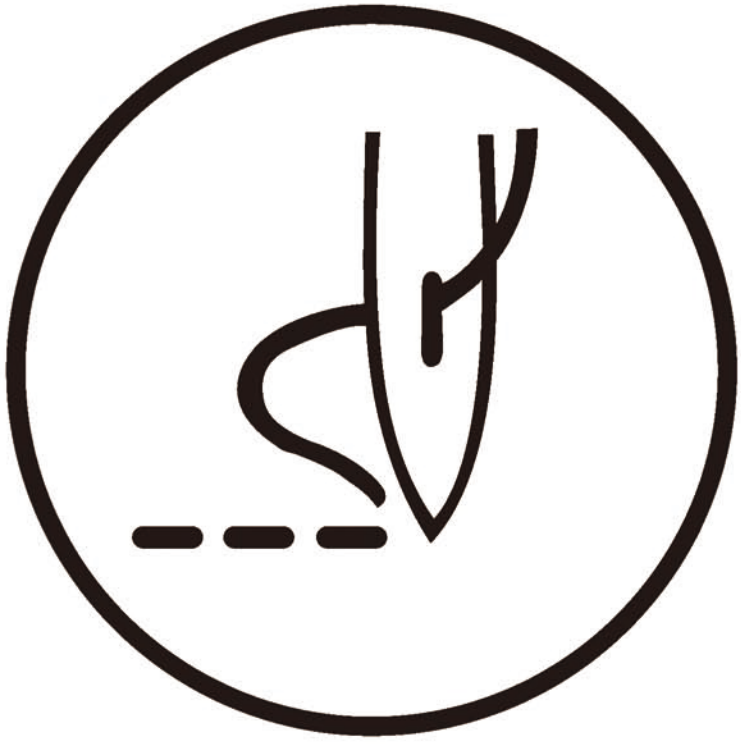
TOP VARIABLE FEED DIRECT LOCKSTITCH MACHINE

Please study this operation manual before you use it,
and please keep it for your reference.

OPERATION MANUAL PARTS MANUAL



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 JUKI 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. JUKI 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. To prevent aceidents caused by an electrical shock, never open the motor cover.main body coverand control box cover or touch the components inside the control box whioe the power swith is on.

1. Don't put your hand under needle when you turn "on" the power switch or operate the machine.
2. Don't put your hand into the thread take-up cover while the maching is running
3. Turn OFF the power switch before tilting the machine bead or removing the belt cover and the V belt.
4. Never bring your fingers,hair or clothing close to,or place anything on the handwheel, v belt bobbin winder wheel or motor during opcration.
5. The hook rotates at a high speed while the machine is in operation. To prevent possible in jury to hands, be sure to keep your hands away from the vicinity of the hook during operation.In addition, be sure to turn OFF the power to the machine when replacing the bobbin.
6. If your machine is provided with a belt cover, finger guard and safety plate, never operate your machine with any of them removed.
7. When tilting the machine head, exercise care not to allow your fingers etc. to be caught under the machine head.
8. To prevent accidents due to an electrical shock, never operate the sewing machine with the ground wire for the power supply removed.
9. To prevent accidents due to an electrical shock or damaged control parts, be sure to turn OFF the power beforehand when inserting/removing the power plug.

CAUTION BEFORE OPERATION

WARNING
To avoid malfunction and damage of the machine the following

- Clean the sewing machine throughly before using it for the first time.
- Remove all dust collected on the sewing machine during the transportation.
- Confirm that the voltage and phase are correct.
- Confirm that the power plug is properly connected.
- Never use the sewing maching in the state where the voltage type is different from the designated one.
- The direction of the sewing machine is counterclockwise as observed from the handwheel side. Be careful not to rotate it in reverse direction.

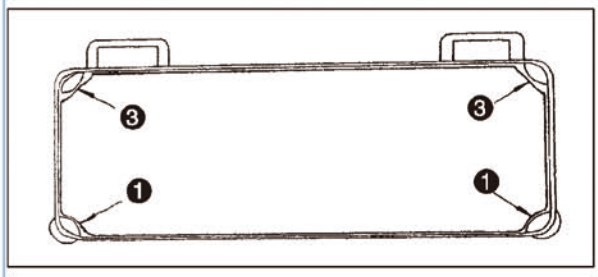
OPERATION MANUAL

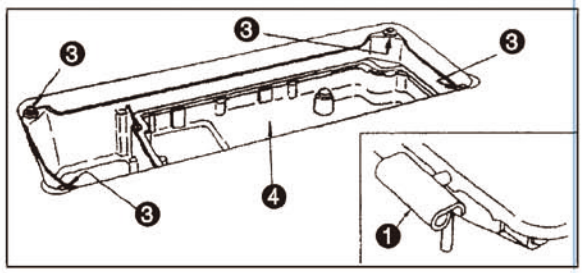
PARTS MANUAL

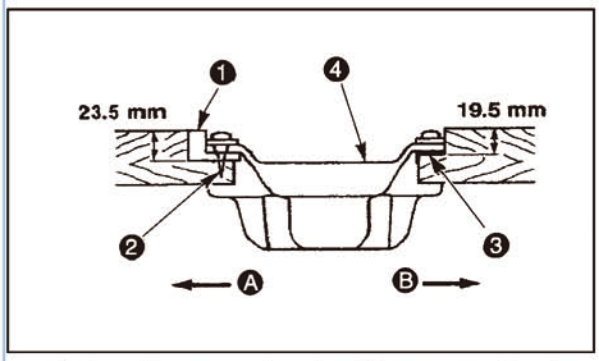
1. Specifications

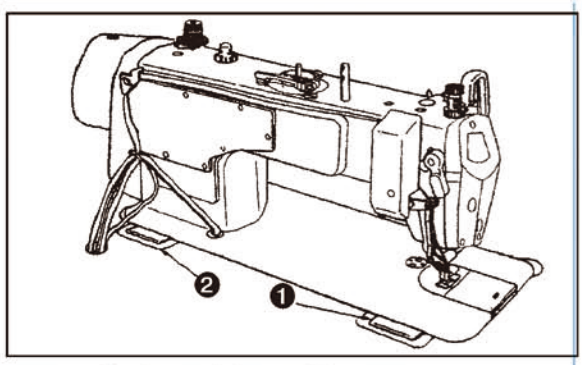
Model	5490A-7
Sewing speed	4,000rpm
Stitch length	5mm
Top feed amount	Max 8mm
Presser foot lift	By hand lifter 10mm, By knee lifter 13mm (Max)
Needle	DBX1 (#14) #9~#18

2. Installation



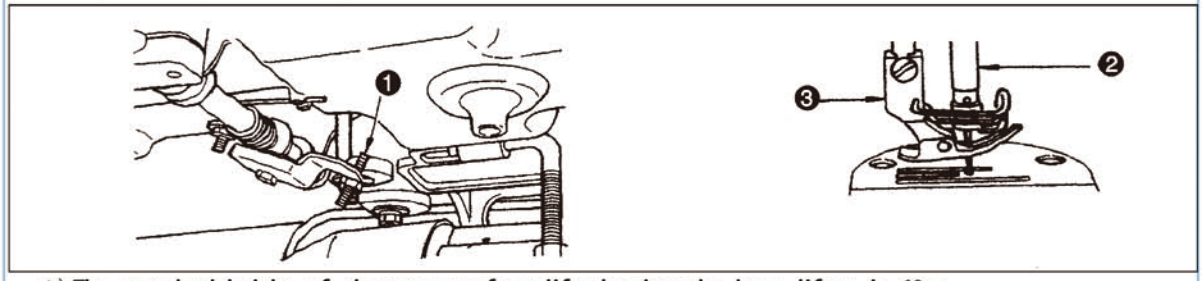






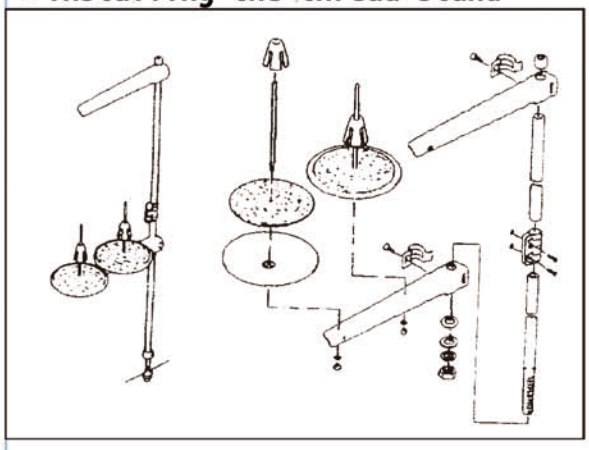
1) The oil reservoir should rest on the four corners of the machine table groove;
2) Two rubber seats ❶ for supporting the head portion on the operator side Ⓐ are fixed on the extended portion of the table by hitting the nails ❷ , and the other two rubber cushion seats ❸ on the hinged side Ⓑ are fixed by using a rubber-based adhesive .Then, oil reservoir ❹ is placed;
3) Fit hinge ❶ into the opening in the machine bed, and fit the maching head to table rubber hinge ❷ before placing the machine head on cushions ❸ on the four corners.

3. Adjusting the height of the knee lifter



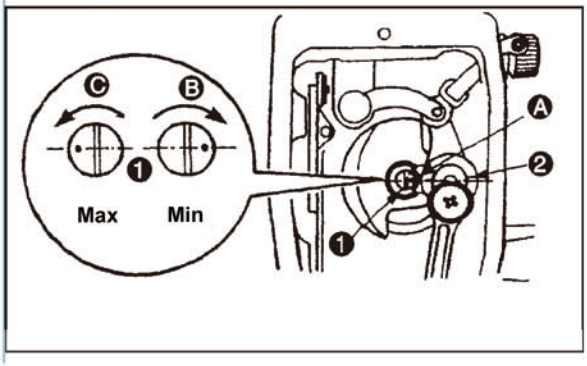
1) The standard height of the presser foot lifted using ghe knee lifter is 10mm.
2) You can adjust the presser foot lift up to 13mm using knee lifter adjust screw ❶.
3) Do not operate the sewing machine state that the presser foot ❸ is lifter 10mm or more since the needle bar ❷ in contact with the presser foot ❸.

4. Installing the thread stand

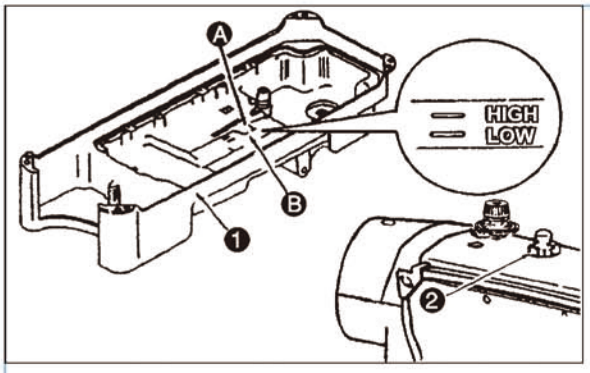


5. Lubrication

Warning
Turn OFF the power before starting the worke so to prevent accidents caused by abrupt start of the sewing machine.



1) Adjust the amount of oil supplied to the thread take-up and needle bar crank ❷ by turning adjust pin ❶.
2) The minimum amount of oil is reached when marker dot Ⓐ is brought close to needle bar crank ❷ by turning the adjust pin in direction Ⓑ.
3) The maximum amount of oil is reached when marker dot Ⓐ is brought to the position just opposite from the needle bar crank by turning the adjust pin in direction Ⓒ.



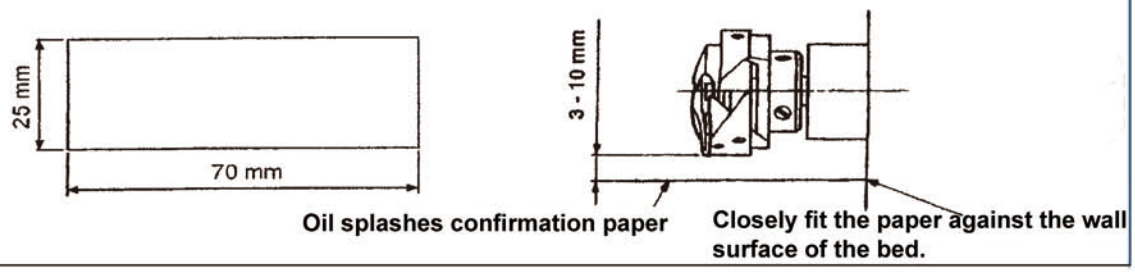
1) Before starting the sewing machine, fill oil pan ❶ with OIL #7 up to "HIGH" mark **A**.
2) Add oil before the oil surface comes down to reach the "LOW" mark **B**.
3) When you operate the machine after lubrication, you will see splashing oil through oil sight window ❷ if the lubrication is adequate.
4) Note that the amount of the splashing oil is unrelated to the amount of the lubricating oil.

Caution **When you use a new sewing machine or a sewing machine after an extended period of disuse, use the sewing machine after performing break-in at 2,000 sti/min or less.**

6. Confirmation of the amount of oil in the hook

WARNING :
Be extremely careful about the operation of the machine since the amount of oil has to be checked by turning the hook at a high speed.

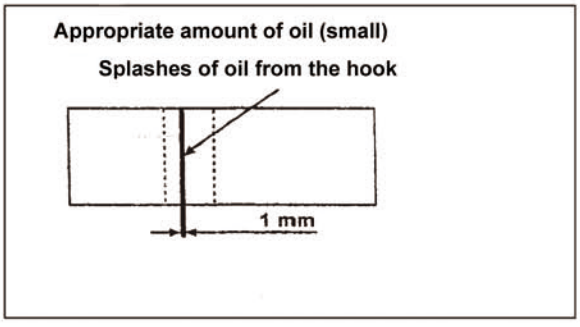
① **Amount of oil (oil splashes) confirmation paper** ② **Position to confirm the amount of oil (oil splashes)**

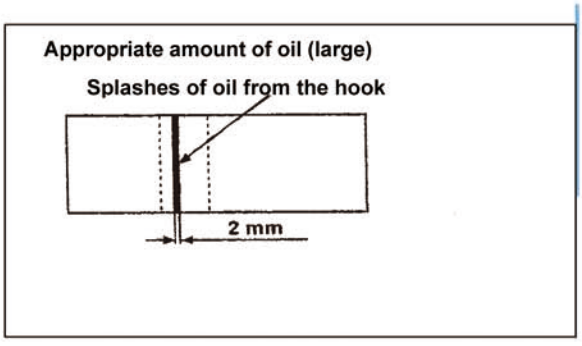


* When carrying out the procedure described below in 2), remove the slide plate and take extreme caution not to allow your fingers to come in contact with the hook.

1) If the machine has not been sufficiently warmed up for operation, make the machine run idle for approximately three minutes. (Moderate intermittent operation)
2) Place the amount of oil (oil spots) confirmation paper under the hook immediately after the machine stops running.
3) Confirm the height of the oil surface in the oil reservoir is within the range between "HIGH" and "LOW".
4) Confirmation of the amount of oil should be completed in five seconds. (Check the period of time with a watch.)

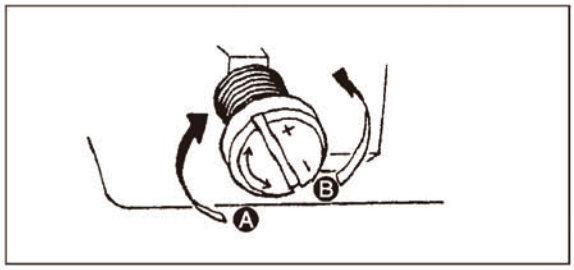
- **Sample showing the appropriate amount of oil in the hook**





1) The amount of oil shown in the samples on the left should be finely adjusted in accordance with sewing processes. Be careful not to excessively increase/decrease the amount of oil in the hook. (If the amount of oil is too small, the hook will be seized (the hook will be hot). If the amount of oil is too much, the sewing product may be stained with oil.
2) Check the oil amount (oil splashes) three times (with three sheets of paper).

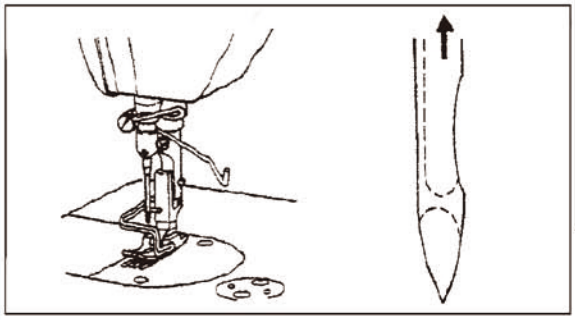
- **Adjusting the amount of oil (oil spots) in the hook**



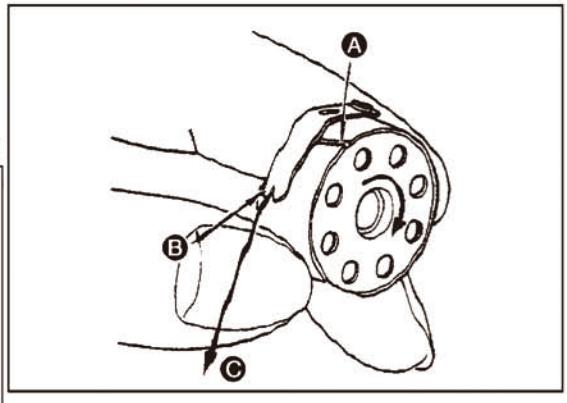
1) Turning the oil amount adjustment screw attached on the hook driving shaft front bushing in the "+" direction (in direction Ⓐ) will increase the amount of oil (oil spots) in the hook, or in the "–" direction (in direction Ⓑ) will decrease it.
2) After the amount of oil in the hook has been properly adjusted with the oil amount adjustment screw, make the sewing machine run idle for approximately 30 seconds to check the amount of oil in the hook.

7. Attaching the needle

Warning
Turn OFF the power before starting the worke so to prevent accidents caused by abrupt start of the sewing machine.

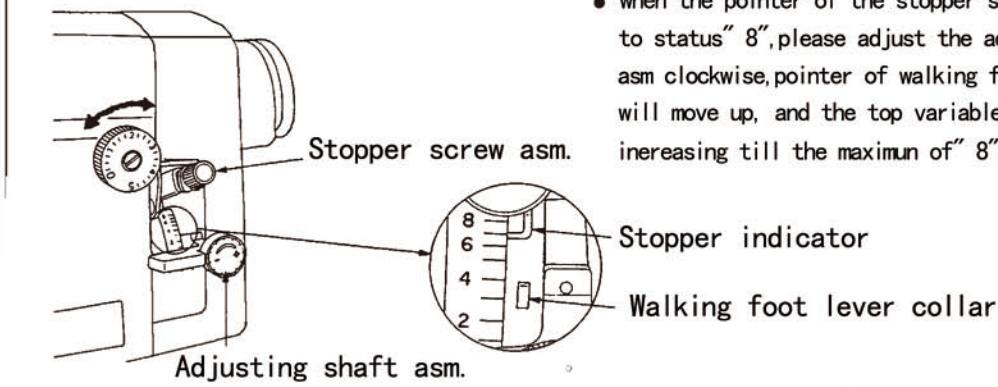


8. Setting the bobbin into the bobbin case



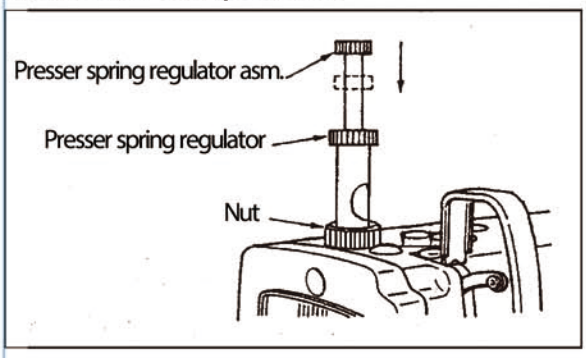
1) Pass the thread through thread slit Ⓐ, and pull the thread in direction Ⓒ. By so doing, the thread will pass under the tension spring and come out from notch Ⓑ.
2) Check that the bobbin rotates in the direction of the arrow when thread is pulled.

9. Adjusting the stitch length and top variable foot

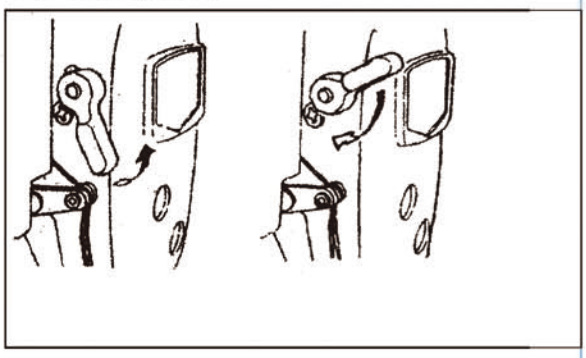


- when the pointer of the stopper screw points to status" 8", please adjust the adjusting shaft asm clockwise, pointer of walking foot lever colla will move up, and the top variable feed will keep inereasing till the maximun of" 8".

10. Presser foot pressure



11. Hand lifter



12. Adjusting the height of the presser bar

WARNING :
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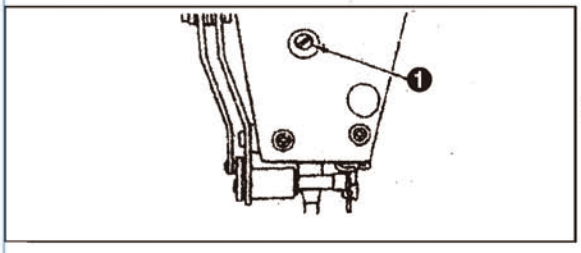
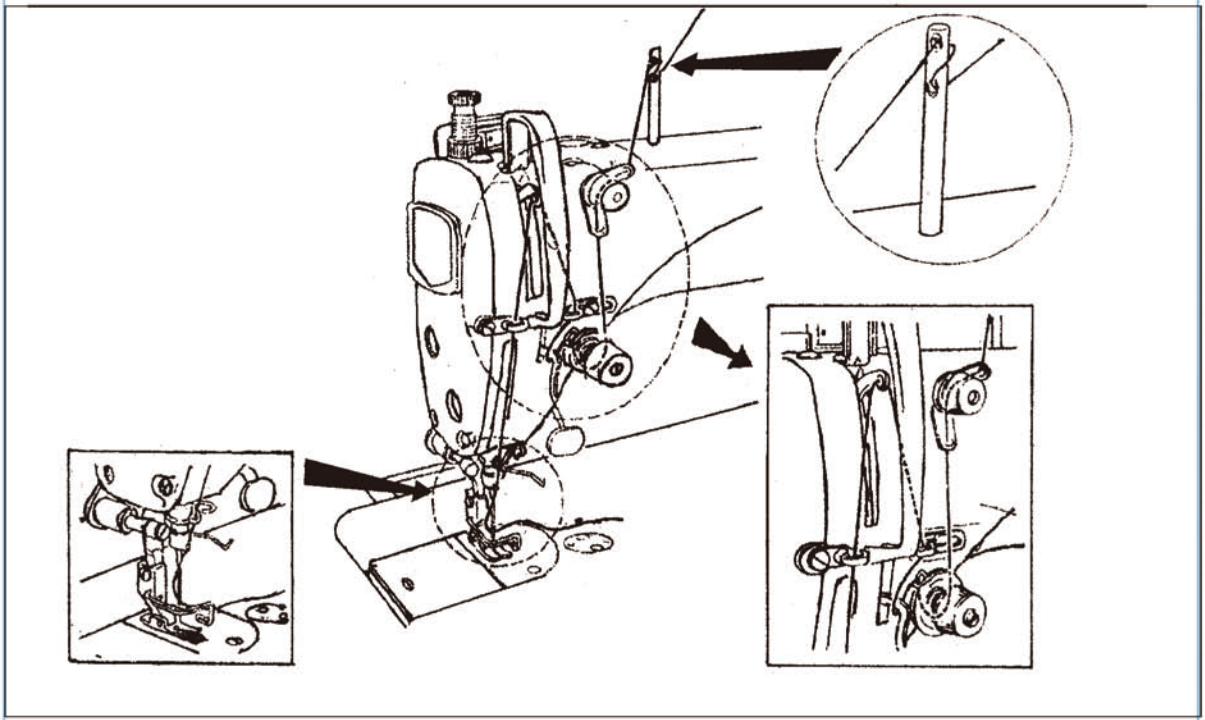
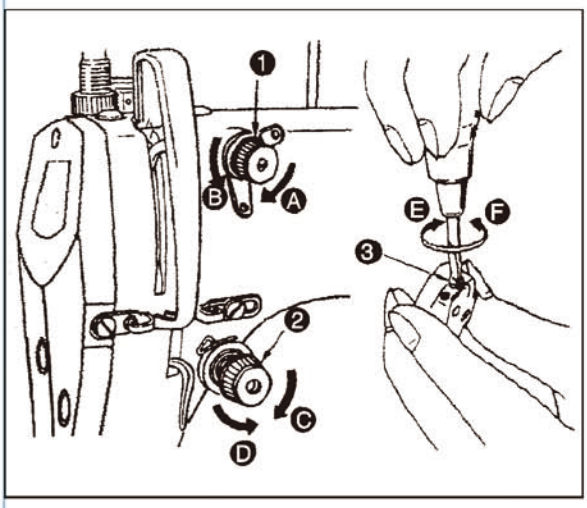


1) Loosen setscrew ❶, and adjust the presser bar height or the angle of the presser foot.
2) After adjustment, securely tighten the setscrew ❶.

13. Threading the machine head



14. THREAD TENSION



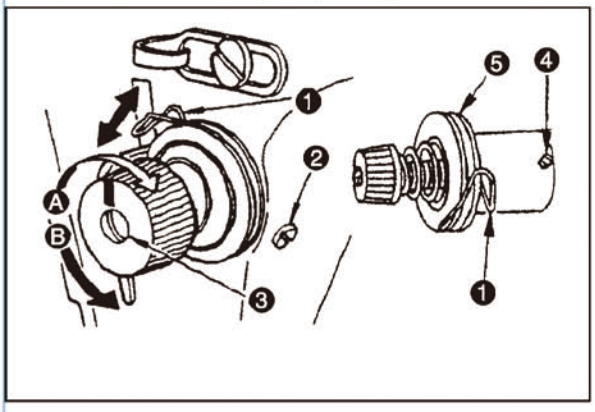
(1) Adjusting the needle thread tension

1) The length of thread remaining at the needle tip after thread trimming is shortened by turning tension regulating nut No. 1 ❶ clockwise in direction Ⓐ.
2) It is lengthened by turning the nut counterclockwise in direction Ⓑ.
3) The needle thread tension is increased by turning tension regulating nut No. 2 ❷ clockwise in direction Ⓒ.
4) It is decreased by turning the nut counterclockwise in direction Ⓓ.

(2) Adjusting the bobbin thread tension

1) The bobbin thread tension is increased by turning tension regulating screw ❸ clockwise in direction Ⓔ.
2) It is decreased by turning the screw counterclockwise in direction Ⓕ.

15. Thread take-up spring



(1) Changing the stroke of thread take-up spring ❶

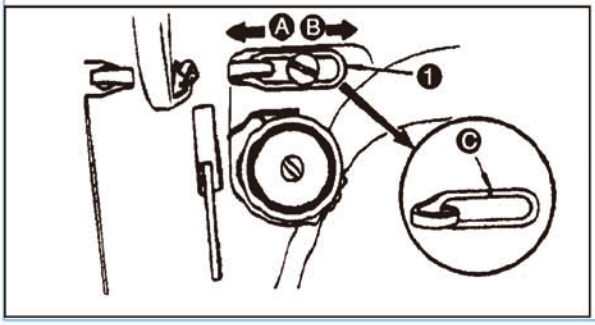
1) Loosen setscrew ❷.
2) As you turn tension post ❸ clockwise (in direction Ⓐ), the stroke of the thread take-up spring will be increased.
3) As you turn tension post ❸ counterclockwise (in direction Ⓑ), the stroke will be decreased.

(2) Changing the pressure of thread take-up spring ❶

1) Loosen setscrew ❷, and remove thread tension asm. ❺.
2) Loosen setscrew ❹.
3) As you turn tension post ❸ clockwise (in direction Ⓐ), the pressure will be increased.
4) As you turn the tension post ❸ counterclockwise (in direction Ⓑ), the pressure will be decreased.

16. Adjusting the thread take-up stroke

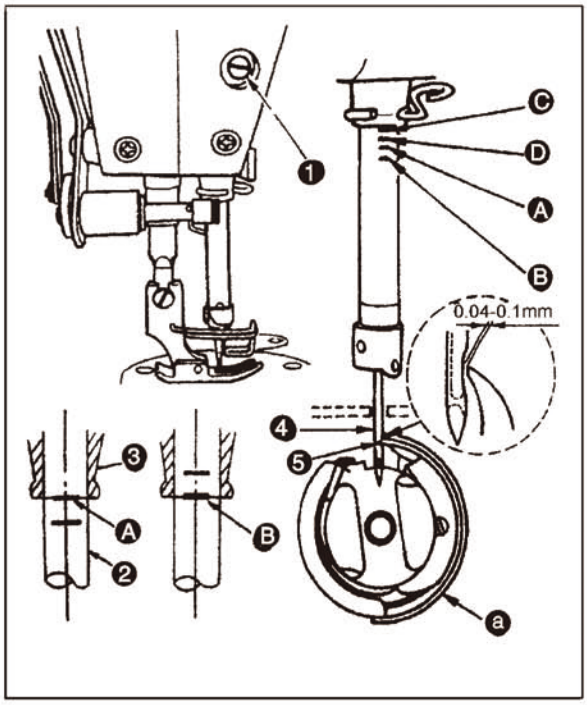
WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



1) When sewing heavy-weight materials, move thread guide ❶ to the left (in direction Ⓐ) to increase the length of thread pulled out by the thread take-up.
2) When sewing light-weight materials, move thread guide ❶ to the right (in direction Ⓑ) to decrease the length of thread pulled out by the thread take-up.
3) Normally, thread guide ❶ is positioned in a way that marker line Ⓒ is aligned with the center of the screw.

17. Needle-to-hook relation

WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



Adjust the timing between the needle and the hook as follows :

1) Turn the handwheel to bright the needle bar down to the lowest point of its stroke, and loosen setscrew ❶.

Adjusting the needle bar height.

2) [For a DB/DP needles]
Align marker line Ⓐ on the needle bar ❷ with the bottom end of the needle bar lower bushing ❸, then tighten clamping screw ❶ of the needle bar connection.
[For a DA needle] (Only DDL-8700BS-7)
Align marker line Ⓒ on the needle bar ❷ with the bottom end of the needle bar lower bushing ❸, then tighten clamping screw ❶ of the needle bar connection.

Adjusting position of the hook ⓐ.

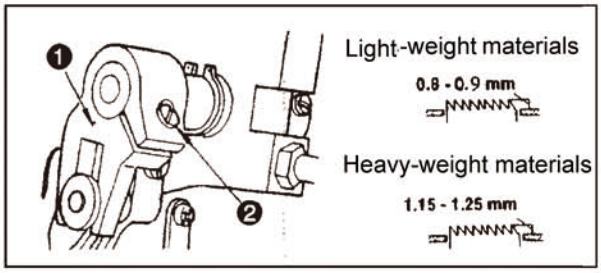
3) [For a DB/DP needles]
Loosen three setscrews of the hook, turn the handwheel and align marker line Ⓑ on ascending the needle bar ❷ with bottom end of the needle bar lower bushing ❸.
[For a DA needle] (Only DDL-8700BS-7)
Loosen three setscrews of the hook, turn the handwheel and align marker line Ⓓ on ascending the needle bar ❷ with bottom end of the needle bar lower bushing ❸.

4) After making the adjustments mentioned in the above steps, align the blade point ❺ of hook ⓐ with the center of needle ❹. Provide a clearance of dimension **F** (reference value) between the needle ❹ and the hook ⓐ, then securely tighten three setscrews of the hook.

Caution **If the clearance between the blade point of hook and the needle is smaller than the specified value, the blade point of hook will be damaged. If the clearance is larger, stitch skipping will result.**

18. Height of the feed dog

WARNING :
Be sure to turn the powe F before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



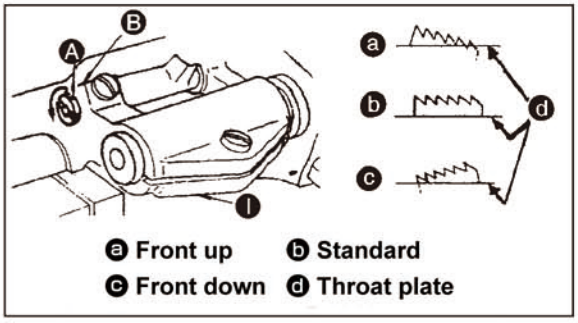
To adjust the height of the feed dog :

1) Loosen screw ❷ of crank ❶.
2) Move the feed bar up or down to make adjustment.
3) Securely tighten screw ❷.

Caution **If the clamping pressure is insufficient, the motion of the forked portion becomes heavy.**

19. Tilt of the feed dog

WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

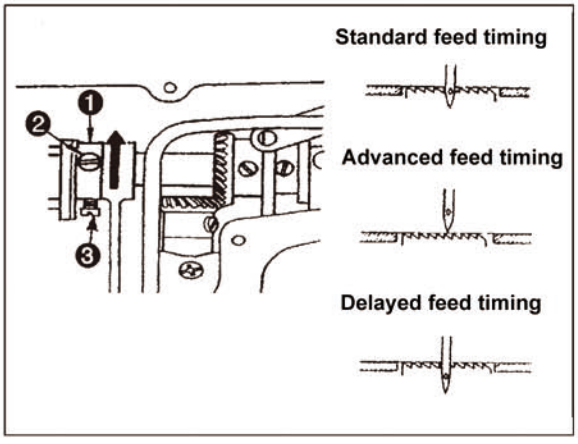


1) The standard tilt (horizontal) of the feed dog is obtained when marker dot Ⓐ on the feed bar shaft is aligned with marker dot Ⓑ on feed rocker ❶.
2) To tilt the feed dog with its front up in order to prevent puckering, loosen the setscrew, and turn the feed bar shaft 90° in the direction of the arrow, using a screwdriver.
3) To tilt the feed dog with its front down in order to prevent uneven material feed, turn the feed bar shaft 90° in the opposite direction from the arrow.

Caution **Whenever the feed dog tilt is adjusted, the feed dog height will be changed. So, it is necessary to check the height after tilt adjustment.**

20. Adjusting the feed timing

WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

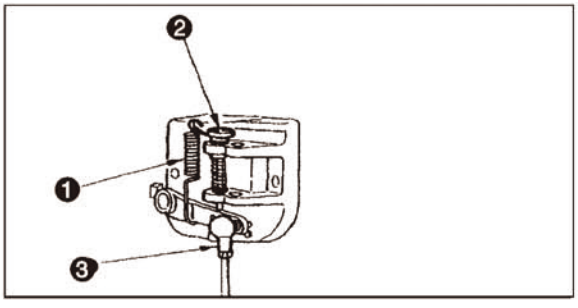


1) Loosen screws ❷ and ❸ in feed eccentric cam ❶, move the feed eccentric cam in the direction of the arrow or opposite direction of the arrow, and firmly tighten the screws.
2) For the standard adjustment, adjust so that the top surface of feed dog and the top end of needle eyelet are flush with the top surface of throat plate when the feed dog descends below the throat plate.
3) To advance the feed timing in order to prevent uneven material feed, move the feed eccentric cam in the direction of the arrow.
4) To delay the feed timing in order to increase stitch tightness, move the feed eccentric cam in the opposite direction from the arrow.

Caution **Be careful not to move the feed eccentric cam too far, or else needle breakage may result.**

21. Pedal pressure and pedal stroke

WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



(1) Adjusting the pressure required to depress the front part of the pedal

1) This pressure can be changed by changing the mounting position of pedaling pressure adjust spring ❶.
2) The pressure decreases when you hook the spring on the left side.
3) The pressure increases when you hook the spring on the right side.

(2) Adjusting the pressure required to depress the back part of the pedal

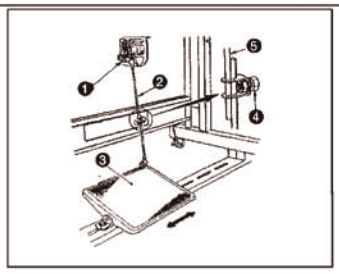
1) This pressure can be adjusted using regulator screw ❷.
2) The pressure increases as you turn the regulator screwin.
3) The pressure decreases as you turn the screw out.

(3) Adjusting the pedal stroke

1) The pedal stroke increases when you insert connecting rod ❸ into the right hole.

22. Adjustment of the pedal

WARNING :
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



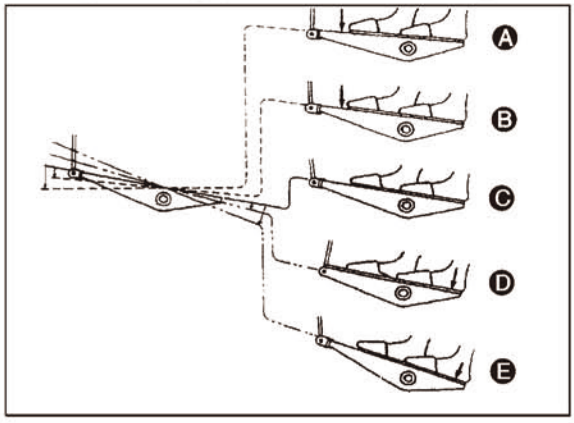
(1) Installing the connecting rod

1) Move pedal ❸ to the right or left as illustrated by the arrows so that motor control lever ❶ and connecting rod ❷ are straightened.

(2) Adjusting the pedal angle

1) The pedal tilt can be freely adjusted by changing the length of the connecting rod ❷.
2) Loosen adjust screw ❹, and adjust the length of connecting rod ❺.

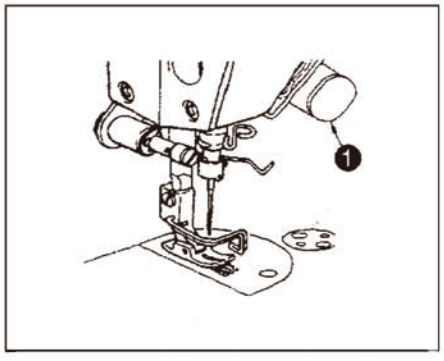
23. Operating procedure of the pedal



1) The pedal is operated in the following four steps:
a. The machine runs at low sewing speed when you lightly depress the front part of the pedal. Ⓑ
b. The machine runs at high sewing speed when you further depress the front part of the pedal. Ⓐ (If the automatic reverse feed stitching has been preset, the machine runs at high speed after it completes reverse feed stitching.)
c. The machine stops (with its needle up or down) when you reset the pedal to its original position. Ⓒ
d. The machine trims threads when you fully depress the back part of the pedal. Ⓔ

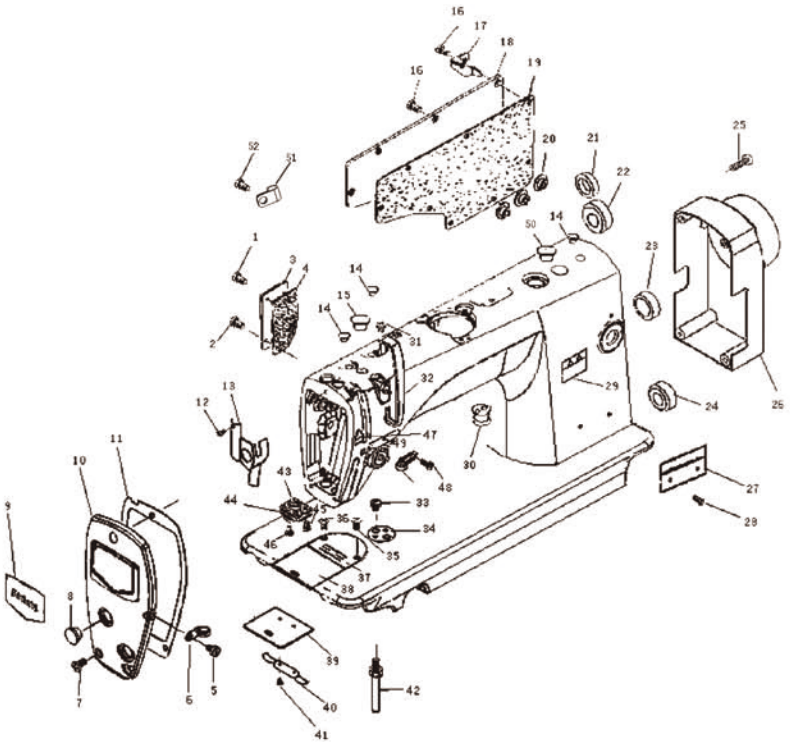
* When the auto-lifer (AK device) is used, one more operating switch is provided between the sewing machine stop switch and thread trimming switch. The presser foot goes up when you lightly depress the back part of the pedal Ⓓ, and if you further depress the back part Ⓔ, the thread trimmer is actuated.

24. One -touch type reverse feed switch



When one-touch type reverse feed switch ❶ is pressed, the sewing machine performs reverse feed stitching.

1.MACHINE PRAME & MISCELLANEOUS COVER COMPONENTS

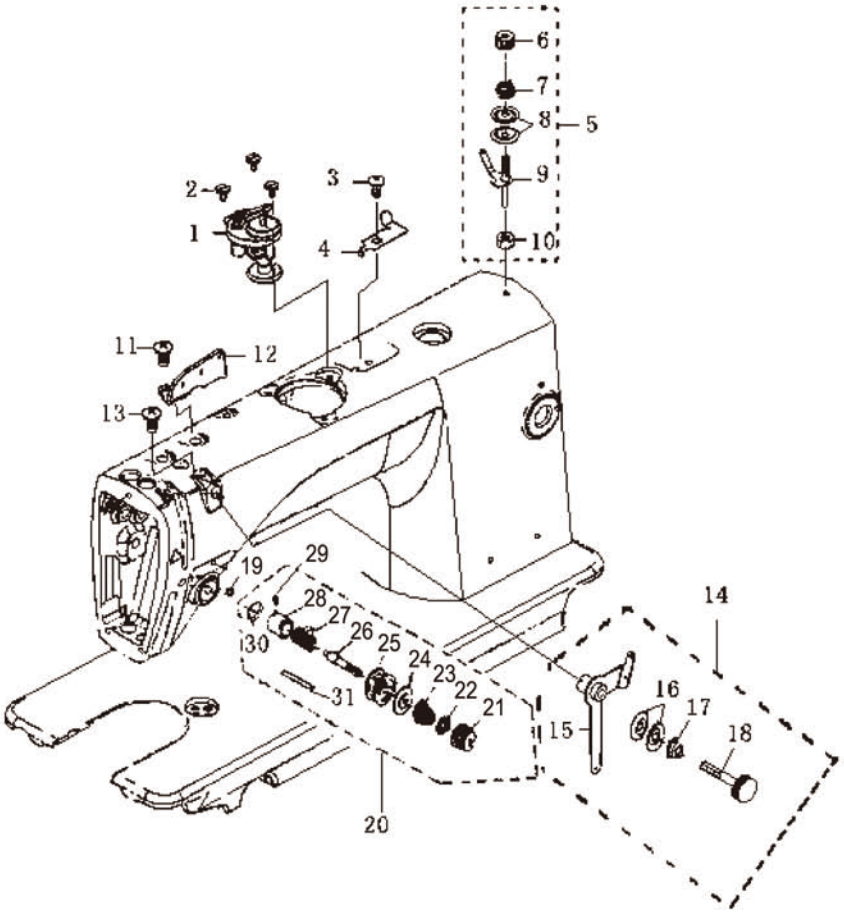


1. MACHINE PRAME & MISCELLANEOUS COVER COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	1-1	SCREW	4
2	1-2	SCREW	1
3	1-3	SIDE COVER	1
4	1-4	SIDE COVER PACKING	1
5	1-5	SCREW	1
6	1-6	ARM THREAD GUIDE B	1
7	1-7	PLATE	1
8	1-8	SCREW	3
9	1-9	RUBBER PLUG	2
10	1-10	FACE PLATE	1
11	1-11	FACE PLATE PACKING	1
12	1-12	SCREW	1
13	1-13	FACE PLATE OIL SHIELD ASM.	1
14	1-14	RUBBER PLUG	4
15	1-15	RUBBER PLUG	1
16	1-1	SCREW	10
17	1-16	CORDHOLDER	1
18	1-17	SIDE PLATE	1
19	1-18	SIDE PLATE PACKING	1
20	1-19	RUBBER PLUG	3
21	1-20	RUBBER PLUG	1
22	1-21	RUBBER PLUG	1
23	1-22	RUBBER PLUG	1
24	1-20	RUBBER PLUG	1
25	1-23	SCREW	4
26	1-24	PULLEY COVER	1

NO.	Parts NO.	Name of the part	Qty.
27	1-25	THE TYPE PLATE	1
28	1-26	RIVET	2
29	1-27	SAFETY LABEL	1
30	1-28	RUBBER BUSHING	1
31	1-2	SCREW	1
32	1-29	THREAD TAKE-UP LEVER COVER	1
33	1-30	SCREW	2
34	1-31	RULER STOP SEAT	1
35	1-32	SCREW	1
36	1-33	SCREW	1
37	1-34	THROAT PLATE	1
38	1-35	SLIDE PLATE ASM.	1
39	1.35-1	SLIDE PLATE	1
40	1.35-2	SLIDE PLATE SPRING	1
41	1.35-3	SCREW	2
42	1-36	BED SCREW STUD	4
43	1-37	GASKET	1
44	1-38	PRESSER BAR SUPPORT	1
45	1-39	SCREW	1
46	1-40	SCREW	2
47	1-41	SAFETY LABEL	1
48	1-5	SCREW	1
49	1-42	ARM THREAD GUIDE A	1
50	1-43	RUBBER PLUG	1
51	1-44	WIRE CLIP	1
52	1-2	SCREW	1

2. BOBBIN WINDER & THREAD TENSION COMPONENTS

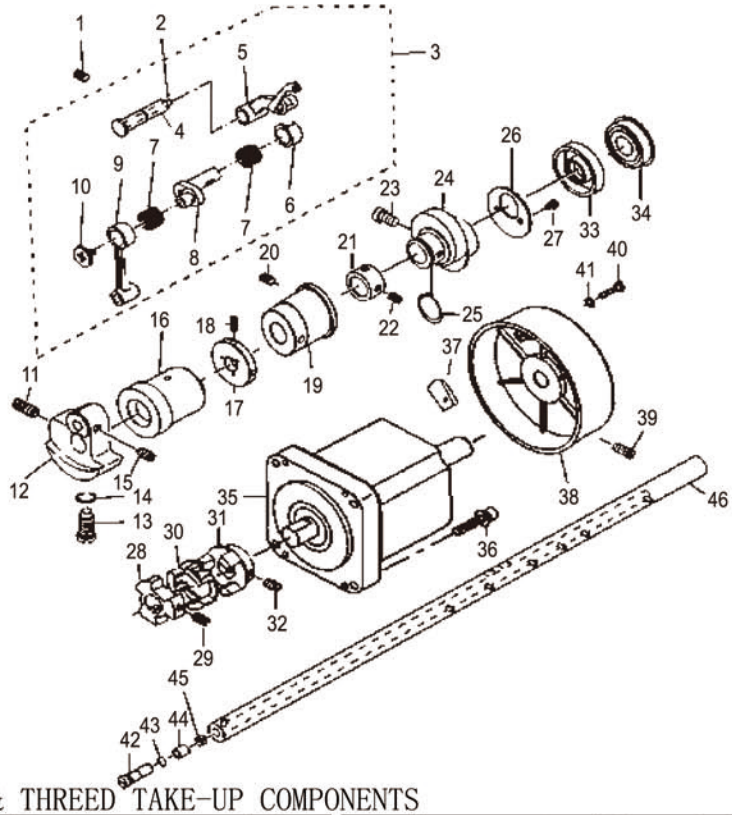


2. BOBBIN WINDER & THREAD TENSION COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	2.1	BOBBIN DEVICE ASM	1
2	2-2	SCREW	3
3	1-5	SCREW	1
4	2-3	THREAD CUTTER	1
5	2.4	BOBBIN THREAD TENSION ASM	1
6	2.4-1	THREAD TENSION NUT	1
7	2.4-2	THREAD TENSION SPRING	1
8	2.4-3	BOBBIN WINDER TENSION DISC	1
9	2.4-4	SCREW	1
10	2.4-5	NUT	1
11	1-5	SCREW	1
12	2-5	NEEDLE THREAD GUIDE PLATE	1
13	1-2	SCREW	1
14	2.6	NEEDLE THRERD TENSION ASM.	1
15	2.6-1	THERD TENSION GUIDE	1
16	2.6-2	THERD TENSION DISC	2

NO.	Parts NO.	Name of the part	Qty.
17	2.6-3	THREAD TENSION SPRING	1
18	2.6-4	SCREW	1
19	2-7	SCREW	1
20	2.8	THREAD TENSION ASM.	1
21	2.8-1	THREAD TENSION NUT	1
22	2.8-2	ROTATION STOPPER	1
23	2.8-3	THREAD TENSION SPRING	1
24	2.8-4	DISK STOPPER	1
25	2.8-5	THREAD TENSION DISK	2
26	2.8-6	SCREW	1
27	2.8-7	THREAD TAKE-UP SPRING	1
28	2.8-8	TENSION POST SOCKET	1
29	2.8-9	SCREW	1
30	2.8-10	RUBBER RING	1
31	2.8-11	TENSION RELEASE PIN	1

3. MAIN SHAFT &THREED TAKE-UP COMPONENTS

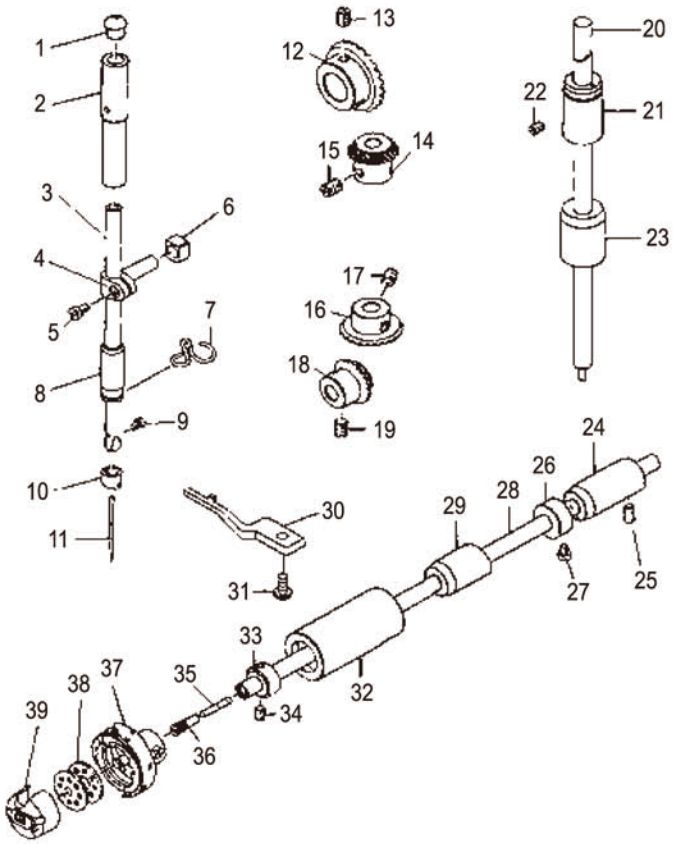


3.MAIN SHAFT & THREED TAKE-UP COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	3-1	SCREW	1
2	3-2	OIL WICK	1
3	3.3	THREED TAKE-UP COMPL.	1
4	3.3-1	THREED TAKE-UP CRANK SHAFT	1
5	3.3-2	THREED TAKE-UP CRANK ROD	1
6	3.3-3	THREED TAKE-UP ASM.	1
7	3.3-4	NEEDLE BEARING	1
8	3.3-5	NEEDLE BAR CRANK	1
9	3.3-6	NEEDLE BAR CRANK ROD	1
10	3.3-7	LEFT SCREW	1
11	3-4	SCREW	1
12	3-5	COUNTER WEIGHT	1
13	3-6	SCREW	1
14	3-7	RUBBER RING	1
15	3-8	SCREW	1
16	3-9	MAIN SHAFT BERING FRONT	1
17	3-10	BOBBLE WINDER DRIVING WHEEL	1
18	3-11	SCREW	1
19	3-12	BUSHING INTERMEDIATE	1
20	3-1	SCREW	1
21	3-13	MAIN SHAFT THRUST COLLAR	1
22	3-8	SCREW	2
23	3-14	SCREW	2

NO.	Parts NO.	Name of the part	Qty.
24	3-15	FEED ROCKER CAN PLATE	1
25	3-16	SNAP PING	1
26	3-17	THRUST COLLAR	1
27	3-18	SCREW	2
28	3-19	COUPLING A	1
29	3-20	SCREW	3
30	3-21	RUBBER PAD	1
31	3-22	COUPLING B	1
32	3-23	SCREW	3
33	3-24	OIL SEAL	1
34	3-25	BEARING	1
35	3-26	MOTOR	1
36	3-29	BOLT	4
37	3-30	MAGNET BASE ASM.	1
38	3-31	HEAD WHEEL	1
39	3-1	SCREW	2
40	3-32	WASHER	1
41	3-33	SCREW	1
42	3-34	OIL ADJUSTING PIN	1
43	3-35	RUBBER RING	1
44	3-36	OIL ADJUSTING COLLAR	1
45	3-37	ROLLER FELT	1
46	3-38	MAIN SHAFT	

4. NEEDLE BAR UPRIGHT SHAFT & HOOK DRIVING SHAFT COMPONENTS

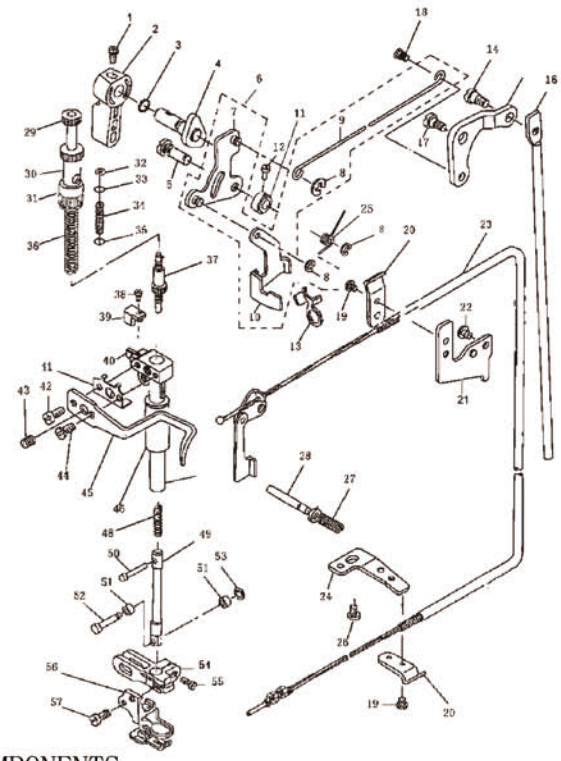


4. NEEDLE BAR UPRIGHT SHAFT & HOOK DRIVING SHAFT COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	4-1	NEEDLE BAR UPPER BUSH CAP	1
2	4-2	NEEDLE BAR METAL UPPER	1
3	4-3	NEEDLE BAR	1
4	4-4	NEEDLE ROD HOLDER	1
5	4-5	SCREW	1
6	4-6	SLIDE BLOCK	1
7	4-7	NEEDLE BAR THREAD GUIDE	1
8	4-8	NEEDLE BAR METAL LOWER	1
9	4-9	SCREW	1
10	4-10	NEEDLE BAR THREAD GUIDE	1
11	4-11	NEEDLE	1
12	4-12	GEAR	1
13	4-13	SCREW	2
14	4-14	PINION	1
15	4-13	SCREW	2
16	4-15	GEAR	1
17	4-13	SCREW	2
18	4-16	PINION	1
19	4-13	SCREW	2
20	4-17	UPRIGHT SHAFT	1

NO.	Parts NO.	Name of the part	Qty.
21	4-18	BUSHING UPPER	1
22	4-19	SCREW	1
23	4-20	UPRIGHT SHAFT BUSHING LOWER	1
24	4-21	HOOK DRIVING SHAFT BUSH REAR	1
25	3-1	SCREW	1
26	4-23	THRUST COLLAR REAR	1
27	4-24	SCREW	2
28	4-25	HOOK DRIVING SHAFT	1
29	4-26	HOOK DRIVING SHAFT BUSH MIDDLE	1
30	4-27	BOBBIN CASE HOLDER	1
31	4-28	SCREW	1
32	4-29	HOOK DRIVING SHAFT BUSH FRONT	1
33	4-30	THRUST COLLAR FRONT	1
34	4-31	SCREW	2
35	4-32	OIL WICK	1
36	4-33	SET SCREW	1
37	4-34	HOOK ASM.	1
38	4-37	BOBBIN	1
39	4-38	BOBBIN CASE ASM.	1

5. HAND LIFTER COMPONENTS

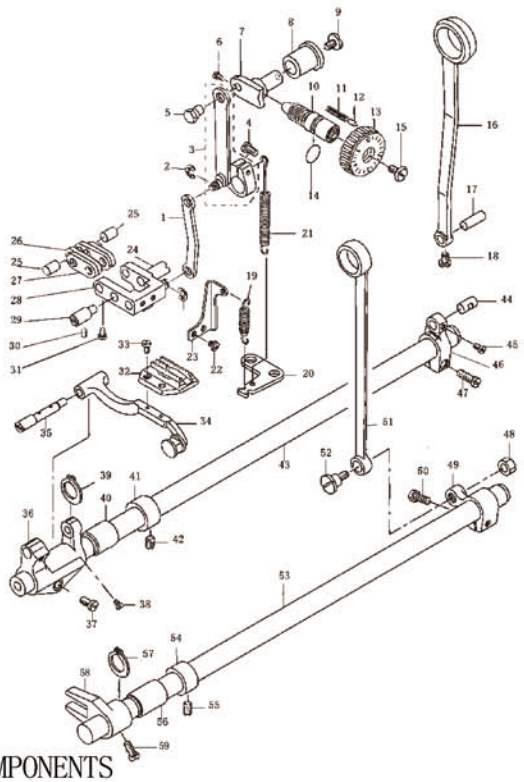


5. HAND LIFTER COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	5-1	SCREW	1
2	5-2	HAND LIFTER	1
3	5-3	RUBBER RING	1
4	5-4	HAND LIFTER CAM ASM.	1
5	5-5	LIFTING LEVER LINK SHAFT	1
6	5.6	KNEE LIFTER SIDE ROD ASM.	1
7	5.6-1	LIFTING LINK ASM.	1
8	5.6-2	E-RING	3
9	5.6-3	KNEE LIFTER SIDE ROD	1
10	5.6-4	LIFTING LEVER	1
11	5-7	THRUST COLLAR	1
12	4-5	SCREW	1
13	5-8	TENSION RELEASE PLATE	1
14	5-9	HINGE SCREW	1
15	5-10	LIFTING LEVER LINK	1
16	5-11	CONNECTING ROD	1
17	5-12	HINGE SCREW	1
18	5-13	HINGE SCREW	1
19	5-14	SCREW	2
20	5-15	WIRE PRESSER	2
21	5-16	WIRE PRESSER BASE UPPER	1
22	1-2	SCREW	1
23	5.17	WIRE TUBE	1
24	5-18	WIRE PRESSER BASE LOWER	1
25	5-19	WASHER	1
26	5-20	SCREW	1
27	5-21	THREAD RELEASE PIN SPRING	1
28	5-22	PIN	1
29	5.23	PRESSER SPRING REGULATOR ASM.	1

NO.	Parts NO.	Name of the part	Qty.
30	5-24	PRESSER SPRING REGULATOR	1
31	5-25	NUT	1
32	5-26	E-PING	1
33	5-27	WASHER	1
34	5-28	GUIDE BAR SPRING	1
35	5-29	WASHER	1
36	5-30	PRESSER SPRING	1
37	5.31	CAP ASM.	1
38	5-32	SCREW	1
39	5-33	BRACKET GUIDE	1
40	5-34	PRESSER BAR GUIDE BRACKET	1
41	5-35	BRACKET PLATE	1
42	4-28	SCREW	1
43	3-8	SCREW	1
44	5-36	SCREW	1
45	5-37	THREAD GUIDE	1
46	5-38	BUSHING	1
47	5-39	PRESSER BAR	1
48	5-40	WALKING FOOT SPRING	1
49	5-41	DRIVING BAR	1
50	5-42	DRIVING BAR PIN	1
51	5-43	POLLER	2
52	5-44	ROLLER SHAFT	1
53	5-45	SNAP RING	1
54	5-46	PRESSER BAR BASE	1
55	5-47	SCREW	1
56	5-48	RPESSER FOOT ASM.	1
57	5-47	SCREW	1

6. FEED MECHANISM COMPONENTS

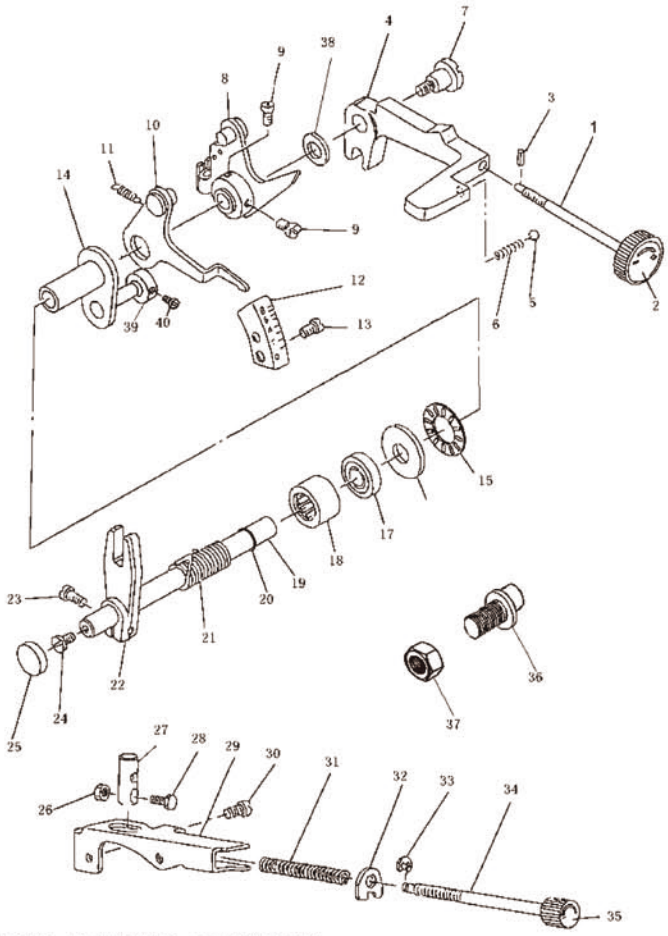


6.FEED MECHANISM COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	6-1	CONNECTING ROD B	1
2	5.6-2	E-RING	2
3	6.2	FEED CHANGING ARM ASM.	1
4	5-47	SCREW	1
5	6-3	FEED REGULATOR PIN	1
6	4-5	SCREW	1
7	6-4	FEED REGULATOR	1
8	6-5	FEED REGULATOR BUSHING	1
9	6-6	SCREW	1
10	6-7	FEED REGULATOR SCREW	1
11	6-8	FEED REGULATOR PIN SPRING	1
12	6-9	FEED REGULATOR PIN	1
13	6-10	FEED DIAL	1
14	6-11	RUBBER RING	1
15	6-12	SCREW	1
16	6-13	CONNECTING ROD	1
17	6-14	WALKING FOOT PIN B	1
18	4-5	SCREW	1
19	6-15	SPRING	1
20	6-16	FEED SPRING HOOK	1
21	6-17	FEED REVERSE SPRING	1
22	5-14	SCREW	2
23	6-18	ADJUSTING LINK SPRING GUIDE	1
24	6-19	ADJUST LINK FULCRUM SHAFT A	1
25	6-20	WALKING FOOT PIN A	2
26	6-21	CONNECTING LINK A	2
27	6-22	CONNECTING LINK B	2
28	6-23	FEED ADJUST LINK ASM.	1
29	6-24	ADJUST LINK FULCRUM SHAFT B	1
30	2-8	SCREW	2

NO.	Parts NO.	Name of the part	Qty.
31	4-5	SCREW	2
32	6-25	FEED DOG	1
33	5-32	SCREW	2
34	6.26	FEED BAR ASM.	1
35	6-27	FEED BAR SHAFT	1
36	6-28	FEED ROCKER	1
37	6-29	SCREW	1
38	6-30	SCREW	1
39	6-31	RETAINING RING	1
40	6-32	FEED ROCKER SHAFT BUSHING	1
41	6-33	MAIN SHAFT THRUST COLLAR	1
42	3-8	SCREW	2
43	6-34	FEED ROCKER SHAFT	1
44	6-35	WALKING FOOT PIN B	1
45	4-5	SCREW	1
46	6-36	FEED ROCKER SHAFT CRANK	1
47	6-37	SCREW	1
48	6-38	NUT	1
49	6-39	FEED DRIVING BASE ARM	1
50	6-37	SCREW	1
51	6-40	CONNECTING ROD	1
52	6-41	HINGE SCREW	1
53	6-42	FEED DRIVING SHAFT	1
54	3-13	MAIN SHAFT THRUST COLLAR	1
55	3-8	SCREW	2
56	6-32	FEED ROCKER SHAFT BUSHING	1
57	6-31	RETAINING RING	1
58	6-43	DRIVING SHAFT CRANK	1
59	6-44	SCREW	1

8. TOP FEED MECHANISM ADJUSTING COMPONENTS

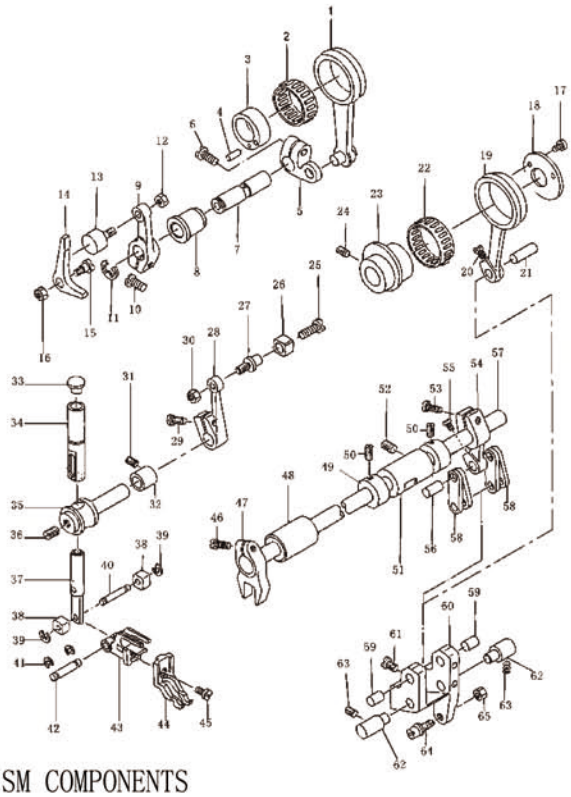


8. TOP FEED MECHANISM ADJUSTING COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	8.1	ADJUSTING SHAFT ASM.	1
2	8-2	WALKING FOOT DIAL PLATE	1
3	8-3	SPRING PIN	1
4	8-4	REVERSE FEED CONTROL LEVER	1
5	8-5	BALL	1
6	8-6	SPRING	1
7	8-7	SCREW	1
8	8.8	WALKING FOOT LEVER COLLAR ASM.	1
9	8-9	SCREW	2
10	8.10	STOPPER INDICATOR ASM	1
11	8-11	STOPPER INDICATOR SPRING	1
12	8-12	WALKING FOOT GRADUATION PLATE	1
13	1-2	SCREW	2
14	8-13	REVERSE FEED BUSHING ASM.	1
15	8-14	UPPER SHAFT THRUST BEARING	1
16	8-15	THRUST WASHER SMALL	1
17	8-16	OIL SEAL	1
18	8-17	NEEDLE BEARING	1
19	8-18	WALKING FOOT LEVER SHAFT	1
20	8-19	RUBBER RING	1

NO.	Parts NO.	Name of the part	Qty.
21	8-20	ADJUSTING LINK SPRING	1
22	8-21	WALKING FOOT ADJUSTING ARM	1
23	5-47	SCREW	1
24	8-22	SCREW	1
25	8-23	RUBBER PLUG	1
26	2-5	NUT	1
27	8-24	STOPPER PIN	1
28	8-25	SCREW	1
29	8-26	STOPPER BASE	1
30	1-2	SCREW	1
31	8-27	STOPPER SPRING	1
32	8-28	STOPPER WASHER	1
33	8-29	E-RING	1
34	8.30	STOPPER SCREW ASM.	1
35	8-31	STOPPER DIAL PLATE	1
36	8-32	ECCENTRIC SCREW	1
37	8-33	NUT	1
38	8-34	WASHER	1
39	8-35	THRUST COLLAR ASM.	1
40	4-5	SCREW	1

7. TOP FEED MECHANISM COMPONENTS

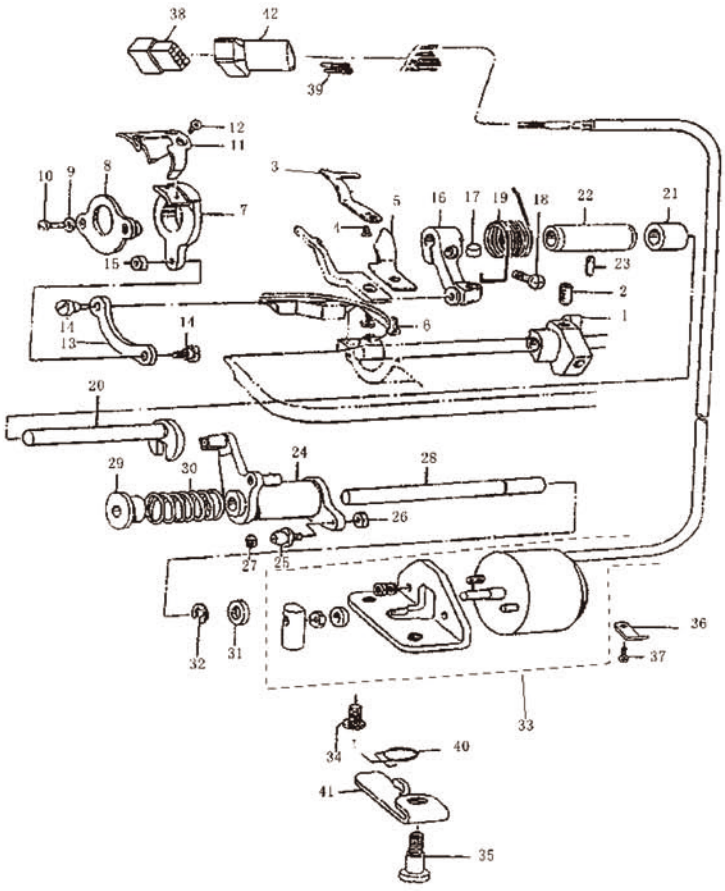


7. TOP FEED MECHANISM COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	7.1	WALKING FOOT DRIVING ROD ASM.	1
2	7−2	NEEDLE BEARING	1
3	7−3	WALKING FOOT DRIVING CAM	1
4	7−4	PIN	1
5	7−5	DRIVING ARM REAR	1
6	5−47	SCREW	1
7	7−6	WALKING FOOT DRIVING SHAFT	1
8	7−7	DRIVING SHAFT BUSHING	1
9	7−8	DRIVING ARM FRONT	1
10	5−47	SCREW	1
11	7−9	E-RING	1
12	7−10	NUT	1
13	7−11	DRIVING ROLLER	1
14	7−12	DRIVING PRESSER ARM	1
15	7−13	HINGE SCREW	1
16	17−8	NUT	1
17	3−18	SCREW	2
18	7−14	THRUST COLLAR	1
19	7−15	WALKING FOOT DRIVING ROD	1
20	5−36	SCREW	1
21	6−14	WALKING FOOT PIN C	1
22	7−16	NEEDLE ROLLAR	1
23	7−17	CAM	1
24	7−18	SCREW	2
25	7−19	SCREW	1
26	7−20	ROLLER	1
27	7−21	WALKING FOOT HORIZONTAL LOWER	1
28	7−22	FEED ROCKER SHAFT CRANK LOWER	1
29	5−47	SCREW	1
30	7−23	NUT	1
31	7−24	SCREW	1
32	7−25	BUSHING	1
33	1−14	RUBBER PLUG	1

NO.	Parts NO.	Name of the part	Qty.
34	7−26	FEED ROCKER BAR BUSHING	1
35	7−27	FEED ROCKER SHAFT	1
36	7−28	SCREW	1
37	7.29	HORIZONTAL BAR ASM.	1
38	7−30	ROLLER	2
39	7−31	SNAP RING	2
40	7−32	ROLLER SHAFT	1
41	7−31	SNAP RING	2
42	7−33	PIN	1
43	7−34	WALKING FOOT MOUNT	1
44	7−35	WALKING FOOT	1
45	1−5	SCREW	1
46	5−47	SCREW	1
47	7−36	FEED ROCKER SHAFT CRANK UPPER	1
48	7−37	ROCK SHAFT BUSHING FRONT	1
49	7−38	THRUST COLLAR	2
50	7−18	SCREW	4
51	7−39	ROCK SHAFT BUSHING REAR	1
52	4−19	SCREW	1
53	5−47	SCREW	1
54	7−40	WALKING FOOT ARM	1
55	5−36	SCREW	1
56	6−35	WALKING FOOT PIN	1
57	7−41	WALKING FOOT ROCK SHAFT	1
58	6−21	WALKING FOOT LINK	4
59	6−20	WALKIGN FOOT PIN A	2
60	7−42	WALKING FOOT ADJUSTING LINK	
61	5−36	SCREW	2
62	7−43	FULCRUM SHAFT	2
63	4−19	SCREW	2
64	7−44	WALKING FOOT ADJUSTING PIN	1
65	5.17−8	NUT	1

9. THREAD TRIMMER COMPONENTS

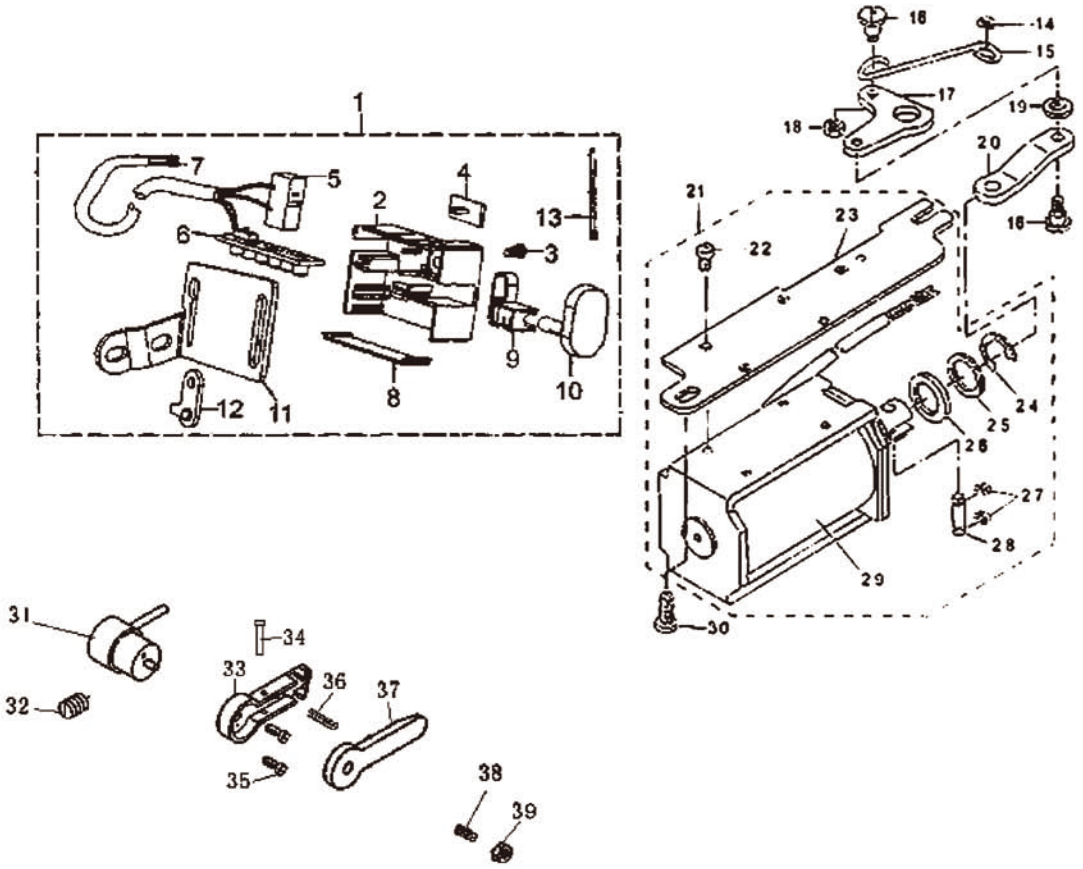


9. THREAD TRIMMER COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	9-1	THREAD TRIMMER CAM	1
2	9-2	SCREW	3
3	9-3	COUNTER KNIFE	1
4	9-4	SCREW	1
5	9-5	THREAD GUIDE FOR KNIFE	1
6	9-4	SCREW	1
7	9-6	KNIFE MOUNTING BASE	1
8	9.7	KNIFE MOUNTING BASE PLATE	1
9	9-8	WASHER	2
10	9-9	SCREW	2
11	9-10	MOVING KNIFE	1
12	9-11	SCREW	2
13	9-12	MOVING KNIFE LINK	1
14	9-13	HINGE SCREW	1
15	2-5	NUT	1
16	9-14	KNIFE DRIVING ARM	1
17	9-15	RUBBER PAD	1
18	6-29	SCREW	1
19	9-16	ROLLER RETURN SPRING	1
20	9-17	KNIFE DRIVING ARM SHAFT	1
21	9-18	DIVIDING BUSH	1

NO.	Parts NO.	Name of the part	Qty.
22	9-19	THREAD TRIMMER SHAFT BUSHING	1
23	3-11	SCREW	1
24	9.20	THREAD TRIMMER DRIVING ARM ASM.	1
25	9.21	PICKER LINK	1
26	2-5	NUT	1
27	9-22	SCREW	1
28	9-23	THREAD TRIMMER CAM SHAFT	1
29	9-24	NYLON COVER	1
30	9-25	SPRING	1
31	9-26	RUBBER PLUNGER	1
32	9-27	E-RING	1
33	9-28	SOLENOID ASM.	1
34	9-29	SCREW	1
35	9-30	HINGE SCREW	1
36	9-31	PIPE HOLDER LOWER	1
37	5-20	SCREW	1
38	9-32	HOUSING	1
39	9-33	PIN CONTACT	1
40	9-34	SPRING	1
41	9-35	THREAD TENSION RELEASE PLATE	1
42	9-36	HOUSING COVER	1

10. AUTOMATIC REVERSE FEED COMPONENTS

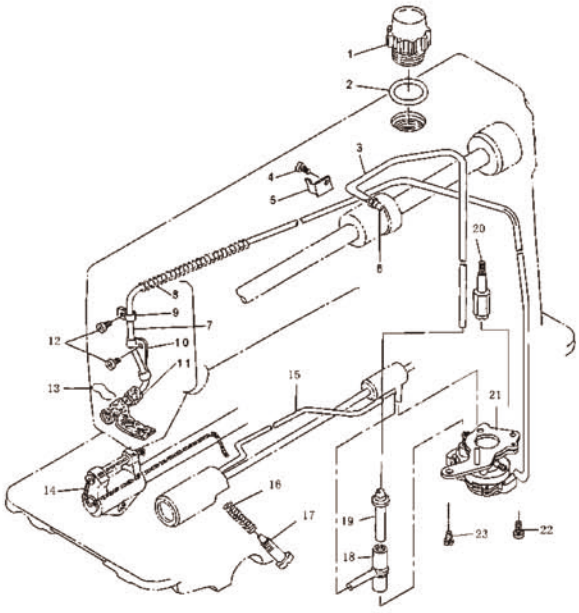


10. AUTOMATIC REVERSE FEED COMPONENTS

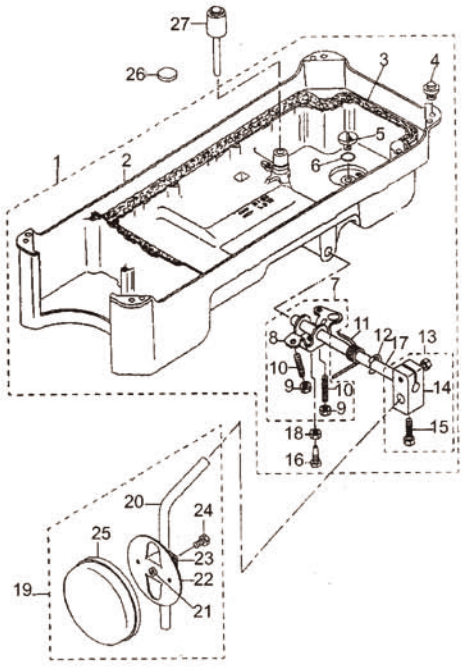
NO.	Parts NO.	Name of the part	Qty.
1	10.1	INCHING SWITCH ASM.	1
2	10.1-1	REVERSE FEED SWITCH BASE	1
3	10.1-2	SCREW	1
4	10.1-3	LIGHT SWITCH	1
5	10.1-4	INCHING SWITCH	1
6	10.1-5	CIRCUIT BOARD	1
7	10.1-6	PIN	1
8	10.1-7	COVER PLATE	1
9	10.1-8	PLASTIC SPRING	1
10	10.1-9	BUTTON	1
11	10.1-10	RETAINER PLATE	1
12	10.1-11	LOCKING PLATE	1
13	10.1-12	CLIP	1
14	5.6-2	E-RING	2
15	10-2	REVERSE FEED CONNECTING SHAFT	1
16	10-3	HINGE SCREW	2
17	10-4	REVERSE FEED LINK	1
18	10-5	NUT	2
19	10-6	WASHER	1
20	10-7	SOLENOID MOUNTING BASE ASM.	1

NO.	Parts NO.	Name of the part	Qty.
21	10.8	SOLENOID MOUNTING BASW ASM.	1
22	10.8-1	SCREW	1
23	10.8-2	SOLENOID INSTALLING PLATE	1
24	10.8-3	E-RING	1
25	10.8-4	WASHER	1
26	10.8-5	RUBBER PLUNGER	1
27	10.8-6	NUT	2
28	10.8-7	LINK DRIVING MAGNET PIN	1
29	10.8-8	REVERSE FEED SOLENOID	1
30	9-29	SCREW	1
31	10-9	THREAD TENSION SOLENOID	1
32	10-10	SCREW	1
33	10-11	THREAD TENSION SOLENOID BASE	1
34	10-12	PIN	1
35	10-13	SCREW	2
36	10-14	SPRING	1
37	10-15	THREAD TENSION PLATE	1
38	10-16	SCREW	1
39	10-17	NUT	1

11. OIL LUBLICATION COMPONENTS



12. UNDER COVER COMONENTS



11. OIL LUBLICATION COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	11-1	OIL SIGHT WINDOW	1
2	11-2	RUBBER RING	1
3	11-3	OIL TUBE	1
4	11-4	SCREW	1
5	11-5	HOLDER	1
6	11-6	CONNECTING SCREW	1
7	11-7	OIL TUBE ASM.	1
8	11-8	SPRING	1
9	11-9	HOLDER A	1
10	11-10	HOLDER B	1
11	11-11	FELT	1
12	1-2	SCREW	2

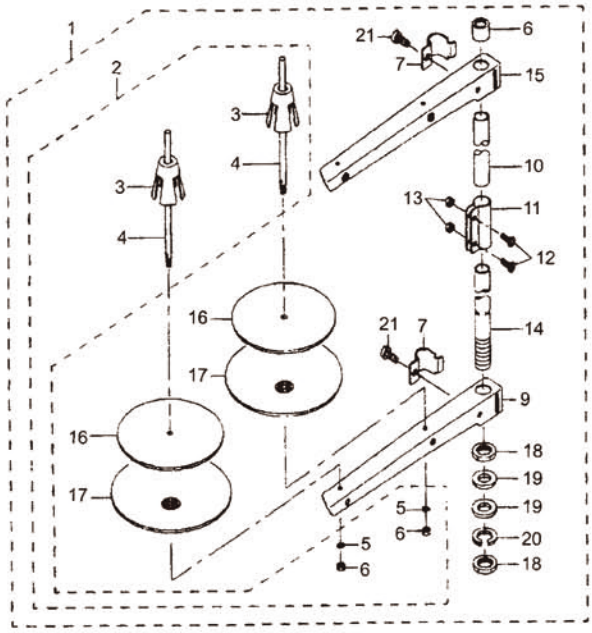
NO.	Parts NO.	Name of the part	Qty.
13	11-13	OIL FELT PRESSER	1
14	11-14	OIL WICK	1
15	11-15	HOOK OIL TUBE	1
16	11-16	OIL REGULATOR SCREW SPRING	1
17	11-17	SCREW	1
18	11-18	RUBBER JOINT	1
19	11-19	OIL TUBE JOINT	1
20	11-20	PUMP BODY STRUT	1
21	11-21	OIL PUMP ASM.	1
22	4-28	SCREW	1
23	5-20	SCREW	1

12. UNDER COVER COMPONENTS

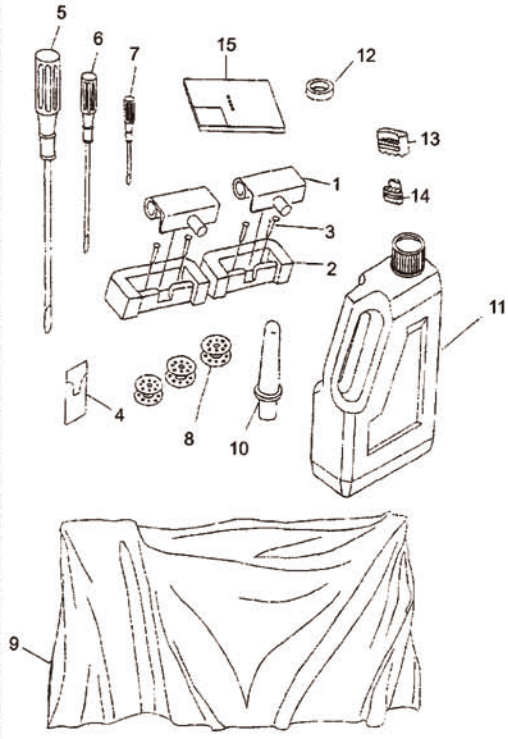
NO.	Parts NO.	Name of the part	Qty.
1	12-1	UNDER COVER ASM.	1
2	12-2	UNDER COVER	1
3	12-3	GASKET	1
4	12-4	RUBBER CUSHION	4
5	12-5	SCREW	1
6	12-6	RUBBER RING	1
7	12-7	KNEE LIFTER ROTATION ARM ASM.	1
8	12-8	KNEE LIFTER ROTAION ARM	1
9	12-9	NUT	2
10	12-10	SCREW	2
11	12-11	SPRING	1
12	12-12	E-RING	1
13	12-13	BRACKET ASM.	1

NO.	Parts NO.	Name of the part	Qty.
14	12-14	BRACKET	1
15	12-15	SCREW	1
16	12-16	SCREW	1
17	12-17	KNEE PRESS CROSS SHAFT	1
18	12-18	NUT	1
19	12-19	KNEE PAD PLATE ASM.	1
20	12-20	KNEE PAD UPRIGHT SHAFT	1
21	12-21	KNEE PAD PLATE RUBBER	1
22	12-22	KNEE PAD PLATE	1
23	12-23	KNEE PAD PLATE SUPPORT	1
24	12-24	SCREW	1
25	12-25	KNEE PAD PLATE COVER	1
26	12-26	KNEE PRESS LIFTER ROD	1

13.THREAD STAND COMPONENTS



14.ACCESSORIE PART COMPONENTS



13.THREAD STAND COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	13-1	THREAD STAND COMPONENTS	1
2	13-2	SPOOL RETAINER ASM.	2
3	13-3	SPOOL RETAINER	2
4	13-4	SPOOL PIN	2
5	13-5	THREAD GUIDE	2
6	13-6	SPRING WASHER	2
7	13-7	THREAD GUIDE ARM JOINT	2
8	13-8	SPOOL REST ROD RUBBER CAP	1
9	13-9	SPOOL REST ARM	1
10	13-10	SPOOL REST ROD UPPER	1
11	13-11	SPOOL REST ROD JOINT	1

NO.	Parts NO.	Name of the part	Qty.
12	13-12	SCREW	2
13	13-13	NUT	2
14	13-14	SPOOL REST ROD LOWER	1
15	13-15	THREAD STANDING ARM ASM.	1
16	13-16	SPOOL REST CUSHON	2
17	13-17	SPOOL REST	2
18	13-18	NUT	1
19	13-19	WASHER	2
20	13-20	SPRING WASHER	1
21	13-21	SCREW	2

14.ACCESSORIE PART COMPONENTS

NO.	Parts NO.	Name of the part	Qty.
1	14-1	HINGE COMPL	2
2	14-2	NAIL	4
3	14-3	RUBBER CUSHION	2
4	14-4	NEEDLE	1包
5	14-5	SCREW DRIVER, LARGE	1
6	14-6	SCREW DRIVER, MIDDLE	1
7	14-7	SCREW DRIVER, SMALE	1
8	14-8	BOBBIN	3

NO.	Parts NO.	Name of the part	Qty.
9	14-9	FRAMEVINYL COVER	1
10	14-10	FRAME SUPPORT BAR	1
11	14-11	OIL BOTTLE WITH OIL	1
12	14-12	MAGNET	1
13	14-13	RUBBER CUSHON (A)	1
14	14-14	RUBBER CUSHON (B)	1
15	14-15	OPERATION MANUAL	1

OPERATION MANUAL
PARTS MANUAL