breakage (Thread frays or is worn out.) | ① Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs. | ○ Remove the sharp edges or burrs on the blade point of hook using a fine emery paper. Buff up the bobbin case resting groove on the throat plate. |
| | ② Needle thread tension is too high. | ○ Decrease the needle thread tension. |
| | ③ Bobbin case opening lever provides an excessive clearance at the bobbin case. | ○ Decrease the clearance provided between the bobbin case opening lever and the bobbin. Refer to "19. ADJUSTING THE BOBBIN CASE OPENING LEVER." |
| | ④ Needle comes in contact with the blade point of hook. | ○ Refer to "17. NEEDLE – TO – HOOK RELA – TION." |
| | ⑤ Amount of oil in the hook is too small. | ○ Adjust the amount of oil in the hook properly. Refer to "5. LUBRICATION". |
| (Needle thread trails 2 to 3 cm from the wrong side of the fabric.) | ⑥ Needle thread tension is too low. | ○ Increase the needle thread tension. |
| | ⑦ Thread take – up spring works excessively or the stroke of the spring is too small. | ○ Decrease the tension of the spring and increase the stroke of the spring. |
| | ⑧ Timing between the needle and the hook is excessively advanced or retarded. | ○ Refer to "17. NEEDLE – TO – HOOK RELA – TION." |
| 2、Stitch skipping | ① Timing between the needle and the hook is excessively advanced or retarded. | ○ Refer to "17. NEEDLE – TO – HOOK RELA – TION." |
| | ② Pressure of the presser foot is too low. | ○ Tighten the presser spring regulator. |
| | ③ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct. | ○ Refer to "17. NEEDLE – TO – HOOK RELA – TION." |
| | ④ Hook needle guard is not functional. | ○ Refer to "18. ADJUSTING THE HOOK NEEDLE GUARD." |
| | ⑤ Improper type of needle is used. | ○ Replace the needle with one which is thicker than the current needle by one count. |
| 3、Loose stitches | ① Bobbin thread does not pass through the tension spring of the inner hook. | ○ Thread the bobbin thread correctly. |
| | ② Thread path has been poorly finished. | ○ Remove rough parts with a fine emery paper or buff it up. |
| | ③ Bobbin fails to move smoothly. | ○ Replace the bobbin or hook with a new one. |
| | ④ Bobbin case opening lever provides too much clearance at the bobbin. | ○ Refer to "19. ADJUSTING THE BOBBIN CASE OPENING LEVER." |
| | ⑤ Bobbin thread tension is too low. | ○ Increase the bobbin thread tension. |
| | ⑥ Bobbin has been wound too tightly. | ○ Decrease the tension applied to the bobbin winder. |
| 4、Thread slips off the needle eyelet at the start of sewing. | ① Thread tension given by the tension controller No. 1 is too high. | ○ Decrease the thread tension given by the tension controller No. 1. |
| | ② Clamp spring has improper shape. | ○ Replace the clamp spring with a new one or correct the currect one. |
| | ③ Bobbin thread tension is too low. | ○ Increase the bobbin thread tension. |

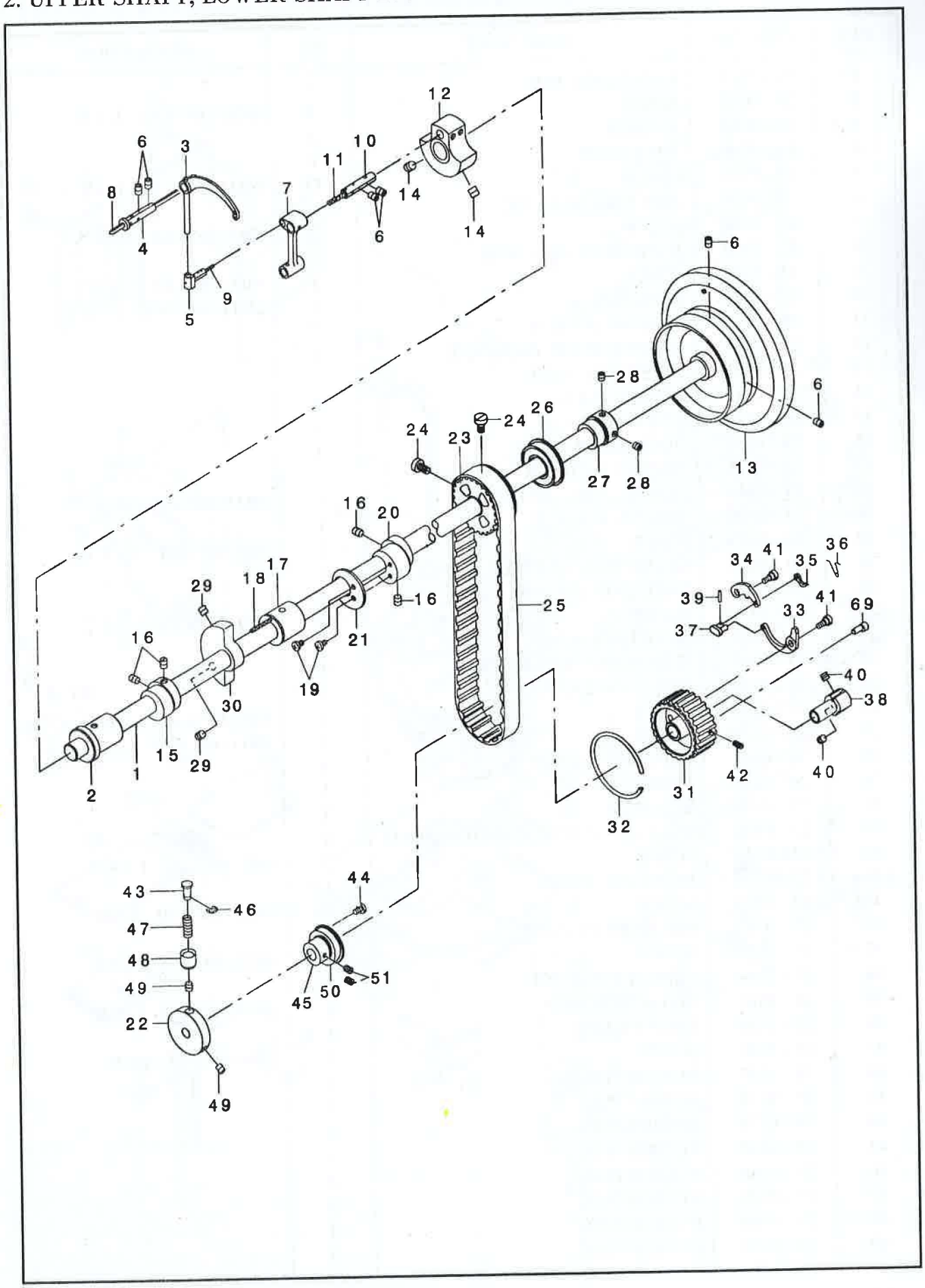
# 1. FRAME & MISCELLANEOUS COVER COMPONENTS



# 1. FRAME & MISCELLANEOUS COVER COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0101 | FACE PLATE ASM. | 1 | |
| 2 | 23 – 0102 | SCREW | 3 | SM11/64″ × 40 L = 12 |
| 3 | 23 – 0103 | RUBBER | 2 | |
| 4 | 24 – 0104 | TOP COVER | 1 | |
| 5 | 23 – 0105 | SCREW | 13 | SM11/64″ × 40 L = 8 |
| 6 | 23 – 0106 | ARM THREAD GUIDE | 1 | |
| 7 | 23 – 0107 | SCREW | 2 | SM3/16″ × 32 L = 9.5 |
| 8 | 23 – 0108 | WINDOW PLATE A ASM. | 1 | |
| 9 | 24 – 0148 | SCREW | 1 | SM3/16″ × 32 L = 12 |
| 10 | 23 – 0111 | SETSCREW | 1 | SM11/64″ × 40 L = 7.5 |
| 11 | 23 – 0112 | WINDOW PLATE B | 1 | |
| 12 | 23 – 0113 | WINDOW PLATE PACKING B | 1 | |
| 13 | 23 – 0151 | OIL SHIELD (LEFT) | 1 | |
| 14 | 23 – 0115 | RUBBER PLUG | 2 | |
| 15 | 23 – 0116 | SIDE COVER | 1 | |
| 16 | 23 – 0152 | DUST COVER | 1 | |
| 17 | 24 – 0118 | THREAD GUIDE, B | 1 | |
| 18 | 23 – 0119 | SCREW 15/64 – 28 L = 9 | 1 | SM15/64″ × 28 L = 9 |
| 19 | 23 – 0120 | THREAD GUIDE, B | 1 | |
| 20 | 23 – 0123 | SCREW | 5 | SM9/64″ × 40 L = 5.6 |
| 21 | 23 – 0122 | FRAME THREAD GUIDE, UPPER | 1 | |
| 22 | 23 – 0124 | THREAD GUIDE ASM. | 1 | |
| 23 | 23 – 0170 | SCREW | 2 | SM9/64″ × 40 L = 3.2 |
| 24 | 23 – 0168 | AUXILIARY COVER | 1 | |
| 25 | 23 – 0169 | SLIDING PLATE PRESSER | 1 | |
| 26 | 24 – 0140 | BED SLIDE, LEFT | 1 | |
| 27 | 23 – 0138 | SCREW | 1 | SM9/64″ × 40 L = 6 |
| 28 | 23 – 0137 | SCREW | 1 | SM11/64″ × 40 L = 7 |
| 29 | 24 – 0142 | BED SLIDE, RIGHT | 1 | |
| 30 | 24 – 0136 | THROAT PLATE | 1 | |
| 31 | 23 – 0143 | BED SLIDE ASM. | 1 | |
| 32 | 23 – 0132 | TAKE – UP SPRING ADJUSTING PLATE | 1 | |
| 33 | 23 – 0133 | SCREW | 2 | SM3/16″ × 32 L = 4.5 |
| 34 | 23 – 0134 | BED SLIDE SPRING | 1 | |
| 35 | 23 – 0135 | SCREW | 2 | SM11/64″ × 40 L = 5 |
| 36 | 23 – 0163 | BED SUPPORT PLATE | 1 | |
| 37 | 23 – 0172 | SCREW | 2 | SM15/64″ × 28 L = 12 |
| 38 | 23 – 0144 | THROAT PLATE PIN | 1 | |
| 39 | 23 – 0162 | BED SCREW STUD | 2 | SM15/64″ × 28 L = 10 |
| 40 | 23 – 0139 | SAFETY LABEL | 1 | |
| 41 | 23 – 0121 | SCREW | 1 | SM9/64″ × 40 L = 6 |
| 42 | 23 – 0157 | RUBBER PLUG | 1 | |
| 43 | 23 – 0158 | RUBBER PLUG | 1 | |
| 44 | 23 – 0175 | RUBBER PLUG | 2 | |
| 45 | 23 – 0145 | RUBBER PLUG | 1 | |
| 46 | 23 – 0146 | RUBBER PLUG | 2 | |
| 47 | 23 – 0148 | RUBBER PLUG | 2 | |
| 48 | 23 – 0164 | RUBBER PLUG | 1 | |
| 49 | 23 – 0159 | RUBBER PLUG | 1 | |

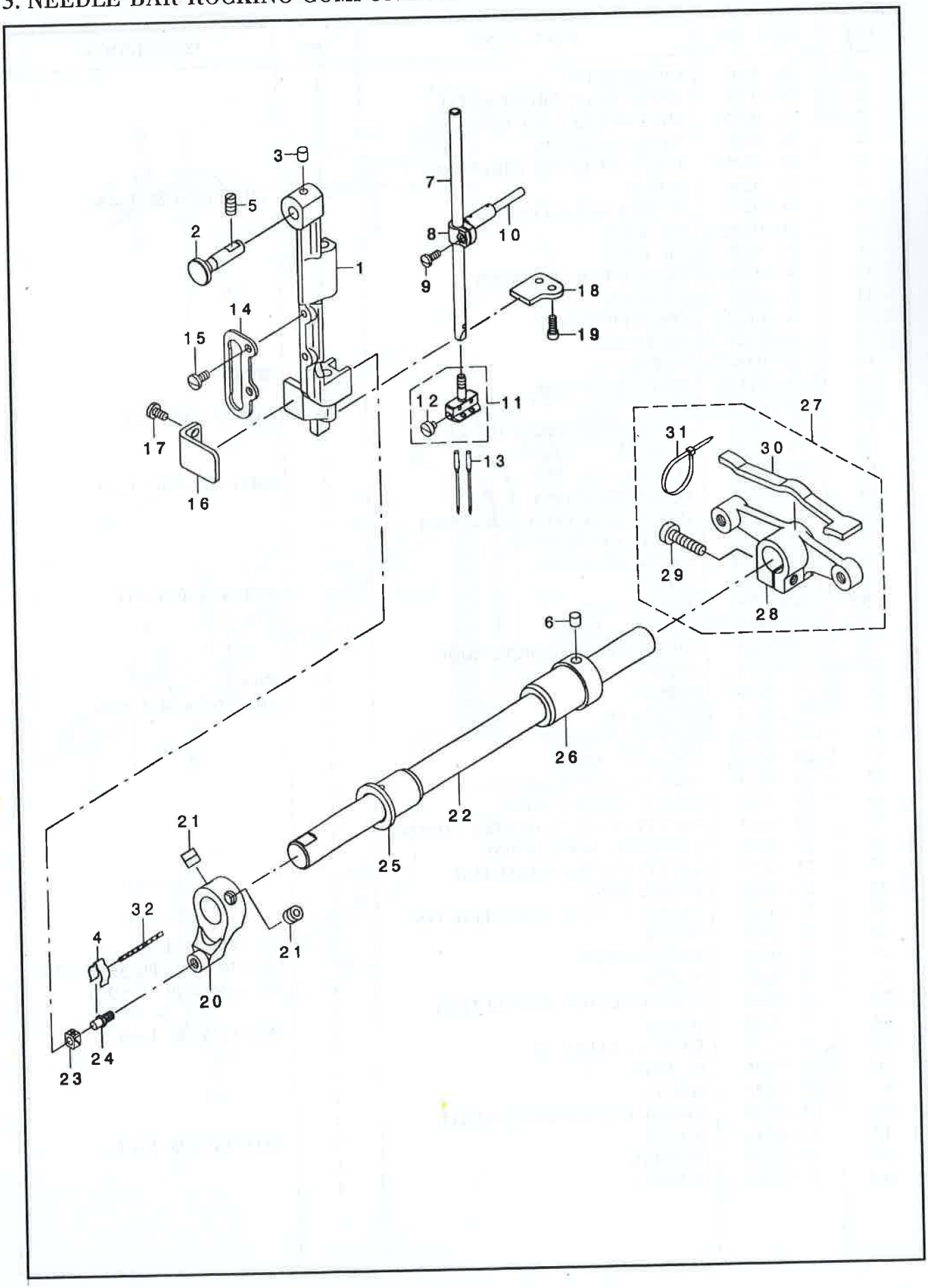
## 2. UPPER SHAFT, LOWER SHAFT DRIVING & BALANCE COMPONENTS



## 2. UPPER SHAFT, LOWER SHAFT DRIVING & BALANCE COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0201 | UPPER SHAFT | 1 | |
| 2 | 23 – 0202 | UPPER SHAFT FRONT METAL | 1 | |
| 3 | 24 – 0203 | THREAD TAKE – UP LEVER | 1 | |
| 4 | 24 – 0204 | TAKE – UP LEVER | 1 | |
| 5 | 24 – 0205 | TAKE – UP LEVER THRUST PIN | 1 | |
| 6 | 23 – 0206 | SCREW | 6 | SM15/64″ × 28 L = 8 |
| 7 | 24 – 0207 | NEEDLE BAR CRANK ROD | 1 | |
| 8 | 23 – 0208 | OIL WICK | 1 | |
| 9 | 23 – 0209 | OIL WICK | 1 | |
| 10 | 24 – 0210 | NEEDLE BAR CRANK PIN | 1 | |
| 11 | 23 – 0211 | OIL WICK | 1 | |
| 12 | 24 – 0212 | COUNTERWEIGHT | 1 | |
| 13 | 23 – 0261 | FLYWHEEL | 1 | |
| 14 | 23 – 0214 | SCREW | 2 | M8 × 8 |
| 15 | 23 – 0215 | UPPER FEED CAM | 1 | |
| 16 | 23 – 0216 | SCREW | 4 | SM1/4″ × 40 L = 8 |
| 17 | 23 – 0217 | UPPER SHAFT INNER METAL | 1 | |
| 18 | 23 – 0218 | 0IL WICK | 1 | |
| 19 | 23 – 0257 | SCREW | 2 | SM11/64″ × 40 L = 7 |
| 20 | 23 – 0220 | ECCENTRIC CAM A | 1 | |
| 21 | 23 – 0221 | HORIZONTAL FEED CAM COVER | 1 | |
| 22 | 23 – 0222 | SAFETY CLUTCH DISC | 1 | |
| 23 | 23 – 0223 | UPPER SPROCKET | 1 | |
| 24 | 23 – 0224 | SCREW | 2 | SM1/4″ × 40 L = 11 |
| 25 | 23 – 0225 | TIMING BELT | 1 | |
| 26 | 23 – 0226 | BUSHING, REAR | 1 | |
| 27 | 23 – 0227 | UPPER SHAFT BEARING HOOK | 1 | |
| 28 | 23 – 0228 | SCREW | 2 | M6 × 6 |
| 29 | 23 – 0259 | SCREW | 2 | SM15/64″ × 28 L = 15 |
| 30 | 23 – 0258 | BALANCER | 1 | |
| 31 | 23 – 0231 | LOWER SPROCKET | 1 | |
| 32 | 23 – 0232 | SPROCKET RING | 1 | |
| 33 | 23 – 0233 | SAFETY CLUTCH SPRING | 1 | |
| 34 | 23 – 0234 | SAFETY CLUTCH HOOK | 1 | |
| 35 | 23 – 0235 | SAFETY CLUTCH COUNTER – HOOK | 1 | |
| 36 | 23 – 0236 | COUNTER – HOOK SPRING | 1 | |
| 37 | 23 – 0237 | SAFETY CLUTCH SMALL LINK | 1 | |
| 38 | 23 – 0238 | SAFETY BASE | 1 | |
| 39 | 23 – 0239 | SAFETY CLUTCH SMALL LINK PIN | 1 | |
| 40 | 23 – 0408 | SCREW | 2 | SM1/4″ × 40 L = 6 |
| 41 | 23 – 0241 | HINGE SCREW | 2 | SM3/16″ × 32 Φ6. 35 H = 3. 2 |
| 42 | 23 – 0243 | SCREW | 1 | SM11/64″ × 40 L = 9. 5 |
| 43 | 23 – 0244 | SAFETY CLUTCH PUSH BUTTON | 1 | |
| 44 | 23 – 0255 | SCREW | 2 | SM3/16″ × 28 L = 8 |
| 45 | 23 – 0252 | THRUST COLLAR, B | 1 | |
| 46 | 23 – 0246 | E – RING | 1 | |
| 47 | 23 – 0247 | SPRING | 1 | |
| 48 | 23 – 0248 | SAFETY CLUTCH KNOB SLEEVE | 1 | |
| 49 | 23 – 0249 | SCREW | 2 | SM15/64″ × 28 L = 7 |
| 50 | 23 – 0254 | BEARING | 1 | |
| 514 | 23 – 0252 | SCREW | 1 | |

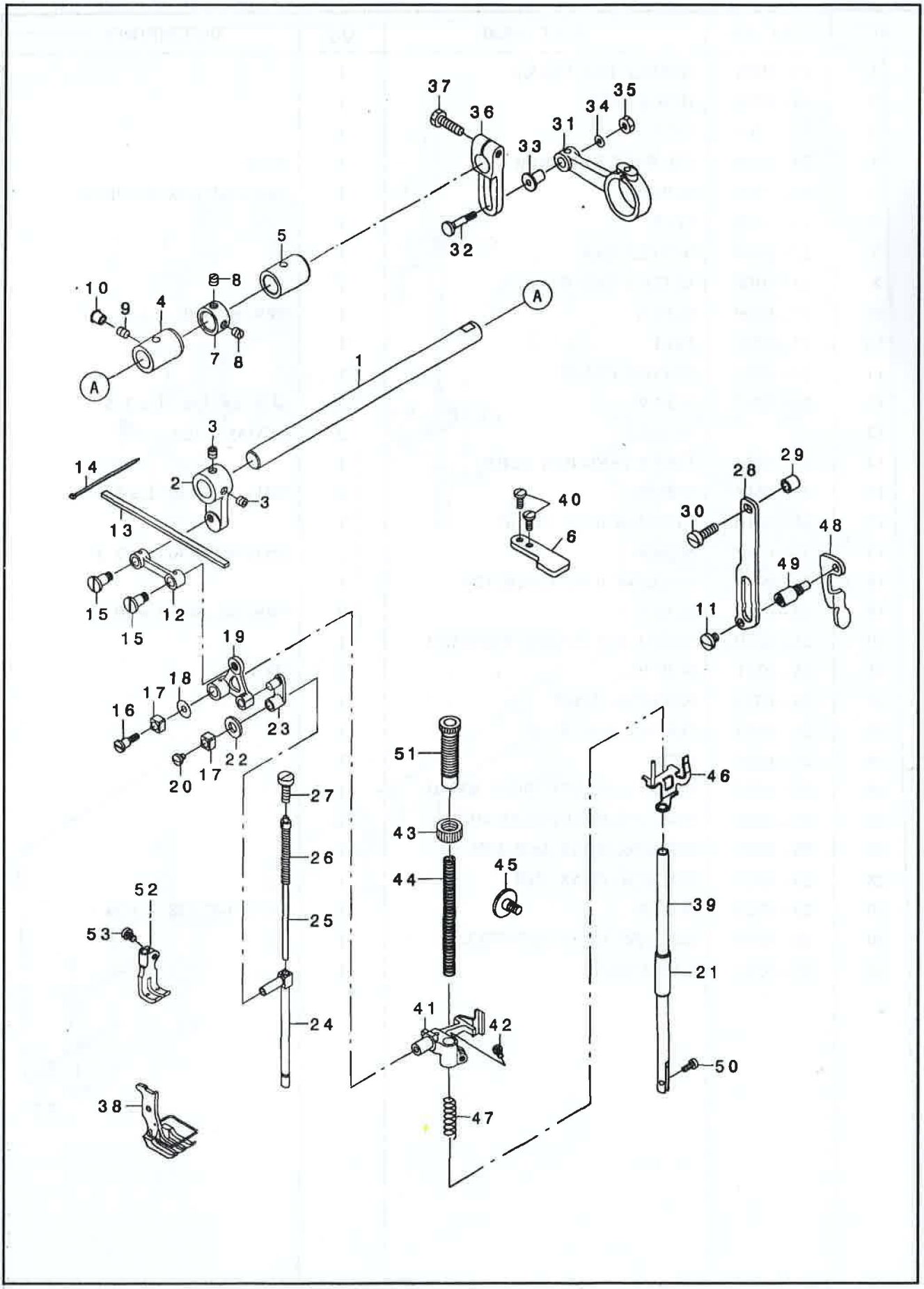
## 3. NEEDLE BAR ROCKING COMPONENTS



## 3. NEEDLE BAR ROCKING COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 - 0301 | NEEDLE BAR FRAME | 1 | |
| 2 | 23 - 0302 | HINGE STUD | 1 | |
| 3 | 23 - 0303 | FELT | 1 | |
| 4 | 23 - 0304 | OIL WICK RETAINER | 1 | |
| 5 | 23 - 0305 | SCREW | 1 | SM15/64" × 28 L = 10. 5 |
| 6 | 23 - 0106 | FELT | 1 | |
| 7 | 23 - 0307 | NEEDLE BAR | 1 | |
| 8 | 23 - 0308 | NEEDLE ROD HOLDER | 1 | |
| 9 | 23 - 0309 | SCREW | 1 | SM9/64" × 40 L = 8 |
| 10 | 23 - 0310 | FELT | 1 | |
| 11 | 23 - 0311 | NEEDLE CLAMP | 1 | |
| 12 | 23 - 0312 | SCREW | 2 | SM9/64" × 40 L = 3. 5 |
| 13 | | NEEDLE | 2 | SY3355 160 |
| 14 | 23 - 0314 | UPPER FEED BAR GUIDE | 1 | |
| 15 | 23 - 0315 | SCREW | 2 | SM11/64" × 40 L = 8 |
| 16 | 23 - 0316 | ROCKING BASE GUIDE | 1 | |
| 17 | 23 - 0317 | SCREW | 2 | SM11/64" × 40 L = 7. 5 |
| 18 | 23 - 0318 | ROCKING BASE GUIDE (B) | 1 | |
| 19 | 23 - 0319 | SCREW | 2 | SM9/64" × 40 L = 10 |
| 20 | 23 - 0320 | NEEDLE BAR ROCKING FRONTARM | 1 | |
| 21 | 23 - 0321 | SCREW | 2 | M8 × 8 |
| 22 | 23 - 0322 | ROCKING SHAFT | 1 | |
| 23 | 23 - 0323 | SQUARE BLOCK | 1 | |
| 24 | 23 - 0324 | STUD | 1 | |
| 25 | 23 - 0325 | ROCKING SHAFT FRONT METAL | 1 | |
| 26 | 23 - 0326 | ROCKING SHAFT REAR METAL | 1 | |
| 27 | 23 - 0327 | ROCKING REAR ARM ASM. | 1 | |
| 28 | 23 - 0328 | ROCKING REAR ARM | 1 | |
| 29 | 23 - 0329 | SCREW | 1 | SM15/64" × 28 L = 24 |
| 30 | 23 - 0330 | ROCKING REAR ARM FELT | 1 | |
| 31 | 23 - 0331 | CABLE BAND | 1 | |

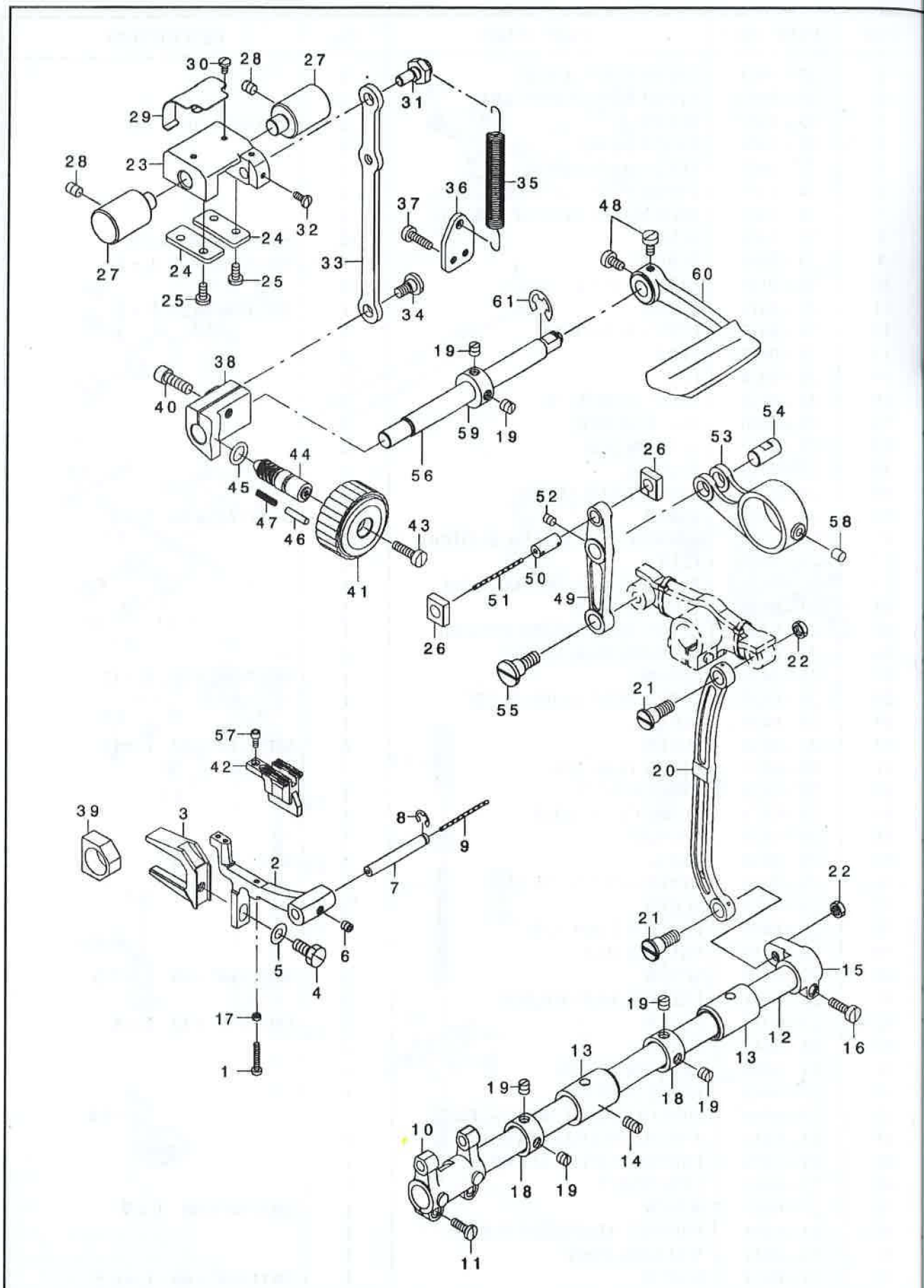
# 4. PRESSURE ADJUSTING & UPPER FEED MECHANISM COMPONENTS



## 4. PRESSURE ADJUSTING & UPPER FEED MECHANISM COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0401 | UPPER FEED SHAFT | 1 | |
| 2 | 23 – 0402 | UPPER FEED FRONT ARM | 1 | |
| 3 | 23 – 0403 | SCREW | 2 | SM1/4″ × 40 L = 6 |
| 4 | 23 – 0404 | FRONT METAL | 1 | |
| 5 | 23 – 0405 | FEED SHAFT METAL | 1 | |
| 6 | 24 – 0473 | UPPER FEED STOPPER PLATE | 1 | |
| 7 | 23 – 0407 | MAIN SHAFT THRUST COLLAR | 1 | |
| 8 | 23 – 0408 | SCREW | 2 | SM1/4″ × 40 L = 6 |
| 9 | 23 – 0249 | SCREW | 1 | SM15/64″ × 28 L = 7 |
| 10 | 23 – 0148 | RUBBER PLUG | 1 | |
| 11 | 23 – 0411 | SCREW | 1 | SM15/64″ × 28 L = 7 |
| 12 | 23 – 0412 | UPPER FEED LINK | 1 | |
| 13 | 23 – 0413 | FELT | 1 | |
| 14 | 23 – 0414 | CLIP | 1 | |
| 15 | 23 – 0415 | HINGE SCREW, B | 2 | |
| 16 | 23 – 0416 | HINGE SCREW | 1 | |
| 17 | 23 – 0417 | SLIDE BLOCK | 2 | |
| 18 | 23 – 0418 | WASHER | 1 | |
| 19 | 24 – 0419 | TRIANGULAR LEVER | 1 | |
| 20 | 23 – 0420 | SCREW | 1 | SM11/64″ × 40 L = 5 |
| 21 | 24 – 0498 | PRESSER BAR LOWER BUSHING | 1 | |
| 22 | 23 – 0422 | FELT | 1 | |
| 23 | 23 – 0423 | WALKING BAR DRIVING LINK | 1 | |
| 24 | 23 – 0424 | WALKING BAR | 1 | |
| 25 | 24 – 0425 | UPPER FEED SPRING HOLDER | 1 | |
| 26 | 23 – 0426 | WALKING BAR SPRING | 1 | |
| 27 | 23 – 0427 | SCREW | 1 | SM15/64″ × 28 L = 17 |
| 28 | 24 – 0428 | UPPER FEED GUIDE PLATE | 1 | |
| 29 | 23 – 0429 | ROLLER | 1 | |
| 30 | 23 – 0430 | SCREW | 2 | SM15/64″ × 28 L = 19 |
| 31 | 23 – 0431 | UPPER FEED ROB | 1 | |
| 32 | 23 – 0432 | HINGE SCREW | 1 | |
| 33 | 23 – 0433 | CONNECTING STUD | 1 | |
| 34 | 23 – 0434 | WASHER | 1 | |
| 35 | 23 – 0435 | NUT | 1 | SM11/64″ × 40 |
| 36 | 23 – 0436 | UPPER FEED REAR ARM | 1 | |
| 37 | 23 – 0437 | SCREW | 1 | M6 × 22 |
| 38 | 23 – 0455 | PRESSER FOOT ASM. | 1 | |
| 39 | 23 – 0439 | PRESSER BAR | 1 | |
| 40 | 23 – 0315 | SCREW | 2 | SM11/64″ × 40 L = 7. 5 |
| 41 | 23 – 0441 | PRESSER BAR HOLDER | 1 | |
| 42 | 23 – 0315 | SCREW | 1 | SM11/64″ × 40 L = 8 |
| 43 | 23 – 0443 | NUT | 1 | |
| 44 | 23 – 0444 | PRESSER SPRING | 1 | |
| 45 | 23 – 0445 | HINGE SCREW | 1 | |
| 46 | 23 – 0446 | THREAD RELEASE HOLDING PLATE | 1 | |
| 47 | 23 – 0447 | THREAD RELEASE SPRING | 1 | |
| 48 | 23 – 0448 | PRESSER LIFTER LEVER | 1 | |
| 49 | 23 – 0449 | LINK SHAFT | 1 | |
| 50 | 23 – 0450 | SCREW | 1 | SM9/64″ × 40 L = 9 |
| 51 | 23 – 0497 | PRESSER ADJUSTING SCREW | 1 | |
| 52 | 23 – 0451 | WALKING FOOT | 1 | |
| 53 | 23 – 0453 | SCREW | 1 | SM11/64″ × 40 L = 6. 5 |

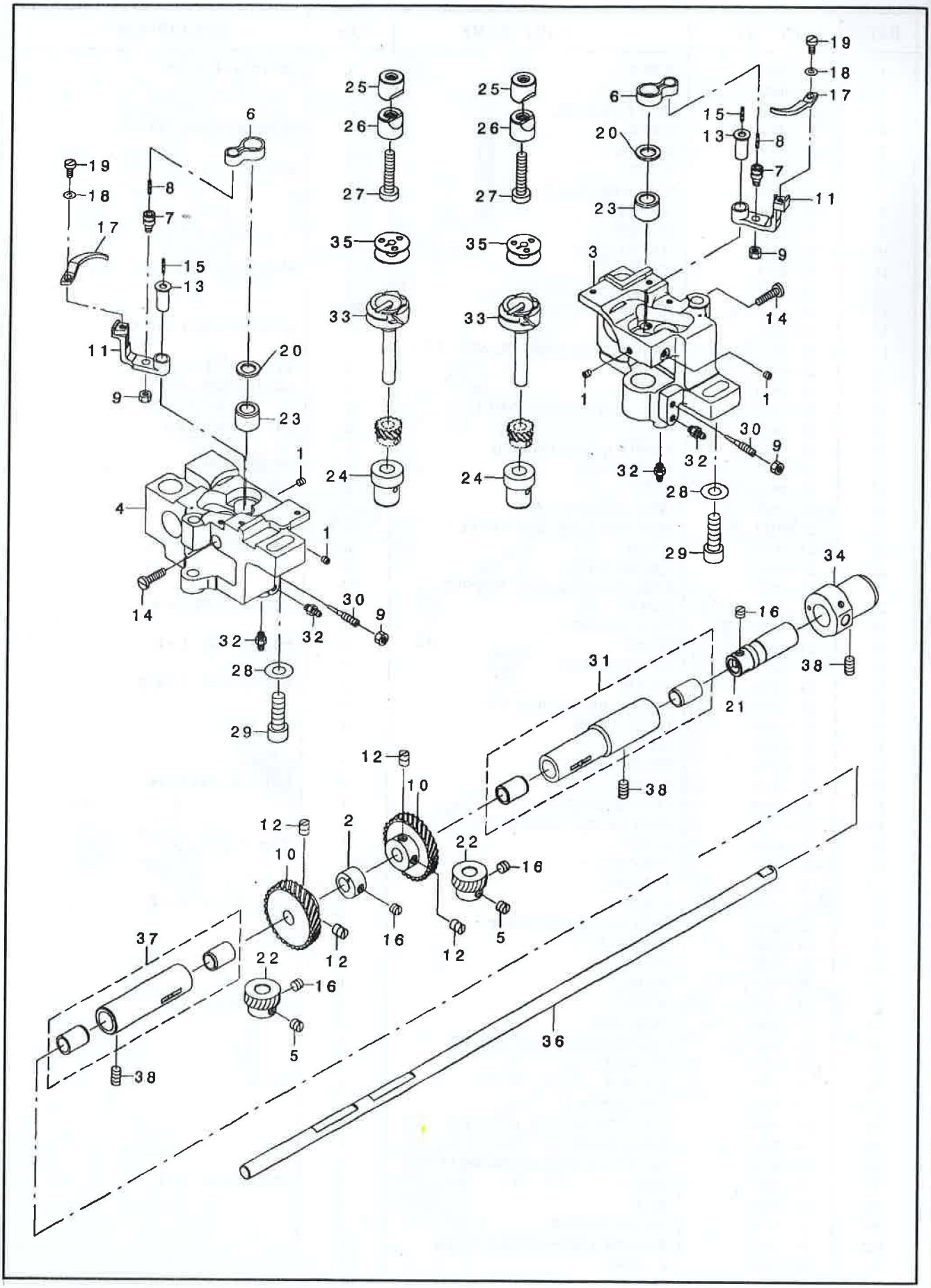
## 5. FEED MECHANISM COMPONENTS



## 5. FEED MECHANISM COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0566 | SCREW | 1 | SM1/8" × 44 L = 18 |
| 2 | 24 – 0602 | FEED BASE | 1 | |
| 3 | 23 – 0503 | FEED BASE FORK | 1 | |
| 4 | 23 – 0504 | SCREW | 1 | SM15/64" × 28 L = 14 |
| 5 | 23 – 0505 | WASHER | 1 | |
| 6 | 23 – 0506 | SCREW | 1 | M5 × 5 |
| 7 | 23 – 0507 | FEED BASE SHAFT | 1 | |
| 8 | 23 – 0508 | SNAP RING | 1 | |
| 9 | 23 – 0509 | OIL WICK | 1 | |
| 10 | 23 – 0510 | FEED ROCKER | 1 | |
| 11 | 23 – 0511 | SCREW | 2 | SM11/64" × 40 L = 14 |
| 12 | 23 – 0512 | FEED ROCK SHAFT | 1 | |
| 13 | 23 – 0513A、B | FEED ROCK SHAFT METAL | 各 1 | |
| 14 | 23 – 0305 | SCREW | 1 | SM15/64" × 28 L = 10.5 |
| 15 | 23 – 0515 | FEED ROCKER SHAFT CRANK | 1 | |
| 16 | 23 – 0516 | SCREW | 1 | SM3/16" × 28 L = 15.5 |
| 17 | 23 – 0565 | NUT | 1 | SM3/16" × 28 |
| 18 | 23 – 0407 | MAIN SHAFT THRUST COLLAR | 2 | |
| 19 | 23 – 0408 | SCREW | 6 | SM1/4" × 40 L = 6 |
| 20 | 23 – 0520 | NEEDLE BAR FRAME ROD | 1 | |
| 21 | 23 – 0521 | HINGE SCREW | 2 | SM9/32" × 28 |
| 22 | 23 – 0522 | NUT | 2 | SM9/32" × 28 |
| 23 | 23 – 0523 | FEED ADJUSTING BASE | 1 | |
| 24 | 23 – 0524 | FEED ADJUSTING BASE COVER | 2 | |
| 25 | 23 – 0315 | SCREW | 4 | SM11/64" × 40 L = 8 |
| 26 | 23 – 0526 | SQUARE BLOCK | 2 | |
| 27 | 23 – 0527 | FEED ADJUSTING BASE SUPPORT | 2 | |
| 28 | 23 – 0206 | SCREW | 2 | SM15/64" × 28 L = 8 |
| 29 | 23 – 0529 | FELT SUPPORT | 1 | |
| 30 | 23 – 0530 | SCREW | 2 | SM9/64" × 40 L = 6 |
| 31 | 23 – 0531 | ECCENTRIC PIN | 1 | |
| 32 | 23 – 0532 | SCREW | 2 | SM9/64" × 40 L = 8.5 |
| 33 | 23 – 0533 | FEED ADJUSTING ROD | 1 | |
| 34 | 23 – 0534 | HINGE SCREW | 1 | |
| 35 | 23 – 0535 | SPRING | 1 | |
| 36 | 23 – 0536 | SPRING HOOK | 1 | |
| 37 | 23 – 0537 | SCREW | 2 | SM11/64" × 40 L = 16 |
| 38 | 23 – 0538 | FEED ADJUSTING A | 1 | |
| 39 | 23 – 0539 | FEED DRIVING SLIDE BLOCK | 1 | |
| 40 | 23 – 0540 | SCREW | 1 | M6 × 18 |
| 41 | 23 – 0541 | FEED DIAL A | 1 | |
| 42 | 23 – 0542 | FEED DOG | 1 | |
| 43 | 23 – 0543 | SCREW | 1 | SM3/16" × 28 L = 18 |
| 44 | 23 – 0544 | FEED REGULATOR SCREW | 1 | |
| 45 | 23 – 0545 | RUBBER RING | 1 | |
| 46 | 23 – 0546 | PIN | 1 | |
| 47 | 23 – 0547 | SPRING | 1 | |
| 48 | 23 – 0563 | SCREW | 2 | SM3/16" × 28 L = 9 |
| 49 | 23 – 0549 | FEED LINK | 1 | |
| 50 | 23 – 0550 | CONNECTING FORKED LINK PIN | 1 | |
| 51 | 23 – 0551 | OIL WICK | 1 | |
| 52 | 23 – 0552 | SCREW | 1 | M5 × 6 |
| 53 | 23 – 0553 | FEED ROD A | 1 | |
| 54 | 23 – 0554 | FEED LINK PIN | 1 | |
| 55 | 23 – 0555 | HINGE SCREW | 1 | |
| 56 | 23 – 0556 | BACKWARD FEED LEVER SHAFT | 1 | |
| 57 | 23 – 0557 | SCREW | 2 | SM1/8" × 40 L = 7 |
| 58 | 23 – 0564 | FELT | 1 | |
| 59 | 23 – 0559 | THRUST COLLAR | 1 | |
| 60 | 23 – 0562 | REVERSE FEED CONTROL LEVER | 1 | |
| 61 | 23 – 0561 | E – RING | 1 | |

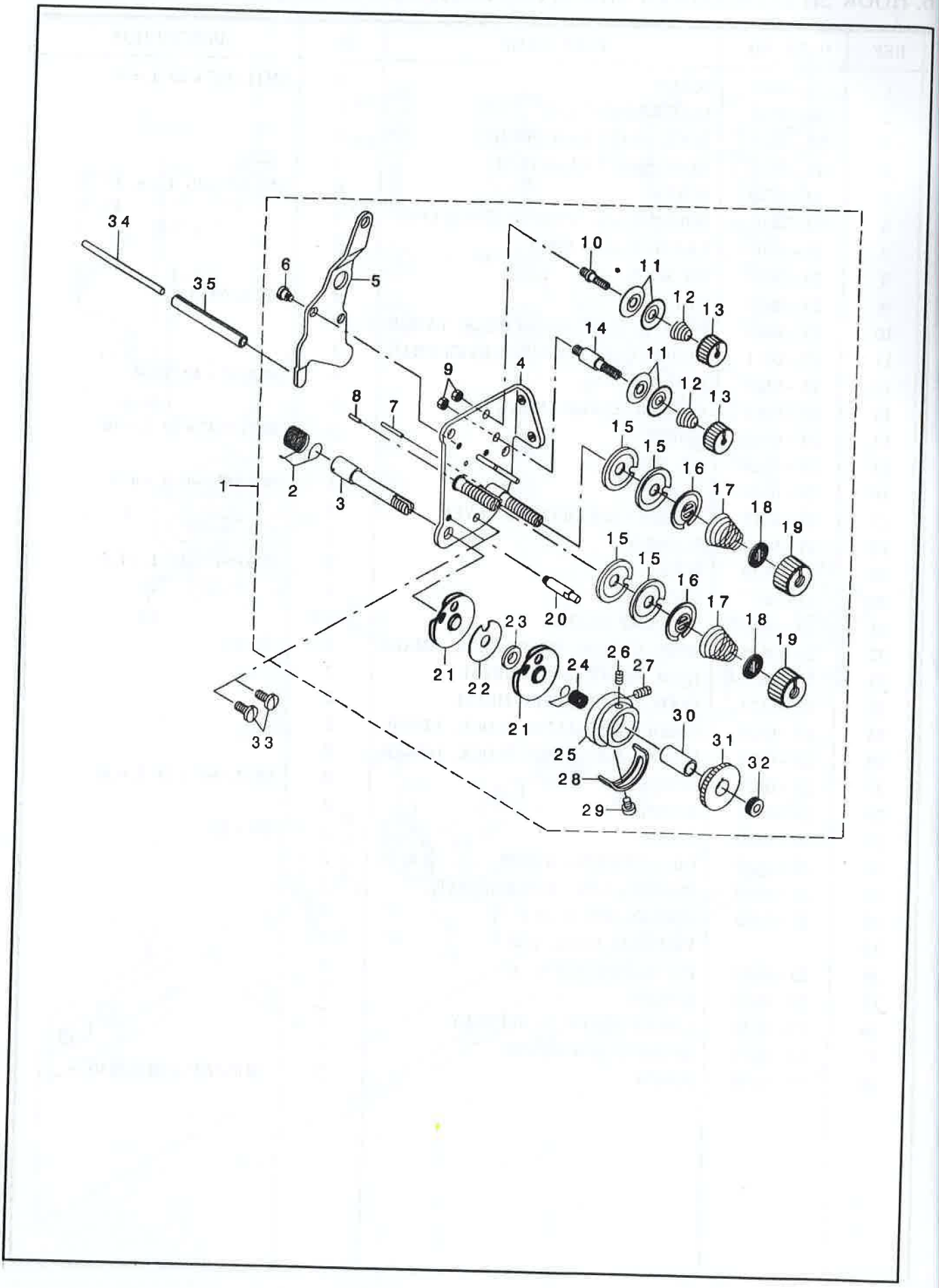
## 6. HOOK SHAFT & LOWER SHAFT COMPONENTS



## 6. HOOK SHAFT & LOWER SHAFT COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0655 | SCREW | 4 | SM11/64″ × 40 L = 4 |
| 2 | 23 – 0642 | FEED DRIVING CAM | 1 | |
| 3 | 23 – 0603 | HOOK SHAFT BASE(RIGHT) | 1 | |
| 4 | 23 – 0604 | HOOK SHAFT BASE(LEFT) | 1 | |
| 5 | 23 – 0546 | SCREW | 6 | SM1/4″ × 40 L = 6. 2 |
| 6 | 23 – 0606 | BOBBIN CASE OPENING LEVER LINIK | 2 | |
| 7 | 23 – 0607 | CRANK SCREW STUD | 2 | |
| 8 | 23 – 0608 | OIL WICK | 2 | |
| 9 | 23 – 0609 | NUT | 4 | SM11/64″ × 40 |
| 10 | 23 – 0648 | HOOK DRIVING SHAFT GEAR, LARGE | 2 | |
| 11 | 23 – 0611 | BOBBIN CASE OPENING LEVER CRAN | 2 | |
| 12 | 23 – 0216 | SCREW | 4 | SM1/4″ × 40 L = 8 |
| 13 | 23 – 0613 | OPENING LEVER CRANK PIN | 2 | |
| 14 | 23 – 0614 | SCREW | 2 | SM11/64″ × 40 L = 18 |
| 15 | 23 – 0615 | OIL WICK | 2 | |
| 16 | 23 – 0644 | SCREW | 3 | SM1/4″ × 40 L = 4. 5 |
| 17 | 23 – 0617 | BOBBIN CASE OPENING LEVER | 2 | |
| 18 | 23 – 0618 | WASHER | 2 | |
| 19 | 23 – 0619 | SCREW | 2 | SM9/64″ × 40 L = 7. 5 |
| 20 | 23 – 06** | WASHER | 2 | |
| 21 | 23 – 0652 | OIL PUMP SHAFT | 1 | |
| 22 | 23 – 0645 | HOOK DRIVING SHAFT GEAR, SMALL | 2 | |
| 23 | 23 – 0623 | HOOK SHAFT UPPER METAL | 2 | |
| 24 | 23 – 0624 | HOOK SHAFT LOWER METAL | 2 | |
| 25 | 23 – 0625 | SADDLE INSTALLING BLOCK, UPPER | 2 | |
| 26 | 23 – 0626 | SADDLE INSTALLING BLOCK, LOWER | 2 | |
| 27 | 23 – 0627 | SCREW | 2 | SM15/64″ × 28 L = 30 |
| 28 | 23 – 0628 | WASHER | 2 | |
| 29 | 23 – 0629 | SCREW | 2 | M8 × 25 |
| 30 | 23 – 0630 | OIL ADJUSTING SCREW | 2 | |
| 31 | 23 – 0640 | BUSHING ASM., INTERMEDIATE | 1 | |
| 32 | 23 – 1539 | CONNECTING SCREW | 4 | |
| 33 | | VERTICAL HOOK ASM. | 2 | |
| 34 | 23 – 0654 | PLUNGER BUSHING, B | 1 | |
| 35 | 23 – 0635 | BOBBIN | 2 | |
| 36 | 23 – 0636 | LOWER SHAFT(2 – NEEDLE) | 1 | |
| 37 | 23 – 0637 | BUSHING ASM, FRONT | 1 | |
| 38 | 23 – 0305 | SCREW | 2 | SM15/64″ × 28 L = 10. 5 |

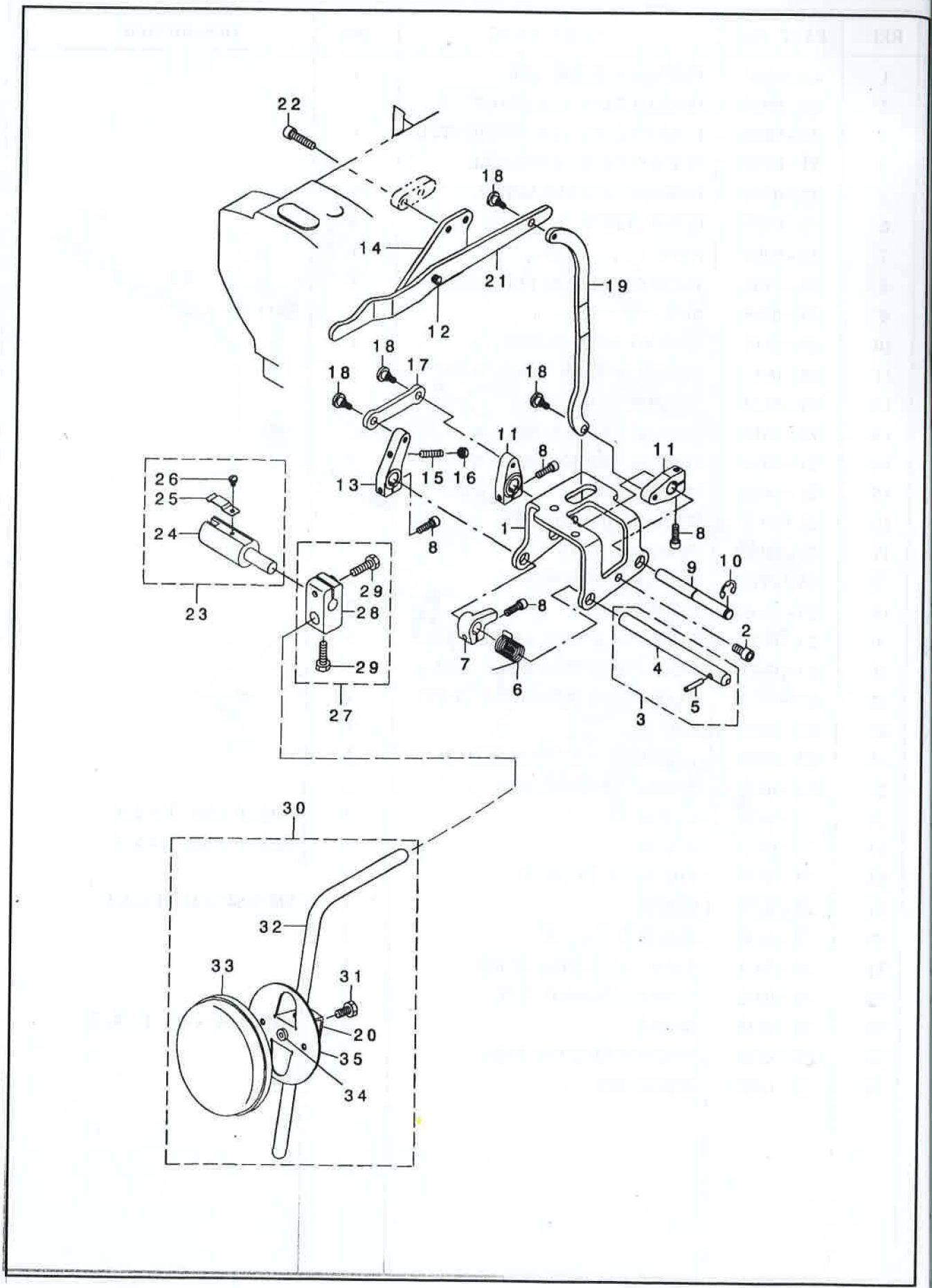
## 7. THREAD TENSION COMPONENTS



## 7. THREAD TENSION COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 0901 | THREAD TENSION ASM. | 1 | |
| 2 | 23 – 0902 | THREAD TAKE – UP SPRING, A | 1 | |
| 3 | 23 – 0903 | THREAD TAKE – UP SPRING STUD | 1 | |
| 4 | 23 – 0904 | TENSION BASE PLATE ASM. | 1 | |
| 5 | 23 – 0905 | TENSION RELEASE LEVER | 1 | |
| 6 | 23 – 0906 | HINGE SCREW | 2 | |
| 7 | 23 – 0907 | PIN B | 1 | |
| 8 | 23 – 0908 | TENSION RELEASE PIN, SHORT | 1 | |
| 9 | 23 – 0909 | NUT | 2 | SM11/64″ × 40 |
| 10 | 23 – 0910 | THREAD TENSION POST, A | 1 | |
| 11 | 23 – 0911 | BOBBIN WINDER TENSION DISC | 4 | |
| 12 | 23 – 0912 | TENSION SPRING NO. 1 | 2 | |
| 13 | 23 – 0913 | THREAD TENSION NUT | 2 | |
| 14 | 23 – 0914 | THREAD TENSION POST, B | 1 | |
| 15 | 23 – 0915 | TENSION DISC | 4 | |
| 16 | 23 – 0916 | TENSION DISC HOLDER | 2 | |
| 17 | 23 – 0917 | TENSION SPRING | 2 | |
| 18 | 23 – 0918 | ROTATING STOPPER | 2 | |
| 19 | 23 – 0919 | TENSION NUT | 2 | |
| 20 | 23 – 0920 | TAKE – UP SPRING GUIDE STUD | 1 | |
| 21 | 23 – 0921 | TAKE – UP SPRING GUIDE ASM. | 2 | |
| 22 | 23 – 0922 | TAKE – UP SPRING GUIDE PLATE | 1 | |
| 23 | 23 – 0923 | COLLAR | 1 | |
| 24 | 23 – 0924 | THREAD TAKE – UP SPRING B | 1 | |
| 25 | 23 – 0925 | THREAD TENSION POST | 1 | |
| 26 | 23 – 0926 | SCREW | 1 | SM1/8″ × 44 L = 3. 5 |
| 27 | 23 – 0927 | SCREW | 1 | SM1/8″ × 44 L = 5. 5 |
| 28 | 23 – 0928 | ADJUSTING PLATE B | 1 | |
| 29 | 23 – 0933 | SCREW | 1 | SM9/64″ × 40 L = 4. 5 |
| 30 | 23 – 0930 | PRESSER COLLAR | 1 | |
| 31 | 23 – 0931 | TAKE – UP SPRING GUIDE | 1 | |
| 32 | 23 – 0932 | THREAD TENSION NUT | 1 | |
| 33 | 23 – 0915 | SCREW | 2 | SM11/64″ × 40 L = 8. 5 |
| 34 | 23 – 0935 | TENSION RELEASE BAR | 1 | |
| 35 | 23 – 0937 | SPRING PIN | 1 | |

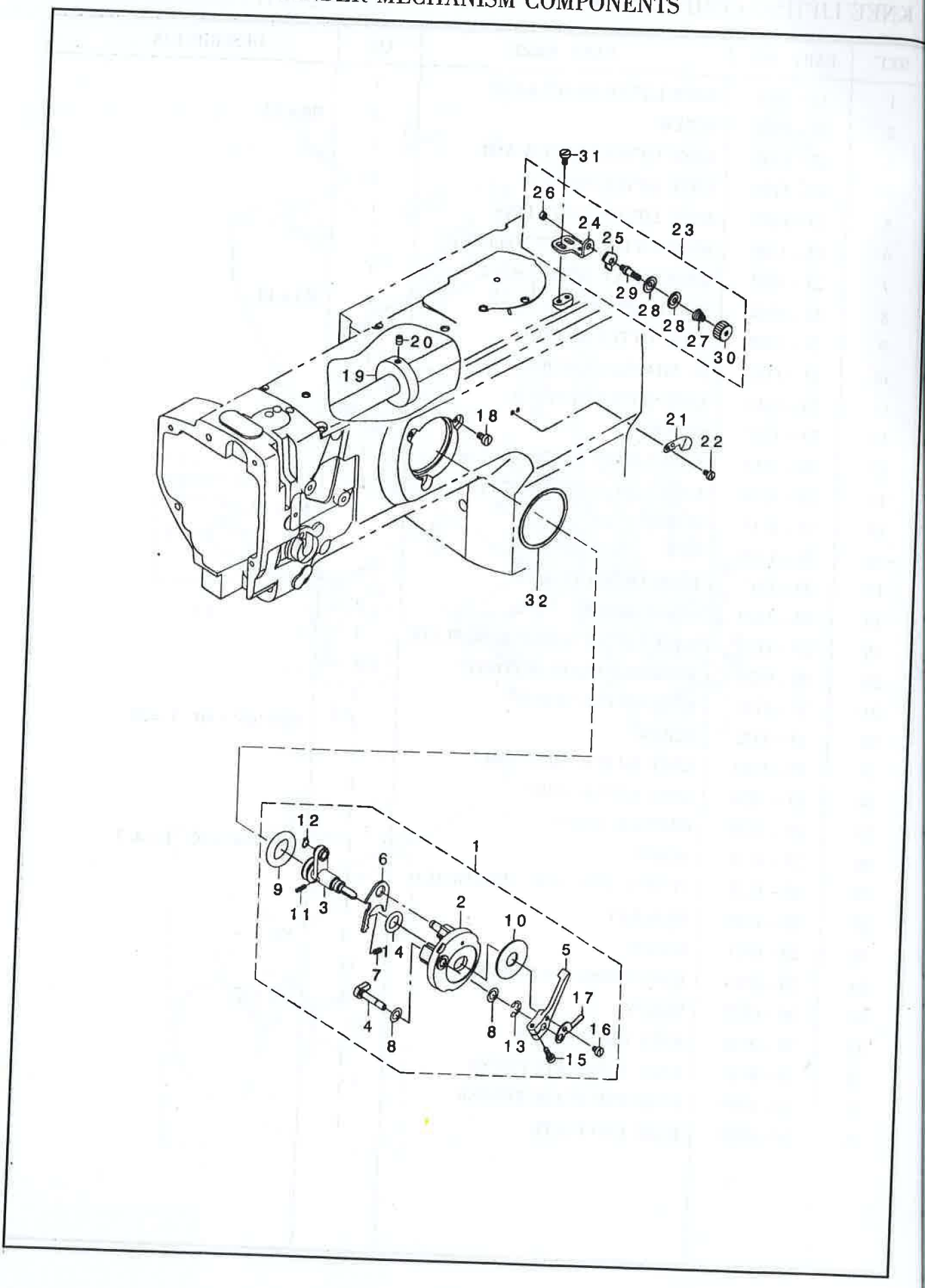
## 8. KNEE LIFTING COMPONENTS



## 8. KNEE LIFTING COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 1101 | KNEE LIFTER SHAFT BASIS | 1 | |
| 2 | 23 – 1102 | SCREW | 3 | M6 × 12 |
| 3 | 23 – 1103 | KNEE LIFTER SHAFT A ASM. | 1 | |
| 4 | 23 – 1104 | KNEE LIFTER SHAFT A | 1 | |
| 5 | 23 – 1105 | KNEE LIFTER SHAFT PIN | 1 | |
| 6 | 23 – 1106 | KNEE LIFTER SHAFT A SPRING | 1 | |
| 7 | 23 – 1107 | KNEE LIFTER SPRING RACK | 1 | |
| 8 | 23 – 1108 | SCREW M5 × 0. 8 L = 16 | 4 | M5 × 16 |
| 9 | 23 – 1109 | KNEE LIFTER SHAFT B | 1 | |
| 10 | 23 – 1110 | E – SHAPED SNAP RING | 1 | |
| 11 | 23 – 1111 | KNEE LIFTER LEVER B | 2 | |
| 12 | 23 – 1137 | SCREW | 1 | |
| 13 | 23 – 1113 | KNEE LIFTER LEVER A | 1 | |
| 14 | 23 – 1138 | KNEE LIFTER LEVER STAY | 1 | |
| 15 | 23 – 1115 | SCREW | 1 | M5 × 25 |
| 16 | 23 – 1116 | NUT | 1 | M5 |
| 17 | 23 – 1117 | KNEE LIFTER LINK | 1 | |
| 18 | 23 – 1120 | HINGE SCREW | 4 | |
| 19 | 23 – 1119 | KNEE LIFTER CONNECTING PLATE | 1 | |
| 20 | 20 – 0721 | KNEE PAD PLATE SUPPORT | 1 | |
| 21 | 23 – 1121 | KNEE LIFTER LEVER | 1 | |
| 22 | 23 – 1122 | SCREW | 2 | SM9/64″ × 40 L = 25 |
| 23 | 23 – 1123 | KNEE LIFTER JOINT ASM. | 1 | |
| 24 | 23 – 1124 | KNEE LIFTER JOINT | 1 | |
| 25 | 23 – 1125 | PRESSER SPRING | 1 | |
| 26 | 23 – 1126 | SCREW | 1 | SM9/64″ × 40 L = 4. 7 |
| 27 | 23 – 1127 | FITTING ARM ASM. (VERTICAL) | 1 | |
| 28 | 23 – 1128 | BRACKET | 1 | |
| 29 | 20 – 0711 | SCREW | 2 | M6 × 24 |
| 30 | 20 – 0716 | KNEE PRESS PLATE ASM. | 1 | |
| 31 | 20 – 0722 | SCREW | 1 | M6 × 12 |
| 32 | 20 – 0718 | KNEE PRESS LEVER | | |
| 33 | 20 – 0717 | KNEE PAD PLATE COVER | 1 | |
| 34 | 20 – 0719 | KNEE PAD PLATE RUBBER | 1 | |
| 35 | 20 – 0720 | KNEE PAD PLATE | 1 | |

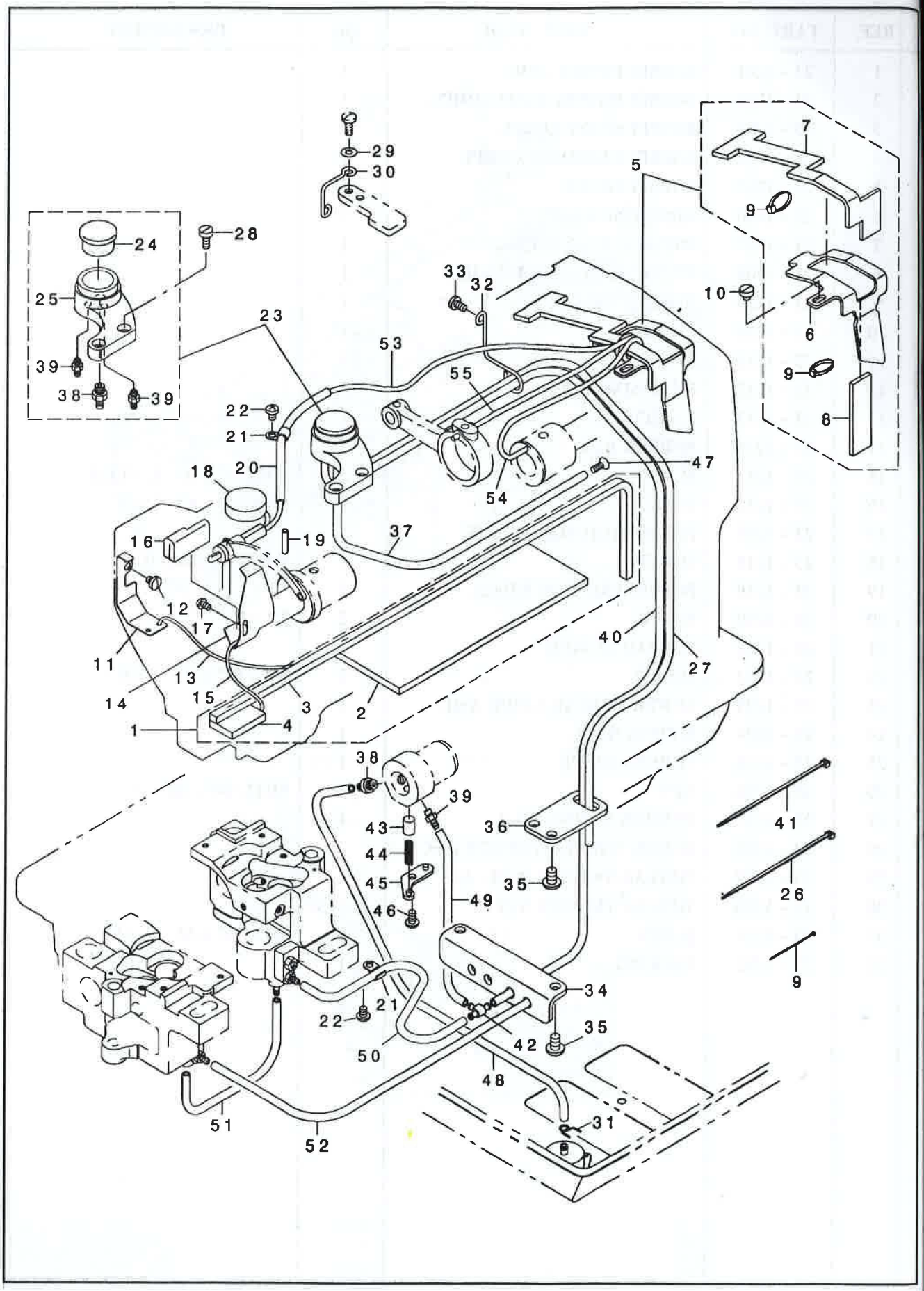
# 9. LOWER THREAD WINDER MECHANISM COMPONENTS



## 9. LOWER THREAD WINDER MECHANISM COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 1201 | BOBBIN DEVICE ASM. | 1 | |
| 2 | 23 – 1202 | BOBBIN FITTING BASIS COMPL. | 1 | |
| 3 | 23 – 1203 | BOBBIN SHAFT COMPL. | 1 | |
| 4 | 23 – 1204 | BOBBIN CAMSHAFT COMPL. | 1 | |
| 5 | 23 – 1205 | BOBBIN LEVER | 1 | |
| 6 | 23 – 1206 | ADJUSTING PLATE | 1 | |
| 7 | 23 – 1207 | PRESSUR FOOT SPRING | 1 | |
| 8 | 23 – 1208 | VERTICAL ROLLER WASHER | 1 | |
| 9 | 23 – 1209 | RUBBER RING | 1 | |
| 10 | 23 – 1210 | CUSHION | 1 | |
| 11 | 23 – 1211 | SPRING | 1 | |
| 12 | 23 – 1212 | RETAINING RING | 1 | |
| 13 | 23 – 1213 | E – RING | 1 | |
| 14 | 23 – 1214 | RUBBER RING | 1 | |
| 15 | 23 – 1215 | SCREW | 1 | SM9/64″ × 40 L = 13. 5 |
| 16 | 23 – 1216 | SCREW | 1 | SM9/64″ × 40 L = 5 |
| 17 | 23 – 1217 | BOBBIN ADJUSTING PLATE | 1 | |
| 18 | 23 – 1218 | SCREW | 3 | SM11/64″ × 40 L = 8 |
| 19 | 23 – 1219 | BOBBIN FRICTION WHEEL | 1 | |
| 20 | 23 – 1220 | SCREW | 2 | M5 × 6 |
| 21 | 23 – 1221 | THREAD CUTTER | 1 | |
| 22 | 23 – 1222 | SCREW | 2 | SM9/64″ × 40 L = 6 |
| 23 | 23 – 1223 | LOWER THREAD GUIDE ASM. | 1 | |
| 24 | 23 – 1224 | FITTING BASE | 1 | |
| 25 | 23 – 1225 | THREAD GUIDE | 1 | |
| 26 | 23 – 1226 | NUT | 1 | SM11/64″ × 40 |
| 27 | 23 – 1227 | TENSION SPRING NO. 1 | 1 | |
| 28 | 23 – 1228 | BOBBIN WINDER TENSION DISC | 2 | |
| 29 | 23 – 1229 | THREAD TENSION POST, A | 1 | |
| 30 | 23 – 1230 | THREAD TENSION NUT | 1 | |
| 31 | 23 – 1231 | SCREW | 2 | SM3/16″ × 32 L = 9 |
| 32 | 23 – 1232 | TACKING | 1 | |

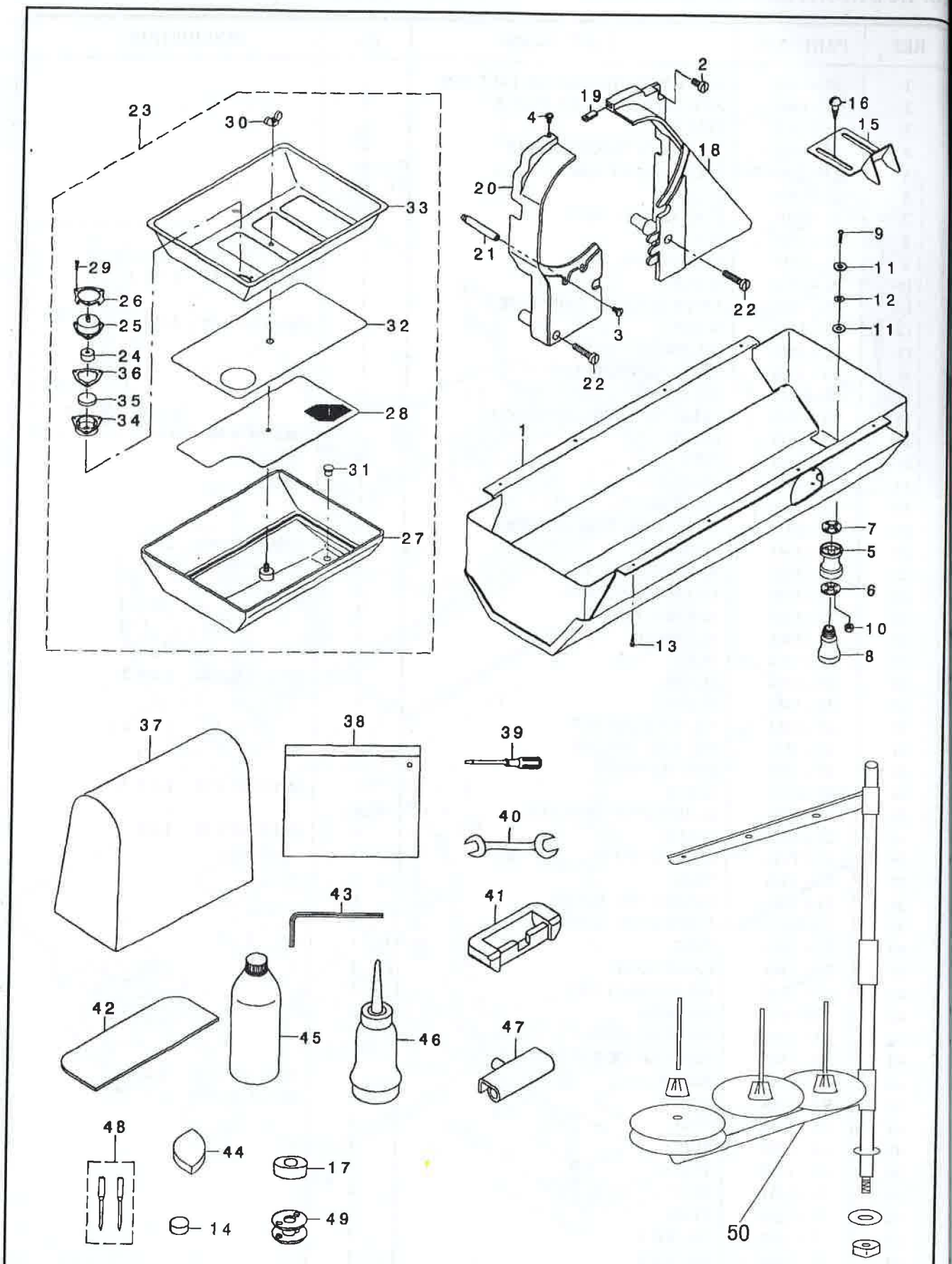
## 10. LUBRICATION COMPONENTS



## 10. LUBRICATION COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 1501 | ARM ONCE THROUGH OIL FELT ASM. | 1 | |
| 2 | 23 – 1502 | ARM ONCE THROUGH FELT A | 1 | |
| 3 | 23 – 1503 | FELT B | 1 | |
| 4 | 23 – 1504 | FACE ONCE THROUGH FELT | 1 | |
| 5 | 23 – 1505 | FELT SUPPORT ASM. | 1 | |
| 6 | 23 – 1506 | FELT | 1 | |
| 7 | 23 – 1507 | FEED CHANGE FELT | 1 | |
| 8 | 23 – 1508 | FELT | 1 | |
| 9 | 23 – 0414 | CLIP CV – 70S | 3 | |
| 10 | 23 – 1510 | SCREW | 1 | SM11/64″ × 40 L = 4. 3 |
| 11 | 23 – 1511 | UPPER FEED OIL BAR PLATE | 1 | |
| 12 | 23 – 1512 | SCREW | 1 | SM11/64″ × 40 L = 5 |
| 13 | 23 – 1513 | OIL WICK | 1 | |
| 14 | 23 – 1514 | TAKE – UP OIL PLATE | 1 | |
| 15 | 23 – 1515 | OIL WICK | 1 | |
| 16 | 23 – 1516 | TAKE – UP LIBRICATION FELT | 1 | |
| 17 | 23 – 1517 | SCREW | 1 | SM9/64″ × 40 L = 6 |
| 18 | 23 – 1518 | FELT | 1 | |
| 19 | 23 – 1519 | FELT | 1 | |
| 20 | 23 – 1520 | OIL TUBE | 1 | |
| 21 | 23 – 1521 | OIL RETURN TUBE HOLDER | 2 | |
| 22 | 23 – 1541 | SCREW | 2 | SM11/64″ × 40 L = 6 |
| 23 | 23 – 1523 | ARM OIL TANK ASM. | 1 | |
| 24 | 23 – 1524 | OIL SIGHT WINDOW | 1 | |
| 25 | 23 – 1525 | ARM OIL TANK | 1 | |
| 26 | 23 – 1566 | CLIP BAND | 1 | |
| 27 | 23 – 1554 | TUBE | 1 | |
| 28 | 23 – 1528 | SCREW | 2 | SM11/64″ × 40 L = 9. 5 |
| 29 | 23 – 1562 | WASHER | 1 | |
| 30 | 23 – 1561 | OIL WICK HOLDER | 1 | |
| 31 | 23 – 1559 | OIL TUBE HOLDER | 1 | |
| 32 | 23 – 1532 | PIPE SUPPORT | 1 | |
| 33 | 23 – 0317 | SCREW | 1 | SM11/64″ × 40 L = 7. 5 |
| 34 | 23 – 1534 | LUBRICATION BRACKET | 1 | |
| 35 | 23 – 1535 | SCREW | 4 | SM15/64″ × 28 L = 9 |
| 36 | 23 – 1536 | OIL PIPE STAY | 1 | |
| 37 | 23 – 1563 | TUBE | 1 | |
| 38 | 23 – 1538 | CONNECTING SCREW | 2 | |
| 39 | 23 – 1539 | CONNECTING SCREW | 3 | |
| 40 | 23 – 1553 | TUBE | 1 | |
| 41 | 23 – 1565 | CABLE BAND | 1 | |
| 42 | 23 – 1542 | OIL CONNECT ARM | 1 | |
| 43 | 23 – 1543 | PLUNGER | 1 | |
| 44 | 23 – 1544 | PLUNGER SPRING | 1 | |
| 45 | 23 – 1545 | PLUNGER THRUST PLATE | 1 | |
| 46 | 23 – 0105 | SCREW | 1 | SM11/64″ × 40 L = 8 |
| 47 | 23 – 1564 | SCREW | 1 | M4 × 7. 3 |
| 48 | 23 – 1548 | TUBE | 1 | |
| 49 | 23 – 1549 | TUBE | 1 | |
| 50 | 23 – 1550 | TUBE | 1 | |
| 51 | 23 – 1551 | TUBE | 1 | |
| 52 | 23 – 1552 | TUBE | 1 | |
| 53 | 23 – 1553 | OIL WICK | 1 | |
| 54 | 23 – 1546 | OIL WICK | 1 | |
| 55 | 23 – 1560 | OIL WICK | 1 | |

# 11. ACCESSORIES PARTS COMPONENTS



# 11. ACCESSORIES PARTS COMPONENTS

| REF | PART NO. | PART NAME | Qty | DESCRIPTION |
|---|---|---|---|---|
| 1 | 23 – 2001 | OIL RESERVOIR | 1 | |
| 2 | 23 – 2002 | SCREW | 1 | SM15/64″ × 28 L = 14 |
| 3 | 23 – 2003 | SCREW | 1 | SM11/64″ × 40 L = 7. 8 |
| 4 | 23 – 2004 | SCREW | 1 | SM11/64″ × 40 L = 6. 5 |
| 5 | 23 – 2005 | OIL MANAGEMENT | 1 | |
| 6 | 23 – 2006 | WASHER | 1 | |
| 7 | 23 – 2007 | OIL SEAL | 1 | |
| 8 | 23 – 2008 | OIL CAN | 1 | |
| 9 | 23 – 2009 | SCREW | 4 | M3 × 14 |
| 10 | 23 – 2010 | NUT | 4 | M3 |
| 11 | 23 – 2011 | OIL REMOVING SETSCREW PACKING | 8 | |
| 12 | 23 – 2012 | WASHER | 4 | |
| 13 | 23 – 2013 | CUSHION SET NAIL | 10 | |
| 14 | 23 – 2310 | FELT CUSHION | 4 | |
| 15 | 23 – 2015 | BELT COVER C(JE) | 1 | |
| 16 | 23 – 2016 | WOOD SCREW | 2 | |
| 17 | 23 – 2311 | RUBBER CUSHION | 4 | |
| 18 | 23 – 2018 | BELT COVER (RIGHT) | 1 | |
| 19 | 23 – 2019 | BELT COVER AUXILIARY PLATE | 1 | |
| 20 | 23 – 2020 | BELT COVER (LEFT) | 1 | |
| 21 | 23 – 2021 | BELT COVER SUPPORT A | 1 | |
| 22 | 23 – 2022 | SCREW | 2 | SM15/64″ × 28 L = 30 |
| 23 | 23 – 2023 | OIL TANK ASM. | 1 | |
| 24 | 23 – 2024 | FILTER | 1 | |
| 25 | 23 – 2025 | FILTER CAP | 1 | |
| 26 | 23 – 2026 | FILTER PLATE | 1 | |
| 27 | 23 – 2027 | OIL TANK | 1 | |
| 28 | 23 – 2028 | COVER(LOWER) | 1 | |
| 29 | 23 – 2029 | SCREW | 3 | M2 × 10 |
| 30 | 23 – 2030 | WING NUT | 1 | |
| 31 | 23 – 2031 | RUBBER PLUG | 1 | |
| 32 | 23 – 2032 | FILTER | 1 | |
| 33 | 23 – 2033 | COVER REAR | 1 | |
| 34 | 23 – 2034 | FILTER CASE | 1 | |
| 35 | 23 – 2035 | OIL RESERVOIR MAGNET | 1 | |
| 36 | 23 – 2036 | FILTER PACKING | 1 | |
| 37 | 5 – 0912 | COVER | 1 | |
| 38 | 5 – 0901 | ACCESSORY BOX | 1 | |
| 39 | 5 – 0903 | SCREW DRIVER | 1 | 3. 4 × 70 |
| 40 | 23 – 2303 | WRENCH | 1 | 9 × 10 |
| 41 | 23 – 2312 | RUBBER SPACER | 2 | |
| 42 | 23 – 2321 | SPACER | 2 | |
| 43 | 23 – 2318 | WRENCH | 1 | 3/32 |
| 44 | 23 – 2320 | CUSHION | 4 | |
| 45 | 23 – 2304 | NEW DEFRIX OIL | 1 | |
| 46 | 23 – 2305 | OILER | 1 | |
| 47 | 5 – 0914 | HINGE | 2 | |
| 48 | | NEEDLE | 4 | SY3355 160 |
| 49 | 23 – 0635 | BOBBIN | 4 | |
| 50 | 10 – 1009 | THREAD STANDING DEVICE ASM. | 1 | |