

CHANGING NEEDLES

When changing needle, make sure that it is inserted in the needle carrier as far as it will go, and tighten clamp screw securely.

Immediately discard any needle which may have a hooked or blunt point, as improper needle penetration will result.

THREADING

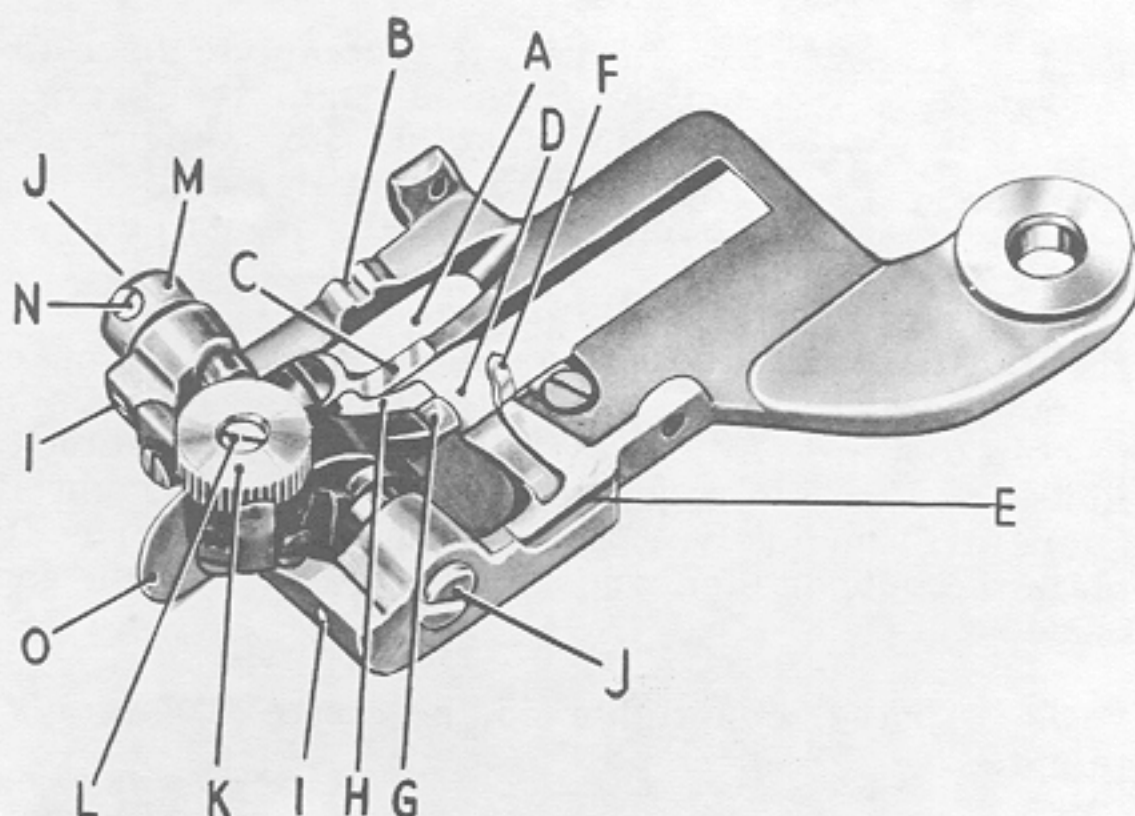
To thread the machine, turn handwheel in operating direction until the needle carrier is in its highest position.

Refer to the threading diagram on Page 13.

ADJUSTING

ADJUSTING PRESSER FOOT TO NEEDLE

A view of the presser foot (Fig. 1) is shown to illustrate the various parts of the foot which are referred to in this and subsequent adjustments.

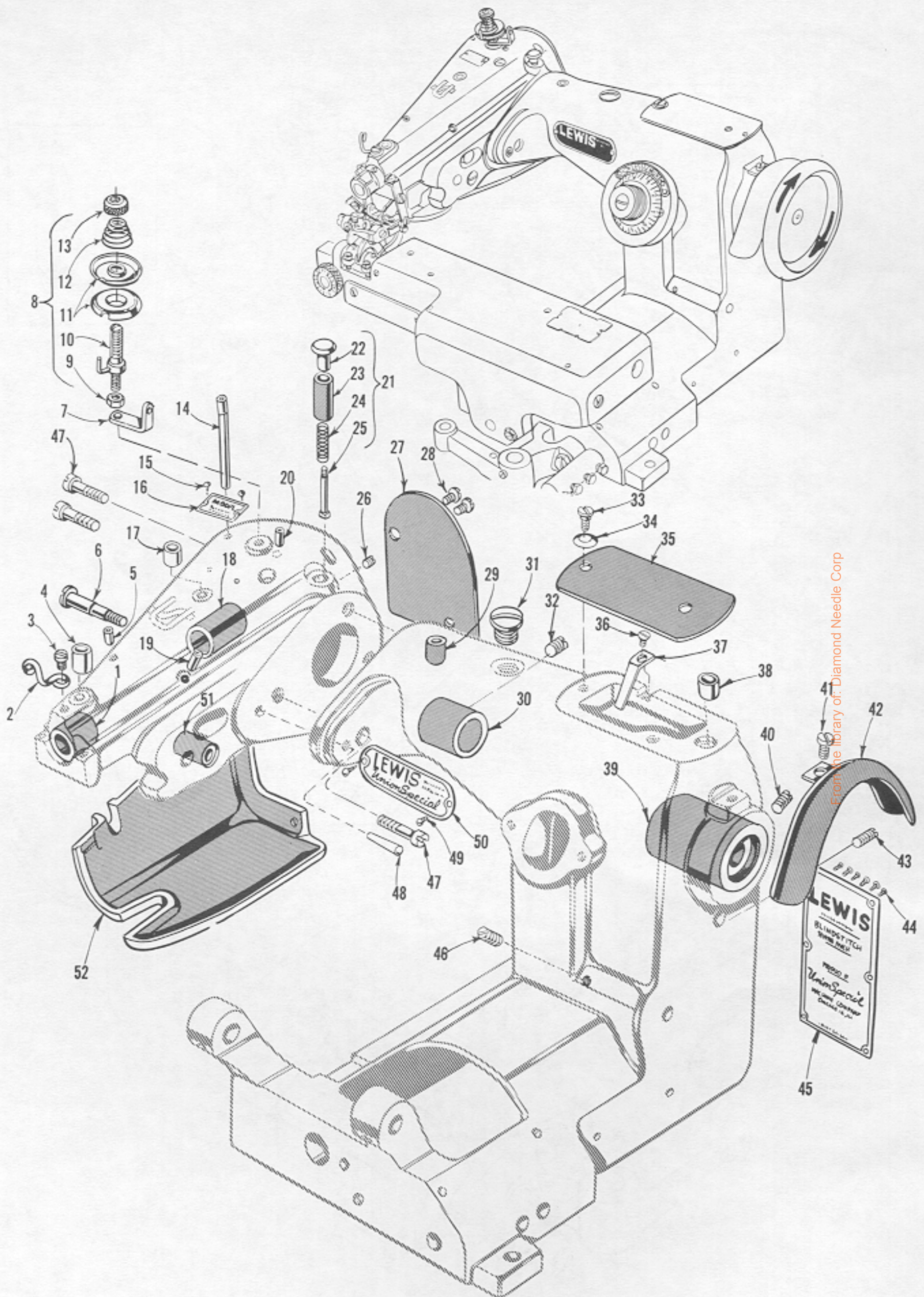


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Fig. 1

Below is the key to the labelling of the illustration.

- A - Looper opening
- B - Needle groove
- C - Needle guide
- D - Cloth opening
- E - Upper right edge
- F - Chaining finger
- G - Crown
- H - Left hand cloth retainer
- I - Eccentric stud set screws
- J - Eccentric studs
- K - Knurled adjusting screw (for right cloth retainer)
- L - Set screw
- M - Spring adjusting sleeve (for left cloth retainer)
- N - Set screw
- O - Edge guide

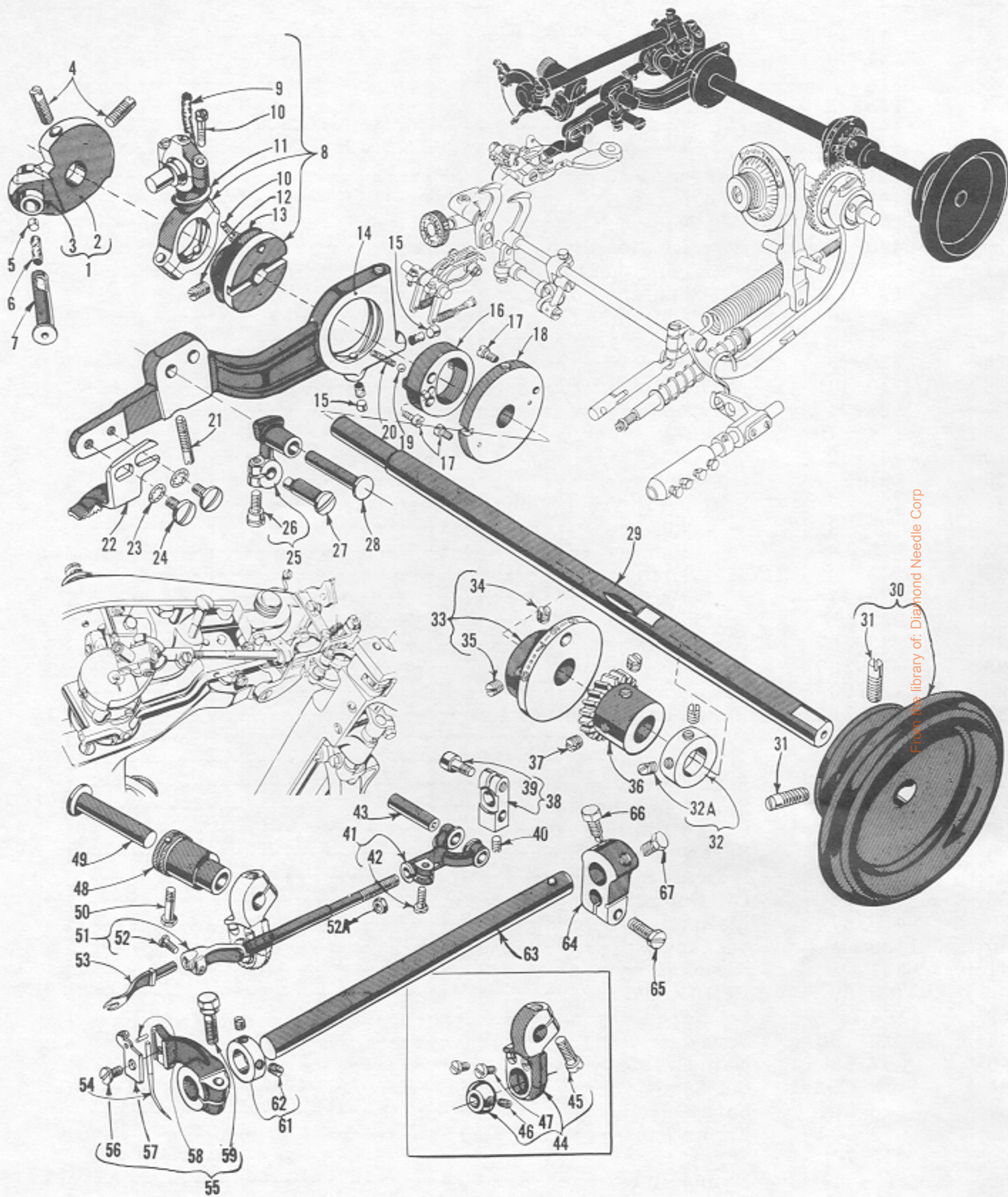


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MAIN FRAME, BUSHINGS, COVERS AND MISCELLANEOUS PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	16-39	Bushing -----	1
2	41-49	Thread Guide -----	1
3	LS314	Screw -----	1
4	125-23	Oil Cup -----	1
5	61-30	Oil Tube -----	1
6	18-565	Screw -----	1
7	41-42	Thread Guide -----	1
8	468-23-1	Tension Staff, complete -----	1
9	1160 L	Nut -----	1
10	468-23	Tension Staff, with hook -----	1
11	1183 L	Tension Disc -----	2
12	1132 L	Tension Spring -----	1
13	20-60	Thumb Nut -----	1
14	61-46	Oil Tube -----	1
15	18-768	Screw -----	2
16	110-401	Model Plate -----	1
17	125-23	Oil Cup -----	1
18	16-148	Bushing -----	1
19	61-32	Oil Tube -----	1
20	61-25	Oil Tube -----	1
21	426-47	Stitch Adjusting Plunger, complete -----	1
22	20-79	Nut -----	1
23	16-194	Bushing -----	1
24	LS75	Spring -----	1
25	26-47	Plunger -----	1
26	1081 L	Set Screw -----	1
27	32-107	Cover Plate -----	1
28	18-330	Screw -----	2
29	125-23	Oil Cup -----	1
30	16-386	Main Shaft Bushing, left -----	1
31	18-764	Plug Screw -----	1
32	1197 L	Set Screw -----	1
33	1220 L	Screw -----	1
34	1221 L	Spring Washer -----	1
35	32-36	Cover Plate -----	1
36	18-38	Screw -----	1
37	155-9	Indicator -----	1
38	125-23	Oil Cup -----	1
39	416-374	Main Shaft Bushing, right -----	1
40	1195 L	Set Screw -----	1
41	CS331	Screw -----	1
42	8-89	Belt Guard -----	1
43	1197 L	Set Screw -----	1
44	18-768	Screw -----	6
45	97-56	Name Plate -----	1
46	18-C94-1	Set Screw -----	1
47	18-664	Screw -----	3
48	22-149	Taper Pin -----	1
49	18-768	Screw -----	2
50	97-51	Name Plate -----	1
51	16-279	Bushing -----	1
52	32-262	Bottom Cover -----	1

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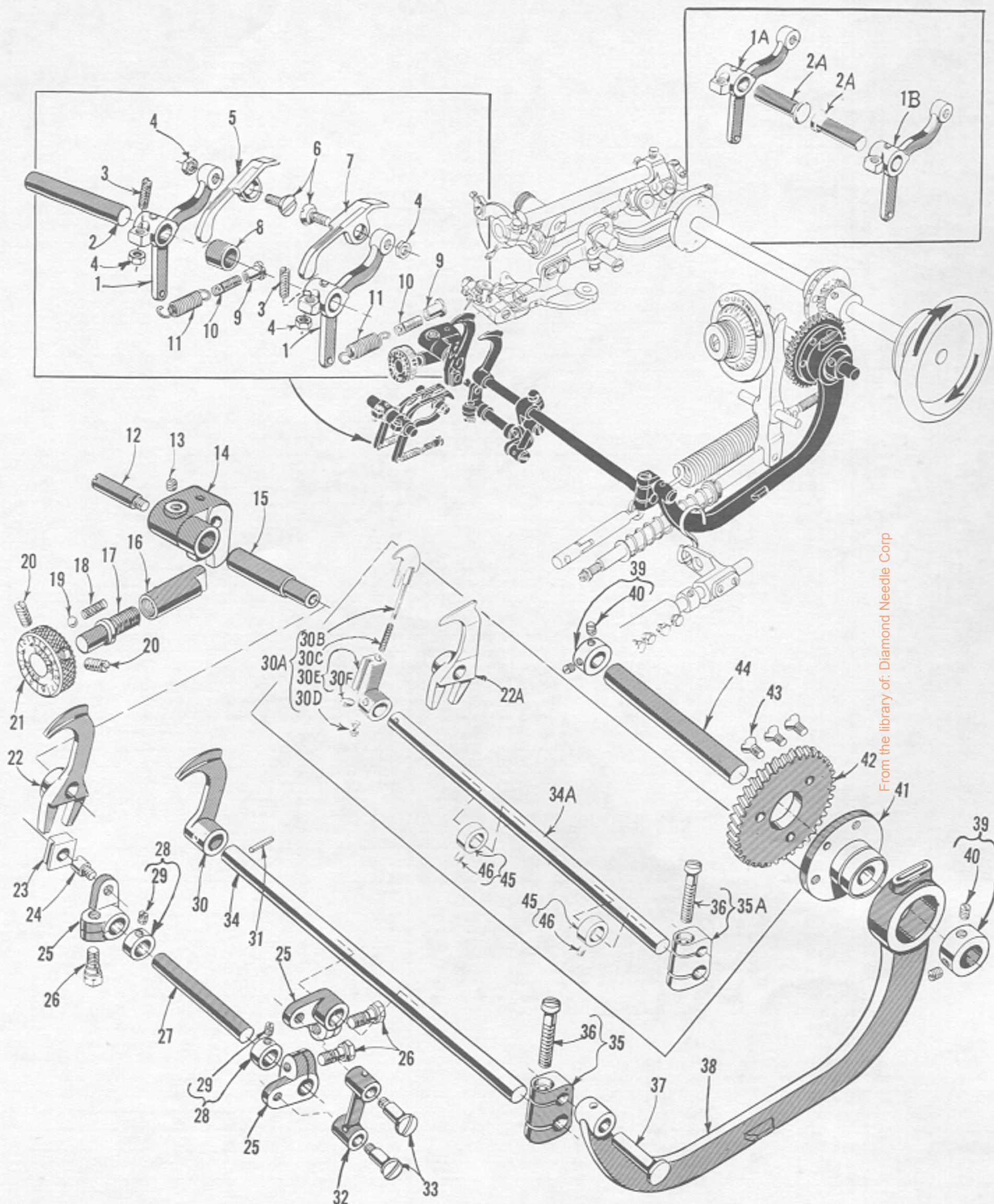
FEED, LOOPER AND NEEDLE DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	448-135	Looper Driving Crank, complete -----	1
2	48-135	Crank -----	1
3	16-321	Bushing -----	1
4	18-737	Set Screw -----	2
5	137-19	Oil Wick Retainer -----	1
6	666-170	Oil Wick -----	1
7	17-149	Stud -----	1
8	447-141	Needle Drive Eccentric Connection, complete -----	1
9	666-239	Oil Wick -----	1
10	22559 D	Screw, for connecting rod -----	4
11	660-204	"O" Ring -----	1
12	18-492	Spot Screw, for eccentric -----	1
13	40-199	Fiber Washer -----	1
14	45-351	Feed Driving Lever -----	1
15	137-19	Oil Wick Retainer -----	2
16	33-149	Feed Driving Eccentric, .250 inch throw -----	1
17	18-674	Screw -----	3
18	149-16	Stitch Regulator -----	1
19	79-31	Ball -----	1
20	21-213	Spring -----	1
21	18-767	Screw -----	1
†22	23-327	Feed Point -----	1
†	23-338	Feed Point -----	1
23	40-126	Shakeproof Washer -----	2
24	18-732	Screw -----	2
25	446-118	Feed Driving Lever Link -----	1
26	18-751	Screw -----	1
27	17-114	Eccentric Stud -----	1
28	17-150	Stud -----	1
29	14-432	Main Shaft -----	1
30	57-56	Handwheel -----	1
31	1192 L	Set Screw -----	2
32	39-92	Collar -----	1
32A	1025 L	Set Screw -----	2
33	139-10	Counterweight Balancer -----	1
34	1031 L	Spot Screw -----	1
35	1005 L	Set Screw -----	1
36	27-221	Drive Gear -----	1
37	18-C97	Set Screw -----	2
38	115-118	Looper Carrier Yoke Block -----	1
39	22653 B-8	Clamp Screw -----	1
40	18-738	Set Screw -----	1
41	449-27	Looper Carrier Yoke -----	1
42	18-71	Clamp Screw -----	1
43	22-8	Pin -----	1
44	4124-27	Looper Carrier Ball Joint -----	1
45	1213 L	Clamp Screw -----	1
46	18-74	Spot Screw -----	1
47	1170 L	Screw -----	2
48	70-53	Sleeve, for looper ball joint adjustment -----	1
49	17-146	Stud -----	1
50	18-662	Screw -----	1
51	4118-15	Looper Carrier Shaft -----	1
52	1170 L	Screw -----	1
52A	20-31	Nut for 4118-15 -----	1
53	36-16	Looper -----	1
54	29BL-100/040	Needle -----	1
55	4118-24	Needle Carrier, complete -----	1
56	810 L	Screw -----	1
57	30-52	Needle Clamp -----	1
58	22-9	Pin -----	1
59	18-70	Clamp Screw -----	1
61	439-7	Collar -----	1
62	SB15	Set Screw -----	2
63	14-14	Needle Carrier Shaft -----	1
*64	48-105	Needle Carrier Shaft Crank -----	1
*65	1243 L	Screw -----	1
*66	18-702	Spot Screw -----	1
*67	1333 L	Screw -----	1

* Component part of No. 447-141, Ref. No. 8

† For use on machines prior to and after improved Style 150-230 machines.

† For use on Style 150-230 improved machines.



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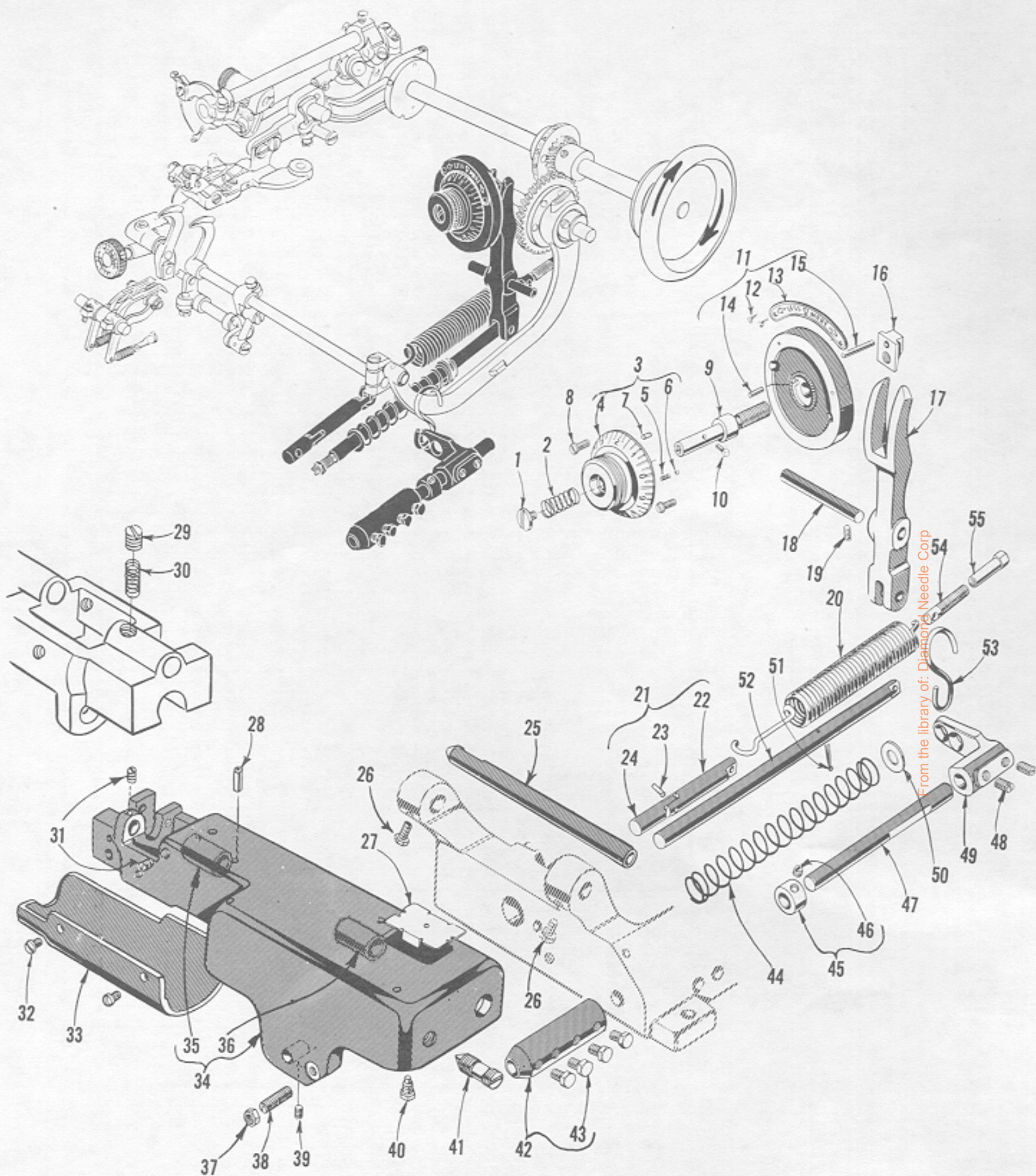
FEED PLATES, RIDGE FORMING AND DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
‡1	99-342	Feed Plate Holder -----	2
†1A	99-350	Feed Plate Holder, left-----	1
†1B	99-349	Feed Plate Holder, right -----	1
‡2	14-505	Shaft -----	1
†2A	22-326	Feed Plate Holder Hinge Pin -----	2
3	18-749	Screw -----	2
4	20-35	Nut-----	4
5	24-321	Feed Plate, left -----	1
6	18-918	Screw -----	2
7	24-322	Feed Plate, right -----	1
‡8	39-136	Spacing Collar-----	1
9	20-129	Nut-----	2
10	18-628	Screw -----	2
11	21-248	Spring -----	2
12	18-579	Screw -----	1
13	18-634	Set Screw -----	1
14	140-16	Ridge Forming Disc Cradle -----	1
15	14-503	Shaft -----	1
16	20-141	Adjusting Nut-----	1
17	18-1065	Adjusting Screw -----	1
18	21-70	Spring -----	1
19	79-31	Ball -----	1
20	18-500	Set Screw -----	2
21	4149-18	Regulator, for adjusting left ridge forming disc -----	1
‡22	44-328	Ridge Forming Disc, left -----	1
†22A	44-321	Ridge Forming Disc, left -----	1
23	69-C19	Slide Block-----	1
24	18-C889	Screw -----	1
25	48-69	Ridge Forming Disc Crank-----	2 or 3
†25A	48-184	Ridge Forming Disc Crank-----	1
26	18-710	Screw -----	3
27	14-506	Driving Shaft, for left ridge forming disc -----	1
28	1284 L	Collar -----	2
29	1022 L	Screw -----	1
‡30	44-C257	Ridge Forming Disc, right-----	1
†30A	444-322	Yielding Ridge Forming Assembly, right -----	1
†30B	44-322	Yielding Ridge Forming Plunger-----	1
†30C	21-433	Spring -----	1
†30D	20-122	Nut-----	2
†30E	99-348	Frame-----	1
†30F	18-633	Set Screw -----	1
‡31	1246 L	Pin-----	1
32	1304 L	Link-----	1
33	1306 L	Screw -----	2
‡34	14-504	Shaft, for right ridge forming disc -----	1
†34A	14-521	Shaft, for right ridge forming assembly-----	1
‡35	448-C132	Ridge Forming Disc Crank-----	1
†35A	48-182	Ridge Forming Disc Crank-----	1
36	18-497	Screw -----	1
37	17-C141	Stud -----	1
38	47-131	Connecting Rod -----	1
39	39-C130 B	Collar -----	2
40	18-C94-2	Set Screw -----	2
41	33-C143	Eccentric, .240 inch throw -----	1
42	27-C149	Driven Gear-----	1
43	18-C215-1	Screw -----	3
44	14-C147	Shaft -----	1
†45	1284 L	Collar -----	2
†46	1022 L	Set Screw -----	1

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‡ For use on machines prior to and after improved Style 150-230 machines.

† For use on Style 150-230 improved machines.

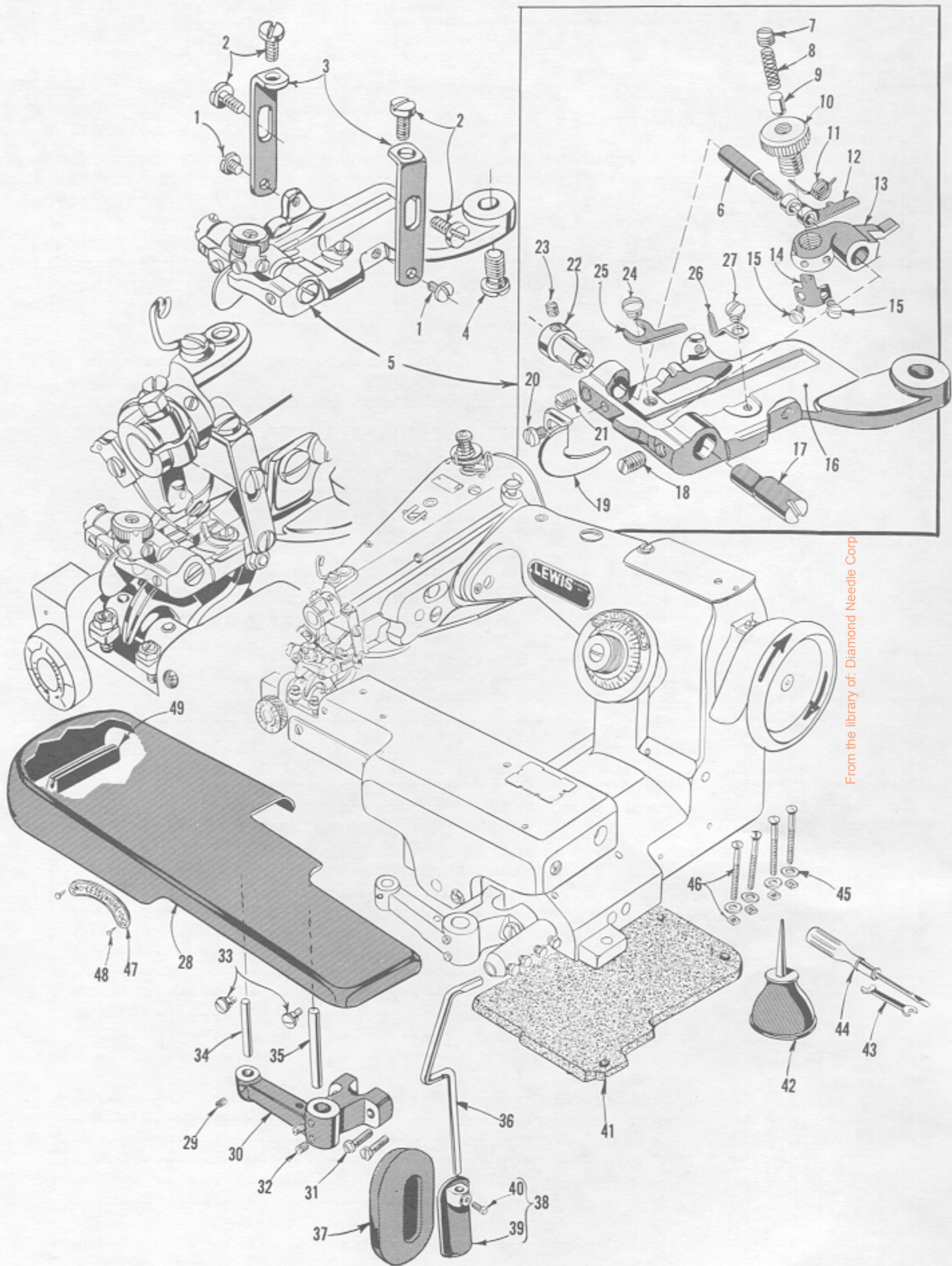


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WORK APRON AND STITCH DEPTH REGULATOR PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	18-1028	Screw -----	1
2	21-404	Spring -----	1
3	4149-30	Stitch Depth Regulator Knob Assembly -----	1
4	149-30	Plunger Regulator -----	1
5	21-237	Spring -----	1
6	79-31	Ball -----	1
7	22-C214-4	Pin -----	1
8	18-C100	Screw -----	2
9	18-1064	Adjusting Screw -----	1
10	22-296	Square Head Pin -----	1
11	4107-58	Stitch Depth Regulator Flange, complete -----	1
12	18-768	Screw -----	2
13	110-323	Regulator Plate -----	1
14	22-C214-4	Pin -----	1
15	22-316	Pin -----	1
16	115-C113	Stitch Depth Regulator Block -----	1
17	45-C150	Stitch Depth Regulator Lever -----	1
18	22-C151-1	Hinge Pin -----	1
19	22-C214-1	Pin -----	1
20	21-C54 B	Work Table Tension Spring -----	1
21	471-C544	Knuckle Assembly -----	1
22	71-C134	Spring Tension Shank -----	1
23	22-C214-4	Pin -----	1
24	71-C133	Spring Tension Knuckle -----	1
25	14-96	Work Table Pivot Shaft -----	1
26	18-C944	Screw -----	2
27	32-296	Snap Cover -----	1
28	61-49	Oil Tube -----	1
29	18-960	Set Screw -----	1
30	6258	Spring -----	1
31	1025 L	Set Screw -----	2
32	18-330	Screw -----	2
33	32-291	Cover -----	1
34	183-36	Work Apron -----	1
35	16-394	Ridge Forming Shaft Bushing, left -----	1
36	16-397	Ridge Forming Shaft Bushing, right -----	1
37	20-34	Nut -----	1
38	18-564	Stitch Depth Regulator Shaft Stop Screw -----	1
39	18-C94-1	Knuckle Assembly Set Screw -----	1
40	18-129	Work Table Pivot Shaft Lock Screw -----	1
41	18-126	Work Table Pivot Shaft Bearing Screw -----	1
42	70-28	Knee Press Rod Sleeve -----	1
43	18-493	Screw -----	4
44	21-C153	Stitch Depth Regulator Shaft Spring -----	1
45	1388 L	Collar -----	1
46	1025 L	Set Screw -----	1
47	14-507	Knee Lift Shaft -----	1
48	1003 L	Set Screw -----	2
49	45-203	Knee Lift Lever -----	1
50	40-C213-2	Washer -----	1
51	22-C137	Cotter Pin -----	1
52	71-107	Stitch Depth Regulator Shaft -----	1
53	131-C163-1	"S" Hook -----	1
54	18-C884	Work Table Tension Adjusting Screw -----	1
55	20-C117	Nut -----	1

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PRESSER FOOT, WORK SUPPORT PLATE AND ACCESSORIES

Ref. No.	Part No.	Description	Amt. Req.
1	18-307	Screw -----	2
2	CS327	Screw -----	4
3	50-160	Bracket-----	2
4	876 L	Screw -----	1
‡5	405-576-2	Presser Foot, complete -----	1
†	405-576-3	Presser Foot, complete -----	1
6	17-87	Eccentric Stud-----	1
7	18-634	Set Screw -----	1
8	21-300	Spring, for No. 405-576-2 -----	1
	21-62	Spring, for No. 405-576-3 -----	1
9	22-317	Pin-----	1
10	18-1074	Knurled Adjusting Screw-----	1
11	21-240	Spring -----	1
12	137-77	Retainer -----	1
13	126-54	Crown, for No. 405-576-2 -----	1
	126-57	Crown, for No. 405-576-3 -----	1
14	1733 L	Spring -----	1
15	18-261	Screw -----	2
16	5-576	Presser Foot, main section, for No. 405-576-2-----	1
	5-582	Presser Foot, main section, for No. 405-576-3-----	1
17	17-111	Stud -----	1
18	LS330	Set Screw -----	1
19	75-251	Edge Guide-----	1
20	1351 L	Screw -----	1
21	1081 L	Screw -----	1
22	16-214	Bushing, spring tensioning-----	1
23	18-416	Set Screw -----	1
24	18-643	Screw -----	1
25	6-56	Needle Guide -----	1
26	122-C38	Chaining Finger -----	1
27	18-292	Screw -----	1
28	4-141	Work Support Plate -----	1
29	18-533	Set Screw -----	1
30	50-211 A	Bracket-----	1
31	18-939	Screw -----	2
32	CS320-1/2	Set Screw -----	2
33	854 L	Screw -----	2
34	14-256	Stud -----	1
35	54484 G	Stud -----	1
36	71-87	Knee Press Rod -----	1
37	660-168	Knee Press Plate Cushion -----	1
38	4129-18	Knee Press Pad, complete-----	1
39	129-18	Knee Press Pad -----	1
40	22508	Screw -----	1
41	144-27	Felt Pad -----	1
42	413	Oil Can-----	1
43	1405 L	Open End Wrench -----	1
44	21201	Screw Driver-----	1
45	652-16	Washer -----	4
46	18-955	Stove Bolt, for holding machine to table -----	4
47	110-323	Regulator Plate-----	1
48	18-768	Screw -----	2
49	144-28	Work Apron Insulator -----	1
*	403-11	Thread Stand -----	1
*	SC303	Wood Screw, for thread stand -----	1

* Furnished with machine but not shown on picture plate.

‡ For use on machines prior to and after improved Style 150-230 machines.

† For use on Style 150-230 improved machines.

ADJUSTING (Continued)

Insert a new needle of proper size and type as far as it will go in the needle carrier, and securely tighten the clamp screw.

Turn the handwheel in operating direction until the needle point is over the center of the looper opening (A) in the presser foot. At this point, there should be a maximum of .005 inch clearance between the needle and the bottom of the needle groove (B) on the left side of the foot.

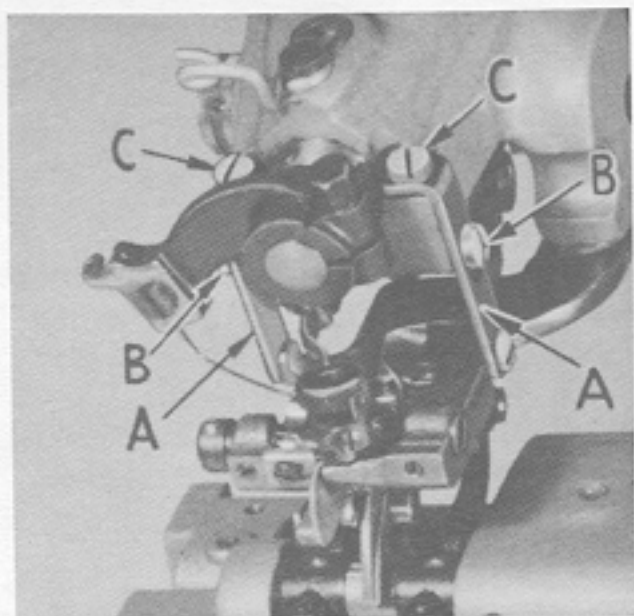


Fig. 2

Continue turning the handwheel until the point of the needle is over the right side of the needle guide (C) of the presser foot. At this position, the needle should just be making contact or be slightly deflected. Continue turning the handwheel until the needle point is 1/2 inch from right side of cloth opening (D), at which time, there should be a clearance of .001 to .003 inch between the needle point and the presser foot.

In order to accomplish these adjustments, the screws in the presser foot brackets (A, Fig. 2) are manipulated. Screws (B) are used to clamp the brackets securely, and screws (C) are used to assist in making adjustments.

Loosen screws (C) so that the heads do not contact the brackets. Loosen screws (B), and manually force presser foot and re-tighten screws only sufficiently to hold foot up. Adjust the right screw (C) in clockwise direction to lower the foot to secure the required clearance on the right side of foot and tighten right screw (B) securely. Then, adjust the left screw (C) in the same manner to obtain the proper clearance on the left side of the foot, and tighten left screw (B) securely.

After screws (B) have been tightened, no further tightening of screws (C) should be attempted.

Re-check the clearance on right side, and make sure the point of the needle is in slight contact with the needle guide. If not, re-set as previously described.

POSITIONING THE NEEDLE

Turn the handwheel in operating direction until the point of the needle is in its extreme left position.

Loosen the needle carrier clamp screw (A, Fig. 3), and center the needle in the needle groove in presser foot (A, Fig. 1).

Tighten the needle carrier clamp screw and turn the handwheel until the needle is at the extreme right position.

Loosen the needle carrier clamp screw, and set needle point 1/16 plus or minus 1/64 inch from the upper right edge of presser foot (E, Fig. 1).

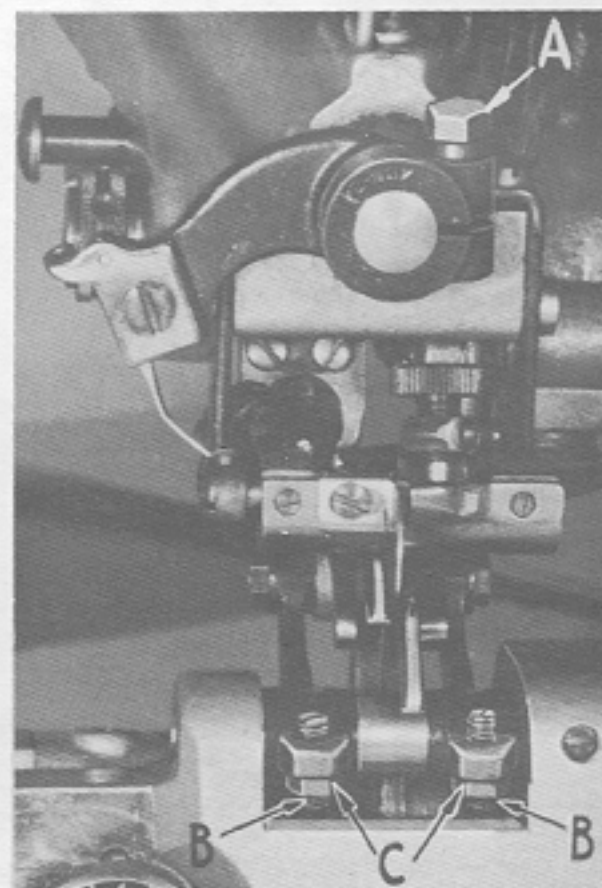


Fig. 3

NUMERICAL INDEX OF PARTS

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
4-141	23	18-737	17	39-C130 B	19	SC303	23
5-576	23	18-738	17	39-136	19	LS314	15
5-582	23	18-749	19	40-126	17	CS320-1/2	23
6-56	23	18-751	17	40-199	17	CS327	23
8-89	15	18-764	15	40-C213-2	21	LS330	23
14-14	17	18-767	17	41-42	15	CS331	15
14-96	21	18-768	15, 21, 23	41-49	15	403-11	23
14-C147	19			44-C257	19	405-576-2	23
14-256	23	18-C884	21	44-321	19	405-576-3	23
14-432	17	18-C889	19	44-322	19	413	23
14-503	19	18-918	19	44-328	19	416-374	15
14-504	19	18-939	23	45-C150	21	426-47	15
14-505	19	18-C944	21	45-203	21	439-7	17
14-506	19	18-955	23	45-351	17	444-322	19
14-507	21	18-960	21	47-131	19	446-118	17
14-521	19	18-1028	21	48-69	19	447-141	17
SB15	17	18-1064	21	48-105	17	448-C132	19
16-39	15	18-1065	19	48-135	17	448-135	17
16-148	15	18-1074	23	48-182	19	449-27	17
16-194	15	20-31	17	48-184	19	468-23	15
16-214	23	20-34	21	50-160	23	468-23-1	15
16-279	15	20-35	19	50-211 A	23	471-C544	21
16-321	17	20-60	15	57-56	17	652-16	23
16-386	15	20-79	15	61-25	15	660-168	23
16-394	21	20-C117	21	61-30	15	660-204	17
16-397	21	20-122	19	61-32	15	666-170	17
17-87	23	20-129	19	61-46	15	666-239	17
17-111	23	20-141	19	61-49	21	810 L	17
17-114	17	21-C54 B	21	69-C19	19	854 L	23
17-C141	19	21-62	23	70-28	21	876 L	23
17-146	17	21-70	19	70-53	17	1003 L	21
17-149	17	21-C153	21	71-87	23	1005 L	17
17-150	17	21-213	17	71-107	21	1022 L	19
18-38	15	21-237	21	71-C133	21	1025 L	17, 21
18-70	17	21-240	23	71-C134	21	1031 L	17
18-71	17	21-248	19	75-251	23	1081 L	15, 23
18-74	17	21-300	23	LS75	15	1132 L	15
18-C94-1	15, 21	21-404	21	79-31	17, 19, 21	1160 L	15
18-C94-2	19	21-433	19			1170 L	17
18-C97	17	22-8	17	97-51	15	1183 L	15
18-C100	21	22-9	17	97-56	15	1192 L	17
18-126	21	22-C137	21	99-342	19	1195 L	15
18-129	21	22-149	15	99-348	19	1197 L	15
18-C215-1	19	22-C151-1	21	99-349	19	1213 L	17
18-261	23	22-C214-1	21	99-350	19	1220 L	15
18-292	23	22-C214-4	21	110-323	21, 23	1221 L	15
18-307	23	22-296	21	110-401	15	1243 L	17
18-330	15, 21	22-316	21	115-C113	21	1246 L	19
		22-317	23	115-118	17	1284 L	19
18-416	23	22-326	19	122-C38	23	1304 L	19
18-492	17	23-327	17	125-23	15	1306 L	19
18-493	21	23-338	17	126-54	23	1333 L	17
18-497	19	24-321	19	126-57	23	1351 L	23
18-500	19	24-322	19	129-18	23	1388 L	21
18-533	23	26-47	15	131-C163-1	21	1405 L	23
18-564	21	27-C149	19	137-19	17	1733 L	23
18-565	15	27-221	17			4107-58	21
18-579	19	29BL-100/040	17	137-77	23	4118-15	17
18-628	19	30-52	17	139-10	17	4118-24	17
18-633	19	32-36	15	140-16	19	4124-27	17
18-634	19, 23	32-107	15	144-27	23	4129-18	23
18-643	23	32-262	15	144-28	23	4149-18	19
18-662	17	32-291	21	149-16	17	4149-30	21
18-664	15	32-296	21	149-30	21	6258	21
18-674	17	33-C143	19	155-9	15	21201	23
18-702	17	33-149	17			22508	23
18-710	19	36-16	17	183-36	21	22559 D	17
18-732	17	39-92	17			22653 B-8	17
						54484 G	23

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ADJUSTING (Continued)

Tighten clamp screw and again turn the hand-wheel so that the needle is at its extreme left position. The point of the needle should now be even with the left side of the looper opening in the presser foot.

If this is not the case, the travel of the needle will have to be adjusted in the following manner. With the needle at its extreme left position, loosen the clamp screw in the needle crank, accessible through hole on top of head (A, Fig. 4) and turn the needle eccentric ball stud (A, Fig. 5) so that the lower end of its slot is 10° to 15° to the right of vertical with the punch marks in the ball stud down. Re-tighten clamp screw, and re-check the position of the needle point in relation to the left side of looper opening in presser foot as previously described. It may be necessary to slightly retard or advance this adjustment to obtain desired results.

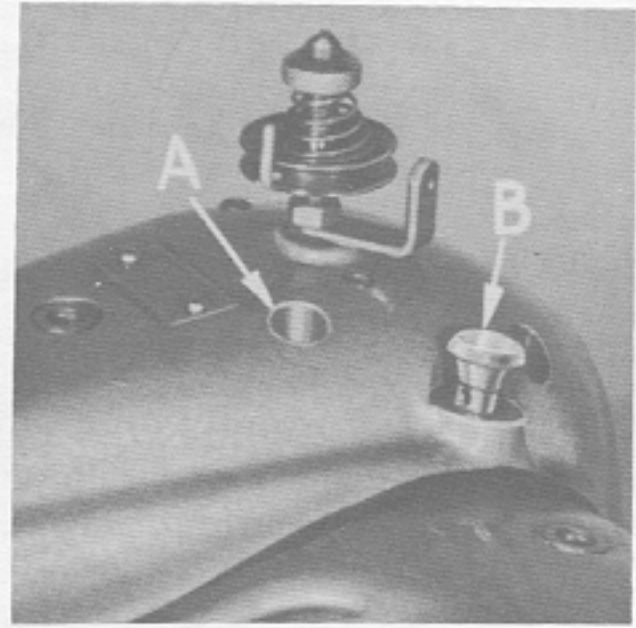


Fig. 4

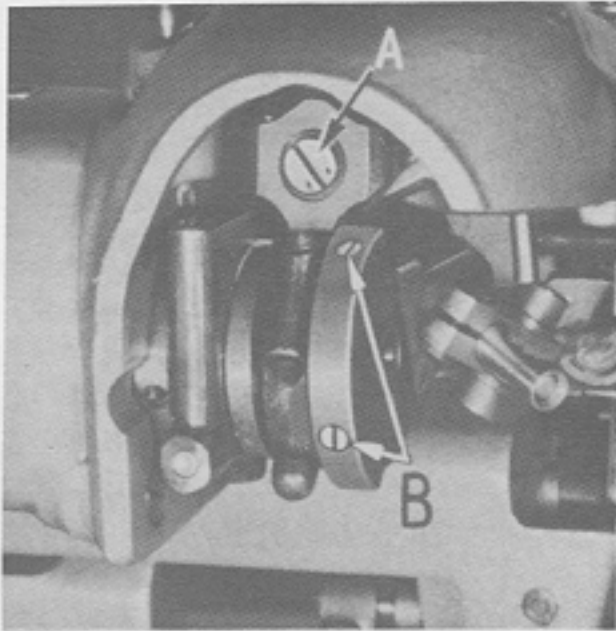


Fig. 5

CAUTION! When adjusting the needle eccentric ball stud, make sure that it is seated against the needle shaft crank.

TIMING AND ADJUSTING LOOPER

The looper motion is timed in relation to the needle motion so that the long prong of the looper enters the spot of the needle at the time the largest loop of needle thread is being formed.

Under normal conditions, this timing is adjusted in the following manner.

Insert the looper in its holder so that the flat on its shank corresponds with flat on holder and so that there is 1/64 inch space between looper seat and holder (Fig. 6).

In the left end of the main shaft is a "V" groove, and on the looper crank, there is a timing line (A, Fig. 6).

Turn the handwheel in operating direction until the "V" groove in the main shaft is at the bottom.

Loosen the two set screws in the looper crank (B, Fig. 5) and position the crank so that its timing line coincides with the right edge of the "V" groove in the main shaft. This setting will be satisfactory for average conditions.

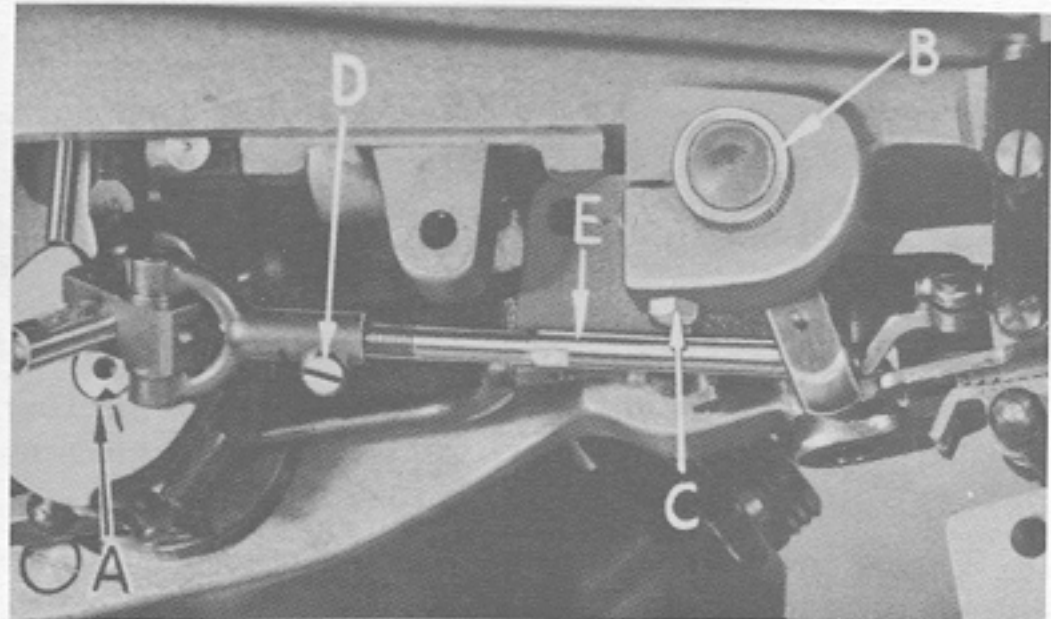


Fig. 6

ADJUSTING (Continued)

However, variations in materials and threads used may make it necessary to slightly advance or retard this timing to obtain the desired results.

Again, turn the handwheel in operating direction until the long prong of the looper is over the spot in the needle. At this point, the long prong of the looper should just clear the spot in the needle and be from $1/16$ to $3/32$ inch to the left of the inner end of the needle eye, and the short prong of the looper should clear the chaining finger of the presser foot (F, Fig. 1) by no more than $1/32$ inch.

On continuing the rotation of the handwheel, the short prong of the looper should clear the right side of the looper opening in the presser foot, and the needle, on its return stroke, should enter the crotch of the looper midway between the prongs.

The adjustment of the looper is secured by manipulation of the looper adjusting sleeve and the looper holder connecting rod.

The looper adjusting sleeve (B, Fig. 6) positions the looper laterally, and also provides a limited amount of vertical or height adjustment. Lateral adjustment is secured by loosening the clamp screw (C) and moving the adjusting sleeve in or out. Vertical or height adjustment is secured by turning the sleeve.

The looper holder connecting rod also adjusts the looper vertically, but to a greater extent than the adjusting sleeve.

If the looper is radically out of adjustment, the initial adjustment is made by loosening the clamp screw in the looper connecting rod yoke (D) and by turning the connecting rod (E), rolling the looper to the desired height. If only a slight amount of height adjustment is required, it can be secured by turning the adjusting sleeve. Final setting involves adjustment of both the connecting rod and adjusting sleeve.



Fig. 7

FEED POINT

When the point of the needle, moving to the left, is $1/16$ inch to the right of the right edge of the cloth opening in the presser foot, set the feed point $3/16$ inch back of the needle, resting on and parallel with the feed platens. The feed point is adjusted by means of two screws (A, Fig. 7) holding the feed point to the feed driving arm.

FEED PLATENS

When the feed point is on its feeding stroke, the feed platens press the work against the bottom of the presser foot and feed point under spring pressure.

Each platen is controlled by separate springs which should be adjusted so that the tensions on the platens will compensate for varying thicknesses of material and cause the work to feed uniformly.

There must be enough pressure applied to keep the material from moving when the needle makes its penetration. If the material moves with the needle, a loop will not be formed for the looper, resulting in skipped stitches.

ADJUSTING (Continued)

Check to see that feed platens clamp a piece of newspaper before point of needle penetrates material.

Pressure on the feed platens is controlled by the two nuts in the back of the work table (A, Fig. 8). Turning them clockwise increases the tension, counterclockwise acts the reverse.

The feed platens should drop uniformly when the work table is depressed.

This adjustment is made by the feed platen carrier adjusting screws (B, Fig. 3). Loosen lock nuts (C) and position screws so that they are $\frac{1}{32}$ inch from work table with the work table in operating position.

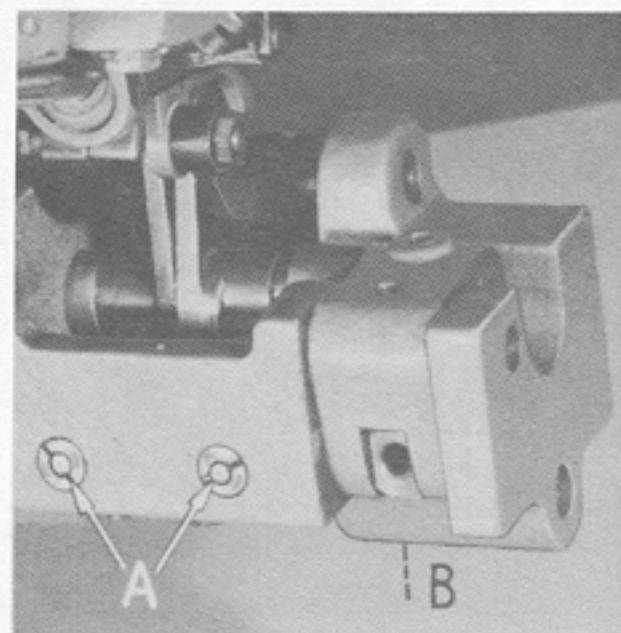


Fig. 8

STITCH LENGTH

The stitch length is regulated by the knob (B, Fig. 4) on the arm of the machine near the head. Open the top cover on the arm and observe the feed indicator on the shaft with numerals which indicate the number of stitches per inch. Press the knob down which will engage a slot in the feed mechanism. While holding the knob down, turn the handwheel away from you to lengthen the stitch and towards you to shorten the stitch. As you turn, observe the indicator until the number corresponding to the desired amount of stitches per inch appears directly under the indicator. Release knob. The stitch range of the machine is from 3 to 8 stitches per inch.

RIDGE FORMING DISCS

This machine is equipped with two ridge forming discs. The left ridge forming disc is a solid disc type while the right disc is a plunger or yielding type.

Two dial knobs control the height adjustment of the ridge forming discs.

The right hand dial knob, located on the arm of the machine, adjusts the position of the work table which, in turn, raises or lowers both ridge forming discs.

The left hand dial knob, located at the left end of the work table, adjusts the height of the left hand ridge forming disc independently of the right, and is used to compensate for differences in the number of plies of material being sewn.

The height of the ridge forming discs is set at the factory so that the right hand disc is sufficiently high that the needle just penetrates the top ply of three plies of material. The left hand disc is set so that the needle just penetrates one ply of material.

An additional adjustment is provided with the right yielding ridge former. Mounted in the presser foot and located over the ridge former is a compensating spring actuated crown (G, Fig. 1). With this device, it is possible to regulate the depth of needle penetration from the top side of the presser foot.

The compensating spring in the crown insures continual contact with the fold of material during the full travel of the ridge former. As the ridge former travels to the point of penetration, the crown is set to come to a positive stop in its upward travel. Because of this condition, the needle will always penetrate the same distance from the top of the work. Any variation in thickness of the work, such as when crossing seams, will cause the ridge former to yield.

ADJUSTING (Continued)

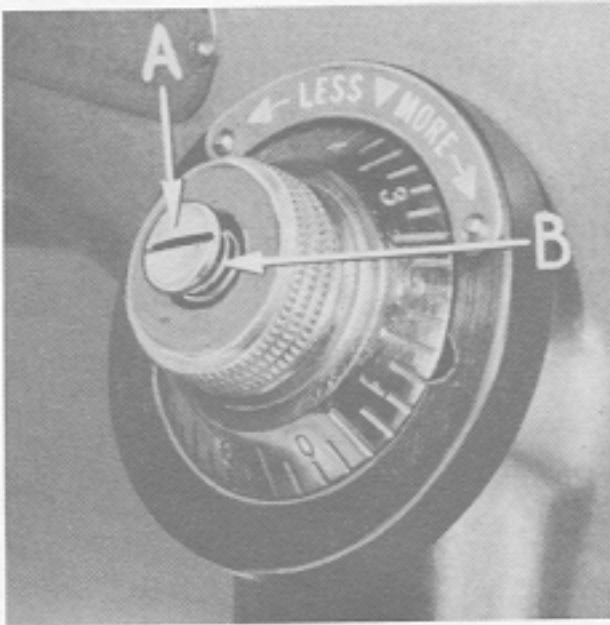


Fig. 9

Pressure is directly applied to the yielding ridge forming disc by adjusting the plunger rod with the upper nut. Generally the correct pressure is obtained when there is $3/32$ inch clearance between the top of the plunger holder and the underside of the head of the plunger shaft.

Should it become necessary to increase or decrease the height of the discs beyond the limits of the right hand dial range, proceed as follows:

1. Rotate right hand dial, in the required direction, to the end of its travel.
2. Remove screw (A, Fig. 9) and spring (B).
3. Lift the dial knob so that its stop pin disengages from the stationary stop pin in the dial seat, but so that its key slot remains engaged with the key in the dial shaft. Rotate the dial in the required direction until its stop pin passes over the stationary stop pin and the dial reengages.
4. Replace screw and spring.

Refinements of this adjustment, within any range, may be made by adjusting the push rod stop screw (A, Fig. 10).

To increase or decrease the height of the left-hand disc beyond the limits of the left-hand dial range, simply loosen the two locking screws located in the dial and turn the slotted stud located in the center of the dial in the desired direction. Retighten screws.

Lateral adjustment of the ridge forming discs is accomplished by moving the work table right or left. The discs should be spaced equidistant from the sides of the cloth opening in the presser foot. This adjustment is made by loosening the two hexagonal screws (B, Fig. 10) in the base and sliding work table to correct position.

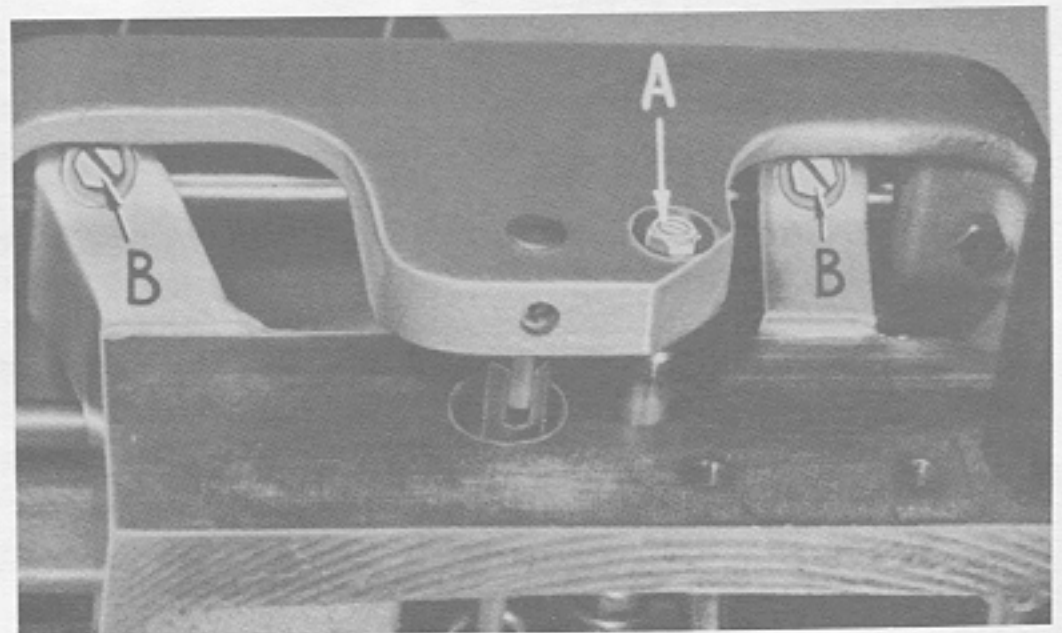


Fig. 10

ADJUSTING (Continued)

WORK TABLE TENSION

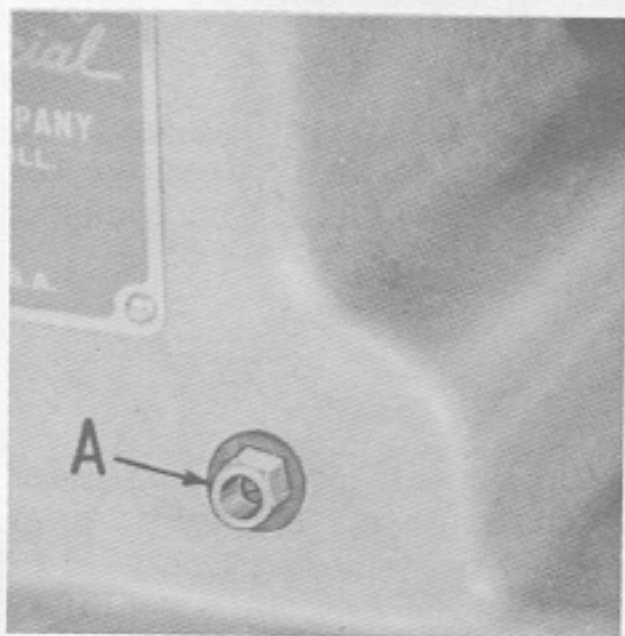


Fig. 11

The position of the ridge forming discs is fixed in the work table. The tension applied to the work table by the large coil spring in the base of the machine controls the tension on the right ridge forming disc.

The tension on the left ridge forming disc is independently controlled by a small coil spring located in the under side of the left end of the work table (B, Fig. 8).

Tension on both discs can be increased or decreased, depending on the weight of material being sewn, by the following adjustments:

For right hand disc tension, adjust nut (A, Fig. 11). Turning nut clockwise increases tension, counterclockwise acts the reverse. For left hand disc tension, adjust screw (B, Fig. 8). Turning screw clockwise increases tension, counterclockwise acts the reverse.

STARTING TO OPERATE

- (1) Thread machine in accordance with threading diagram, Page 13.
- (2) Move knee press to right and insert work under feed point with the folded edge of the material directly over the right ridge forming disc and against the edge guide on the front of the presser foot.
- (3) Adjust needle penetration. Sew a few stitches and inspect. If the needle does not penetrate the folded edge at the desired depth, turn the right hand dial knob in the required direction. Check penetration at the single ply of fabric and adjust left hand dial knob in the same manner.
- (4) Adjust cloth retainer and crown. The cloth retainer and crown (G, H, Fig. 1), located in the cloth opening of the presser foot, must at all times be adjusted as close to the needle as possible and set relative to the ridge forming discs to firmly hold the work on the discs while the needle is penetrating the material. If the material is carried along with the needle, no loop will form, resulting in skipped stitches and improper needle penetration.

Lateral adjustment is secured by loosening two screws (I) and moving eccentric adjusting studs (J) laterally to desired position.

Adjustment in line of feed is made by loosening two screws (I) and turning the eccentric adjusting studs (J).

Tension on the right hand spring actuated crown is controlled by the knurled adjusting screw (K) and the set screw (L). Refer to adjustment under "Ridge Forming Discs".

Tension on left hand retainer can be varied by turning the spring adjusting sleeve (M). Loosen set screws (I & N) while holding adjusting stud (J) in position. Turn spring adjusting sleeve (M) to secure desired tension, and re-tighten the two set screws.

STARTING TO OPERATE (Continued)

- (5) Adjust edge guide. The edge guide (O, Fig. 1) has only a lateral adjustment and should be set so that the folded edge of the material is guided directly over the right hand ridge forming disc. In operating the machine, hold the folded edge of the material against the edge guide.
- (6) Removing work. To remove work after stitching, see that the needle is entirely withdrawn from the material, push the knee press to the right, and remove the work with a quick pull away from you in order to break the thread and lock the stitch.

ORDERING REPAIR PARTS

ILLUSTRATIONS

This catalog has been arranged to simplify ordering repair parts. Exploded views of various sections of the mechanism are shown so that the parts may be seen in their actual position in the machine. On the page opposite the illustration will be found a listing of the parts with their parts numbers, description and the number of pieces required in the particular view being shown.

Numbers in the first column are reference numbers only, and merely indicate the position of that part in the illustration. Reference number should never be used in ordering parts. Always use the part number listed in the second column.

Component parts of sub-assemblies which can be furnished for repairs are indicated by indenting their descriptions under the description of the main subassembly.

Example:

44	4124-27	Looper Carrier Ball Joint-----	1
45	1213 L	Clamp Screw -----	1
46	18-74	Spot Screw -----	1
47	1170 L	Screw-----	2

It will be noted in the above example that the ball and the strap are not listed. The reason is that replacement of these parts individually is not recommended, so the complete sub-assembly should be ordered.

At the back of the book will be found a numerical index of all the parts shown in this book. This will facilitate locating the illustration and description when only the part number is known.

IDENTIFYING PARTS

Where the construction permits, each part is stamped with its part number. Part numbers represent the same part, regardless of catalog in which they appear.

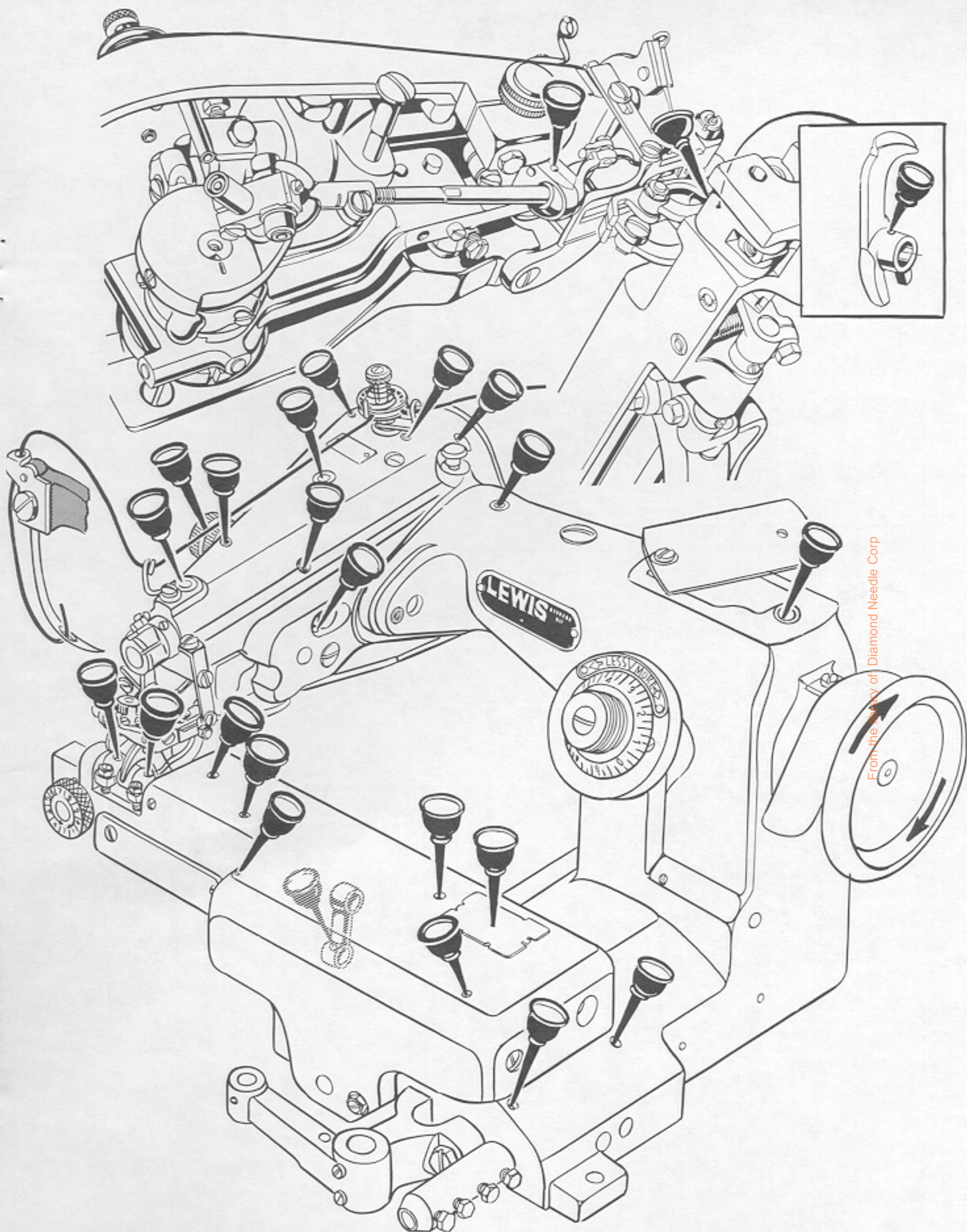
USE GENUINE NEEDLES AND REPAIR PARTS

Success in the operation of these machines can be secured only with genuine UNION SPECIAL Needles and Repair Parts as furnished by the Union Special Corporation, its subsidiaries and authorized distributors. They are designed according to the most approved scientific principles, and are made with utmost precision. Maximum efficiency and durability are assured.

Genuine needles are packaged with labels marked *Union Special*®. This trademark is your guarantee of the highest quality in material and workmanship.

TERMS

Prices are net cash and subject to change without notice. All shipments are forwarded f.o.b. shipping point. Parcel Post shipments are insured unless otherwise directed. A charge is made to cover postage and insurance.



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