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Instruction & parts Manual

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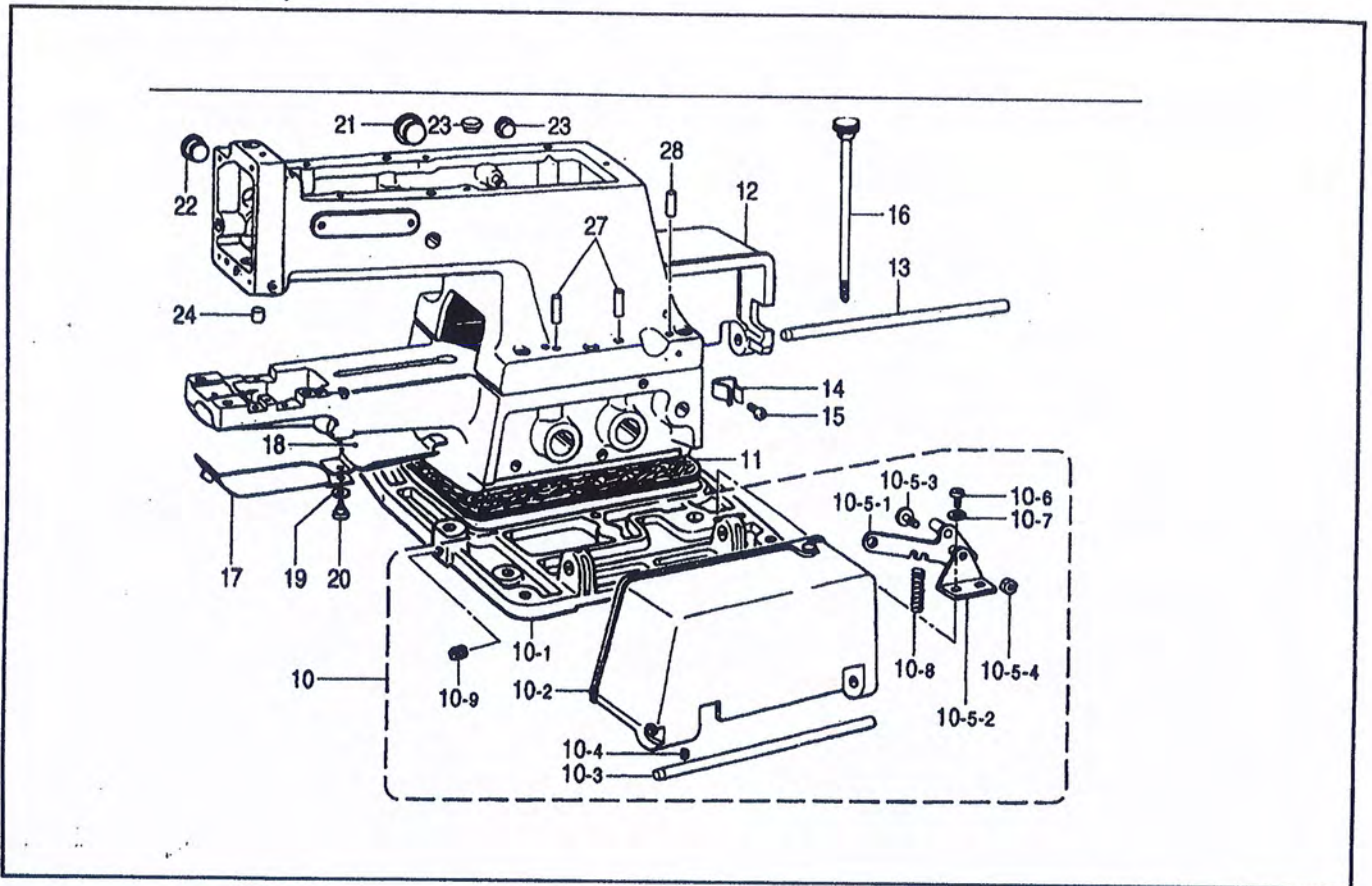
UNIVERSITY

INSTITUTE OF MANAGEMENT STUDIES

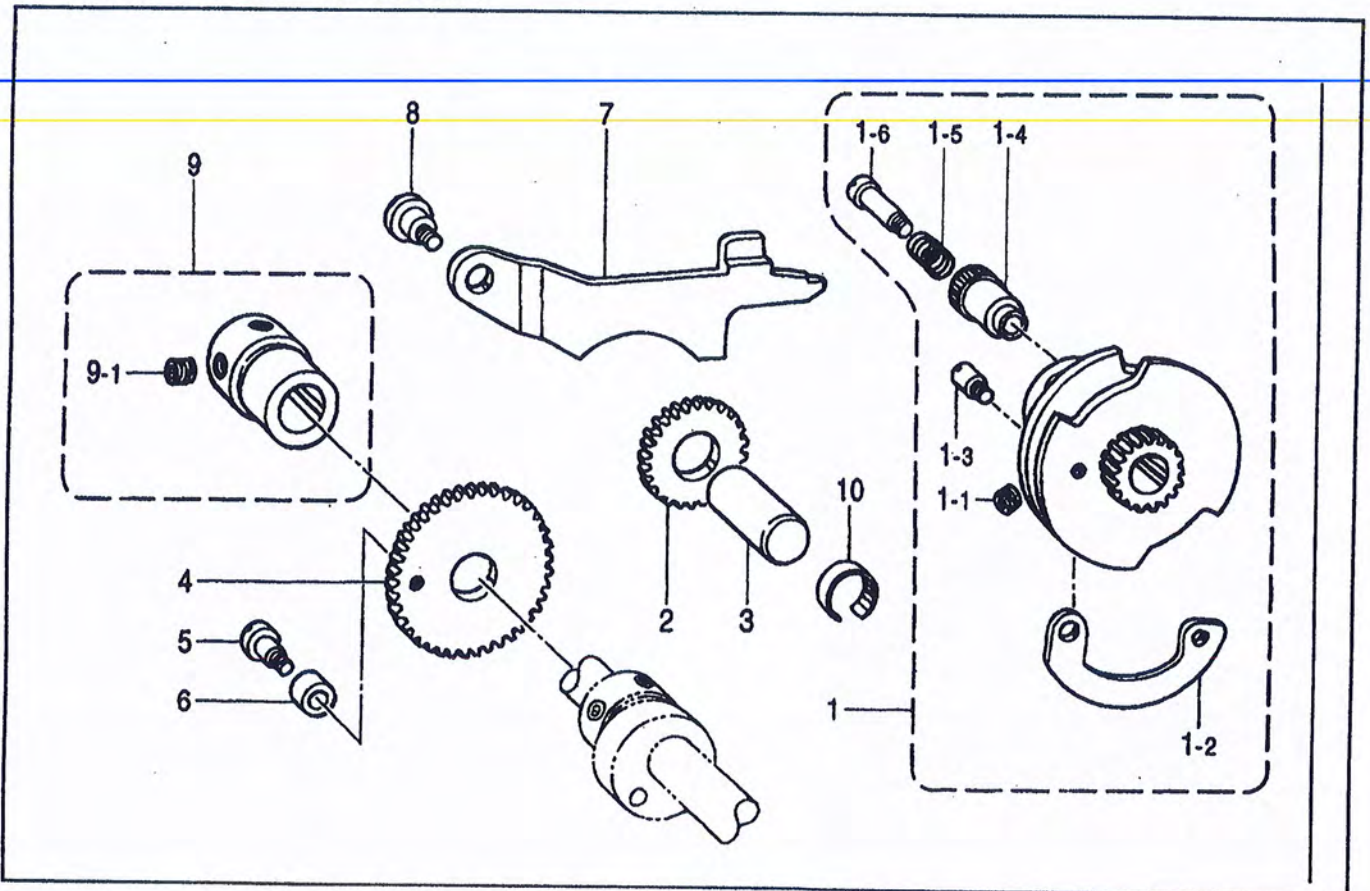
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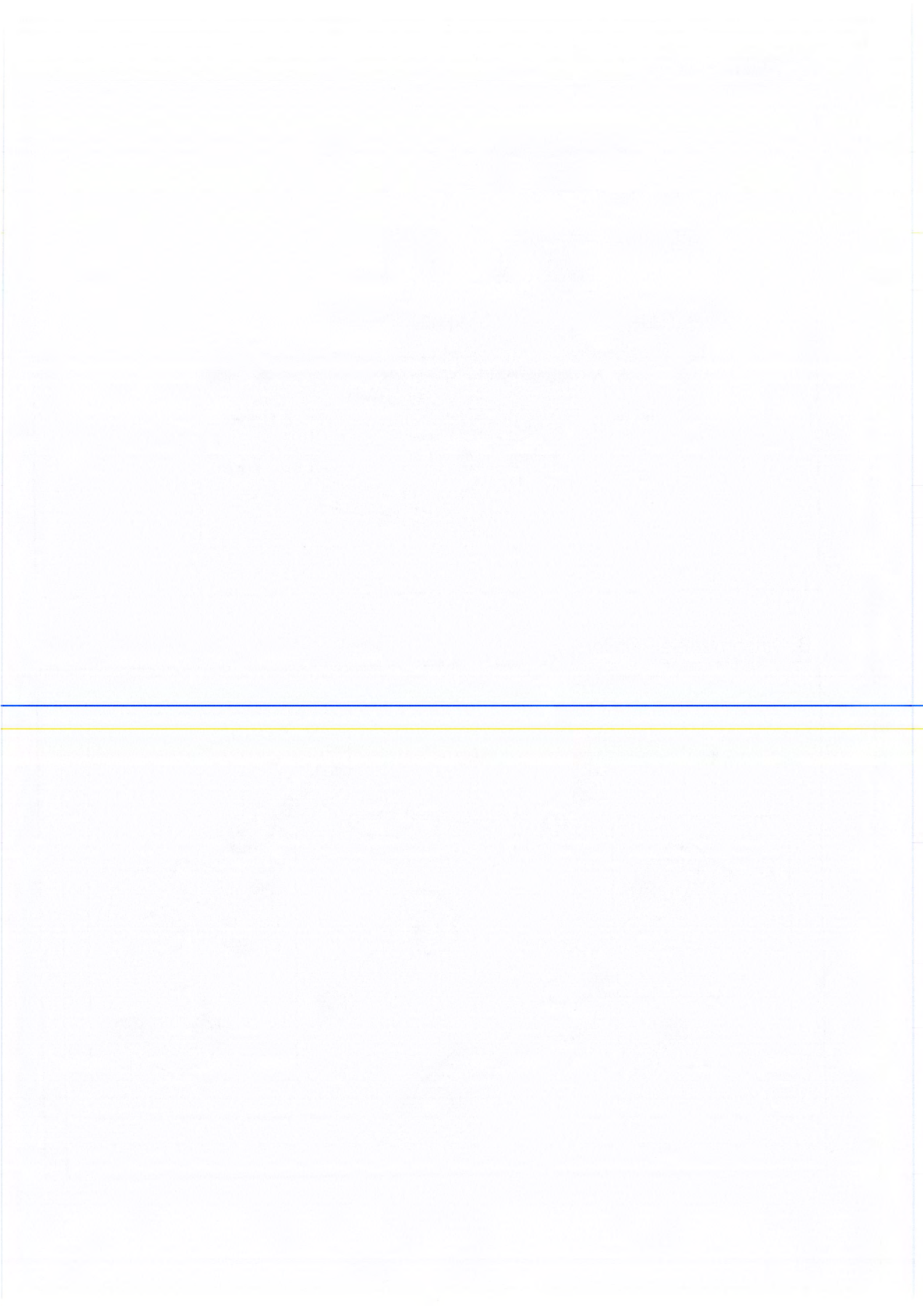
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A. Machine body



B. Stitch number conversion





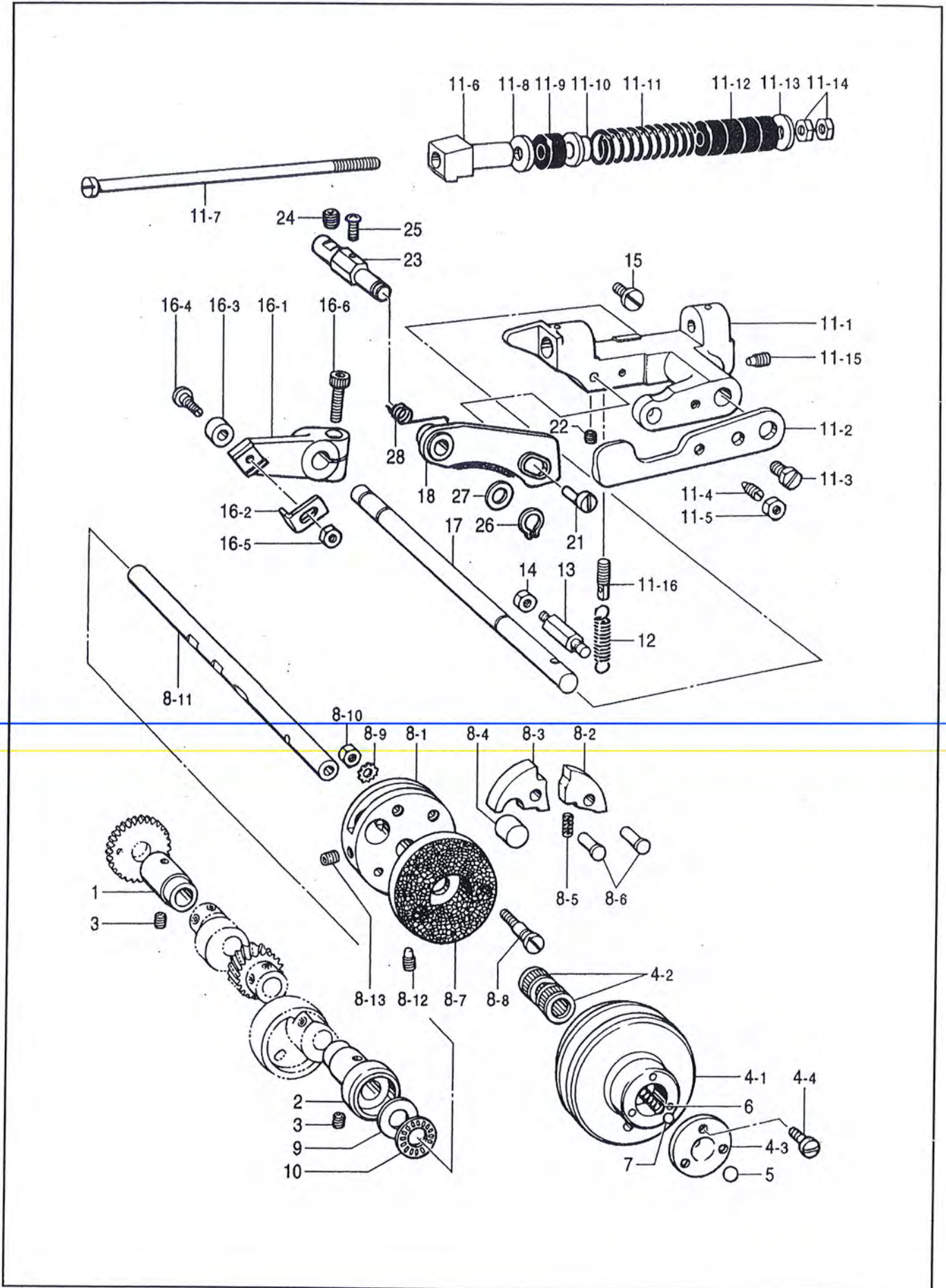
A. Machine body

No.	Ref. No.	Description	Qt.
10	BX74510001	Bed base assy	1
10-1	BX74519000	Bed base	1
10-2	BX07738901	Bed cover (R) assy	1
10-3	B996126000	Bed cover shaft	1
10-4	B096349070	Set screw, socket (CP) SM5. 95 x10	2
10-5	BX03115009	Clutch lever assy	1
10-5-1	B968703909	Clutch driving lever assy	1
10-5-2	B995085009	Clutch driving lever plate	1
10-5-3	B995842008	Screw, M5. 56	1
10-5-4	B089350998	Nut, 1 SM5. 56-32	1
10-6	B048399898	Screw, pan SM4. 76-32 x12	2
10-7	B085390878	Washer, plain M4. 76	2
10-8	BX74294009	Spring	1
10-9	B900859009	Set screw, (CP) SM6. 35-40 x6. 5	2
11	B996128000	Bed base felt	1
12	BX07736901	Bed cover (L) assy	1
13	B996126000	Bed cover shaft	1
14	B996125009	Spring, plate	2
15	B048420598	Screw, pan SM4. 37-40 x5	2
16	B996124909	Bolt	1
17	B995835009	Looper cover	1
18	BX07734009	Cover	1
19	B905781009	Washer	1
20	B996122009	Shoulder screw, M4. 37	1
21	B902580009	Rubber cap, 19. 8	1
22	B993176009	Rubber cap, 13. 5	1
23	B993174009	Rubber cap, 9. 4	2
24	B990906000	Rubber cap, 5	1
27	B904674009	Felt (L =30)	4
28	B963419000	Felt (L =18)	2

B. Stitch number conversion

NO.	Ref. No.	Description	Qt.
1	*	Stitch control cam assy	1
1-1	B096289088	Set screw, socket (CP) SM7. 94	2
1-2	BX07677009	Stitch control cam segment	1
1-3	B995997009	Screw M4. 37	1
1-4	B995996009	Stitch control knob	1
1-5	B995995009	Spring	1
1-6	B995994009	Shoulder screw, M4. 37	1
2	BX07674009	Stitch changing (M) gear	1
3	B995992009	Stitch changing (M) gear stud	1
4	BX07673009	Stitch changing gear	1
5	BX07672009	Shoulder screw, SM4. 37	1
6	BX07671009	Roller 7. 94	1
7	BX07660009	Stitch 32 lever	1
8	BX07669009	Shoulder screw, SM4. 76	1
9	BX07668009	Set screw collar assy	1
9-1	B096330488	Set screw, socket (CP) SM6. 35	2
10	BX05386009	Retaining ring	1

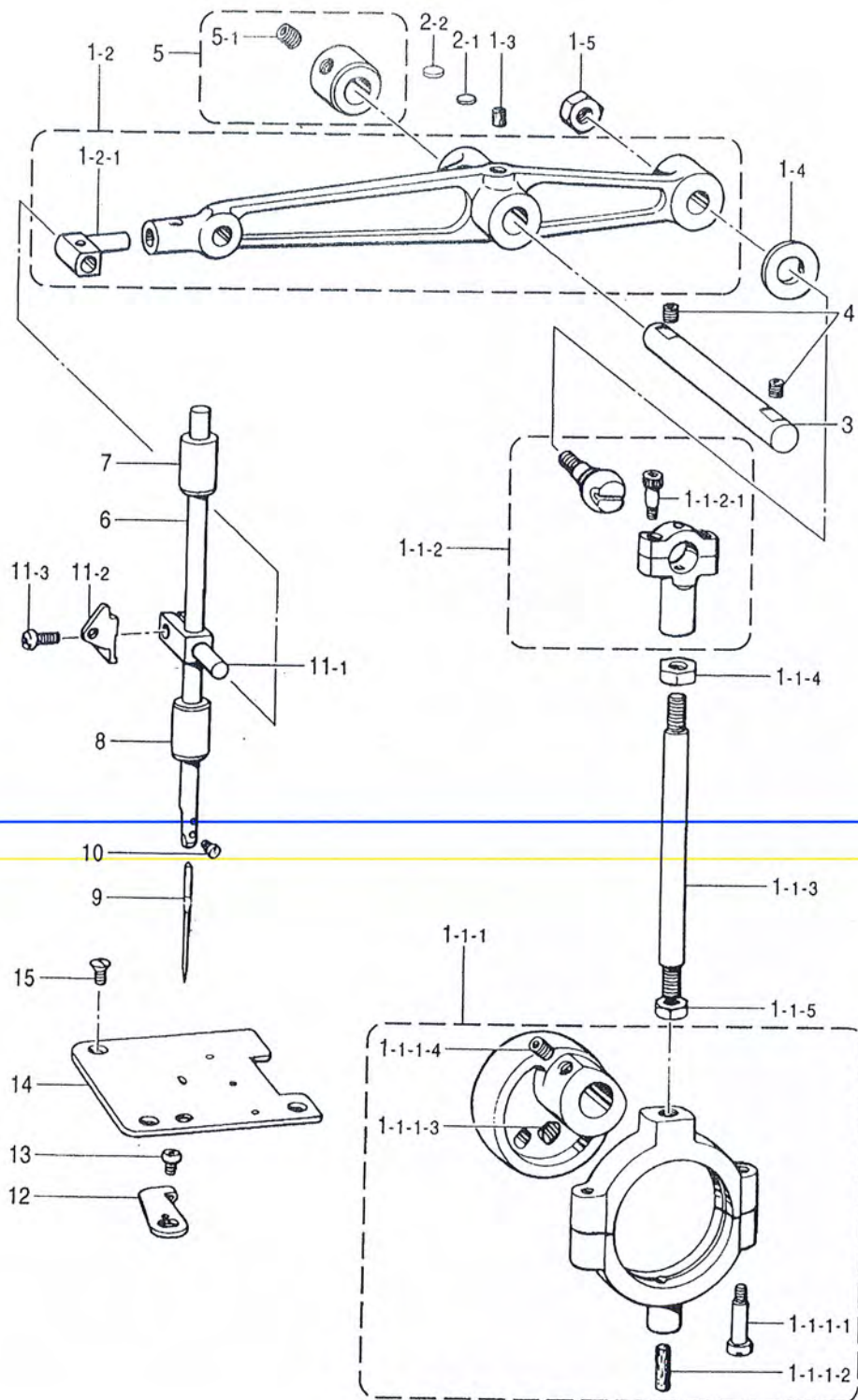
C. Driving clutch and brake mechanism



C. Driving clutch and brake mechanism

No.	Ref. No.	Description	Qt.
1	B995895900	Driving shaft bush (L)	1
2	BX07732000	Driving shaft bush (R)	1
3	B097340398	Set screw, (CP) SM5. 95	2
4	BX07731909	Pulley assy	1
4-1	BX76769009	Pulley	1
4-2	B996118000	Needle bearing	2
4-3	BX76760009	Ball holder	1
4-4	B998359007	Screw, SM3. 57 x7	3
5	B039031650	Bearing ball, 5/16	1
6	B996113009	Spring	1
7	B039055450	Bearing ball, 7/32	1
8	BX07729909	Stop cam assy	1
8-1	BX07728909	Stop cam	1
8-2	BX07727009	Brake cam segment	1
8-3	BX07726009	Stop cam segment	1
8-4	BX07725009	Cushion rubber	1
8-5	BX07724009	Spring	1
8-6	B995006009	Cam segment stud	2
8-7	BX07723009	Clutch plate	1
8-8	BX05385009	Screw, M5. 56	2
8-9	B995000000	Toothed washer	2
8-10	B089350998	Nut, 1 SM5. 56 -32	2
8-11	BX07722009	Driving shaft	1
8-12	B961114009	Stop cam set screw	1
8-13	B096289088	Set screw, socket (CP) SM7. 94	1
9	BX90442009	Washer	1
10	B995002000	Ball bearing	1
11	BX74495009	Clutch body assy	1
11-1	BX74494009	Clutch body	1
11-2	BX07718009	Ball presser plate	1
11-3	B995099809	Bolt, M6. 35	1
11-4	B995098008	Set screw, SM6. 35	1
11-5	B950556008	Nut, SM6. 35	1
11-6	BX07717009	Stopper bracket	1
11-7	BX07716009	Stopper shaft	1
11-8	B085200778	Washer, plain L 7. 14	1
11-9	BX07715000	Cushion rubber	1
11-10	BX76204009	Spring holder	1
11-11	BX74417009	Clutch stopper spring	1
11-12	B995092009	Cushion rubber	4
11-13	B085200778	Washer, plain L 7. 14	1
11-14	B089200908	Nut, 1 SM7. 14	2
11-15	B961114009	Stop cam set screw	1
11-16	BX07609009	Spring hook	1
12	BX07608009	Spring	1
13	B995088009	Spring hook	1
14	B908539007	Nut, SM4. 37	1
15	BX07607009	Stopper screw	1
16	BX74416009	Regulating lever assy	1
16-1	BX07605909	Stitch control lever	1
16-2	BX74415009	Claw	1
16-3	BX07603009	Roller	1
16-4	BX07602009	Shoulder screw	1
16-5	B990949006	Nut, SM4. 76	1
16-6	B092048088	Bolt, socket M6 x20	1
17	BX75383009	Clutch body shaft	1
18	BX73748001	Brake lever assy	1
21	BX74468001	Brake lever shaft	1
22	B096390588	Set screw, socket (CP) SM4. 76	1
23	BX73977009	Brake shaft	1
24	B096340488	Set screw, socket SM5. 95	1
25	BX80360909	Screw, seal M4 x10	1
26	B062020968	Retaining ring, C8	1
27	B957514009	Washer	1
28	BX74300009	Spring	1

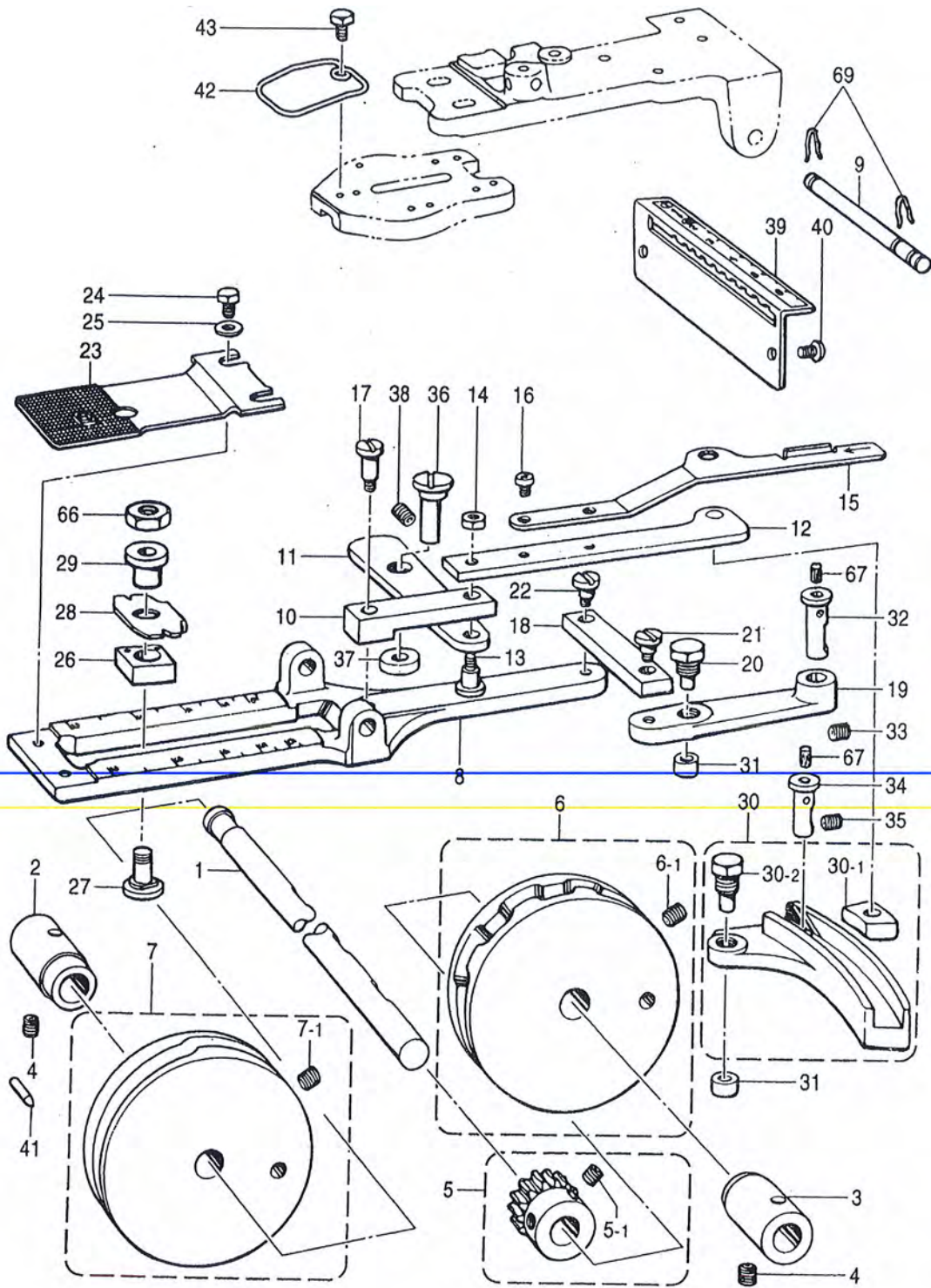
D. Needle bar and driving clutch mechanism



D. Needle bar and driving clutch mechanism

No.	Ref. No.	Description	Qt.
1	BX07601009	Needle bar driving assy	1
1 - 1	BX07690009	Crank rod assy	1
1 - 1 - 1	BX07391009	Lower crank rod (L) assy	1
1-1-1-1	B968452009	Screw, M4.37	2
1-1-1-2	BX07698000	Felt	1
1-1-1-3	B095330298	Set screw, (CN) SM6.35	1
1-1-1-4	B096330488	Set screw, socket (CP) SM6.35	1
1 - 1 - 2	BX07380009	Upper crank rod (S) assy	1
1-1-2-1	B962685008	Bolt, socket SM4.37 x 14	2
1 - 1 - 3	BX07696009	Crank rod	1
1 - 1 - 4	B089200908	Nut, 1 SM7.14	1
1 - 1 - 5	B995068009	Nut 7.14	1
1 - 2	BX07695009	Needle bar driving lever assy	1
1 - 2 - 1	B995062909	Needle bar bracket	1
1 - 3	BX07693000	Felt	1
1 - 4	BX07692000	Washer	1
1 - 5	B905298007	Nut, SM7.94	1
2 - 1	BX07691009	Spacer	1
2 - 2	B969436008	Wick base cap	1
3	BX07680009	Needle bar driving lever shaft	1
4	B096340488	Set screw, socket SM5.95	2
5	BX07689009	Set screw collar assy	1
5 - 1	B096330478	Set screw, socket (CP) SM6.35 x 6	2
6	BX07687009	Needle bar	1
7	BX07686000	Needle bar bush (U)	1
8	BX07685000	Needle bar bush (D)	1
9	B995057094	Needle, TQ x 1 (#16)	1
10	B960557908	Set screw, SM3.18	1
11	BX07684909	Needle bar clamp assy	1
11 - 1	BX07683909	Needle bar clamp	1
11 - 2	BX07682009	Thread take - up	1
11 - 3	B048439898	Screw, pan SM3.57 - 40 x 12	1
12	BX07681909	Needle guard	1
13	B048390498	Screw, pan SM4.76 - 32 x 6	1
14	BX74488009	Needle plate	1
15	BX09308009	Screw, oval SM4.37 x 10	3

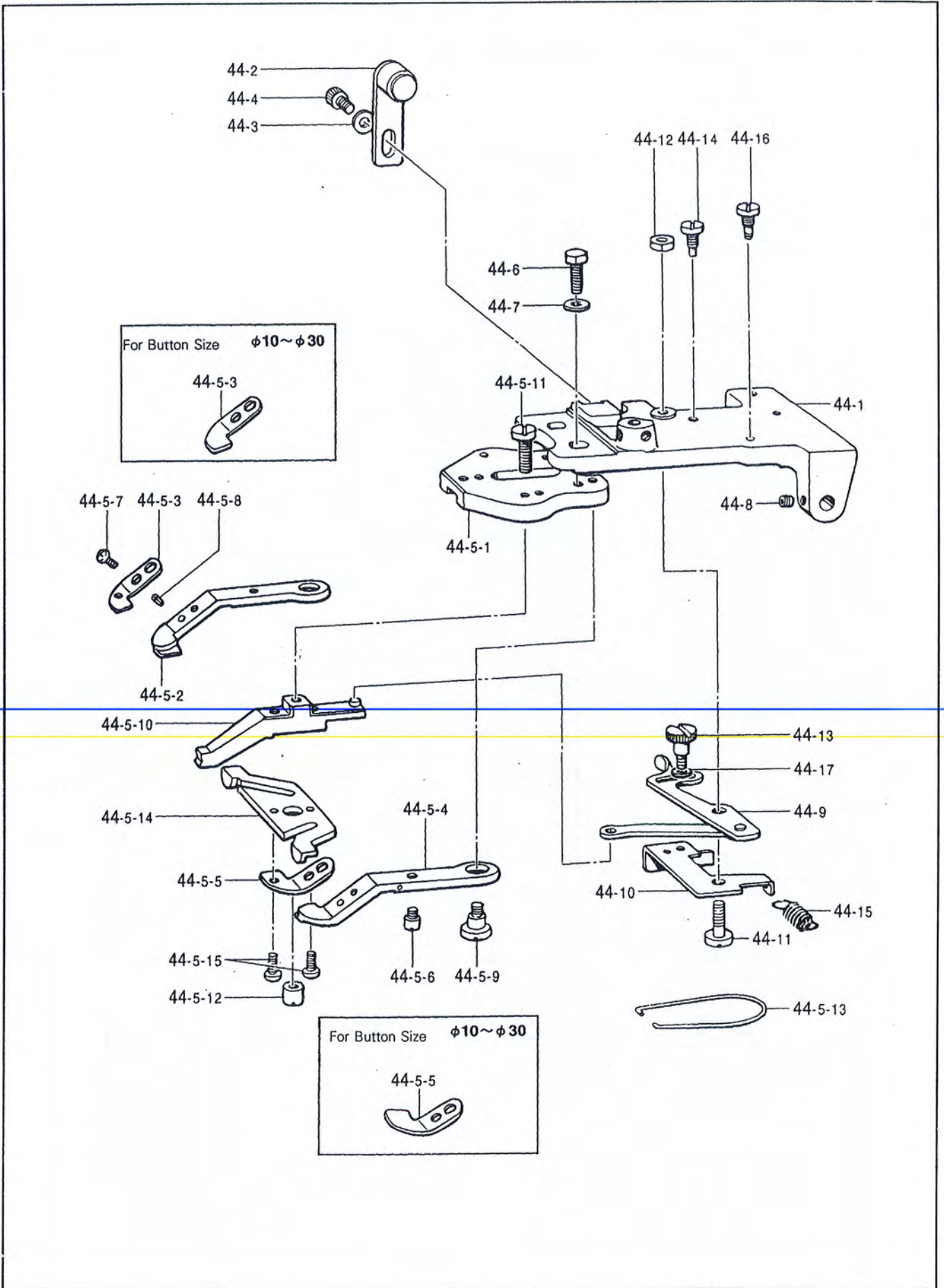
E1. Feed mechanism



E1. Feed mechanism

No.	Ref. No.	Description	Qt.
1	B995032909	Cam shaft	1
2	BX07666000	Cam shaft bush (L)	1
3	B995020000	Cam shaft bush (R)	1
4	B097340398	Set screw, (CP) SM5. 95	2
5	*	Worm gear assy	1
5-1	B096330488	Set screw, socket (CP) SM6. 35	2
6	*	Transverse feed cam assy	1
6-1	B096330488	Set screw, socket (CP) SM6. 35	2
7	*	Vertical feed cam assy	1
7-1	B096330488	Set screw, socket (CP) SM6. 35	2
8	BX74484009	Feed bar	1
9	BX73666009	Holder bar	1
10	BX07639009	Vertical feed link (A)	1
11	BX07638009	Vertical feed link (B)	1
12	BX07637009	Vertical feed connect rod assy	1
13	BX07636009	Shoulder screw, SM4. 76	1
14	B089390908	Nut, 1 SM4. 76	1
15	B995905009	Vertical feed adjust lever	1
16	B048420598	Screw, pan SM4. 37 - 40 x 5	2
17	B995909009	Shoulder screw, M4. 76	1
18	B995016001	Feed link	1
19	B995014000	Transverse feed lever	1
20	B995013009	Roller shaft	1
21	B995015009	Shoulder screw, M4. 76	1
22	B995015009	Shoulder screw, M4. 76	1
23	BX07634909	Feed plate, A	1
24	B964740008	Bolt, SM4. 76 x 7	2
25	BX90443009	Washer	2
26	BX07632909	Transverse feed slide block	1
27	BX79386009	Screw	1
28	BX07620009	Transverse feed plate	1
29	BX79387009	Adjusting shaft	1
30	BX07628909	Back & forth feed slide block assy	1
30-1	BX07626909	Back & forth feed slide block	1
30-2	B995013009	Roller shaft	1
31	B995012009	Roller	2
32	B995011009	Feed lever shaft	1
33	B096340488	Set screw, socket SM5. 95	1
34	BX07625009	Vertical feeding lever shaft	1
35	B096340488	Set screw, socket SM5. 95	1
36	BX07624009	Feed lever shaft	1
37	BX07499009	Collar, S	1
38	B096340488	Set screw, socket SM5. 95	1
39	B995902709	Back & forth feed length indicator	1
40	B048399098	Screw, pan SM4. 76 - 32 x 10	2
41	B996120009	Positioning pin	1
42	B959059809	Finger guard	1
43	B964740008	Bolt, SM4. 76 x 7	1
66	B950554009	Nut, SM6. 35	1
67	BX01067000	Felt (L = 5)	2
69	BX71018000	Snap retainer 5	2

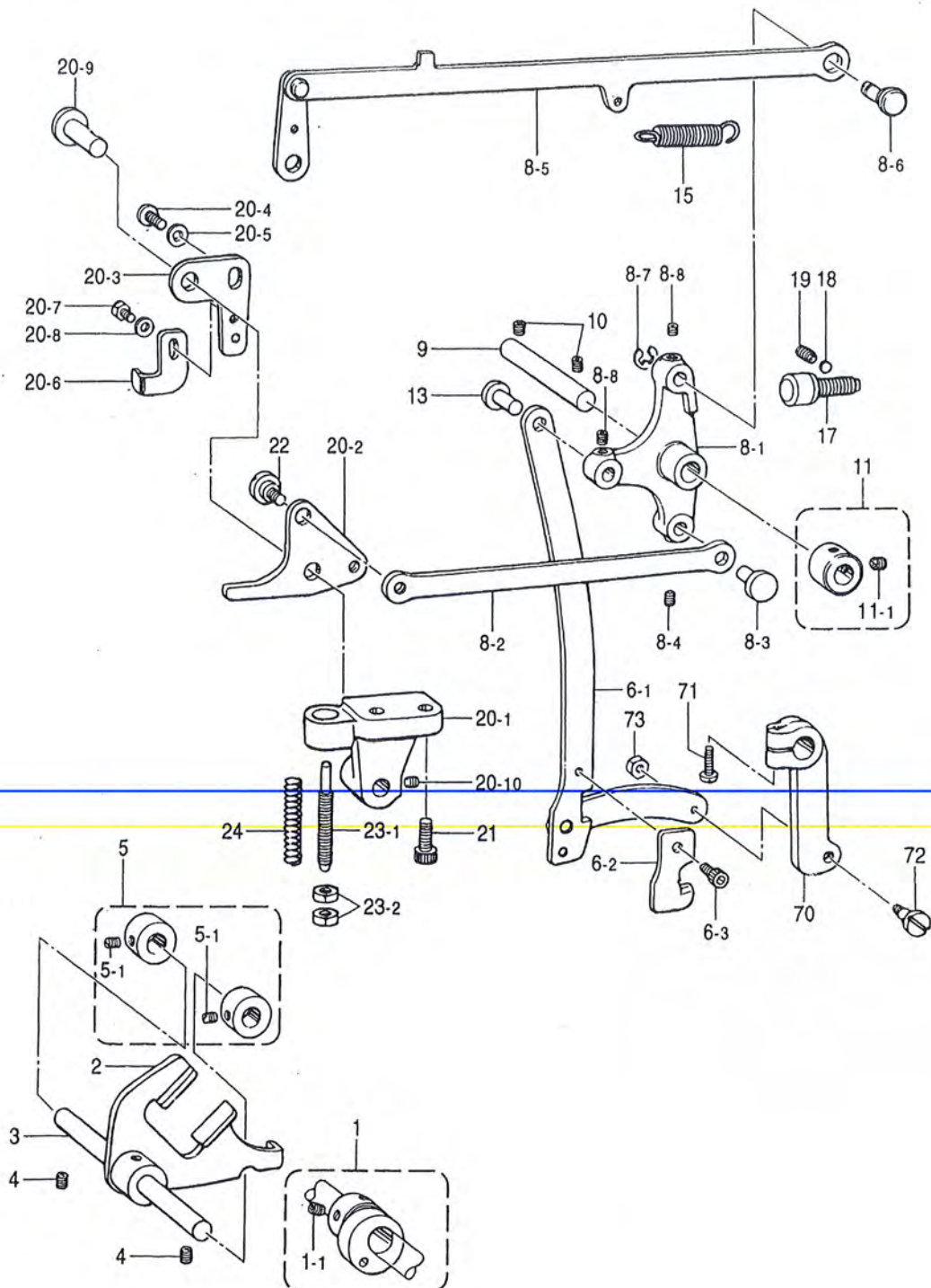
E2. Feed mechanism



E2. Feed mechanism

No.	Ref. No.	Description	Qt.
		< Common parts >	
44 -1	BX73758001	Presser arm	1
44 -2	BX07651059	Presser adjusting plate assy	1
44 -3	BX07415009	Washer, plain 6	1
44 -4	B092049088	Bolt, socket M6 x10	1
44 -5 -1	BX07646909	Button clamp bracket	1
44 -5 -6	B995954009	Guide pin	2
44 -5 -7	B048420598	Screw, pan SM4. 37 -40 x5	2
44 -5 -7	B063850468	Pin, spring roll AW2. 5	2
44 -5 -9	B995952009	Shoulder screw, SM4. 76	2
44 -5 -11	BX07642909	Screw, SM4. 37	1
44 -5 -12	BX07453009	Nut, round SM4. 37	1
44 -5 -13	BX07490009	Spring, compression	1
44 -5 -14	BX07451009	Plate cam, B -clamp	1
44 -5 -15	B048420298	Screw, pan SM4. 37 -40 x8	2
44 -6	B093399698	Bolt, SM4. 76 x 14	2
44 -7	B964756009	Washer, plain 5	2
44 -8	B096420488	Set screw, socket (CP) SM4. 37	2
44 -9	BX07400009	Size adjusting plate assy	1
44 -10	BX07406009	Button opener claw	1
44 -11	BX07405009	Screw, SM6. 35	1
44 -12	B950554009	Nut, SM6. 35	1
44 -13	B995944009	Shoulder screw, SM4. 37	1
44 -14	BX07404009	Stopper screw	1
44 -15	BX07403009	Spring	1
44 -16	BX07402009	Spring hook	1
44 -17	B085420878	Washer, plain M 4. 37	1
		< For button size Ø10 ~Ø20 >	
44	BX73672901	Presser arm assy,	1
44 -5	BX70094909	Button clamp assy	1
44 -5 -2	BX81112009	Button clamp, L	1
44 -5 -3	BX70009009	Spring, plate; L	1
44 -5 -4	BX81111009	Button clamp, R	1
44 -5 -5	BX70008009	Spring, plate; R	1
44 -5 -10	BX81156009	Button clamp assy, M	1
		< For button size Ø10 ~Ø30 >	
44	BX73674901	Presser arm assy,	1
44 -5	BX04428909	Button clamp assy,	1
44 -5 -2	BX07450009	Button clamp, LB	1
44 -5 -3	BX99031009	Spring, plate; L	1
44 -5 -4	BX07461009	Button clamp, RB	1
44 -5 -5	BX99020009	Spring, plate; R	1
44 -5 -10	BX07643009	Button clamp assy, M	1

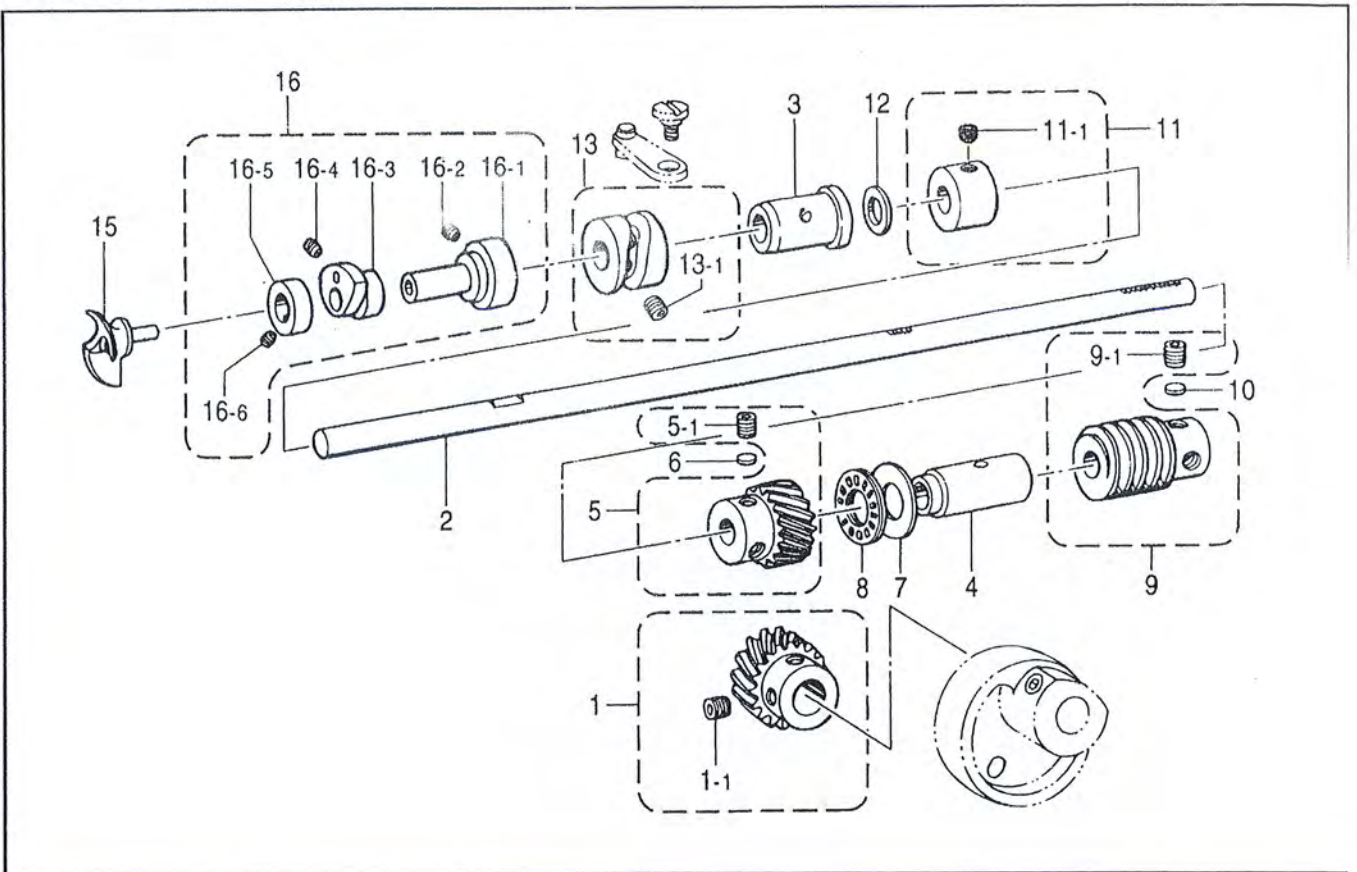
F. Work clamp lifter mechanism



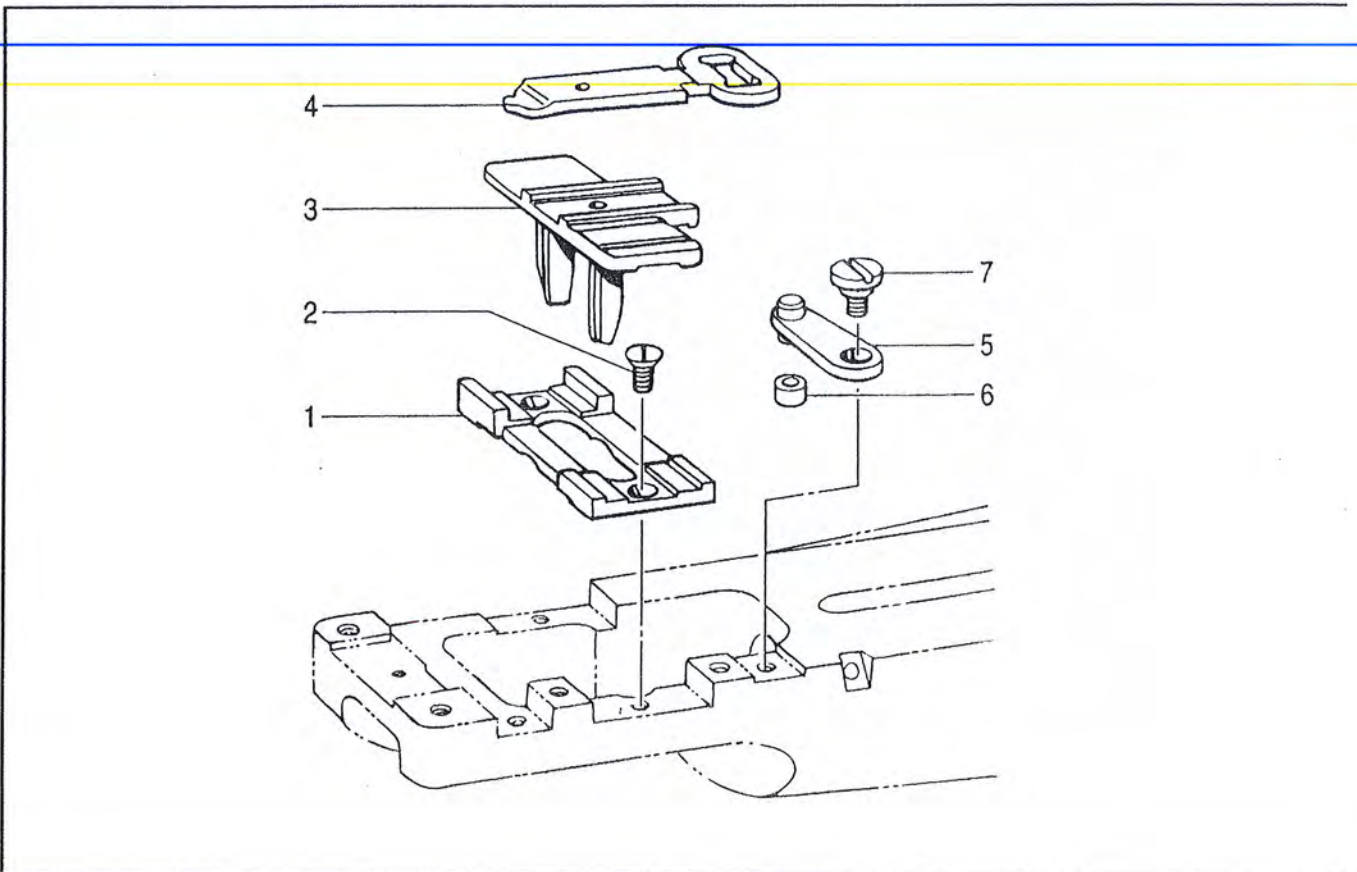
F. Work clamp lifter mechanism

No.	Ref. No.	Description	Qt.
1	BX07622009	Driving cam assy	1
1-1	B096330488	Set screw socket (CP) SM6.35	2
2	BX07621909	Button clamp driving fork	1
3	B995984009	Button clamp driving fork shaft	1
4	B096340488	Set screw, socket SM5.95	2
5	BX07410009	Set screw collar assy	2
5-1	B097390598	Set screw. (CP) SM4.76 - 32 x 5	4
6	BX74481009	Driving connector assy	1
6-1	BX74470009	Connector assy	1
6-2	BX07614909	Driving rod claw	1
6-3	B092420288	Bolt, socket SM4.37 x 8	1
8	BX07500009	Presser driving lever assy	1
8-1	BX07509000	Presser driving lever	1
8-2	BX07508009	Presser lifter connect plate	1
8-3	BX07507009	Presser connect stud	1
8-4	B096420488	Set screw, socket (CP) SM4.37	1
8-5	BX07506009	Tension release connect rod assy	1
8-6	BX07502009	Tension release adjust stud	1
8-7	B062050768	Retaining ring, E5	1
8-8	B096420488	Set screw, socket (CP) SM4.37	2
9	BX07501009	Presser driving lever shaft	1
10	B096340488	Set screw, socket SM5.95	2
11	BX07306008	Set screw collar assy	1
11-1	B096330478	Set screw, socket (CP) SM6.35 x 6	2
13	BX07507009	Presser connect stud	1
15	BX74477009	Spring, extension	1
17	BX07598009	Stopper screw assy	2
18	B900503000	Pad metal	2
19	B097390398	Set screw, (CP) SM4.76	2
20	BX07498909	Presser lifter arm assy, 917	1
20-1	BX07594009	Presser lifter bracket	1
20-2	BX07593909	Presser lifter arm	1
20-3	BX07497009	Claw adjust plate	1
20-4	B048320298	Screw, pan SM6.35 - 28 x 8	1
20-5	B085040878	Washer, plain M 6	1
20-6	BX07496009	Button opener claw, B	1
20-7	B964740008	Bolt, SM4.76 x 7	1
20-8	B964756009	Washer, plain 5	1
20-9	BX07592009	Lifter arm stud	1
20-10	B096340488	Set screw, socket SM5.95	1
21	B092048088	Bolt, socket M6 x 20	2
22	B965620909	Shoulder screw, SM6.35	1
23	BX01964009	Spring guide assy, B	1
23-1	BX01963009	Spring guide, B	1
23-2	B990366008	Nut, SM6.35	2
24	BX07589009	Spring	1
70	BX73671000	Button clamp driving lever, 7	1
71	B048349498	Screw, pan SM5.95 - 28 x 16	1
72	B954236009	Shoulder screw, M4.37	1
73	B990949006	Nut, SM4.76	1

G. Lower shaft mechanism



H. Loop spreading mechanism



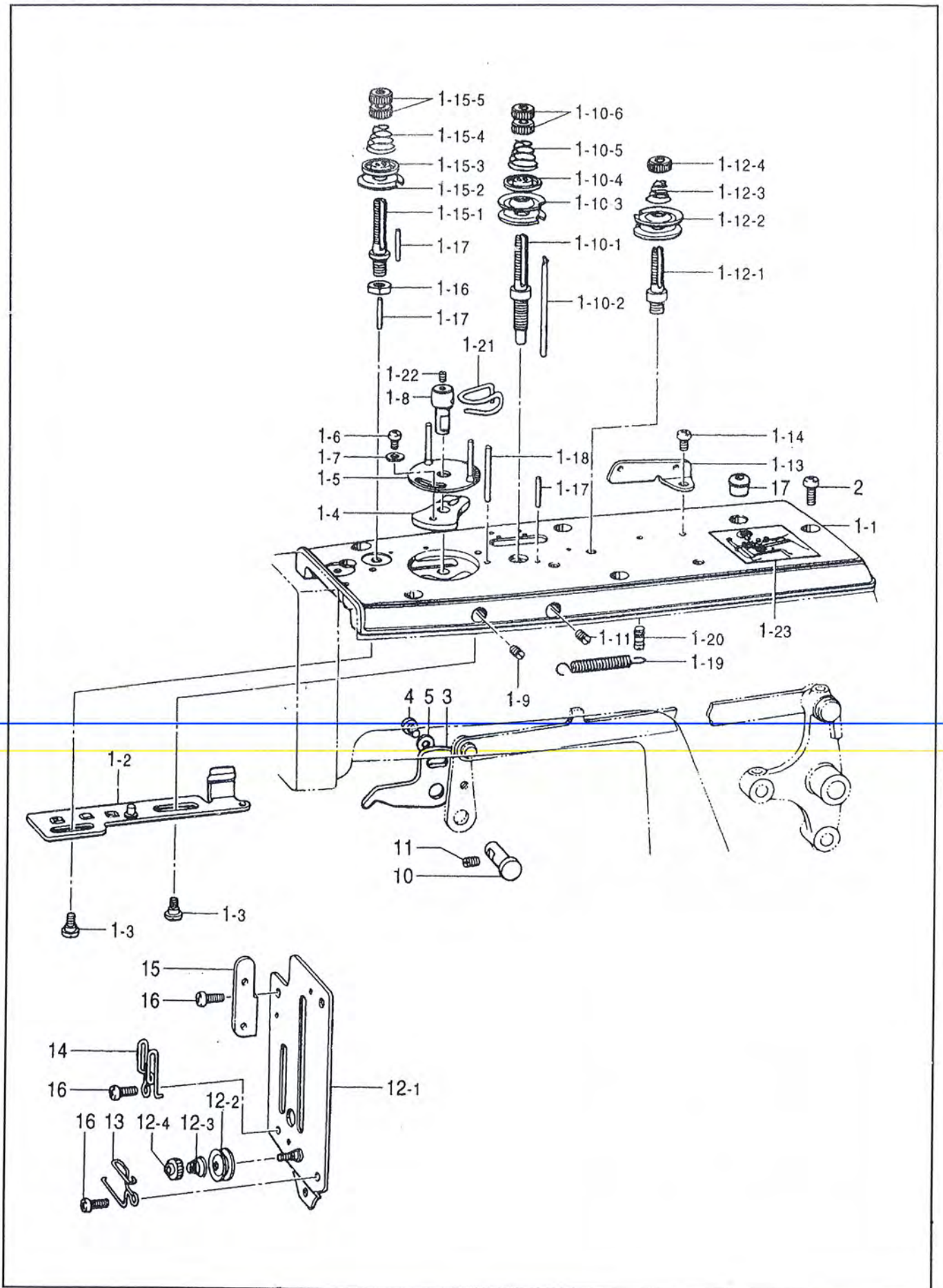
G. Lower shaft mechanism

No.	Ref. No.	Description	Qt.
1	BX07588009	Helical gear assy	1
1-1	B096330488	Set screw, socket (CP) SM6.35	2
2	BX07587909	Lower shaft	1
3	BX07586000	Lower shaft bush, F	1
4	BX07585000	Lower shaft bush, B	1
5	BX07584009	Lower shaft gear assy	1
5-1	B096330488	Set screw, socket (CP) SM6.35	2
6	B963959000	Washer	1
7	BX90442009	Washer	1
8	B995002000	Ball bearing	1
9	*	Worm assy	1
9-1	B096330488	Set screw, socket (CP) SM6.35	3
10	B963959000	Washer	1
11	B927167009	Set screw collar assy	1
11-1	BX71137009	Set screw, socket SM6.35 - 40 x 5	2
12	B903957009	Washer	1
13	BX07577009	Grooved cam assy	1
13-1	B990986009	Set screw, M5.56	2
15	BX07574009	Rotary looper	1
16	BX74411009	Triangular cam assy	1
16-1	B995044000	Looper setting shaft	1
16-2	B097350598	Set screw, (CP) SM5.56	2
16-3	B995043009	Thread handler triangular cam	1
16-4	B096420688	Set screw, socket (CP) SM4.37	2
16-5	B995042909	Set screw collar	1
16-6	B959408009	Set screw, SM4.37	1

H. Loop spreading mechanism

No.	Ref. No.	Description	Qt.
1	BX07543009	Thread handler bracket	1
2	BX09414009	Screw, flat SM3.57 x 6	2
3	BX74486009	Guide plate, L/TR - finger	1
4	BX74485009	Lower thread finger	1
5	B995037009	Thread handler link assy	1
6	B995034009	Roller	1
7	B995033009	Shoulder screw, M4.76	1

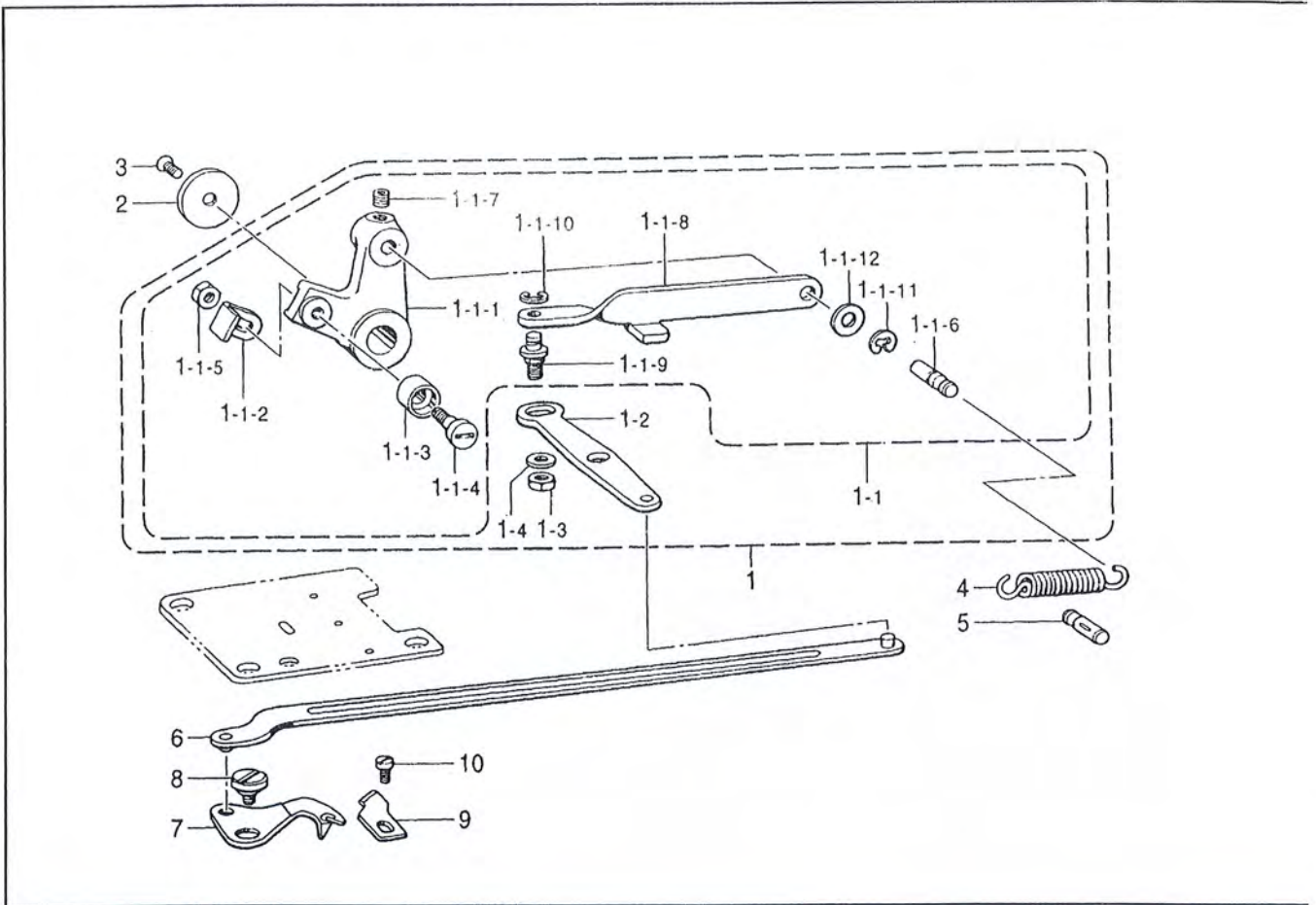
J. Threading mechanism



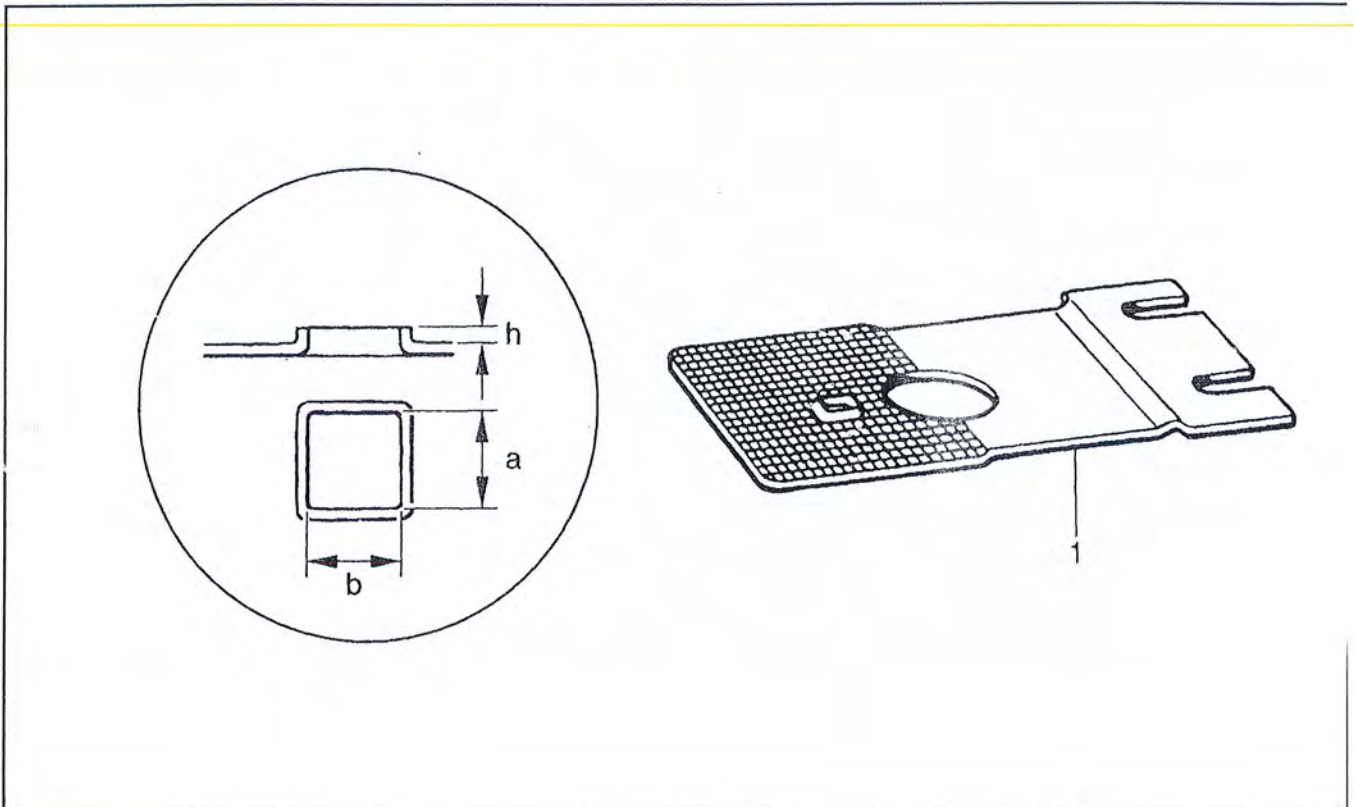
J. Threading mechanism

No.	Ref. No.	Description	Qt.
1	BX07495901	Top cover assy	1
1-1	BX07572901	Top cover	1
1-2	BX07494909	Slider assy, B	1
1-3	BX07560009	Shoulder screw, M4. 76	1
1-4	BX07569009	Rotor base	2
1-5	BX07568009	Rotor assy	1
1-6	B048390498	Screw, pan SM4. 76 -32 x6	1
1-7	B964756009	Washer, plain 5	1
1-8	BX07567909	Rotor shaft	1
1-9	B097390398	Set screw, (CP) SM4. 76	1
1-10	BX07566909	Sub tension stud assy	1
1-10-1	BX07565009	Sub tension stud	1
1-10-2	BX07564009	Pin	1
1-10-3	B995923909	Tension disc	1
1-10-4	B951205009	Tension disc presser	2
1-10-5	B962186909	Tension spring	1
1-10-6	B900974009	Tension nut	1
1-11	B097390398	Set screw, (CP) SM4. 76	2
1-12	BX04053009	Main tension stud assy	1
1-12-1	B995924009	Tension stud, main	1
1-12-2	B995923909	Tension disc	1
1-12-3	B995922008	Tension spring	2
1-12-4	B900974009	Tension nut	1
1-13	B995927909	Thread retainer	1
1-14	B048390498	Screw, pan SM4. 76 -32 x6	1
1-15	BX07561009	Thread presser tension stud assy	1
1-15-1	BX07550009	Thread presser tension stud	1
1-15-2	B995923909	Tension disc	1
1-15-3	B951205009	Tension disc presser	1
1-15-4	BX04678009	Tension spring	1
1-15-5	B900974009	Tension nut	1
1-16	B950554009	Nut, SM6. 35	2
1-17	BX07559009	Pin	1
1-18	BX07554009	Pin 3	4
1-19	BX07553009	Spring, extension	1
1-20	BX07552009	Spring hook	1
1-21	BX04857809	Thread guide	1
1-22	B096420488	Set screw, socket (CP) SM4. 37	1
1-23	BX94857009	Threading diagram	1
2	B048399098	Screw, pan SM4. 76 -32 x10	1
3	BX07493009	Thread TAK -UD lever	5
4	B048399098	Screw, pan SM4. 76 -32 x10	1
5	B964756009	Washer, plain 5	1
10	BX07540009	Thread take -up lever shaft	1
11	B097390398	Set screw, (CP) SM4. 76	1
12	BX07549809	Face plate assy	1
12-1	BX07733909	Face plate small assy	1
12-2	B966506009	Thread guide disc	1
12-3	B966505000	Spring	2
12-4	B955590009	Tension nut	1
13	BX07546009	Sub tension thread guide	1
14	BX07545009	Face plate thread guide	1
15	BX07544009	Face plate thread hook	1
16	B048399098	Screw, pan SM4. 76 -32 x10	1
17	B998352009	Oli cap	4
			1

K. Threading trimmer mechanism



L1. Option parts



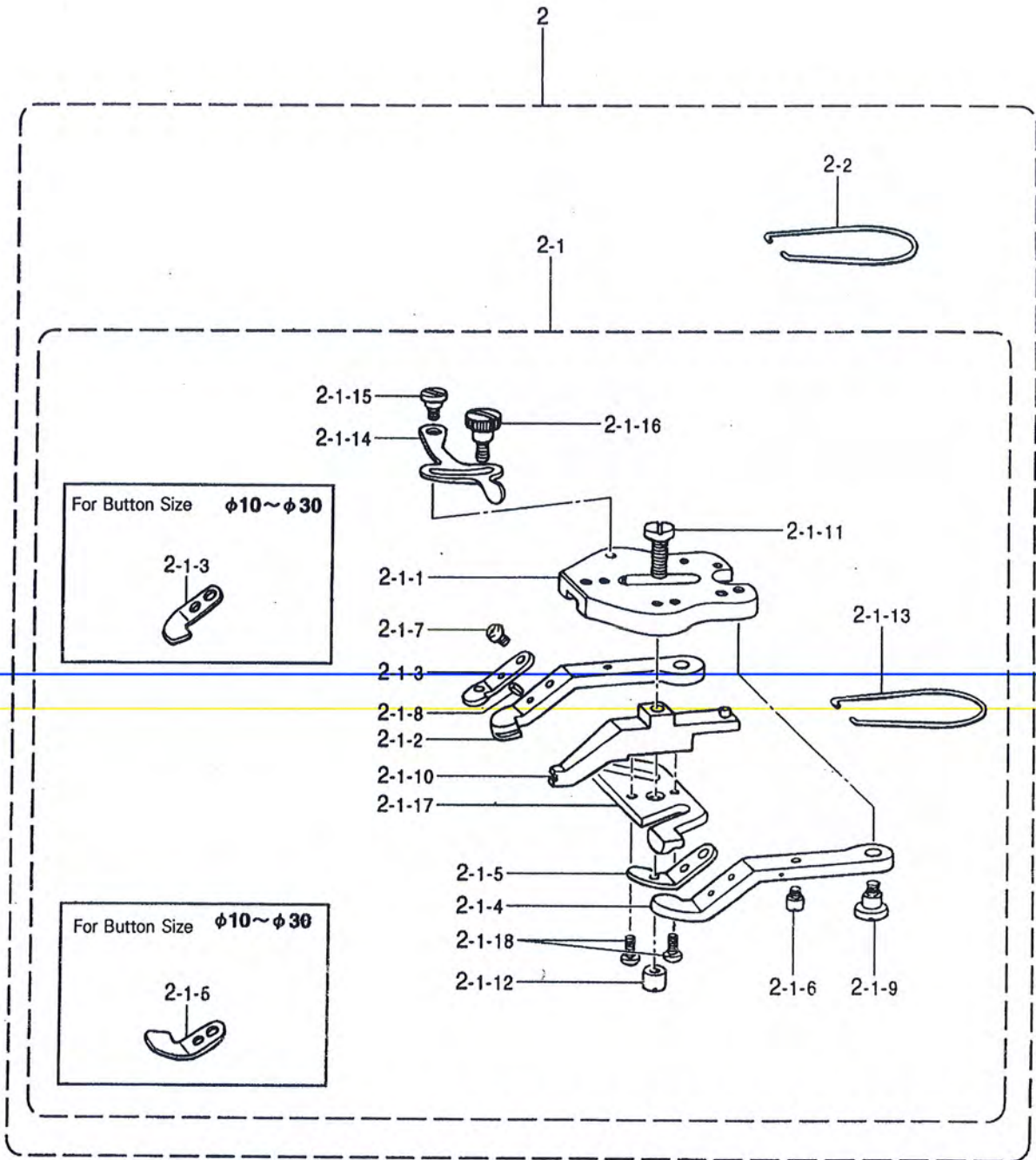
K. Threading trimmer mechanism

No.	Ref. No.	Description	Qt.
1	BX73741009	Thread trimmer lever assy	1
1-1	BXF9024009	Thread trimmer lever sub assy	1
1-1-1	BX74493009	Thread trimmer lever	1
1-1-2	BX07604909	Claw	1
1-1-3	BX07603009	Roller	1
1-1-4	BX07602009	Shoulder screw	1
1-1-5	B990949006	Nut, SM4. 76	1
1-1-6	BX76832009	Spring hanger shaft	1
1-1-7	B096340488	Set screw, socket SM5. 95	1
1-1-8	BX07489009	Connecting bar	1
1-1-9	BX07487009	Connecting bar shaft	1
1-1-10	B062050768	Retaining ring, E5	1
1-1-11	B062060768	Retaining ring, E4	1
1-1-12	B955551009	Washer, plain	1
1-2	BX07488909	Connecting lever	1
1-3	B950557009	Nut, SM5. 95	1
1-4	B085040878	Washer, plain M 6	1
2	B959178009	Bearing cover	1
3	B903879008	Screw, flat SM4. 76	1
4	BX07486009	Spring	1
5	BX76812009	Dowel pin	1
6	BX07484009	Thread trimmer connecting rod assy	1
7	BX07483009	Movable knife	1
8	BX07482009	Movable knife shoulder screw	1
9	BX07481009	Fixed knife	1
10	B904481008	Screw, SM4. 37	1

L1. Option parts

No.	Ref. No.	Description	Qt.
1	BX07634909	Feed plate, A	1
1	BX07470909	Feed plate, B	1
1	B995025009	Feed plate, C	1
1	BX07478909	Feed plate, D	1
1	BX94989909	Feed plate, E	1

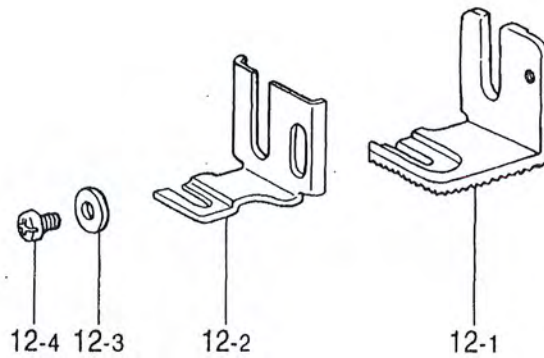
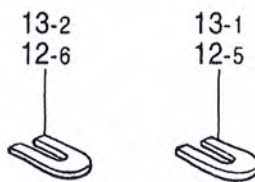
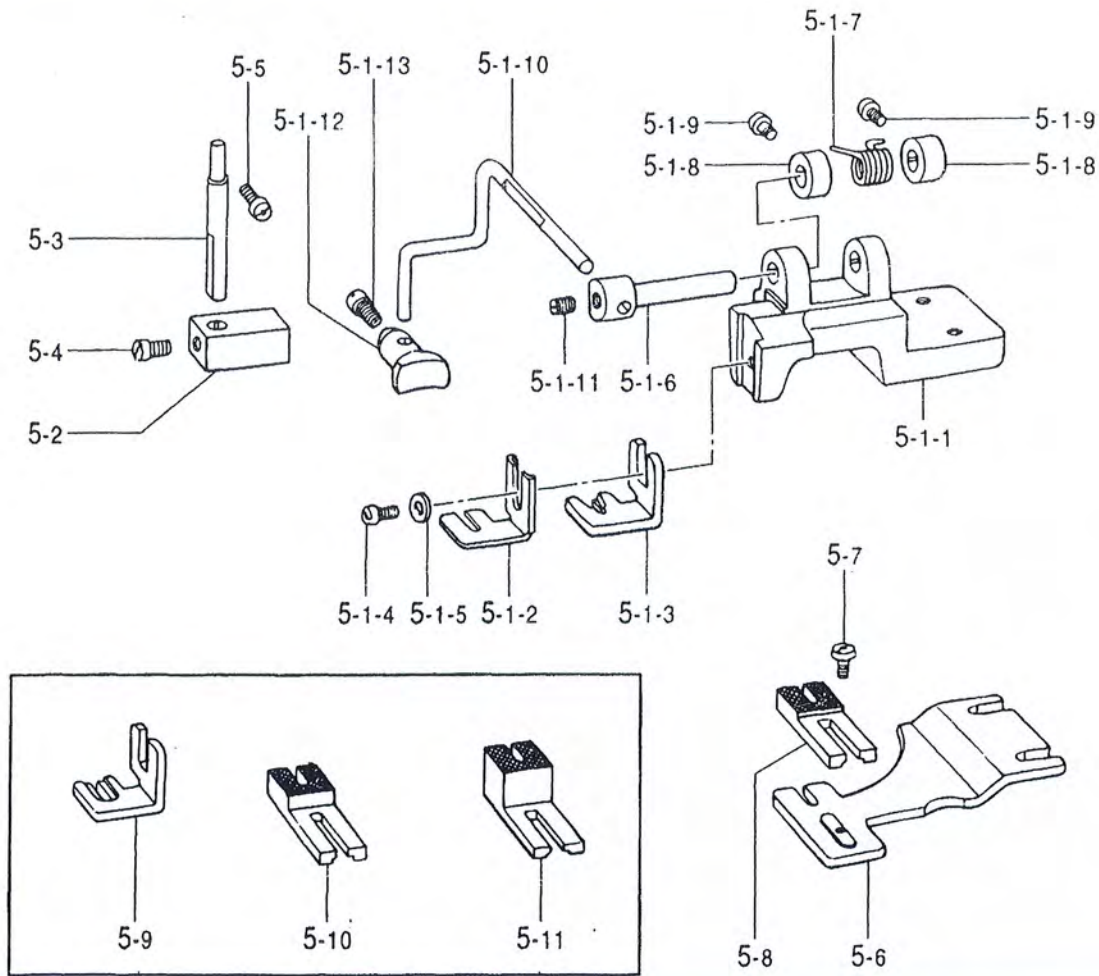
L2. Option parts



L2. Option parts

No.	Ref. No.	Description	Qt.
		< For button size Ø10 ~ Ø20 >	
2	BX07309009	Button clamp set A	1
2 - 1	BX70095909	Button clamp assy	1
2 - 1 - 1	BX07646909	Button clamp bracket	1
2 - 1 - 2	BX81112009	Button clamp, L	1
2 - 1 - 3	BX70009009	Spring, plate; L	1
2 - 1 - 4	BX81111009	Button clamp, R	1
2 - 1 - 5	BX70008009	Spring, plate; R	1
2 - 1 - 6	B995954009	Guide pin	2
2 - 1 - 7	B048420598	Screw, pan SM4. 37 - 40 x 5	2
2 - 1 - 8	B063850468	Pin, spring roll AW2. 5	2
2 - 1 - 9	B995952009	Shoulder screw, SM4. 76	2
2 - 1 - 10	BX81156009	Button clamp assy, M	1
2 - 1 - 11	BX07642909	Screw, SM4. 37	1
2 - 1 - 12	BX07453009	Nut, round SM4. 37	1
2 - 1 - 13	B995947009	Spring, plate	1
2 - 1 - 14	B995946909	Adjusting plate, ; B - clamp	1
2 - 1 - 15	B995945009	Shoulder screw, SM4. 37	1
2 - 1 - 16	B995944009	Shoulder screw, SM4. 37	1
2 - 1 - 17	BX07451009	Plate cam, ; B - clamp	1
2 - 1 - 18	B048420298	Screw, pan SM4. 37 - 40 x 8	2
2 - 2	BX07490009	Spring, compression	1
		< For button size Ø10 ~ Ø30 >	
2	BX07477009	Button clamp set, B	1
2 - 1	BX07476909	Button clamp assy, B	1
2 - 1 - 1	BX07646909	Button clamp bracket	1
2 - 1 - 2	BX07450009	Button clamp, LB	1
2 - 1 - 3	BX99031009	Spring, plate; L	1
2 - 1 - 4	BX07461009	Button clamp, RB	1
2 - 1 - 5	BX99020009	Spring, plate; R	1
2 - 1 - 6	B995954009	Guide pin	2
2 - 1 - 7	B048420598	Screw, pan SM4. 37 - 40 x 5	2
2 - 1 - 8	B063850468	Pin, spring roll AW2. 5	2
2 - 1 - 9	B995952009	Shoulder screw, SM4. 76	2
2 - 1 - 10	BX07643009	Button clamp assy, M	1
2 - 1 - 11	BX07642909	Screw, SM4. 37	1
2 - 1 - 12	BX07453009	Nut, round SM4. 37	1
2 - 1 - 13	B995947009	Spring, plate	1
2 - 1 - 14	B995946909	Adjusting plate, ; B - clamp	1
2 - 1 - 15	B995945009	Shoulder screw, SM4. 37	1
2 - 1 - 16	B995944009	Shoulder screw, SM4. 37	1
2 - 1 - 17	BX07451009	Plate cam, ; B - clamp	1
2 - 1 - 18	B048420298	Screw, pan SM4. 37 - 40 x 8	2
2 - 2	BX07490009	Spring, compression	1

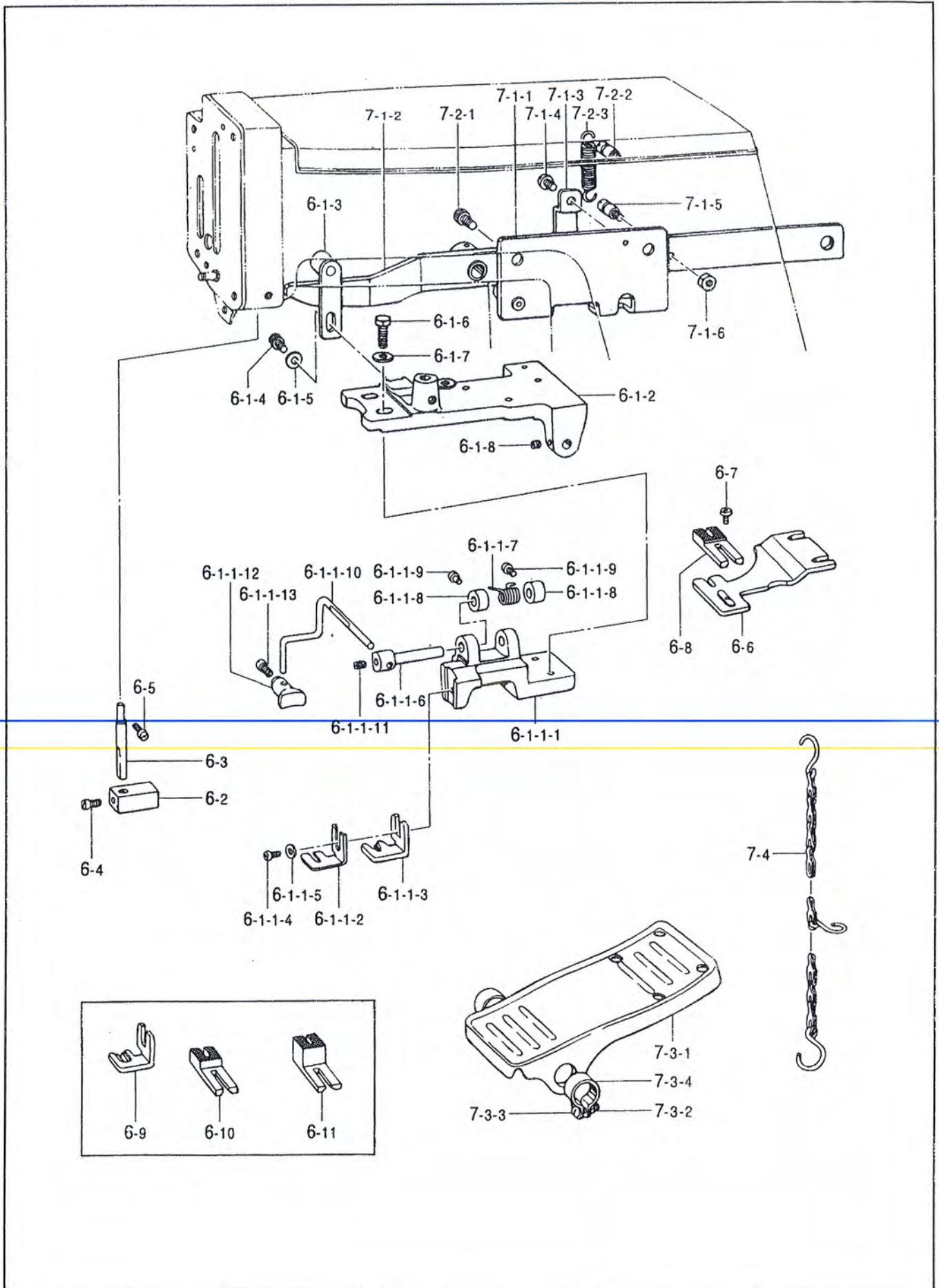
L3. Option parts



L3. Option parts

No.	Ref. No.	Description	Qt.
5	B968530901	Shank button attachment	1
5 - 1	B968421701	Shank button clamp brac. assy	1
5 - 1 - 1	B956426001	Shank button clamp bracket	1
5 - 1 - 2	B968433909	Button clamp, A	1
5 - 1 - 3	B968432909	Button clamp, B	1
5 - 1 - 4	B048430298	Screw, pan SM3. 57 - 408	1
5 - 1 - 5	B908303007	Washer	1
5 - 1 - 6	B968429009	Button clamp stud	1
5 - 1 - 7	B956425009	Spring	1
5 - 1 - 8	B968304009	Set screw collar	2
5 - 1 - 9	B048430398	Screw, pan SM3. 57 - 40 x 7	2
5 - 1 - 10	B956424009	Button clamp arm	1
5 - 1 - 11	B097391698	Set screw, (CP) SM4. 76	1
5 - 1 - 12	B968420009	Button clamp	1
5 - 1 - 13	B980110009	Set screw, (CP) SM4. 37 - 40 x 8	1
5 - 2	B968427909	Button presser arm lifter	1
5 - 3	B968426009	Button presser arm lifter bar	1
5 - 4	B980110009	Set screw, (CP) SM4. 37 - 40 x 8	1
5 - 5	B048399098	Screw, pan SM4. 76 - 32 x 10	1
5 - 6	B954774909	Feed plate, ; S - button	1
5 - 7	B040430598	Screw, bind SM3. 57 - 40 x 5	1
5 - 8	B968424909	Cloth receiver, S	1
5 - 9	BX07469909	Botton clamp D	1
5 - 10	B968423909	Cloth receiver, M	1
5 - 11	B968422009	Cloth receiver (large)	1
12	BX90456009	Shank gauge kit	1
12 - 1	BX90540009	Button clamp (E)	1
12 - 2	BX90459009	Button clamp (F)	1
12 - 3	B905949007	Washer	1
12 - 4	BX71024009	Screw, pan SM3. 57 - 40 x 3. 5	1
12 - 5	BX90458000	Button guide (1. 5)	5
12 - 6	BX90457000	Button guide (1. 0)	5
13	BX90455009	Button guide set	1
13 - 1	BX90458000	Button guide (1. 5)	10
13 - 2	BX90457000	Button guide (1. 0)	10

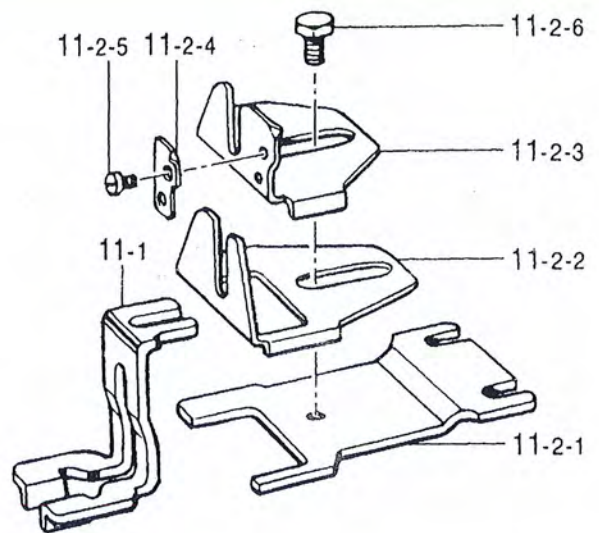
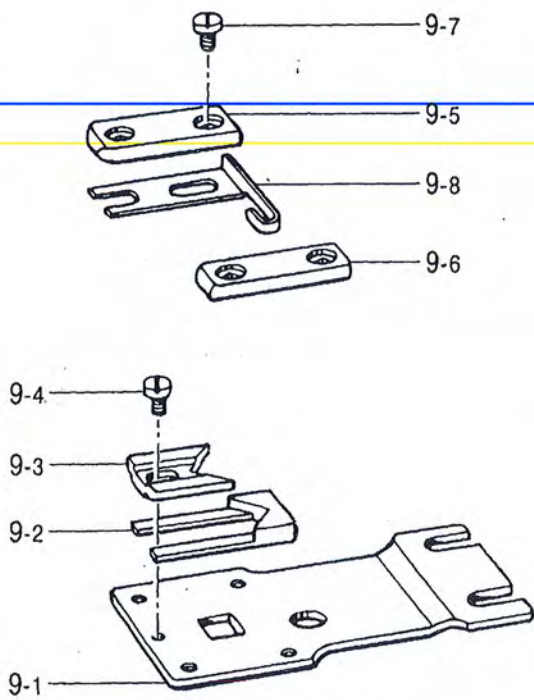
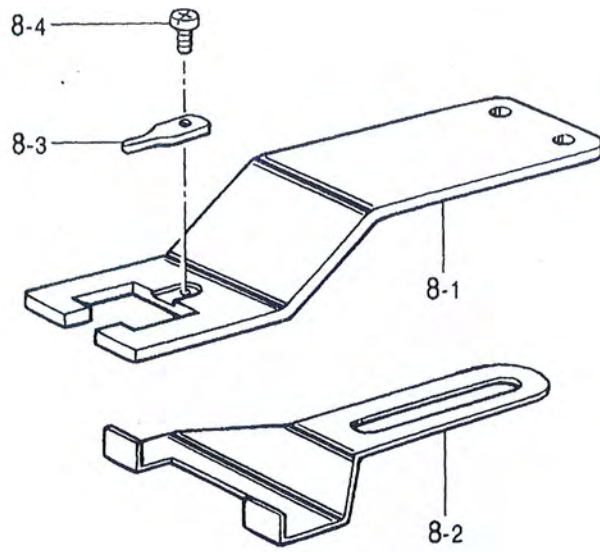
L4. Option parts



L4. Option parts

No.	Ref. No.	Description	Qt.
6	BX71288901	Shank device set	1
6-1	BX71287901	Shank button clamp assy	1
6-1-1	B968421701	Shank button clamp brac. assy	1
6-1-1-1	B956426001	Shank button clamp bracket	1
6-1-1-2	B968433909	Button clamp, A	1
6-1-1-3	B968432909	Button clamp, B	1
6-1-1-4	B048430298	Screw, pan SM3. 57 -40 x8	1
6-1-1-5	B908303007	Washer	1
6-1-1-6	B968429009	Button clamp stud	1
6-1-1-7	B956425009	Spring	1
6-1-1-8	B968304009	Set screw collar	2
6-1-1-9	B048430398	Screw, pan SM3. 57 -40 x7	2
6-1-1-10	B956424009	Button clamp arm	1
6-1-1-11	B097391698	Set screw, (CP) SM4. 76	1
6-1-1-12	B968420009	Button clamp	1
6-1-1-13	B980110009	Set screw, (CP) SM4. 37 -40 x8	1
6-1-2	BX73758001	Presser arm	1
6-1-3	BX07651059	Presser adjusting plate assy	1
6-1-4	B092049088	Bolt, socket M6 x10	1
6-1-5	BX07415009	Washer, plain 6	1
6-1-6	B093399698	Bolt, SM4. 76 x14	2
6-1-7	B964756009	Washer, plain 5	2
6-1-8	B096420488	Set screw, socket (CP) SM4. 37	2
6-2	B968427909	Button presser arm lifter	1
6-3	B968426009	Button presser arm lifter bar	1
6-4	B980110009	Set screw, (CP) SM4. 37 -40 x8	1
6-5	B048399098	Screw, pan SM4. 76 -32 x10	1
6-6	B954774909	Feed plate, ; S -button	1
6-7	B040430598	Screw, bind SM3. 57 -40 x5	1
6-8	B968424909	Cloth receiver, S	1
6-9	BX07469909	Botton clamp D	1
6-10	B968423909	Cloth receiver, M	1
6-11	B968422009	Cloth receiver (large)	1
7	BX07455008	Mechanical two -pedal set	1
7-1	BX07396009	Lifter lever assy, ; P -bar	1
7-1-1	BX07305009	Base plate	1
7-1-2	BX07304009	Lifter lever, ; P -bar	1
7-1-3	BX07303009	Guide plate	1
7-1-4	B048390498	Screw, pan SM4. 76 -32 x6	1
7-1-5	BX07485009	Spring hook	1
7-1-6	B990949006	Nut, SM4. 76	1
7-2	BX73205009	Presser lifter spring assy	1
7-2-1	B092049688	Bolt, socket M6 x14	2
7-2-2	BX07485009	Spring hook	1
7-2-3	BX07486009	Spring	1
7-3	B994925801	Pedal assy	1
7-3-1	B993673901	Foot lifter pedal	1
7-3-2	B089600904	Nut, 1 M4	2
7-3-3	B048609694	Screw, pan M4 x14	2
7-3-4	B994094009	Pedal stopper	2
7-4	B968454009	Chain assy	1

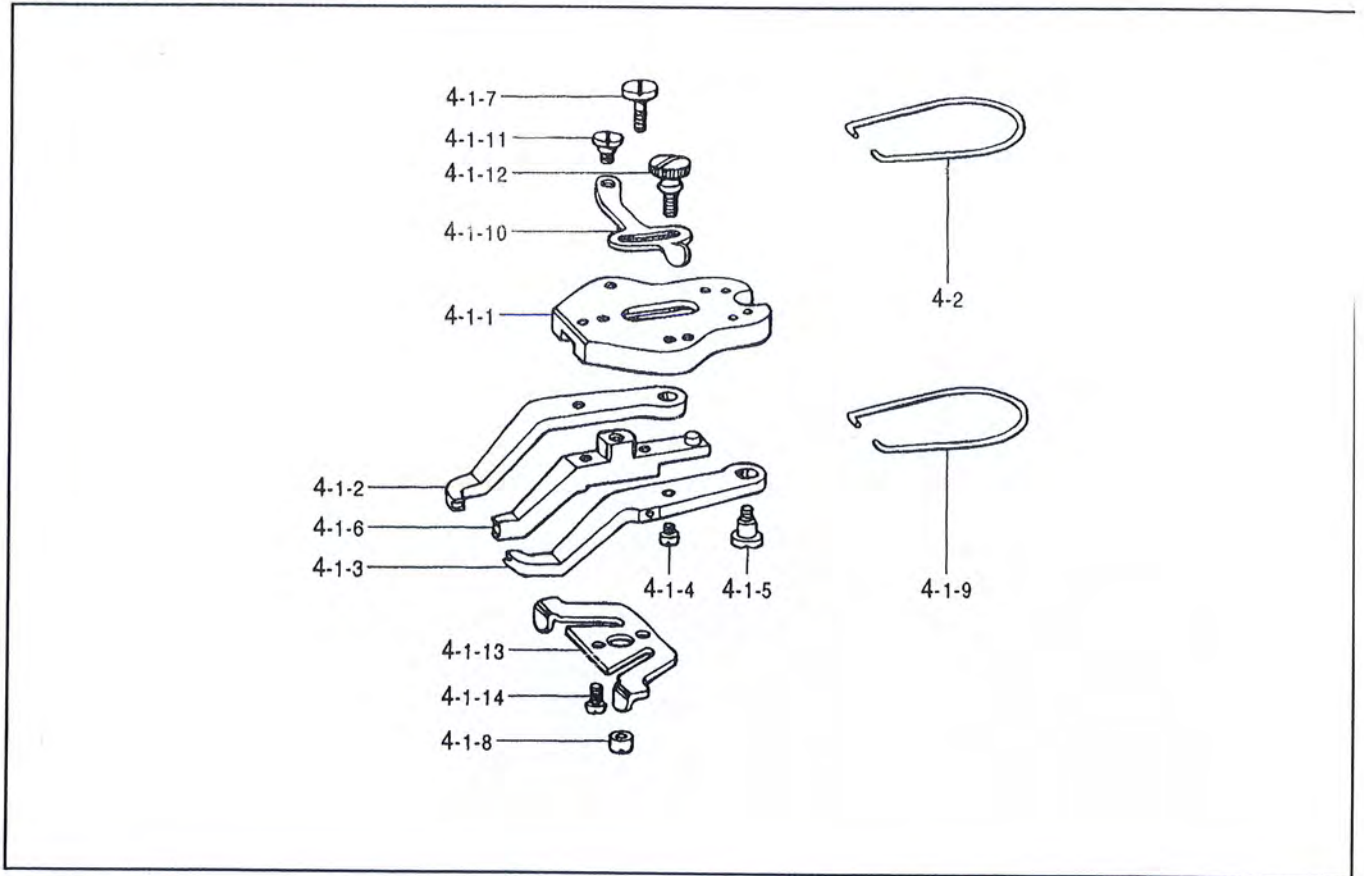
L5. Option parts



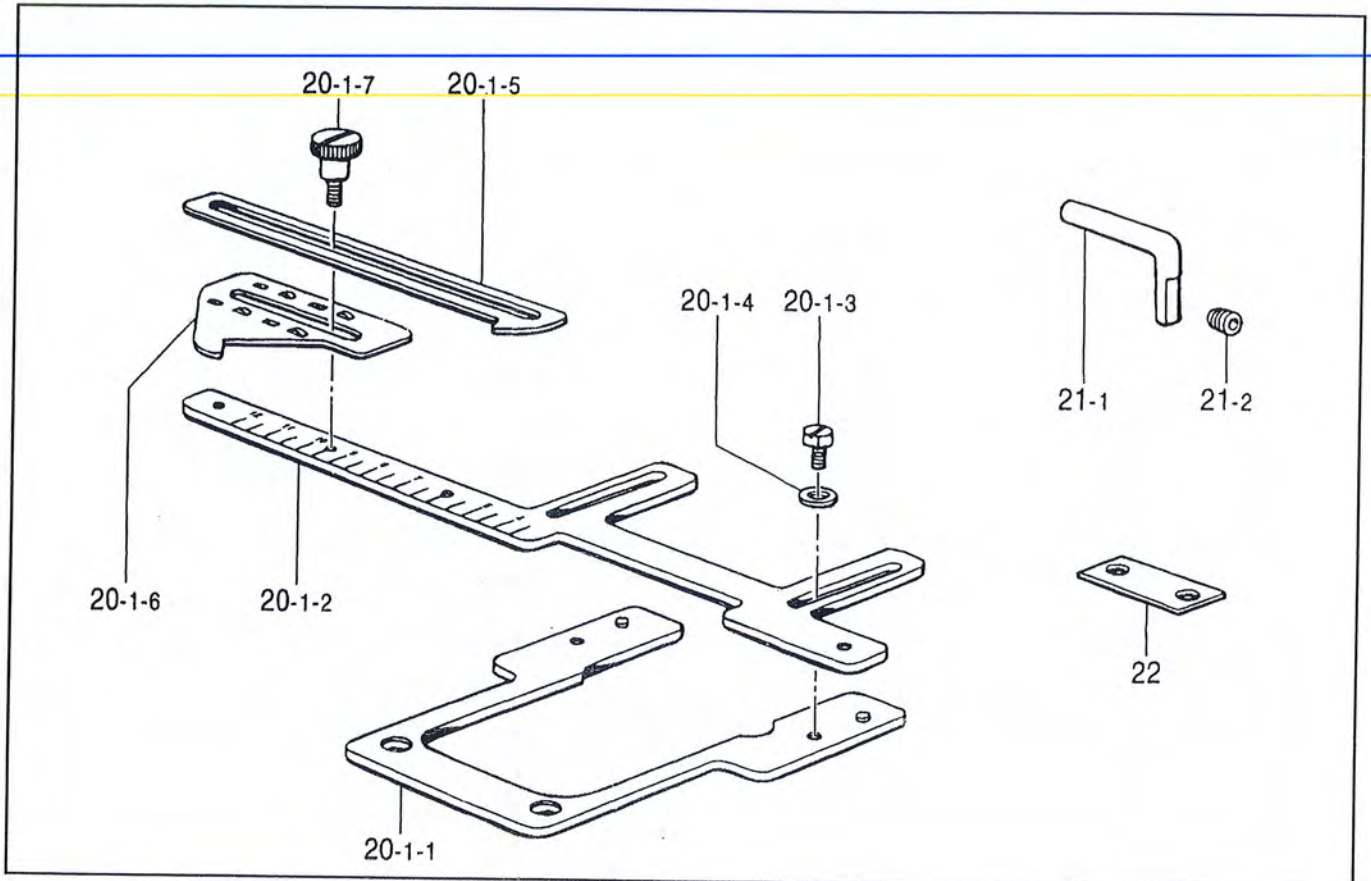
L5. Option parts

No.	Ref. No.	Description	Qt.
8	BX07418009	Label attachment	1
8-1	BX01966009	Label clamp	1
8-2	BX01967009	Stopper	1
8-3	BX01965009	Clamp spring	1
8-4	BX09815009	Screw, SM2. 38 x 3.5	2
9	BX07417009	Stay button attachment (S)	1
9-1	BX01628009	Stay button feed plate	1
9-2	BX01627009	Button receiver (D)	1
9-3	BX01626009	Button receiver (U)	1
9-4	BX01616009	Screw, SM3. 18 - 44 x 3.4	1
9-5	BX01625009	Receiver guide (L)	1
9-6	BX01624009	Receiver guide (R)	1
9-7	BX01617009	Screw, SM3. 18 - 44 x 4	4
9-8	BX01623009	Receiver support spring	1
11	B950694009	Button root wrapping attachment	1
11-1	BX01622009	Lifting gauge	1
11-2	BX01546009	Wrapping gauge assy	1
11-2-1	BX01621009	Root wrapping button feed plate	1
11-2-2	BX01610009	Button root wrapping receiver (A)	1
11-2-3	BX01619009	Button root wrapping receiver (B)	1
11-2-4	BX01618009	Thread nipper	1
11-2-5	BX01614009	Screw, SM2. 38 - 56 x 1.9	2
11-2-6	BX01615009	Bolt, SM4. 37 - 40 x 4.5	1

L6. Option parts



L7. Option parts



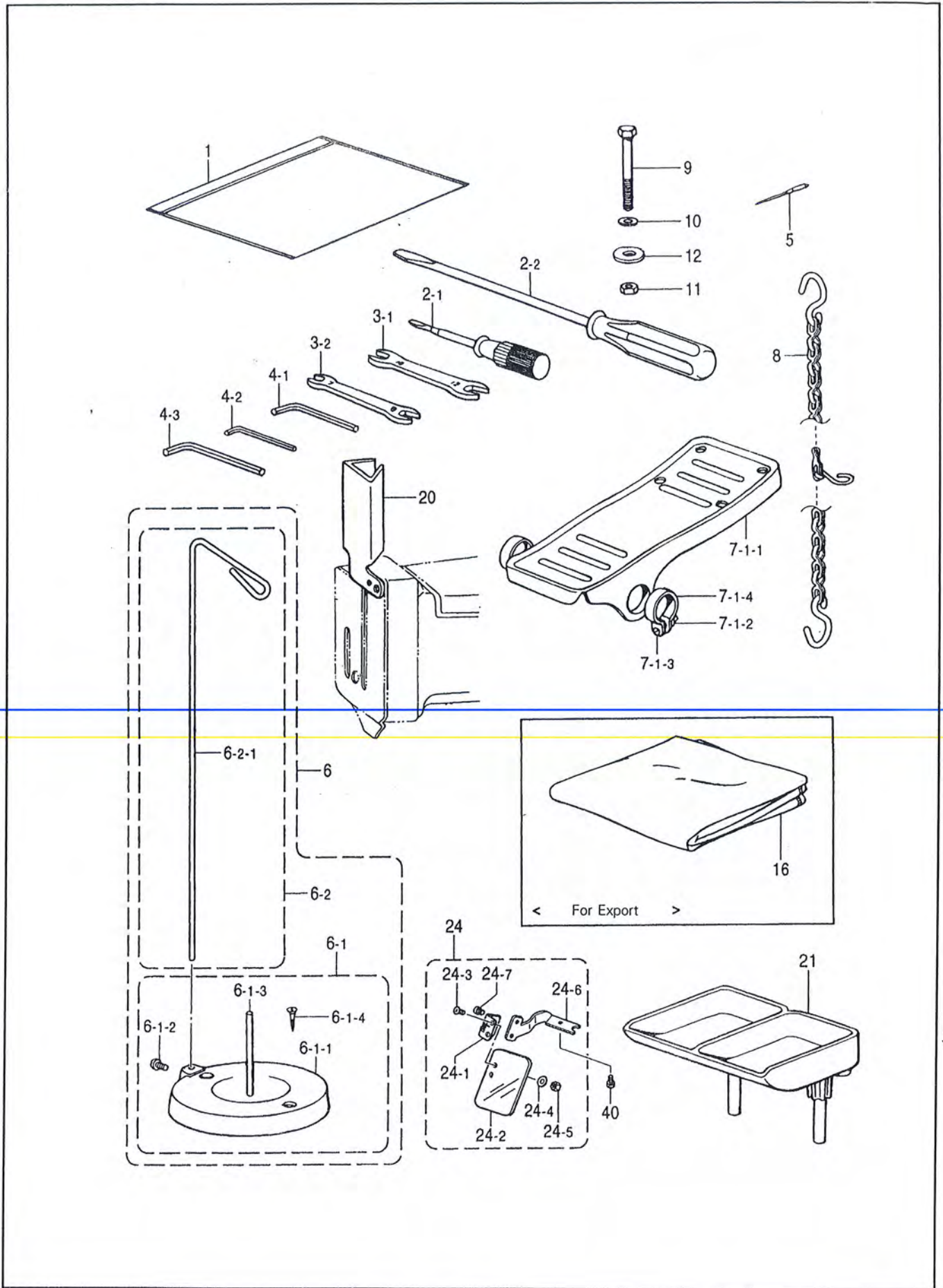
L6. Option parts

No.	Ref. No.	Description	Qt.
4	BX07475909	Snap clamp set	1
4-1	BX07474909	Snap clamp assy	1
4-1-1	BX07646909	Button clamp bracket	1
4-1-2	B992569009	Snap clamp, L	1
4-1-3	B992571009	Snap clamp, R	1
4-1-4	B995954009	Guide pin	2
4-1-5	B995952009	Shoulder screw, SM4. 76	2
4-1-6	BX07398009	Snap clamp assy, M	1
4-1-7	BX07642909	Screw, SM4. 37	1
4-1-8	BX07453009	Nut, round SM4. 37	1
4-1-9	B995947009	Spring, plate	1
4-1-10	B995946909	Adjusting plate, ; B - clamp	1
4-1-11	B995945009	Shoulder screw, SM4. 37	1
4-1-12	B995944009	Shoulder screw, SM4. 37	1
4-1-13	BX07451009	Plate cam, ; B - clamp	1
4-1-14	B048420298	Screw, pan SM4. 37 - 40 x 8	2
4-2	BX07490009	Spring, compression	1

L7. Option parts

No.	Ref. No.	Description	Qt.
20	BX01455009	Button spacer set	1
20-1	BX01454009	Button spacer assy	1
20-1-1	BX01453009	Base	1
20-1-2	BX01452009	Scale	1
20-1-3	BX01424009	Bolt, SM4. 37 - 40 x 7	2
20-1-4	BX08365009	Washer	2
20-1-5	BX01451009	Positioning plate, A	1
20-1-6	BX01440009	Positioning plate, B	1
20-1-7	B995944009	Shoulder screw, SM4. 37	1
21	BX72929009	Button holder hook assy	1
21-1	BX74297009	Button holder hook	1
21-2	B096340488	Set screw, socket SM5. 95	1
22	BX73730009	Feed spacer	1

Z1. Accessories

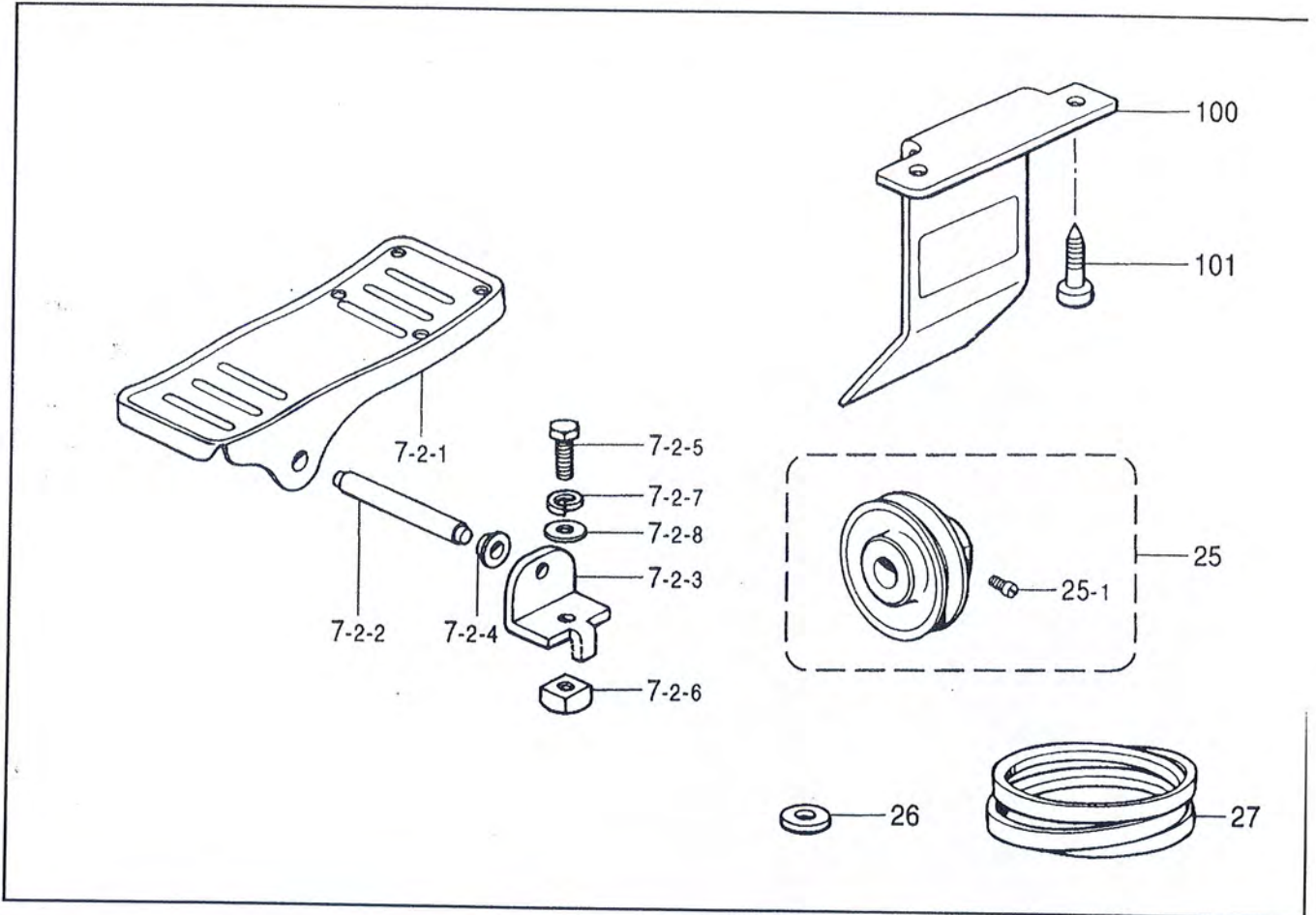


Z1. Accessories

No.	Ref. No.	Description	Qt.
1	B988119009	Accessory bag	1
2-1	B905766009	Screw driver, 2.6 x 70	1
2-2	B992273009	Screw driver, 3.4 x 70	1
3-1	B903320009	Wrench, 10 x 12	1
3-2	B968805009	Wrench, 7 x 8	1
4-1	B968389009	Hexagonal wrench, 3	1
4-2	B968008009	Hexagonal wrench, 2	1
4-3	B992046009	Hexagonal wrench, 4	1
5	B995057096	Needle, TQ x1 (#14)	2
5	B995057094	Needle, TQ x1 (#16)	2
5	B995057092	Needle, TQ x1 (#18)	2
6	BX51557009	Cotton stand set	1
6-1	BX51556009	Cotton stand A assy	1
6-1-1	BX51555009	Disc	1
6-1-2	B048509094	Screw, pan M5 x 10	1
6-1-3	BX80975009	Spool pin	1
6-1-4	B076688004	Wood screw, flat 2 M4.1 x 20	2
6-2	BX51554009	Cotton stand B assy	1
6-2-1	BX80977009	Thread retainer	1
7-1	B994925801	Pedal assy	1
7-1-1	B993673901	Foot lifter pedal	1
7-1-2	B089600904	Nut, 1 M4	2
7-1-3	B048609694	Screw, pan M4 x 14	2
7-1-4	B994094009	Pedal stopper	2
8	B968454009	Chain assy	1
9	B966567009	Bolt, M6 x 63	4
10	B085040878	Washer, plain M6	4
11	B089040908	Nut, 1 M6	4
12	B995163009	Washer, plain 6.35	4
16	B966886009	Head cover	1
20	BX73975009	Needle bar cover	1
21	BX92468001	Button tray	1
24	BX66615009	Eye guard assy, C	1
24-1	BX66627009	Hinge assy	1
24-2	BX66625009	Eye guard	1
24-3	B049440204	Screw, flat SM3.18 - 40 x 8	2
24-4	B085070878	Washer, plain M 3	2
24-5	B089440908	Nut, 1 SM3.18	2
24-6	BX66622009	Eye guard holder, C	1
24-7	B048430598	Screw, pan SM3.57 - 40 x 5	2
40	B092600478	Bolt, socket M46	1

The details of included accessories are subject to change.

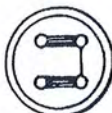







Z2. Accessories



Z2. Accessories

No.	Ref. No.	Description	Qt.
7-2	BX09407001	Treadle assy (For Z - type stand)	1
7-2-1	BX09911007	Treadle pedal	1
7-2-2	B977922009	Treadle shaft	1
7-2-3	B991303007	Bracket	2
7-2-4	B991302001	Collar	2
7-2-5	B093028804	Bolt, M8 x 22	2
7-2-6	B994416009	Nut, M8	2
7-2-7	B082020860	Washer, spring 2 - 8	2
7-2-8	B085020874	Washer, plain M 8	2
25	B991830009	N65 pulley assy (For 60HZ)	1
25	B991839009	B75 pulley assy (For 50HZ)	1
25-1	B905037009	Set screw, SM5.95	2
26	B977286009	Cushion rubber	8
27	BX92303986	Belt, VM white (For 50HZ)	1
27	BX92303987	Belt, VM white (For 60HZ)	1
100	BX72474909	Pulley cover assy	2
101	B078688007	Wood screw, round M4. 1 x 20	4

Sp. Different parts list

			B - 1	E1 - 5	E1 - 6	E1 - 7	G - 9	
			Stitch control cam assy	Worm gear assy	Transverse feed cam assy	Vertical feed cam assy	Worm assy	
-01		8 · 16 · 32	BX74414-009	BX07665-009	BX07664-009	BX07659-009	BX07582-009	
-03			↑	↑	BX07663-009	↑	↑	
-05			↑	↑	BX07664-009	BX07658-009	↑	
-07			↑	↑	↑	BX07514-009	↑	
-02		6 · 12 · 24	BX74413-009	BX07459-009	BX07662-009	BX07659-009	BX07457-009	
-04			↑	↑	BX07661-009	↑	↑	
-06			↑	↑	BX07662-009	BX07656-009	↑	
-08			↑	↑	↑	BX07513-009	↑	

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B097390598	5 - 1	12	B085070878	24 - 4	30	B908303007	5 - 1 - 5	22	B995012009	31	8
B097390398	19	12	B085040878	20 - 5	12		6-1-1-5	24	B995011009	32	8
	11	16		1 - 4	18	B905037009	25 - 1	32	B995909009	17	8
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Thank you very much for buying a our company 's sewing machine. Before using your new machine, please read the safety instructions below and the explanations given in the instruction manual.

With industrial sewing, it is normal to carry out work while positioned directly in front of moving parts such as the needle and thread take – up lever, and consequently there is always a danger of injury that can be caused by these parts. Follow the instructions from training personnel and instructors regarding safe and correct operation before operating the machine so that you will know how to use it correctly.

SAFETY INSTRUCTIONS

1. Safety indications and their meanings

This instruction manual and the indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and to prevent accidents and injury to yourself or other people.

Indications



WARNING

The instructions which follow this term indicate situations where failure to follow the instructions can result in severe injury or death.



CAUTION

The instructions which follow this term indicate situations where failure to follow the instructions could cause injury when using the machine or physical damage to equipment and surroundings.

Symbols



This symbol (Δ) indicates something that you should be careful of. The picture inside the triangle indicates the nature of the caution that must be taken.

(For example, the symbol at left means "beware of injury".)



This symbol ($\textcircled{/}$) indicates something that you must not do.



This symbol (\bullet) indicates something that you must do. The picture inside the circle indicates the nature of the thing that must be done.

(For example, the symbol at left means "you must make the ground connection".)

2. Note on safety



WARNING



Do not put your hand into any openings near the belt, as your hands could get caught in the belt, and serious injury could result.



CAUTION

Environmental requirements



Use the sewing machine in an area which is free from sources of string electrical noise such as high-frequency welders.

Sources of string electrical noise may cause problems with correct operation.



Any fluctuations in the power supply voltage should be within 10% of the rated voltage for the machine.

Voltage fluctuations which are greater than this may cause problems with correct operation.



The power supply capacity should be greater than the requirements for the sewing machine's electrical consumption.

Insufficient power supply capacity may cause problems with correct operation.



The ambient temperature should be within the range of 5°C to 35°C during use.

Temperatures which are lower or higher than this may cause problems with correct operation.



The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices.

Excessively dry or humid environments and dew formation may cause problems with correct operation.



Avoid exposure to direct sunlight during use.

Exposure to direct sunlight may cause problems with correct operation.



In the event of an electrical storm, turn off the power and disconnect the power cord from the wall outlet. Lightning may cause problems with correct operation.

Installation



Machine installation should only be carried out by a qualified technician.



Contact your dealer or a qualified electrician for any electrical work that may need to be done.



The sewing machine weighs more than 25kg. The installation should be carried out by two or more people.



Do not connect the power cord until installation is complete, otherwise the machine may operate if the treadle is depressed by mistake, which could result in injury.



Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.



All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.



Install the pulley covers (sold separately) to the motor.



If using a work table which has casters, the casters should be secured in such a way so that they cannot move.













Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.



Furthermore, do not drink the oil under any circumstances, as it can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

⚠ CAUTION









Sewing

-  This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.
-  The sewing machine should not be used for any applications other than sewing.
-  Be sure to wear protective goggles when using the machine. If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.
-  Turn off the power switch at the following times. The machine may operate if the pedal is pressed by mistake, which could result in injury.
 - When threading the needle
 - When checking the needle drop position
 - When replacing the needle
 - When not using the machine and when leaving the machine unattended
 - * The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
-  Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.
-  Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.
-  When turning the machine pulley by hand in order to check the needle down position in the hole of the button, turn the pulley until the needle is at the final position after one cycle.
If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury.
-  If an error occurs in machine, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest dealer or a qualified technician.
-  If using a work table which has casters, the casters should be secured in such a way so that they cannot move.
-  If the machine develops a problem, contact your nearest Brother dealer or a qualified technician.

Cleaning

-  Turn off the power switch before carrying out cleaning. The machine may operate if the pedal is pressed by mistake, which could result in injury.
 - * The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work
-  Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.
Furthermore, do not drink the oil under any circumstances, as it can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

Maintenance and inspection

-  Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
-  If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury. If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.
-  Ask your dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.
-  Use only the proper replacement parts as specified by Brother.
-  Turn off the power switch and disconnect the power cord from the wall outlet at the following times. The machine may operate if the pedal is pressed by mistake, which could result in injury.
 - When carrying out inspection, adjustment and maintenance
 - When replacing consumable parts such as the loopers and knife
 - * The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
-  If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.
-  Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.
-  When turning the machine pulley by hand, turn the pulley until the needle is at the final position after one cycle.

3. Warning labels

The following warning labels appear on the sewing machine.

Please follow the instructions on the labels at all times when using the machine. If the labels have been removed or are difficult to read, please contact your nearest Brother dealer.

- 1 Safety devices:
(A) Finger guard
(B) Eye guard
(C) Needle bar cover
(D) Pulley covers (Option)

2

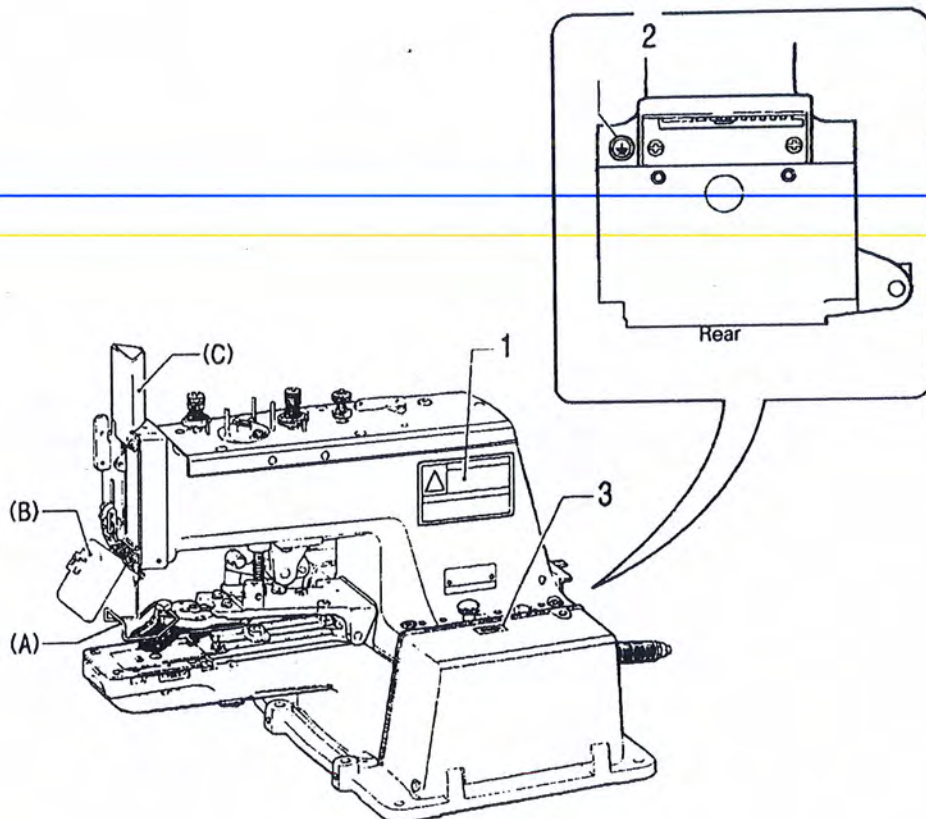


Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

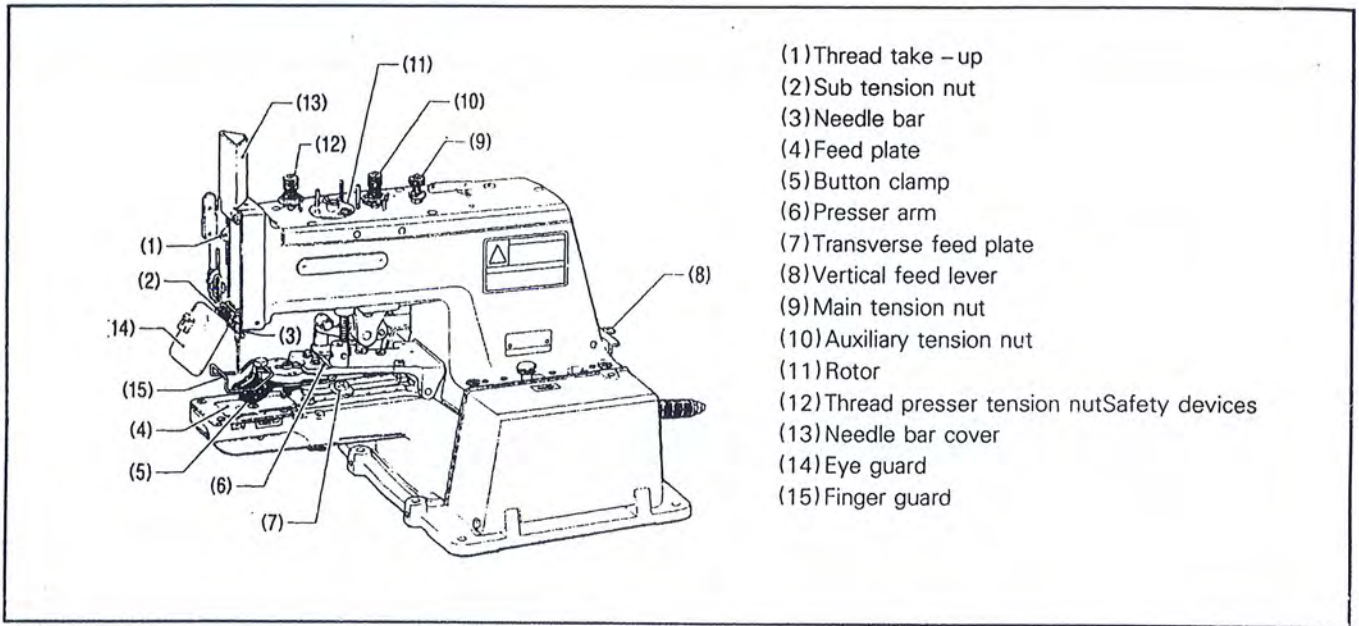
3



Direction of operation

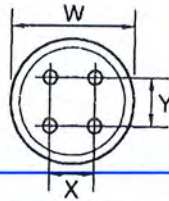


1. NAMES OF MAJOR PARTS



2. MACHINE SPECIFICATIONS

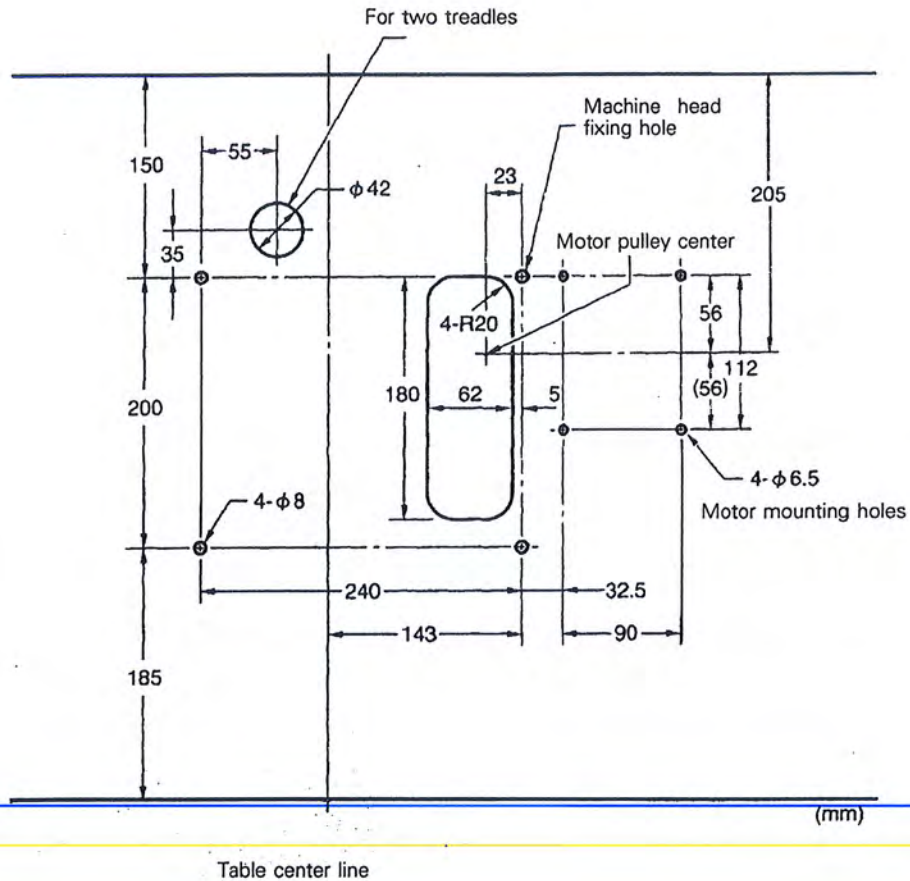
BS 9917 -



Subclass	01	02	03	04	05	06	07	08
Stitch form								
Stitch number	8, 16, 32	6, 12, 24	8, 16, 32	6, 12, 24	8, 16, 32	6, 12, 24	8, 16, 32	6, 12, 24
Needle	TQ x 1 #16							
Button size	10 ~ 20mm(W) (10 ~ 30mm When using the optional button)							
Button hole spacing	2.0 ~ 6.5mm x 0 ~ 6.5mm(X x Y)							
Button clamp lift stroke	14mm							
Maximum sewing speed	1, 500rpm							

3. TABLE PROCESSING DIAGRAM

- The top of the table should be 40mm in thickness and should be strong enough to hold the weight and withstand the vibration of the sewing machine.
- Drill holes as indicated in the illustration below.
 <Seen from above table>



4. MOTOR

⚠ CAUTION

- ⚠ All cords which are connected to the motor should be secured at least 25mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.
- ⚠ Install the pulley covers covers (sold separately) to the motor.

<Motor>

- Use the applicable motor shown in the table at right.
- Refer to the instruction manual for the motor for details on installing and using the motor.

power	Motor
Single - phase	4pole, 250W motor
Three - phase	4pole, 250W motor

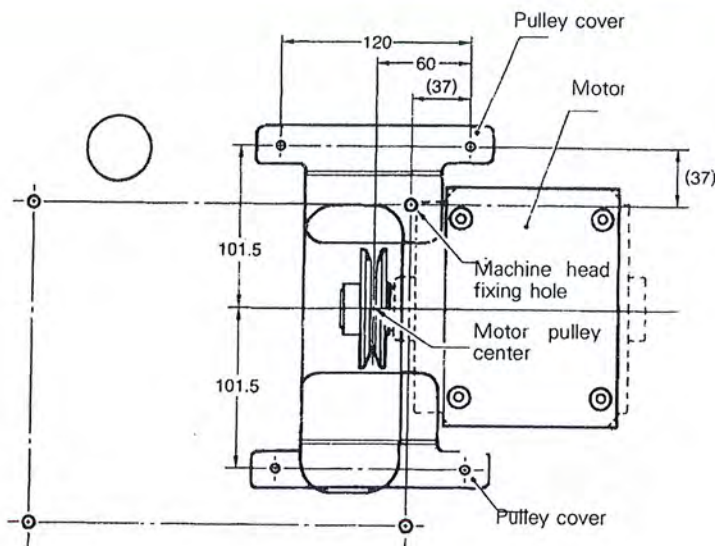
<Motor pulley and V - belt>

- Select the correct motor pulley and V - belt by referring to the table below to suit the power frequency of your area.
- In case of using the round leather belt or sewing at a speed less than 1500 rpm, please adjust the clutch stop position with the brake so that it may not be unfixd. (Refer to p. 20.)

Machine speed	Frequency	Motor pulley(outer diameter)	V - belt
1,500rpm	50Hz	N - 75 pulley(75mm)	M24
	60Hz	N - 65 pulley(65mm)	M23

<Diagram of installation position for pulley covers(sold separately) >

<Seen from above table>



5. INSTALLATION

⚠ CAUTION

⊘ The sewing machine should only be installed by a qualified technician.

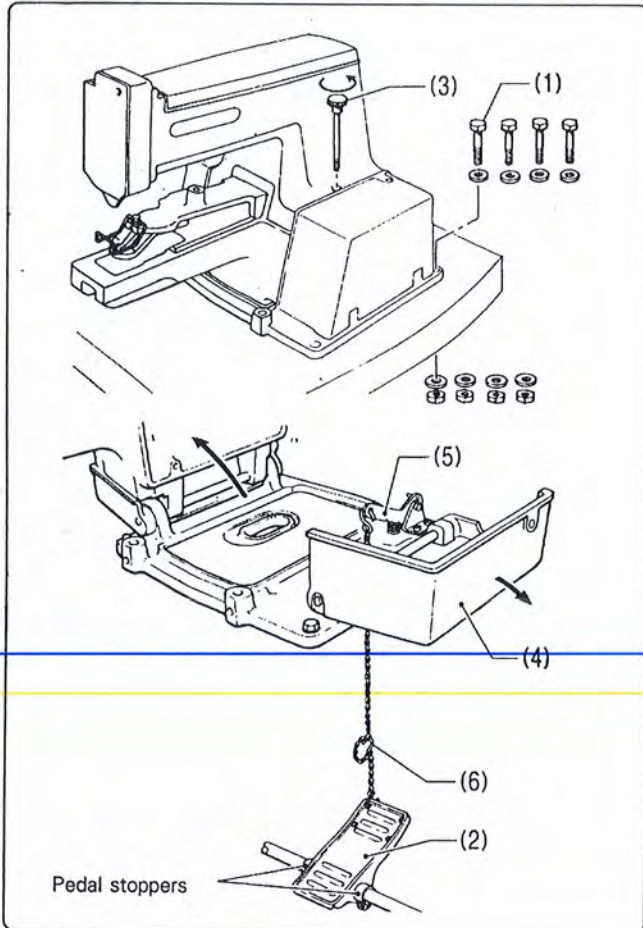
❗ Ask your dealer or a qualified electrician for any electrical work that may need to be done.

❗ The sewing machine weights more than 25kg. The installation should be carried out by two or more people.

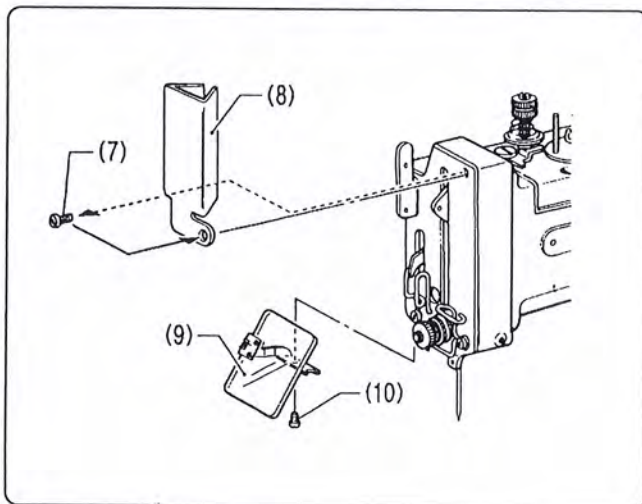
⊘ Do not connect the power cord until installation is complete, otherwise the machine will operate if the pedal is pressed by mistake, which could result in injury.

⚡ Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

5. 1 Installing the machine head

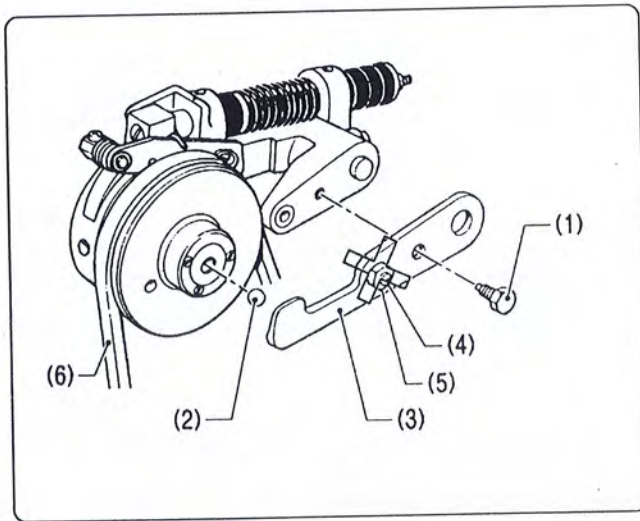


1. Install the machine head to the table with the four bolts(1).
2. Install the pedal(2) to the pipe of the table.
3. Loose the bolt(3), and then open bed cover R(4).
4. Tilt back the machine head.
5. Attach the chain to the clutch driving lever (5) and the pedal (2).
6. Use the hook (6) to adjust the length of the chain.
7. Return the machine head to its original position, and then tighten the bolt(3).



8. Remove the screw (7) from the face plate, and then install the needle bar cover(8).
9. Install the eye guard (9) with the bolt(10).

5.2. Installing the belt



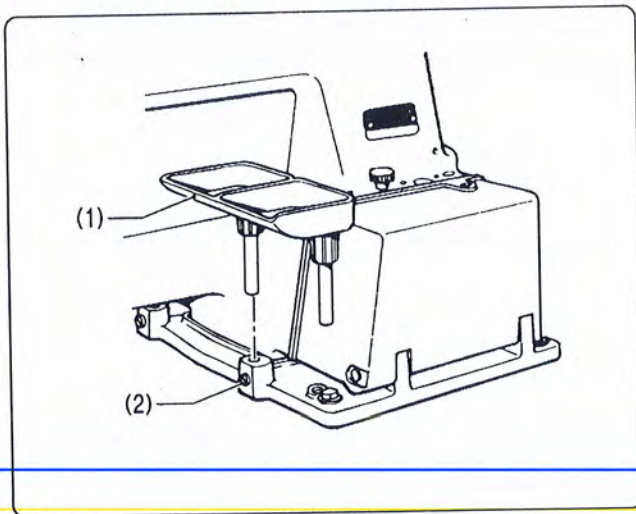
1. Loosen the screw(1), and then remove the ball presser plate(3) while being careful not to drop the bearing ball(2).

NOTE:

Do not move the screw(4) and the nut(5).

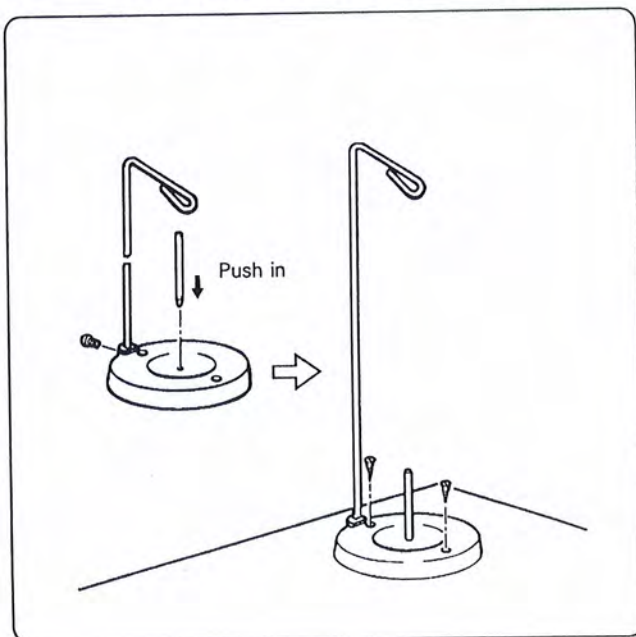
2. Attach the belt(6).
3. Place the bearing ball(2) back into the hole, and then install the ball presser plate (3) with the screw(1).

5 -3. Installing the button try



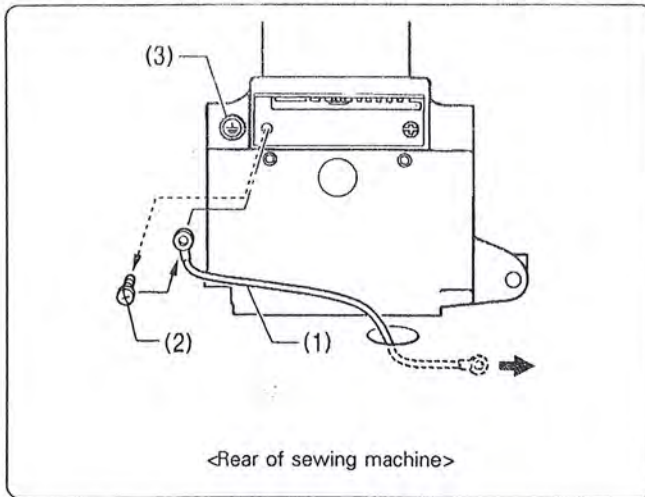
1. Install the button tray(1) to either the left or right side of the bed.
2. Secure it by tightening the set screw(2).

5 -4. Installing the cotton stand



Assemble the cotton stand as shown in the illustration, and then install it to the far right corner of the table with the two wood screws.

5-5. Ground Wire Connections



Connect the ground wire to the sewing machine head and motor. (Use the correct type of ground wire.)

1. Secure the ground wire (1) to the sewing machine head with screw(2).

(The attachment location is indicated by a ground symbol(3).)

2. Pass the ground wire(1) through the hole in the table.

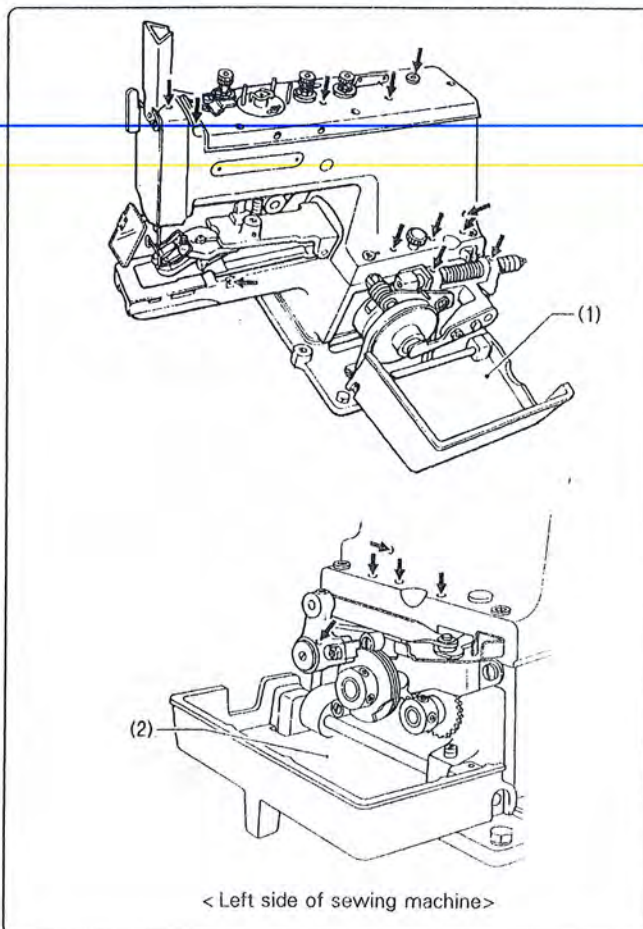
3. Connect the ground wire(1) to the motor in accordance with the instructions in the instruction manual for the motor.

5-6. Lubrication

▲ CAUTION

⊘ Do not connect the power cord until lubrication has been completed, otherwise the machine may operate if the pedal is pressed by mistake, which could result in injury.

⊘ Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil under any circumstances, as it can cause vomiting and diarrhoea. Keep the oil out of the reach of children.



• The sewing machine should always be lubricated and the oil supply replenished before it is used for the first time, and also after long periods of non-use.

• Use only the lubricating oil specified by our company.

1. Open bed cover R(1) and bed cover L(2).

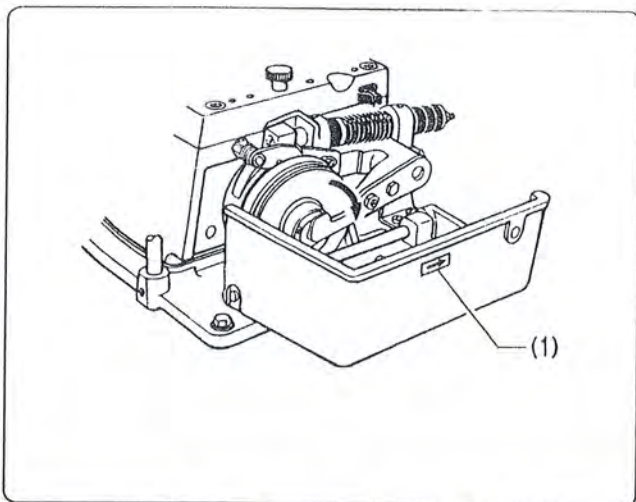
2. Add 1-2 drops of oil in the places indicated by the arrows.

6. TEST OPERATION

⚠ CAUTION



Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.



1. Insert the power cord plug into a wall outlet, and turn on the power switch. (The motor will operate and the machine pulley will turn.)
2. Check that the machine pulley is turning in the direction of the arrow(1).
- * If the machine pulley is turning in the opposite direction, change the direction of turning while referring to the instruction manual for the motor.
3. Depress the pedal to start the sewing machine.
4. Release the pedal quickly. (The machine will operate for a set number of stitches only, after the thread is trimmed, and then the presser arm will lift up and the sewing machine will stop.)
5. Repeat the operations in steps 3 and 4 several times.

7. TURNING THE MACHINE PULLEY BY HAND

⚠ CAUTION



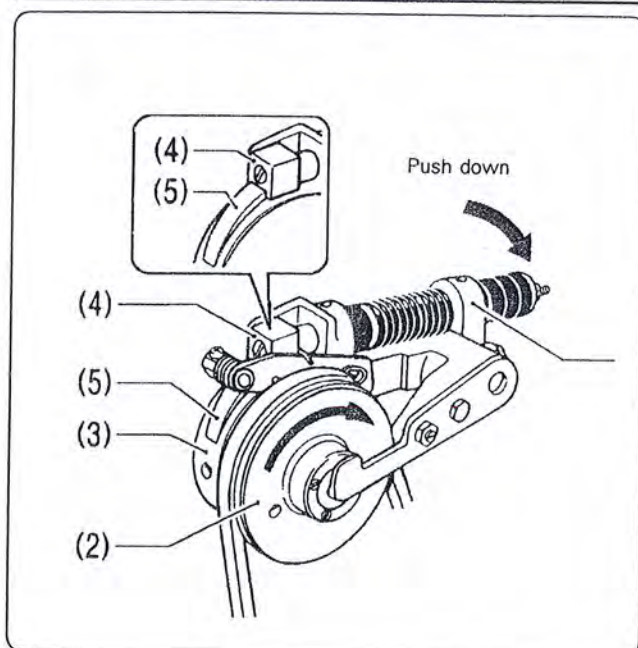
Turn off the power switch before carrying out this operation. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



When turning the machine pulley by hand in order to check the needle down position in the hole of the button, turn the pulley until the needle is at the final position after one cycle.

If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury.



1. While pushing the clutch body(1) down and holding it there, turn the machine pulley(2) by hand in the direction of the arrow for two or more full revolutions.
 2. Release the clutch body(1).
 3. Turn the machine pulley(2) by hand.
 4. The machine pulley(2) will turn freely after the final stitch is sewn. Keep the stop cam (3) turning until the stopper bracket(4) comes into contact with the end of the stop cam segment(5). (The presser arm will lift up, and the cycle of operations for attaching a single button will then be complete.)
- * Repeat steps 1 to 4 to carry out the next cycle of operations

8. PREPARATION BEFORE SEWING

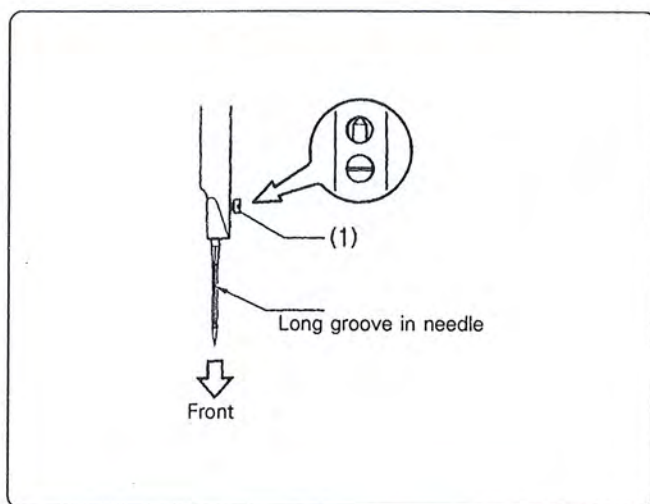
8-1, Installing the needle

CAUTION



Turn off the power switch before installing the needle. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



1. Loosen the screw(1).
2. Insert the needle in a straight line as far as it will go, making sure that the long groove on the needle is toward the front, and then securely tighten the screw(1).

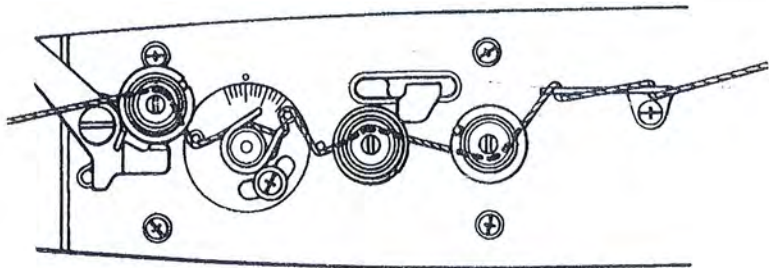
8 - 2. Threading

▲ CAUTION

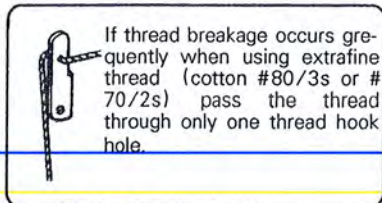


Turn off the power switch before threading. The machine may operate if the pedal is pressed by mistake, which could result in injury.

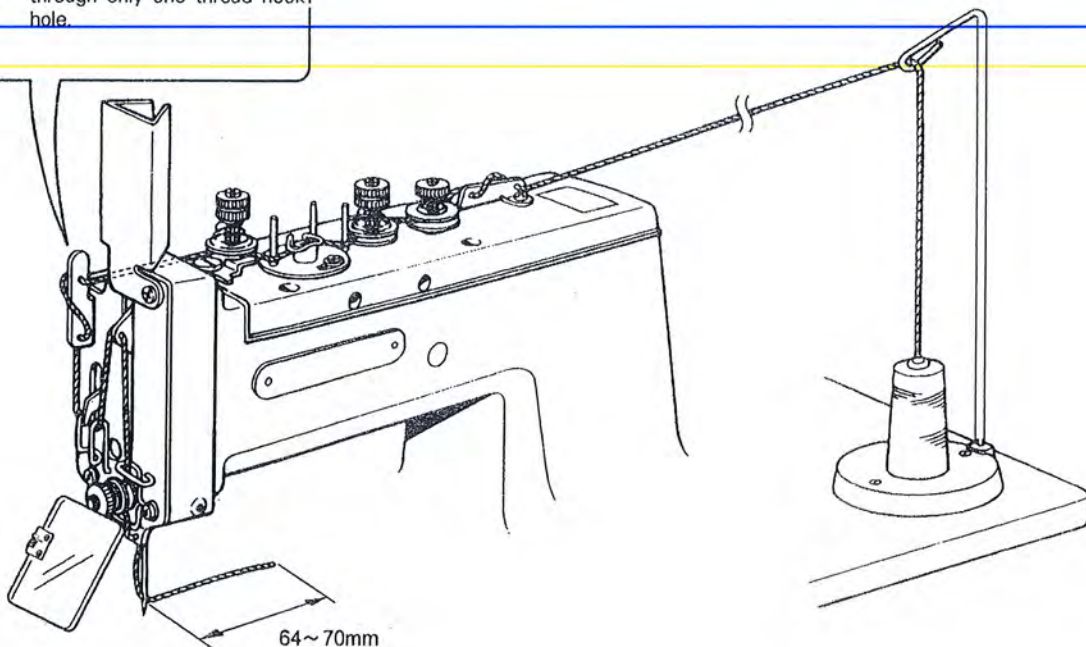
* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



<View from above>



If thread breakage occurs frequently when using extrafine thread (cotton #80/3s or #70/2s) pass the thread through only one thread hook hole.



64~70mm

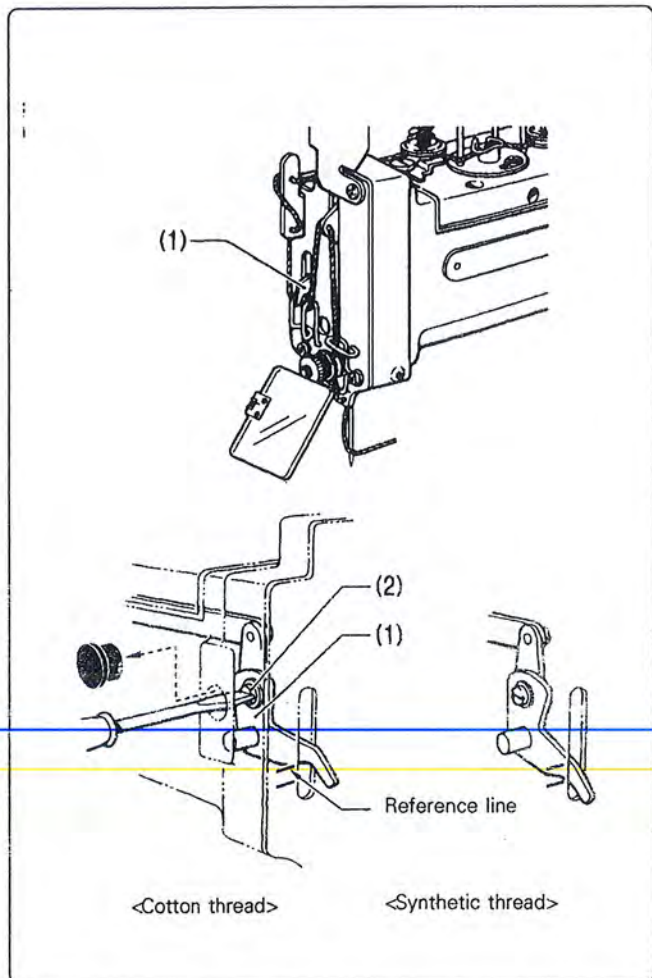
8-3. Adjusting the thread take-up lever

CAUTION



Turn off the power switch before adjusting the thread take-up lever. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



Standard position for thread take-up lever

<Cotton thread>

The bottom of the thread take-up lever (1) should be aligned with the top reference line.

<Spun thread>

The bottom of the thread take-up lever (1) should be aligned with the bottom reference line.

1. At the sewing machine stopping position, loosen the screw (2), and then move the thread take-up lever (1) to adjust it.
 2. Tighten the screw (2).
- * If the final stitch or stitch joint is frayed, move the thread take-up lever up to reduce the amount of thread take-up.
- * If the stitch joint is too loose, move the thread take-up lever (1) down to increase the amount of thread take-up.

8 -4. Vertical feed and transverse feed positioning

CAUTION



Turn off the power switch before carrying out vertical feed and transverse feed positioning.
The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

Button thread hole gap

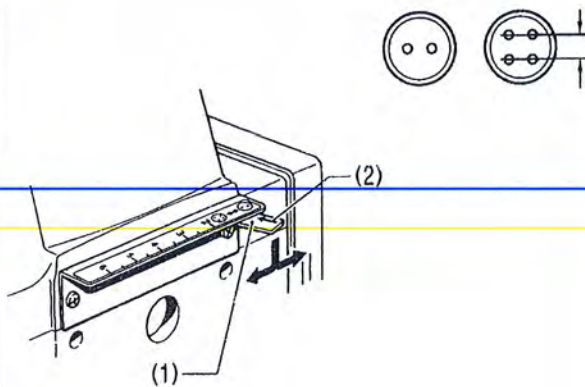


Set the vertical feed and transverse feed positions as described.

* The standard feed plate is for button thread hole gaps of 2 to 3.5 mm. For button thread hole gaps of 4 to 6.5 mm, use the accessory feed plate (sold separated).

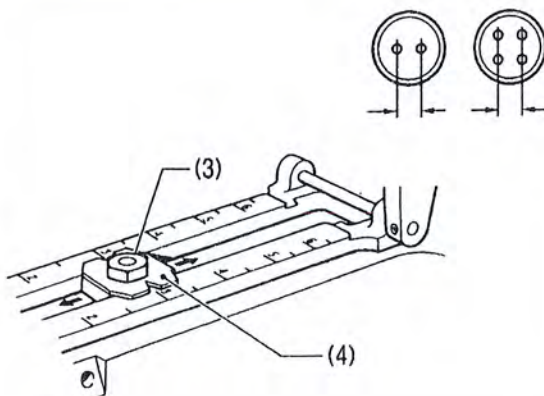
<Vertical Feed>

While pushing the vertical feed lever (1) down, align the arrow (2) with the ·· mark (for buttons with two thread holes) or the button thread hole spacing (scale indicator) (for buttons with four thread holes).



<Transverse feed>

At the sewing machine stopping position, loosen the nut (3) and align the index mark of the transverse feed plate (4) with the button hole spacing (scale indicator)



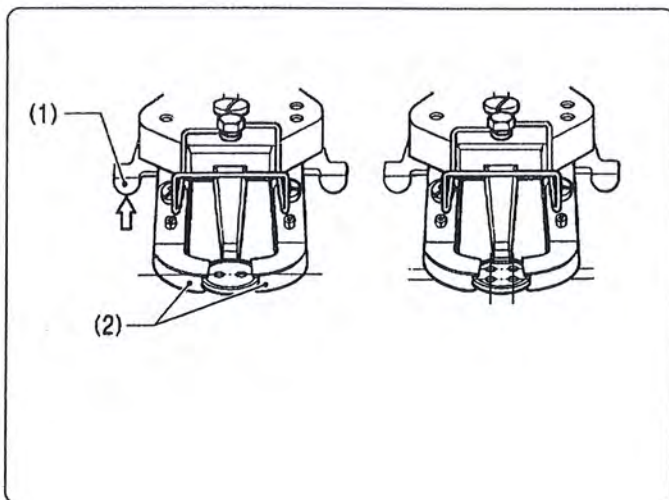
8 -5. Setting the button

⚠ CAUTION



Turn off the power switch before setting buttons. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

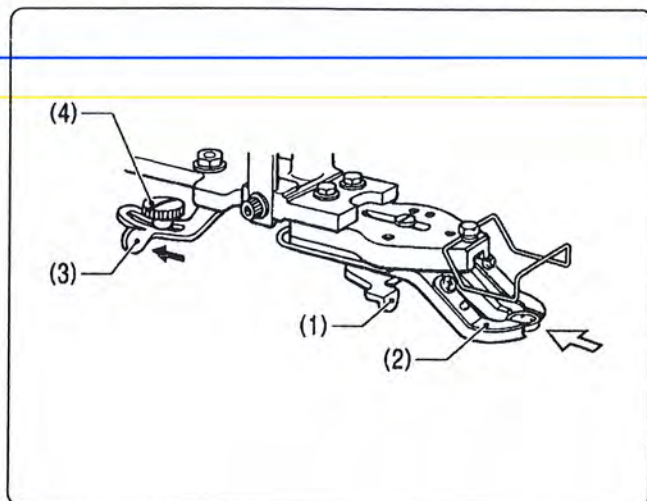


1. When the button clamp plate cam (1) is pushed, the button clamp (2) opens.
2. Insert the button so that it faces in the correct direction as shown in the illustration, and then release the button clamp plate cam (1).

<To sew the same size button>

Adjust the size adjust plate (3) as shown below.

For buttons that are the same size, the buttons can be set easily just by gently inserting them into the button clamp (2), without having to push the button clamp plate cam (1).



1. Insert a button into the button clamp (2).
2. Loosen the shoulder screw (4), push the size adjust plate (3) in as far as it will go so that the button is held tightly, and then securely tighten the shoulder screw (4).

8-6. Setting the number of stitches

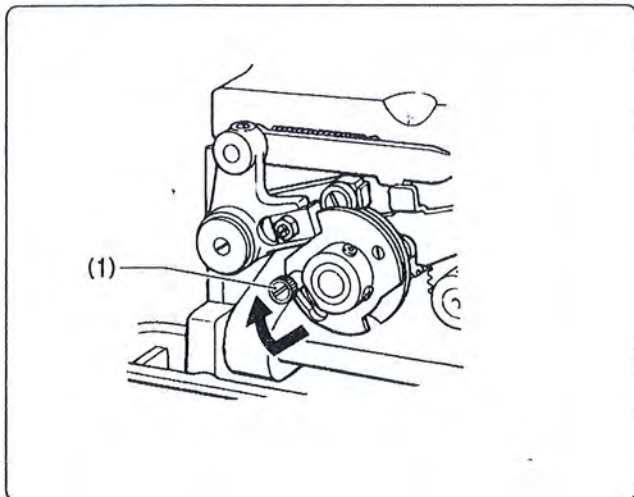
CAUTION



Turn off the power switch before setting the number of stitches. The machine may operate if the pedal is pressed by mistake, which could result in injury.

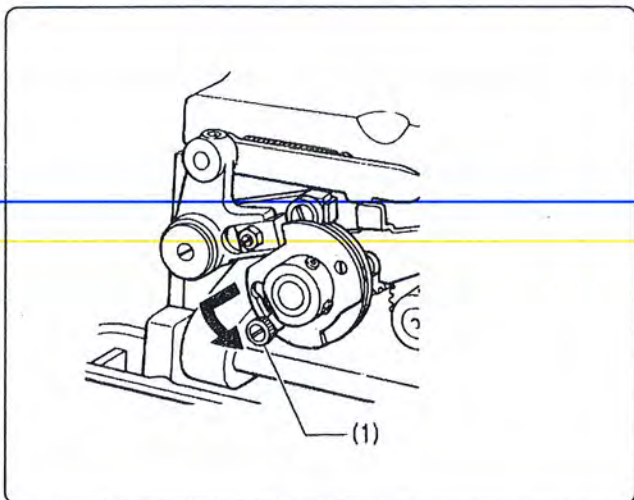
* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

Open bed cover, and then set the number of stitches as follows.



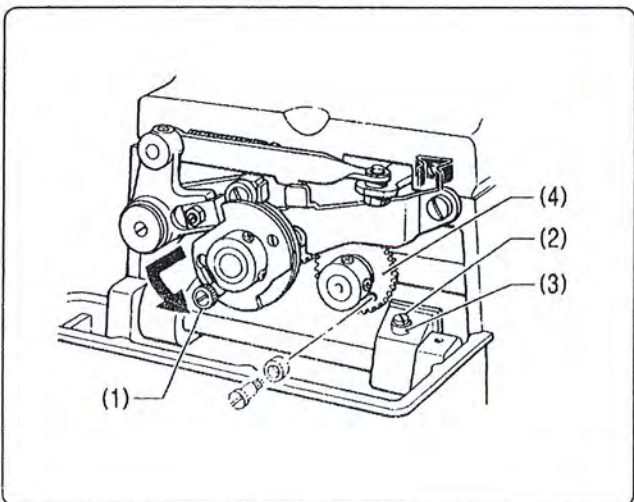
<6 or 8 stitches>

Pull out the stitch control knob (1) and then turn it in the direction of the arrow.



<12 or 16 stitches>

Pull out the stitch control knob (1) and then turn it in the direction of the arrow.



<24 or 32 stitches>

1. Pull out the stitch control knob (1) and then turn it in the direction of the arrow.

2. Remove the shoulder screw (2) and roller (3) from the bed base, and then install them to the stitch hanging gear (4).

9. SEWING

CAUTION



Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.



Turn off the power switch at the following times. The machine may operate if the pedal is pressed by mistake, which could result in injury.

- When threading the needle
- When checking the needle drop position
- When replacing the needle
- When not using the machine and when leaving the machine unattended

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



When turning the machine pulley by hand in order to check the needle down position in the hole of the button, turn the pulley until the needle is at the final position after one cycle.

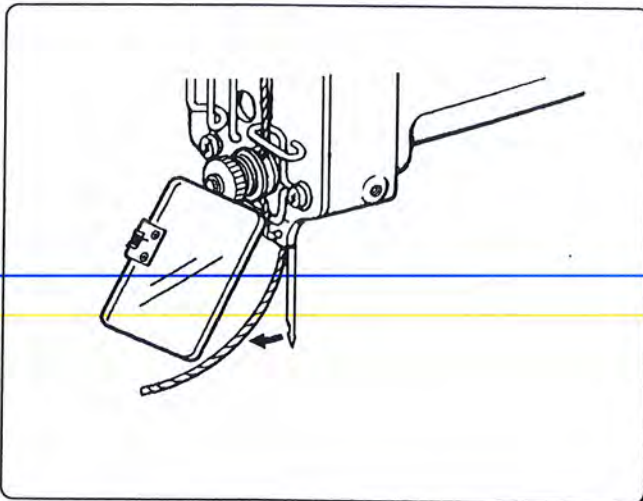
If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury.



Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

9 - 1. Checking the needle drop position

Before carrying out actual sewing, operate the sewing machine manually and check that the needle drops into the center of the button thread holes.



1. Turn off the power switch.
2. Pull the thread out of the needle hole.
3. Set a button in place.
4. Operate the sewing machine manually as described on page 7 and check the needle drop position.
5. Once the needle drop position has been checked, thread the thread through the needle.

<If the needle does not drop into the center of the button thread holes>

1. Check that the distance between the button thread holes has been set correctly.
 2. If the needle is not dropping into the center of the button thread holes, adjust the installation position of the button clamp.
- (Refer to step 8 in 13 - 3)

9 - 2. Sewing

1. Turn on the power switch.
2. Set the material in place.
3. Depress the pedal to start the sewing machine.

4. Release the pedal quickly.

The button will be attached, after the thread is trimmed, and then the presser arm will lift up and the sewing machine will stop.

10. THREAD TENSION

⚠ CAUTION



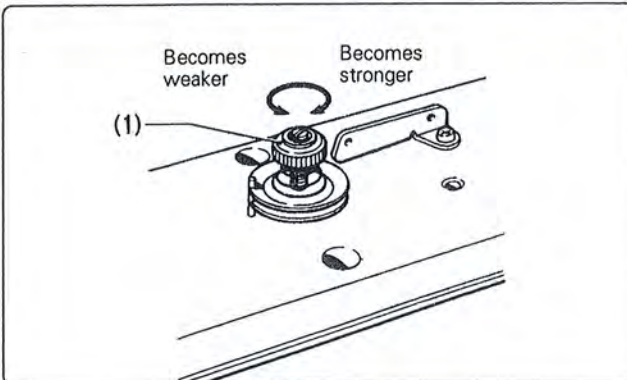
Turn off the power switch before carrying out this operation. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



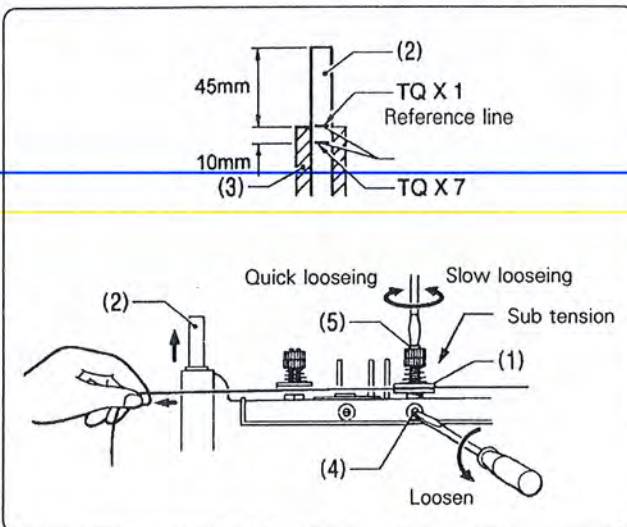
When turning the machine pulley by hand, turn the pulley until the needle is at the final position after one cycle. If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury.

10-1. Main thread tension



The main thread tension is adjusted by turning the tension nut (1).

10-2. Adjusting the sub tension timing

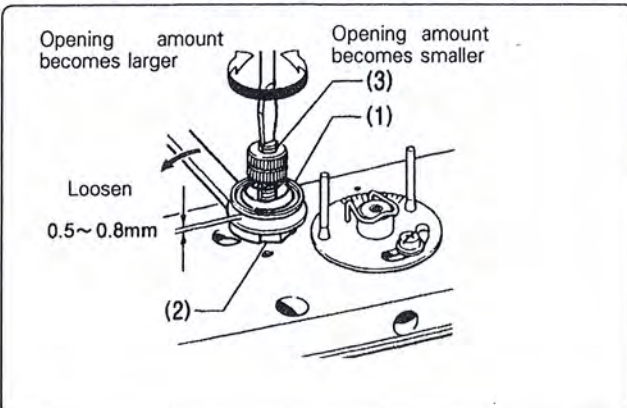


- Pass the thread through only the sub tension, and then while gently pulling the thread, check the timing at which the pressure of the tension discs (1) starts to loosen.

- Turn the machine pulley by hand to raise the needle bar (2) until the reference line is aligned with the top edge of needle bar bush U (3) (needle bar height 45 mm), and adjust the timing so that the tension discs (1) start to loosen at this point.

1. Loosen the set screw (4), and then turn the sub tension stud (5) to adjust the timing.
2. Tighten the set screw (4).

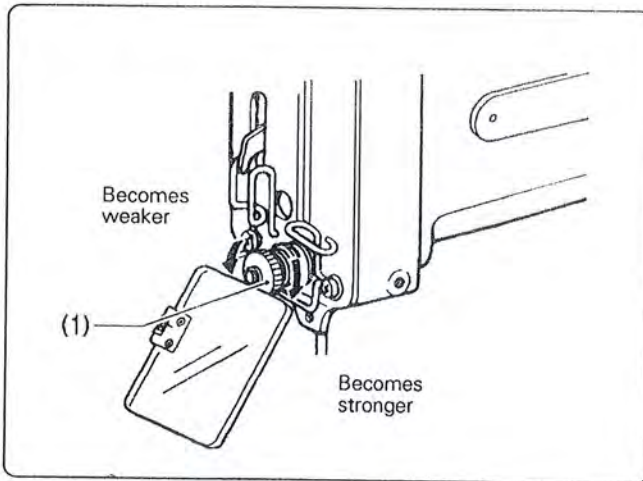
10-3. Adjusting the thread presser tension opening amount



Adjusting the thread presser tension opening amount Adjust so that the tension disc presser (1) opens by 0.5 - 0.8 mm when the sewing machine starts (when the machine pulley is turned by hand).

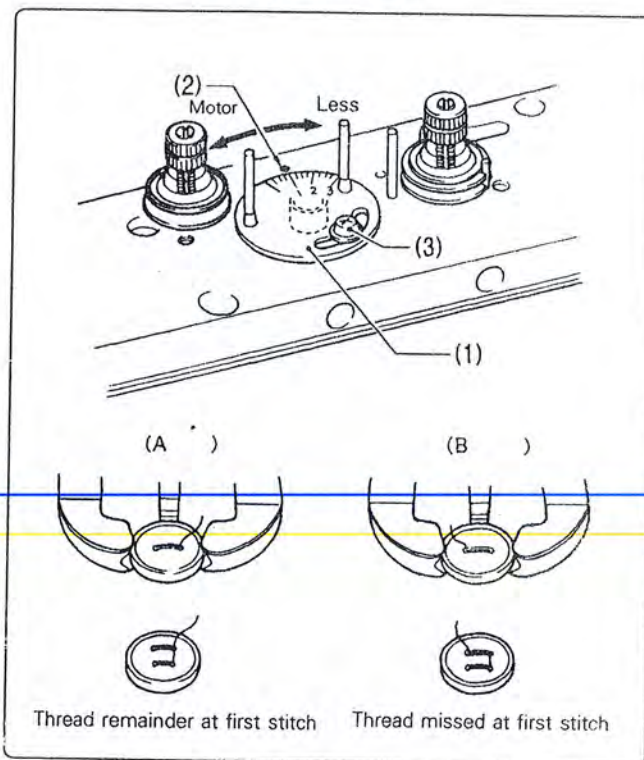
1. Loosen the nut (2), and then turn the thread presser tension stud (3) to adjust the opening amount.
2. Tighten the nut (2).

10 – 4. Adjusting the auxiliary tension



The auxiliary tension is adjusted by turning the tension nut (1).

10 – 5. Adjusting the rotor



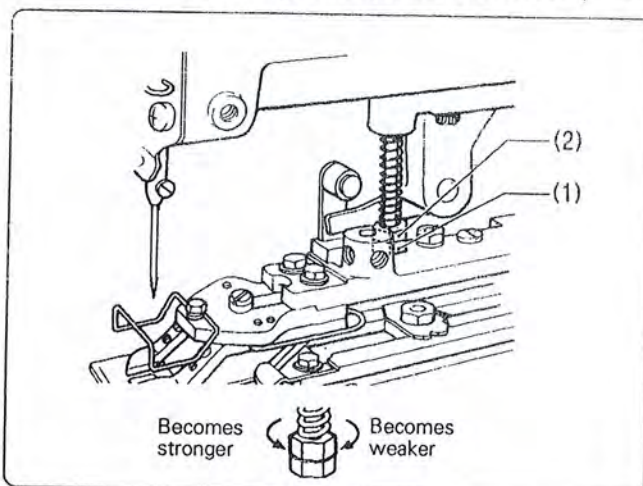
The standard position for the rotor(1) at the sewing machine stopping position is the position where the <1.5> scale indicator should be aligned with the index mark (2).

1. Loosen the screw(3), and turn the rotor (1) to adjust the position.
2. Tighten the screw(3).

The higher the scale setting, the greater is the amount of thread take-up.

- If the thread end hangs out at the first stitch buttonhole, reduce the rotor (1) setting. (Fig. A)
- If the thread end hangs out at the second stitch buttonhole, increase the rotor (1) setting. (Fig. B)

10 – 6. Adjusting the presser arm pressure



Adjust the pressure to be as weak as possible so that the material does not slip when it is pulled gently.

1. Loosen the nut (1), and then turn the nut (2) to adjust the pressure.
2. Tighten the nut (1).

11. CLEANING

The following cleaning operations should be carried out each day in order to maintain the performance of this machine and to ensure a long service life.

Furthermore, if the sewing machine has not been used for a long period of time, carry out the following cleaning procedures before using it again.

⚠ CAUTION



Turn off the power switch before carrying out cleaning. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

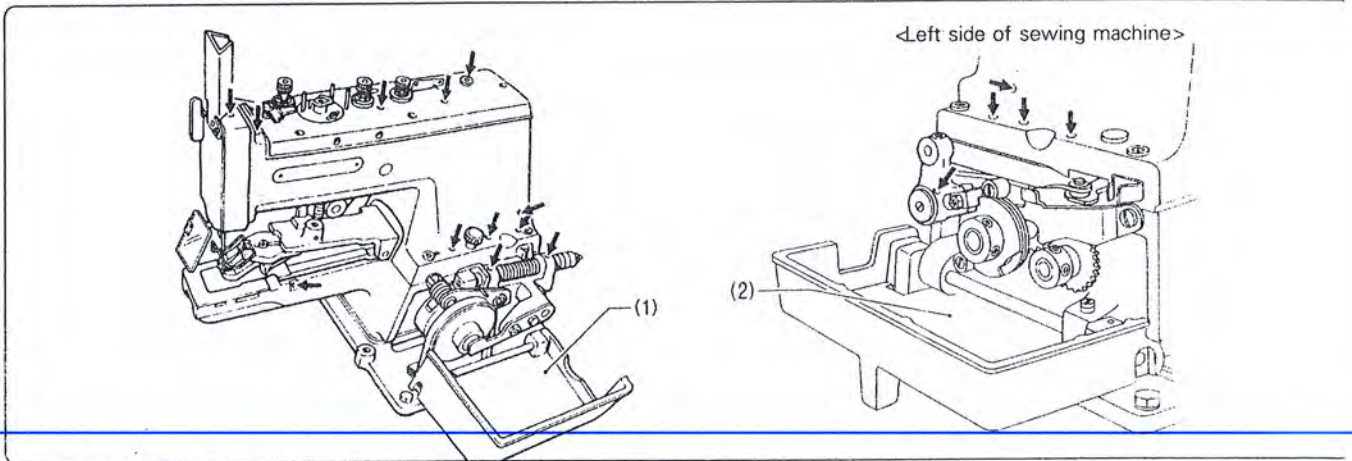


Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.

Furthermore, do not drink the oil under any circumstances, as it can cause vomiting and diarrhoea.

Keep the oil out of the reach of children.

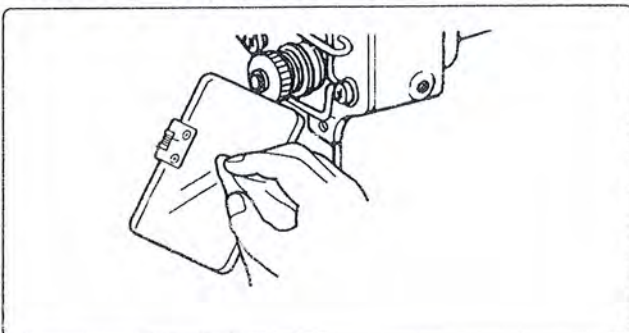
<Lubrication>



1. Open bed cover R(1) and bed cover L(2).

2. Add 1 - 2 drops of oil in the places indicated by the arrows.

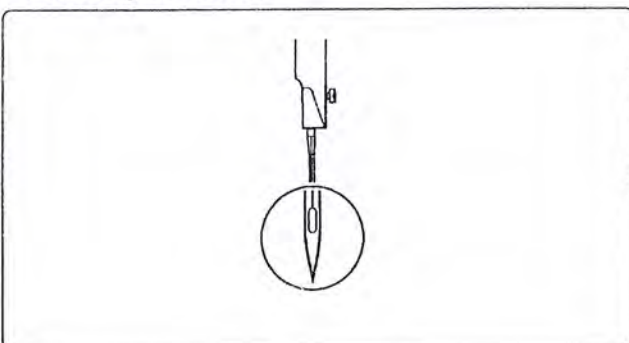
<Cleaning the eye guard>



Wipe the eye guard clean with a soft cloth.

NOTE: Do not use solvents such as kerosene or thinner to clean the eye guard.

<Checking the needle>



If the needle tip is bent or broken, replace the needle.

12. STANDARD ADJUSTMENTS

⚠ CAUTION

⊘ Maintenance and inspection of the sewing machine should only be carry out by a qualified technician

⚠ Ask your dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.

⚠ Turn off the power switch and disconnect the power cord from the wall outlet at the following times. The machine may operate if the pedal is pressed by mistake, which could result in injury.

- When carrying out inspetion, adjustment and maintenance
- When replacing consumable parts such as the loopers and knife
- The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops-fully before starting work.

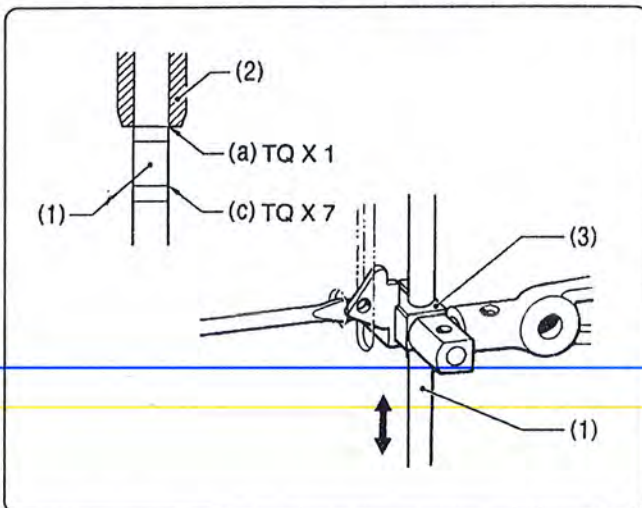
⚠ When turning the machine pulley by hand, turn the pulley until the needle is at the final position after one cycle.

If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which coule result in injury.

⚠ If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.

⚠ If any safety devices have been removed, be absolutely sure to re -install them to their original positions and check that they operate correctly before using the machine.

12 - 1. Adjusting the needle bar height

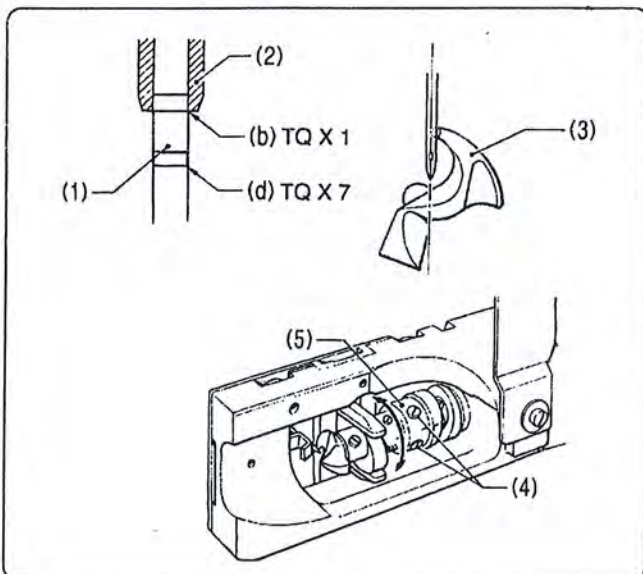


Adjust so that reference line (a) on the needle bar (1) is aligned with the bottom edge of needle bar bush D (2) when the needle bar (1) is at its lowest position.

* If using a TQ x7 needle, adjust by aligning reference line (c).

1. Turn the machine pulley to set the needle bar (1) to its lowest position.
2. Loosen the screw of the needle bar clamp (3) by inserting a screwdriver through the hole in the face plate, and then move the needle bar (1) up or down to adjust the height.
3. Tighten the screw of the needle bar clamp (3).

12 - 2. Adjusting the needle and looper timing

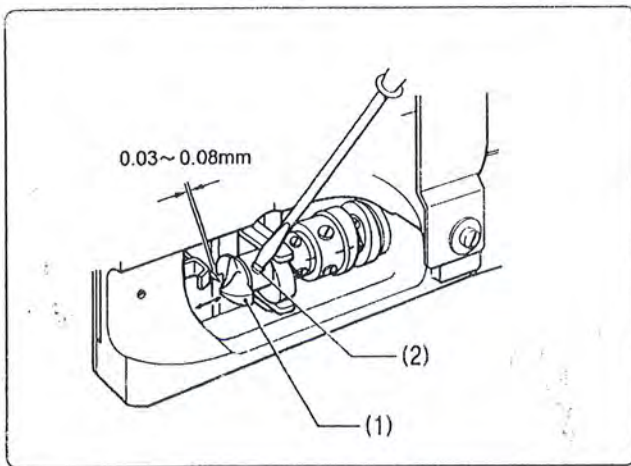


Adjust so that the tip of the looper (3) is aligned with the center of the needle when the needle bar (1) rises from its lowest position until reference line (b) of the needle bar (1) is aligned with the bottom edge of needle bar bush D (2).

* If using a TQ x7 needle, adjust by aligning reference line (d).

1. Loosen the two set screws (4), and then turn the looper setting shaft (5) to adjust the timing.
2. Tighten the set screws (4).

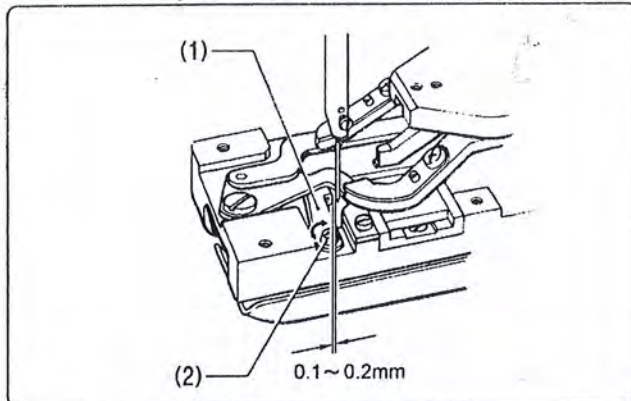
12 -3. Adjusting the needle and looper clearance



Adjusting so that the clearance between the needle and the tip of the looper (1) is 0.03 -0.08mm when the needle bar rises from its lowest position until the tip of the looper (1) is aligned with the center of the needle.

1. Loosen the set screw (2), and then move the looper (1) to adjust the clearance.
2. Tighten the set screw (2).

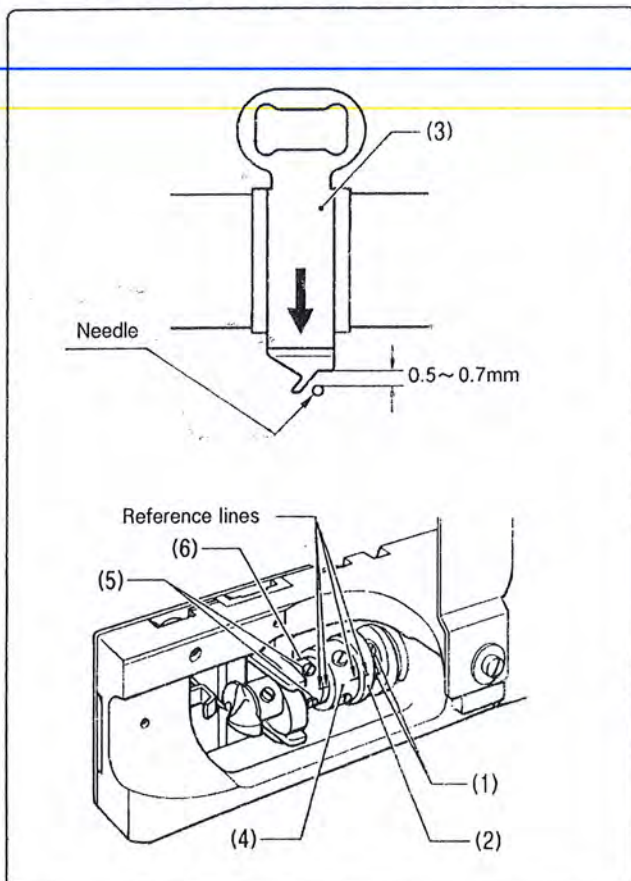
12 -4. Adjusting the needle guide



Adjusting the clearance between the needle and the needle guard (1) to 0.1 -0.2mm.

1. Remove the feed plate and the needle plate.
2. Loosen the screw (2), and then move the needle guard (1) to adjust the clearance.
3. Tighten the screw (2).
4. Install the feed plate and the needle plate.

12 -5. Adjusting the thread handler



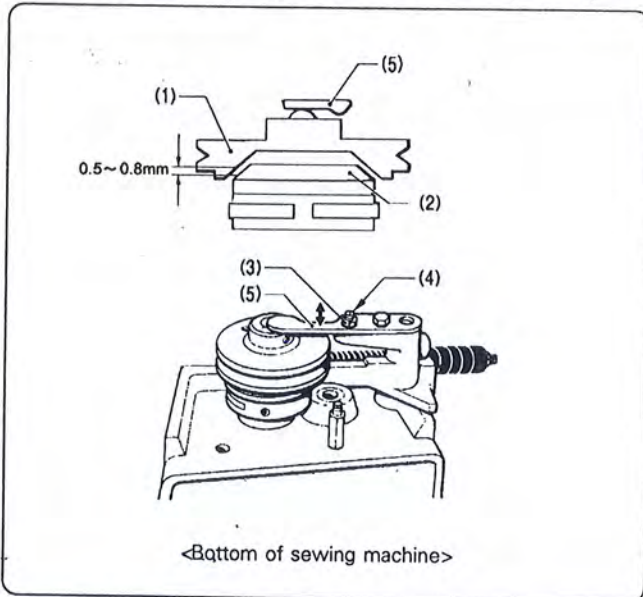
< Longitudinal direction >

1. Turn the machine pulley to set the needle bar to its lowest position.
2. Loosen the two set screws (1).
3. Turn the grooved cam (2) to move the thread handler (3) to the maximum forward position.
4. Move the grooved cam (2) forward or back to adjust so that the clearance between the needle and the thread handler (3) is 0.5 -0.7mm at this time.
5. Turn the grooved cam (2) to align the reference line with the reference line of the looper setting shaft (4).
6. Tighten the set screws (1).

< Transverse direction >

1. Loosen the two set screws (5)
2. Turn the triangular cam (6) to align the reference line with the reference line of the looper setting shaft (4).
3. Tighten the set screws (5).

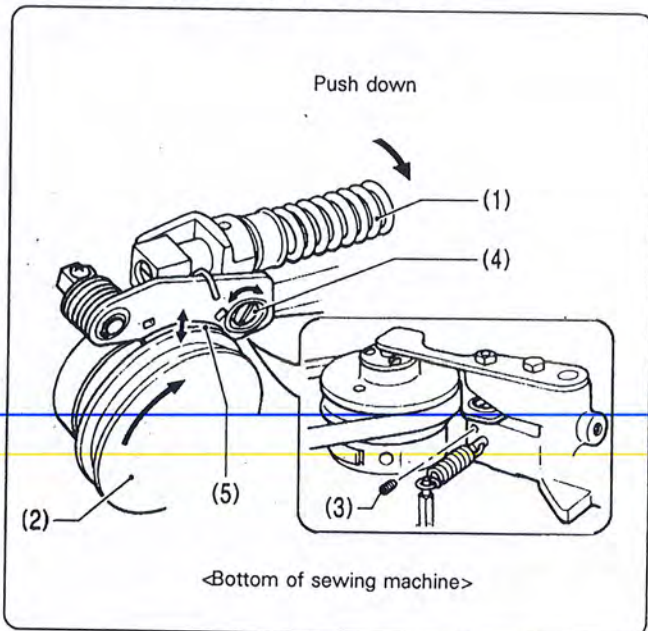
12 -6. Adjusting the machine pulley clearance in the direction of thrust



At the sewing machine stopping position, adjust the clearance between the machine pulley (1) and the clutch plate (2) to 0.5 - 0.8mm.

1. Loosen the nut (3), and then turn the set screw (4) to adjust the position of the ball presser plate (5).
2. Tighten the nut (3).

12 -7. Adjusting the brake

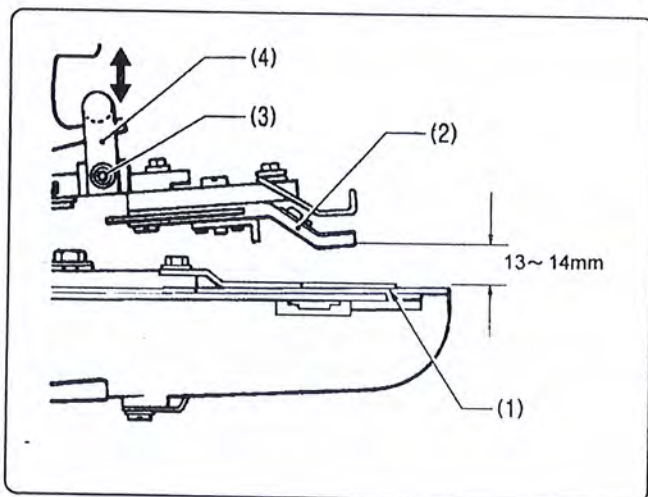


1. While pushing the clutch body (1) down, turn the machine pulley (2) two or more complete turns in the direction of the arrow.
2. Loosen the set screw (3) at the lower part of the clutch body (1).
3. Turn the brake lever shaft (4) until the brake shoe (5) is at its lowest position.
(The force of the brake will be increased.)
4. Tighten the set screw (3) to secure the brake lever shaft (4).

* If the brake is grabbing at low temperatures and low operating speeds and causing the machine to stop before the correct stopping position, it might be caused by one of the following problems. In such cases, raise the position of the brake shoe (5) as step 3. above.

- Work clamp lift amount is too small
- Thread is not being trimmed

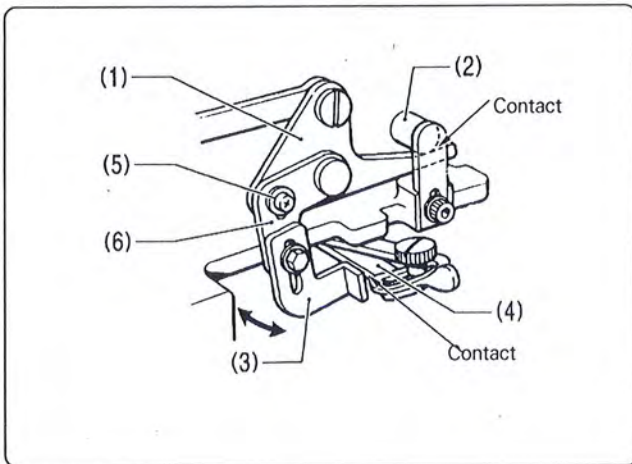
12 -8. Adjusting the button clamp lift amount



Adjust the distance from the top of the feed plate (1) to the edge of the button clamp (2) to 13 - 14mm.

1. Loosen the bolt (3), and then move the presser adjust plate (4) up or down to adjust the distance.
2. Tighten the bolt (3).

12 - 9. Adjusting the button opener

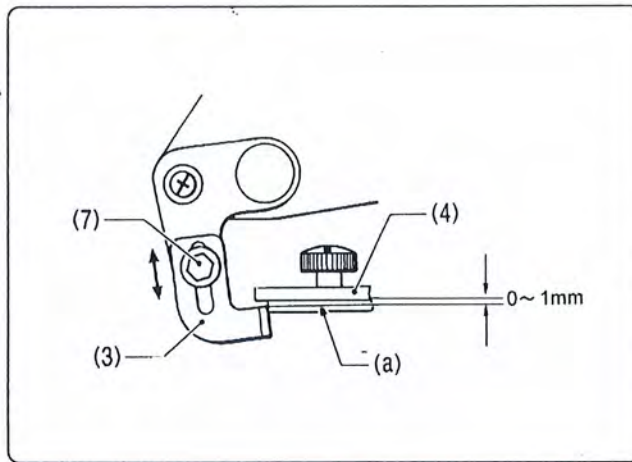


Carry out the following adjustment after carrying out the adjustment in "Adjusting the button clamp lift amount".

< Transverse position >

Adjust so that button opener claw B (3) touches the button opener claw (4) at the same time as the presser lifter arm (1) touches the roller (2) when the machine pulley is turned to move the mechanism to the final stitch position.

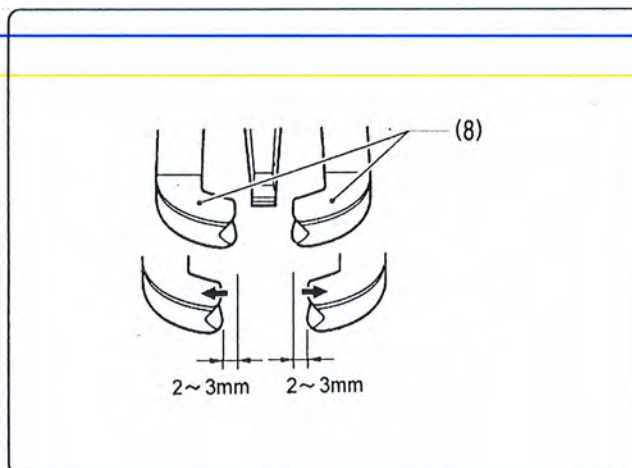
1. Loosen the screw (5), and then move the claw adjusting plate (6) to adjust the transverse position.
2. Tighten the screw (5).



< Vertical position >

After making the above adjustment, adjust so that the clearance between button opener claw B (3) and surface (a) of the button opener claw (4) is 0 - 1mm.

1. Loosen the bolt (7), and then move button opener claw B (3) up or down to adjust the position.
2. Tighten the bolt (7).

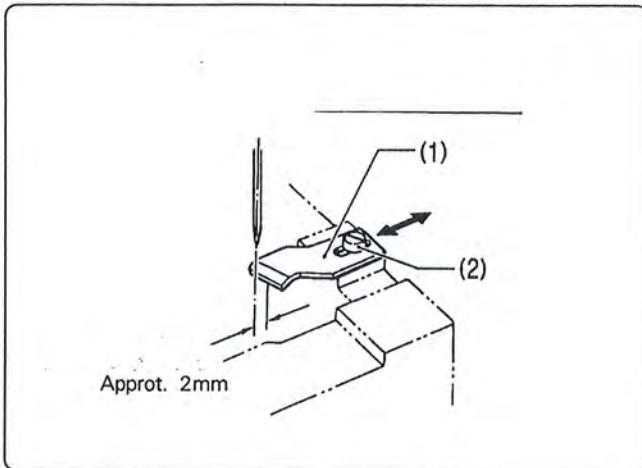


< Checking >

Turn the machine pulley and check that the opening amount for the tip of the button clamp (8) is 2 - 3mm at both left and right.

* If the opening amount is not correct, repeat the "Vertical position" adjustment above.

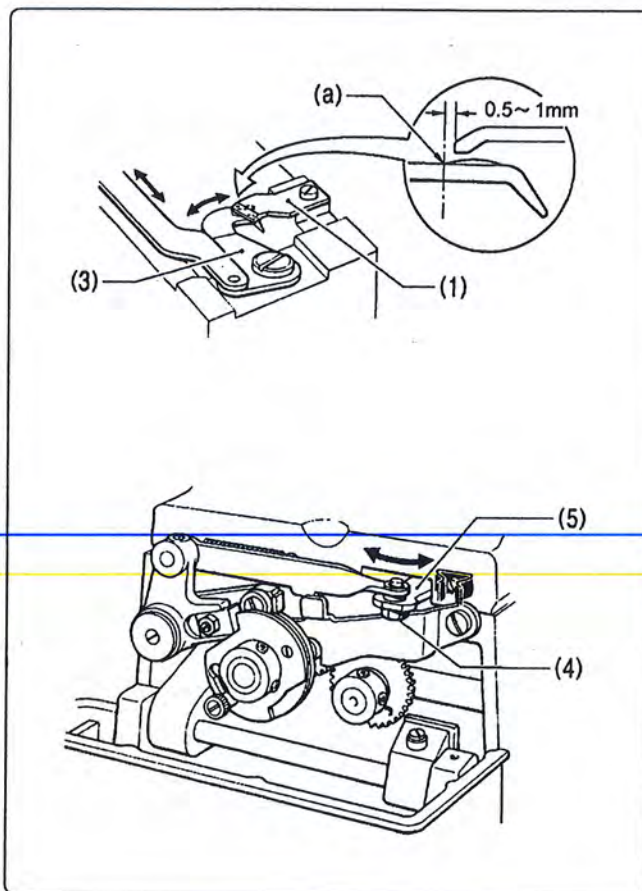
12 - 10. Adjusting the fixed knife and movable knife



< Fixed knife position >

Install and adjust the fixed knife (1) so that the distance between the knife tip and the needle center is approximately 2mm.

1. Remove the feed plate and needle plate.
2. Loosen the screw (2), and then move the fixed knife (1) to adjust its position.
3. Tighten the screw (2).



< Movable knife position >

At the sewing machine stopping position, adjust the distance between the tip of the projection (a) on the movable knife (3) to the edge of the blade of the fixed knife (1) to 0.5 - 1mm.

1. First adjust the position of the fixed knife (1).
(Refer to above.)
2. Loosen the nut (4), and then move the connecting lever (5) to adjust the distance.
3. Tighten the nut (4).
4. Install the feed plate and the needle plate.

13. REPLACING PARTS

⚠ CAUTION



Replacement of parts should only be carried out by a qualified technician.



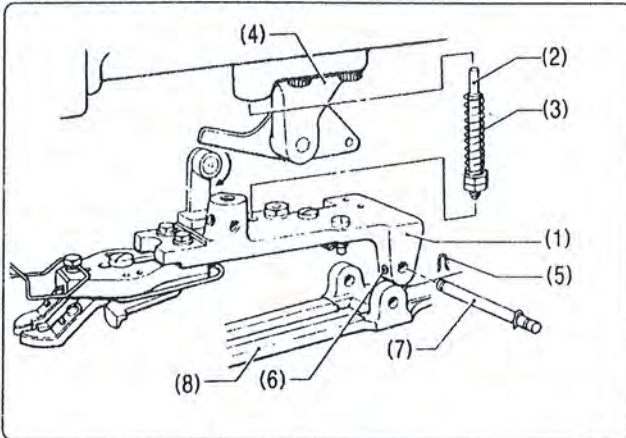
Turn off the power switch and disconnect the power cord before installing any optional parts. The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



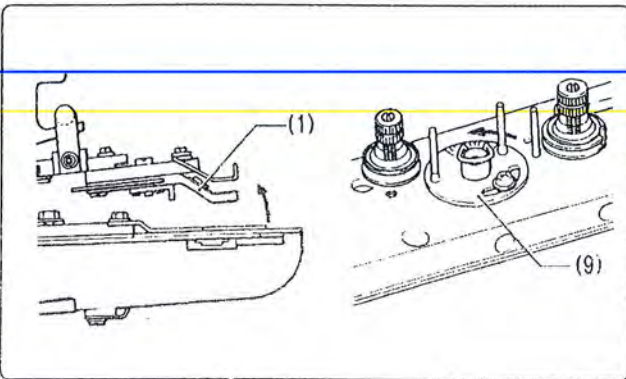
When turning the machine pulley by hand, turn the pulley until the needle is at the final position after one cycle. If the needle is at a point midway through the cycle when the power is turned on, the machine will immediately start operating, which could result in injury.

13-1. Presser arm



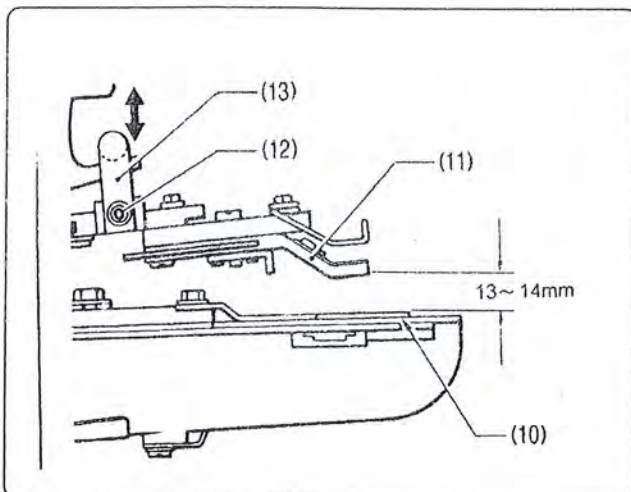
< Removal >

1. Remove the needle.
2. Depress the pedal to lower the presser arm (1).
3. While pushing the spring guide (2) and the spring (3) up in the direction of the bracket (4), pull them forward or to the right to remove them.
4. Remove the snap (5) at the left side.
5. Loosen the two set screws (6), pull out the holder bar (7) and then remove presser arm (1).



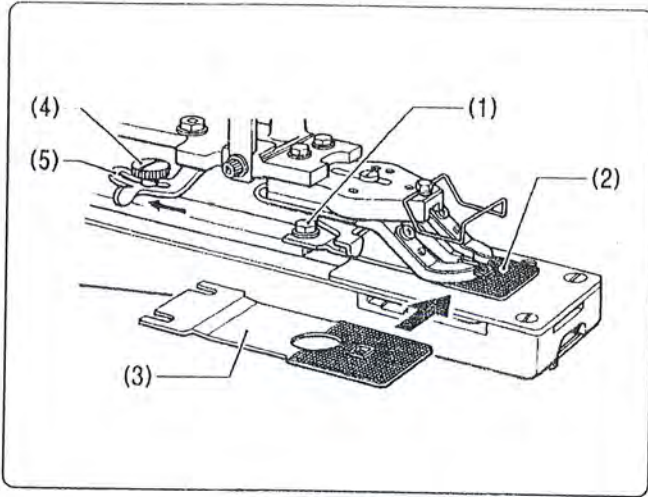
< Installation >

1. Align the holes in the presser arm (1) and the feed bracket (8), and then pass the holder bar (7) through the holes.
2. Place the snap (5) into the groove in the holder bar (7), and then tighten the two set screws (6).
3. Insert the spring (3) and the spring guide (2) into the bracket (4), and then push them into the recess in the presser arm (1).
4. While lifting the presser arm (1) by hand, turn the rotor (9) in the direction of the arrow until it clicks. The presser arm (1) will remain in the up position.

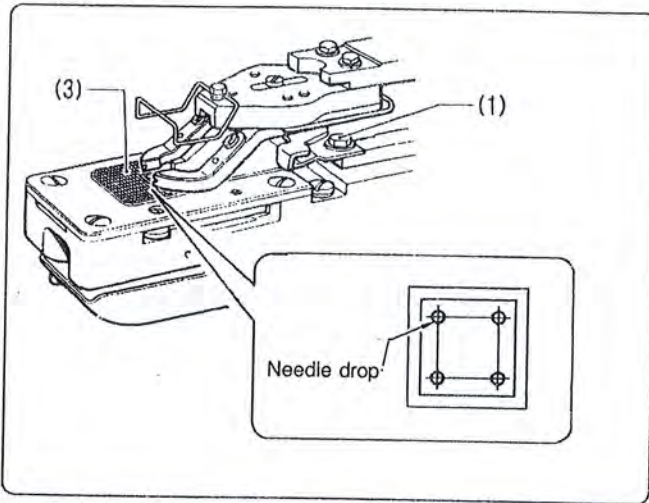


5. Loosen the bolt (12) and move the presser adjust plate (13) until the distance between the top of the feed plate (10) and the end of the button clamp (11) is 13-14mm.
6. Securely tighten the bolt (12).
7. Install the needle.

13 -2. Feed plate

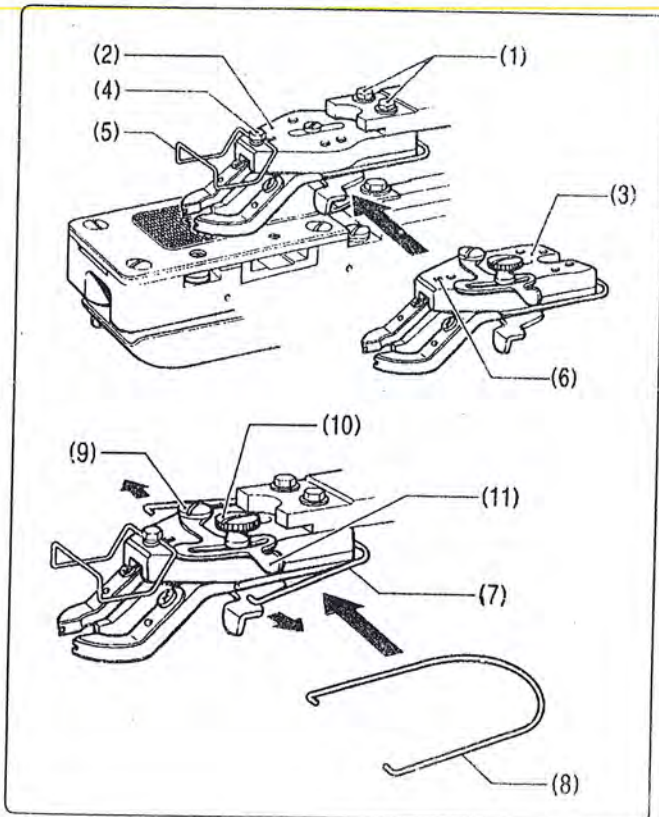


1. Loosen the two bolts (1), and then remove the feed plate (2) that is currently installed.
2. Provisionally install the new feed plate (3) with the two bolts (1).
3. Loosen the shoulder screw (4), push the size adjust plate (5) as far as it will go, and then tighten the shoulder screw (4).
4. Align the vertical feed lever and the transverse feed plate with the <3.5> scale indicator.



5. Turn the machine pulley by hand and check that the needle drop positions for the hole in the feed plate (3) are correct.
- * Adjust the position of the feed plate (3) so that the needle does not touch the edge of the hole in the feed plate (3), and so that the four button thread hole positions are evenly spaced from each other.
6. Once the feed plate (3) has been positioned, tighten the bolts(1).

13 -3. Button clamp set



1. Loosen the two bolts (1), and then remove the button clamp assembly (2) that is currently installed.
2. Install the new button clamp assembly (3) with the two bolts (1).
3. Loosen the bolt (4), remove the finger guard (5), and then reattach it to the other screw hole (6) in the button clamp assembly (3).
4. Remove the plate spring (7), and then install the accessory spring (8).
5. Remove the screws (9) and (10), and then remove the button clamp adjust plate (11). (These parts will not be used.)
6. Place a button into the button clamp assembly (3).
7. Adjust the vertical feed lever and the transverse feed plate to match the button thread hole spacing.
8. Turn the machine pulley by hand and check that the needle drops into the centers of the button thread holes.
9. If the needle does not drop into the centers of the button thread holes, loosen the bolts (1) and adjust the position of the button clamp assembly (3). After adjusting, tighten the bolts(1).

14. TROUBLESHOOTING

- Please check the following points before calling for repairs or service.
- If the following suggestions do not solve the problem, turn off the machine power supply and contact your nearest service center.

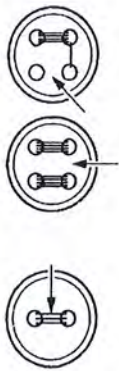
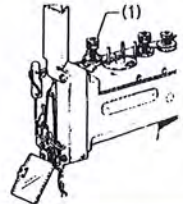
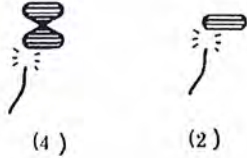
⚠ CAUTION


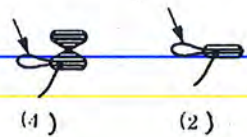
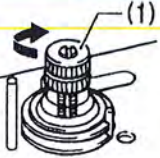

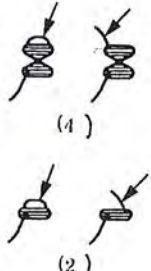


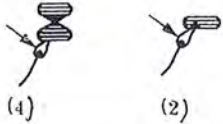
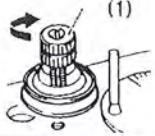

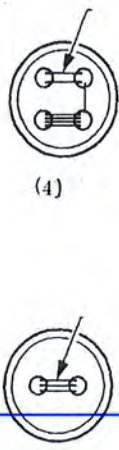

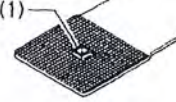
Turn off the power switch and disconnect the power cord before carrying out troubleshooting.



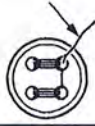
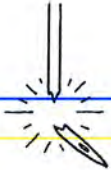

The machine may operate if the pedal is pressed by mistake, which could result in injury.

* The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

Proble	Possible cause
<p>1. Broken crossover stitch</p> 	<ul style="list-style-type: none"> • Is the main thread tension too strong? Adjust the main thread tension. • Is the sub tension timing too late? Adjust the sub tension timing. • Is an extra fine thread (cotton #80/3S, #70/2S) being used? If using an extra fine thread, pass the thread through only one of the holes in the thread hook. • Is the clearance between the needle and the thread handler too small or too large? Adjust the position of the thread handler. • Is the clearance between the needle and the looper too small? Adjust the position of the looper. • Is the auxiliary tension too weak? Adjust the auxiliary tension. • Is the needle too thin? Replace the needle with a needle that is one rank thicker.
<p>2. Thread frays at final stitch</p> <ul style="list-style-type: none"> • Stitch is normal. • Thread frays between thread presser tension(1) and material. 	<ul style="list-style-type: none"> • Is the thread take-up amount for the thread take-up lever too large? Adjust the position of the thread take-up lever in accordance with the thread being used. • Is the button opener adjusted correctly? Adjust the transverse position and vertical position of the button opener.
<p>3. Thread frays at stitch joints.</p>  <ul style="list-style-type: none"> • Insufficient thread remainder. • Stitch is too short. 	<ul style="list-style-type: none"> • Is the main thread tension too strong? Adjust the main thread tension. • Is the thread take-up amount for the thread take-up lever too large? Adjust the position of the thread take-up lever in accordance with the thread being used. • Is the button opener adjusted correctly? Adjust the transverse position and vertical position of the button opener.

Proble	Possible cause
<p>4. Thread breaks</p> <ul style="list-style-type: none"> • Thread frays and breaks. • Thread breaks at different points. • Thread breaks and stitch skips simultaneously. 	<ul style="list-style-type: none"> • Is the needle and looper timing correct? Adjust the height of the needle bar. Adjust the needle and looper timing. • Is the clearance between the needle and the looper too large? Adjust the position of the looper. • Is the clearance between the needle and the needle guide too large? Adjust the position of the needle guide. • Is the presser arm pressure too weak? Adjust the presser arm pressure. • Is the position of the feed plate correct with respect to the needle drop positions? Adjust the installation position of the feed plate. • Is the position of the button clamp assembly correct with respect to the needle drop positions? Adjust the installation position of the button clamp assembly. • Is the material bunching up? Use the feed plate with the projection (1). 
<p>5. Thread tightening is loose.</p>	<ul style="list-style-type: none"> • Is the main thread tension too weak? Adjust the main thread tension. • Is the sub tension timing too early? Adjust the sub tension timing.
<p>6. Thread remains in loop at crossover stitch joint</p> 	<ul style="list-style-type: none"> • Is the main thread tension too strong? Adjust the main thread tension. • Is the sub tension too weak? Turn the nut (1) to adjust the sub tension. • Is the sub tension timing too late? Adjust the sub tension timing. • Has the thread been passed through only one of the holes in the thread hook? Pass the thread through both holes in the thread hook. 
<p>7. Thread remains in loop on odd stitches</p> 	<ul style="list-style-type: none"> • Is the clearance between the needle and the thread handler too small? Adjust the position of the thread handler.
<p>8. Thread end not properly wound on the first stitch.</p> 	<ul style="list-style-type: none"> • Is the thread take-up amount for the rotor too large? Reduce the scale setting for the rotor.

Proble	Possible cause
<p>9. Stitch joint is loose.</p>  <p>(1) (2)</p>	<ul style="list-style-type: none"> • Is the thread take – up amount for the thread take – up lever too small? Adjust the position of the thread take – up lever in accordance with the thread being used. • Is the thread presser tension too weak? Turn the nut (1) to adjust the thread presser tension. 
<p>10. Intermittent problems with thread tightening</p>  <p>(1) (2)</p>	<ul style="list-style-type: none"> • Is the thread getting caught somewhere along the thread path? Check the threading of the thread.
<p>11. Stitches skip at sewing start</p>  <p>(1) (2)</p>	<ul style="list-style-type: none"> • Is the main thread tension too strong? Adjust the main thread tension so that 64 – 70mm of thread trails out from the hole in the needle. • Is the needle properly installed? If it is incorrect, install the needle correctly. • Is the thread presser tension opening amount too small? Adjust the thread presser tension opening amount. • Is the thread take – up amount for the rotor too small? Increase the scale setting for the rotor. • Are the positions of the feed plate and button clamp correct? Adjust the installation positions of the feed plate and button clamp assembly. • Is the needle and looper timing correct? Adjust the height of the needle bar. Adjust the needle and looper timing. • Is the clearance between the needle and the looper too large? Adjust the position of the looper. • Is the clearance between the needle and the needle guide too large? Adjust the position of the needle guide. • Is the material bunching up? Use the feed plate with the projection (1)  
<p>12. Final stitch skips Stitch comes out when the material is removed from the machine.</p>	<ul style="list-style-type: none"> • Is the needle properly installed? If it is incorrect, install the needle correctly. • Are the positions of the feed plate and button clamp correct? Adjust the installation positions of the feed plate and button clamp assembly. • Is the needle and looper timing correct? Adjust the height of the needle bar. Adjust the needle and looper timing. • Is the clearance between the needle and the looper too large? Adjust the position of the looper. • Is the clearance between the needle and the needle guide too large? Adjust the position of the needle guide.

Proble	Possible cause
<p>13. Thread winds onto looper in machine stop position.</p> 	<ul style="list-style-type: none"> • Is the auxiliary tension too weak? Adjust the auxiliary tension. • Set the needle drop position to the outside of the button thread hole. • Is the thread being used too thick? Use a finer thread. • Reduce the number of stitches. 
<p>14. Thread remains on material top at first stitch.</p> 	<ul style="list-style-type: none"> • Is the auxiliary tension too weak? Adjust the auxiliary tension. • Is the thread take –up amount for the rotor too large? Reduce the scale setting for the rotor. • Is the seam uneven (is the material not being fed) at the start of sewing? Increase the presser arm pressure.
<p>15. Button pops out of the button clamp at the sewing start.</p>	<ul style="list-style-type: none"> • Does the button size match the button clamp? Use a button clamp that matches the button size. <ul style="list-style-type: none"> • 10 –20mm buttons: Standard button clamp • 10 –30mm buttons: Optional button clamp
	<p>16. Broken needles</p> <ul style="list-style-type: none"> • Do the needle drop positions match the button thread holes? Adjust the vertical feed lever and the transverse feed plate to match the distance between the button thread holes. • Are the positions of the feed plate and button clamp correct? Adjust the installation positions of the feed plate and button clamp assembly. • Does the button size match the button clamp? Use a button clamp that matches the button size. <ul style="list-style-type: none"> • 10 –20mm buttons: Standard button clamp • 10 –30mm buttons: Optional button clamp • Is the size of the feed plate hole too small for the needle drop position? Use a feed plate with a larger hole. <p>Causion</p> <div style="border: 1px solid black; padding: 5px;"> <p>It is extremely eangerous to leave any pieces of broken needle stitcking in the material. If the needle breaks, search for all pieces until the whole of the needle is found again.</p> <ul style="list-style-type: none"> • Furthermore, we recommend that through steps be taken to account for such needles to comply with product liability regulations. </div>
<p>17. Incorrect thread trimming</p> 	<ul style="list-style-type: none"> • Is the fixed knife or movable knife blunt? Replace the fixed knife or the movable knife. • Is the position of the fixed knife or movable knife correct? Adjust the positions of the fixed knife and movable knife.

Proble	Possible cause
<p>18. Button does not drop at the stop position.</p>	<ul style="list-style-type: none"> • Does the outer diameter of the button match the opening amount for the button clamp? Set a button in place and adjust the size adjust plate. • Is the button opener adjusted correctly? Adjust the transverse position and vertical position of the button opener.
<p>19. Machine makes abnormally loud sound when stopping.</p>	<ul style="list-style-type: none"> • Is the sewing machine operating speed too fast? Use a machine pulley that matches the frequency. • Is the braking force too weak? Adjust the brake.
<p>20. Machine stops before the stop position. Button clamp lift stroke is too small. Thread is not cut.</p>	<ul style="list-style-type: none"> • Is the sewing machine operating speed too slow? Use a machine pulley that matches the frequency. • Is the braking force too strong? Adjust the brake.

