

ZJ 20628

OPERATING INSTRUCTIONS

PRECAUTIONS BEFORE STARTING TO OPERATE

(1) Safety precautions

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

(2) Precautions 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) Precautions for Operating Condition

1. Avoid using the machine at abnormally high temperatures (35° C or higher) or low temperatures (5° C or lower). Otherwise, machine failure may result.
2. Avoid using the machine in dusty conditions.

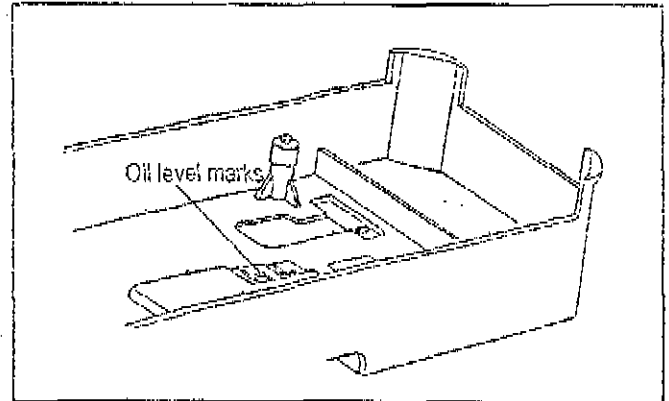
CAUTIONS ON USE

1. Lubrication (1)

Fill the oil tank with lubricating oil until oil level reaches "H" mark.

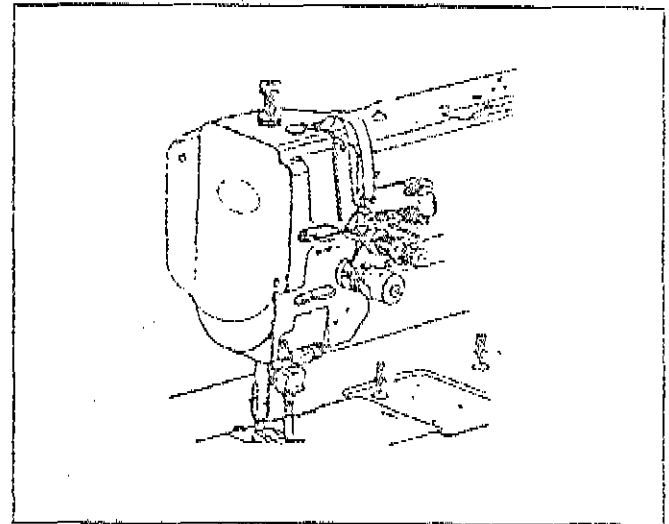
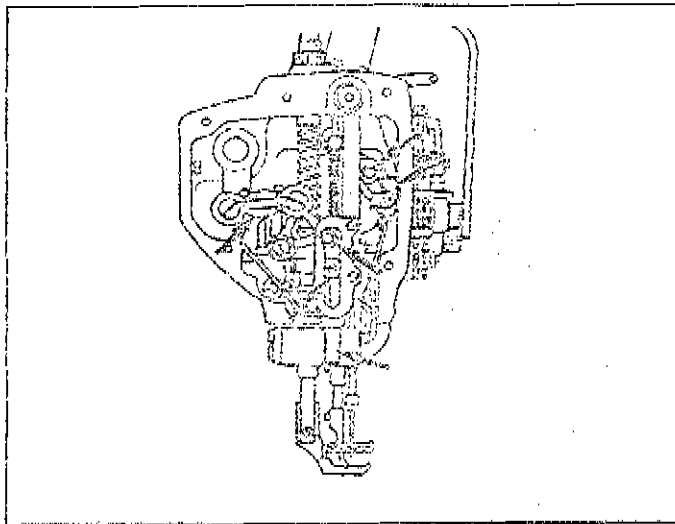
Periodically check oil level during operation, if oil level is found below "L", add oil to "H" mark.

Always use sewing machine oil.



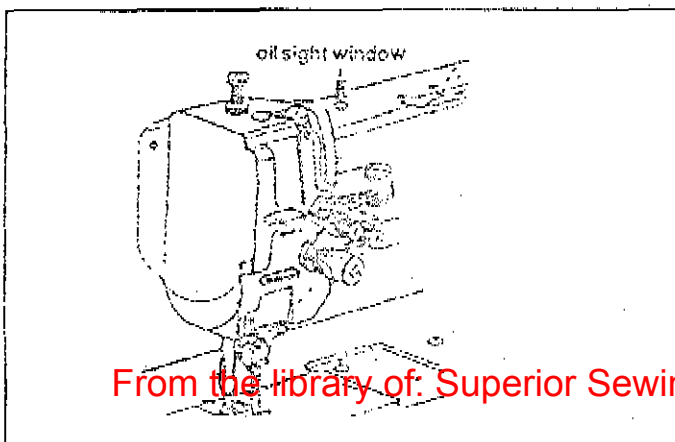
2. Lubrication (2)

When the sewing machine is used for the first time or operated after long stop, a suitable quantity of oil should be applied to the place indicated by arrow in the below figures.

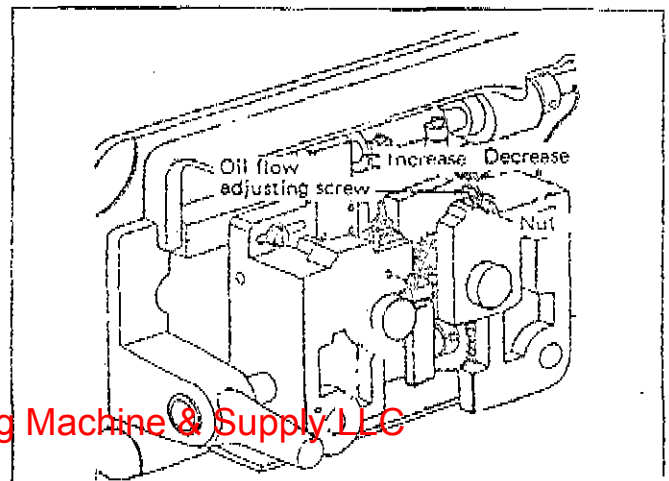


3. Oiling condition

See dripping of oil through the oil sight window to check oiling condition during operation.



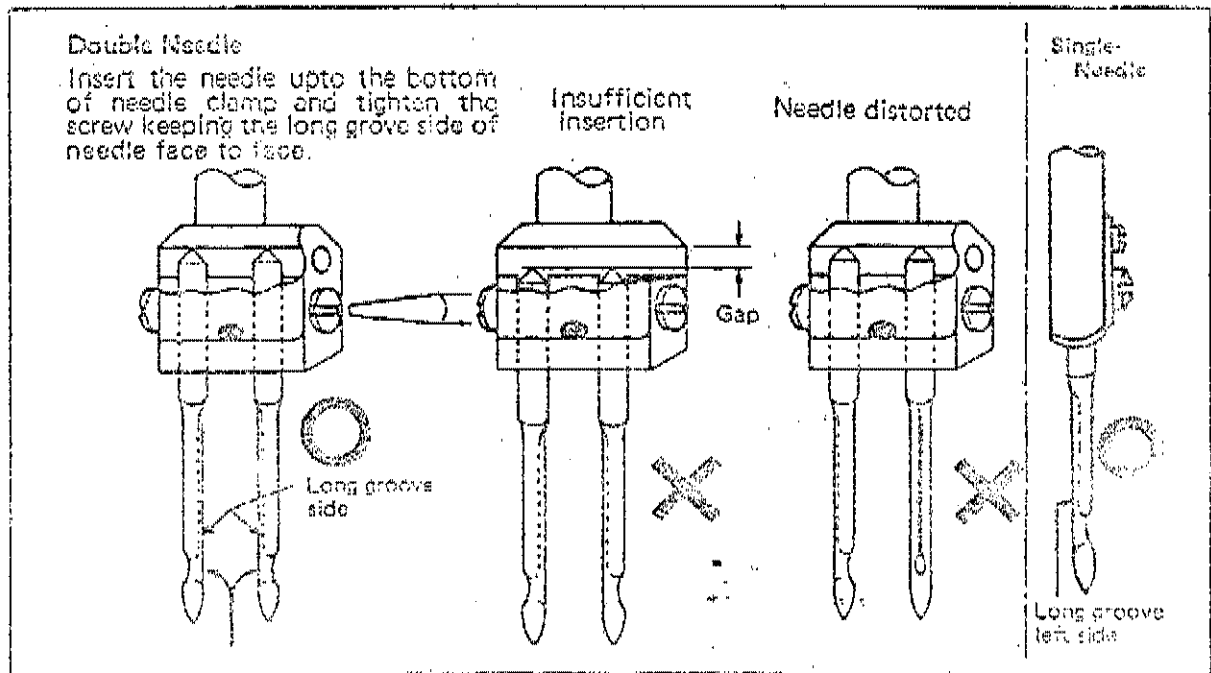
4. Lubrication of rotating Hook



HOW TO USE THE MACHINE

1. How to attach needles

Note: Before making the following adjustment, switch off the power source by all means.



2. How to wind the bobbin

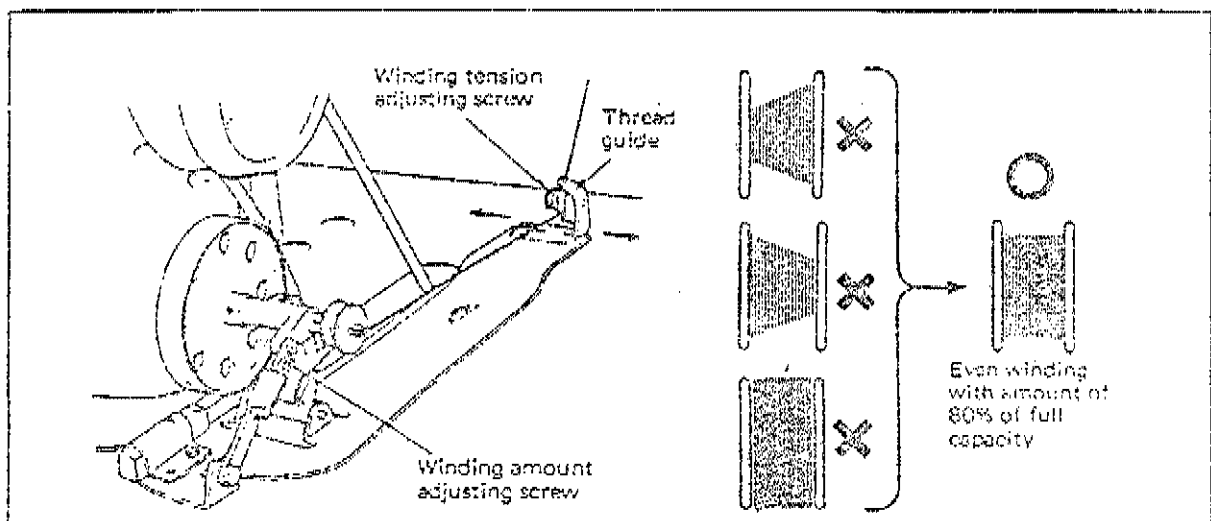
Note: In case of rotating the machine without sewing, keep the presser foot raised

Adjustment:

Tightness of winding: Particularly in case of nylon or tetron thread, it is desirable that the bobbin is wound loose enough.

Uneven winding: In case of uneven winding, adjust the thread guide slightly toward the less wound part of bobbin so that to obtain even winding.

Winding amount of thread: When the winding amount of thread is excessive, loosen the adjusting screw and tighten when insufficient.

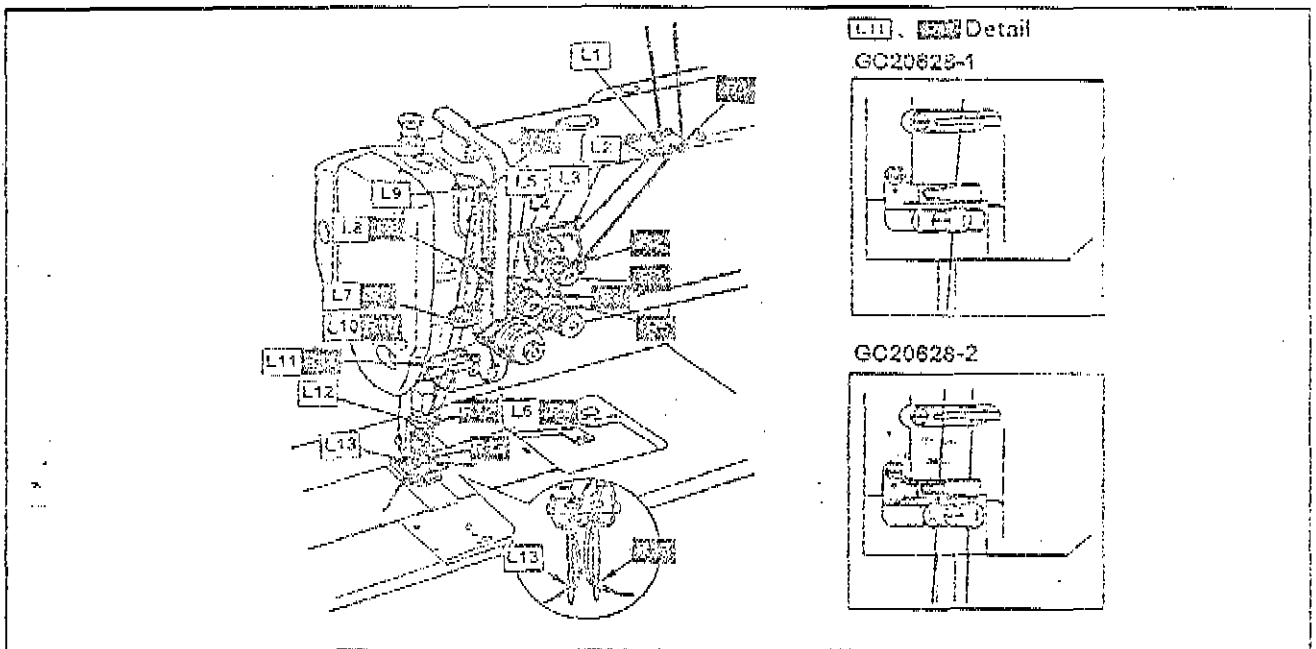
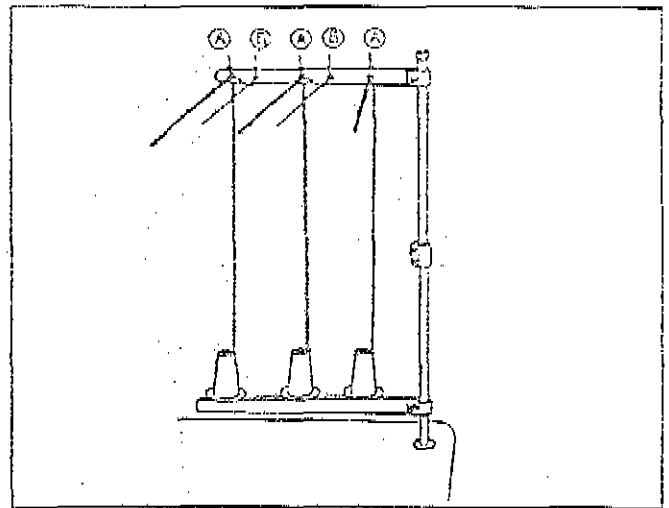


3. Threading of needle threads

- (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.

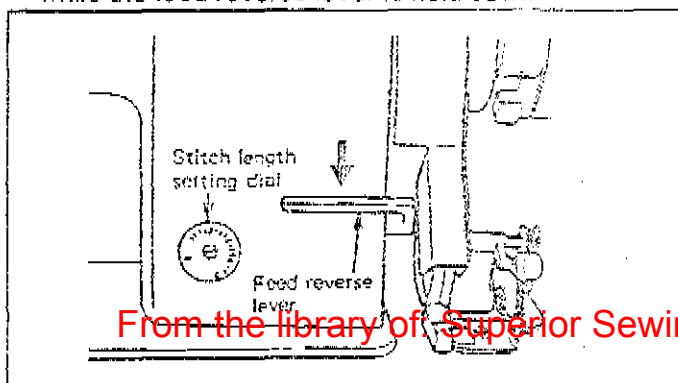
- (2) With the take-up lever located at the upper most position, pass each needle thread in the order as shown in the following figure.



4. Adjustment of stitch length and reverse stitch operation

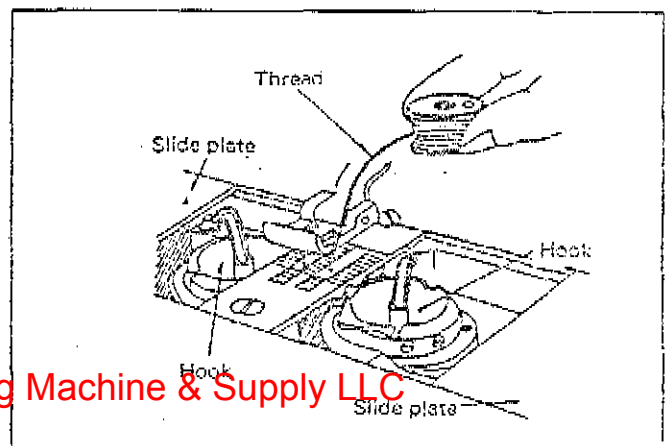
Note: To make stitch length shorter, depress the reverse lever and turn the stitch length setting dial.

Reverse-stitch operation ... Stitch goes back while the feed reverse lever is held down



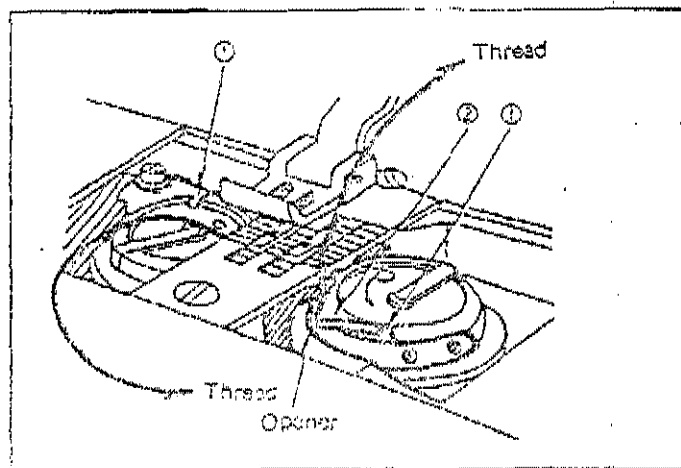
5. How to place the bobbin into the hook

- (1) Pull thread out by 5mm from the bobbin
- (2) In case of placing the bobbin into the hook, place the bobbin by making toward the thread in correct direction shown in figure

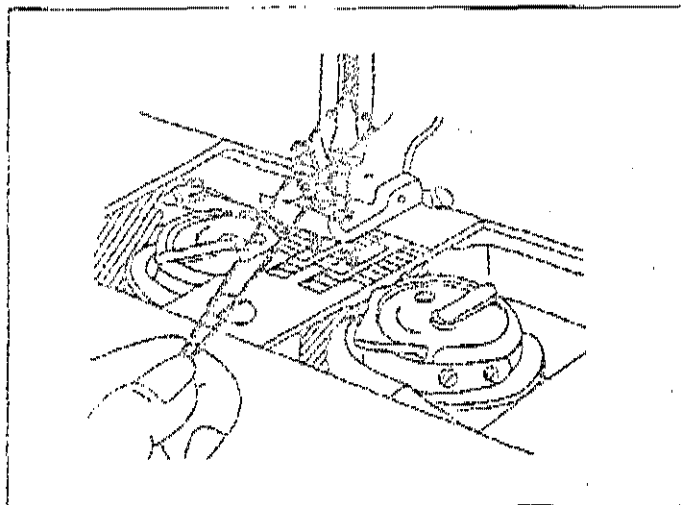


6. Bobbin threading

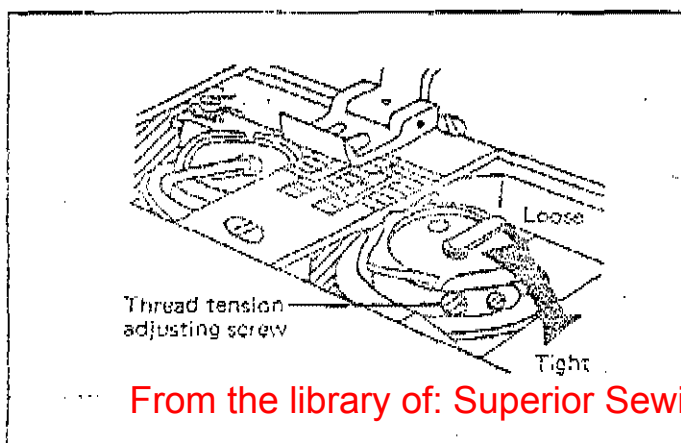
- (1) Lead the end of thread to the groove of the hook ① shown in Fig. And beneath the horn ②, pull the thread out.



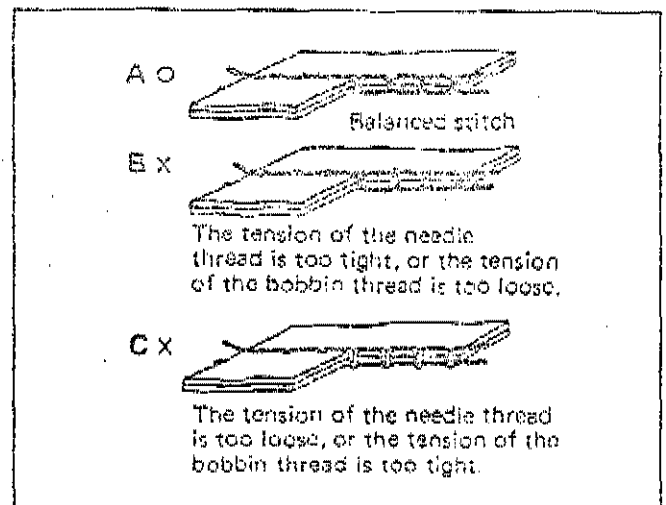
- (2) Holding the end of the needle threads by left hand and turn the balance wheel slowly. Pull out the lower threads and keep them away from the underneath of the presser foot.



7. Bobbin thread tension



8. Adjustment of thread tension

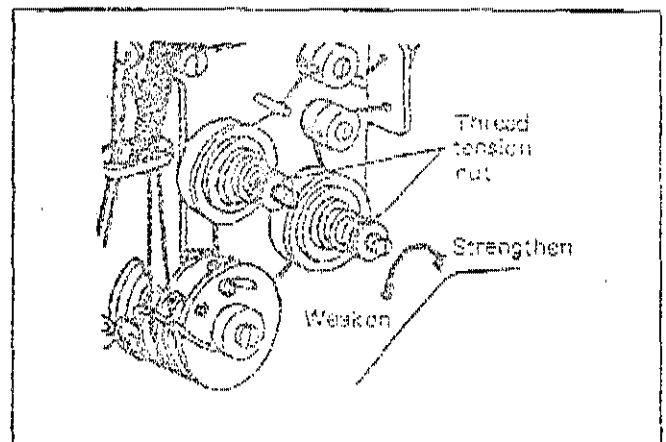


9. Adjustment of needle thread tension

Needle thread is adjusted according to the bobbin thread tension.

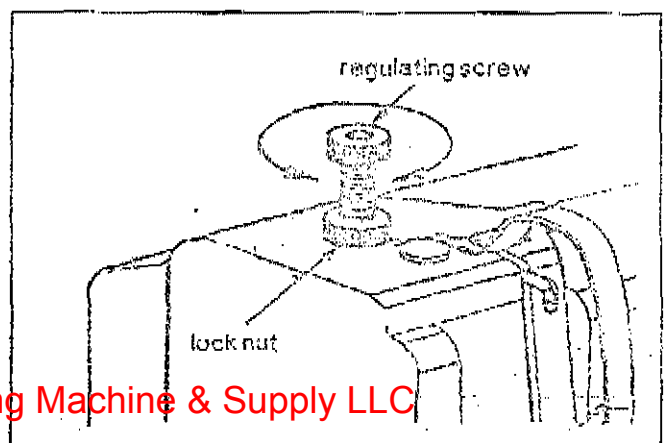
Needle thread tension is adjusted by tension regulating thumb nut

For special fabric sewing with special thread, the desired tension can be obtained by adjusting the force and stroke of thread take-up spring.



10. Adjustment of presser

Adjust the pressure according to the fabric



11. Time needle to rotating hook

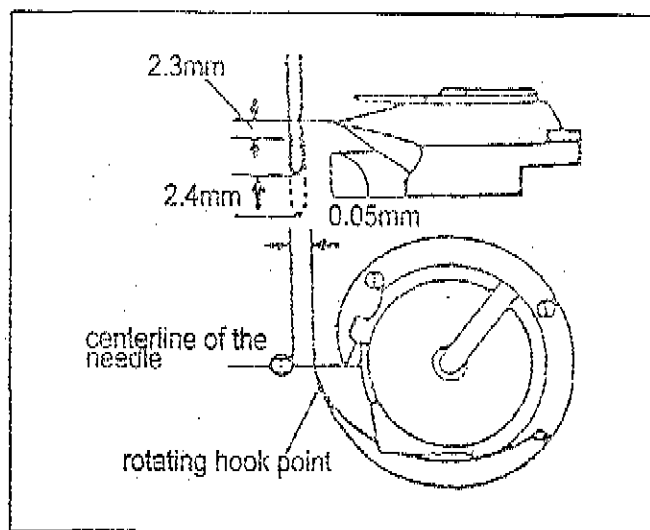
(1). Set the stitch length at "6" by turning the stitch setting dial.

(2). When the needle bar is lifted by 2.4mm from the lowest end of its stroke. The standard time of rotating hook and needle should be:

The rotating hook point is 2.3mm above the lower end of needle eye .

The rotating hook point aligns with the needle centerline

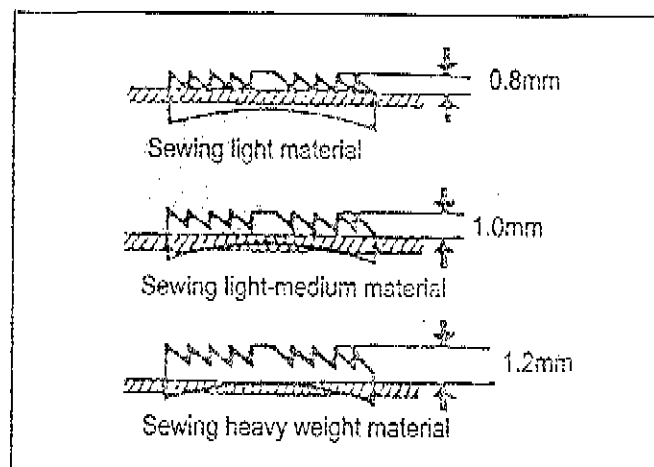
The clearance between the bottom notch and rotating hook point is approx. 0.05mm.



12. Set the height of feed dog

The height of feed dog and the pressure of presser foot should be adjusted according to the following conditions.

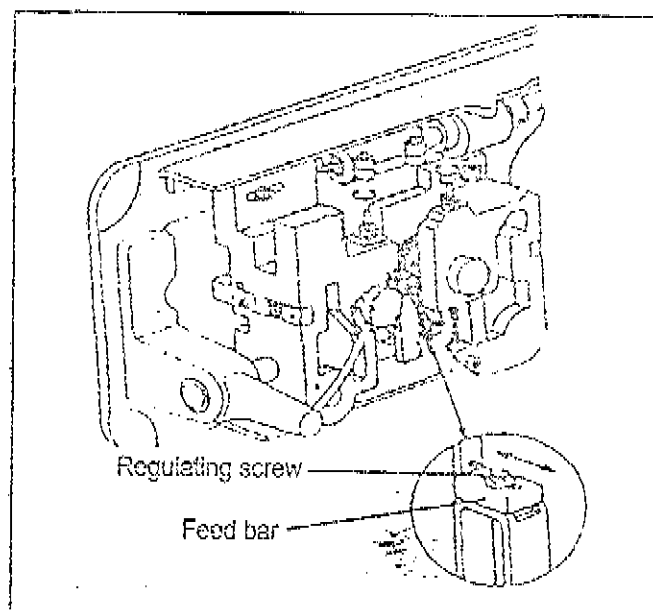
The materials being sewn will be damaged if the feed dog is set too high or the pressure of the presser foot is too strong, however, the stitch length may not be ensured if the feed dog is set too low or the pressure of the presser foot is too weak.



ADJUST IN THE FOLLOWING SEQUENCE

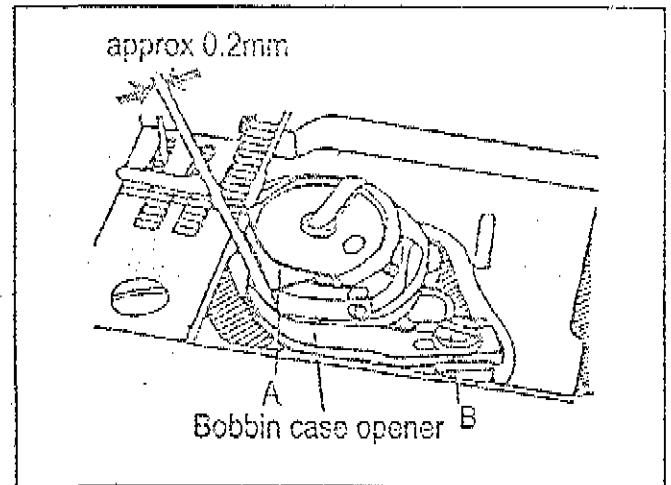
- (1). Tilt the machine head.
- (2). Rotate the balance wheel to raise the feed dog to the highest position of its stroke.
- (3). Loosen the screw of feed bar
- (4). Set the height of feed dog as shown by arrow in figure
- (5). After adjustment, tighten the screw of feed bar.

The manufacturer sets the height of feed dog at 1.2mm.



13. Adjust the position of rotating hook and bobbin case opener

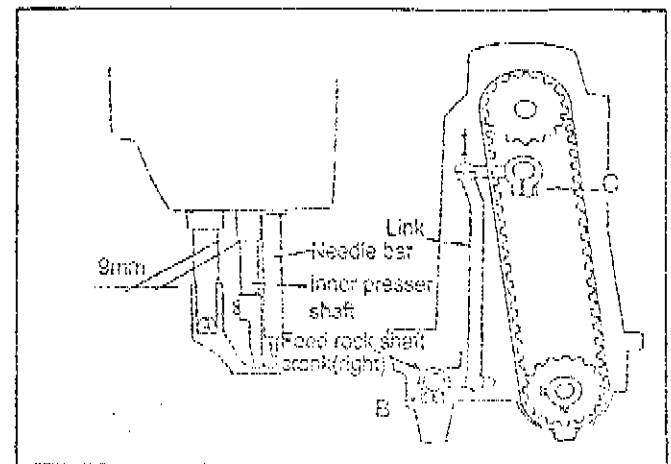
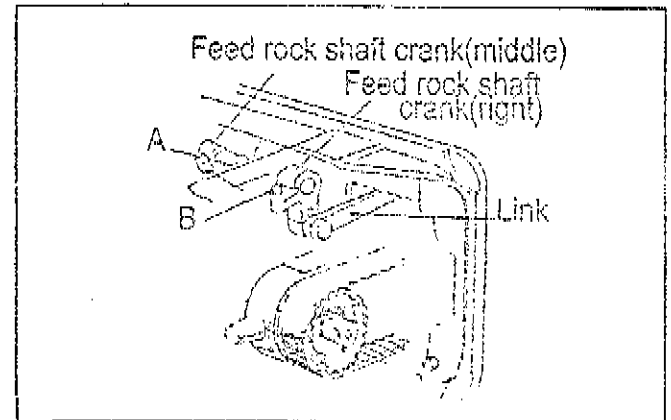
- (1) Turn balance wheel till the bobbin case opener is the farthest from the needle plate
- (2) Ensure that the clearance between bobbin case (A) and bobbin case opener is 0.2mm
- (3) In case the clearance is too large or too small, then loosen screw (B) and adjust the clearance.



14. Adjust the position of needle and feed dog

- (1) Minimize the stitch length
- (2) Tilt the machine head
- (3) Loosen the screw (A), (B) of feed rock shaft crank
- (4) Lower the needle bar to its lowest position
- (5) Set the clearance between inner presser shaft and presser bar to 9mm, then temporarily tighten the screw (A), (B).
- (6) The feed rock shaft crank and the lever link should be at 90 degree.
- (7) In case the feed rock shaft crank and the lever link do not form an angle of 90 degree, then open arm side cover and loosen screw (C), adjust the angle to 90 degree(as shown by arrow in figure).
- (8) After the adjustment, tighten screw (A), (B), (C).

Note: Make sure that the needle aligns with the centerline of needle hole on feed dog during adjustment.



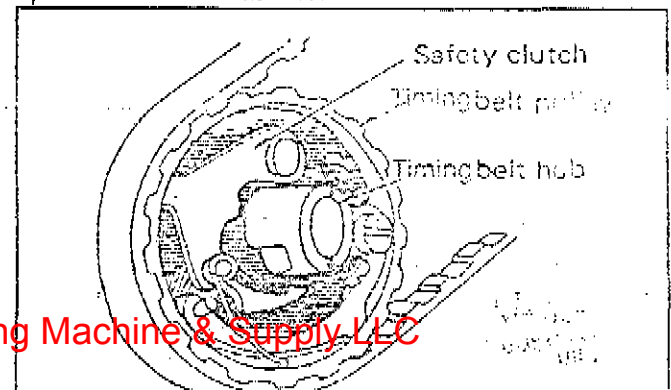
15. Safety clutch device

Safety clutch device is installed to prevent the hook and timing belt from being damaged in case the thread is caught into the hook when the machine is loaded abnormally during operation.

(1) Function of safety clutch

(A) When the safety clutch acts, the timing belt will be unspooled, thus the rotation of hook shaft will stop. The arm shaft will only rotate. Stop the

operation of the machine.



(B) Clean the thread thoroughly which is caught into the hook.

(C) Turn the timing belt hub by hand and check whether the hook shaft rotates lightly and properly, place the clutch device as shown in figure

(2) How to set the safety clutch

(A) Turn the balance wheel by right hand as shown in figure while pressing the push button by left hand.

(B) The balance wheel will stop by Gear Plate, but turn the balance wheel more firmly.

(C) Release the push button

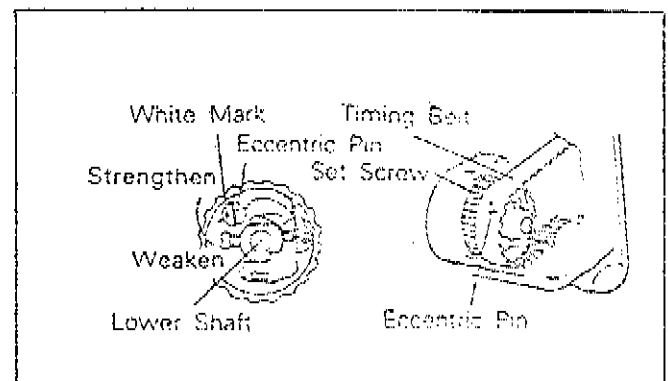
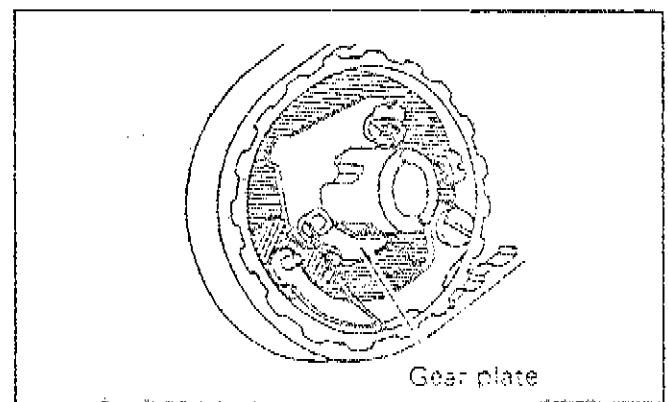
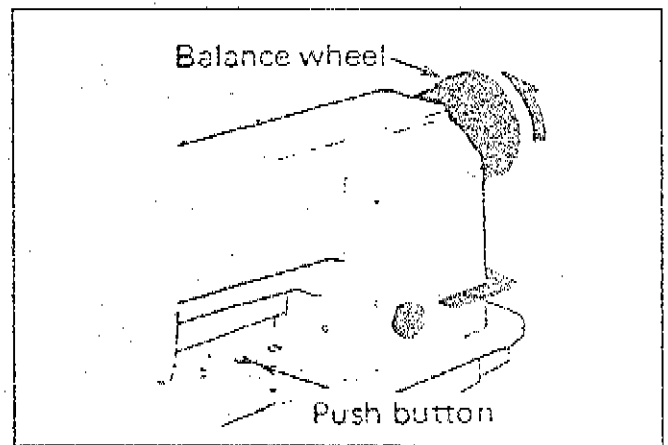
(D) As shown in the figure, the safety clutch device is set.

(3) Force applied to the safety clutch

(A) The force applied to the safety clutch is the smallest when the white mark of the eccentric pin faces the center of the lower shaft, the force proportionally increases as the white mark faces the outside

(B) To adjust the force, slide the timing belt, loosen the set screw and then turn the eccentric pin.

(C) After the adjustment, make sure to tighten the set screw.

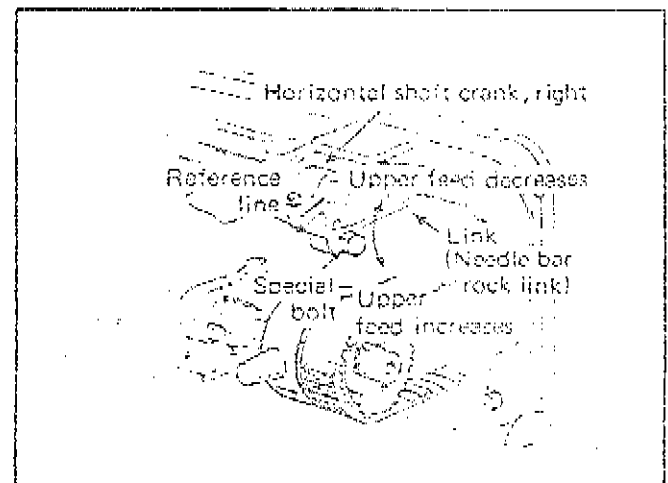


15. Upper feed adjustment

If the uneven feeding occurs according to the fabric, adjust the long hole of the horizontal feed shaft crank (right) to adjust the upper feed length.

HOW TO ADJUST:

- (1) Loosen the special bolt
- (2) Move the special bolt upward to decrease upper feed.
- (3) Move the special bolt downward to increase the upper feed. The upper feed and the lower feed theoretically becomes equal at the reference line on the horizontal feed shaft crank.
- (4) Securely tighten the special bolt after adjustment.

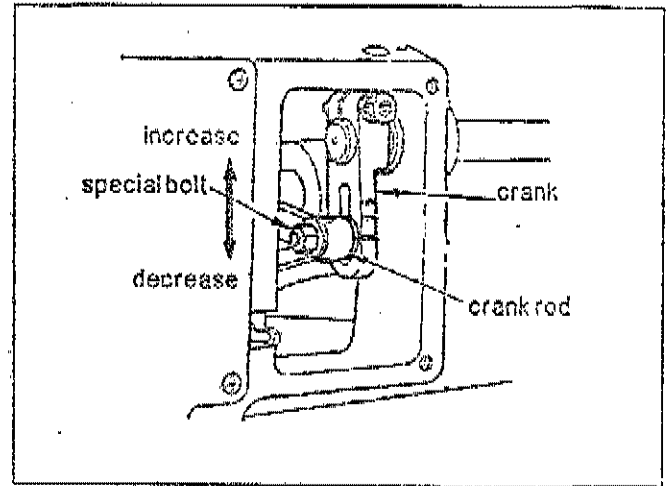


17. Outside presser foot and inside presser vertical stroke adjustment

When fabric with large elasticity is sewn, or when thickness of fabric changes, the vertical stroke (movable range) of the presser feet should be adjusted as follows:

- (1) Remove the side cover.
- (2) Loosen the special bolt.
- (3) The vertical strokes of the presser feet become maximum when the crank rod is moved upward and set.
- (4) The vertical strokes of the presser feet become minimum when the crank rod is moved downward and set.
- (5) After the adjustment, fully tighten the special bolt.

The vertical strokes of the presser feet can be adjusted within a range from 6mm to 2mm.

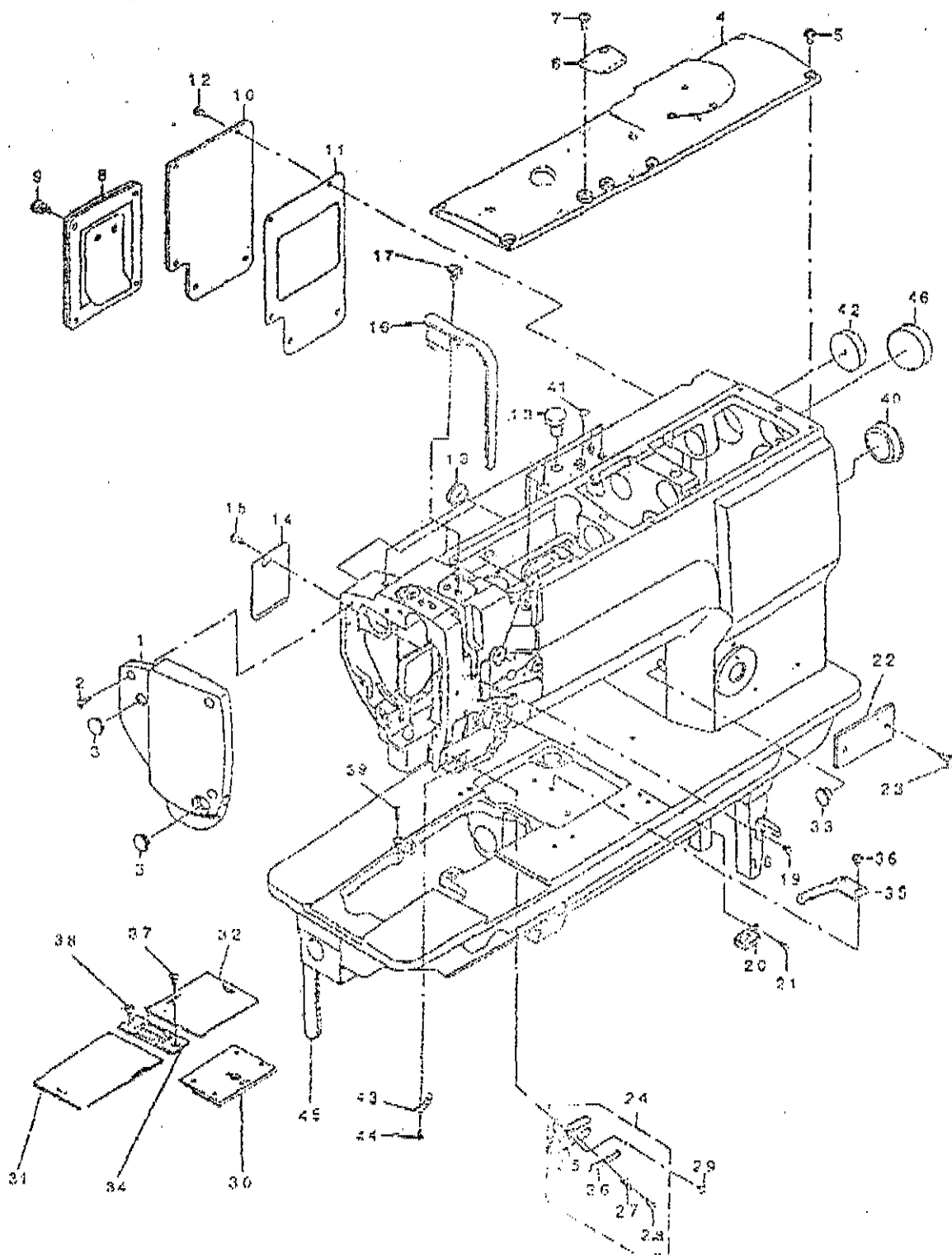


SPECIFICATIONS

Model	GC20628-1	GC20628-2
Application	Heavy Materials	
Max Speed	2000r.p.m	
Stitch Length	0-9mm	
Needle Bar Stroke	36mm	
Presser foot Lift	By knee: 16mm By hand 8mm	
Vertical Stroke of Upper Feed	2-6mm	
Needle	DPX 17 (Standard 23 #)	
Rotating Hook	Automatically lubricated horizontal large hook	
Thread Take-up Lever	Slider	
Stitch Adjustment	Dial	
Lubrication	Automatic lubrication	
Motor	Clutch Motor 370W	
Needle Gauge	Standard: 6.4mm	
	Special: 3.2, 4, 4.8, 8, 9.5, 12.7, 16, 19, 25.4mm	

PARTS LIST

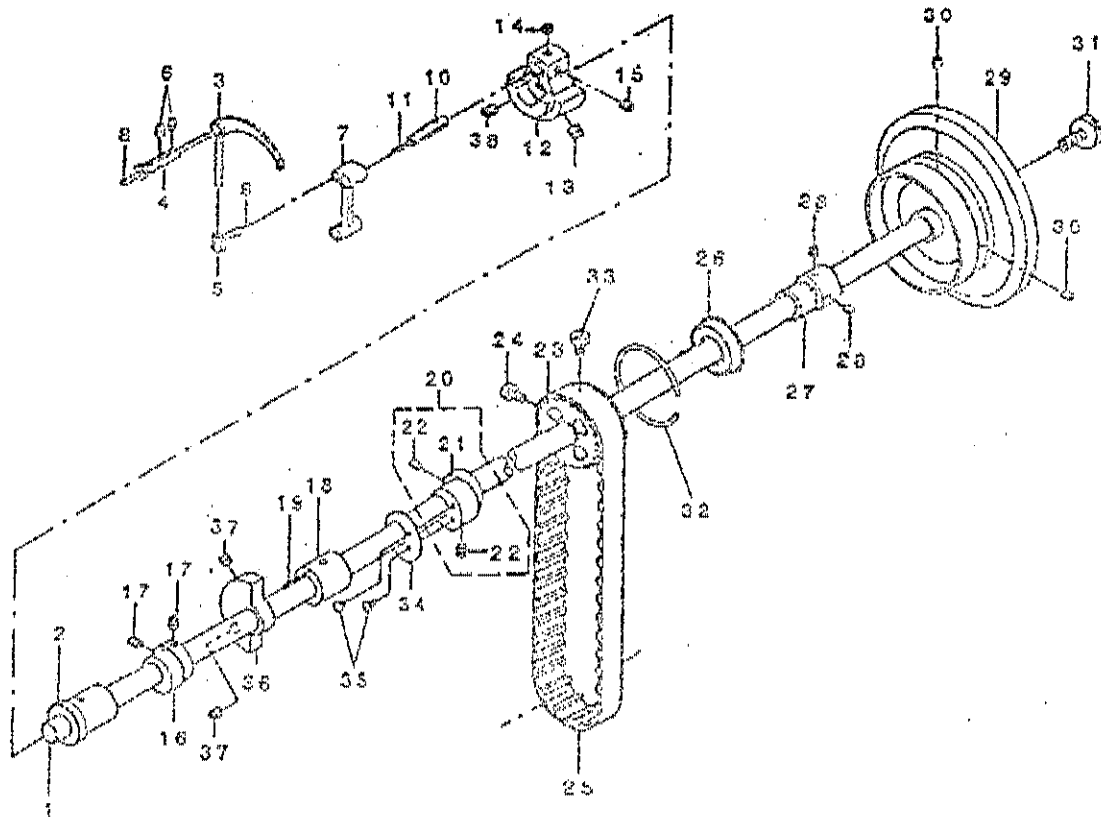
1. ARM BED AND ITS ACCESSORIES



1. ARM BED AND ITS ACCESSORIES

No.	Ref. No.	Description	GC20628-1	GC20328-2
1	BM24-01-003	Face plate	1	1
2	22T6-008D3	Screw	3	3
3	BM18-01-038	Rubber plug	4	4
4	BM24-01-004	Top cover	1	1
5	72T1-017	Screw	6	6
6	BM31-01-005	Arm thread guide	1	1
7	22T2-019	Screw	2	2
8	BM24-01-006C	Arm side cover asm. (left)	1	1
	BM24-01-006C3	Gasket of arm side cover (left)	1	1
9	72T1-017	Screw	4	4
10	BM24-01-007	Arm side cover (right)	1	1
11	BM24-01-008	Gasket of arm side cover (right)	1	1
12	72T1-017	Screw	5	5
13	72T1-009	Rubber plug	3	3
14	BM24-01-009	Side cover	1	1
15	72T1-017	Screw	1	1
16	BM24-01-010	Thread take-up cover	1	1
17	72T1-017	Screw	1	1
18	BM24-01-011	Upper thread guide	1	1
19	22T1-003C6	Set screw	1	1
20	BM05-01-006	Middle thread guide	1	1
21	22T1-003C6	Set screw	1	1
22	BM32-01-002	Model plate	1	1
23	GB827-86	Model plate rivet	1	1
24	BM22-01-009E	Thread guide (lower) asm.	1	1
25	BM22-01-009B1	Thread guide (lower) plate	1	1
26	BM22-01-009B4	Thread guide (lower) pressor plate	1	1
27	BM22-01-009B3	Spring	1	1
28	BM22-01-009B2	Screw	1	1
29	BM18-01-027	Set screw	1	1
30	BM18-01-033H	Bed slide	1	1
31	BM18-01-031	Bed slide (left)		1
	BM23-01-007	Bed slide (left)	1	
32	BM31-01-013	Bed slide (right)		1
	BM23-01-008	Bed slide (right)	1	
33	72T1-004C4	Rubber plug	1	1
34	BM32-01-003	Needle plate		1
	BM23-01-006	Needle plate	1	
35	BM31-01-009	Bed slide spring	1	1
36	BM09-06-003B2	Screw	2	2
37	72T1-019	Screw	1	1
38	BM18-01-029	Screw	1	1
39	BM18-01-050	Pin	1	1
40	BM24-01-027	Rubber plug	1	1
41	72T1-011	Rubber plug	7	7
42	72T1-004C3	Rubber plug	2	2
43	BM18-01-036	Take up spring adjusting plate	1	1
44	BM18-01-027	Screw	1	1
45	72T1-022	Bed supporter	1	1
46	72T1-010	Rubber plug	1	1

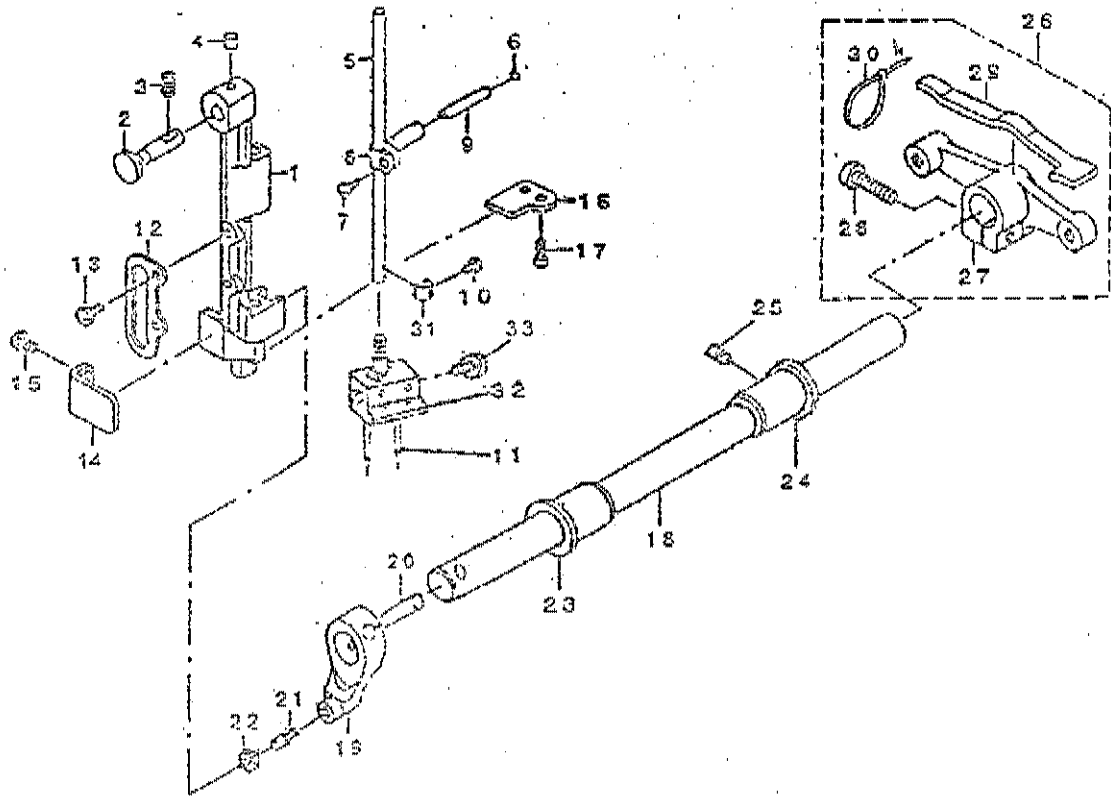
2. ARM SHAFT AND THREAD TAKE-UP MECHANISM



2. ARM SHAFT AND THREAD TAKE-UP MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM31-02-001	Arm shaft	1	1
2	BM24-02-002	Arm shaft bushing (left)	1	1
3	BM32-02-002	Thread take-up lever	1	1
4	BM05-02-002	Hinge pin	1	1
5	BM32-02-002A	Thrust pin asm.	1	1
	BM32-02-002A1	Take-up lever thrust pin	1	1
	BM24-02-004a2	Oil braid	1	1
6	22T2-002	Screw	2	2
7	BM24-02-006	Needle bar crank rod	1	1
8	BM24-02-005b2	Oil braid	1	1
9	BM18-03-001A3b2	Oil braid	1	1
10	BM05-02-006	Needle bar crank pin	1	1
11	BM24-02-007C2	Oil braid	1	1
12	BM22-03-001A1	Needle bar crank	1	1
13	22T2-006	Screw	1	1
14	22T3-002B2	Screw	1	1
15	22T2-0005B2	Screw	1	1
16	BM24-02-009c	Upper feed cam	1	1
17	BM24-02-009f	Screw	2	2
18	BM24-02-010d1	Arm shaft bushing (middle)	1	1
19	BM24-02-010d2	Oil braid	1	1
20	BM24-02-011A	Eccentric cam asm.	1	1
21	BM24-02-011A1	Eccentric cam	1	1
22	BM24-02-009f	Screw	2	2
23	BM24-02-012	Upper sprocket	1	1
24	22T5-013	Screw	1	1
25	BM31-02-006	Timing belt	1	1
26	BM18-02-006E2	Bearing	1	1
27	BM18-02-006E1	Upper shaft bearing hook	1	1
28	22T5-001A4	Screw	2	2
29	BM18-02-005D1	Balance wheel	1	1
30	22T3-007C2	Screw	2	2
31	22T3-008	Screw	1	1
32	BM18-02-002B1	Sprocket ring	1	1
33	22T3-007C2	Screw	1	1
34	BM24-02-011A2	Eccentric cam cover	1	1
35	22T2-019	Screw	2	2
36	BM24-02-005	Balancer	1	1
37	BM18-01-005	Screw	2	2
38	22T2-007	screw	1	1

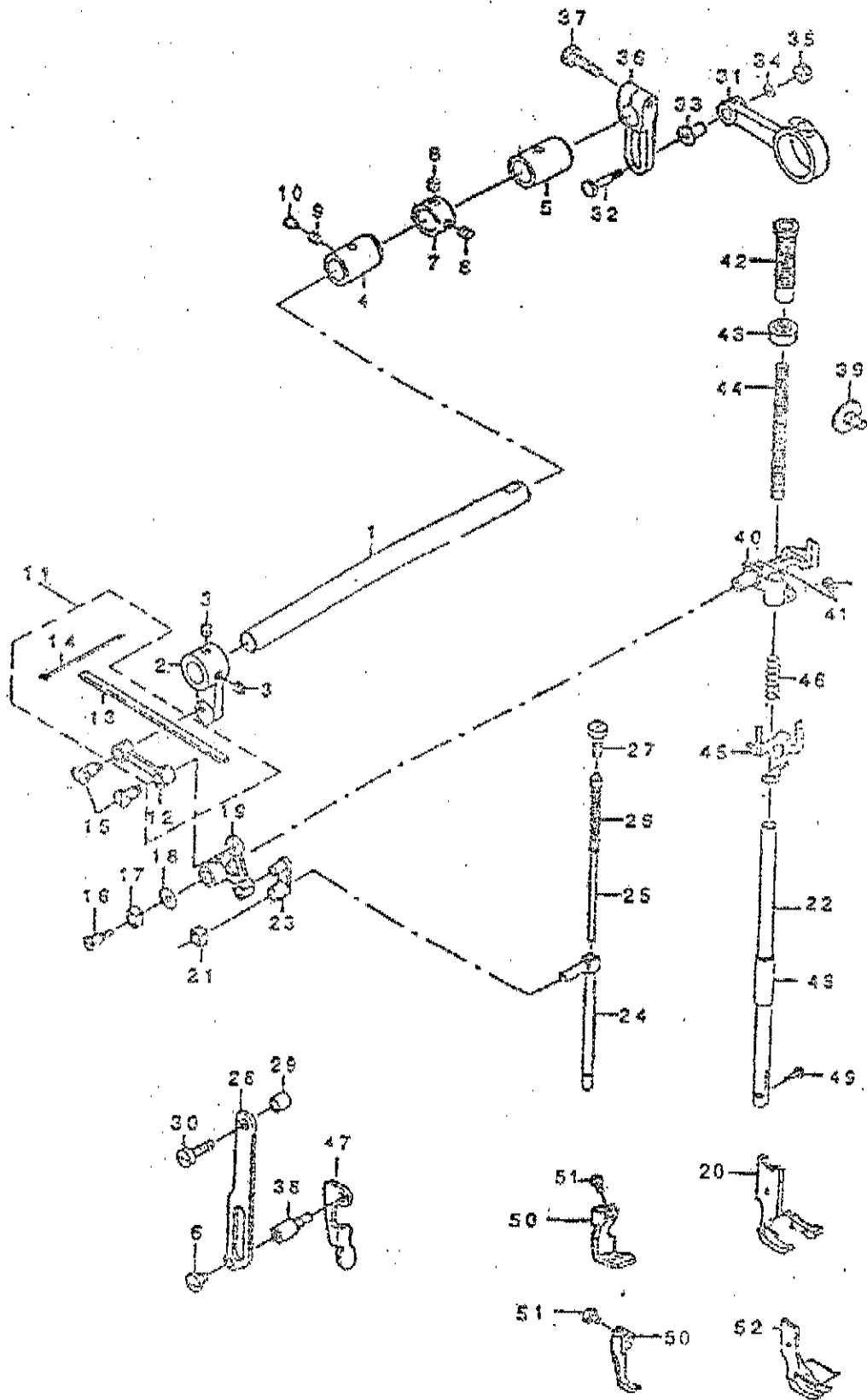
3. NEEDLE BAR ROCKING MECHANISM



3. NEEDLE BAR ROCKING MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM05-02-010	Needle bar frame	1	1
2	BM24-03-002	Hinge stud	1	1
3	22T2-002	Screw	1	1
4	BM24-03-001A2	Felt	1	1
5	BM05-02-012	Needle bar		1
	BM22-04-003	Needle bar	1	
6	BM24-03-011	Felt	1	1
7	BM18-03-002B5	Screw	1	1
8	BM05-02-008	Needle bar holder	1	1
9	BM24-03-003A1	Oil braid	1	1
10	22T2-017	Needle clamp screw	1	
11		Needle	1	2
12	BM05-08-018	Upper feed bar guide	1	1
13	22T2-001A9	Screw	2	2
14	BM24-03-005	Rocking base guide	1	1
15	22T2-019	Screw	2	2
16	BM24-03-006	Guide plate	1	1
17	GB70-85	Screw	2	2
18	BM24-03-007	Rocking shaft	1	1
19	BM20-03-004B2	Rocking front arm	1	1
20	GB117-86	Taper pin	1	1
21	BM20-03-004B1	Stud	1	1
22	BM05-03-009B3	Square block	1	1
23	BM18-01-007	Bushing	1	1
24	BM18-01-007	Bushing	1	1
25	22T2-002	Screw	1	1
26	BM31-03-012A	Rocking rear arm asm.	1	1
27	BM31-03-012A1	Rocking rear arm	1	1
28	BM24-03-010C3	Screw	1	1
29	BM31-03-012A2	Felt	1	1
30	72T8-004	Cable band	1	1
31	BM05-02-017	Needle bar thread guide	1	
32	BM22-04-004	Needle clamp		1
33	BM18-03-002B3b2	Screw		2

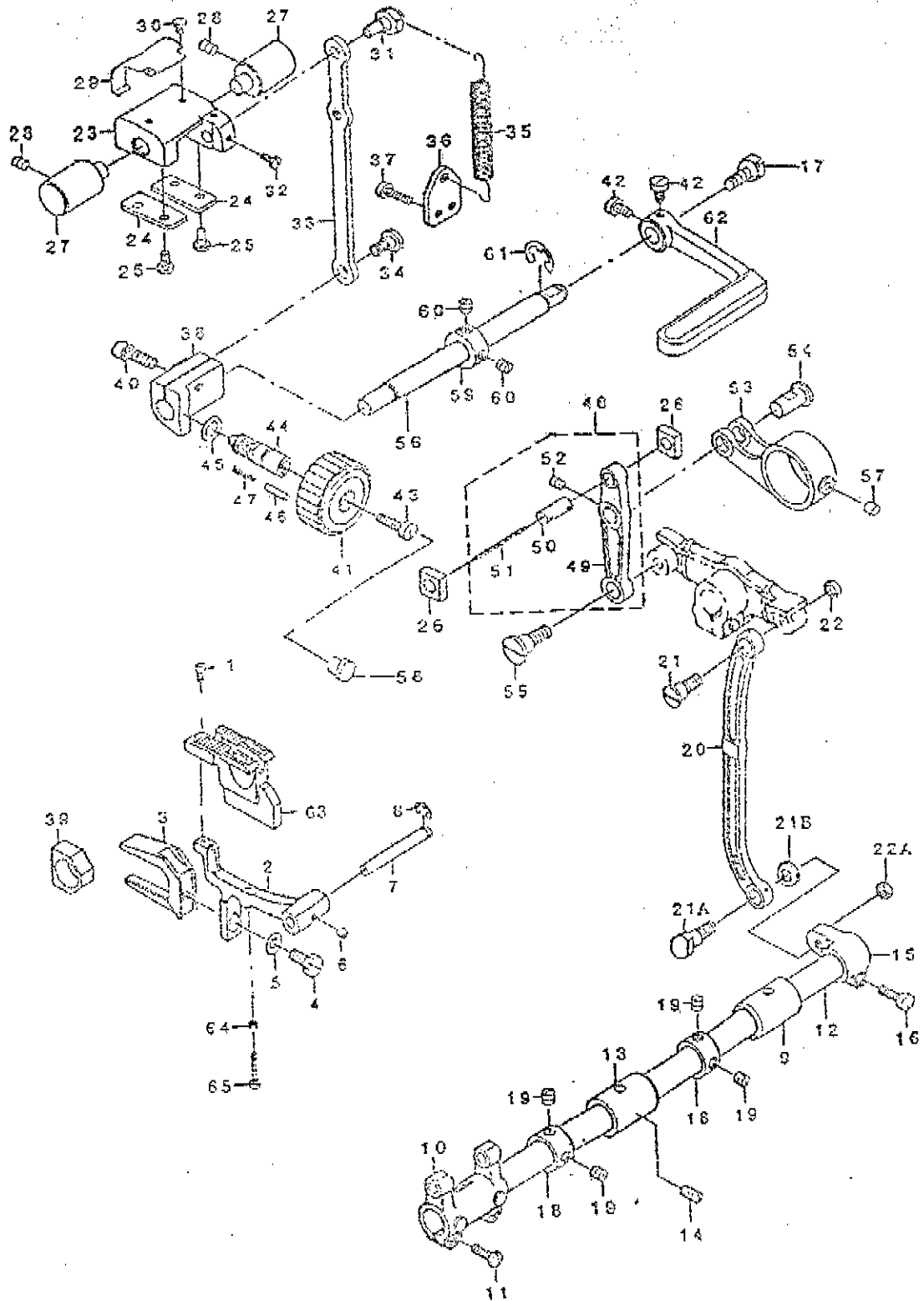
4. UPPER FEED AND ADJUSTING MECHANISM



4. UPPER FEED AND ADJUSTING MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM24-04-001	Upper feed shaft	1	1
2	BM24-04-002	Upper feed front arm	1	1
3	BM24-03-003B2	Screw	2	2
4	BM24-04-003	Bushing (left)	1	1
5	BM24-04-004	Bushing (right)	1	1
6	BM18-05-004C5	Screw	1	1
7	22T6-005B1	Collar	1	1
8	22T3-002B2	Screw	2	2
9	72T3-005D1a3	Screw	2	2
10	72T1-009	Rubber plug	1	1
11	BM24-04-005A	Upper feed link asm.	1	1
12	BM24-04-005A1	Upper feed link	1	1
13	BM24-04-005A2	Felt	1	1
14	72T8-004	Clip	1	1
15	BM24-04-005A3	Screw	2	2
16	BM24-04-005A5	Screw	1	1
17	BM24-04-005A6	Slide block	1	1
18	BM24-04-005A7	Washer	1	1
19	BM24-04-005A4	Triangular lever	1	1
20	BM31-04-007A	Presser foot	1	1
21	BM05-08-019	Square block	1	1
22	BM05-07-005	Presser bar	1	1
23	BM05-08-012	Walking bar driving link	1	1
24	BM05-08-013	Walking bar	1	1
25	BM05-08-016	Spring guide rod	1	1
26	BM05-08-015	Spring	1	1
27	BM24-04-009	Adjusting bolt	1	1
28	BM24-04-010	Upper feed guide plate	1	1
29	BM24-04-011	Roller	1	1
30	BM24-04-012	Screw	1	1
31	BM24-04-013C1	Upper feed rod	1	1
32	BM24-04-013C2	Hinge screw	1	1
33	BM24-04-013C3	Contracting stud	1	1
34	BM24-04-005A7	Washer	1	1
35	BM08-01-005B4	Nut	1	1
36	BM24-04-013C5	Upper feed rear arm	1	1
37	BM18-02-005	Screw	1	1
38	BM24-04-024	Guide plate spacer	1	1
39	BM24-04-017	Screw	1	1
40	BM24-04-014	Presser bar holder	1	1
41	22T2-019	Screw	1	1
42	BM24-04-015	Presser adjusting screw	1	1
43	22T7-014E2	Nut	1	1
44	11H7-002	Presser spring	1	1
45	BM24-04-018D	Tension release holding plate	1	1
46	BM05-07-008	Thread release spring	1	1
47	BM24-04-020	Presser lifter lever	1	1
48	BM24-04-021	Presser bar lower bushing	1	1
49	BM05-07-013	Screw	1	1
50	BM05-08-014	Walking foot	1	1
	BM31-04-006	Walking foot		1
51	22T2-001A9	Screw	1	1
52	BM01-04-022F	Presser foot	1	1

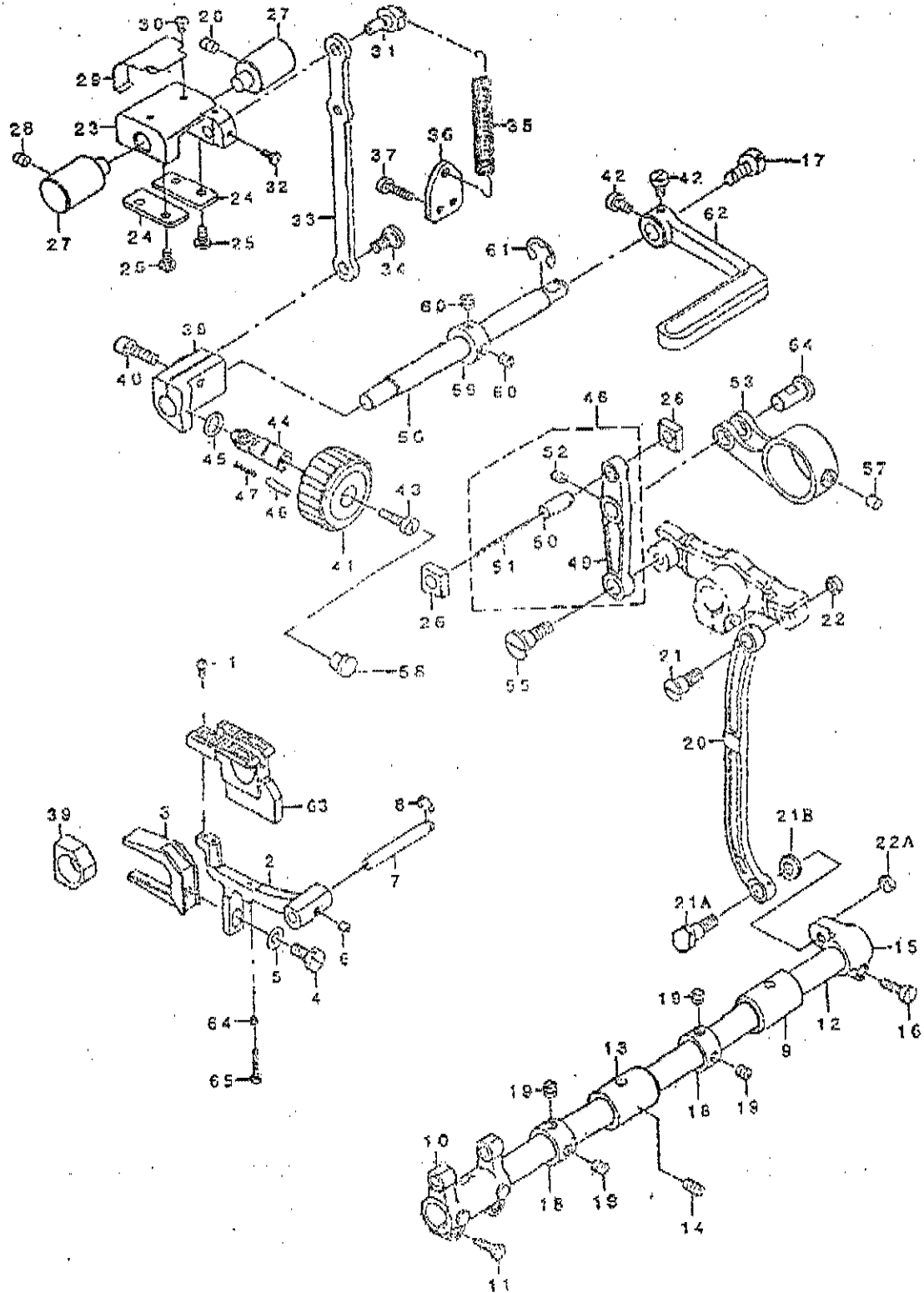
5. FEED AND STITCH LENGTH REGULATING MECHANISM



5. FEED AND STITCH LENGTH REGULATING MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM18-06-002B3	Screw	2	2
2	BM31-05-001A1	Feed base		1
	BM32-05-002-1	Feed base	1	
3	BM31-05-001A2	Feed bar fork	1	1
4	BM25-01-017	Screw	1	1
5	GB848-66	Washer	1	1
6	GB77-85	Screw	1	1
7	BM18-06-002B4b1	Feed bar shaft	1	1
8	GB896-86	Snap ring	1	1
9	BM18-01-011	Feed shaft bushing (right)	1	1
10	BM18-06-002B5c1	Feed rocker	1	1
11	72T6-001A6	Screw	2	2
12	BM31-05-006	Feed rock shaft	1	1
13	22T6-012	Feed shaft bushing (left)	1	1
14	22T2-002	Screw	1	1
15	BM31-05-007	Feed rocker (right)	1	1
16	BM02-08-007	Screw	1	1
17	22T5-010D3	Screw	1	1
18	22T6-005B1	Collar	2	2
19	22T3-002B2	Screw	4	4
20	BM24-05-010C1	Needle bar frame rod	1	1
21	BM24-05-010C2	Hinge screw	1	1
21A	BM31-05-002	Hinge screw	1	1
21B	BM22-06-010G3	Washer	1	1
22	BM20-08-002	Nut	1	1
22A	BM22-06-010G4	Nut	1	1
23	BM24-06-001A1	Feed adjusting base	1	1
24	BM24-06-001A2	Feed adjusting base cover	2	2
25	22T2-019	Screw	4	4
26	BM24-06-001A2	Square block	2	2
27	BM24-06-001A4	Feed adjusting base support	2	2
28	BM20-04-013E2	Screw	2	2
29	BM24-06-001A5	Felt support	1	1
30	BM20-03-008E18	Screw	2	2
31	BM24-06-002	Eccentric pin	1	1
32	BM18-03-002B5	Screw	1	1
33	BM24-06-003	Feed adjusting rod	1	1
34	BM24-06-004	Screw	1	1
35	BM24-06-005	Spring	1	1
36	BM24-06-006	Spring hook	1	1
37	BM08-03-004D15a2	Screw	2	2
38	BM31-05-008	Feed adjusting	1	1
39	BM31-05-009	Feed driving slide block	1	1

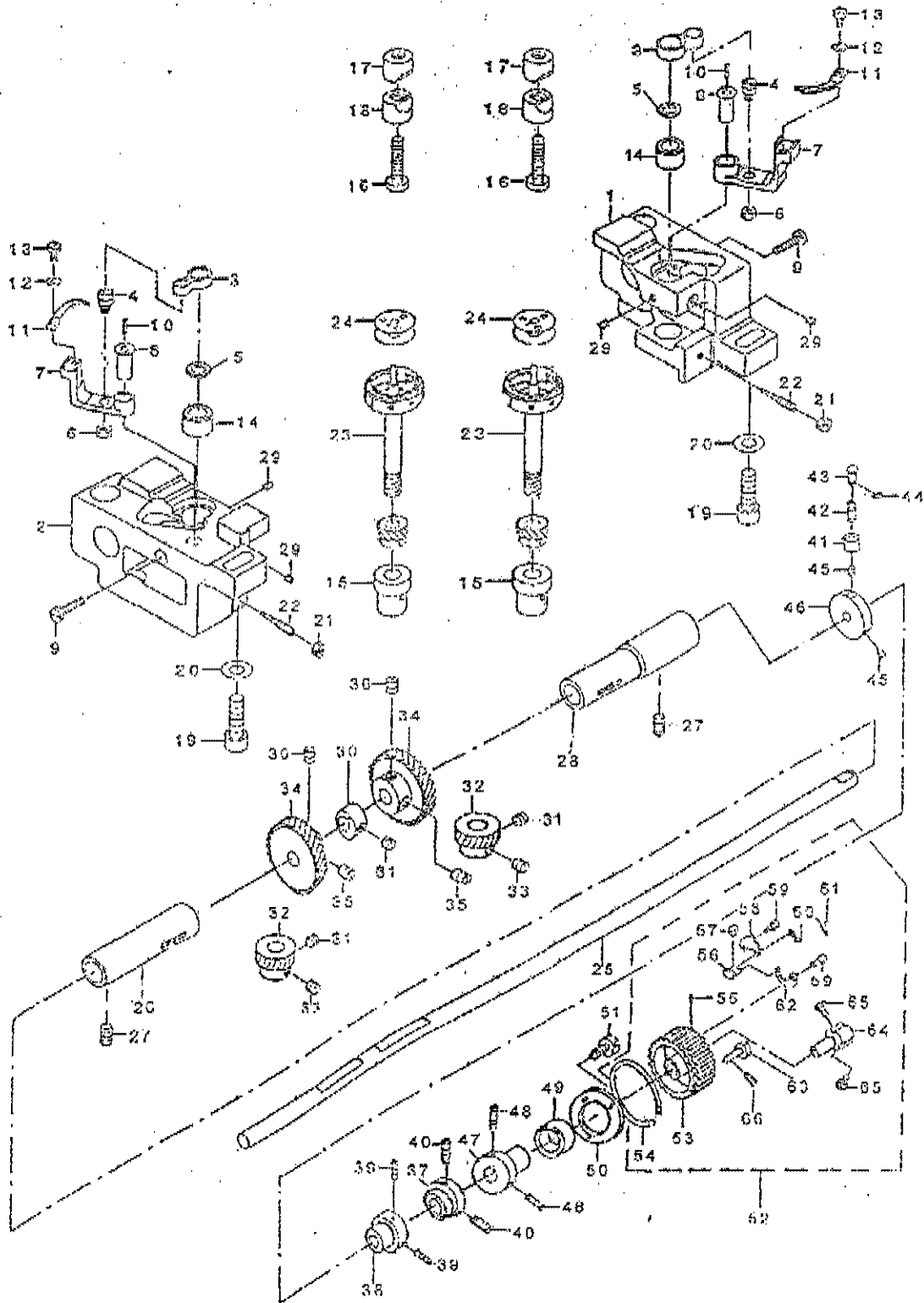
5. FEED AND STITCH LENGTH REGULATING MECHANISM



5. FEED AND STITCH LENGTH REGULATING MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
40	GB70-85	Screw	1	1
41	BM31-05-009	Feed dial	1	1
42	22T5-001A4	Screw	2	2
43	22T5-006C3	Screw	1	1
44	73T5-003C1	Feed regulator screw	1	1
45	22T5-006C4	O-ring	1	1
46	22T5-008	Pin	1	1
47	22T5-009	Spring	1	1
48	BM24-06-008C	Feed link asm.	1	1
49	BM24-06-008C1	Feed link	1	1
50	BM24-06-008C2	Connecting pin	1	1
51	BM24-06-008C3	Oil braid	1	1
52	GB77-85	Screw	1	1
53	BM24-06-009D1	Feed rod	1	1
54	BM24-06-009D2	Feed link pin	1	1
55	BM24-06-009D4	Hinge screw	1	1
56	BM24-06-010E1	Back ward feed lever shaft	1	1
57	BM24-06-009D3	Felt	1	1
58	72T5-005	Rubber plug	1	1
59	BM24-06-010E2	Thrust collar	1	1
60	BM24-03-008B2	Screw	2	2
61	GB896-86	E-ring	1	1
62	BM18-07-007C2	Reverse feed control lever	1	1
63	BM23-06-013	Feed dog	1	
	BM32-05-001	Feed dog		1
64	GB6170-86	Nut	1	1
65	GB73-85	Screw	1	1

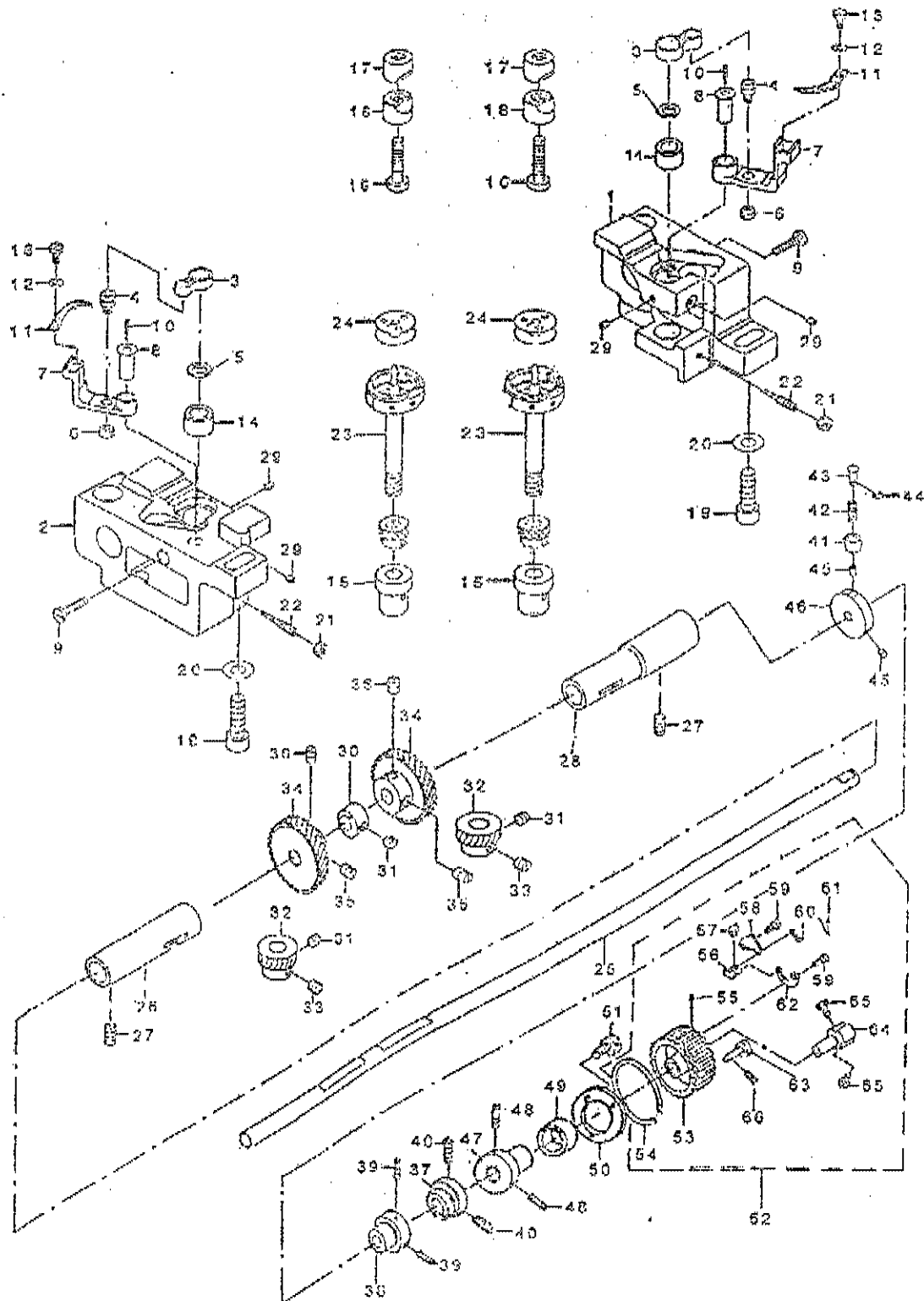
6. HOOK SADDLE & LOWER SHAFT MECHANISM



6. HOOK SADDLE & LOWER SHAFT MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM31-06-001	Hook saddle (right)	1	1
2	BM31-06-002	Hook saddle (left)		1
3	BM19-08-001A3b2	Support lever link	1	2
4	BM18-08-001A6d2	Screw	1	2
5	BM19-08-001A2a2	Washer	1	2
6	22T6-001A8	Nut	1	2
7	BM19-08-001A3b1	Bobbin case opening lever crank	1	2
8	BM18-08-001A6d4	Opening lever crank pin	1	2
9	B18-08-001A7	Screw	1	2
10	BM31-06-005	Oil braid	1	2
11	BM19-08-001A4	Bobbin case opening lever	1	2
12	BM18-08-001A11	Washer	1	2
13	BM18-01-037	Screw	1	2
14	BM31-06-010	Hook shaft bushing (upper)	1	2
15	BM31-06-011	Hook shaft bushing (lower)	1	2
16	BM18-08-004C1	Screw	1	2
17	BM31-06-012	Saddle installing block (upper)	1	2
18	BM31-06-012	Saddle installing block (lower)	1	2
19	GB70-85	Screw	1	2
20	BM31-06-014	Washer	1	2
21	BM08-01-005B4	Nut	1	2
22	BM31-06-003	Oil adjusting screw	1	2
23	BM22-07-001A	Rotating hook complete	1	2
24	BM19-08-003	Bobbin	1	2
25	BM31-06-015	Lower shaft	1	1
26	BM31-06-016A1	Lower shaft bushing (left)	1	1
27	22T2-002	Screw	2	2
28	BM31-06-017B1	Lower shaft bushing (right)	1	1
29	72T4-002B2	Screw	2	4
30	BM31-06-018	Feed driving cam	1	1
31	BM18-05-002A2	Set screw	2	3
32	BM18-08-001A5C1	Hook shaft driving gear (small)	1	2
33	22T3-002B2	Screw	2	4
34	BM22-07-002	Hook shaft driving gear (big)	1	2
35	72T2-004B2	Screw	1	2
36	BM18-08-001A4b2	Ste screw	1	2
37	BM22-09-001	Eccentric bushing	1	1
38	BM22-06-009C1	Lower shaft bushing	1	1
39	22T4-007C2	Oil pipe	2	2
40	BM18-08-001A2	Screw	2	2

6. HOOK SADDLE & LOWER SHAFT MECHANISM

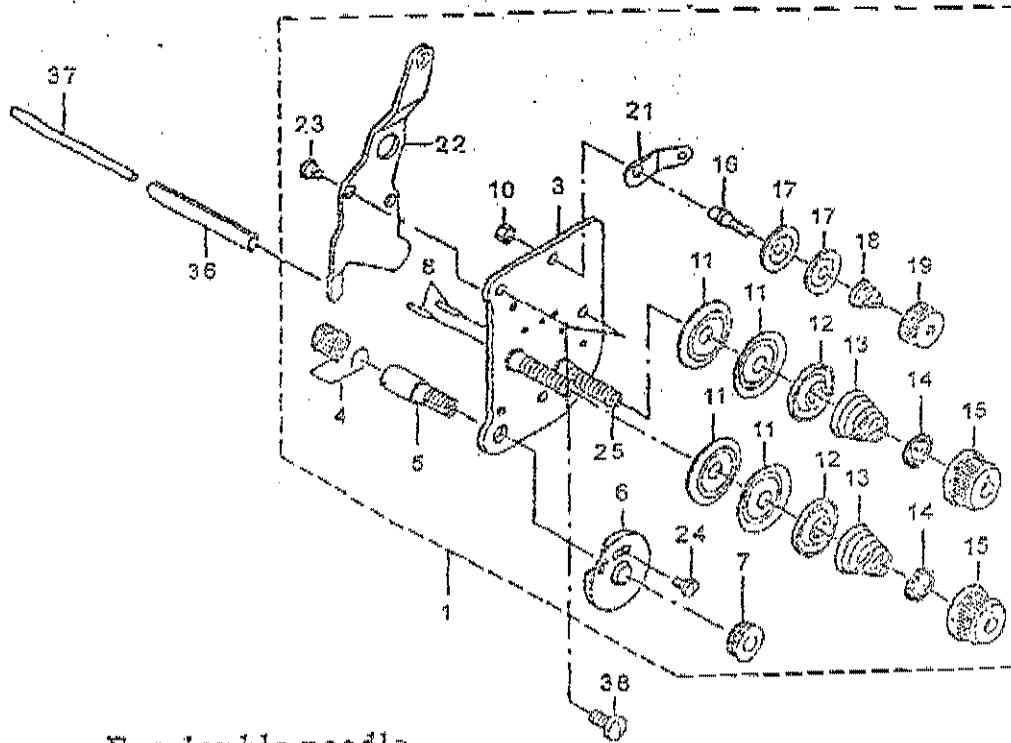


6. HOOK SADDLE & LOWER SHAFT MECHANISM

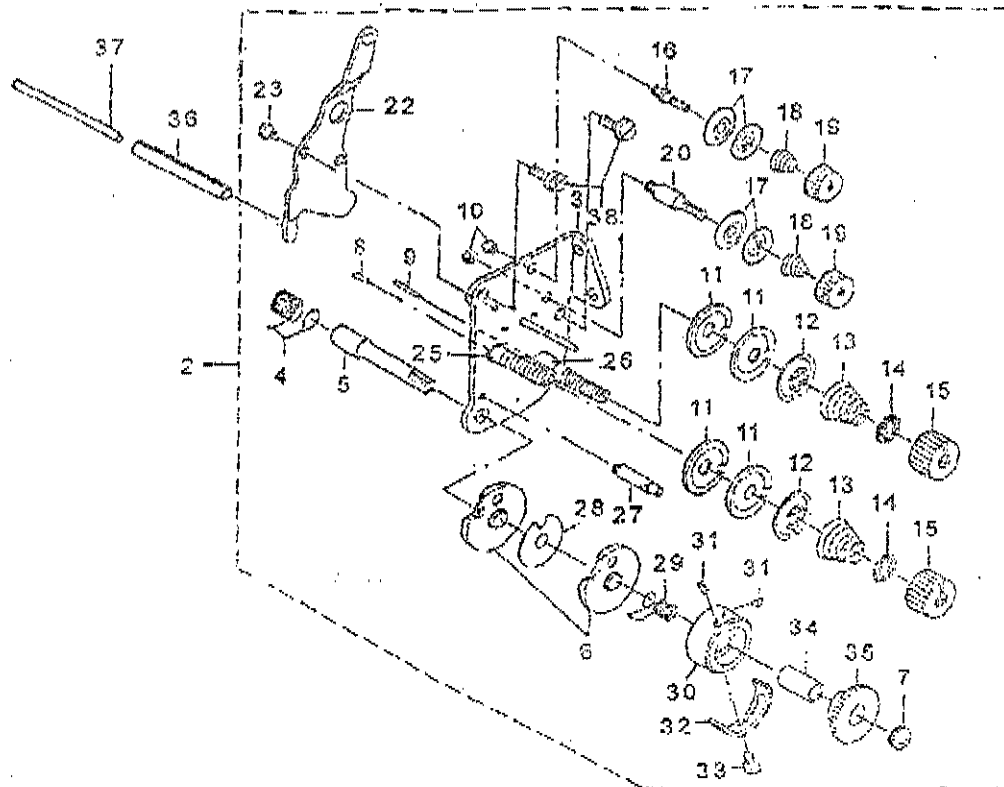
No.	Ref. No.	Description	GC20628-1	GC20628-2
53	BM31-06-024	Push button cylinder	1	1
54	BM31-06-023	Spring	1	1
55	BM31-06-022	Safety clutch push button	1	1
56	GB896-86	E-ring	1	1
57	72T3-005D1a3	Screw	2	2
58	BM31-06-021	Safety clutch disk	1	1
59	BM31-06-025	Lower shaft bearing bushing	1	1
60	BM25-03-001A2	Screw	2	2
61	BM18-05-001D1	Bearing	1	1
62	BM18-05-006	Retaining plate	1	1
63	BM08-05-006	Screw	3	3
64	BM24-07-015F	Lower sprocket asm.	1	1
65	BM24-07-015F1	Lower sprocket	1	1
66	BM18-02-002B1	Stop ring	1	1
67	72T4-002B2	Screw	2	2
68	BM22-03-002B4	Connecting pin	1	1
69	GB896-86	E-ring	1	1
70	BM22-03-002B6	Connecting	1	1
71	BM22-03-002B7	Pin	2	2
72	BM22-03-002B8	Connecting rod (short)	1	1
73	BM22-03-002B5	Spring	1	1
74	BM24-07-012F2	Connecting rod (long)	1	1
75	BM24-07-015F3	Eccentric pin	1	1
76	BM22-03-002B9	Sprocket safety block	1	1
77	22T5-001A4	Screw	2	2
78	BM12-05-014	Screw	1	1

7. THREAD TENSION MECHANISM

For single needle



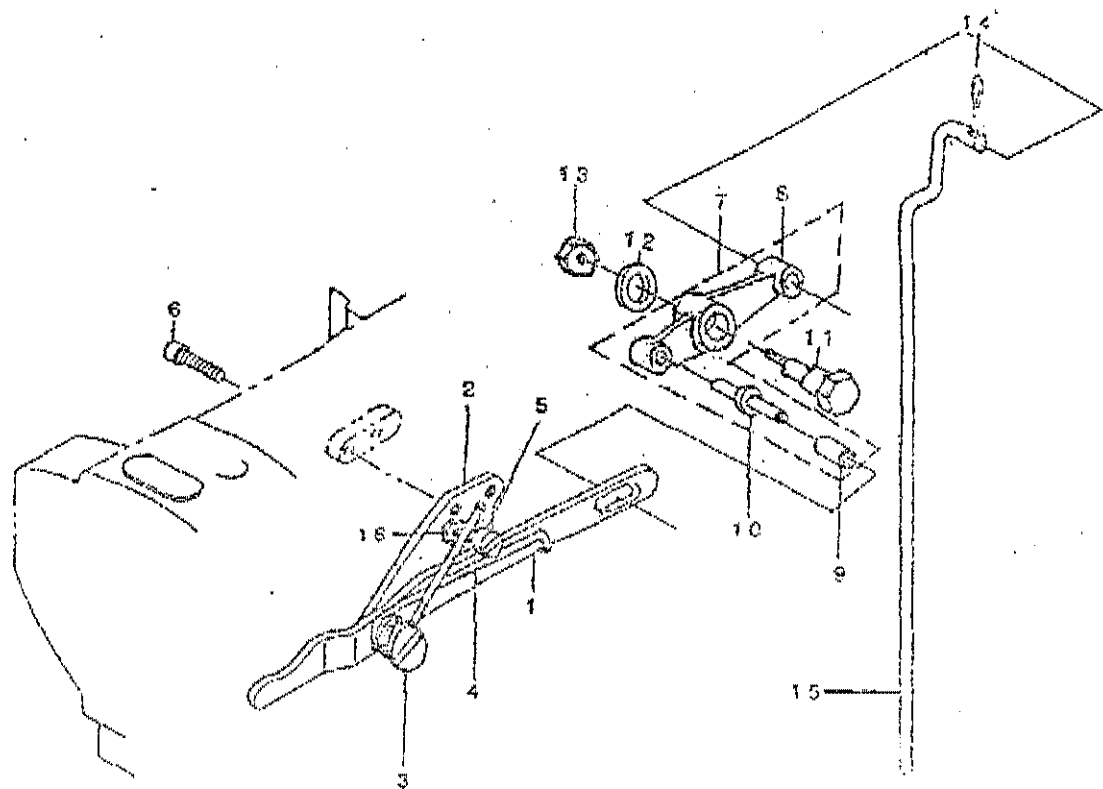
For double needle



7. THREAD TENSION MECHANISM

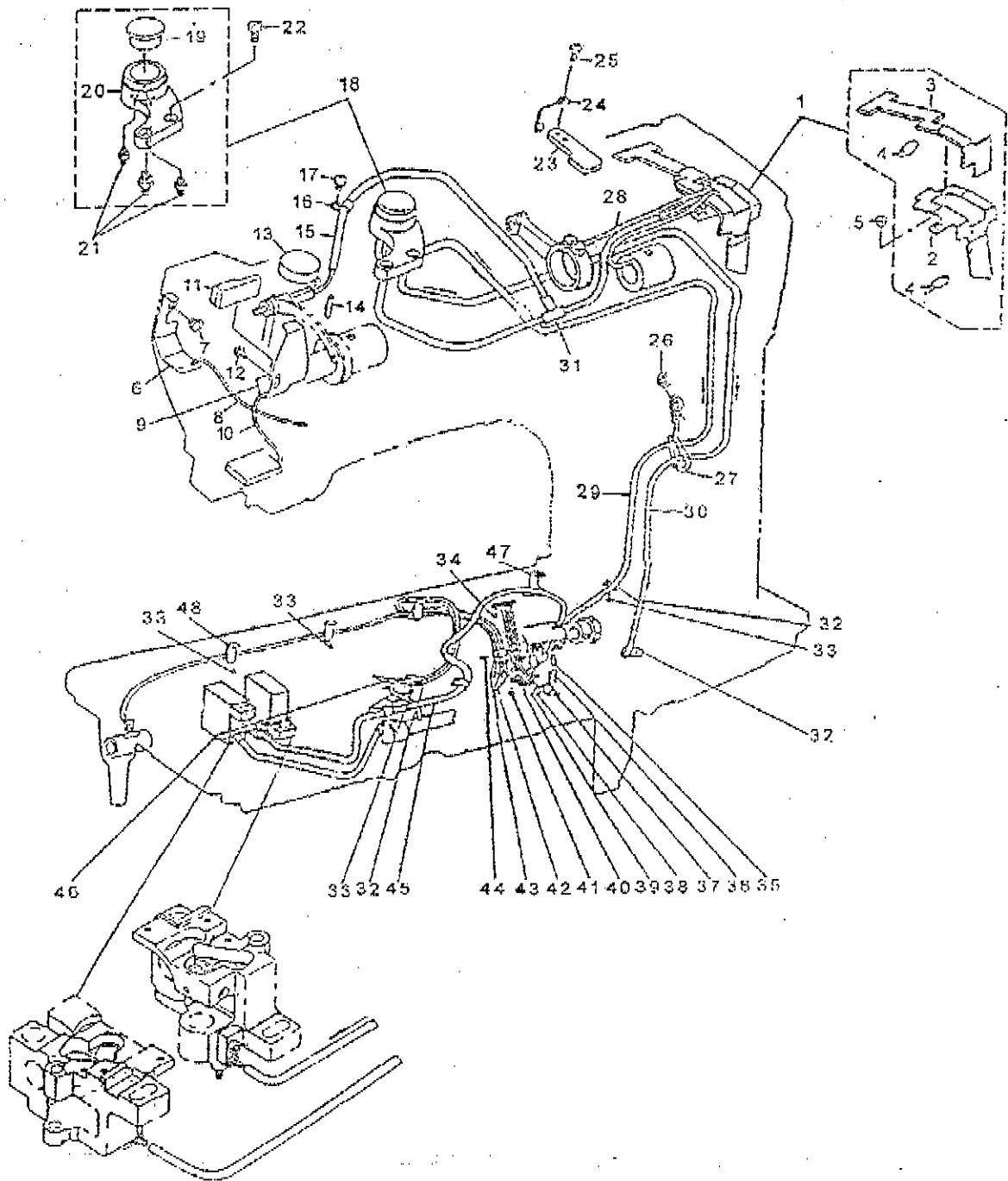
No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM24-08-001A	Thread tension asm.	1	
2	BM32-07-001A	Thread tension asm.		1
3	BM24-08-001A1	Thread tension base compl.	1	
	BM32-07-001A1	Thread tension base compl.		1
4	BM22-02-001A2	Thread take-up spring	1	1
5	BM24-08-001A2	Screw stud	1	
	BM31-08-001	Screw stud		1
6	BM18-01-035112a2	Take-up spring guide disc asm.	1	2
7	BM18-01-035112a12	Nut	1	1
8	BM18-01-035114	Tension release pin	2	1
9	BM18-01-035115	Tension release pin		1
10	BM18-01-035111	Nut	1	2
11	72T1-007F5	Thread tension disc	4	4
12	72T1-007F2	Thread tension disc presser	2	2
13	BM19-01-003E1	Tension spring	2	
	BM22-02-002	Tension spring		2
14	22T1-012F10	Rotating stopper	2	2
15	72T1-007F1	Thread tension knob	2	2
16	BM18-01-03515	Thread tension post	1	1
17	22T1-009E3	First thread tension disc	2	4
18	BM18-01-03516	Tension spring	1	2
19	BM18-01-03518	Thread tension nut	1	2
20	BM18-01-03517	Thread tension post (lower)		1
21	BM08-01-005B3a1	Thread guide	1	
22	BM24-08-001A3	Tension release plate	1	1
23	BM18-01-035119	Screw	2	2
24	BM18-01-037	Screw	1	
25	BM18-01-03519	Thread tension post	2	1
26	BM18-01-035110	Thread tension post (right)		1
27	BM18-01-035112a5	Screw stud		1
28	BM18-01-035112a3	Collar		1
29	BM22-02-001A1	Thread take-up spring		1
30	BM18-01-035112a9	Thread tension post		1
31	BM18-01-035112a10	Screw		2
32	BM18-01-035112a13	Adjusting plate		1
33	BM18-01-035112a14	Screw		1
34	BM18-01-035112a8	Presser collar		1
35	BM18-01-035112a11	Take-up spring guide		1
36	GB879-86	Spring pin	1	1
37	BM24-08-002	Tension release bar	1	1
38	22T2-019	Screw	2	2

8. KNEE LIFTER MECHANISM



No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM31-09-001	Knee lifter lever	1	1
2	BM31-09-002	Knee lifter braid fitting	1	1
3	BM31-09-003	Screw	1	1
4	BM31-09-004	Knee lifter spring	1	1
5	BM22-08-019D4	Screw	1	1
6	GB70-85	Screw	2	2
7	BM31-09-005A	Knee lifter link asm.	1	1
8	BM31-09-005A1	Knee lifter link	1	1
9	BM22-08-020E1a3	Roller bushing	1	1
10	BM22-08-020E1a2	Roller shaft	1	1
11	BM31-09-006	Screw	1	1
12	GB848-85	Washer	1	1
13	BM18-06-006	Nut	1	1
14	GB91-67	Pin	1	1
15	BM31-09-007	Knee lifter connecting rod	1	1
16	BM18-06-006	Nut	1	1

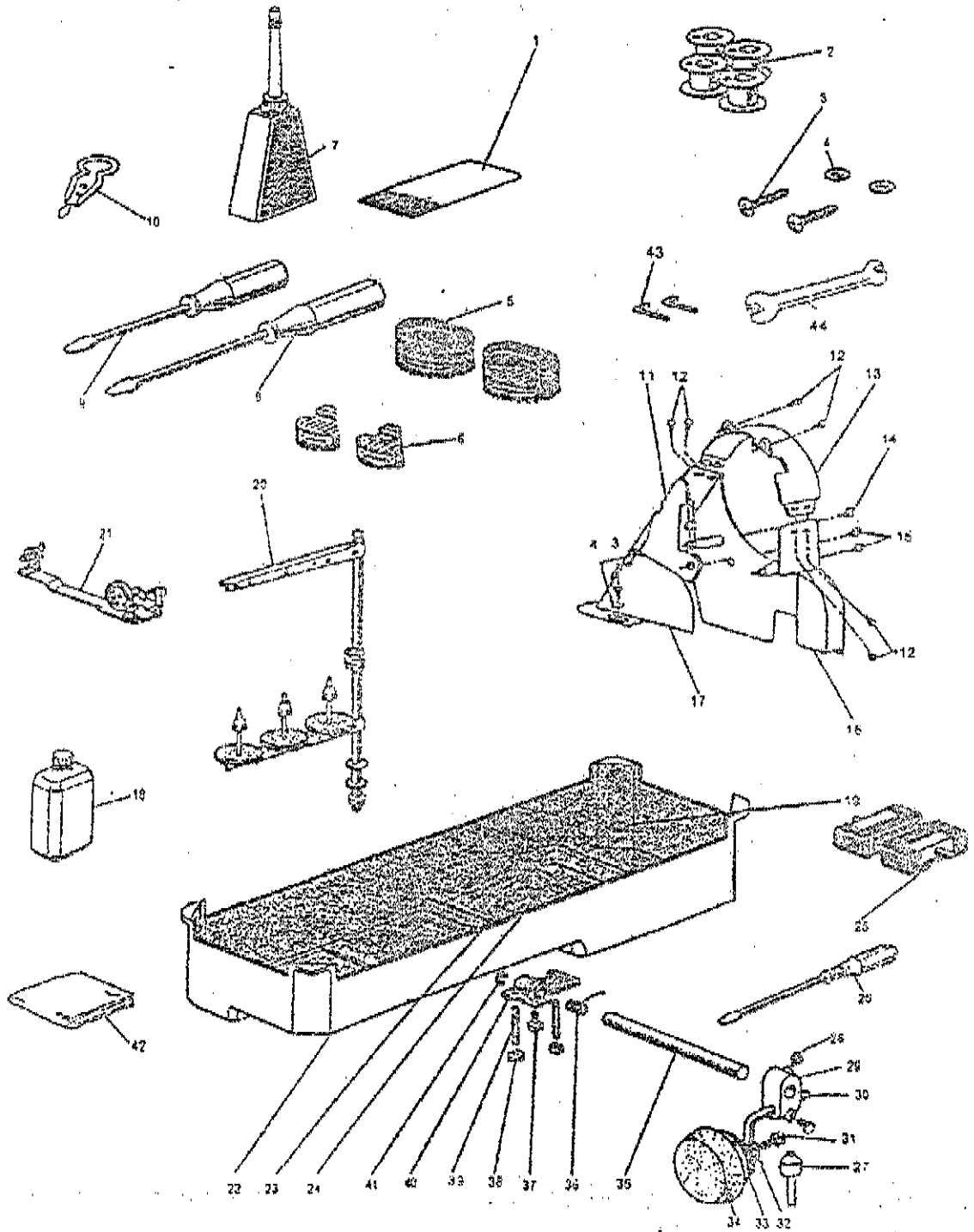
9. LUBRICATION MECHANISM



9. LUBRICATION MECHANISM

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	BM24-10-002B	Felt support asm.	1	1
2	BM24-10-002B1	Felt support	1	1
3	BM24-10-002B2	Felt	1	1
4	72T8-004	Clip	2	2
5	22T2-004	Screw	1	1
6	BM24-10-003C1	Upper feed oil bar plate	1	1
7	22T2-004	Screw	1	1
8	BM24-10-003C2	Oil braid	1	1
9	BM24-10-004D1	Take-up oil plate	1	1
10	BM24-10-004D2	Oil braid	1	1
11	BM24-10-004D3	Lubrication felt	1	1
12	BM18-01-027	Screw	1	1
13	BM24-10-005E1	Felt	1	1
14	BM24-10-005E2	Felt	1	1
15	BM24-10-005E4	Oil pipe	1	1
	BM24-10-005E3	Oil braid	1	1
16	BM24-10-005E5	Oil pipe holder	1	1
17	22T2-004	Screw	1	1
18	BM31-10-001A	Arm oil tank asm.	1	1
19	72T1-006E	Oil sight window	1	1
20	BM31-10-001A1	Arm oil tank	1	1
21	BM25-08-018	Connecting screw	3	3
22	72T1-016	Screw	2	2
23	BM24-10-007	Plate	1	1
24	BM24-10-008	Oil pipe holder	1	1
25	72T1-017	Screw	2	2
26	B18-05-004C5	Screw	1	1
27	BM31-10-002	Oil pipe holder	1	1
28	BM24-10-006F4	Oil braid	1	1
29	BM18-09-001A5	Oil pipe	1	1
30	BM18-09-001A6	Oil pipe	1	1
31	BM18-09-008C1	Oil pipe	1	1
32	BM18-03-004D5	Oil pipe holder	4	4
33	72T1-013	Screw	7	7
34	72T2-003	Screw	3	3
35	BM18-09-015	Plunger	1	1
36	BM18-09-016	Plunger spring	1	1
37	BM18-09-017	Plunger spring plate	1	1
38	BM18-03-002B15	Screw	1	1
39	BM18-08-018H4	Screw	1	1
40	BM18-09-018H2	Oil filter	1	1
41	BM18-09-018H5	Screw	1	1
42	BM18-09-018H1a	Oil pipe assemble	1	1
43	BM18-09-018H6	Oil pipe holder	1	1
44	22T1-003C6	Screw	1	1
45	BM18-09-008C2	Oil pipe	1	1
46	BM18-09-010E	Oil pipe	1	1
47	BM18-09-018H3	Pressure plate	1	1
48	BM18-09-012	Oil pipe holder	3	3

10. OIL RESERVOIR AND ACCESSORIES



10. OIL RESERVOIR AND ACCESSORIES

No.	Ref. No.	Description	GC20628-1	GC20628-2
1	DP x17 23"	Needle	3	6
2	BM19-08-003	Bobbin	2	4
3	GB99-76	Screw	4	4
4	72T9-023	Washer	4	4
5	BM18-10-010	Rubber cushion (big)	2	2
6	BM18-10-011	Rubber cushion (small)	2	2
7	22T9-011	Oiler	1	1
8	72T9-007	Screw driver (big)	1	1
9	72T9-020	Screw driver (medium)	1	1
10	BM18-10-005	Thread-in device	1	1
11	20H4-005F	Belt cover plate	1	1
12	72T1-017	Screw	6	6
13	20H4-005D	Belt cover (upper)	1	1
14	72T9-025	Screw	1	1
15	72T9-028	Screw	2	2
16	20H4-005C	Belt cover (lower)	1	1
17	72T9-002B6	Belt cover bracket	1	1
18	72T9-017	Oil container	1	1
19	22T9-012	Magnet	1	1
20	BM18-10-007	Thread stand	1	1
21	RXQ-3	Bobbin winder comp.	1	1
22	BM18-10-002A1	Oil reservoir	1	1
23	22T9-001A2	Oil drain screw	1	1
24	22T9-001A3	Washer	1	1
25	72T9-004C	Table hinge comp.	2	2
26	72T9-021	Screw driver (small)	1	1
27	BM18-10-003B1a	Knee lifter lifting rod	1	1
28	72T9-018	Set screw	2	2
29	22T9-003B3	Joint for knee lifter bell crank	1	1
30	22T9-003B2	Knee lifter bell crank	1	1
31	22T9-003B7	Set screw	1	1
32	22T9-003B6	Bracket for knee plate	1	1
33	22T9-003B5	Knee lifter plate	1	1
34	22T9-003B8	Pad for knee lifter plate	1	1
35	BM18-10-002A2	Hinge pin for knee lifter	1	1
36	22T9-001A7	Retracting spring	1	1
37	72T9-018	Screw	1	1
38	22T9-001A10	Lock nut	2	2
39	22T9-001A9	Screw	2	2
40	BM18-10-002A3	Knee lifter lever crank	1	1
41	GB896-86	E-ring	1	1
42	22T9-018	Vinyl cover	1	1
43	GB5356-85	Wrench	3	3
44	72T9-022	Double-end wrench	1	1