

The

GLOBAL

Selection

**INDUSTRIAL
SEWING
MACHINE
Model**

DN 2220-AUT

DN 2220LH-AUT

Classes

Twin-Needle

Split Needle Bar

Lockstitch

Automatic Undertrimmer

Variable speed control

Please read this instruction carefully before operating the machine.

**CATALOG
INSTRUCTION MANUAL**

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PRECAUTIONS BEFORE STARTING TO OPERATE

1. Safety Precautions

- 1) When turning the power on, keep your hands and fingers away from the area around /under the needle and the area around the pulley.
- 2) Power must be turned off when the machine is not used, or when the operator leaves his /her seat.
- 3) The power must be turned off before tilting the machine head, installing or removing the "V" belt, adjusting the machine, or when replacing.
- 4) Avoid placing fingers, hairs bars etc. near the pulley, "V" belt, bobbin winder pulley, or motor when the machine is operation. Injury could result.
- 5) Do not insert fingers into the thread take-up cover, under/round the needle, or pulley when the machine is in operation.
- 6) If a belt cover, finger guard, and/or eye guard are installed, do not operate the machine without these safety devices.

2. Precaution before Starting Operation

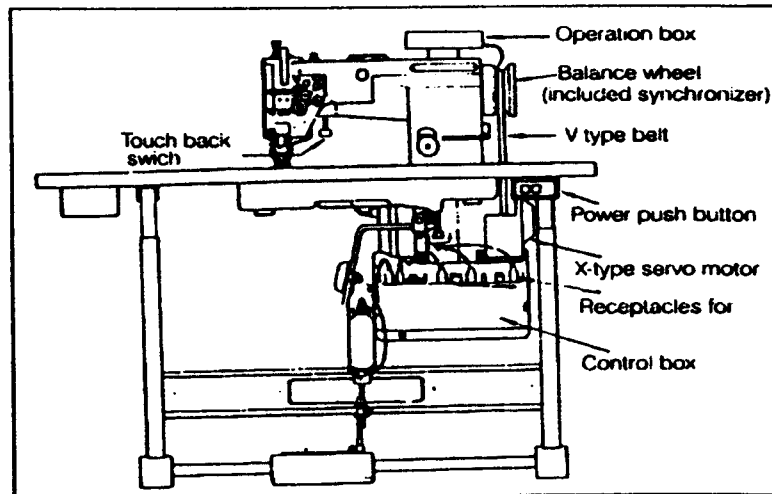
- 1) If the machine's oil pan has an oil sump, never operate the machine before filling it.
- 2) If the machine is lubricated by a drop oiler, never operate the machine before lubricating
- 3) When a new sewing machine is first turned on, verify the rotational direction of the pulley with the power on.
(the pulley should rotate counterclockwise when viewed from the pulley.)
- 4) Verify the voltage and (single or three) phase with those given on the motor nameplate.

3. Precaution for Operating Conditions

- 1) Avoid using the machine at abnormally high temperature (35°C or higher) or low temperature (5°C or lower). Otherwise, machine failure may result.
- 2) Avoid using the machine in dusty conditions.
- 3) Avoid using the machine in areas where too much electrical noise, resulted from the high-frequency welder and others, is generated.

PREPARATION FOR OPERATION

- Overall view of assembled sewing machine



1. Power cable connection

(1) Connection to Power Supply

When connecting the power supply connector to the control box, the connector should be completely plugged in the proper receptacle after confirming the connector type and matching direction.

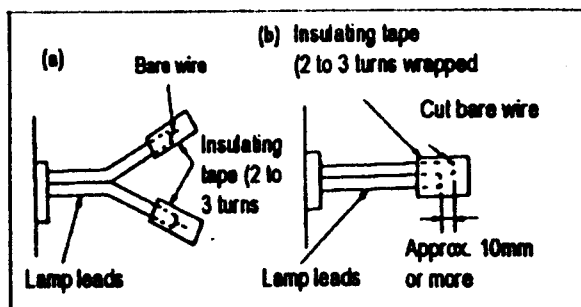
- A. In case of three-phase electrical power system, the "U" phase should be connected to the red lead, the "V" phase to the white lead, and the "W" phase to the black lead. The motor rotary direction depends, however, upon the setting of the internal switch in the control box as described in Paragraph 1-(3)

CAUTION: The green wire must be connected to the ground terminal in order to ground the motor properly.

- B. The appropriate power fuse capacity is as follows.
- | | | |
|--------------|------------|-----|
| Power supply | 200V-240V: | 10A |
| | 100V-120V: | 15A |

(2) Lamp Leads

- A. When installing the illuminating lamp (6V, 15-20W), The connecting wire is attached on the back of the Control box. It should be removed and connected by removing the insulating tube from the wire and stripping properly. The wire connections should be, then, insulated by wrapping insulating tape on the wires.



CAUTION: The power switch must be turned off before connecting the lamp.

- B. When the illuminating lamp is not used, the end of the lamp leads must be insulated as (a) or (b) as shown in the figure on right side. If a short circuit occurs failing to insulate, the transformer in the control box will be possibly burned out.

CAUTION: The illuminating lamp must not be connected with any heater, such as a foot warmer and others, in parallel. Otherwise, the load capacity will be exceeded. It may cause transformer winding burned out.

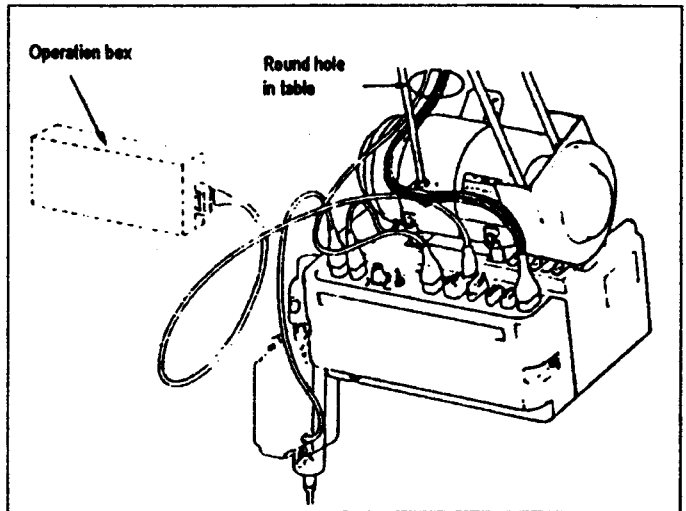
(3) Rotary direction

It is possible to change the rotary direction of the motor by removing the rubber cap from the bottom left side of the front cover on the control box, and push the internal direction selector switch. The built-in lamp in the internal switch is off when the motor is rotating counterclockwise as facing to the motor pulley, and on when rotating clockwise. The rotary direction has been set to counterclockwise as facing to the motor pulley, matching with the machine prior to shipping

2. Connection of control box

The control box should be connected as shown to the right.

- Note:** (1) Be sure to turn the power switch off for safety before connecting or disconnecting the connectors.
- (2) The combination of the machine heads with the motor control panels are specified below. Use special care for the correct combination when replacing the machine head or motor control panel.

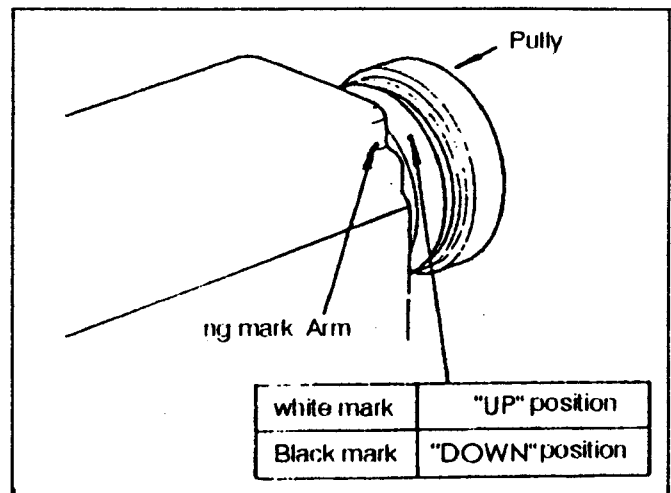


3 Adjustment of needle bar stop position

I Adjust of "UP" position

When the pedal is kicked down by heel, the machine stops at "UP" position. If the marks deviate larger than 3 mm, adjust as follows.

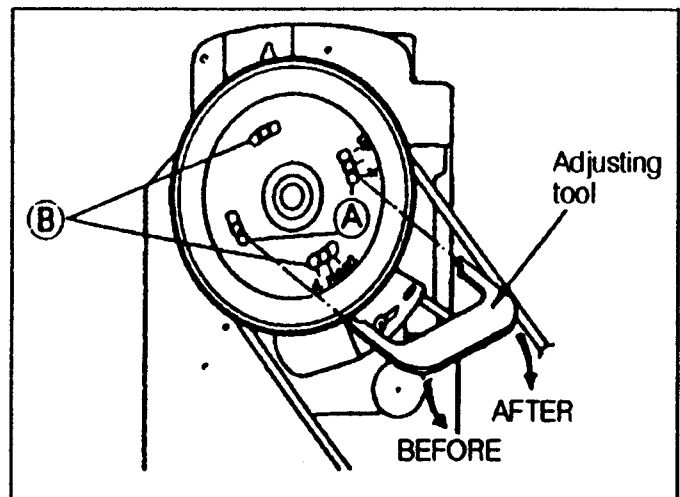
- 1) Disconnect the plug (12 pins) of cable from the machine head.
- 2) Run the machine and stop at "UP" position.
- 3) While holding the pulley, insert the "adjusting tool" in the hole "A", then remove the tool.



II Adjust of "Down" position

When the pedal is "Neutral" the machine stops at "Down" position. If the marks deviate large than 5 mm, adjust as follows.

- 1) Disconnect the plug (12 pins) of cable from the machine head
- 2) Run the machine and stop at "Down" position.
- 3) While holding the pulley, insert the "adjusting tool" in the hole "B", then remove the tool.



- III Confirm the stop operation, then set the plug (12 pings) coming from the machine head into the receptacle.

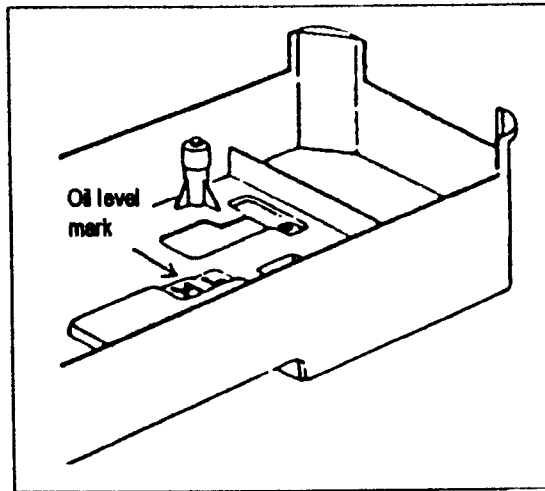
CAUTIONS ON USE

1. Oiling (1)

Fill the oil reservoir with oil up to "H" mark.

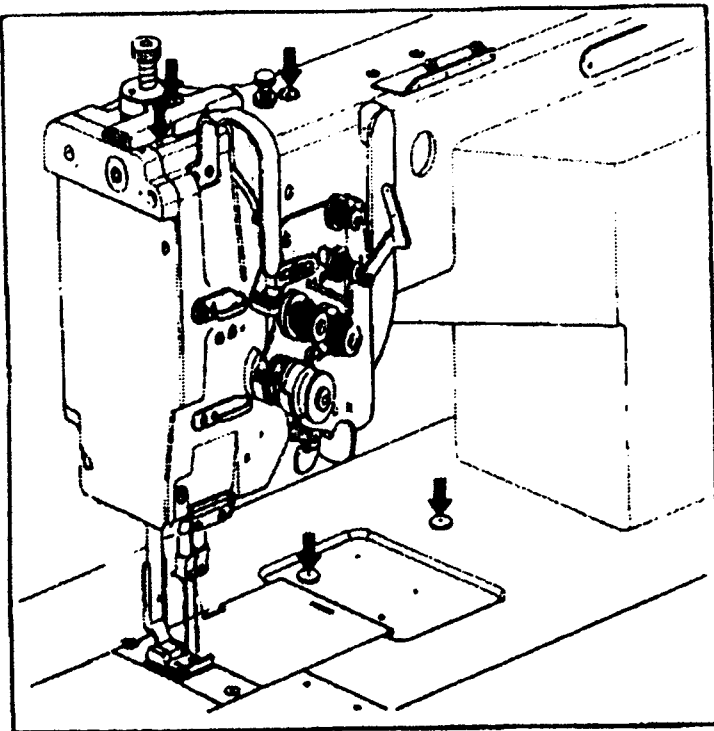
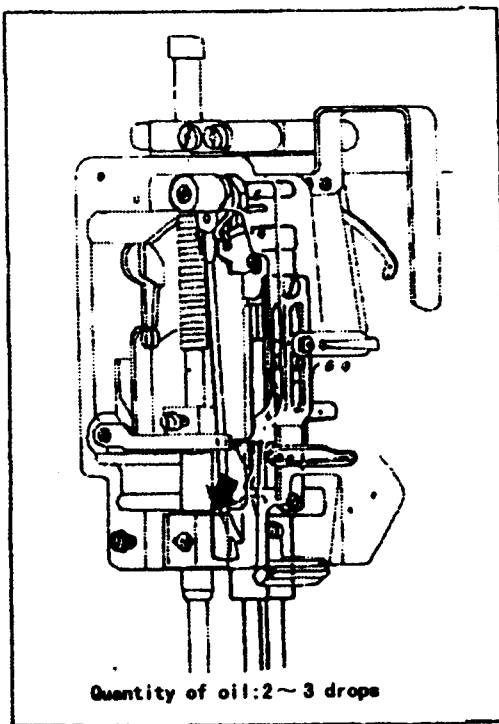
Oil level should be periodically checked. If oil level is found below "L" level replenish oil to "H" level.

For oil, Use white spindle oil



2. Oiling (2)

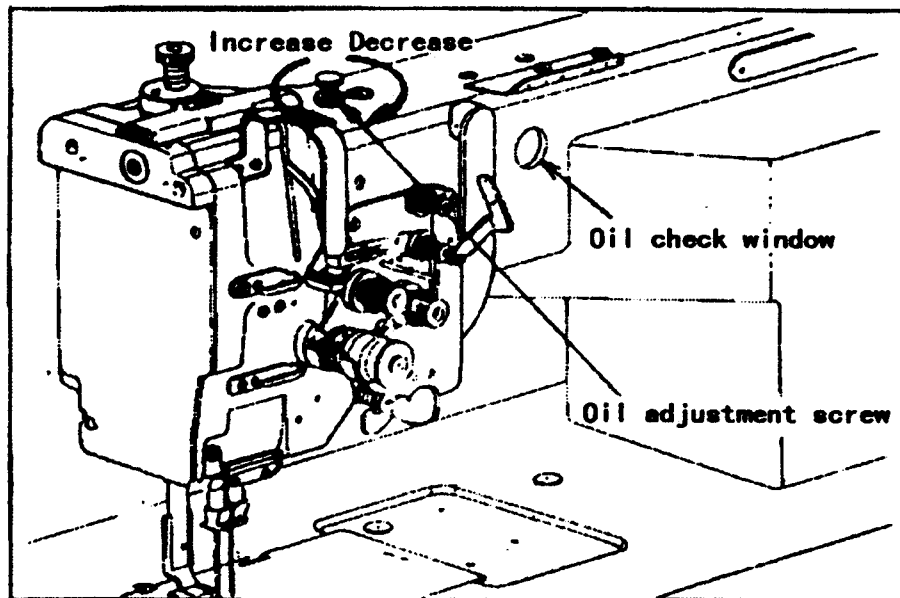
When a new sewing machine is used for the first time, or sewing machine left out of use for considerably long time is used again, replenish a suitable amount of oil to the portions indicated by arrow in the below figure.



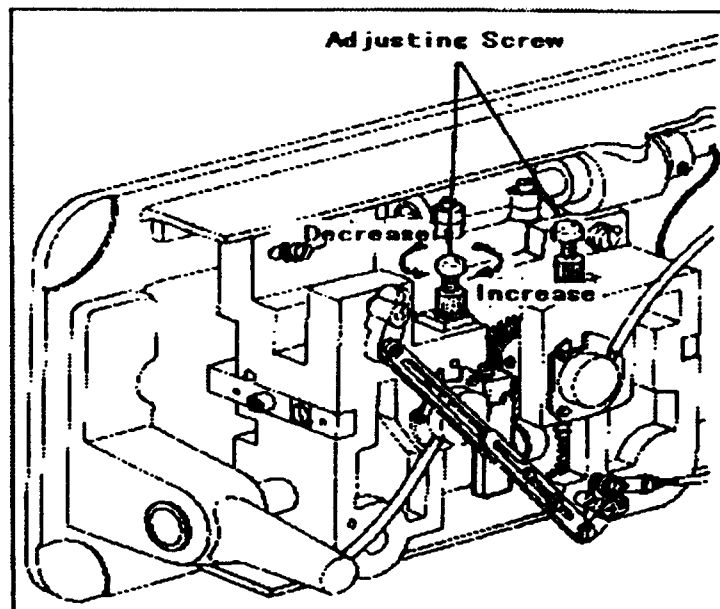
3. Oiling condition

(1) See dripping of oil during operation through the oil sight window to check oiling condition in the machine arm.

(2) Please use the oiling adjusting screw with respect to oiling to take-up lever mechanism.



4. Adjustment of oiling to rotating hook



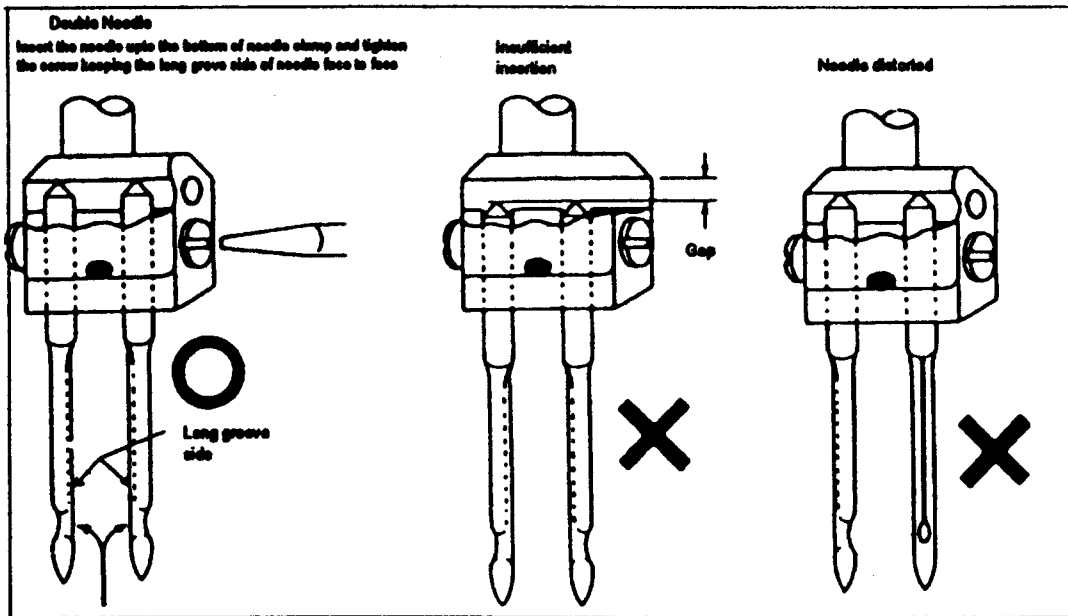
5. Cautions on operation

- (1) When the power is turned on or off, keep foot away from the pedal.
- (2) It should be noted that the brake may not work when the power is interrupted or power failure occurs during sewing machine operation.
- (3) Since dust in the control box might cause malfunction or control troubles, be sure to keep the control box cover close during operation.
- (4) Do not apply a multimeter to the control circuit for checking; otherwise voltage of multimeter might damage semiconductor components in the circuit.

OPERATION

1. Installation of needles

Note: Before installing the needles, be sure to turn off the power.



2. Winding of bobbin thread

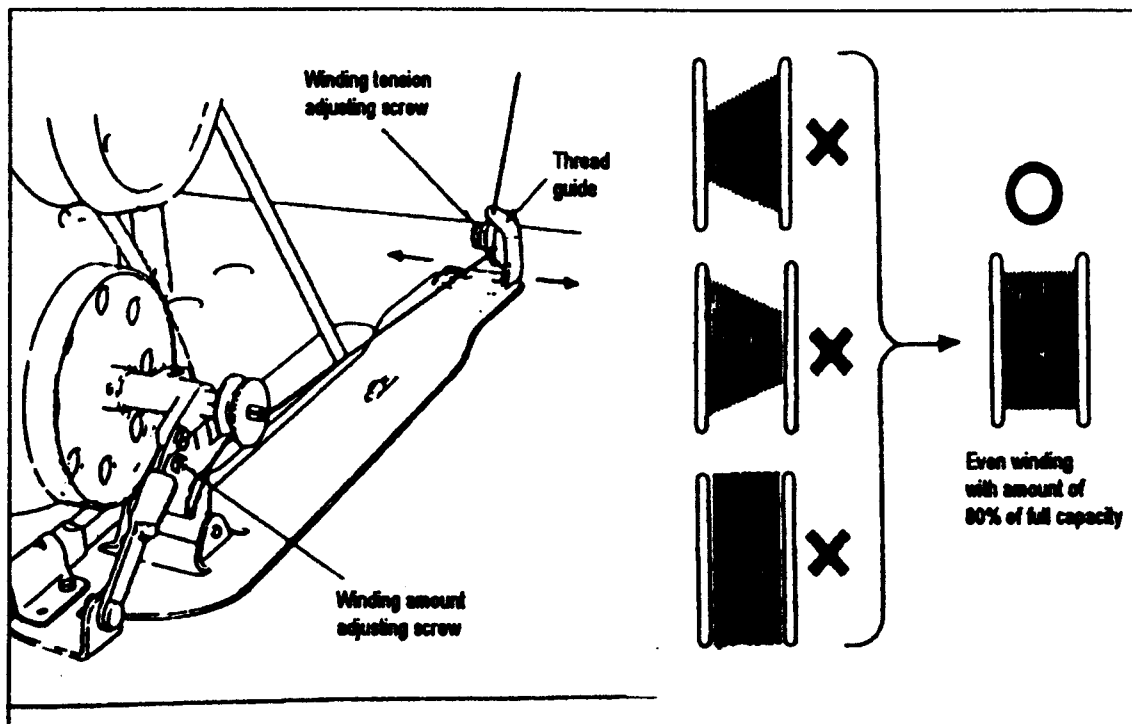
Note: When bobbin thread is wound, keep the presser foot lifted.

Adjustment:

Tension of wound thread Slack winding is recommended for polyester thread and nylon thread.

Conically wound thread Move the thread guide toward smaller diameter of wound thread layer.

Length of wound thread Loosen the thread length adjusting screw to increase length of thread and tighten the screw to decrease length of thread.

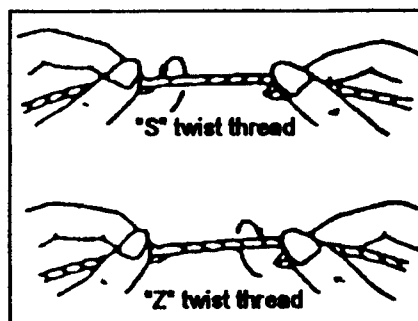


3. Selection of thread

It is recommended to use "S" twist thread in the Left needle (viewed from front), and "Z" twist thread in the right needle.

When discriminate use of needle threads is impossible, use "Z" twist thread in both the needles.

For bobbin thread, "S" twist thread as well as "Z" twist Thread can be used.



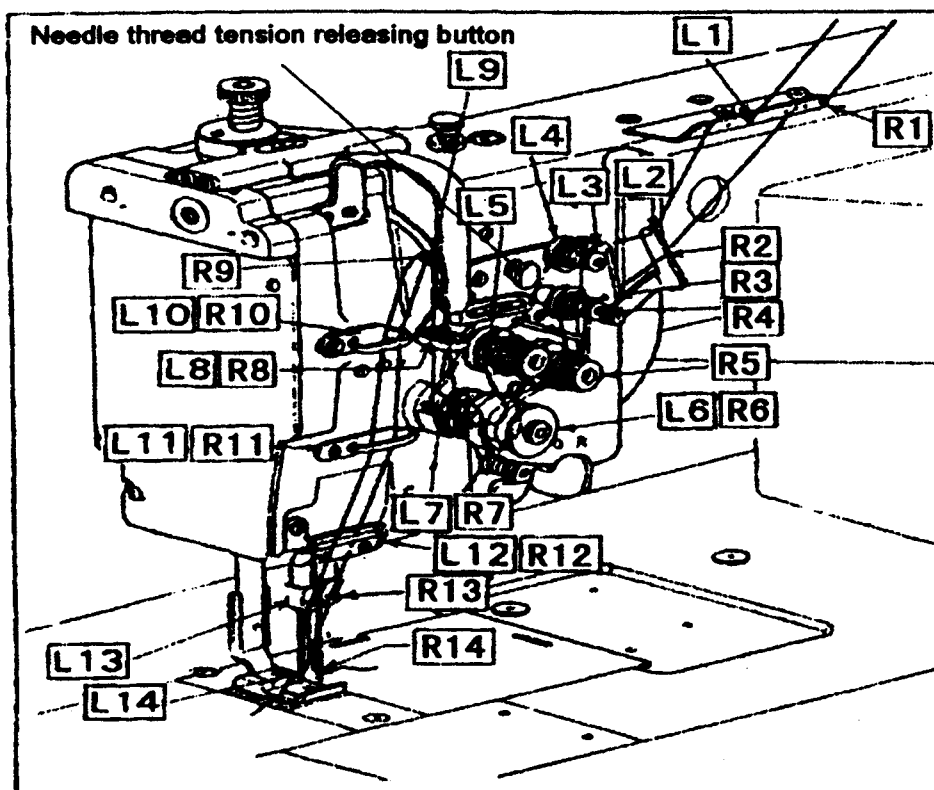
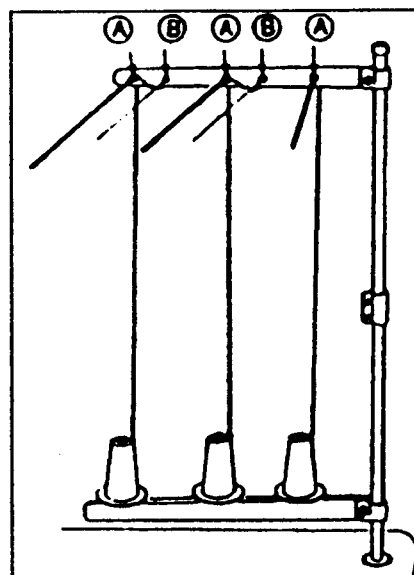
4. Threading of needle threads

(1) Pass each needle thread through thread guide A

Note: When thin slippery thread (polyester Thread or filament thread, for example) is used pass the thread through thread guide B as well.

(2) With the take-up lever located at the upper most position, pass each needle thread in the order shown in the following figure.

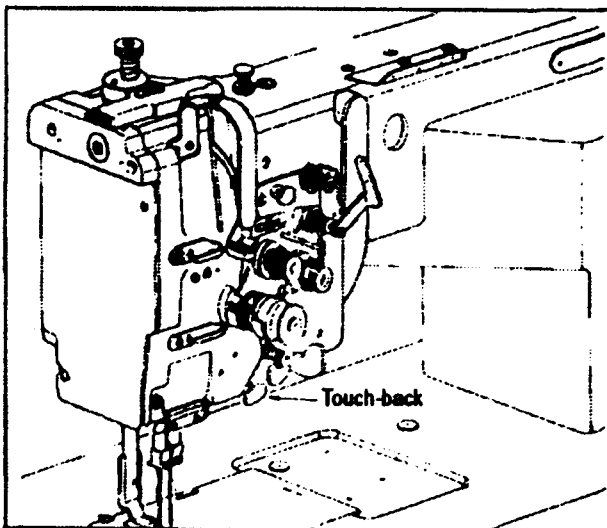
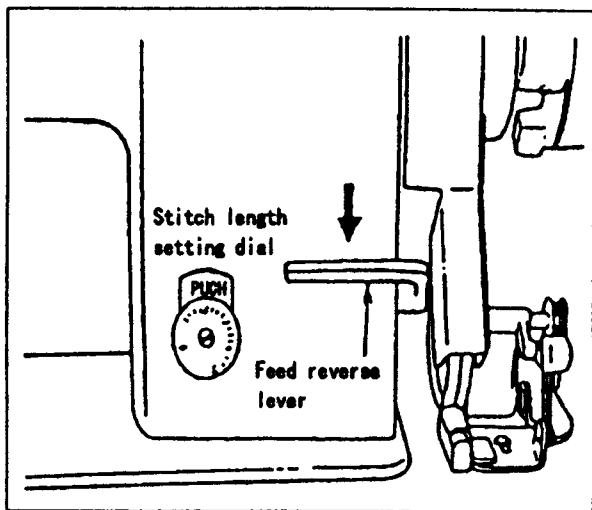
Note: Pressing the upper thread loosening button shown in the figure below opens the saucer of the upper thread tension adjuster, and the upper thread can easily pulled out.



5. Adjustment of feed (stitch) length and stitch reversing (touch back)

Note: To make feed (stitch) length smaller, depress the feed reverse lever and set the feed length setting dial to a desired position

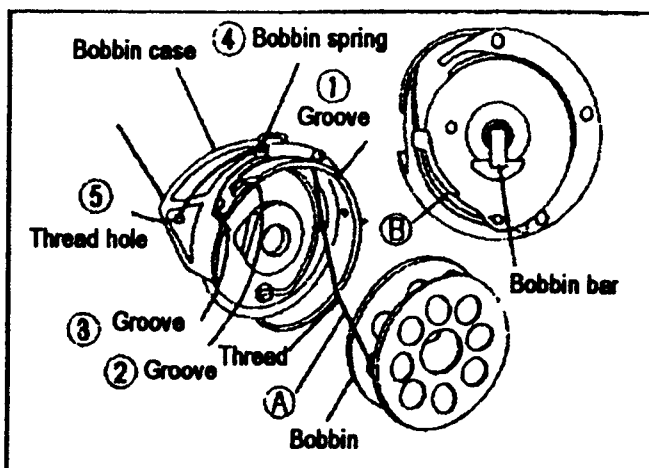
• Touch-back button . . . Direction of stitching can be reversed by depressing this button. Stitching goes on in reversed direction while the button is held down, and returns to forward direction when the button is released.



6. Setting of bobbin

leading the lower thread and install the bobbin

- (1) Pulling out thread from side A, then install the bobbin case.
- (2) Threading following (1)~(5)
- (3) Put the bobbin case to rotating hook, then replace hook shaft.
- (4) Press the bobbin bar.
- (5) Leading the lower thread over bed plate.



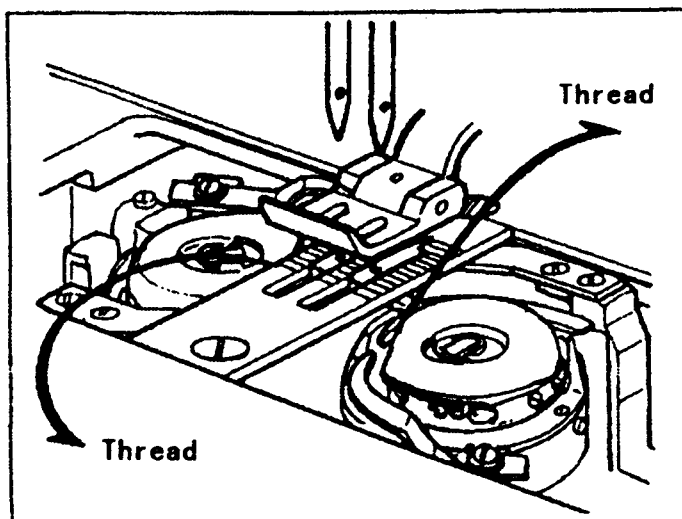
7. Adjusting of needle thread guide

Please adjust needle thread guide of needle thread tension according to sewing condition.

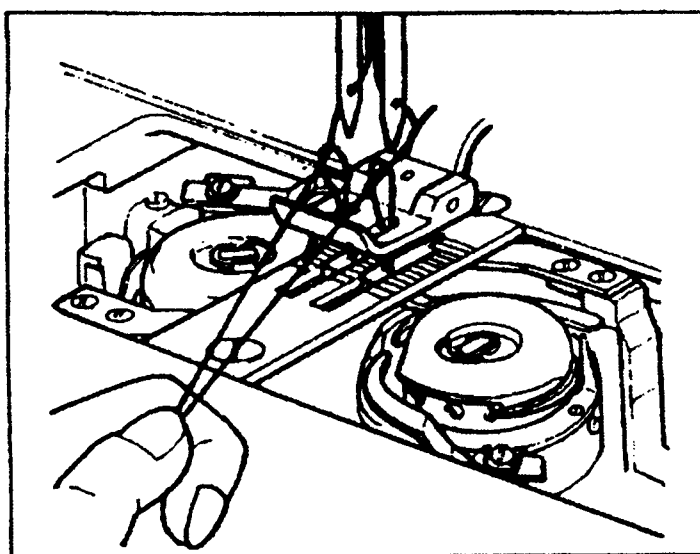
Thread guide position	Left	Middle	Right
Materials	The thicker than standard	L } Standard M } B }	The thinner than standard
Needle thread supply	More	Standard	Less

8. Threading of bobbin threads

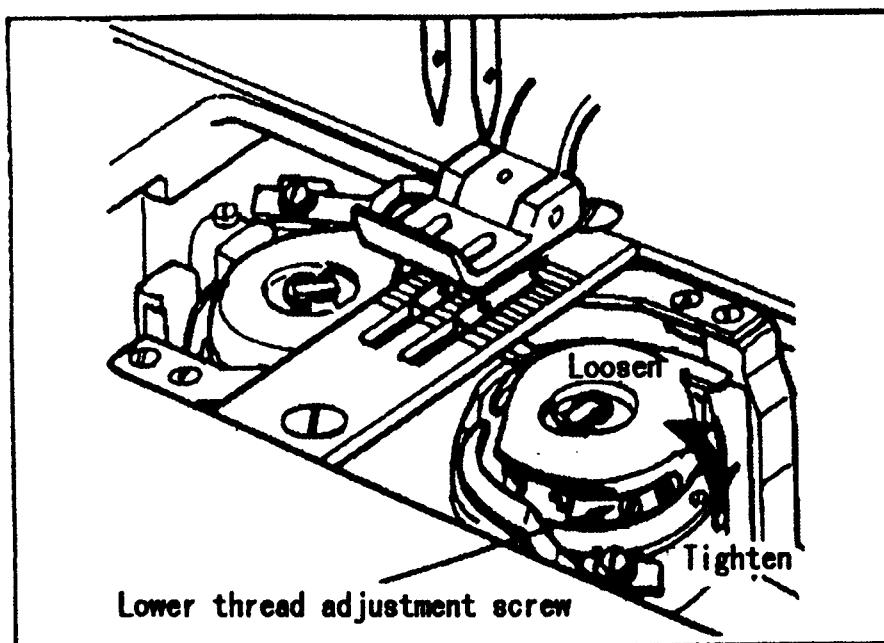
- (1) Put the hook into the bobbin case and press down the latch
The thread end should be left on the bed.



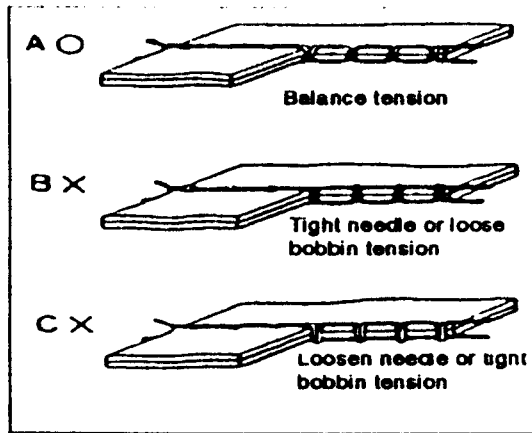
- (2) While holding the two needle threads by left hand, rotate the wheel one turn by right hand.
By pulling up the needle threads, as shown in the figure, the bobbin threads will be lifted. Each combination of bobbin thread and needle thread should be aligned and led backward.



9. Tension adjustment of bobbin threads



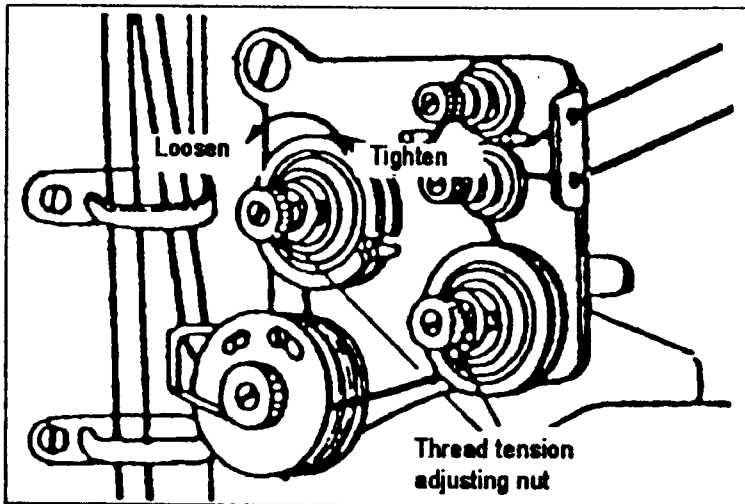
10. Balance of thread tension



11. Needle thread tension

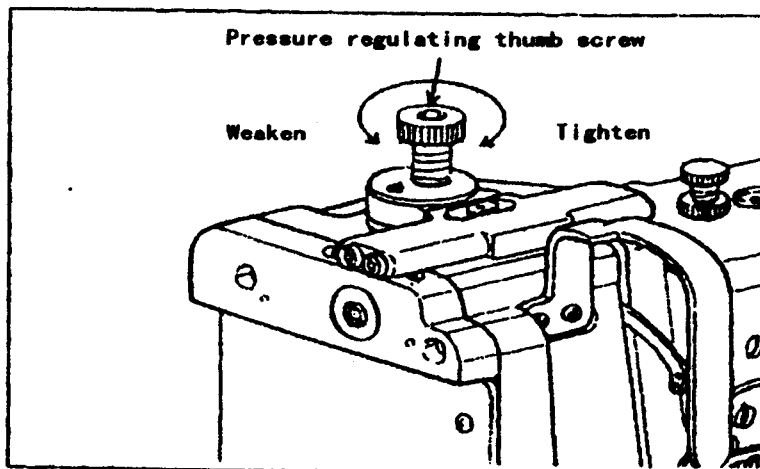
- Needle thread tension should be adjusted in reference to bobbin thread tension.
- To adjust needle thread tension, turn each tension adjusting nut.

Needle thread tension can be also adjusted for special fabric and thread by changing intensity and movable range of slack thread adjusting spring.



12. Adjustment of presser foot pressure

Pressure to fabric(s) can be adjusted by turning the pressure adjusting screw.



13. Timing between rotating hook motion and needle motion

(1) Set stitch length on the stitch length setting dial show table.

Model	-M	-B
Set the stitch length	3	4.5
Needle lift A	2.2mm	2.4mm

(2) When needle is lifted A shown table, from the lower dead

point, as shown in Figure, the following positional relationship should be maintained.

- The upper edge of needle eye should be 1.0-1.6mm below the hook point.
- The hook point should be located at the center of needle axis.
- Gap between the hook point and the side face of needle should be 0.05mm.

Positioning of hook point

Adjust the hook point so that it comes to the center of Needle axis.

(1) Lean the machine head backward and loosen three set screws of hook shaft gear (small)

(2) Turn the balance wheel and stop when the needle is lifted 2.2 mm shown table from the lowest position.

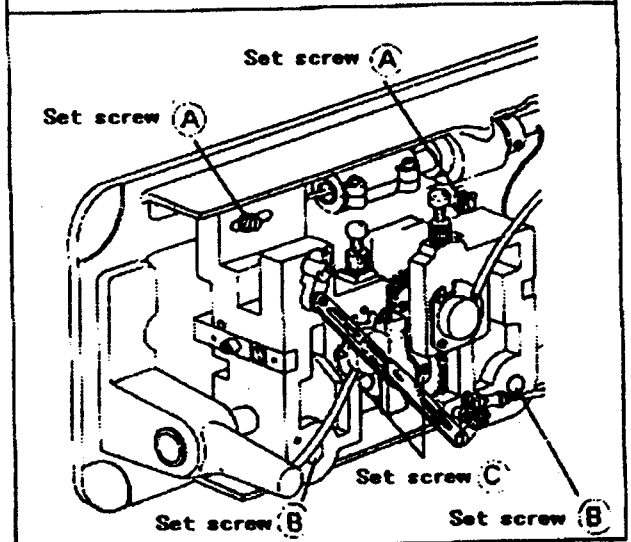
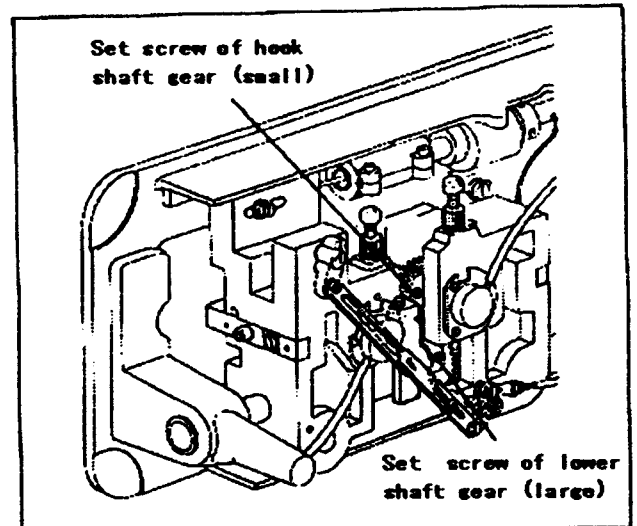
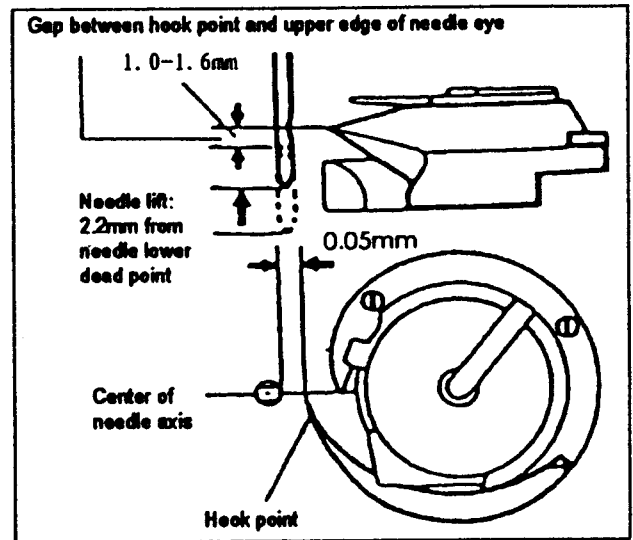
(3) Rotate the hook by hand to position the hook point to the center of needle axis.

(4) Move the hook bracket leftward or rightward and position it so that gap between the hook point and side face of needle is 0.05mm. For this adjustment, each screws A, B and two of C should be loosened.

Note: In the adjustment, do not excessively loosen set screws C and always maintain meshing of hook shaft gear and lower shaft gear.

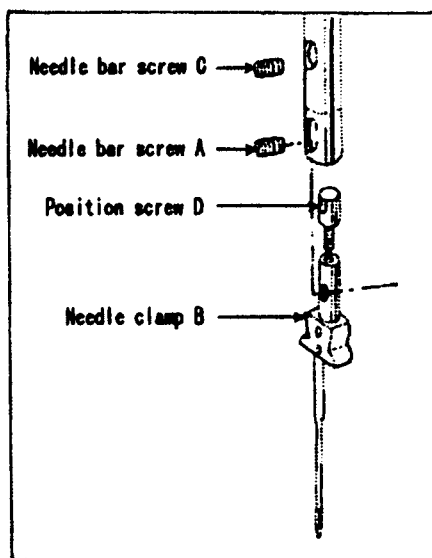
(5) Tighten the set screws in the following order:

- While pressing the lower shaft gear (large) against the side face of hook bracket, tighten the set screws C first.
- After checking gap between the needle and the hook, tighten the set screws A.
- Then tighten the set screws B.



● **Position adjustment of needle point**

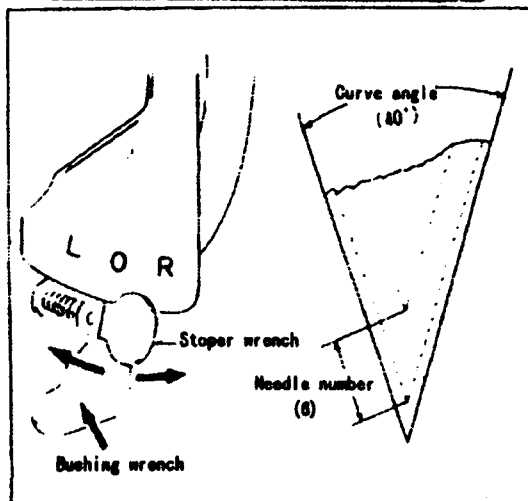
Adjust needle position so that gap between the upper edge of needle eye and the hook point is 1.0-1.6 mm when the needle is lifted by A from its lowest position shown in before page.



- (1) Loosen the needle bar screw A
- (2) Rotate the needle clamp B one circuit (amount of adjustment is 0.6mm), or loosen the needle bar screw C, rotate position screw D half a circuit (amount of adjustment is 0.3mm).
- (3) Be sure to mark the needle clamp facing left side, Tighten needle bar screw C and A.

14. Needle bar stop position (left & right)

Note: The stopper wrench can be operated while the sewing Machine running, but the best way is to adjust while Take-up lever stopping at its highest position.



- (1) Stop the motion of left-side needle bar:
Make the stopper wrench to the position L.
- (2) Stop the motion of right-side needle bar:
Make the stopper wrench to the position R.
- (3) Two needles running at the same time:

Press down restore plate, stopper wrench restore to O position automatically.

The relations between needle stitch and needle number (while the gap between two needles is 1/4)

15. Relations between curve angle and stitch length

- (1) Determine the stitch length according to the form to obtain various.
- (2) The needle number of another outside needle can be obtained while the angle be determined.
- (3) Example: While the angle is 40°, if the stitch is 2.9mm, then the outside needle number is 6.

needle number / curve angle	2	3	4	5	6	7	8
30°				4.8	4.0	3.7	3.0
40°			4.4	3.5	2.9	2.5	2.2
50°		4.6	3.4	2.7	2.3	2.0	1.7
60°	5.5	3.7	2.8	2.2	1.9	1.6	
70°	4.6	3.0	2.3	1.8	1.5		
80°	3.8	2.5	1.9	1.5	1.3		
90°	3.2	2.1	1.6	1.3			
100°	2.7	1.8	1.3				
110°	2.2	1.5					
120°	1.8	1.2					
130°	1.5						
140°	1.1						

16. Adjustment of feed dog height

Height of feed dog and pressure of presser foot should be adjusted for individual fabric(s) with the following cautions:

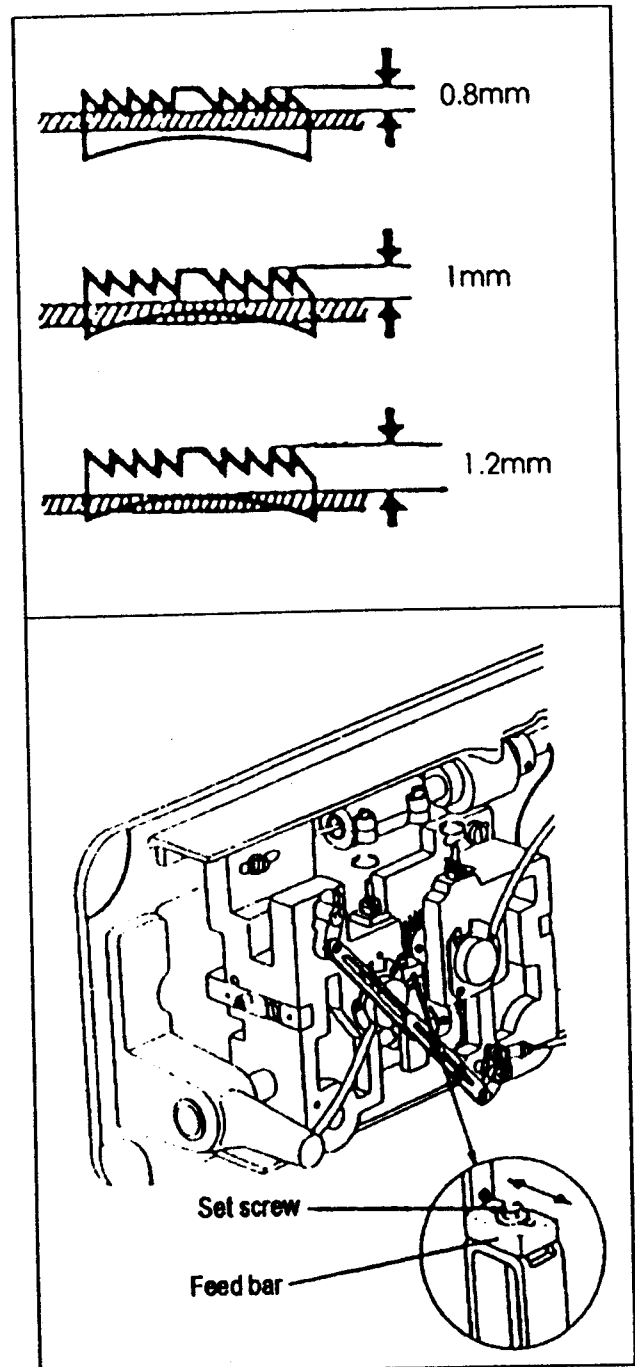
- Fabric will be damaged if the feed dog extends too high, or pressure of presser foot is too large.
- Even stitch length cannot be assured if the feed dog is too low or pressure of presser foot is too small.
- Feed dog height should be measured at the point where the needle is at the top position.

For light fabrics	Approx. 0.8mm from throat plate
For usual fabrics	Approx. 1.0mm from throat plate
For heavy fabrics	Approx. 1.2mm from throat plate

Adjustment procedure

- (1) Lean the machine head backward.
- (2) Turn the hand wheel by hand and stop when the feed dog rises to the maximum height.
- (3) Loosen the feed bar set screw.
- (4) Vertically move the feed bar (in the direction indicated by arrow in the figure) to adjust it to adequate height.
- (5) After the adjustment, tighten the feed bar set screw.

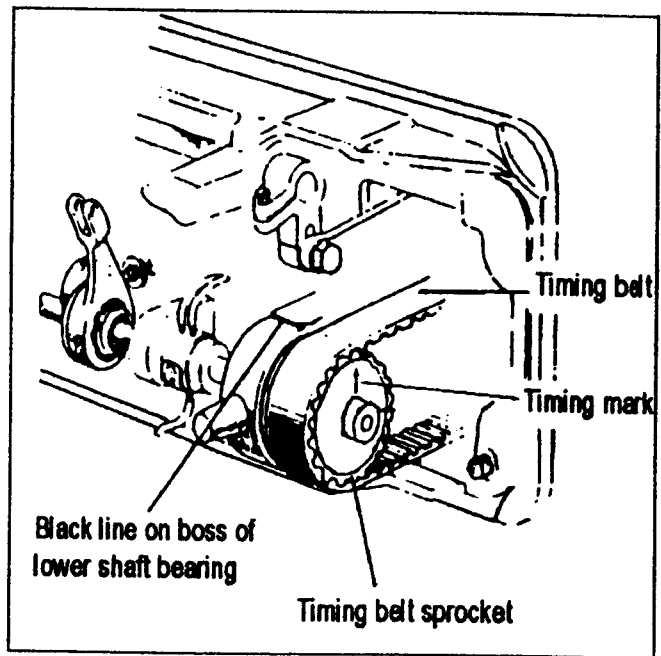
The feed dog height is factory-adjusted to 1.0mm



17. Relationship between rotating hook motion and take-up lever motion

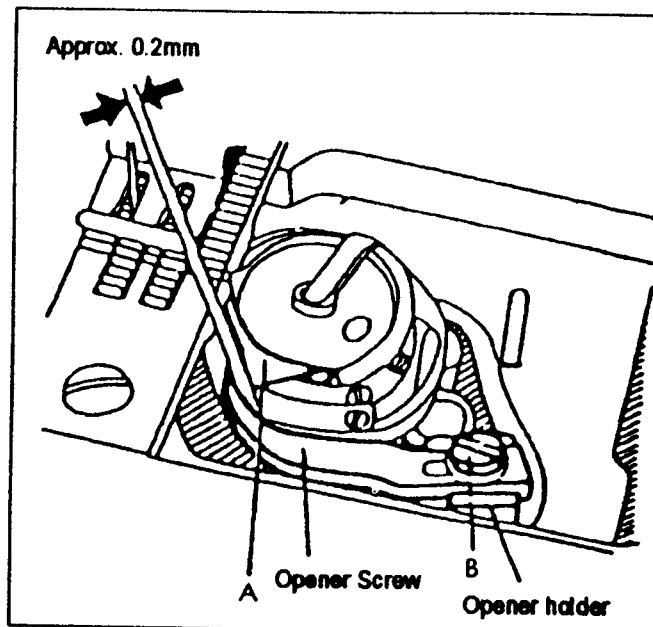
When the timing belt (toothed belt) was removed for its replacement, for example, the relationship between rotating hook motion and take-up lever motion should be adjusted as follows:

- (1) Turn the balance wheel and stop when the take-up lever is lifted to its top position.
- (2) Lean the machine head backward and make sure the arrow (timing mark) put on the timing belt is in line with the black line on the boss of hook shaft bearing.
- (3) If the timing mark is not in line with the black line ,remove the timing belt and install it again to adjust



18. Relationship between hook motion and opener motion

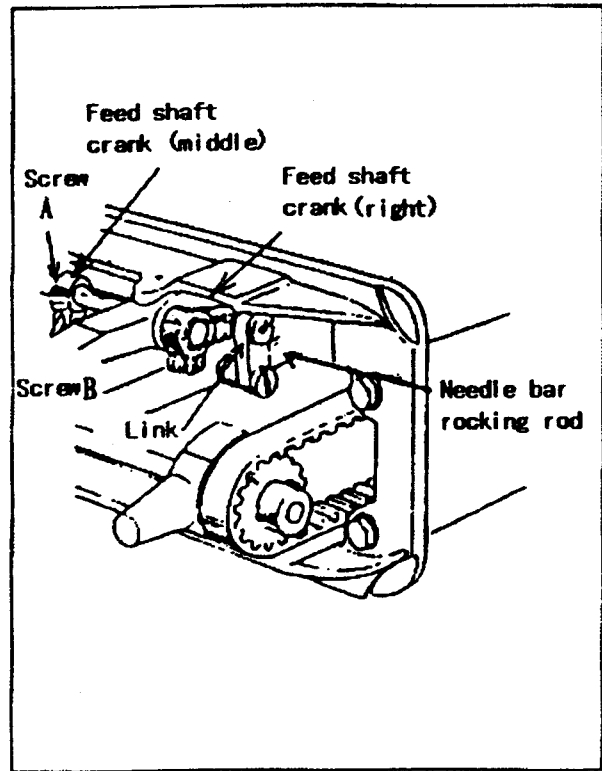
- (1) Turn the balance wheel by hand and stop when the opener holder is located most remotely from the throat plate.
- (2) Make sure gap between the bobbin case holder A and the opener is approximately 0.2mm.
- (3) If the gap is too large or small , loosen the opener holder set screw A and adjust position of the opener.



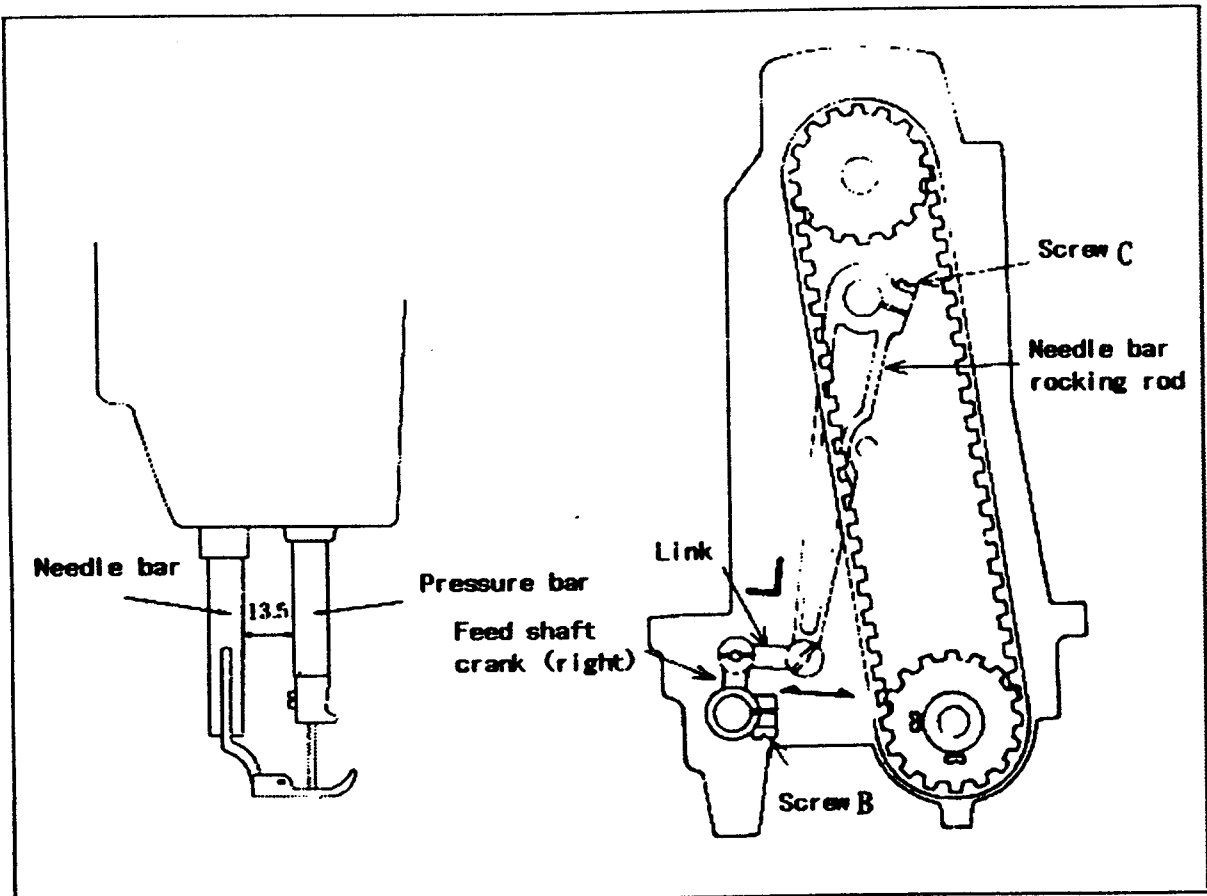
19. Relationship between needle motion and feed dog motion

- The feed dog should be adjusted so that the needle can plunge into the feed dog needle hole at the center of the hole.

- (1) Set stitch length to "0" on the stitch length setting dial
- (2) Lean the machine head backward.
- (3) Loosen the feed shaft crank set Screws A and B
- (4) Set the needle at the lowest position.
- (5) Adjust the distance between the pressure bar and the needle bar to be 13.5, and tentatively tighten the screws A and B of the feed shaft crank.
- (6) Check that the right feed shaft crank is connected with the link at right angle, as shown in Figure.
- (7) If the connection is not at right angle, remove the back cover, loosen screw C and move the needle bar rocking rod in the arrow direction to adjust.



- 8) After the completion of adjustment, fully tighten the screws A, B and C.



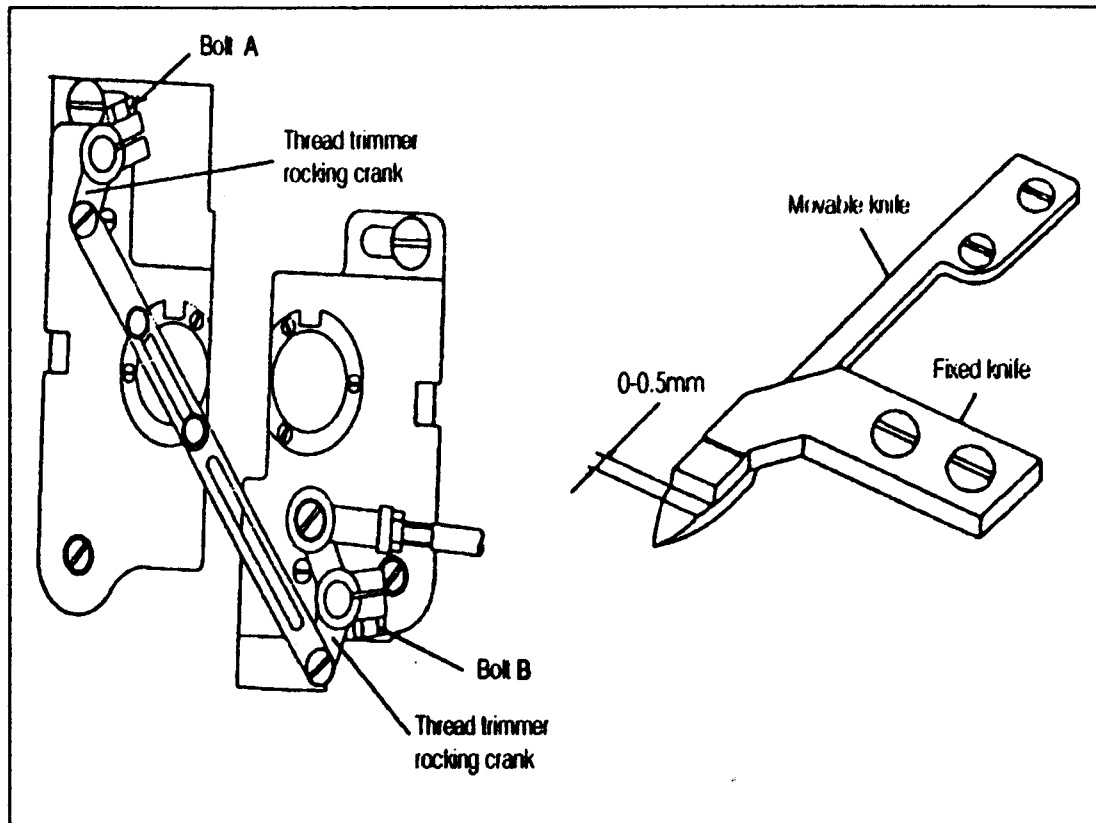
20. Installation of movable knife

(1) Initial position of movable knife

- a. Turn the balance wheel and lower the needle bar to the lowest position.
- b. Push the cam follower crank so that the cam roller enters into the thread trimmer cam groove.
- c. Turn the balance wheel until the black mark point on the arm meets the white mark point on the balance wheel.

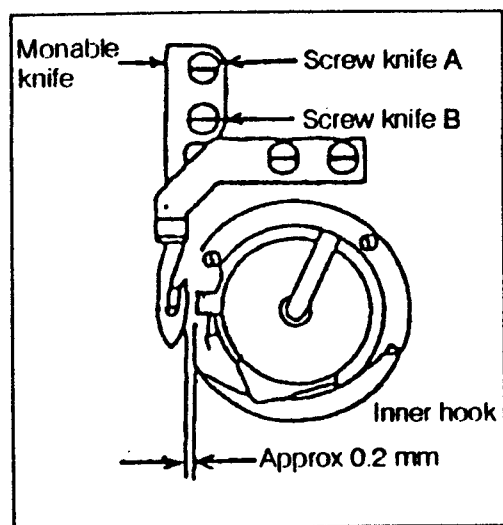
Set the cam follower crank at this position with a screwdriver temporarily preventing the cam roller coming out from the cam groove.

- d. Loosen the thread trimmer rocking crank clamp bolts A and B.
- e. Adjust the movable knife so that the movable knife end slant portion protrudes 0-0.5 mm from the fixed knife, as shown in Figure and tighten the bolts A and B.



(2) Gap between movable knife and bobbin case holder stopper

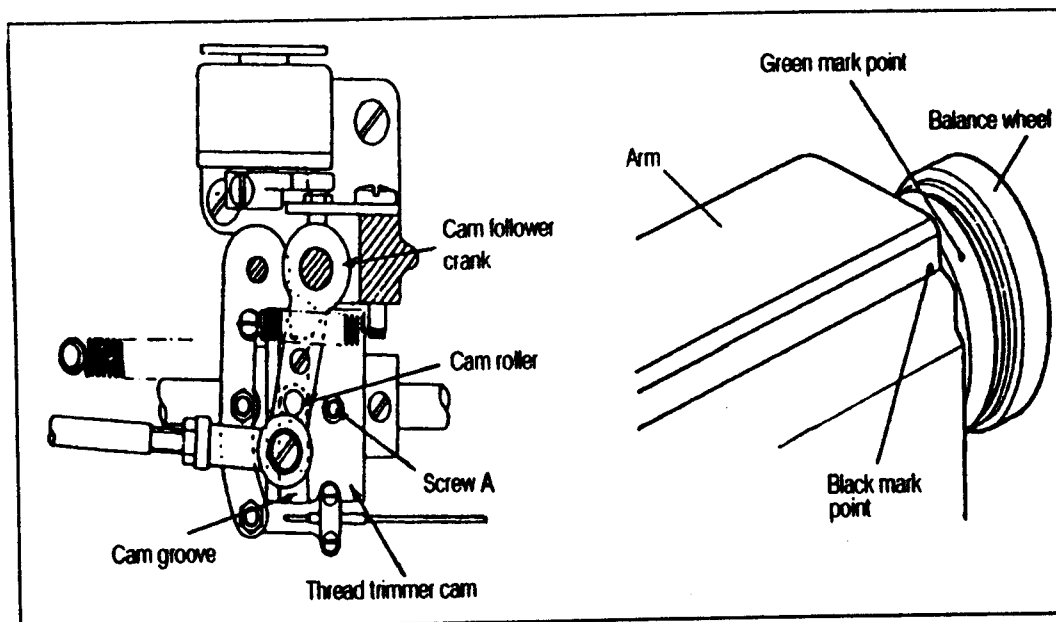
- a. Turn the balance wheel by hand until needle reaches the lowest position.
- b. With the needle at the lowest position, depress cam follower crank, turn the balance wheel until the movable knife reaches the extremity of its stroke.
- c. Manually rotate the inner hook in the direction indicated by arrow in Figure and adjust gap between the movable knife and the inner hook stopper to about 0.2 mm (the screws A and B should be loosened for this adjustment).



21. Adjustment of thread trimmer cam

- (1) Turn the balance wheel by hand until the needles reach the lowest position.
- (2) Maintaining the needle position, depress the cam follower crank and put the cam roller into the groove of thread trimmer cam.
- (3) Turning the balance wheel by hand, adjust the thread trimmer cam so that the movable knife starts moving when the green mark point on the balance wheel comes in line with the black mark point on the arm.

To adjust, loosen two thread trimmer cam clamp screws A.



22. Adjustment of thread tension regulator

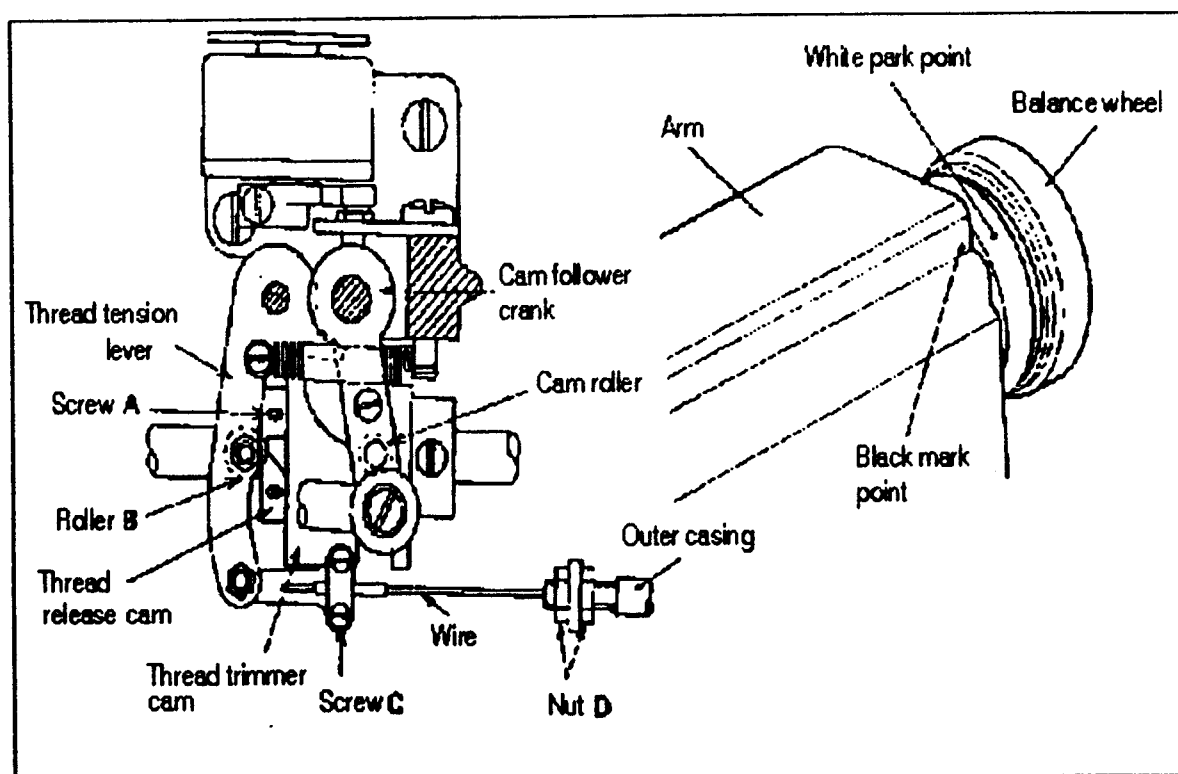
- (1) Turn the balance wheel by hand until the needles reach the lowest position.
- (2) Maintaining the needle position, depress the cam follower crank and put the cam roller into the groove of thread trimmer cam.
- (3) Turning the balance wheel by hand, adjust the thread tension release cam so that the tension disc close when the white mark point on the balance wheel comes in line with the black mark point on the arm.

To adjust, loosen two tension release cam clamp screws A.

- (4) Opening degree of tension disc should be adjusted with the tension release roller B mounted on the convex portion of thread release cam, as shown in Fig.

To adjust, loosen the screws C and draw the wire.

- (5) Make fine adjustment by loosening the nut D.

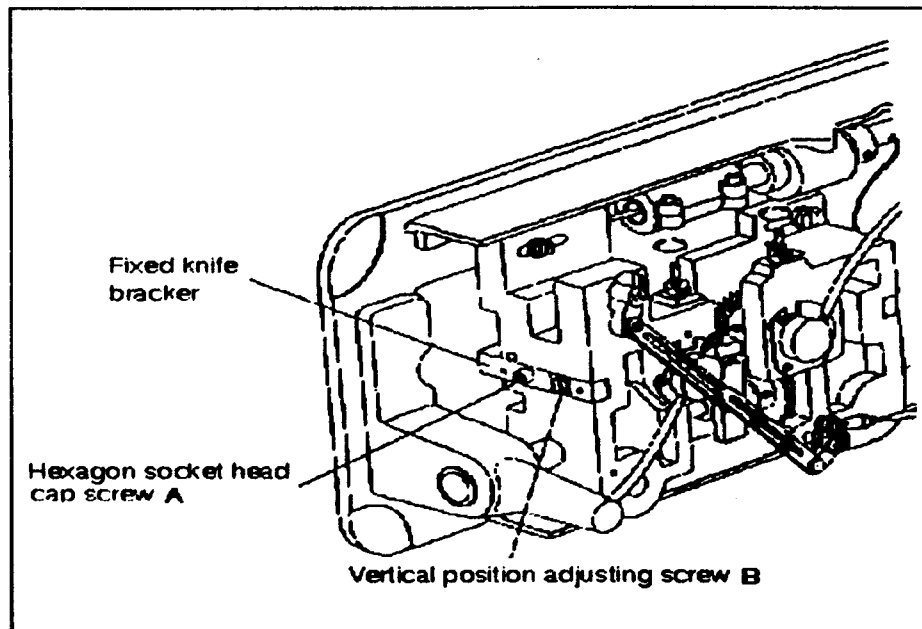


23. Adjustment of scissoring pressure of movable knife and fixed knife

- (1) Loosen the fixed knife bracket clamp hexagon socket head cap screw A.
- (2) Turn the vertical position adjusting screw B to adjust meshing pressure and then tighten the hexagon socket head cap screw A.

Note: Since excess pressure causes large torque to the thread trimming mechanism and trimming failure, adjust it so that thread can be trimmed with minimum pressure.

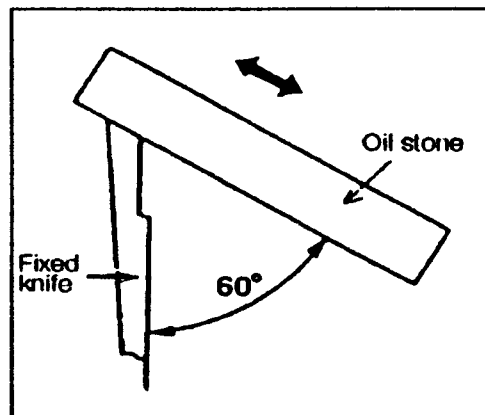
- (3) Move the movable knife and check that the thread can be sharply trimmed.



24. Sharpening of fixed knife

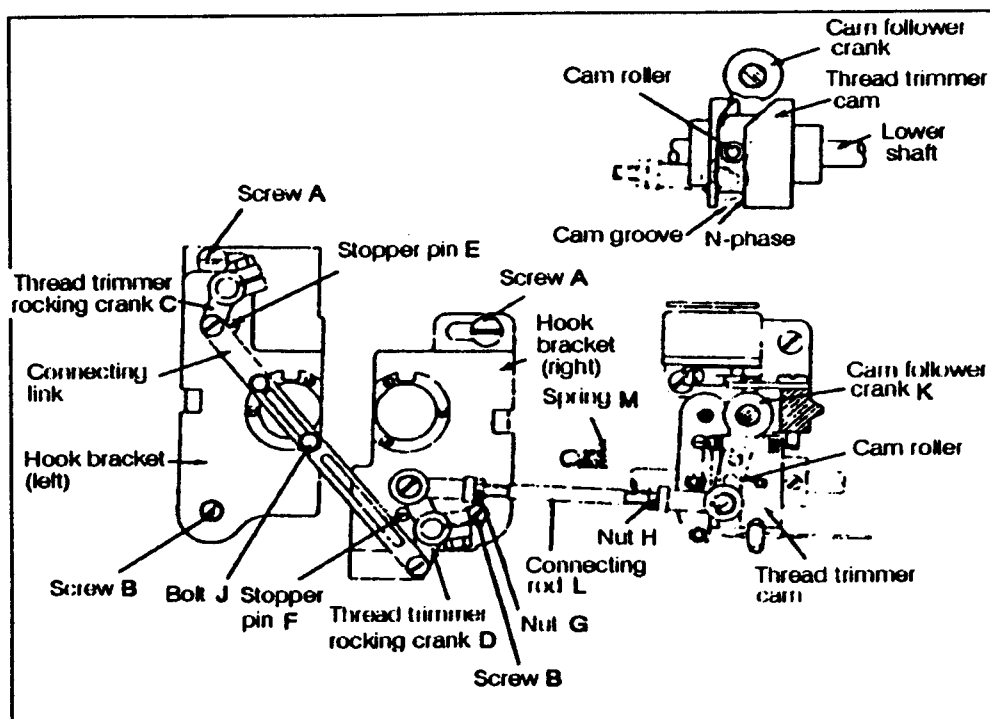
When the knives dull, the fixed should be sharpened as illustrated in Fig.

Since it is very difficult to sharpen the movable knife, replace it with a new one when it dulls.



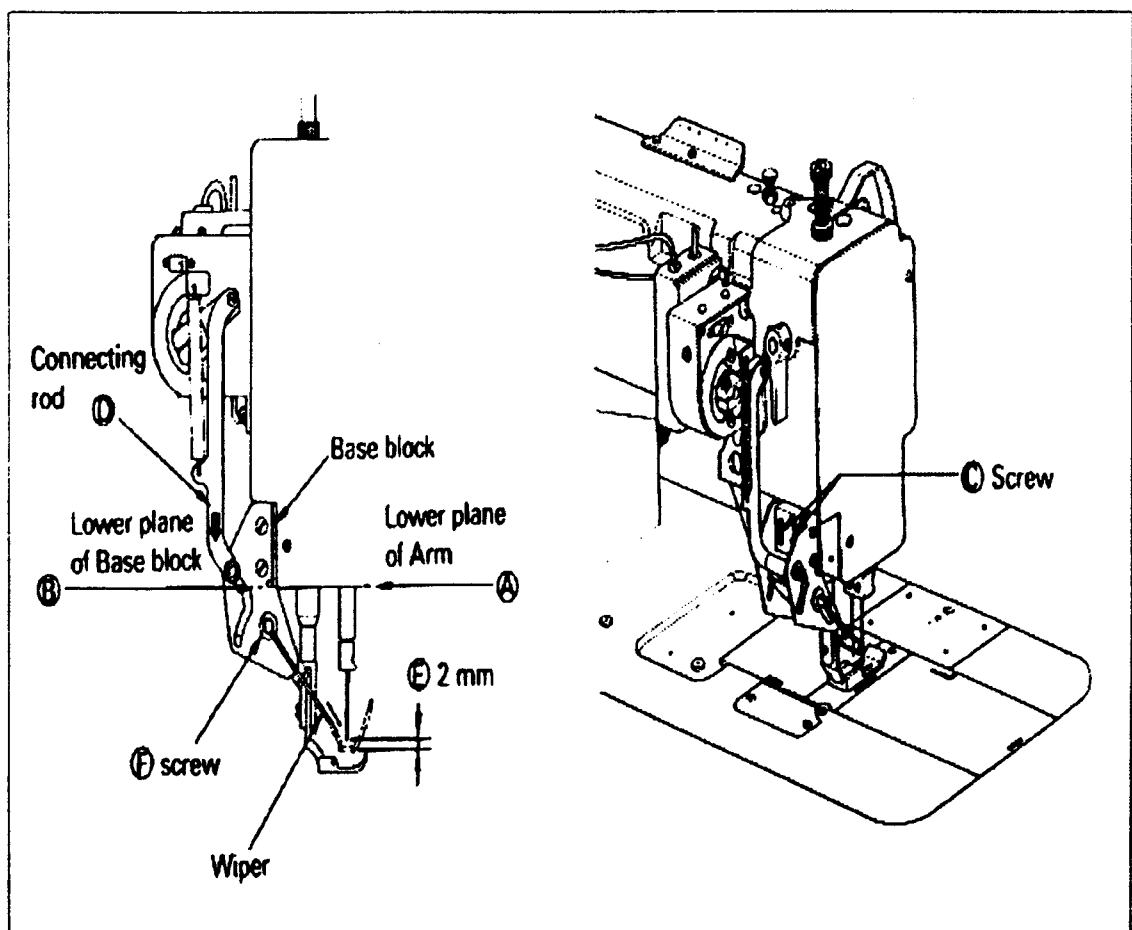
25. Adjustment for change of needle gage

- (1) Replace the throat plate, feed dog and needle clamp.
(Since the throat plate and feed dog are special parts designed for thread trimming machine, be sure to use those specified by us.)
- (2) Lean the machine head backward.
- (3) Loosen two connecting link clamp bolts J.
- (4) Remove the spring M.
- (5) Loosen the hook bracket clamp screws A and B and adjust gap between each needle and hook.
- (6) When the needles and hooks have been adjusted, install the spring M.
- (7) Contact the rocking cranks C and D to the stopper pins E and F and tighten the connecting link clamp bolt J.
- (8) Turn the balance wheel by hand until the needles reach the lowest position.
- (9) Loosen the nuts G and H.
- (10) Depress the cam follower crank K and adjust the connecting rod L so that the cam roller can smoothly enter the groove of thread trimmer cam. Then tighten the nuts G and H.
- (11) Adjustment of the cam groove and the cam roller
 - a. Push the cam follower crank K so that the cam roller enters into the cam groove.
 - b. Turn the connecting rod L and adjust the clearance between the cam roller and the cam groove surface N as small as possible, and tighten the nuts G and H.
 - c. Push the cam follower crank K again and check that the cam roller enters into the thread trimmer cam groove smoothly.



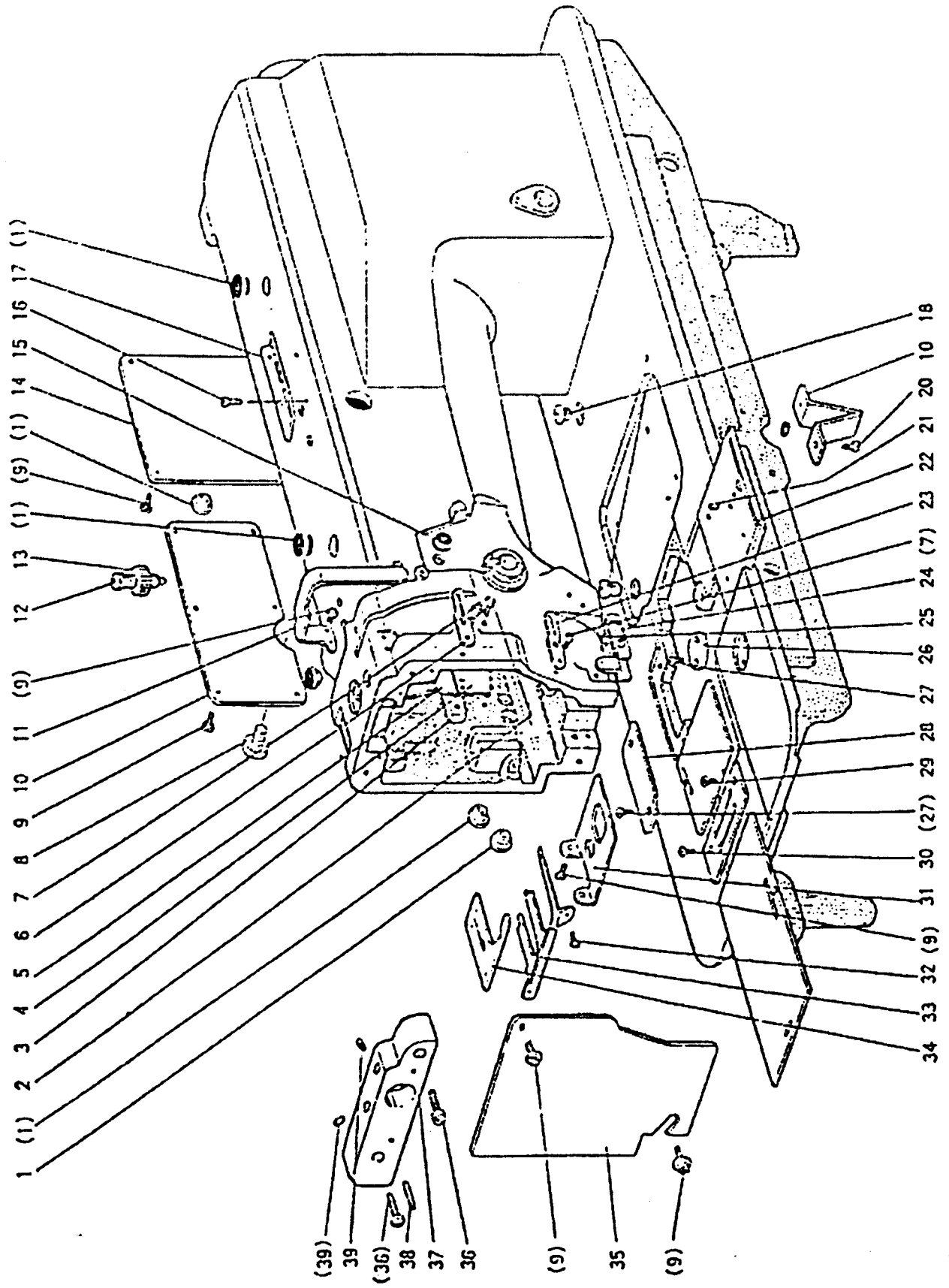
26. Wiper adjustment

- a) Run the machine then stop at "up" position.
- b) Loosen the screw C ,then adjust the base block so that the line A and the line B are the same plane, then tighten the screw C.
- c). Loosen the screw F , then adjust the wiper move so as the E clearance is 2mm, then Tighten the screw F.



Model		DN 2220-AUT	DN 2220LH-AUT
Specification			
material weight		Light to medium material	Medium material
Max speed		3500r.p.m.	3000r.p.m.
Stitch length		0-5mm	0-7mm
Needle bar stroke		32mm	
Presser foot clearance		kneel lifter 13 mm	Hand 7 mm
Needle		DP×5 (Standard #14)	DP×5 (Standard #18)
Rotating hook		Rotary automatic lubrication horizontal rotating hook (Standard rotating hook)	Rotary automatic lubrication horizontal rotating hook (Twice rotating hook)
Take-up lever		Slide type	
Adjustment of stitch		Dial type	
Lubrication		Automatic lubrication	
Motor		motor 550W	
Gap between two needles	Standar	6.4mm	
	Special	3.2 4.8 8 9.5 12.7mm	

A: BODY AND IT'S ACCESSORIES



A:BODY AND IT'S ACCESSORIES

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85A001	Rubber plug	5	5
2	H85A002	Screw	2	2
3	H85A003	Spacer	1	1
4	H85A004	Oil guard plate	1	1
5	H85A005	Oil guard plate	1	1
6	H85A006	Thread guide	1	1
7	H85A007	Screw	2	2
8	H85A008	Screw	1	1
9	H85A009	Screw	11	11
10	H85A010	Side cover	1	1
11	H85A011	Thread take-up cover	1	1
12	H85A012	Thumb screw	1	1
13	H85A013	Special nut	1	1
14	H85A014	Rear cover	1	1
15	H85A015	Rubber plug	1	1
16	H85A016	Screw	2	2
17	H85A017	Thread guide	1	1
18	H85A018	Cap	2	2
19	H85A019	Supportor	1	1
20	H85A020	Screw	2	2
21	H85A021	Screw	1	1
22	H85A022	Slide plate	1	1
23	H85A023	Thread guide	1	1
24	H85A024	Thread guide	1	1
25	H85A025	Screw	1	1
26	H85A026	Cover	1	1
27	H85A027	Screw	4	4
28	H85A028	Cover	1	1
29	H85A029	Screw	1	1
30	H85A030	Screw	1	1
31	H85A031	Cover	1	1
32	H85A032	Screw	2	2
33	H85A033	Oil guard plate	1	1
34	H85A034	Felt	1	1
35	H85A035	Face plate	1	1
36	H85A036	Screw	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

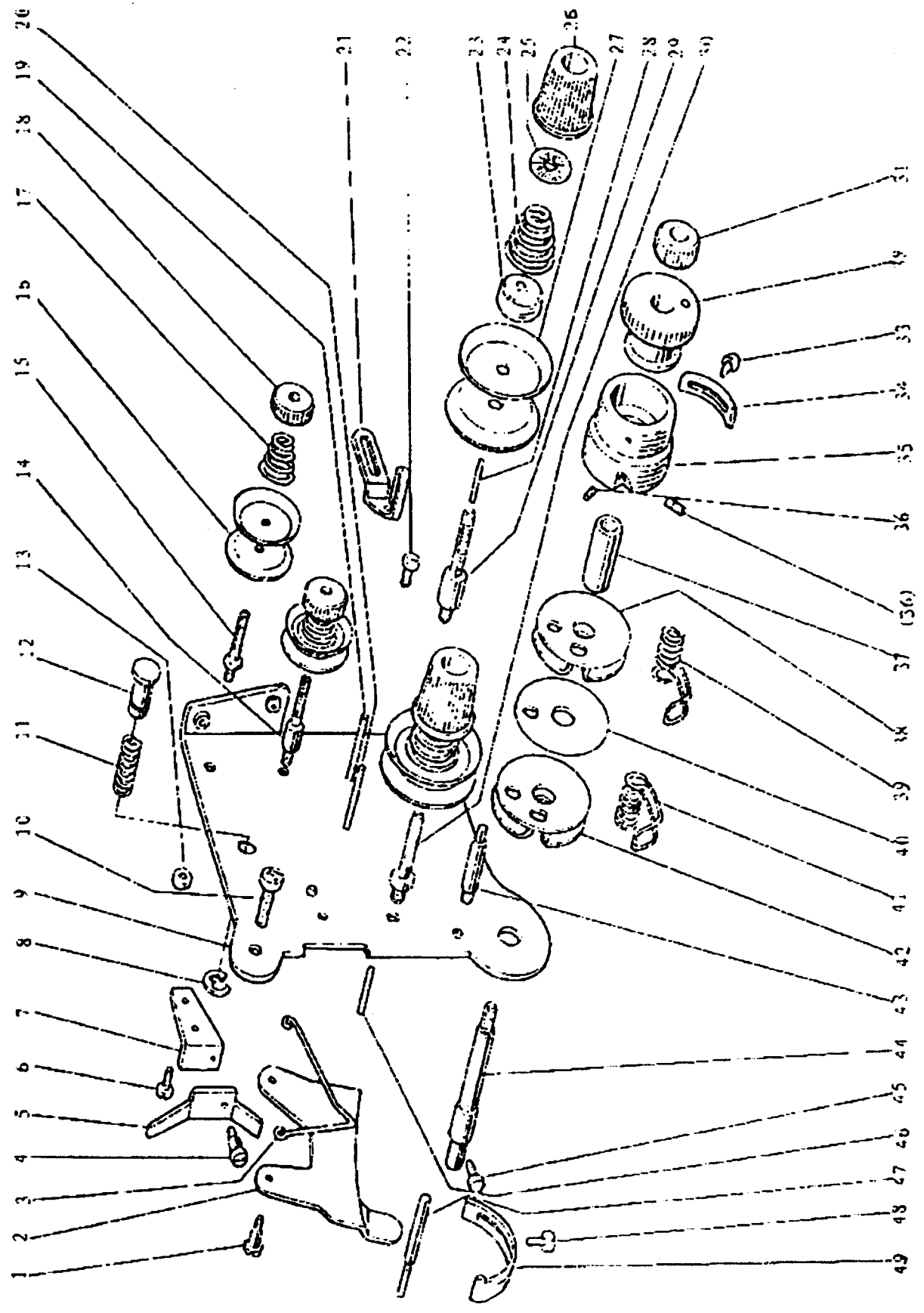
A:BODY AND IT'S ACCESSORIES

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
37	H85A037	Shaft supporter	1	1
38	H85A038	Pin	2	2
39	H85A039	Screw	2	2

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

B: THREAD TENSION REGULATOR MECHANISM



B:THREAD TENSION REGULATOR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85B001	Screw	2	2
2	H85B002	Tension releasing plate	1	1
3	H85B003	Tension releasing spring	1	1
4	H85B004	Screw	1	1
5	H85B005	Lever	1	1
6	H85B006	Screw	1	1
7	H85B007	Mounting plate	1	1
8	H85B008	E-type stopring	1	1
9	H85B009	Mounting plate	1	1
10	H85B010	Screw	2	2
11	H85B011	Spring	1	1
12	H85B012	Push button	1	1
13	H85B013	Nut	2	2
14	H85B014	Thread tension stud	1	1
15	H85B015	Thread tension stud	1	1
16	H85B016	Thread tension disc	4	4
17	H85B017	Spring	2	2
18	H85B018	Thumb nut	2	2
19	H85B019	Pin	1	1
20	H85B020	Pin	1	1
21	H85B021	Thread guide	1	
21	H93B021	Thread guide		1
22	H85B022	Screw	1	1
23	H85B023	Thread tension releasing disc	2	2
24	H85B024	Spring	1	
24	H93B024	Spring		1
25	H85B025	Thumb nut revolution stopper	2	2
26	H85B026	Thumb nut	2	2
27	H85B027	Thread tension disc	4	4
28	H85B028	Pin	1	1
29	H85B029	Thread tension stud	1	1
30	H85B030	Thread tension stud	1	1
31	H85B031	Thumb nut	1	1
32	H85B032	Take-up spring guide	1	1
33	H85B033	Screw	1	1
34	H85B034	Stopper	1	1

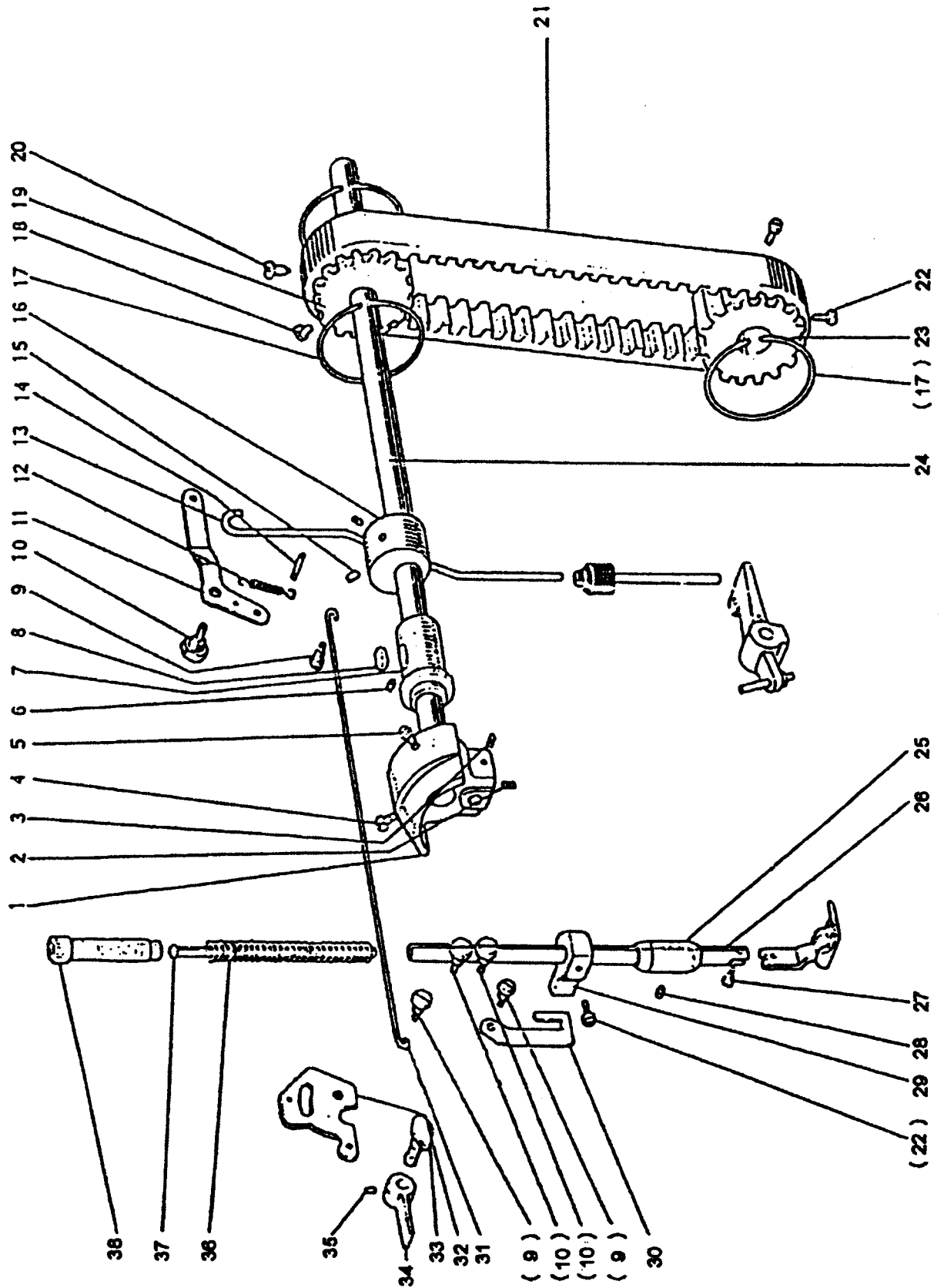
B:THREAD TENSION REGULATOR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
35	H85B035	Thread tension post	1	1
36	H85B036	Screw	2	2
37	H85B037	Bush	1	1
38	H85B038	Plate complete	1	1
39	H85B039	Thread take-up spring	1	1
40	H85B040	Plate	1	1
41	H85B041	Thread take-up spring	1	1
42	H85B042	Plate complete	1	1
43	H85B043	Screw	1	1
44	H85B044	Thread tension stud	1	1
45	H85B045	Screw	1	1
46	H85B046	Pin	1	1
47	H85B047	Tension releasing pin	1	1
48	H85B048	Screw	1	1
49	H85B049	Stopper	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

C: UPPER SHAFT & PRESSER FOOT MECHANISM



C:UPPER SHAFT & PRESSER FOOT MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85C001	Crank (complete)	1	1
2	H85C002	Screw	1	1
3	H85C003	Screw	1	1
4	H85C004	Screw	1	1
5	H85C005	Screw	1	1
6	H85C006	Screw	1	1
7	H85C007	Arm shaft bushing left (complete)	1	1
8	H85C008	Felt	1	1
9	H85C009	Screw	3	3
10	H85C010	Bolt	3	3
11	H85C011	Knee lifter lever (right)	1	1
12	H85C012	Spring	1	1
13	H85C013	Knee lifter connecting rod	1	1
14	H85C014	Pin	1	1
15	H85C015	Screw	2	2
16	H85C016	Blance weight	1	1
17	H85C017	Spring flange	3	3
18	H85C018	Screw	1	1
19	H85C019	Pulley (upper)	1	1
20	H85C020	Screw	1	1
21	H85C021	Cog belt	1	1
22	H85C022	Screw	3	3
23	H85C023	Pulley (lower)	1	1
24	H85C024	Arm shaft	1	1
25	H85C025	Bushing	1	1
26	H85C026	Presser bar	1	1
27	H85C027	Screw	1	1
28	H85C028	Screw	1	1
29	H85C029	Presser bar guide bracket	1	1
30	H85C030	Operation plate	1	1
31	H85C031	Knee lifter rod	1	1
32	H85C032	Knee lifter lever left	1	1
33	H85C033	Presser bar lifting cam	1	1
34	H85C034	Presser bar lifter	1	1
35	H85C035	Screw	2	2
36	H85C036	Spring	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

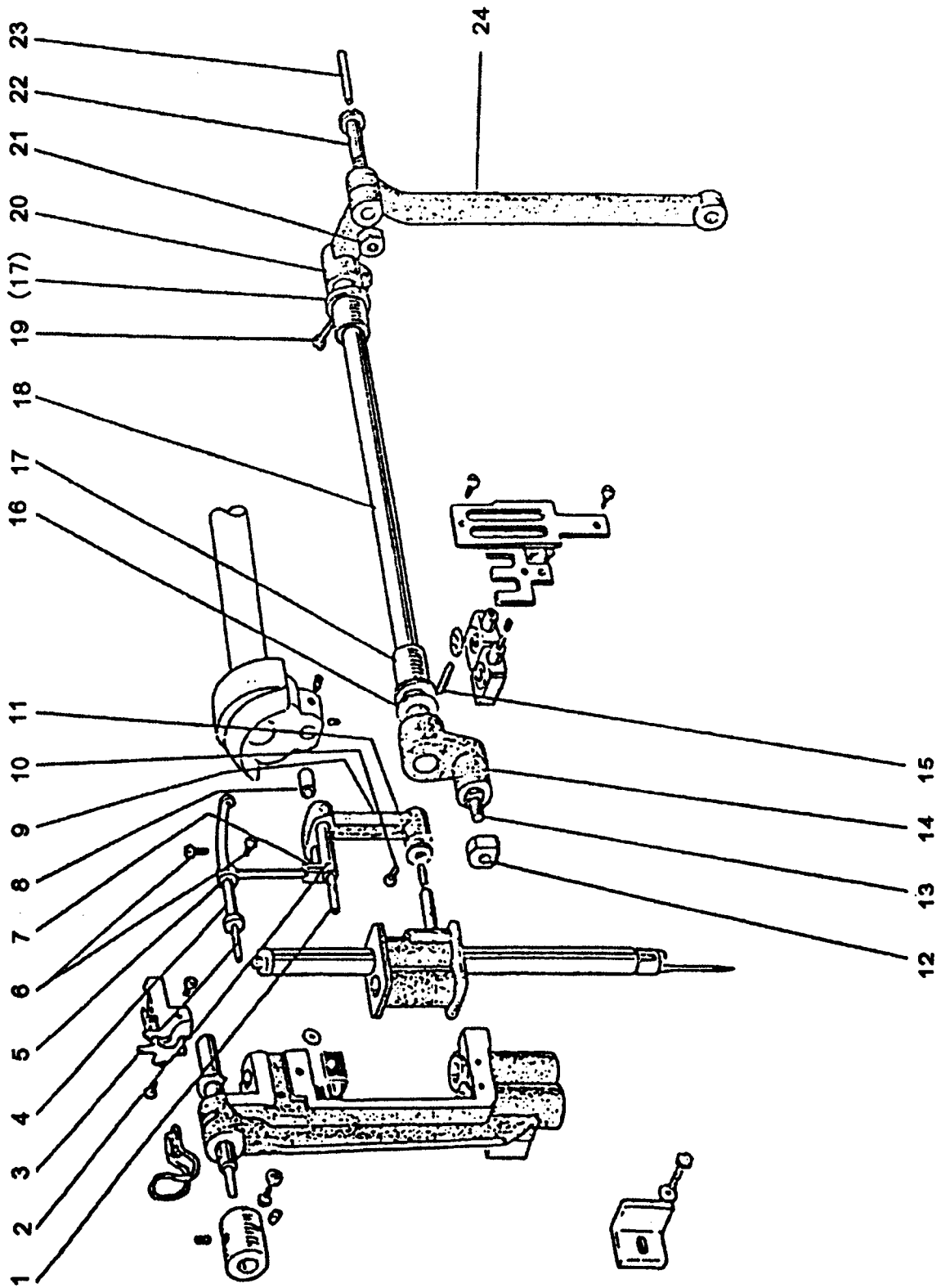
C:UPPER SHAFT & PRESSER FOOT MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
37	H85C037	Presser spring guide	1	1
38	H85C038	Thumb nut	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220I H-AUT

D: THREAD TAKE-UP LEVER & NEED BAR ROCK MOTION MECHANISM



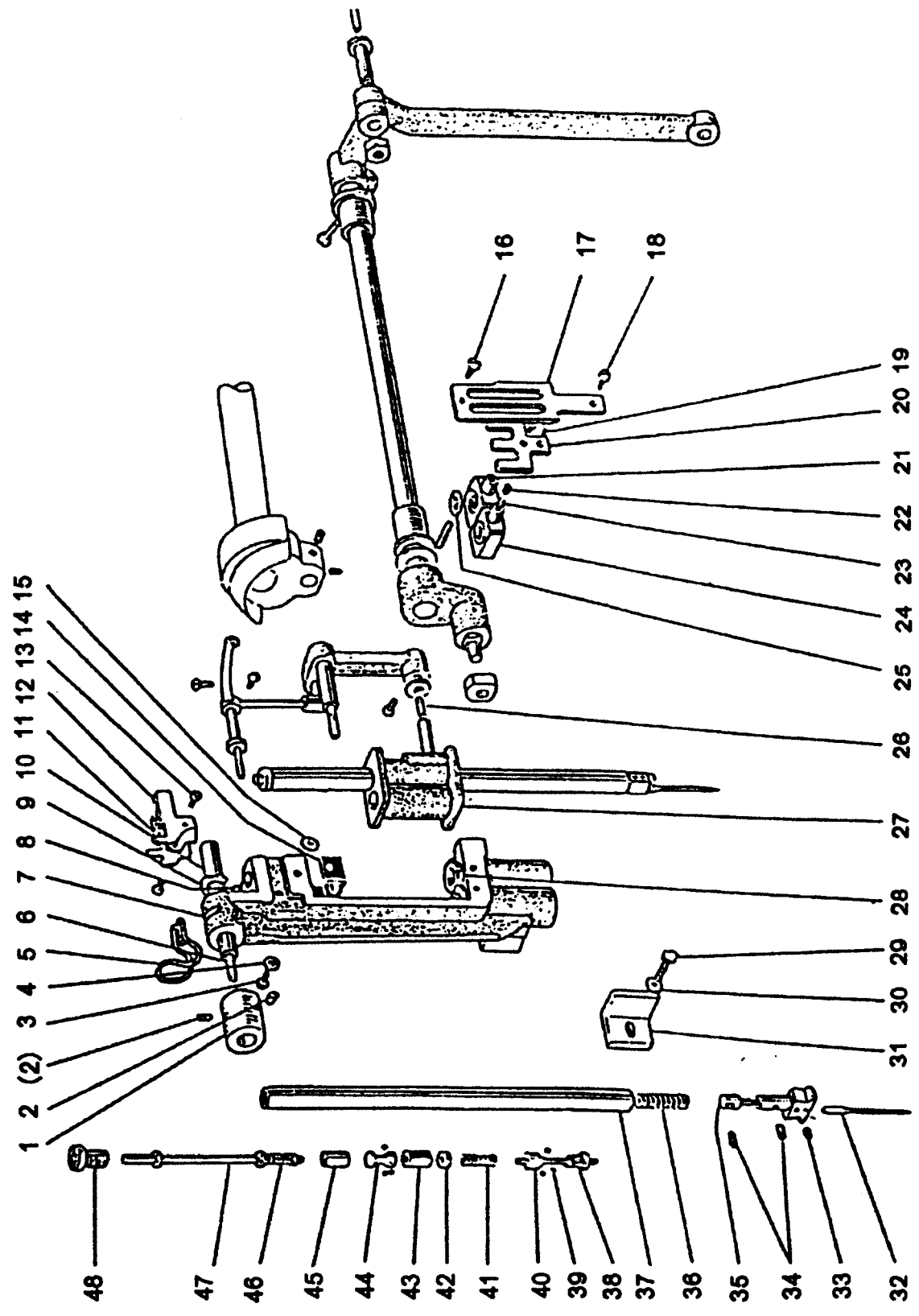
D:NEEDLE BAR ROCK MOTION MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85D001	Oil wick	1	1
2	H85D002	Needle bar crank pin	1	1
3	H85D003	Oil wick	1	1
4	H85D004	Thread take-up guide bracket pin	1	1
5	H85D005	Thread take-up lever	1	
5	H93D005	Thread take-up lever		1
6	H85D006	Screw	3	3
7	H85D007	Thread take-up link	1	1
8	H85D008	Plug	1	1
9	H85D009	Connecting link	1	1
10	H85D010	Screw	1	1
11	H85D011	Bushing	1	1
12	H85D012	Square block	1	1
13	H85D013	Connecting stud	1	1
14	H85D014	Needle bar rocking shaft crank	1	1
15	H85D015	Pin	1	1
16	H85D016	Washer	1	1
17	H85D017	Bushing	2	2
18	H85D018	Needle bar rocking shaft	1	1
19	H85D019	Screw	1	1
20	H85D020	Connecting crank	1	1
21	H85D021	Nut	1	1
22	H85D022	Hinged screw	1	1
23	H85D023	Oil wick	1	1
24	H85D024	Rocking shaft connecting rod	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

E: NEEDLE BAR MECHANISM



E:NEEDLE BAR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85E001	Bushing	1	1
2	H85E002	Screw	2	2
3	H85E003	Screw	1	1
4	H85E004	Spring	1	1
5	H85E005	Oil wick	1	1
6	H85E006	Oil wick	1	1
7	H85E007	Needle bar supporter	1	1
8	H85E008	Pin	1	1
9	H85E009	E-type stop ring	1	1
10	H85E010	Needle bar supporter guide pin	1	1
11	H85E011	Holder	1	1
12	H85E012	Holder	1	1
13	H85E013	Screw	2	2
14	H85E014	Stopper	1	1
15	H85E015	Washer	1	1
16	H85E016	Screw	1	1
17	H85E017	Guide plate	1	1
18	H85E018	Screw	1	1
19	H85E019	Screw	1	1
20	H85E020	Needle bar supporter	1	1
21	H85E021	Needle bar holder (right)	1	1
22	H85E022	Set screw	2	2
23	H85E023	Needle bar holding stopper	2	2
24	H85E024	Needle bar holder (left)	1	1
25	H85E025	Spacer	4	4
26	H85E026	Felt	1	1
27	H85E027	Needle bar holder	1	1
28	H85E028	Bushing for needle bar supporter	2	2
29	H85E029	Bolt	1	1
30	H85E030	Washer	1	1
31	H85E031	Needle bar guide	1	1
32	H85E032	Needle DP×#14	2	
32	H93E032	Needle DP×#18		2
33	H85E033	Screw	1	1
34	H85E034	Screw	4	4
35	H85E035	Stopper for needle clamp	2	2

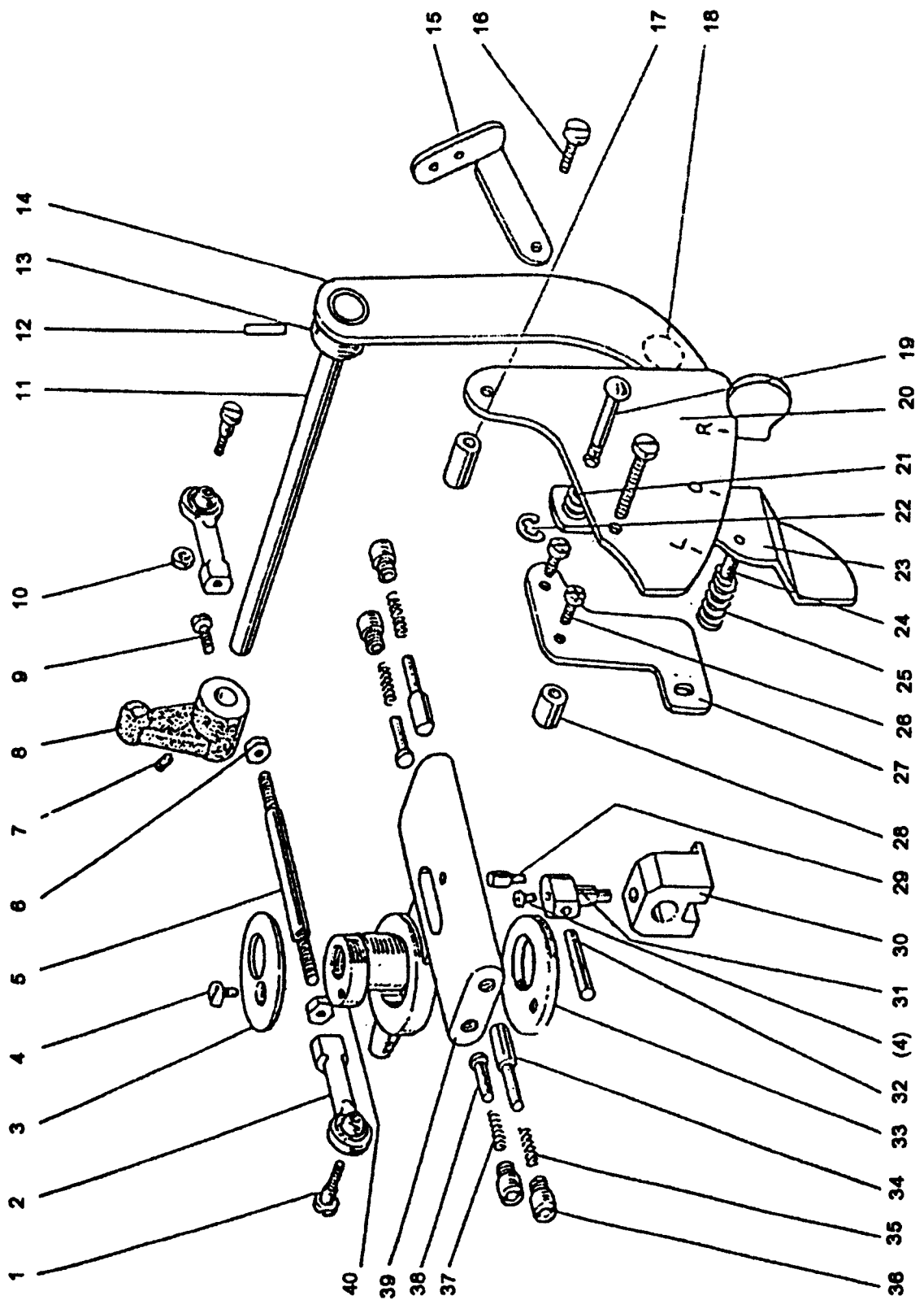
E:NEEDLE BAR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
36	H85E036	Spring	2	2
37	H85E037	Needle bar	2	2
38	H85E038	Triangle pin	2	2
39	H85E039	Steel ball	12	12
40	H85E040	Stud	2	2
41	H85E041	Spring	2	2
42	H85E042	Nut	2	2
43	H85E043	Nut	2	2
44	H85E044	Pin	2	2
45	H85E045	Sleeve	2	2
46	H85E046	Spring	2	2
47	H85E047	Pin	2	2
48	H85E048	Screw	2	2

(-M) = DN 2220-AUT

(-B) = DN 2220I.H-AUT

F: NEEDLE BAR CONTROL MECHANISM



F:NEEDLE BAR CONTROL MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85F001	Screw	2	2
2	H85F002	Ball joint	2	2
3	H85F003	Cover	1	1
4	H85F004	Screw	2	2
5	H85F005	Connecting rod	1	1
6	H85F006	Nut	2	2
7	H85F007	Screw	1	1
8	H85F008	Arm	1	1
9	H85F009	Screw	1	1
10	H85F010	Nut	1	1
11	H85F011	Shaft	1	1
12	H85F012	Spring pin	1	1
13	H85F013	Pinching bushing	1	1
14	H85F014	Stop motion control lever	1	1
15	H85F015	Thread guide	1	1
16	H85F016	Screw	2	2
17	H85F017	Pipe	1	1
18	H85F018	Pin	1	1
19	H85F019	Pin	1	1
20	H85F020	Lever position plate	1	1
21	H85F021	Spring	1	1
22	H85F022	E type stopring	1	1
23	H85F023	Lever	1	1
24	H85F024	Pin	1	1
25	H85F025	Spring	1	1
26	H85F026	Screw	2	2
27	H85F027	Plate	1	1
28	H85F028	Pipe	1	1
29	H85F029	Screw	1	1
30	H85F030	Cam	1	1
31	H85F031	Guide pin	1	1
32	H85F032	Pin	1	1
33	H85F033	Washer	1	1
34	H85F034	Pin	2	2
35	H85F035	Spring	2	2
36	H85F036	Cap screw	4	4

(-M) = DN 2220-AUT

(-R) = DN 2220I.H-AUT

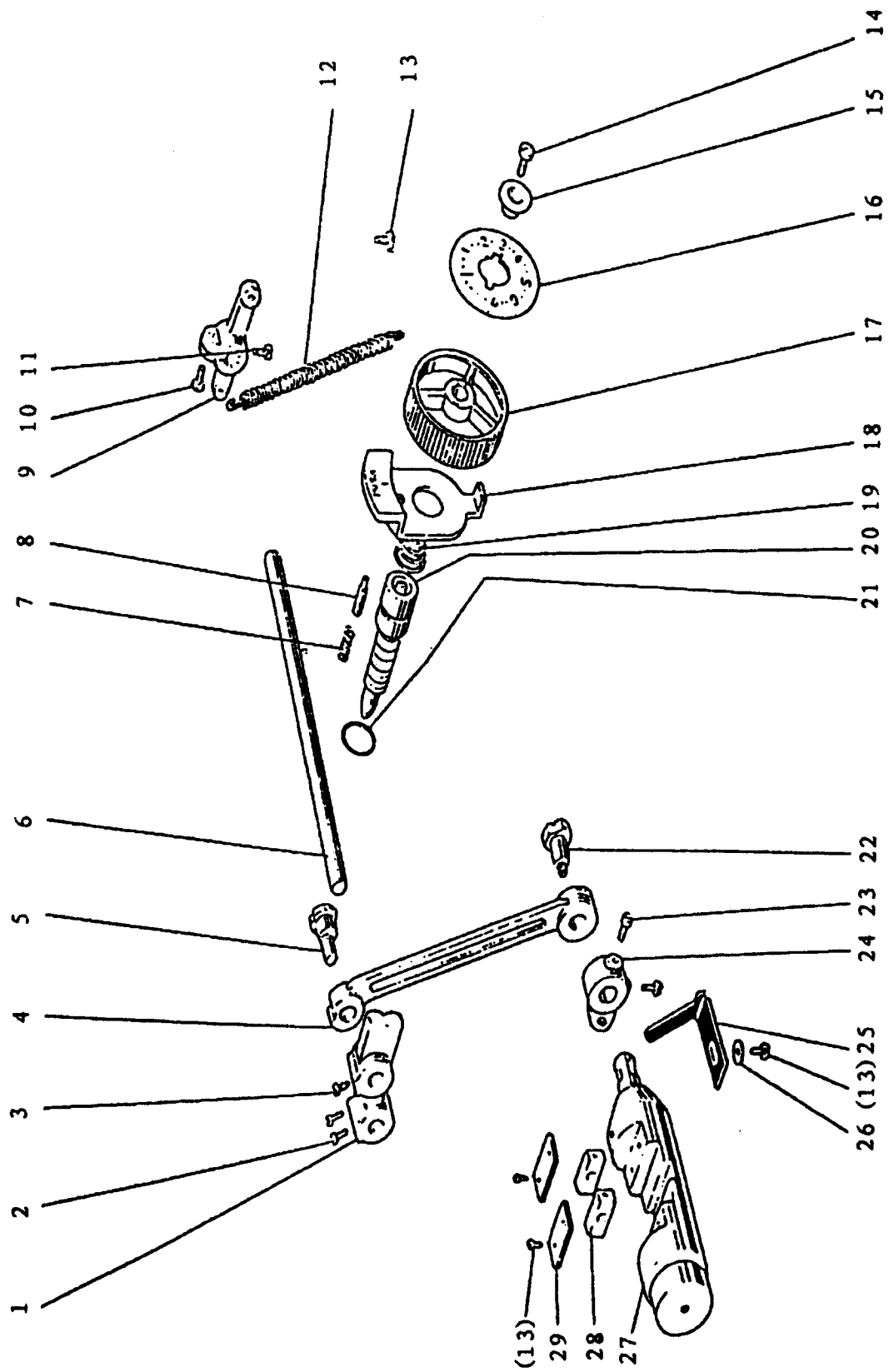
F:NEEDLE BAR CONTROL MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
37	H85F037	Spring	2	2
38	H85F038	Pin	2	2
39	H85F039	Guide	1	1
40	H85F040	Bushing	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

G: STITCH REGULATOR MECHANISM



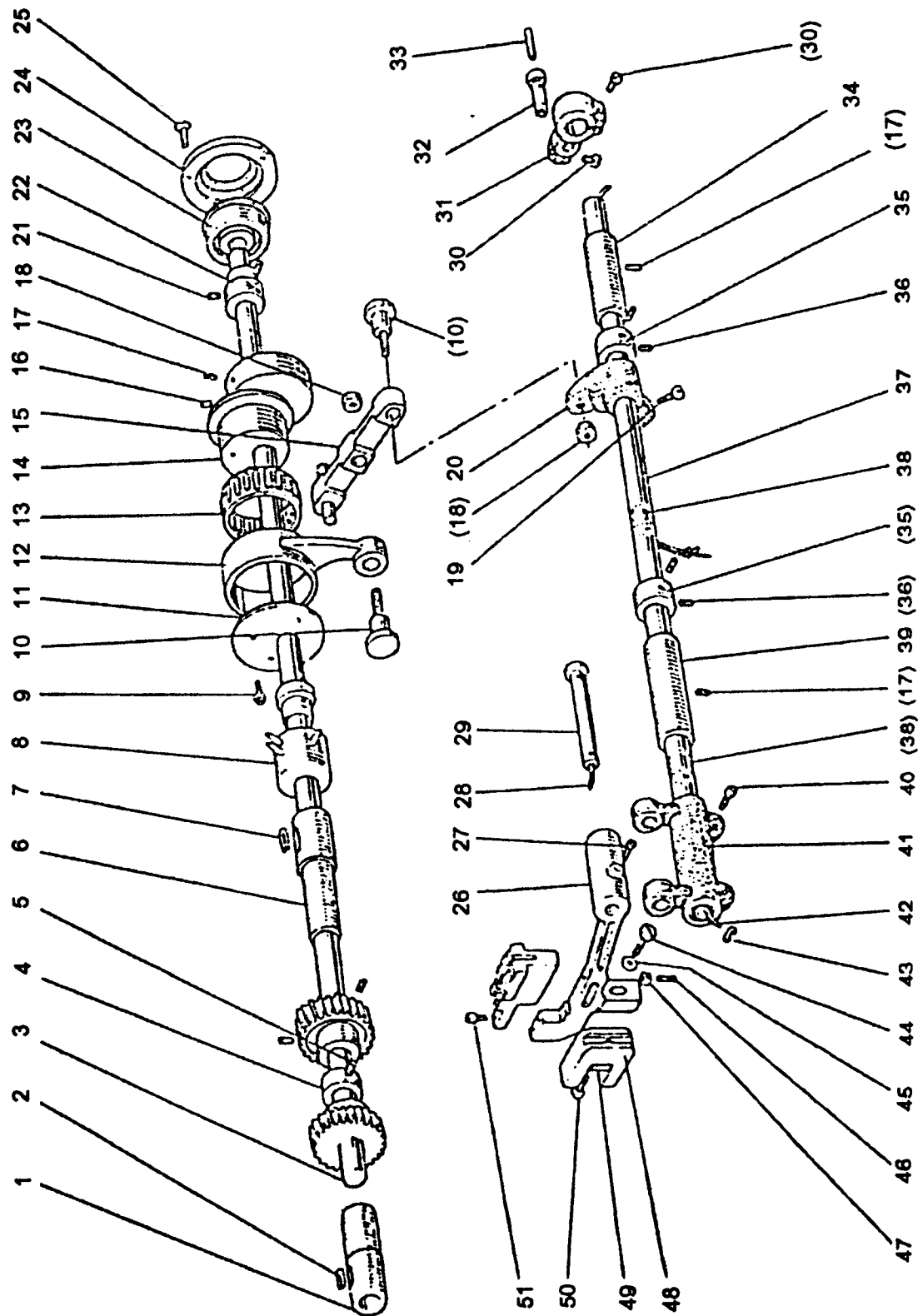
G:STITCH REGULATOR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85G001	Feed regulator	1	1
2	H85G002	Screw	2	2
3	H85G003	Screw	1	1
4	H85G004	Connecting link	1	1
5	H85G005	Eccentric shaft	1	1
6	H85G006	Reverse stitch shaft	1	1
7	H85G007	Spring	1	1
8	H85G008	Pin	1	1
9	H85G009	Arm	1	1
10	H85G010	Screw	1	1
11	H85G011	Screw	1	1
12	H85G012	Spring	1	1
13	H85G013	Screw	5	5
14	H85G014	Screw	1	1
15	H85G015	Bushing	1	1
16	H85G016	Stitch length indicating plate	1	
16	H93G016	Stitch length indicating plate		1
17	H85G017	Dial	1	1
18	H85G018	Stopper pin releasing lever	1	1
19	H85G019	Coil spring	1	1
20	H85G020	Screw bar	1	1
21	H85G021	O-ring	1	1
22	H85G022	Bolt	1	1
23	H85G023	Screw	2	2
24	H85G024	Stitch regulating crank lower	1	1
25	H85G025	Holding plate of reverse bar	1	1
26	H85G026	Washer	1	1
27	H85G027	Reverse bar	1	1
28	H85G028	Square block	2	2
29	H85G029	Guide plate	2	2

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

H: LOWER SHAFT & FEED ROCK SHAFT MECHANISM



H:LOWER SHAFT & FEED ROCK SHAFT MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85H001	Lower shaft bushing left	1	1
2	H85H002	Oil wick	1	1
3	H85H003	Lower shaft	1	1
4	H85H004	Feed lifting cam	1	1
5	H85H005	Screw	1	1
6	H85H006	Lower shaft bushing right	1	1
7	H85H007	Oil wick	1	1
8	H85H008	Lower shaft bushing middle	1	1
9	H85H009	Screw	3	3
10	H85H010	Screw	2	2
11	H85H011	Washer	1	1
12	H85H012	Feed connecting rod	1	1
13	H85H013	Needle bearing	1	1
14	H85H014	Lever feed connecting cam	1	
14	H93H014	Lever feed connecting cam		1
15	H85H015	Link	1	1
16	H85H016	Screw	1	1
17	H85H017	Screw	3	3
18	H85H018	Nut	2	2
19	H85H019	Screw	1	1
20	H85H020	Connecting rod crank	1	1
21	H85H021	Screw	2	2
22	H85H022	Bushing	1	1
23	H85H023	Ball bearing	1	1
24	H85H024	Bearing holder	1	1
25	H85H025	Screw	3	3
26	H85H026	Feed bar	1	1
27	H85H027	Screw	1	1
28	H85H028	Oil wick	1	1
29	H85H029	Feed bar shaft	1	1
30	H85H030	Screw	2	2
31	H85H031	Feed rock shaft crank	1	1
32	H85H032	Pin	1	1
33	H85H033	Oil wick	1	1
34	H85H034	Feed rock shaft crank (right)	1	1
35	H85H035	Collar	2	2

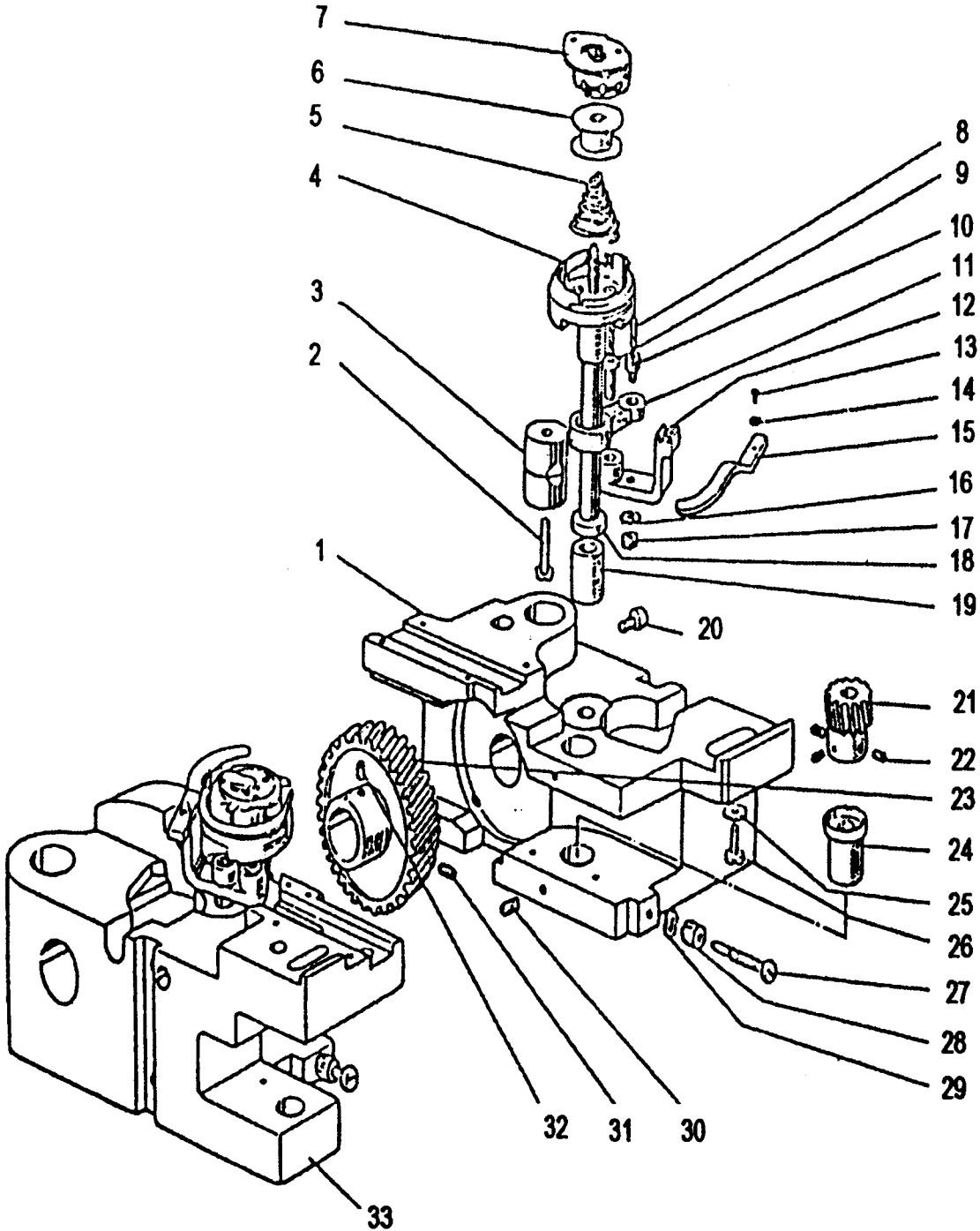
(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

H:LOWER SHAFT & FEED ROCK SHAFT MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
36	H85H036	Screw	4	4
37	H85H037	Feed rock shaft	1	1
38	H85H038	Felt	2	2
39	H85H039	Feed rock shaft bushing (left)	1	1
40	H85H040	Screw	2	2
41	H85H041	Feed rock shaft Crank (left)	1	1
42	H85H042	Oil wick	1	1
43	H85H043	Holder	1	1
44	H85H044	Bolt	1	1
45	H85H045	Washer	1	1
46	H85H046	Screw	1	1
47	H85H047	Nut	1	1
48	H85H048	Feed bar connecting fork	1	
48	H93H048	Feed bar connecting fork		1
49	H85H049	Felt	1	1
50	H85H050	Screw	1	1
51	H85H051	Bolt	2	2

I: HOOK SADDLE MECHANISM



I:HOOK SADDLE MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85I001	Hook saddle (right)	1	
1	H93I001	Hook saddle (right)		1
2	H85I002	Screw	2	2
3	H85I003	Bushing	2	2
4	H85I004	Hook complete	2	
4	H93I004	Hook complete		2
5	H85I005	Spring	2	
5	H93I005	Spring		2
6	H85I006	Bobbin	2	
6	H93I006	Bobbin		2
8	H85I008	Oil wick	2	2
9	H85I009	Bobbin case opener holder pin	2	2
10	H85I010	Screw	2	2
11	H85I011	Link	2	
11	H93I011	Link		2
12	H85I012	Bobbin case opener holder	2	
12	H93I012	Bobbin case opener holder		2
13	H85I013	Screw	2	2
14	H85I014	Washer	2	2
15	H85I015	Opener	2	
15	H93I015	Opener		2
16	H85I016	Spring washer	2	2
17	H85I017	Nut	2	2
18	H85I018	Spacer	2	
18	H93I018	Spacer		2
19	H85I019	Hook shaft bushing (upper)	2	
19	H93I019	Hook shaft bushing (upper)		2
20	H85I020	Screw	2	2
21	H85I021	Gear (small)	2	2
22	H85I022	Screw	6	6
23	H85I023	Gear (large)	2	2
24	H85I024	Hook shaft bushing (lower)	2	2
25	H85I025	Washer	2	2
26	H85I026	Screw	2	2
27	H85I027	Screw	2	2
28	H85I028	Nut	2	2

(-M) = DN 2220-AUT

(-B) = DN 2220I.H-AUT

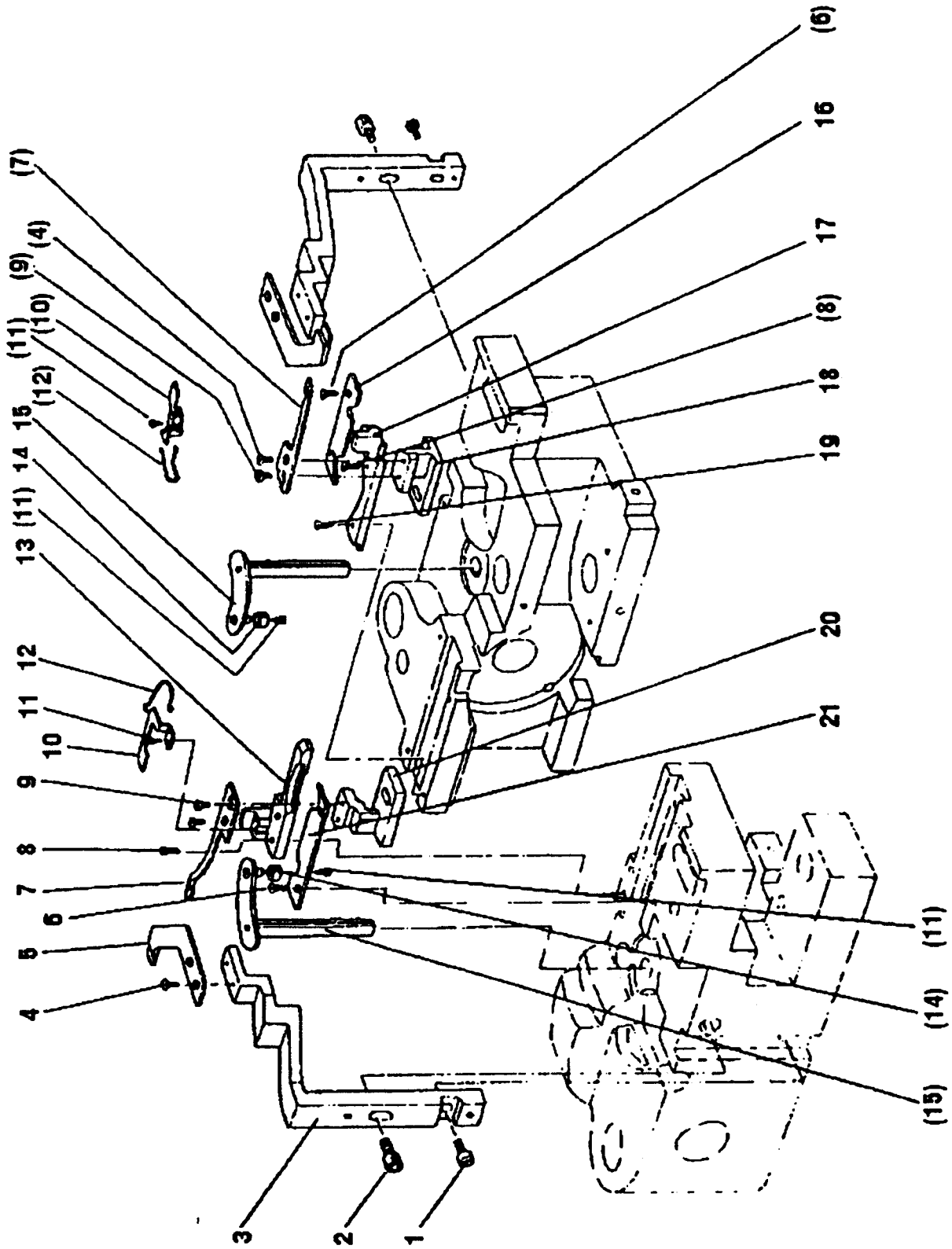
I:HOOK SADDLE MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
29	H85I029	Spring washer	2	2
30	H85I030	Screw	4	4
31	H85I031	Screw	2	2
32	H85I032	Screw	2	2
33	H85I033	Hook saddle (left)	1	
33	H85I033	Hook saddle (left)		1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

J: KNIFE MECHANISM(I)



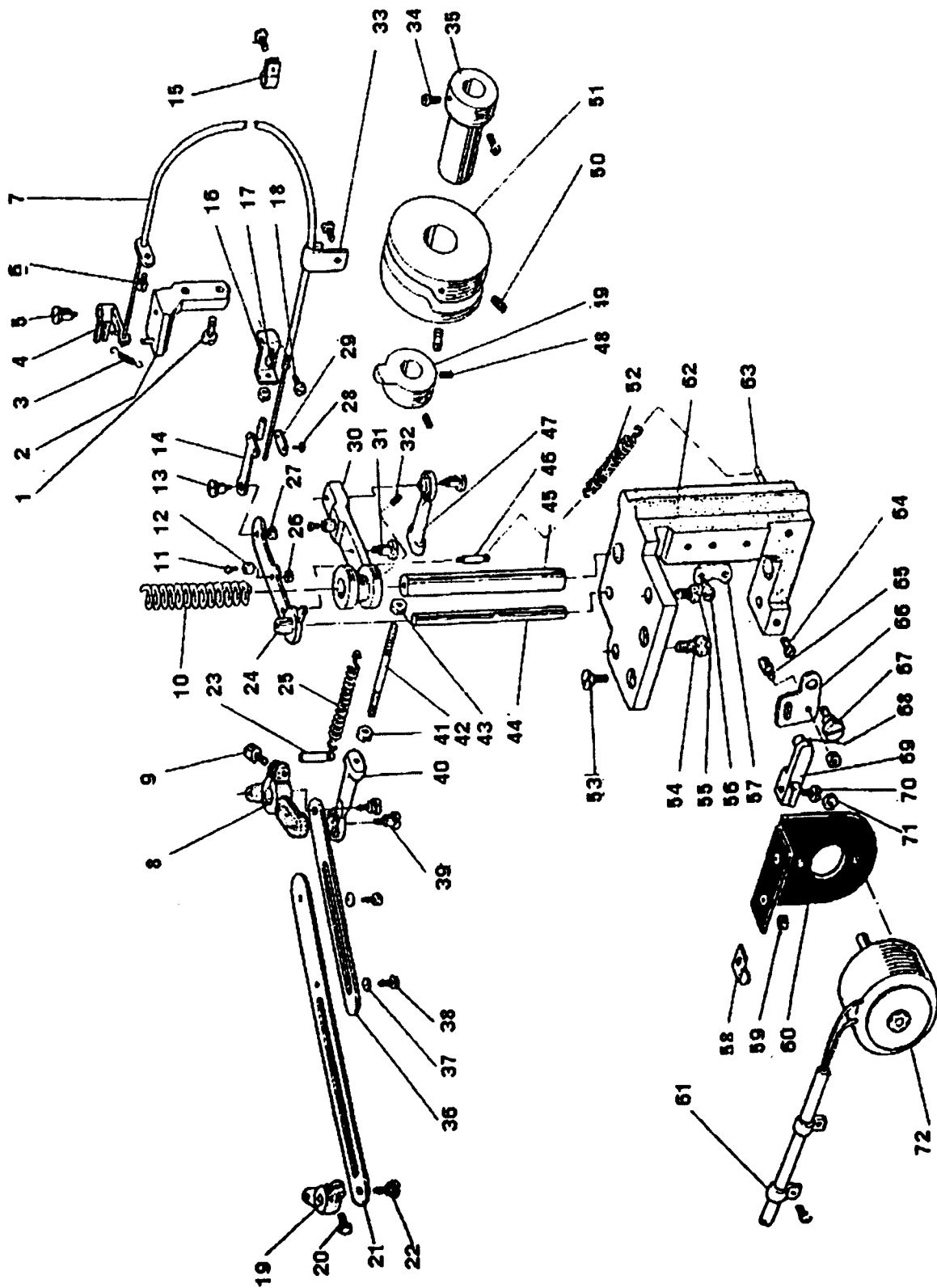
J:KNIFE MECANISM(1)

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85J001	Screw	2	2
2	H85J002	Bolt	2	2
3	H85J003	Trimming knife holder	2	2
4	H85J004	Screw	6	6
5	H85J005	Fixed blade	2	2
6	H85J006	Screw	4	4
7	H85J007	Move knife	2	2
8	H85J008	Screw	2	2
9	H85J009	Screw	2	2
10	H85J010	Spring plate	2	2
11	H85J011	Screw	6	6
12	H85J012	Reversing spring	2	2
13	H85J013	Guide (left)	1	
13	H93J013	Guide (left)		1
14	H85J014	Roller	2	2
15	H85J015	Lever	2	2
16	H85J016	Cover (right)	1	1
17	H85J017	Guide (right)	1	
17	H93J017	Guide (right)		1
18	H85J018	Knife pad (right)	1	1
19	H85J019	Screw	1	1
20	H85J020	Knife pad (left)	1	1
21	H85J021	Cover (left)	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

K: KNIFE MECHANISM (II)



K:KNIFE MECANISM(2)

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85K001	Screw	2	2
2	H85K002	Thread releading bracket	1	1
3	H85K003	Spring	1	1
4	H85K004	Thread releasing	1	1
5	H85K005	Screw	1	1
6	H85K006	Screw	4	4
7	H85K007	Flexible wire complete	1	1
8	H85K008	Arm	1	
8	H93K008	Arm		1
9	H85K009	Bolt	1	1
10	H85K010	Spring	1	1
11	H85K011	Screw	1	1
12	H85K012	Roller	1	1
13	H85K013	Screw	1	1
14	H85K014	Mounting plate	1	1
15	H85K015	Nylon clip	1	1
16	H85K016	Mounting plate	1	1
17	H85K017	Nut	2	2
18	H85K018	Screw	1	1
19	H85K019	Arm	1	1
20	H85K020	Bolt	1	1
21	H85K021	Link	1	1
22	H85K022	Screw	2	2
23	H85K023	Pin type	1	1
24	H85K024	Thread releasing lever	1	1
25	H85K025	Spring	1	1
26	H85K026	Nut	1	1
27	H85K027	Nut	1	1
28	H85K028	Screw	2	2
29	H85K029	Bushing	1	1
30	H85K030	Vibrating crank	1	1
31	H85K031	Screw	1	1
32	H85K032	Screw	2	2
33	H85K033	Nylon clip	1	1
34	H85K034	Screw	2	2
35	H85K035	Bushing	1	1

K:KNIFE MECANISM(2)

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
36	H85K036	Link	1	1
37	H85K037	Washer	1	1
38	H85K038	Bolt	2	2
39	H85K039	Screw	2	2
40	H85K040	Ball joint (left)	1	1
41	H85K041	Nut (left)	1	1
42	H85K042	Bolt	1	1
43	H85K043	Nut (right)	1	1
44	H85K044	Shaft	1	1
45	H85K045	Shaft	1	1
46	H85K046	Screw	1	1
47	H85K047	Ball joint (right)	1	1
48	H85K048	Screw	2	2
49	H85K049	Cam	1	1
50	H85K050	Screw	2	2
51	H85K051	Cam	1	1
52	H85K052	Spring	1	1
53	H85K053	Screw	2	2
54	H85K054	Screw	1	1
55	H85K055	Screw	1	1
56	H85K056	Screw	3	3
57	H85K057	Stopper	1	1
58	H85K058	Holder	1	1
59	H85K059	Nut	2	2
60	H85K060	Mounting plate	1	1
61	H85K061	Holder	2	2
62	H85K062	Set plate	1	1
63	H85K063	Pin type	1	1
64	H85K064	Screw	1	1
65	H85K065	Screw	1	1
66	H85K066	Lever	1	1
67	H85K067	Screw	1	1
68	H85K068	Pin	1	1
69	H85K069	Arm	1	1
70	H85K070	Screw	1	1
71	H85K071	Nut	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

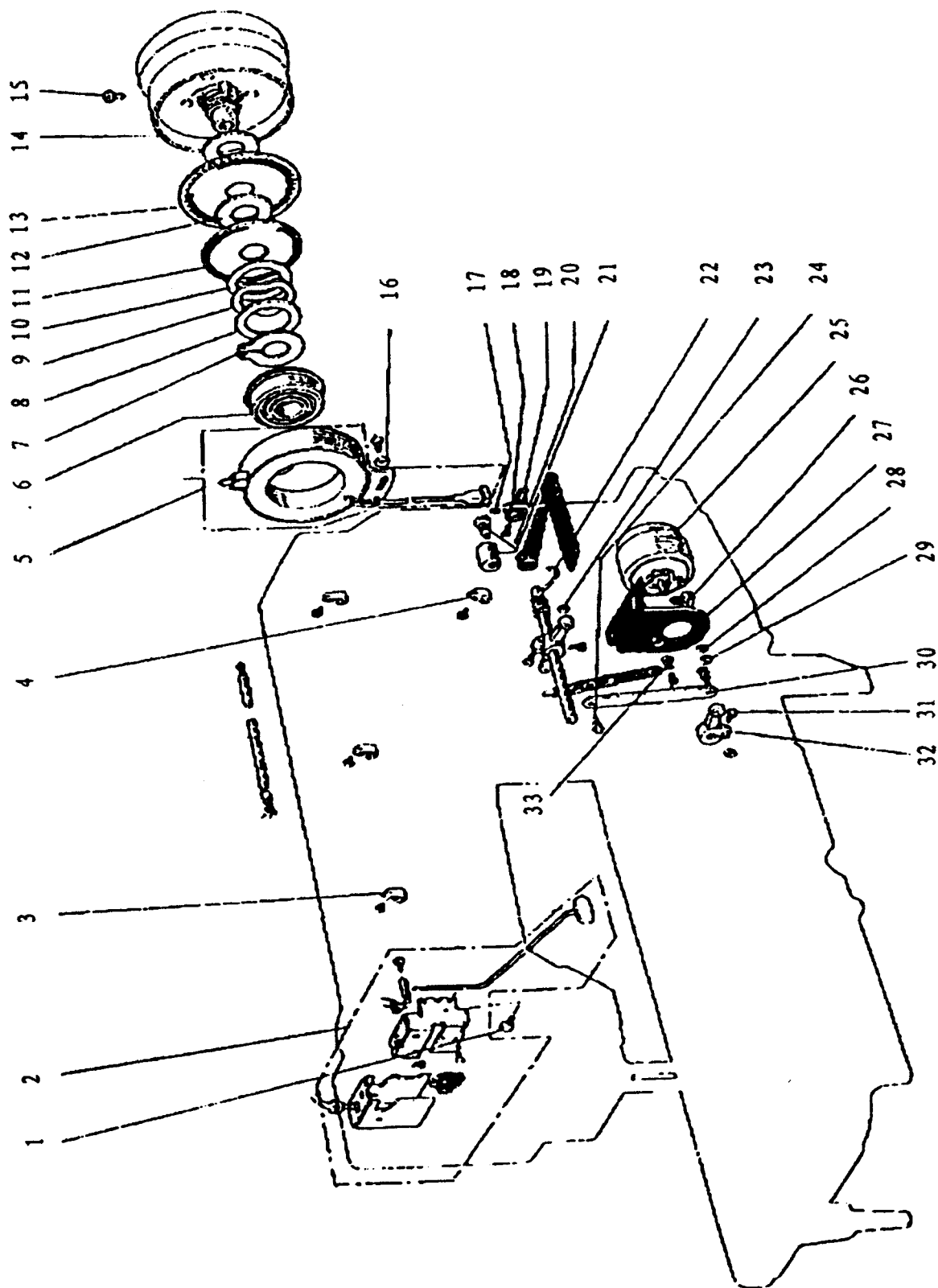
K:KNIFE MECANISM(2)

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
72	H85K072	Solenoid complete	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

L: TOUCH BACK, COMPENSATION STITCHING & DETECTOR MECHANISM



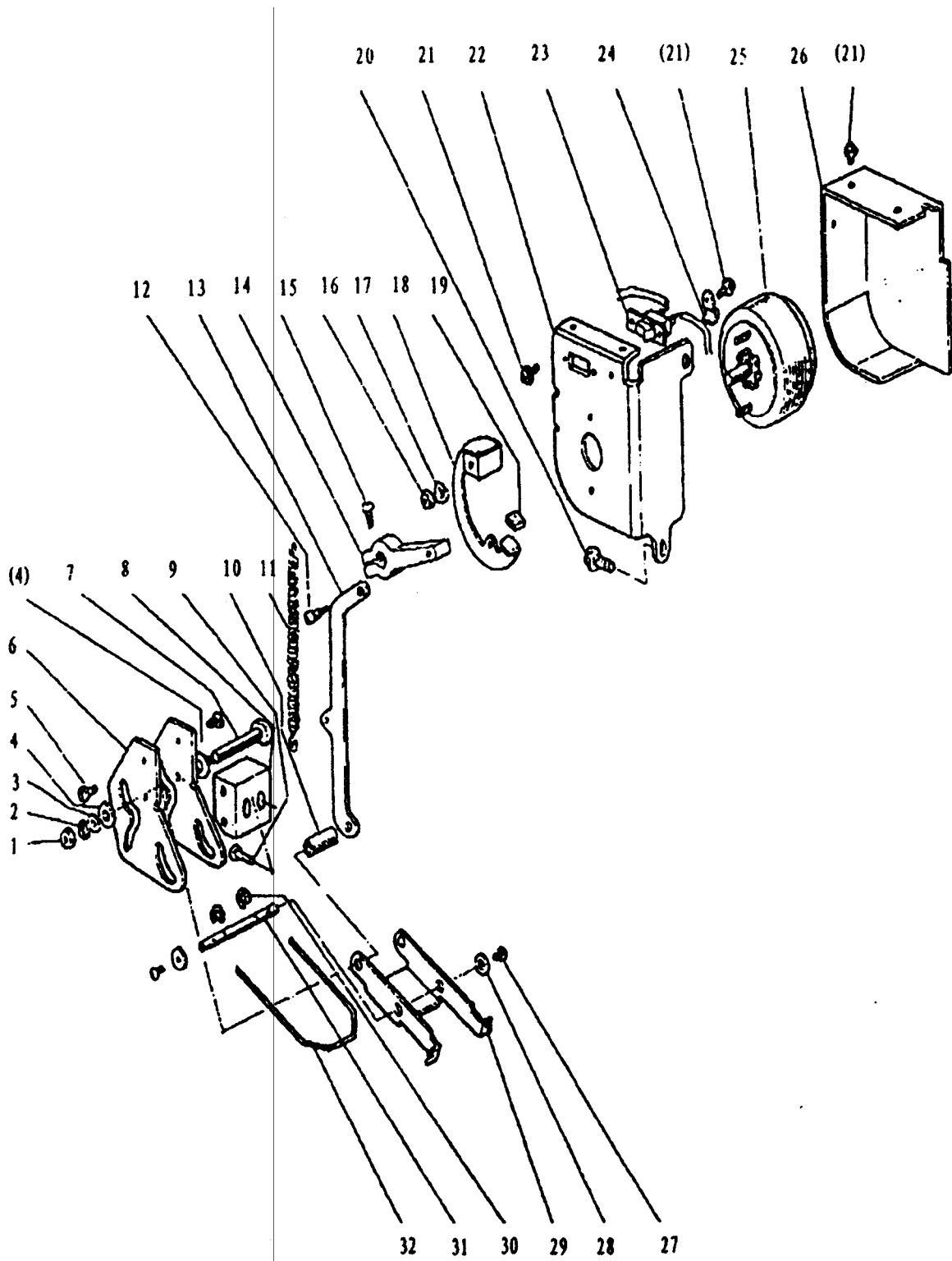
L:TOUCH BACK AND DETECTOR MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85L001	Screw	2	2
2	H85L002	Touch switch (complete)	1	1
3	H85L003	Cord holder	3	3
4	H85L004	Cord holder	1	1
5	H85L005	Detector bracket (complete)	1	1
6	H85L006	Ball bearing	1	1
7	H85L007	Retaining ring C-type	1	1
8	H85L008	Washer	1	1
9	H85L009	Support spring	1	1
10	H85L010	Spacer B	1	1
11	H85L011	Speed command disk F20 (up)	1	1
12	H85L012	Spacer A	2	2
13	H85L013	Speed command disk F11 (down)	1	1
14	H85L014	Pulley (complete)	1	1
15	H85L015	Screw	1	1
16	H85L016	Washer	1	1
17	H85L017	Screw	1	1
18	H85L018	Lever (complete)	1	1
19	H85L019	Screw	1	1
20	H85L020	Screw	1	1
21	H85L021	Rubber ring	1	1
22	H85L022	Spring	1	1
23	H85L023	Nut	2	2
24	H85L024	Screw	2	2
25	H85L025	Solenoid (complete)	1	1
26	H85L026	Blot	2	2
27	H85L027	Set plate	1	1
28	H85L028	Spring washer	2	2
29	H85L029	Nut	2	2
30	H85L030	Link	1	1
31	H85L031	Blot	1	1
32	H85L032	Arm	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

M: WIPER MECHANISM



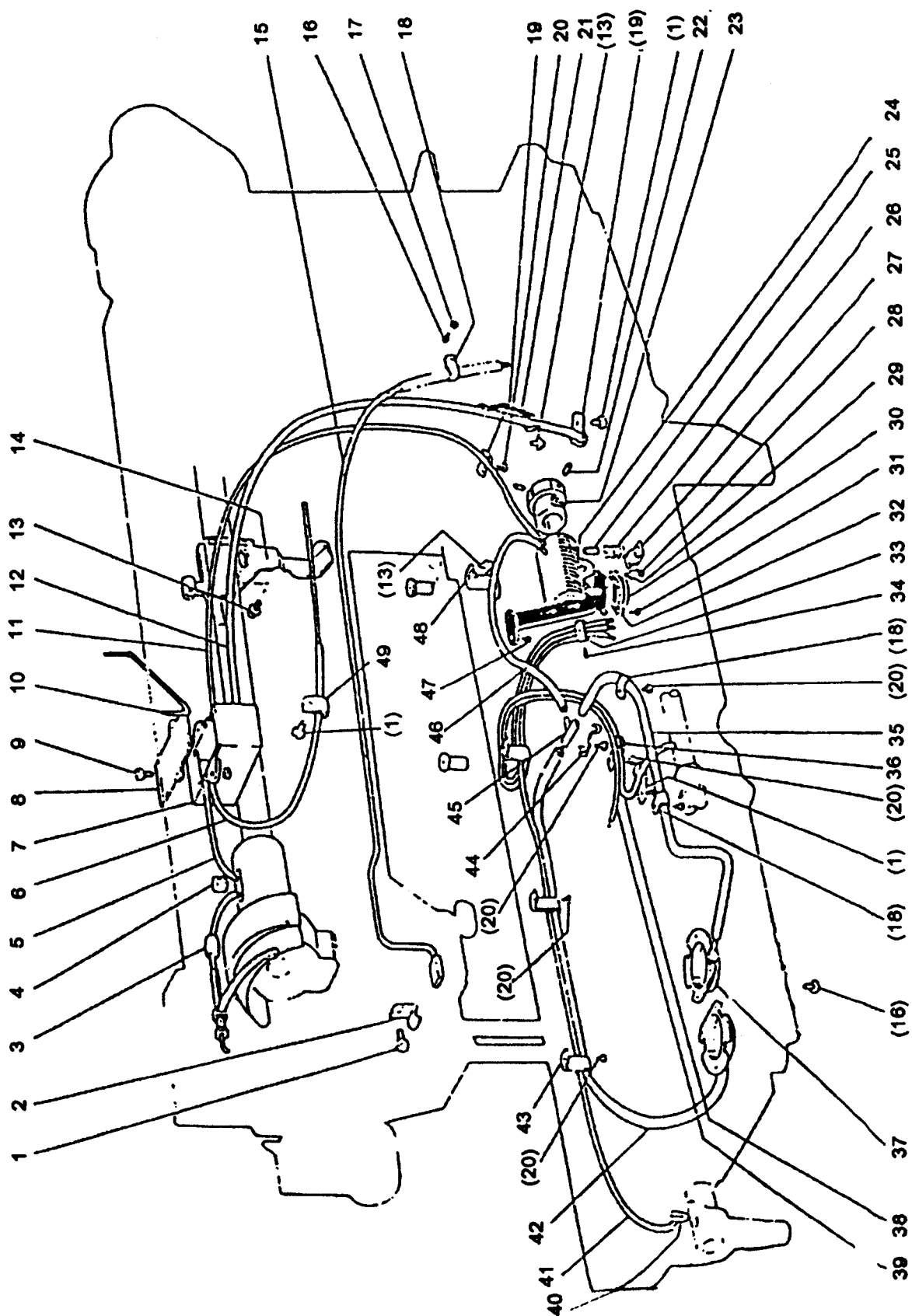
M:WIPER MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85M001	Nut	1	
2	H85M002	Spring washer	1	
3	H85M003	Washer	1	
4	H85M004	Washer	2	
5	H85M005	Screw	4	
6	H85M006	Cam plate (complete)	2	
7	H85M007	Shaft	1	
8	H85M008	Wiper stand	1	
9	H85M009	Screw	2	
10	H85M010	Collar	1	
11	H85M011	Spring	1	
12	H85M012	Screw	1	
13	H85M013	Link	1	
14	H85M014	Wiper crank	1	
15	H85M015	Screw	1	
16	H85M016	Nut	2	
17	H85M017	Spring washer	2	
18	H85M018	Stopper plate	1	
19	H85M019	Cushion	1	
20	H85M020	Screw	2	
21	H85M021	Screw	6	
22	H85M022	Solenoid plate	1	
23	H85M023	Switch	1	
24	H85M024	Cord holder	1	
25	H85M025	Rotary solenoid	1	
26	H85M026	Cover	1	
27	H85M027	Screw	2	
28	H85M028	Washer	2	
29	H85M029	Wiper slide plate	1	
30	H85M030	E-type stop ring	2	
31	H85M031	Wiper shaft	1	
32	H85M032	Wiper	1	

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

N: OIL LUBRICATION MECHANISM



N:OIL LUBRICATION MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H85N001	Screw	3	3
2	H85N002	Holder	1	1
3	H85N003	Pipe	1	1
4	H85N004	Felt	2	2
5	H85N005	Oil pipe & wick complete	1	1
6	H85N006	Oil pipe & wick complete	1	1
7	H85N007	Oil tank complete	1	1
8	H85N008	Gasket	1	1
9	H85N009	Screw	2	2
10	H85N010	Holder	1	1
11	H85N011	Pipe	1	1
12	H85N012	Pipe	1	1
13	H85N013	Screw	3	3
14	H85N014	Holder	1	1
15	H85N015	Pipe & felt complete	1	1
16	H85N016	Screw	6	6
17	H85N017	Spring washer	1	1
18	H85N018	Holder	3	3
19	H85N019	Holder	2	2
20	H85N020	Screw	7	7
21	H85N021	Holder	1	1
22	H85N022	Screw	2	2
23	H85N023	Bushing	1	1
24	H85N024	Pipe	1	1
25	H85N025	Pin	1	1
26	H85N026	Spring	1	1
27	H85N027	Spring holder	1	1
28	H85N028	Screw	1	1
29	H85N029	Screw	1	1
30	H85N030	Filter	1	1
31	H85N031	Screw	1	1
32	H85N032	Base plate complete	1	1
33	H85N033	Holder	1	1
34	H85N034	Screw	1	1
35	H85N035	Pipe	1	1
36	H85N036	Holder	1	1

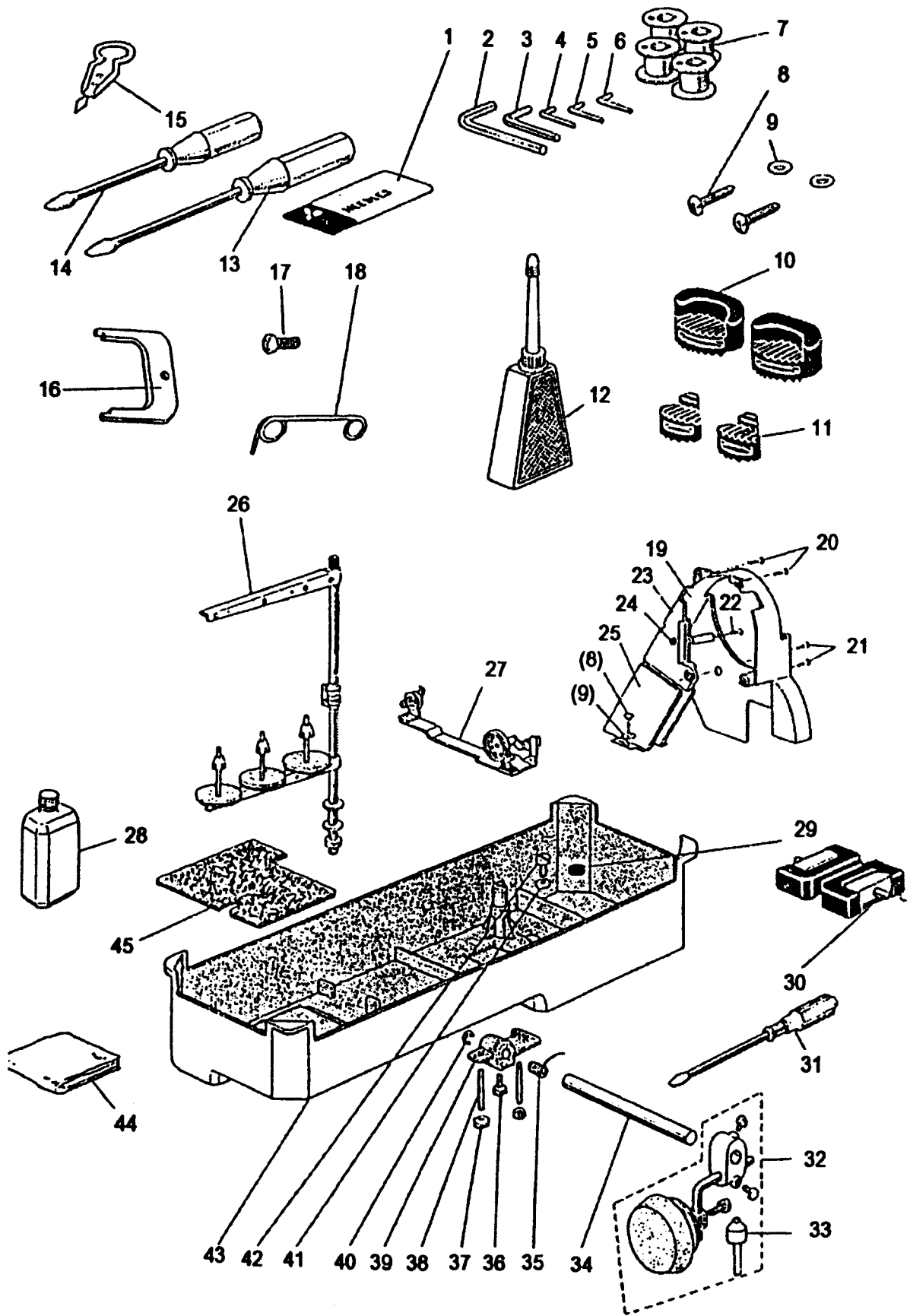
N:OIL LUBRICATION MECHANISM

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
37	H85N037	Cover complete	2	2
38	H85N038	Oil pipe & wick complete	1	1
39	H85N039	Oil pipe & wick complete	1	1
40	H85N040	Oil wick	3	3
41	H85N041	Oil pipe & wick complete	1	1
42	H85N042	Pipe	1	1
43	H85N043	Holder	2	2
44	H85N044	Holder	1	1
45	H85N045	Oil pipe connector	1	1
46	H85N046	Pipe	1	1
47	H85N047	Screw	2	2
48	H85N048	Holding plate	1	1
49	H85N049	Holder	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220-II-AUT

O: ACCESSORIES



O:ACCESSORIES

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
1	H850001	Needle DP×#14	6	
1	H930001	Needle DP×#14		6
2	H850002	Socket wrench 2.5	1	1
3	H850003	Socket wrench 3	1	1
4	H850004	Socket wrench 2	1	1
5	H850005	Socket wrench 1/16	1	1
6	H850006	Socket wrench 1.5	1	1
7	H850007	Bobbin	4	
7	H930007	Bobbin		4
8	H850008	Screw	4	4
9	H850009	Washer	4	4
10	H850010	Vibration preventing rubber	2	2
11	H850011	Vibration preventing rubber	2	2
12	H850012	Oiler	1	1
13	H850013	Screw driver (middle)	1	1
14	H850014	Screw driver (small)	1	1
15	H850015	Thread a needle kit	1	1
16	H850016	Adjusting plate for speed command d	1	1
17	H850017	Screw	1	1
18	H850018	Thread guide	1	1
19	H850019	Belt cover 1	1	1
20	H850020	Screw	2	2
21	H850021	Screw	2	2
22	H850022	Screw	1	1
23	H850023	Belt cover 2	1	1
24	H850024	Nut	1	1
25	H850025	Belt cover 3	1	1
26	H850026	Cotton Stand	1	1
27	H850027	Bobbin winder	1	1
28	H850028	Oil can	1	1
29	H850029	Magnet block for reservoir	1	1
30	H850030	Hinge complete	2	2
31	H850031	Screw driver (large)	1	1
32	H850032	Small parts	1	1
33	H850033	Knee lifter pin	1	1
34	H850034	Knee lifter shaft	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT

O:ACCESSORIES

No.	Ref.No.	Description	Amt.Req.(-M)	Amt.Req.(-B)
35	H850035	Spring	1	1
36	H850036	Bolt	1	1
37	H850037	Nut	2	2
38	H850038	Screw	2	2
39	H850039	Knee lifter crank	1	1
40	H850040	E-type stop ring	1	1
41	H850041	Washer	1	1
42	H850042	Screw	1	1
43	H850043	Oil reservoir	1	1
44	H850044	Vinyl cover	1	1
45	H850045	Felt	1	1

(-M) = DN 2220-AUT

(-B) = DN 2220LH-AUT