

SAFETY RULES



CAUTION

THIS SAFETY SYMBOL INDICATES YOUR PERSONAL SAFETY IS INVOLVED.

TO PREVENT PERSONAL INJURY:

- All power sources to the machine MUST be TURNED OFF before threading, oiling, adjusting or replacing parts.
- Wear safety glasses.
- All shields and guards MUST be in position before operating machine.
- DO NOT tamper with safety shields, guards, etc., while machine is in operation.

LUBRICATION

Use a straight mineral oil with a saybolt viscosity of 90 to 125 seconds at 100 degrees F. This is equivalent to UNION SPECIAL specification No. 175.

Before operating, fill machine with oil at plug screw (A, Fig. 1). While filling machine with oil, check gauge (B). When proper oil level is reached, gauge needle will register on black line marked "FULL". Oil must be added when gauge needle registers on black line marked "LOW". Although the machine can be operated safely when gauge needle registers in the "OPERATE" zone, it is recommended to always check oil level before operating, to be sure machine is filled with oil to the "FULL" mark. CAUTION: DO NOT over fill machine.

To drain oil, remove plug screw (C), or lower crank chamber cover on back of machine. Oil must be changed every 2000 operating hours to minimize wear.

On new machines, or a machine out of service for an extended period of time; lubricate machine as follows:

Remove head cover, clean out lint, then directly oil needle bar link and needle bar. Replace head cover and fill machine with oil to proper level. Run machine at low RPM to ensure proper lubrication of components preventing any damage which may occur from lack of oil distribution.

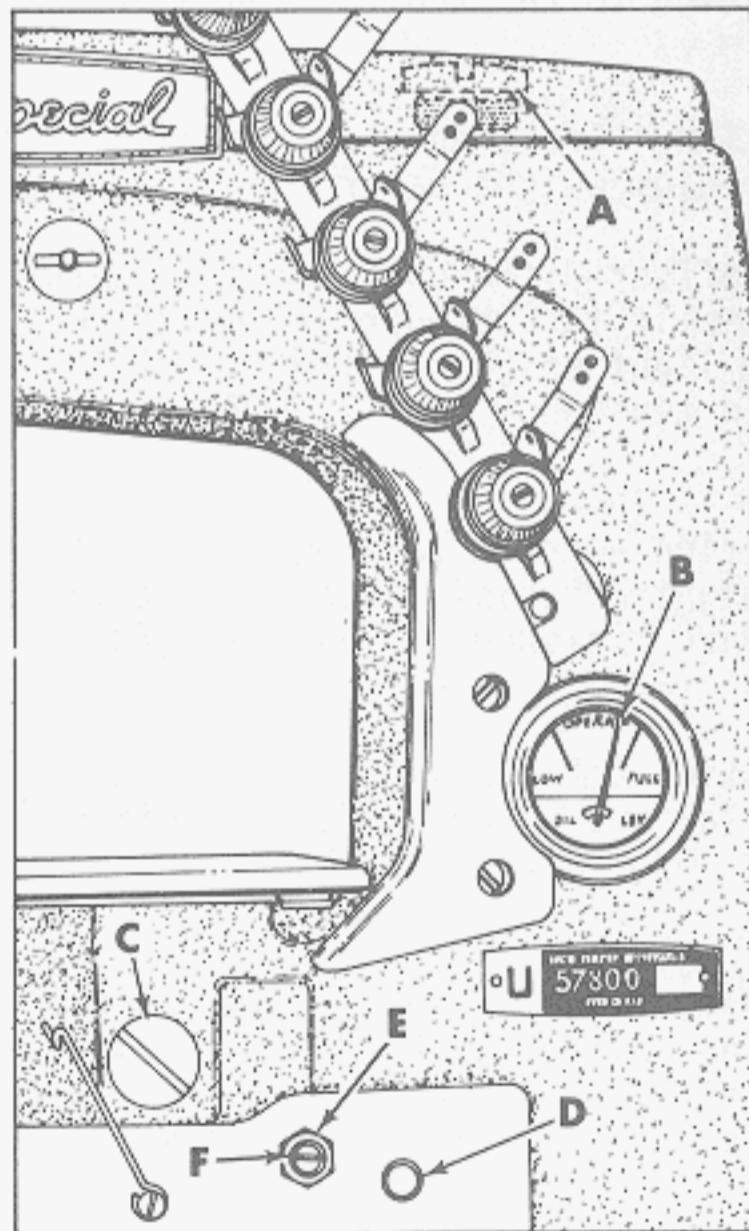


Fig. 1

SPREADER ADJUSTMENTS (Continued)

With needle bar at top of its stroke and spreader at extreme left end of its travel, point of thread carrying notch (A, Fig. 16) should extend $7/32$ inch (5.6mm) to the left of the centerline of left needle. Adjustment can be made by loosening screws (B), reposition spreader as required being sure to push down on spreader holder carrier (K, Fig. 14) and up on spreader holder (L) while tightening screws (B, Fig. 16) because spreader holder (C) acts as lower thrust collar for spreader holder carrier.

Bottom surface of spreader should be set $21/64$ inch (8.3mm) from top of throat plate (See Fig. 16). At extreme right end of travel, spreader must be set to clear the shank of left needle by $1/64$ to $1/32$ inch (.4 to .8mm). Adjustments can be made by loosening screws (D), reposition spreader as required and retighten screws.

NOTE: It may be necessary to coordinate these adjustments to attain specified dimensions.

Stationary thread guide (E, Fig. 16) should be set to clear right needle by approximately $3/32$ inch (2.4mm). Attaching screws (F) will allow repositioning as required. Moveable thread eyelet (G) should be positioned with its eye directly over the front end of slot in stationary thread guide (E). With needle bar at bottom of stroke, lower surface of thread eyelet (G) and top of thread guide (E) should have the clearance equivalent to the shank of a Type 121 needle, approximately .080 inch (2mm). Screw (H) will allow repositioning as required.

Timing of spreader travel is determined by the position of spreader drive eccentric (A, Fig. 17) on the crankshaft. While rotating handwheel in operating direction, the spreader should begin to move to the left as needle bar rises $1/8$ inch (3.8mm) from bottom of stroke. Adjustment can be made by loosening screws (B), advance or retard eccentric as required. Thrust eccentric against spacing washer (C) when tightening screws (B).

NOTE: Thread machine as indicated in Fig. 2.

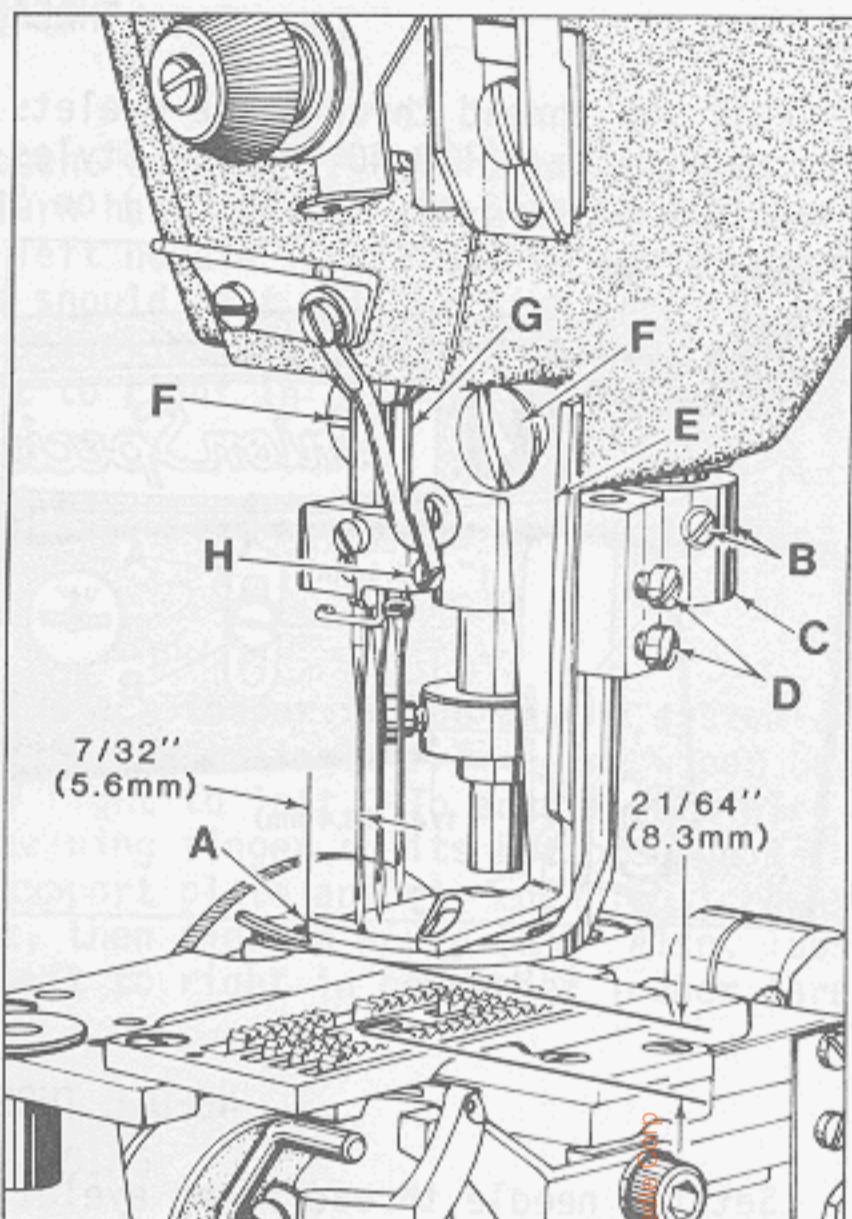


Fig. 16

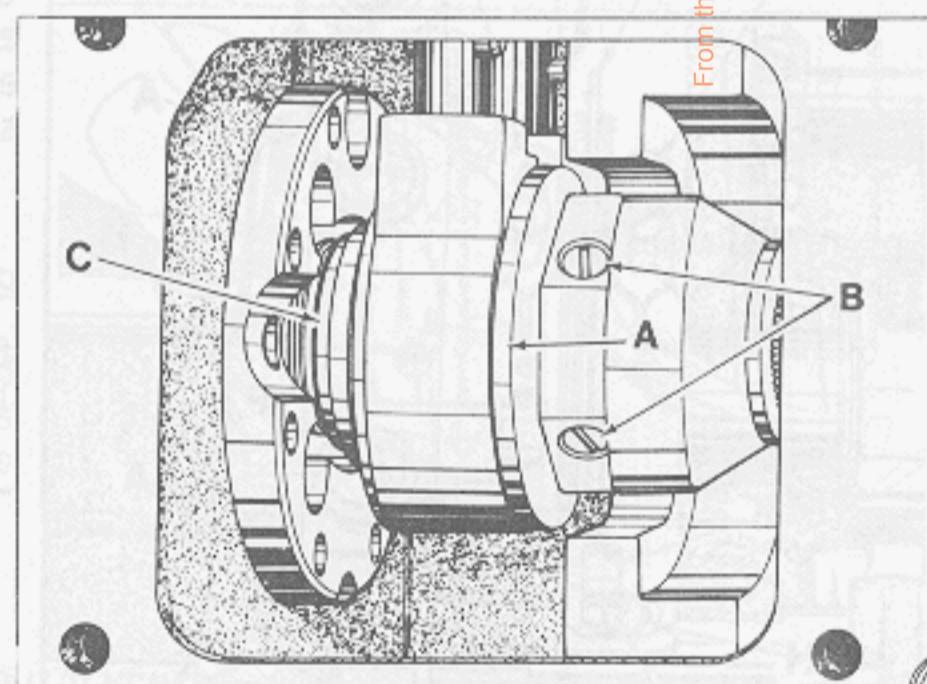


Fig. 17

THREAD TENSION

Pull the thread through the eyelets and set the left and center needle thread tensions at 4 oz. (113.40 gr.) on Styles 57800 E, M, W and X. Set the left needle thread tension at 3 oz. (85.05 gr.) on Styles 57800 N, P, U, and V. On Style 57800 N the center needle should be set at 3 oz. (85.05 gr.) and the right needle thread tension at 4 oz. (113.40 gr.) on all Styles.

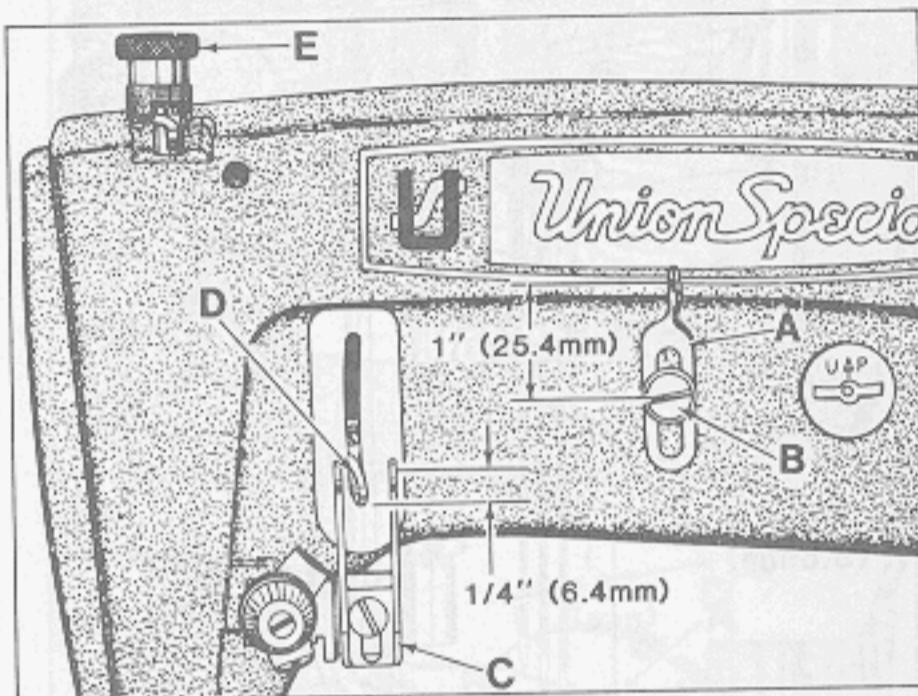


Fig. 18

Set the spreader thread tension at 1 ounce (28.35 gr.) on the upper thread tension. The adjusting nut below the needle lever thread eyelet should be set so that the tension on the spreader thread is 1/2 ounce (14.18 gr.) or more, depending on the type of thread being used. This applies to all Styles.

The looper thread tension is set at 2 ounces (56.70 gr.) on all Styles. It is applied at the thread tension located on the front of the machine just above the oil gauge.

NEEDLE THREAD FRAME EYELET

Set the needle thread frame eyelet (A, Fig. 18) 1 inch (25.4mm) above the center of mounting screw (B).

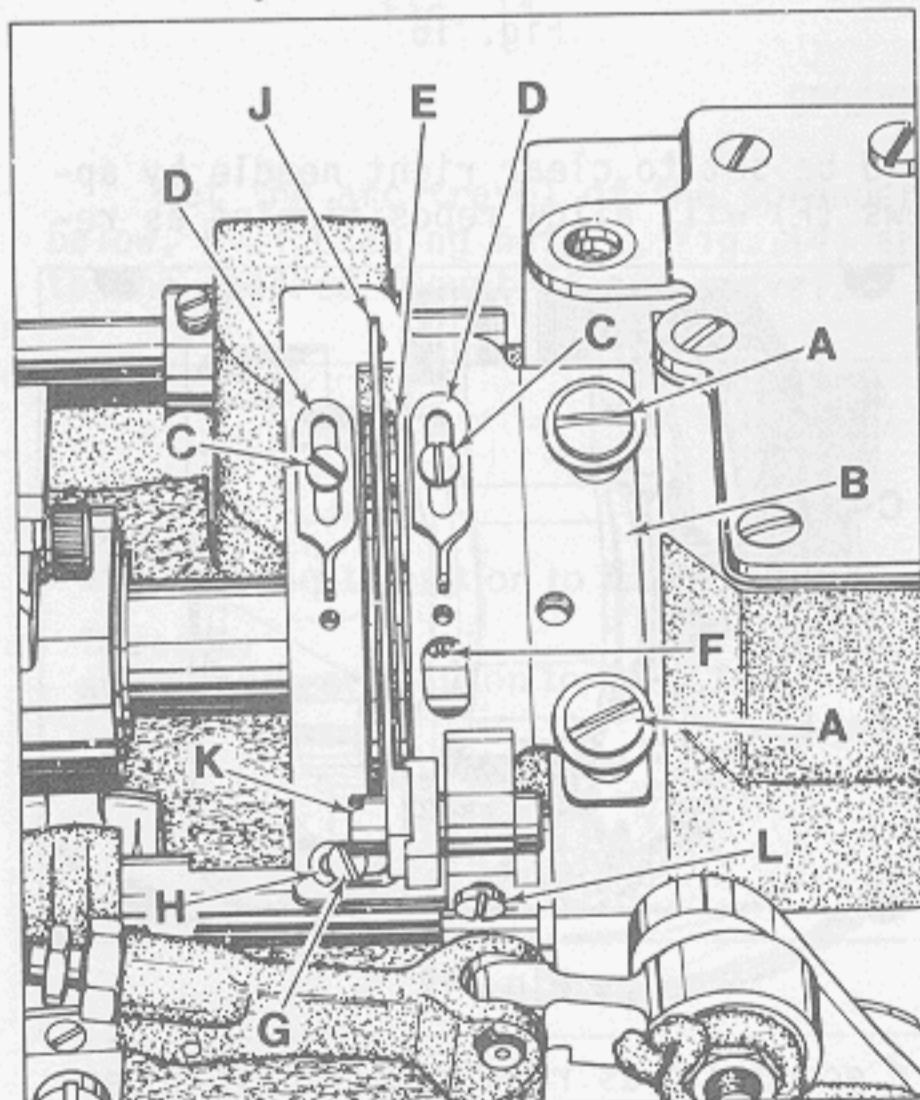


Fig. 19

amount of looper thread in the system, or to the rear to decrease the amount of thread in system.

SPREADER THREAD TAKE-UP

The "U" shaped eyelet (C, Fig. 18) should be set to allow the spreader thread to engage the bottom of the needle lever eyelet (D) by 1/4 inch (6.4mm). Raising the eyelet makes a looser cover thread, lowering same makes a tighter cover thread.

LOOPER THREAD TAKE-UP

To properly control the looper thread, follow instructions listed for adjusting the looper thread take-up:

- Loosen screws (A, Fig. 19) and center cast-off support plate (B) in its adjusting slots - front to back, then tighten screws (A).
- Loosen screws (C) and adjust eyelets (D) as required, so when the looper is at its extreme left the looper thread is taut across the cast-off support plate, then tighten screws (C). NOTE: Re-position eyelets (D) to the front to increase the

LOOPER THREAD TAKE-UP (Continued)

- To adjust looper thread take-up (E), loosen screws (F), which are accessible through slot in cast-off support plate. Turn handwheel in operating direction until needles are descending and the tip of left needle is visible on the underside of looper. At this time the looper thread should cast off the high lobe of looper thread take-up. If required, make the necessary adjustments. Prior to tightening screws (F) be sure take-up is centered left to right in cast-off support plate slot.
- Loosen screw (G) and center cast-off wire (H) in slot of looper thread take-up, then tighten screw (G).
- Retaining finger (J) controls the amount of slack looper thread in the system and is set properly when it prevents the looper thread triangle from being wiped under the looper blade, while looper travels from right to left. To adjust retaining finger (J), loosen screw (K) and adjust retaining finger so its bottom edge is parallel with the top surface of cast-off support plate and its mounting screw is centered in retaining finger adjusting slot, then tighten screw (K). Also, loosen screw (L) and center the retaining finger left to right in center of looper thread take-up slot, then tighten screw (L).

SPREADER THREADING

From the laboratory of Diamond Needles Corp

Hold the thread between the thumb and index finger of the left hand drawing it down to the left and slightly behind the right needle and rotate the machine by hand to be sure the spreader picks it up. The left and middle needles must enter the loop of the spreader thread while the right needle passes in front of the loop as shown in Fig. 20. This action takes place as the needles are descending and the spreader is moving to the right.

PRESSER FOOT PRESSURE

Regulate the presser spring regulating screw (E, Fig. 18) so that it exerts only enough pressure on the presser foot to feed the work uniformly when a slight tension is placed on the fabric. Turning it clockwise increases the pressure, counterclockwise acts the reverse.

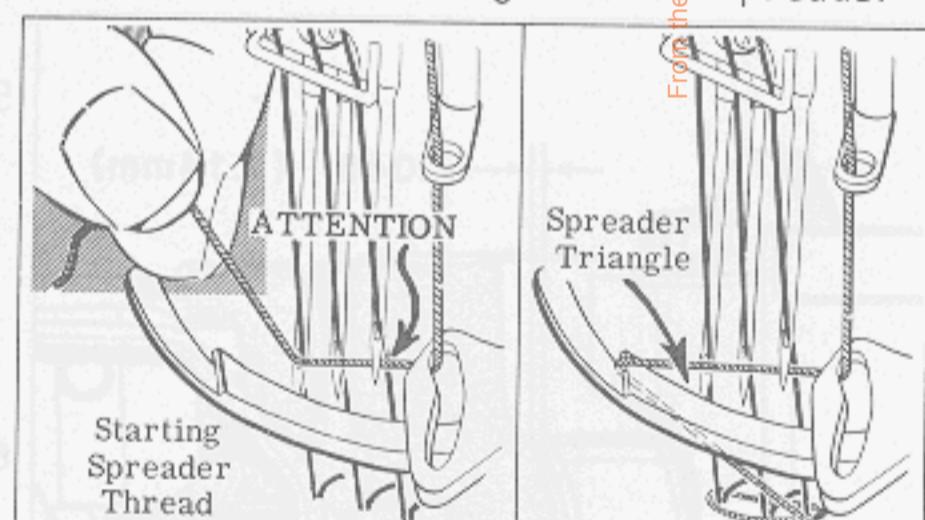


Fig. 20

TORQUE REQUIREMENTS

Torque specifications given in this catalog are measured in inch-pounds or centimeter/kilograms. All straps and eccentrics must be tightened to 19-21 in. lbs. (22-24cm/kg) unless otherwise noted. All nuts, bolts, screws, etc., without torque specifications must be secured as tightly as possible, unless otherwise noted. Special torque specifications for connecting rods, links, screws, etc., are shown on parts illustrations.

SPECIAL INSTRUCTIONS

NEEDLE LEVER

When adjusting needle lever or replacing related parts, follow instructions in sequence as listed:

1. Install "O" rings (A, Fig. 21) onto needle lever stud (B) and thrust collar (C).
2. With needle lever (D) in machine and positioned properly; insert stud (B) through hole in needle lever until its shoulder contacts the needle lever and the word "UP" on stud is in the upright position. While making sure no binding exists in the needle bar link, secure stud (B) with the front set screw in top of machine bed.
3. Install temper load ring (E) and compression cups (F) onto stud (B), then push ring and cups through opening in machine bed.
4. Install thrust collar (C) onto stud (B) being careful not to damage "O" ring. Compress components together by tightening screw (G) until washer (H) bottoms against stud (B). Secure stud (B) in position using the rear set screw in top of bed.
5. To check temper load ring for proper compression, remove screw (G) from stud (B) and loosen rear set screw in top of bed. Thrust collar (C) should spring out .003 - .007 inch (.08 - .18mm). Compress load ring in reverse order, then tighten rear set screw.
6. With indented "UP" on stud (B) in upright position, install bearing oiler (J) so its hook sets in oil supply hole (K) of stud. When hook and stud are secured in their proper positions, the proper amount of oil will be channeled to stud for lubricating needle lever (D).

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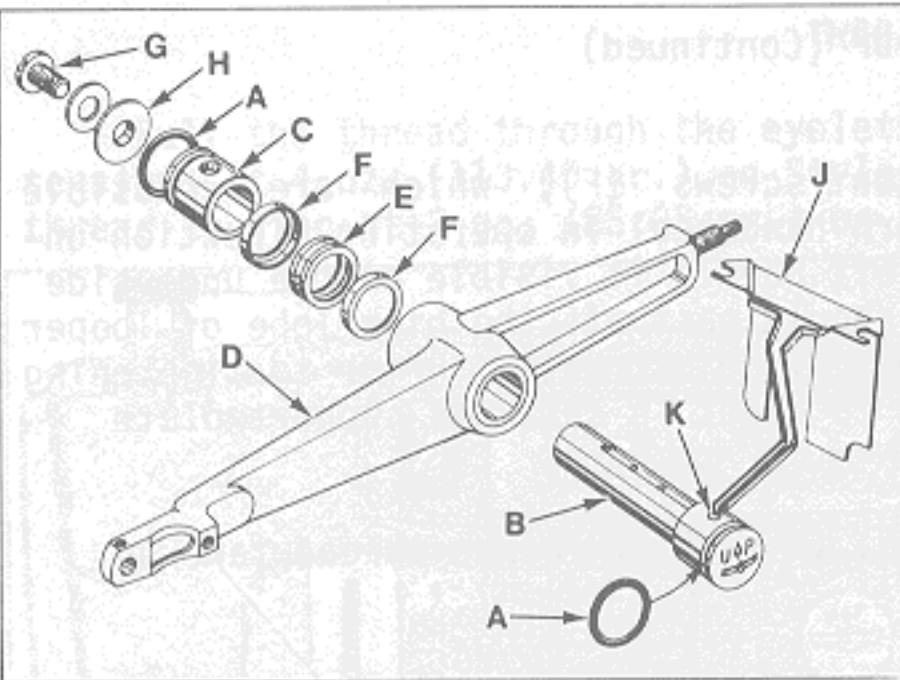


Fig. 21

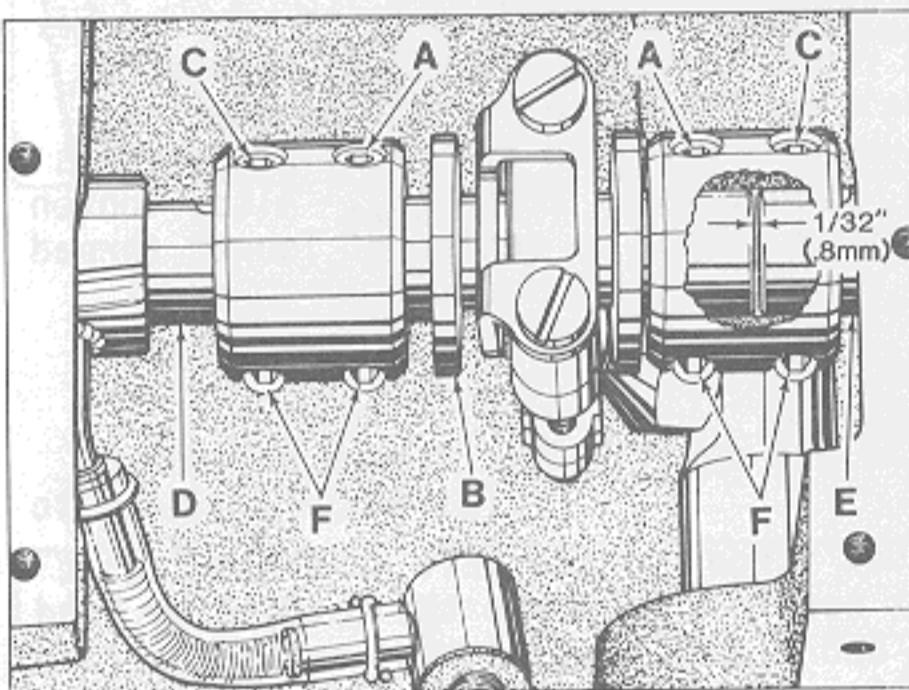


Fig. 22

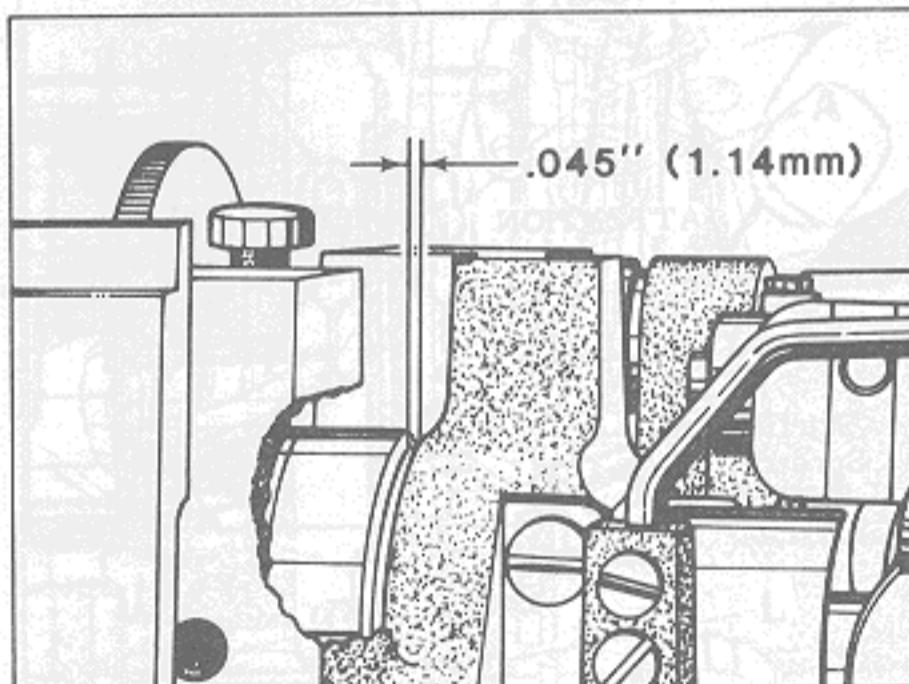


Fig. 23

ALIGNING MAINSHAFT TO CRANKSHAFT

As viewed looking down from rear of machine, spot screws (A, Fig. 22) in the couplings must align with the spots in the looper drive crank (B) and set screws (C) must align with the flats on crankshaft (D) and mainshaft (E). Mainshaft must be positioned laterally with .045 inch (1.14mm) clearance between the right side of its head and the bed casting as shown in Fig. 23.

ALIGNING MAINSHAFT TO CRANKSHAFT (Continued)

Looper drive crank (B, Fig. 22) must be positioned laterally with 1/32 inch (.8mm) clearance between it and mainshaft (E) as shown in Fig.22. Once these settings are made, it is very important that the couplings are tightened in the following sequence for best performance.

Tighten spot screws (A) temporarily, to the looper drive crank. Tighten set screws (C) temporarily, to the crankshaft and mainshaft. Torque screws (F) to 19 - 21 in. lbs. (22 - 24 cm/kg). Loosen spot screws (A) and set screws (C). Re-torque screws (F) to 19 - 21 in. lbs. (22 - 24 cm/kg), then, torque screws (A and C) to 19 - 21 in. lbs. (22 - 24 cm/kg).

The oil drip plate (A, Fig. 24) located in the oil reservoir should be positioned with its tip in the recessed cut out in the bed casting, as far to the left as possible without touching. It has elongated mounting holes and can be adjusted by loosening (2) screws (B) in top of the oil reservoir back cover to position as required, retighten screws.

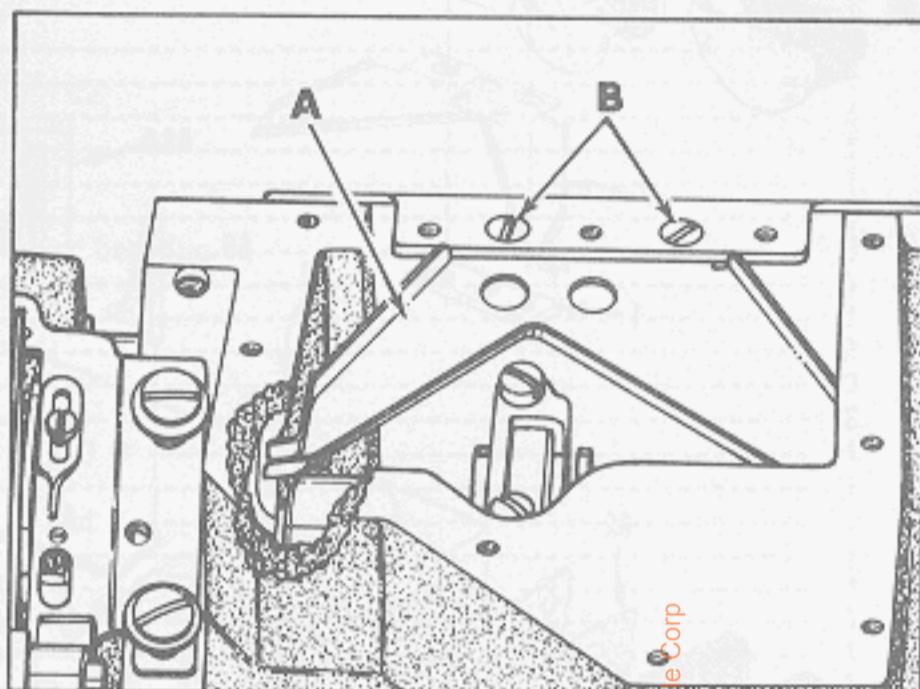
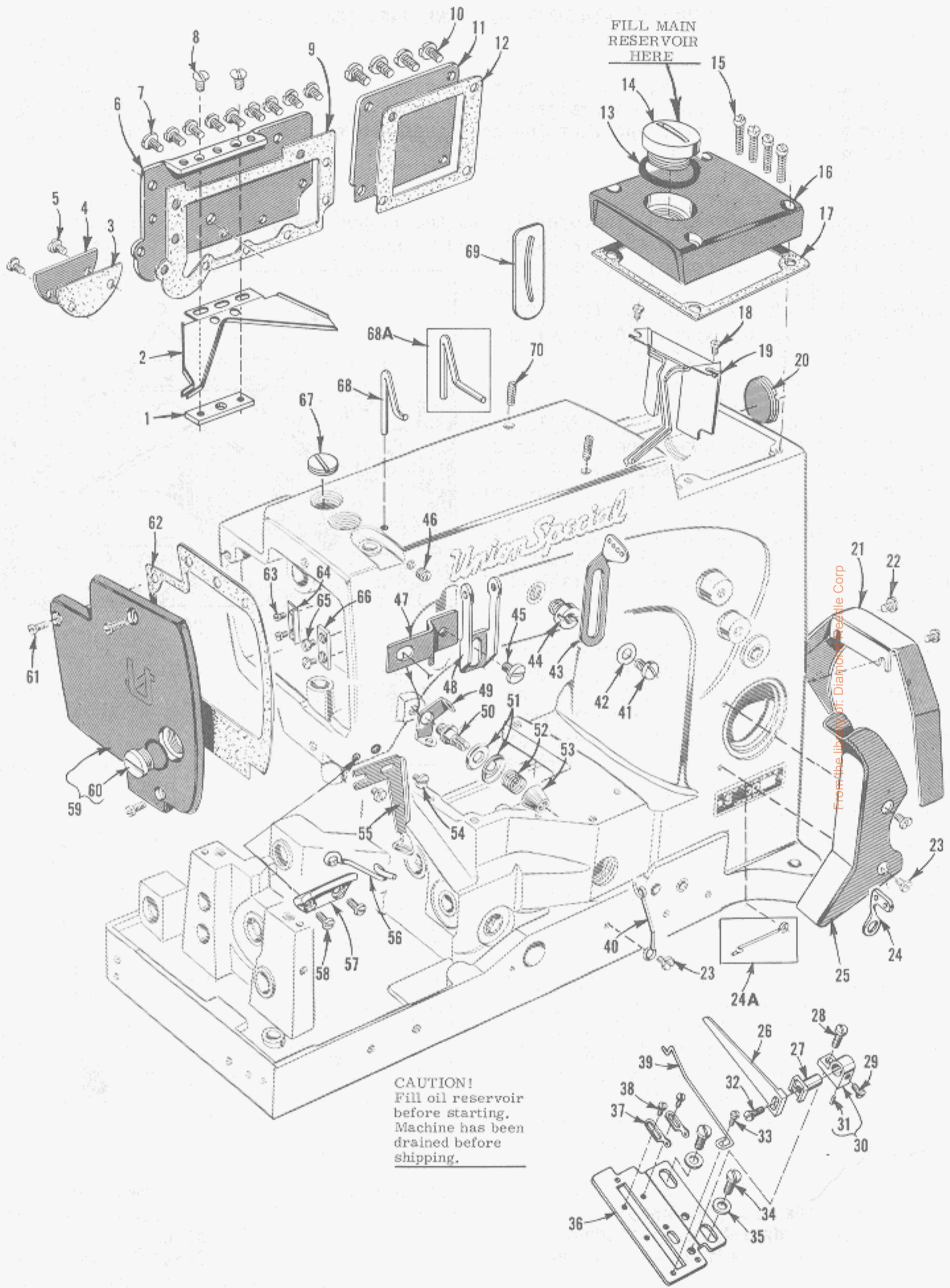


Fig. 24

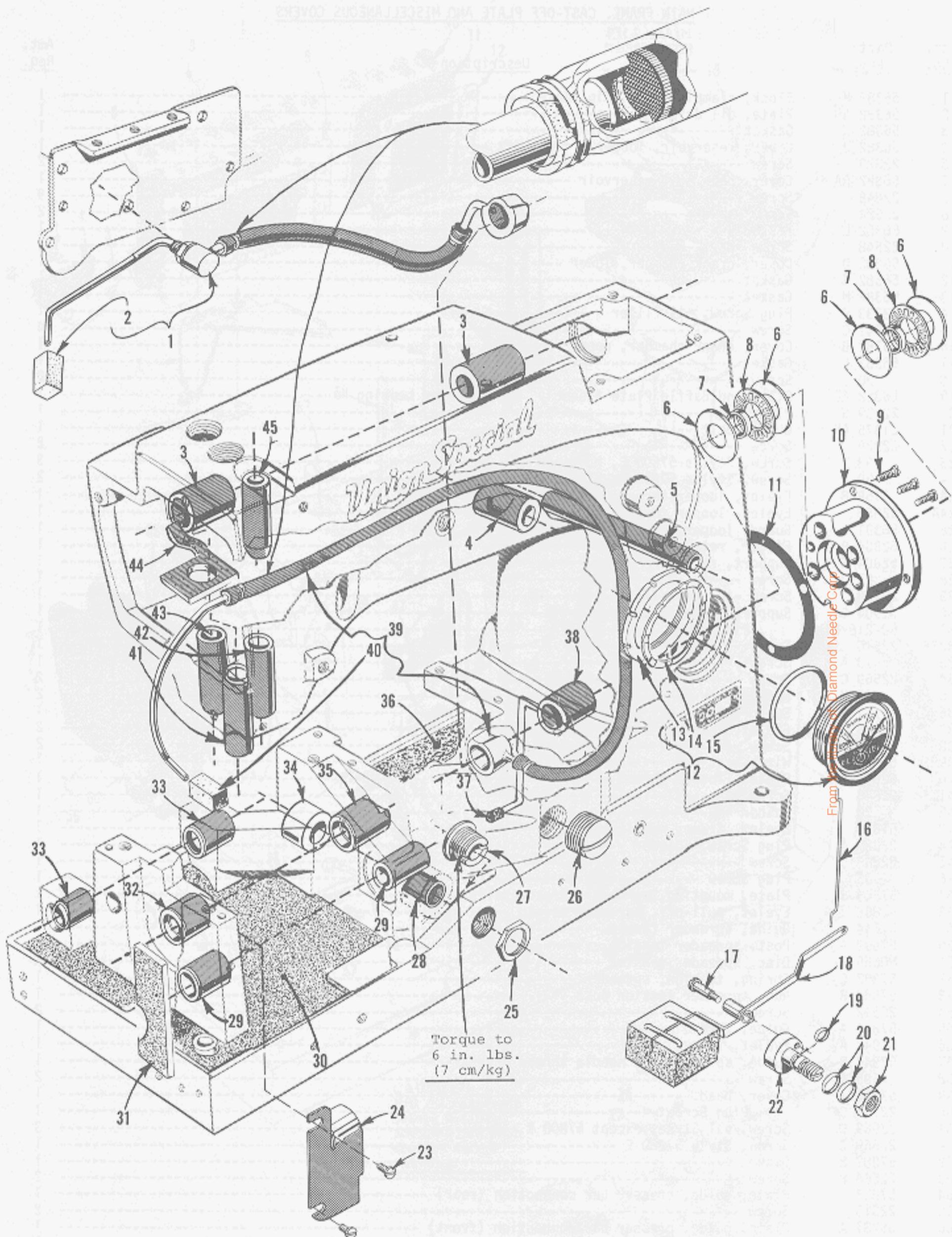
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MAIN FRAME, CAST-OFF PLATE AND MISCELLANEOUS COVERS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	56382 Y	Block, clamping, oil drip plate -----	1
2	56382 AB	Plate, oil drip -----	1
3	56382 K	Gasket -----	1
4	56382 J	Cover, reservoir, looper drive shaft -----	1
5	22829	Screw -----	2
6	56382 AA	Cover, back, oil reservoir -----	1
7	22848	Screw -----	9
8	22524	Screw -----	2
9	56382 L	Gasket -----	1
10	22548	Screw -----	4
11	56382 D	Cover, crank chamber, lower -----	1
12	56382 E	Gasket -----	1
13	56382 M	Gasket -----	1
14	22733 E	Plug Screw, oil filler -----	1
15	22541 C	Screw -----	4
16	56382 B	Cover, crank chamber, upper -----	1
17	56382 C	Gasket -----	1
18	90	Screw -----	2
19	56382 AC	Oiler and Baffle Plate Assembly, needle lever bearing -----	1
20	22539 S	Plug Screw -----	1
21	21375 AV	Guard, belt -----	1
22	22829	Screw -----	2
23	98 A	Screw, Styles 57800 E, M, N and X -----	3
-	98 A	Screw, Styles 57800 P, U, V and W -----	2
24	158 B	Eyelet, looper thread, all Styles except 57800 P -----	1
24A	52858	Eyelet, looper thread, Style 57800 P -----	1
25	56391	Guard, looper thread, Styles 57800 E, M, N and X -----	1
26	52904 B	Finger, retaining -----	1
27	52804 E	Support, retainer -----	1
28	87 U	Screw -----	1
29	22768	Screw -----	1
30	52904 E	Support, retaining finger -----	1
31	50-216 Blk.	Pin, dowel -----	1
32	22516	Screw -----	1
33	73 A	Screw -----	1
34	22569 C	Screw -----	2
35	69 H	Washer -----	2
36	57757 B	Support, cast-off plate -----	1
37	52958 D	Eyelet, take-up, looper thread -----	2
38	73 A	Screw -----	2
39	52904 G	Wire, cast-off -----	1
40	52958 B	Eyelet, looper thread -----	1
41	22848	Screw -----	1
42	20	Washer -----	1
43	51858	Eyelet, frame, needle thread -----	1
44	22889 A	Plug Screw, adaptor -----	1
45	22585 C	Screw -----	1
46	95	Plug Screw -----	1
47	57844 B	Plate, mounting, spreader thread eyelet -----	1
48	57858	Eyelet, pull-off, spreader thread -----	1
49	57844	Guide, spreader thread -----	1
50	57892 A	Post, spreader tension -----	1
51	80665 F	Disc, spreader tension -----	2
52	57892 C-5	Spring, tension, spreader -----	1
53	57892 B	Nut, spreader tension post -----	1
54	22542	Screw -----	2
55	57844 A	Guide, thread -----	1
56	57944 A	Eyelet, thread -----	1
57	57944 B	Guide, spreader and needle thread -----	1
58	605 A	Screw -----	2
59	57882	Cover, head -----	1
60	22733 C	Plug Screw -----	1
61	22569 C	Screw, all Styles except 57800 E -----	3
-	22569 C	Screw, Style 57800 E -----	1
62	57882 B	Gasket -----	1
63	22564 B	Screw -----	2
64	57831	Plate, guide, presser bar connection (rear) -----	1
65	22513	Screw -----	2
66	35731 A	Plate, guide, presser bar connection (front) -----	1
67	22539 G	Plug Screw -----	1
68	57770	Wire, take-up, needle thread, all Styles and gauges except 57800 V-8 -----	1
68A	56470	Wire, take-up, needle thread, for No. 8 gauge, Style 57800 V -----	1
69	660-617	Gasket, needle lever eyelet -----	1
70	22894 E	Screw -----	2

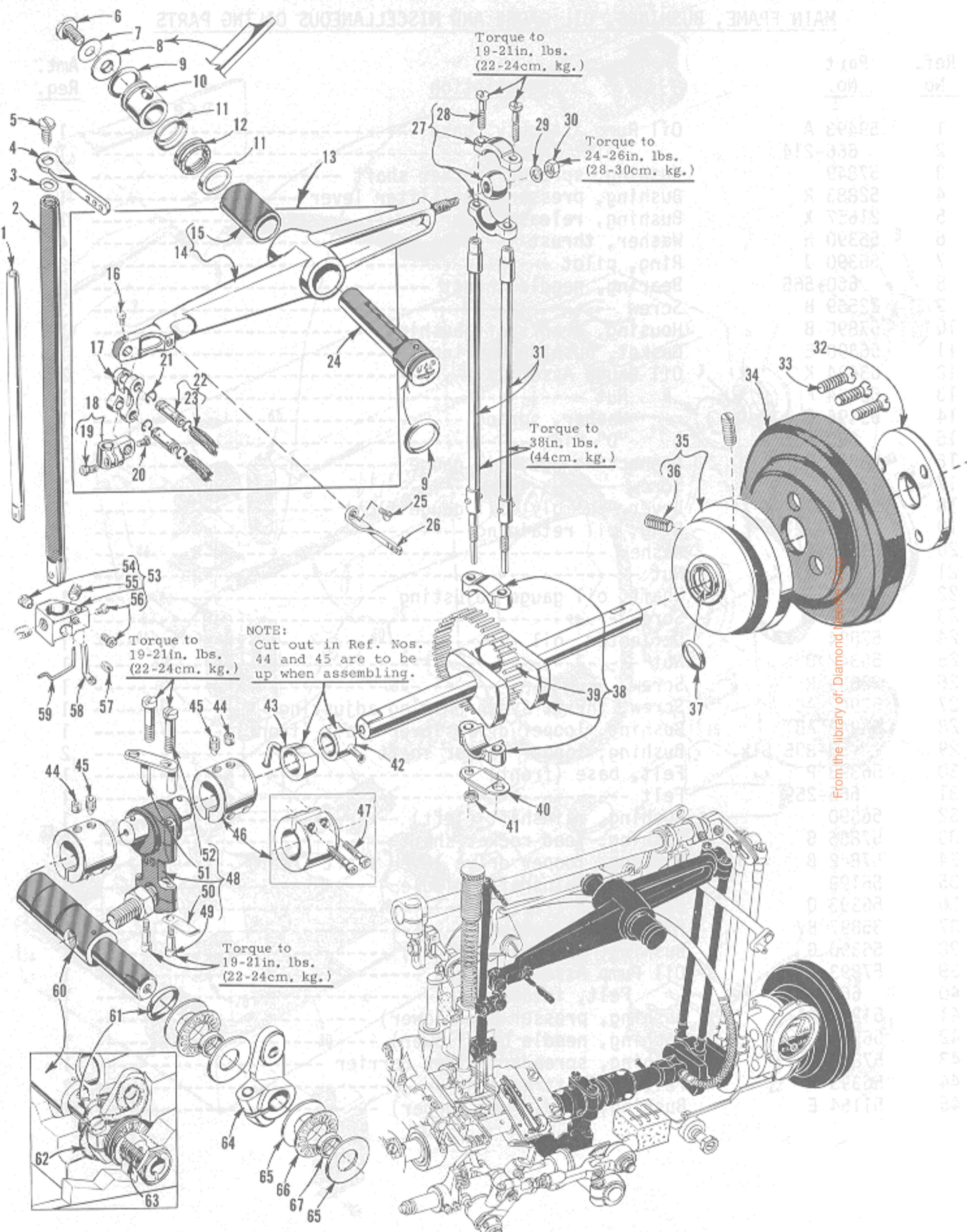
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MAIN FRAME, BUSHINGS, OIL GAUGE AND MISCELLANEOUS OILING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	59493 A	Oil Pump Assembly, base -----	1
2	666-214	Felt, intake -----	1
3	57849	Bushing, spreader rocker shaft -----	2
4	52883 R	Bushing, presser foot lifter lever -----	1
5	21657 X	Bushing, release lever -----	1
6	56390 H	Washer, thrust -----	4
7	56390 J	Ring, pilot -----	2
8	660-665	Bearing, needle thrust -----	2
9	22569 B	Screw -----	3
10	57890 B	Housing, crankshaft bushing -----	1
11	56390 E	Gasket, bushing housing -----	1
12	63494 K	Oil Gauge Assembly -----	1
13	63494 F	Nut -----	1
14	63494 G	Washer, spring -----	1
15	660-455	"O" Ring -----	1
16	56394 B	Connecting Rod, oil gauge -----	1
17	22793	Screw -----	1
18	56394 C	Lever Assembly, oil gauge float -----	1
19	660-221	Ring, oil retaining -----	1
20	61256 G	Washer -----	2
21	11635 B	Nut -----	1
22	56394 A	Shaft, oil gauge adjusting -----	1
23	22772 B	Screw -----	2
24	57894	Deflector, oil -----	1
25	56342 D	Nut -----	1
26	22539 R	Screw, plug -----	1
27	52942 AC	Screw, thrust synchronizing adjusting -----	1
28	52942 AB	Bushing, looper drive lever shaft (front) -----	1
29	50-895 Blk.	Bushing, looper rocker shaft -----	2
30	56393 P	Felt, base (front) -----	1
31	666-259	Felt -----	1
32	56390	Bushing, mainshaft (left) -----	1
33	57836 B	Bushing, feed rocker shaft -----	2
34	57842 B	Bushing, looper drive lever shaft (rear) -----	1
35	56190	Bushing, mainshaft, middle -----	1
36	56393 Q	Felt, base (rear) -----	1
37	35897 BV	Filter, oil intake -----	1
38	56390 G	Bushing, mainshaft (right) -----	1
39	57893	Oil Pump Assembly, head -----	1
40	666-214	Felt, intake -----	1
41	51257 AA	Bushing, presser bar (lower) -----	1
42	56354 C	Bushing, needle bar (lower) -----	1
43	57846	Bushing, spreader holder carrier -----	1
44	56393 W	Felt, oil attraction -----	1
45	51154 E	Bushing, needle bar (upper) -----	1

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OIL GAUGE CALIBRATION

To recalibrate oil gauge, follow instructions in sequence as listed:

- Place machine upright on a level surface.
- Remove plug screw (C, Fig. 1) and tip machine forward to drain all oil from reservoir.
- Remove lower crank chamber cover on back of machine.
- Fill reservoir until oil is even with bottom of knee press shaft bushing (D).
- Loosen locknut (E) and rotate calibrating screw (F) as required until gauge needle registers on the black line marked "LOW".
- Tighten locknut (E), then replace plug screw (C) and lower crank chamber cover.
- Fill machine with oil until gauge needle registers on black line marked "FULL".

THREADING

Thread machine as illustrated in Fig. 2. If needle thread take-up wire is used, it should be set to barely contact RIGHT needle thread ONLY, at bottom of needle bar stroke.

NEEDLES

Each needle has both a type and size number. The type number denotes the kind of shank, point, length, groove, finish and other details. The size number, stamped on the needle shank, denotes largest diameter of blade, measured midway between shank and eye. Collectively, type and size number represent the complete symbol, which is given on the label of all needles packaged and sold by UNION SPECIAL.

The standard recommended needle for machines covered by this catalog is Type 121 GBS, Size 080/032. Below is the description and sizes available:

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<u>NEEDLE TYPE</u>	<u>DESCRIPTION</u>	<u>SIZES AVAILABLE</u>
121 GBS	Round shank, round point, short single groove, struck groove, spotted, ball point, chromium plated.	065/025, 070/027, 075/029, 080/032, 090/036, 100/040.

To have needle orders promptly and accurately filled, an empty package, a sample needle or type and size number should be forwarded. Use description on label. A complete order would read "1000 needles, Type 121 GBS, Size 080/032".

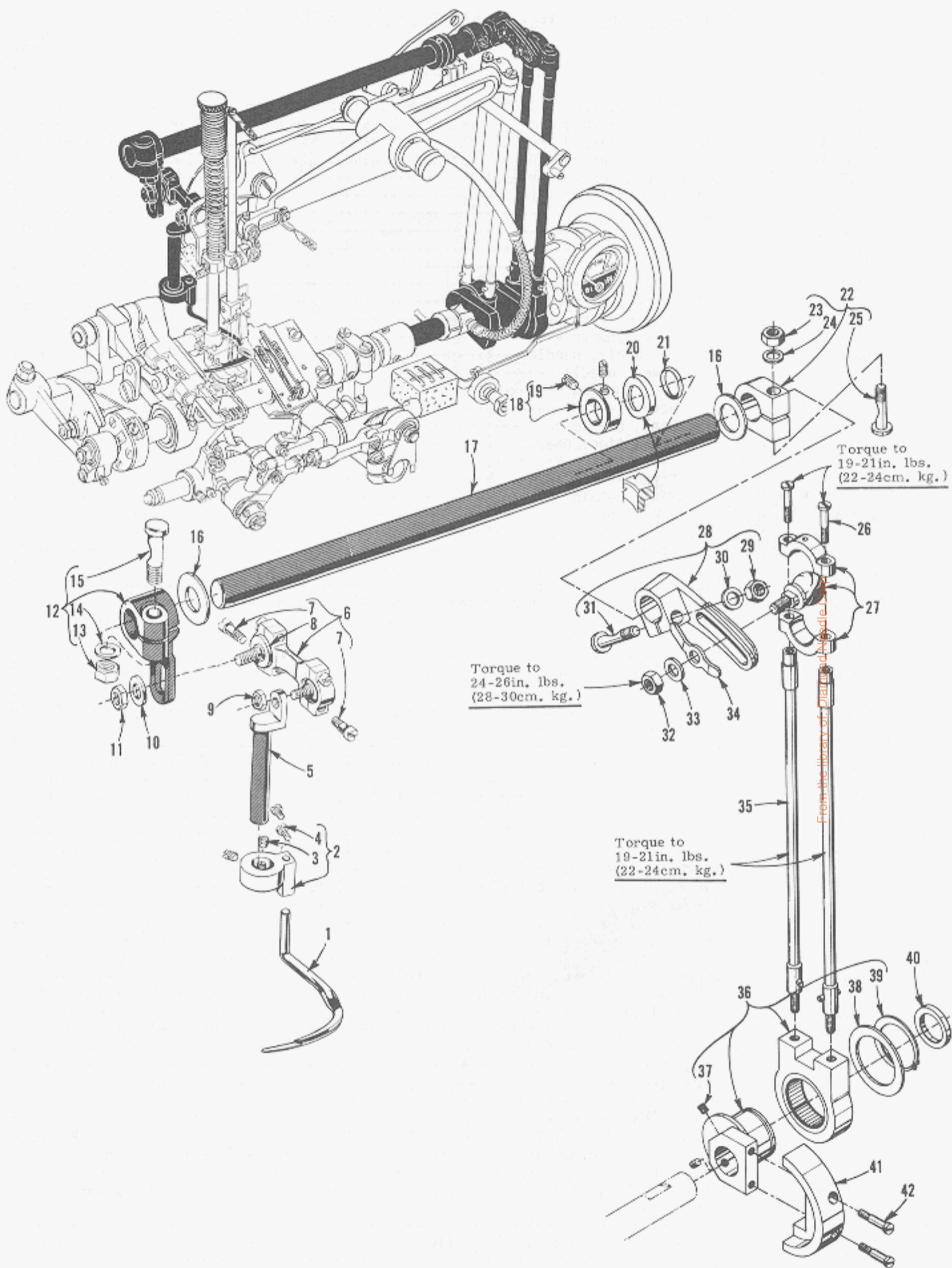
ADJUSTING INSTRUCTIONS

NOTE: Instructions stating direction or location, such as right, left, front or rear of machine, are given relative to operator's position at the machine. The hand-wheel rotates counterclockwise, in operating direction; when viewed from the right end of machine.

CRANKSHAFT, NEEDLE LEVER, NEEDLE BAR AND LOOPER DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	52817 E-8	Needle Bar, marked "BG-8", for No. 8 gauge, Styles 57800 P, U, and V -----	1
	52717 E-12	Needle Bar, marked "EJ-12", for No. 12 gauge, Styles 57800 U and V -----	1
2	52817-14	Needle Bar, marked "BD-14", for No. 14 gauge, Style 57800 W -----	1
	52817-16	Needle Bar, marked "BD-16", for No. 16 gauge, Styles 57800 E, M, N, W and X -----	1
3	27-435 Blk.	Lockwasher, needle bar eyelet -----	1
4	56958 A	Eyelet, needle bar thread -----	1
5	22768	Screw -----	1
6	22586 R	Screw -----	1
7	51250 F	Gasket -----	1
8	51250 D	Washer -----	1
9	660-625	Ring, oil seal -----	2
10	56350 E	Collar, thrust, needle lever -----	1
11	56350 F	Cup, compression -----	2
12	660-614	Load Ring, temper -----	1
13	29348 AF	Lever Assembly, needle -----	1
14	56315 A	Lever, needle -----	1
15	56350 G	Bushing -----	1
16	77	Screw -----	1
17	56354 D	Link, needle bar -----	1
18	51254 K	Connection, needle bar -----	1
19	22562 A	Screw -----	1
20	22564	Screw -----	1
21	660-215	Ring, retaining -----	4
22	52336 A	Pin, link -----	2
23	W0-3	Yarn, columbia (6 strands) -----	-
24	56350 D	Stud, needle lever -----	1
25	22768	Screw -----	1
26	56958	Eyelet, thread, needle lever -----	1
27	29066 R	Ball Joint Assembly, needle lever connecting (upper) -----	1
28	22559 G	Screw -----	2
29	51216 N	Washer -----	1
30	51216 P	Nut -----	1
31	56316	Connecting Rod, needle lever -----	2
32	61321 L	Plate, retaining -----	1
33	22574	Screw -----	3
34	57821	Handwheel -----	1
35	56321 N	Pulley -----	1
36	22894 AB	Screw -----	2
37	660-202	"O" Ring -----	1
38	29476 NZ	Crankshaft Assembly, .910 inch (23.11mm) throw -----	1
39	51216 M	Bearing, needle -----	28
40	56316 C	Guide, connecting rod -----	1
41	12934 A	Nut -----	1
42		Oil Pump Assembly, head (See Ref. No. 39 - Page 21) -----	1
43		Oil Pump Assembly, base (See Ref. No. 1 - Page 21) -----	1
44	22894 C	Screw, set -----	2
45	22894 D	Screw, spot -----	2
46	56343 F	Coupling, looper drive lever -----	2
47	22653 L-8	Screw -----	2
48	29105 AM	Lever Crank Assembly, looper driving -----	1
49	22559 A	Capscrew, bearing (lower) -----	2
50	56343 E	Splasher, oil -----	1
51	56343 C	Fork, guide, ball joint -----	1
52	22587 K	Capscrew, bearing (upper) -----	2
53	57818-8	Holder, needle -----	1
54	89	Screw, spot -----	1
55	88 B	Screw, set -----	2
56	22738 F	Screw -----	2
57	28 B	Screw, for center needle, Styles 57800 E, M, N, W and X -----	1
58	41076 D	Eyelet, spreader thread -----	1
59	57842	Guide, needle thread -----	1
60	52942 AA	Shaft, rocker, looper drive lever -----	1
61	660-202	Ring, oil seal -----	1
62	CL-21	Wick, oil -----	1
63	52942 AC	Screw, thrust synchronizing adjusting -----	1
64	56342 E	Lever, looper drive, marked "D" -----	1
65	56390 H	Washer, thrust -----	4
66	660-665	Bearing, thrust, needle -----	2
67	56390 J	Ring, pilot -----	2

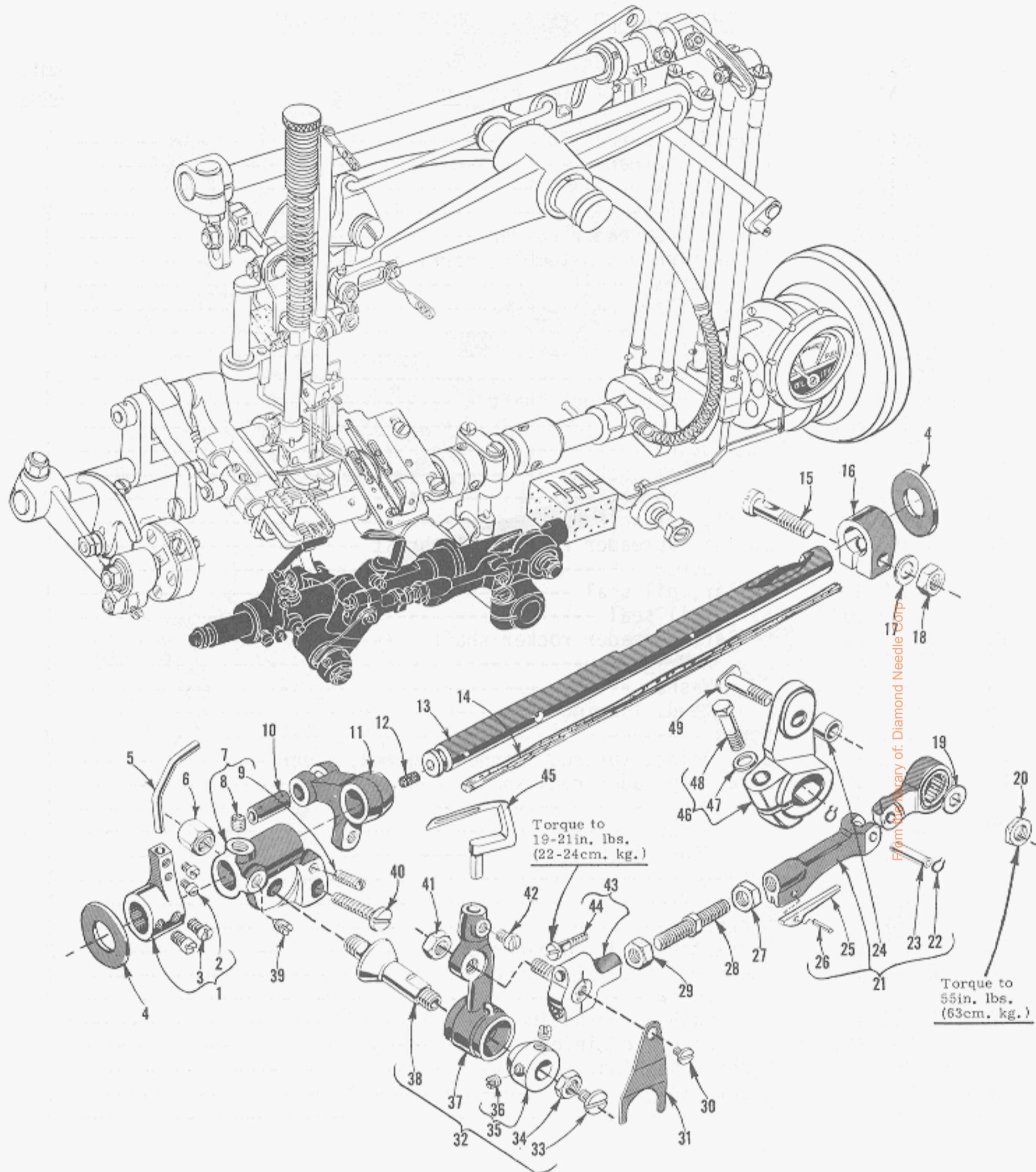
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SPREADER AND SPREADER DRIVING MECHANISM

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	57845 A	Spreader, marked "J" -----	1
2	57846 A	Holder, spreader -----	1
3	22547 D	Screw -----	2
4	77 A	Screw -----	2
5	57847 A	Carrier, spreader holder -----	1
6	57848 C	Connecting Rod Assembly, carrier -----	1
7	97 A	Screw -----	4
8	57835 M	Washer, ball -----	1
9	12934 A	Nut -----	1
10	61434 G	Washer -----	1
11	12538	Nut -----	1
12	57849 A	Arm, spreader rock shaft -----	1
13	55235 E	Nut -----	1
14	6042 A	Washer -----	1
15	55235 D	Stud, locking -----	1
16	57849 C	Washer, thrust -----	2
17	52849	Shaft, spreader rock -----	1
18	57847	Collar, spreader rock shaft thrust -----	1
19	95	Screw -----	2
20	56342 B	Collar, oil seal -----	1
21	660-202	Ring, oil seal -----	1
22	57849 D	Collar, spreader rocker shaft -----	1
23	55235 E	Nut -----	1
24	6042 A	Washer -----	1
25	55235 D	Stud, locking -----	1
26	22559 G	Screw -----	2
27	52952 B	Ball Joint, spreader connecting rod, upper -----	1
28	52952 C	Lever, spreader rock shaft -----	1
29	55235 E	Nut -----	1
30	6042 A	Washer -----	1
31	55235 D	Stud, locking -----	1
32	18	Nut -----	1
33	HA20 A	Washer -----	1
34	57852 A	Spacer -----	1
35	52916	Connecting Rod, spreader drive -----	2
36	29126 CR	Eccentric Assembly, spreader drive -----	1
37	95	Screw -----	2
38	52951 B	Washer, retaining -----	1
39	660-246	Ring, retaining -----	1
40	52951 C	Washer, spacing -----	1
41	52947 A	Counterweight -----	1
42	22587 H	Screw -----	2

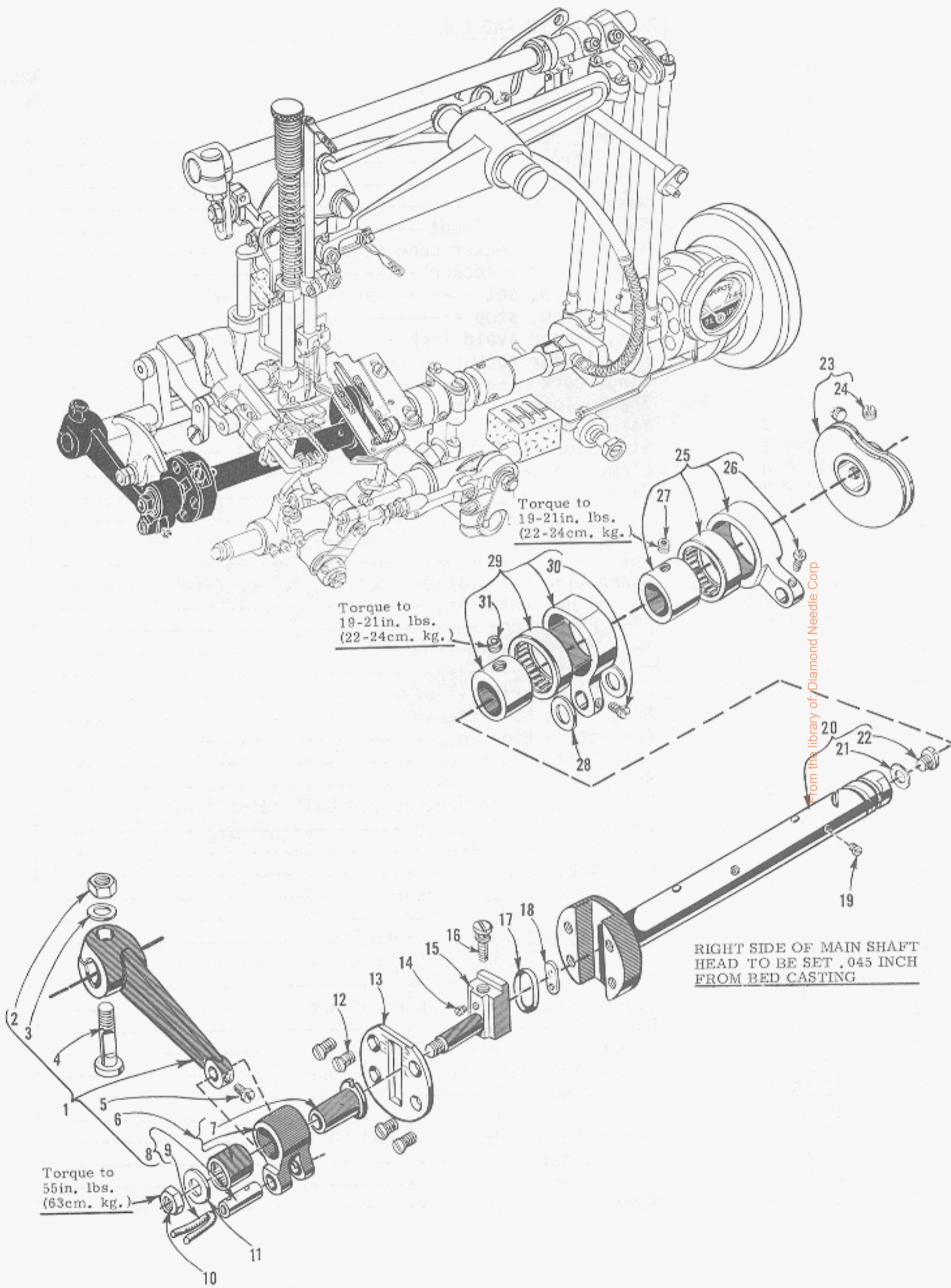
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LOOPER ROCKER AND CONNECTING ROD PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	52825 D	Holder, needle guard, front -----	1
2	22563	Screw -----	2
3	33174 B	Screw -----	2
4	51244 L	Washer, thrust -----	2
5	57725 B	Guard, needle, front -----	1
6	57846 B	Nut, looper rocker cone stud -----	1
7	57744 A	Frame, looper rocker -----	1
8	98	Screw, set -----	1
9	719	Screw, stop -----	1
10	51236 A	Pin, looper avoid link -----	1
11	56344 B	Arm, looper rocker shaft -----	1
12	C067 E	Plug, cork -----	1
13	57744	Shaft, looper rocker -----	1
14	W0-3	Yarn, columbia (4 strands, 8 inches, 203.2mm long) ---	1
15	55244 G	Stud, looper rocker shaft collar -----	1
16	51244 N	Clamp, looper rocker shaft -----	1
17	51216 N	Washer -----	1
18	18	Nut -----	1
19	20	Washer -----	1
20	18	Nut -----	1
21	56341 M	Connecting Rod Jointed Section, looper (right) -----	1
22	660-310	Ring, retaining -----	2
23	56341 E	Pin, hinge -----	1
24	56341 F	Ferrule -----	1
25	56341 G	Spring -----	1
26	50-458 Blk.	Pin, spring -----	1
27	18	Nut, right hand thread -----	1
28	57840	Connecting Rod, looper -----	1
29	269	Nut, left hand thread -----	1
30	87 U	Screw -----	1
31	56393 J	Oiler, looper connecting rod ball joint (left) -----	1
32	29192 Z	Looper Rocker Assembly -----	1
33	22829	Screw -----	1
34	258	Nut, lock -----	1
35	15465 F	Cone, looper rocker -----	1
36	88	Screw -----	2
37	57713	Rocker, looper, marked "W" -----	1
38	51745	Stud, looper rocker cone -----	1
39	96	Screw -----	1
40	22874	Screw, lock, looper rocker frame -----	1
41	18	Nut -----	1
42	73	Screw -----	1
43	57841	Connecting Rod Ball Joint, looper (left) -----	1
44	22729 C	Screw -----	2
45	52708 B	Looper -----	1
46	56342 E	Lever, looper drive, marked "D" -----	1
47	51242 M	Washer -----	1
48	22882 C	Screw -----	1
49	52942 R	Stud, looper lever -----	1

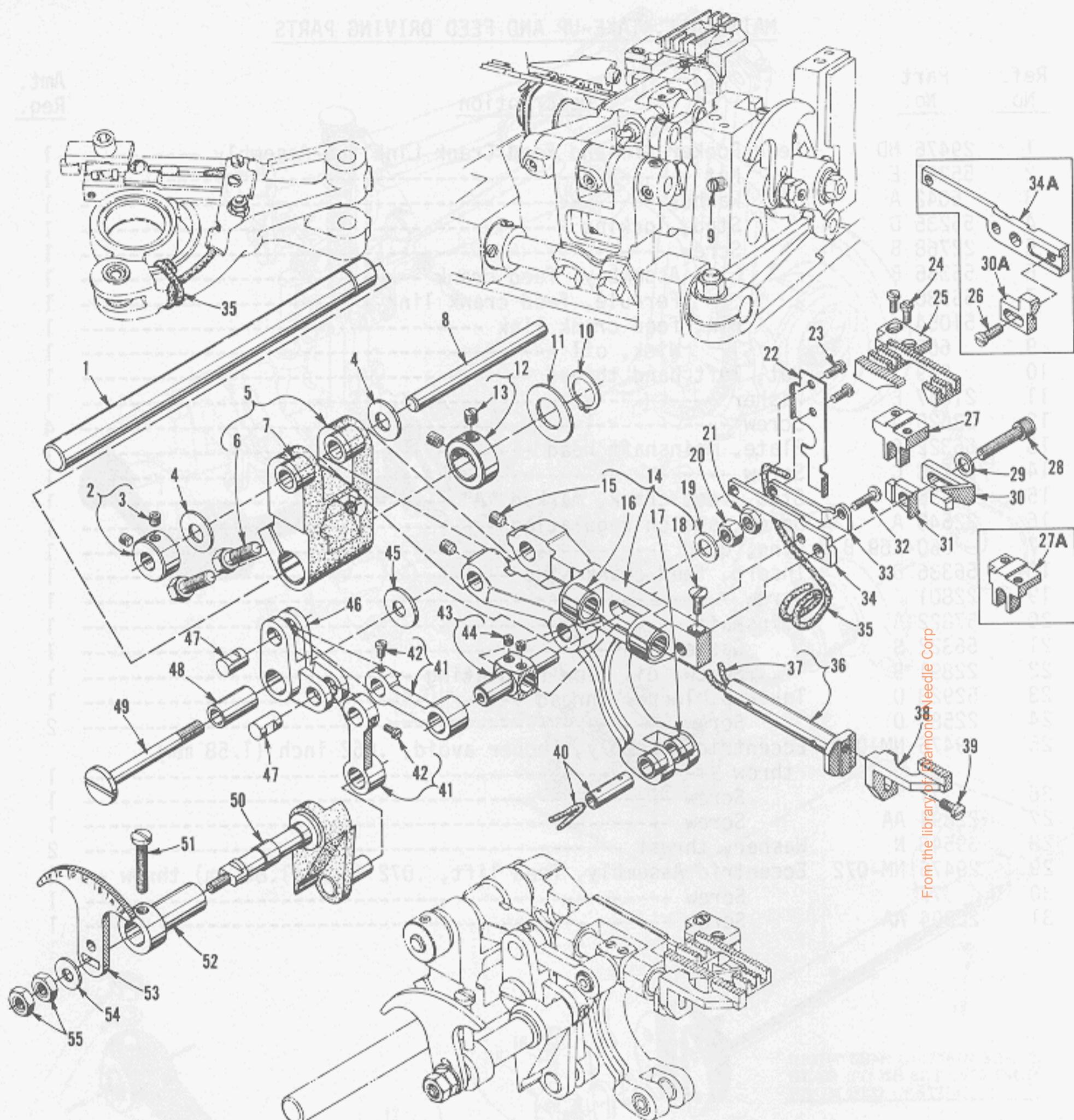
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MAINSHAFT, TAKE-UP AND FEED DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	29476 ND	Feed Rocker Arm and Feed Crank Link Sub-Assembly -----	1
2	55235 E	Nut -----	1
3	6042 A	Washer -----	1
4	55235 D	Stud, locking -----	1
5	22768 B	Screw -----	1
6	56336 B	Link Assembly, feed crank -----	1
7	56336 C	Ferrule, feed crank link -----	1
8	51054	Pin, feed crank link -----	1
9	666-149	Wick, oil -----	1
10	269	Nut, left hand thread -----	1
11	21657 E	Washer -----	1
12	22525 A	Screw -----	4
13	56322 C	Plate, mainshaft head -----	1
14	22798 C	Screw -----	1
15	56336	Stud, feed crank, marked "A" -----	1
16	22543 A	Screw, stitch regulating -----	1
17	660-269 B	Ring, quad -----	1
18	56336 D	Insert, feed crank stud -----	1
19	22801	Screw -----	1
20	57822 A	Mainshaft -----	1
21	56322 B	Gasket -----	1
22	22891 B	Screw, oil flow regulating -----	1
23	52923 D	Take-up, looper thread -----	1
24	22580 D	Screw -----	2
25	29476 NM-062	Eccentric Assembly, looper avoid, .062 inch (1.58 mm) throw -----	1
26	77	Screw -----	1
27	22894 AA	Screw -----	1
28	39543 N	Washer, thrust -----	2
29	29476 NM-072	Eccentric Assembly, feed lift, .072 inch (1.83 mm) throw -----	1
30	77	Screw -----	1
31	22894 AA	Screw -----	1

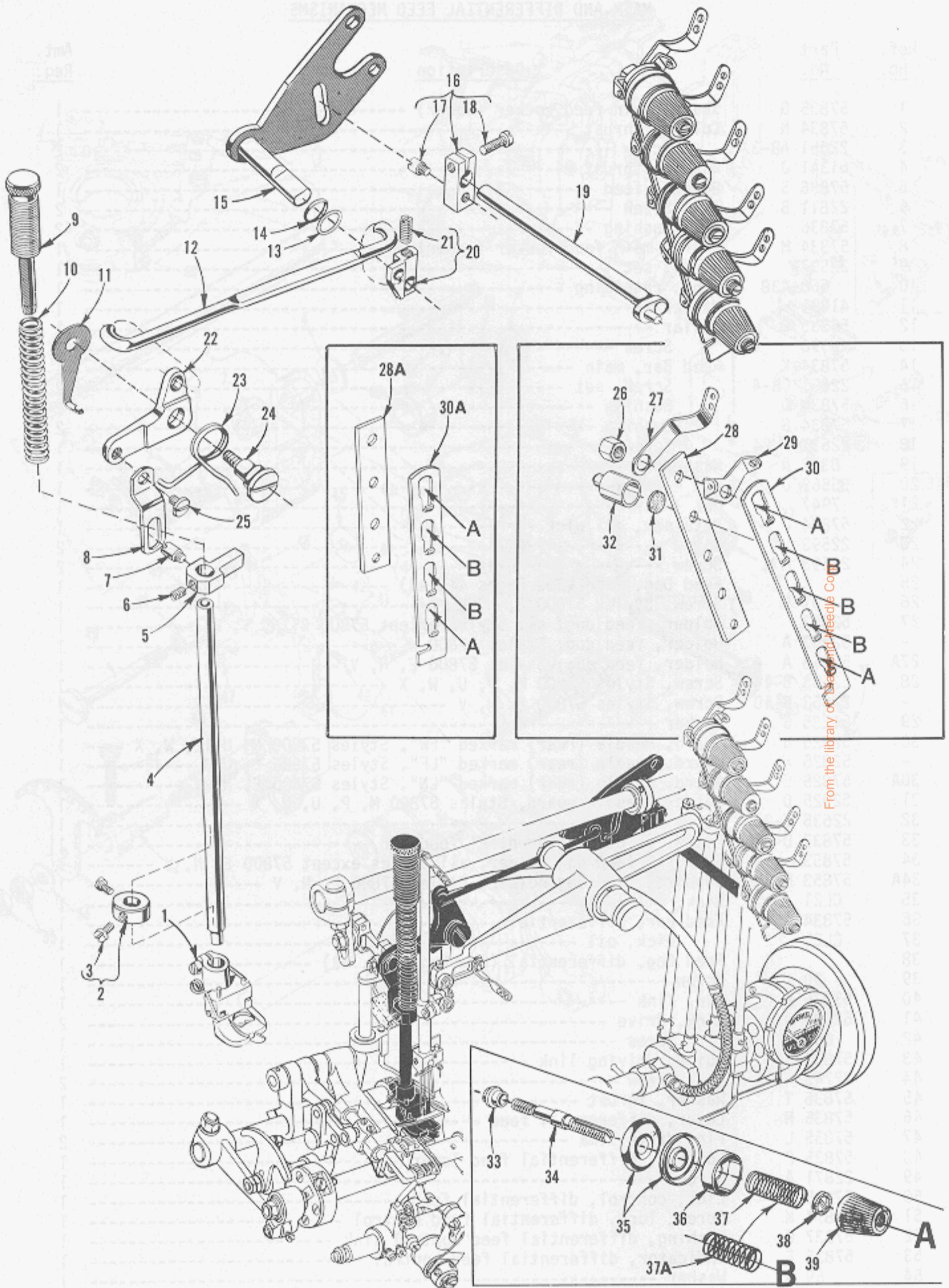
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MAIN AND DIFFERENTIAL FEED MECHANISMS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	57835 G	Shaft, main feed rocker (lower) -----	1
2	57834 N	Collar, thrust -----	1
3	22651 AB-3	Screw -----	2
4	61341 J	Washer, thrust -----	2
5	57836 S	Rocker, feed -----	1
6	22811 B	Screw -----	2
7	57836	Bushing -----	2
8	57834 M	Shaft, main feed rocker (upper) -----	1
9	22597	Screw, set -----	1
10	660-438	Ring, retaining -----	1
11	41391	Washer -----	1
12	56335 D	Collar -----	1
13	98	Screw -----	2
14	57834 K	Feed Bar, main -----	1
15	22651 CB-4	Screw, set -----	2
16	57834 D	Bushing -----	2
17	57834 G	Bushing -----	2
18	22637 P-24	Screw -----	1
19	8372 A	Washer -----	1
20	35569 J	Nut -----	1
21	7947	Nut -----	1
22	57834 J	Retainer, oil wick -----	1
23	22593	Screw -----	2
24	22593 A	Screw -----	2
25		Feed Dog, main (See Pages 41, 43) -----	1
26	91 D	Screw, Styles 57800 E, N, V -----	1
27	52853	Holder, feed dog; all Styles except 57800 E, N, V, W -----	1
-	52853 A	Holder, feed dog; Styles 57800 W -----	1
27A	52953 A	Holder, feed dog; Styles 57800 E, N, V -----	1
28	22653 B-14	Screw, Styles 57800 M, P, U, W, X -----	1
-	22653 B-10	Screw, Styles 57800 E, N, V -----	1
29	51235 G	Washer -----	1
30	52825 B	Guard, needle (rear) marked "FW", Styles 57800 M, U-12, W, X -----	1
-	52825 F	Guard, needle (rear) marked "LF", Styles 57800 P, U-8 -----	1
30A	57825 E	Guard, needle (rear) marked "LN", Styles 57800 E, N, V -----	1
31	52925 D	Holder, needle guard, Styles 57800 M, P, U, W, X -----	1
32	22635 E-24	Screw -----	1
33	57837 D	Plate, guide, differential feed bar -----	1
34	57853	Support, feed dog holder, all Styles except 57800 E, N, V -----	1
34A	57853 E	Support, feed dog holder, Styles 57800 E, N, V -----	1
35	CL21	Wick, oil -----	1
36	57834 A	Feed Bar, differential -----	1
37	CL21	Wick, oil -----	1
38		Feed Dog, differential (See Pages 41, 43) -----	1
39	90	Screw -----	1
40	51236 A	Pin, link -----	1
41	57835 J	Link, drive -----	2
42	605	Screw -----	1
43	57837 E	Guide, driving link -----	1
44	22743	Screw -----	2
45	57836 T	Washer, thrust -----	1
46	57835 H	Lever, differential feed -----	1
47	57835 L	Pin, drive link -----	2
48	57835 P	Bushing, differential feed lever -----	1
49	22871 A	Screw -----	1
50	57835 K	Link, control, differential feed -----	1
51	22874 K	Screw, lock, differential feed control -----	1
52	57837 C	Bushing, differential feed control link -----	1
53	57835 E	Indicator, differential feed control -----	1
54	69 H	Washer -----	1
55	9937	Nut -----	2

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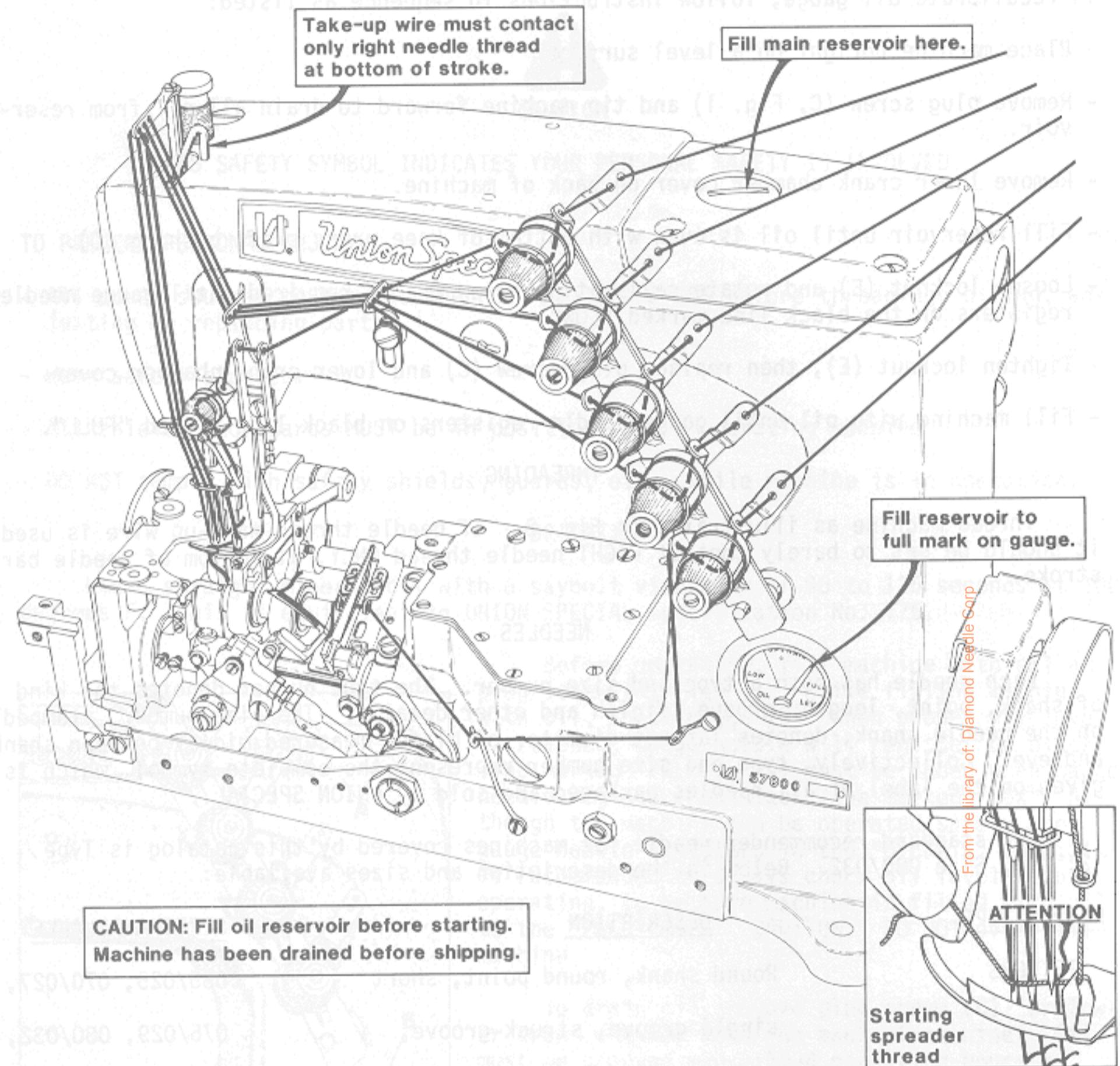


Fig. 2

THREADING AND OILING DIAGRAM FOR CLASS 57800 MACHINES

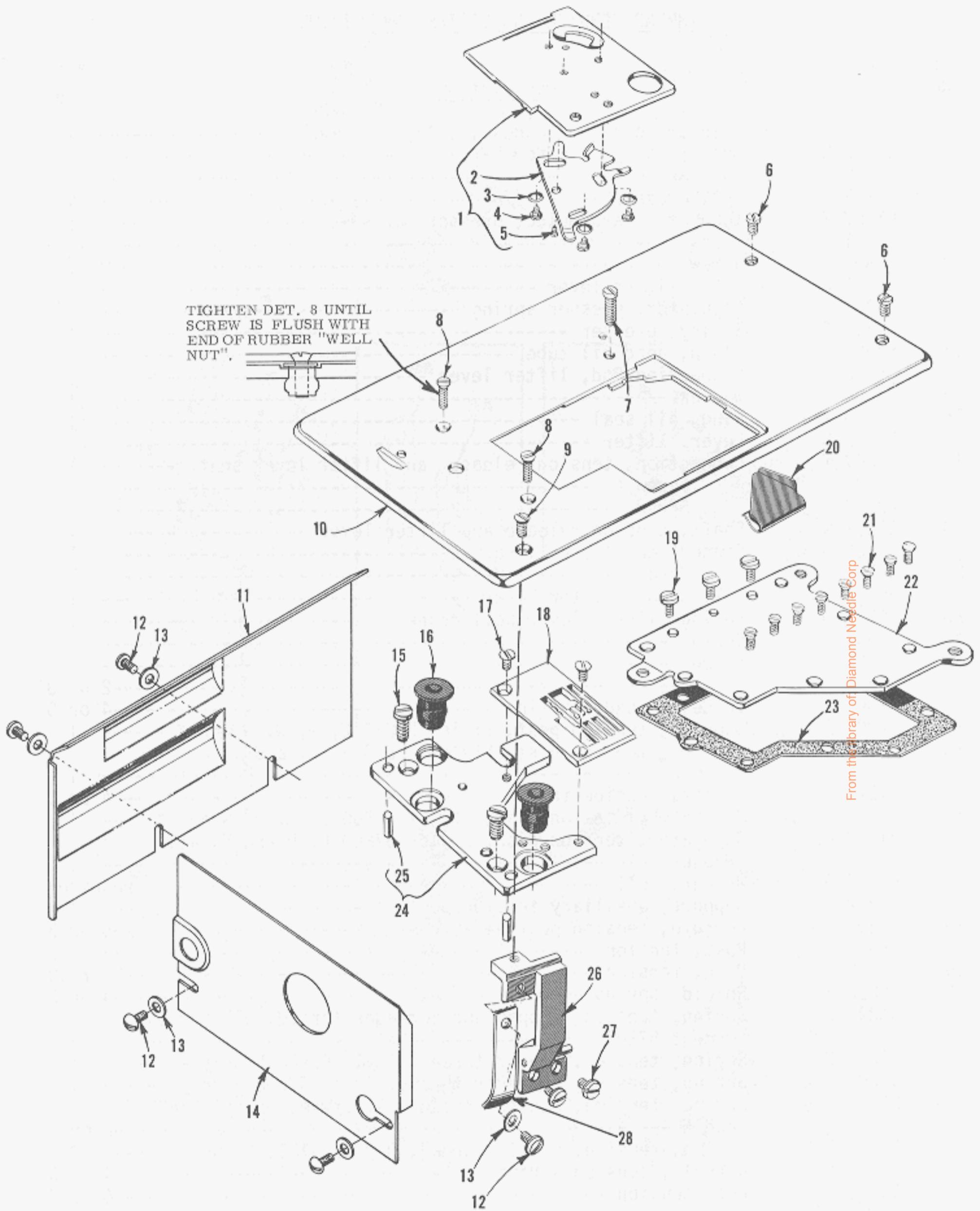
Thread machine as indicated. Three needle machine illustrated, but two needle machines are threaded in a similar manner. Needle thread take-up wire should be set to contact only the RIGHT needle thread when needle bar is at bottom of stroke on all Styles except 57800 V-8. On Style 57800 V-8, needle thread take-up wire should be set to contact BOTH needle threads when needle bar is at bottom of stroke.

Oil has been drained from machine before shipping and the reservoir must be filled before starting to operate. Refer to "LUBRICATION".

THREAD TENSION AND LIFTER LEVER PARTS

Ref. No.	Part No.	Description	Amt. Req.
1		Presser Foot (See Pages 41, 43) -----	1
2	52888 B	Collar, stop, presser bar -----	1
3	22562	Screw -----	2
4	51257 K	Bar, presser -----	1
5	51257 M	Connection and Guide, presser bar -----	1
6	531	Screw -----	1
7	22892 E	Screw -----	1
8	56383 A	Link, lifter lever -----	1
9	56356	Regulator, presser spring -----	1
10	51256 C	Spring, presser -----	1
11	57893 B	Clamp, head oil tube -----	1
12	56383 AB	Connecting Rod, lifter lever -----	1
13	39552 C	Washer -----	1
14	660-207	Ring, oil seal -----	1
15	51283 H	Lever, lifter -----	1
16	21657 Y	Connection, tension release and lifter lever shaft -----	1
17	402	Screw -----	1
18	22596	Screw -----	1
19	21657 W	Shaft, tension release and lifter lever -----	1
20	53783 N	Connection, lifter lever -----	1
21	22537	Screw -----	1
22	56383 AA	Bell Crank, lifter lever -----	1
23	56383 D	Spring, lifter lever bell crank -----	1
24	22557 G	Screw -----	1
25	22758 C	Screw -----	1
26	43266	Nut -----	2 or 3
27	51491 C	Guide, thread lead-in -----	4 or 5
28	52992 A	Support, tension post, Styles 57800 E, M, N, W and X -----	1
28A	56382 X	Support, tension post, Styles 57800 P, U, and V, all gauges -----	1
29	51292 D	Eyelet, tension thread -----	4 or 5
30	21657 AM-5	Separator, tension disc, Styles 57800 E, M, N, W and X -----	1
30A	21657-4	Separator, tension disc, Styles 57800 P, U and V, all gauges -----	1
31	59292 A	Washer, felt -----	as required
32	59292	Support, auxiliary tension post -----	1
33	51292 A	Ferrule, tension post -----	4 or 5
34	56392 E	Post, tension -----	4 or 5
35	109	Disc, tension -----	8 or 10
36	56392 F	Shield, spring -----	4 or 5
37	51292 F-1	Spring, tension, looper and spreader thread, all Styles except 57800 V -----	2
-	51292 F-1	Spring, tension, looper thread, Style 57800 V only -----	1
-	51292 F-2	Spring, tension, spreader thread, Style 57800 V only -----	1
37A	51292 F-5	Spring, tension, needle thread, all Styles except 57800 E and N -----	2 or 3
-	51292 F-8	Spring, tension, needle thread, Styles 57800 E and N -----	3
38	39592 AK	Ferrule, tension spring -----	4 or 5
39	39592 Z	Nut, tension -----	4 or 5

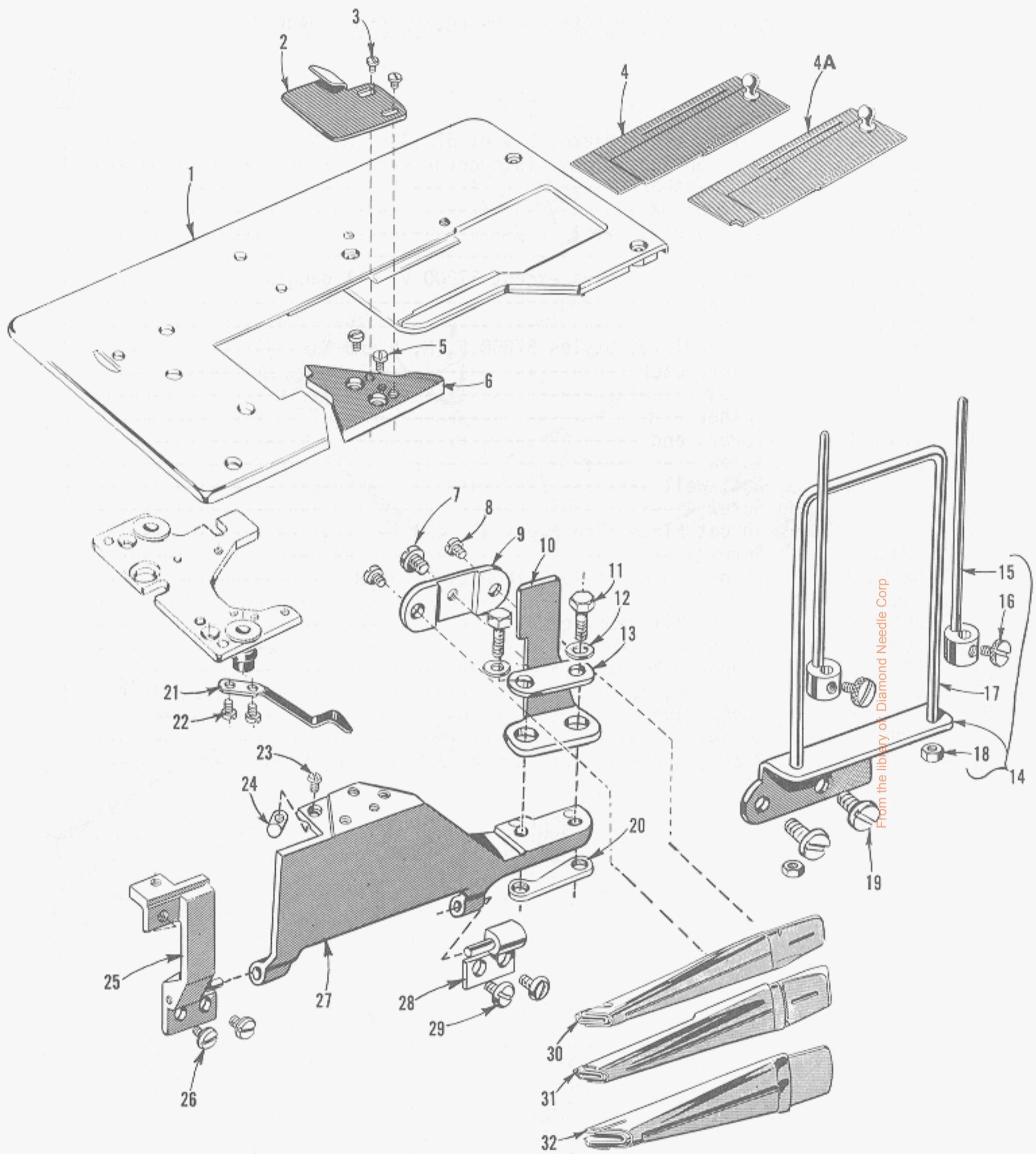
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CLOTH PLATE, MISCELLANEOUS COVERS AND SUPPORTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	56381-219	Cover, cloth plate, Styles 57800 E, M, N and X -----	1
2	51281 AC	Spring, cloth plate cover -----	1
3	35772 H	Washer -----	3
4	22760 A	Screw -----	3
5	22845 B	Screw, pivot -----	1
6	22839 C	Screw -----	2
7	22839 E	Screw, all Styles except 57800 V, all gauges -----	1
8	22526 C	Screw -----	2
9	22526 D	Screw -----	1
10	57801	Cloth Plate, Styles 57800 E, M, N and X -----	1
11	57894 A	Cover, back -----	1
12	22848	Screw -----	5
13	20	Washer -----	5
14	57894 B	Cover, end -----	1
15	22839	Screw -----	2
16	660-313	Nut, well -----	2
17	87	Screw -----	2
18		Throat Plate (See Pages 41, 43) -----	1
19	22585 A	Screw -----	3
20	52703 A	Guide, edge, Styles 57800 E, M and N -----	1
21	22524	Screw -----	8
22	56382 G	Cover, oil reservoir top -----	1
23	56382 H	Gasket -----	1
24	57880	Support, throat plate -----	1
25	51280 J	Pin, dowel -----	2
26	57882 C	Post, cover support -----	1
27	22848	Screw -----	2
28	57882 G	Guard, cloth (front) Styles 57800 E, N, P, U, V and W -----	1

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CLOTH PLATE, ATTACHMENTS AND ATTACHING BRACKETS
FOR STYLES 57800 P, U, V and W, UNLESS OTHERWISE SPECIFIED

Ref. No.	Part No.	Description	Amt. Req.
1	57801 A	Cloth Plate -----	1
2	23133 L	Guide, edge, Styles 57800 U, V and W -----	1
3	22561	Screw, Styles 57800 U, V and W -----	2
4	57802 A	Cover, cloth plate slide, all Styles except 57800 V-8-3/4 and V-12-3/4 -----	1
4A	57802 AA	Cover, cloth plate slide, Styles 57800 V-8-3/4 and V-12-3/4 -----	1
5	90	Screw -----	2
6	57764 A	Platform, folder support -----	1
7	25 S	Screw -----	1
8	25 CC	Screw -----	2
9	23432	Clamp, folder -----	1
10	52864 N	Bracket, folder support -----	1
11	T38	Screw -----	2
12	53634 C	Washer -----	2
13	23425 V	Washer, plate -----	1
14	23439 G	Strip Tension Assembly, Styles 57800 U, V and W -----	1
15	23439 E	Pin, adjustable -----	2
16	188 D	Screw -----	2
17	51-561 Blk.	Guide -----	1
18	907	Nut -----	2
19	22548	Screw -----	2
20	57864	Plate, clamp -----	1
21	43281 K	Spring, hinged bracket -----	1
22	90	Screw -----	2
23	22564	Screw -----	1
24	57885 A	Pin, hinged bracket spring -----	1
25	57882 C	Post, support, all Styles -----	1
26	22848	Screw, all Styles -----	2
27	57764 B	Bracket, folder support hinged -----	1
28	57885	Hinge, swinging Cover (right) -----	1
29	22848	Screw -----	2
30		Folder (See Chart Below) -----	1
31		Folder (See Chart Below) -----	1
32		Folder (See Chart Below) -----	1

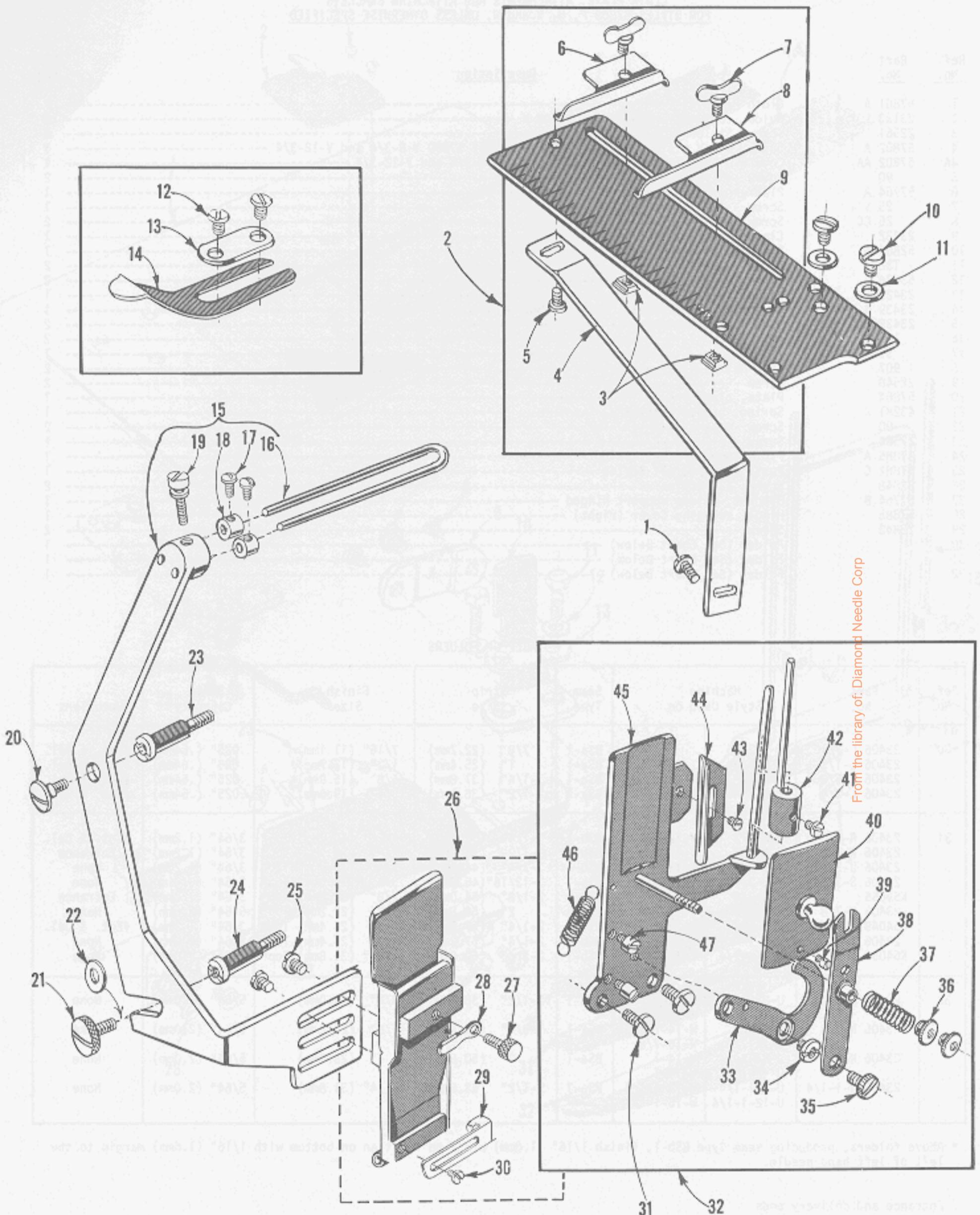
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TABLE OF FOLDERS

Ref. No.	Part No.	Machine Style Used on	Seam Type	Strip Size	Finish Size	Strip Capacity	Uncurlers	
30	23406 L-7/16 23406 L-1/2 23406 L-5/8 23406 L-3/4	P-8-7/16 P-8-1/2 P-8-5/8 P-8-3/4	BSa-1 BSa-1 BSa-1 BSa-1	7/8" (22.2mm) 1" (25.4mm) 1-1/4" (31.8mm) 1-1/2" (38.1mm)	7/16" (11.1mm) 1/2" (12.7mm) 5/8" (15.9mm) 3/4" (19.0mm)	.025" (.64mm) .025" (.64mm) .025" (.64mm) .025" (.64mm)	#Ent. & Del. #Ent. & Del. #Ent. & Del. #Ent. & Del.	
31	23406 R-1/2 23406 R-5/8 23406 U-3/4 23406 S-3/4 K59055 23406 T-7/8 K64049 23406 T-1 K64050	V-8-1/2 V-8-5/8 V-8-3/4 V-8-3/4 V-8-7/8 V-8-7/8 V-8-1 V-8-1 V-8-1-1/4	V-12-1/2 V-12-5/8 V-12-3/4 V-12-3/4 V-12-7/8 V-12-7/8 V-12-1 V-12-1 V-12-1-1/4	BSb-1 BSb-1 BSb-1 BSb-1 BSb-1 BSb-1 BSb-1 BSb-1 BSb-1	1-1/4" (31.8mm) 1-1/2" (38.1mm) 1-3/4" (44.4mm) 1-13/16" (46.0mm) 2-1/8" (54.0mm) 2" (50.8mm) 2-1/4" (57.2mm) 2-1/4" (57.2mm) 2-3/4" (69.8mm)	1/2" (12.7mm) Top* 5/8" (15.9mm) Top* 3/4" (19.0mm) Top* 3/4" (19.0mm) Top* 7/8" (22.2mm) Top* 7/8" (22.2mm) Top* 1" (25.4mm) Top* 1" (25.4mm) Top* 1-1/4" (31.8mm) Top*	3/64" (1.2mm) 3/64" (1.2mm) 3/64" (1.2mm) 5/64" (2.0mm) 3/64" (1.2mm) 5/64" (2.0mm) 3/64" (1.2mm) 5/64" (2.0mm) 5/64" (2.0mm)	#Ent. & Del. Entrance None None Entrance None #Ent. & Del. None None
32	23406 N-3/4 23406 N-7/8 23406 N-1 23406 N-1-1/4	U-8-3/4 U-12-3/4 U-8-7/8 U-12-7/8 U-8-1 U-12-1 U-8-1-1/4 U-12-1-1/4	W-14-3/4 W-16-3/4 W-14-7/8 W-16-7/8 W-14-1 W-16-1 W-14-1-1/4 W-16-1-1/4	BSa-1 BSa-1 BSa-1 BSa-1 BSa-1 BSa-1 BSa-1	1-1/2" (38.1mm) 1-3/4" (44.4mm) 2" (50.8mm) 2-1/2" (63.5mm)	3/4" (19.0mm) 7/8" (22.2mm) 1" (25.4mm) 1-1/4" (31.8mm)	5/64" (2.0mm) 5/64" (2.0mm) 5/64" (2.0mm) 5/64" (2.0mm)	None None None None

* Above folders, producing seam Type BSb-1, finish 1/16" (1.6mm) wider on top than on bottom with 1/16" (1.6mm) margin to the left of left hand needle.

Entrance and delivery ends.

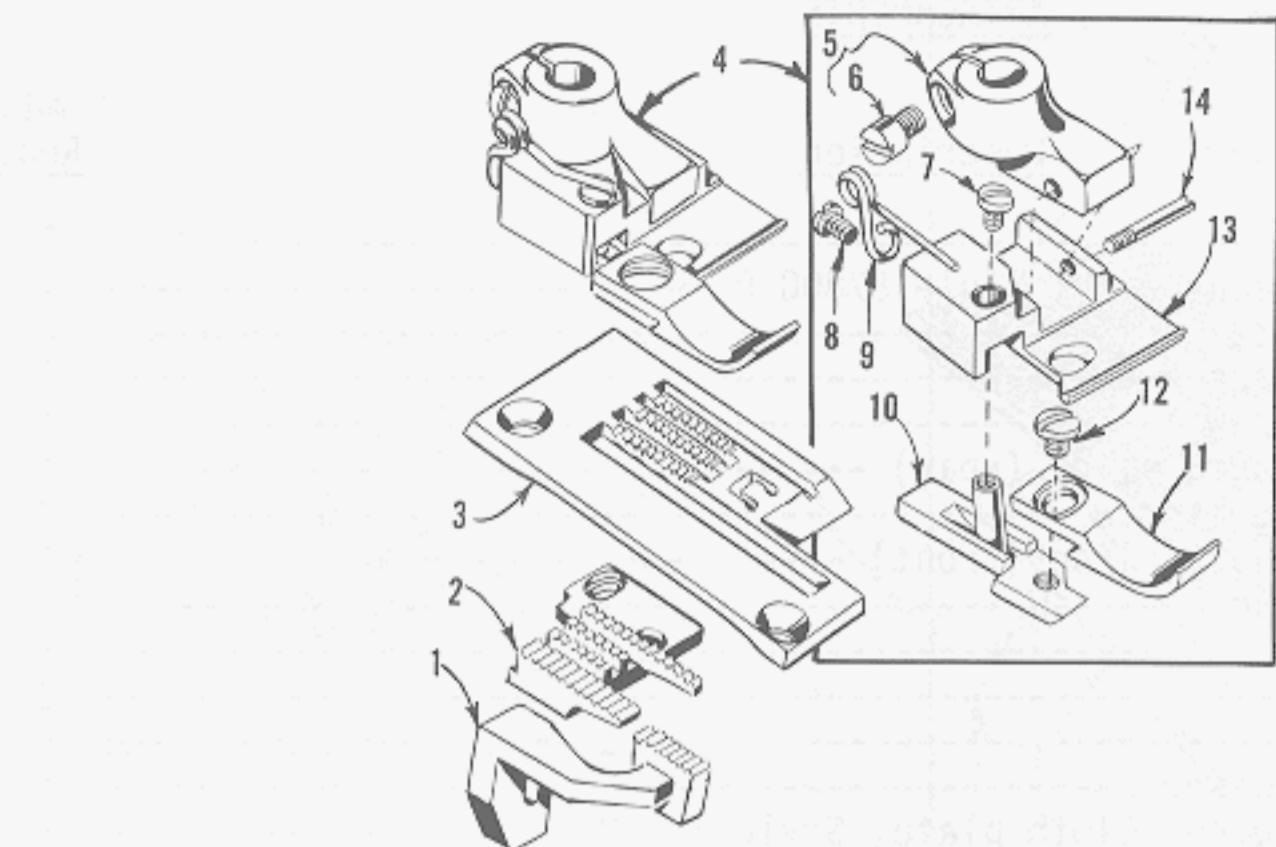


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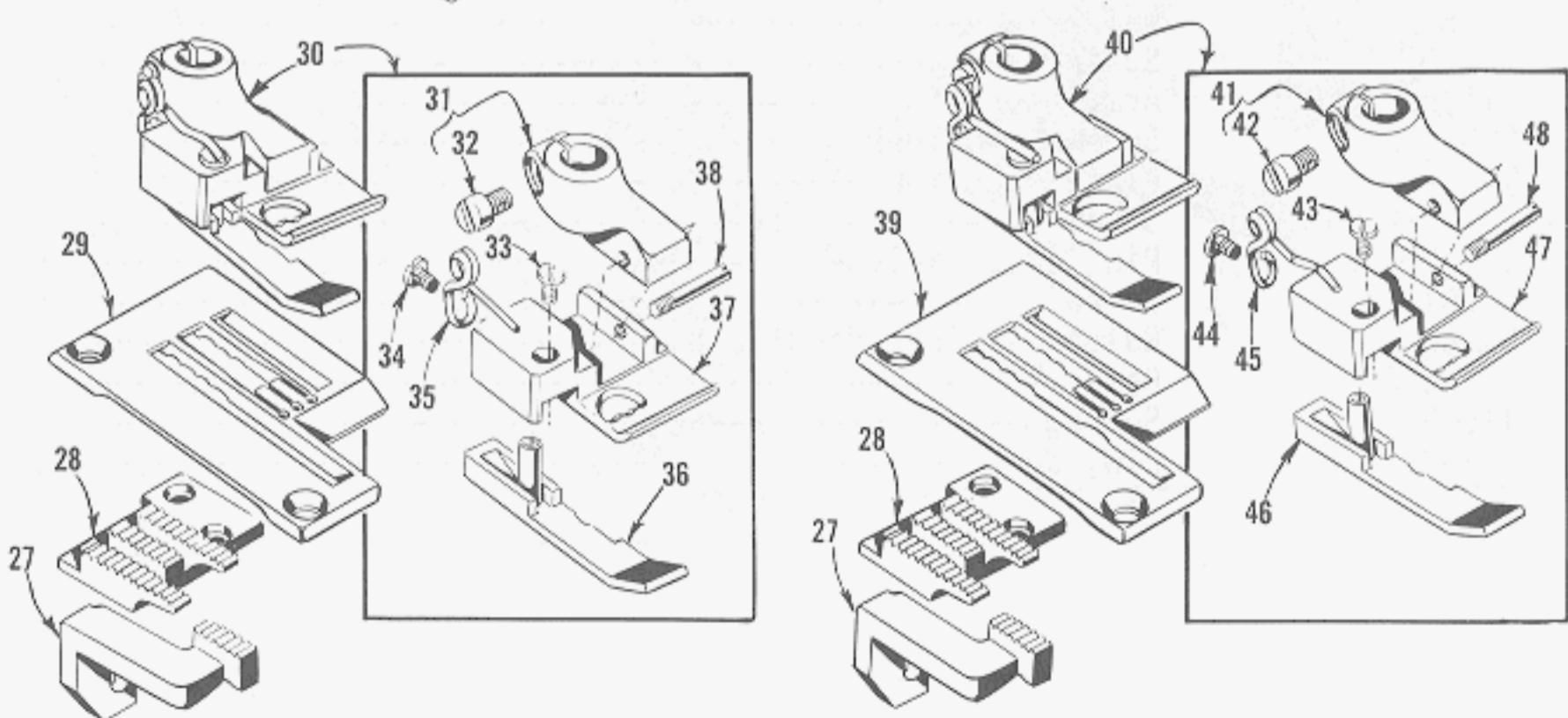
ATTACHMENTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	93	Screw -----	1
2	21198 M	Gauge, measuring, Style 57800 P -----	1
3	21198 J	Nut, lock -----	2
4	21198 N	Brace -----	1
5	94	Screw -----	1
6	21198 H	Gauge, slide (rear) -----	1
7	22756	Thumbscrew -----	2
8	21198 G	Gauge, slide (front) -----	1
9	21198 F	Base -----	1
10	25 S	Screw -----	2
11	21657 E	Washer -----	2
12	25 C	Screw -----	2
13	23425 V	Plate, washer -----	1
14	10303 A	Guide, edge, cloth plate, Style 57800 E -----	1
15	G23306 AA	Support, strip guide, Style 57800 E -----	1
16	A8922 A	Wire -----	1
17	188 D	Screw -----	2
18	A8922 B	Guide -----	2
19	22568	Screw -----	1
20	22504 C	Screw -----	1
21	22837	Thumbscrew -----	1
22	12957 E	Washer -----	1
23	G52782 CA	Stud, Style 57800 E -----	1
24	52882 V	Stud, Style 57800 E -----	1
25	94	Screw -----	2
26	23306 AE	Strip Guide and Tension Assembly, Style 57800 E -----	1
27	22703	Thumbscrew, tension -----	1
28	23306 AF	Locknut, tension adjusting -----	1
29	23306 W	Guide, strip, adjustable -----	1
30	25 B	Screw -----	1
31	22548	Screw -----	2
32	21182 AA	Strip Tension Assembly, Style 57800 P -----	1
33	21182 AC	Lever, operating -----	1
34	22504 B	Stud, pivot -----	1
35	22760	Screw -----	1
36	21185	Nut -----	2
37	110-2	Spring -----	1
38	21182 AD	Arm, operating -----	1
39	22845 A	Screw, shoulder -----	1
40	21182 AF	Plate, tension -----	1
41	188 D	Screw -----	1
42	23439 E	Pin, adjustable -----	1
43	22561	Screw -----	1
44	21182 AE	Guide, strip, adjustable -----	1
45	21182 AB	Base -----	1
46	11663	Spring -----	1
47	402	Pin, screw -----	2

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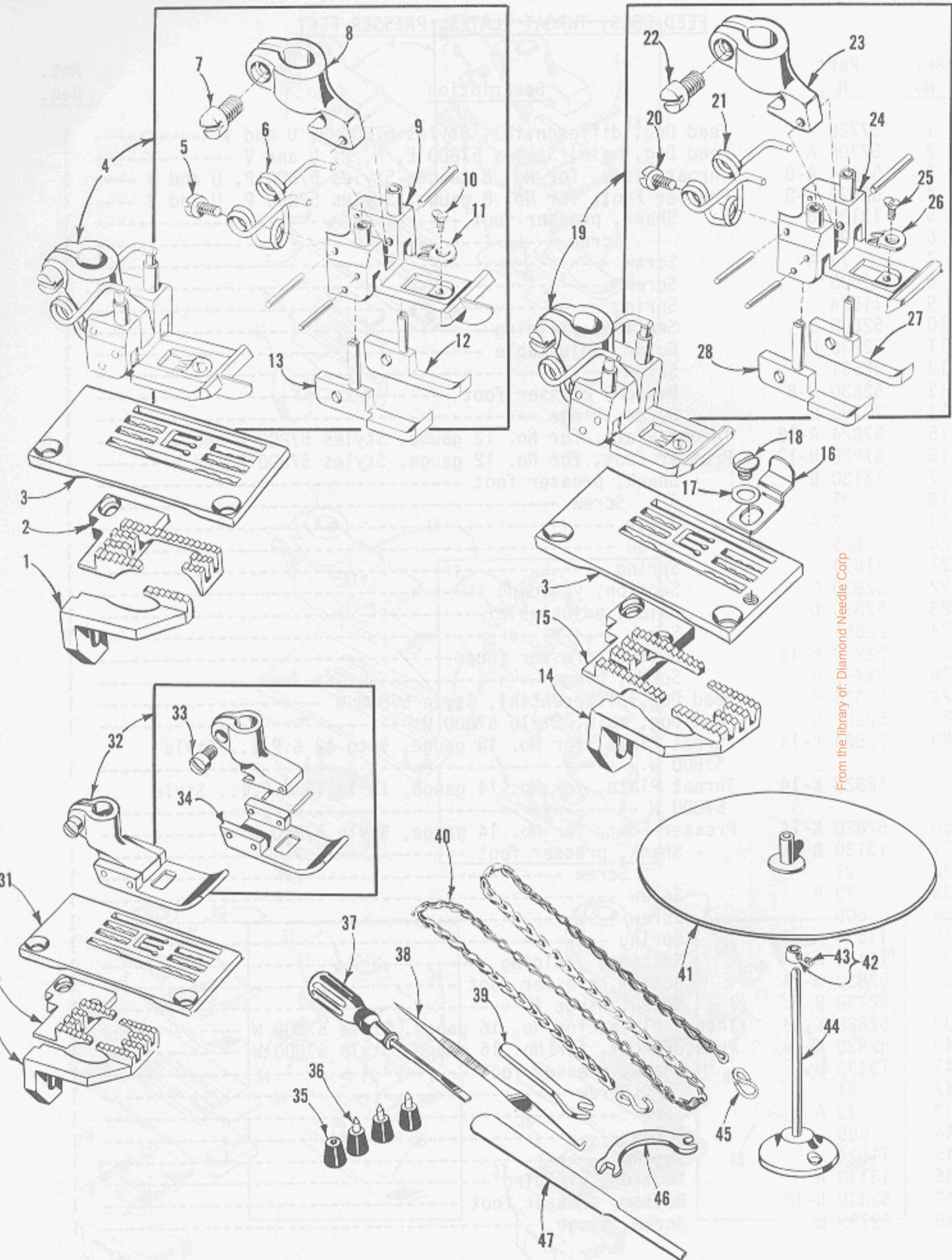


FEED DOGS, THROAT PLATES, PRESSER FEET

Ref. No.	Part No.	Description	Amt. Req.
1	57726	Feed Dog, differential, Styles 57800 P, U and V -----	1
2	57705 A	Feed Dog, main, Styles 57800 E, N, P, U and V -----	1
3	57824 A-8	Throat Plate, for No. 8 gauge, Styles 57800 P, U and V -----	1
4	52820 H-8	Presser Foot, for No. 8 gauge, Styles 57800 P, U and V -----	1
5	13130 B	Shank, presser foot -----	1
6	91	Screw -----	1
7	73 A	Screw -----	1
8	605	Screw -----	1
9	11534	Spring -----	1
10	52830 C	Section, yielding -----	1
11	52830 D	Guide, adjustable -----	1
12	22561	Screw -----	1
13	52830 H-8	Bottom, presser foot -----	1
14	22799 B	Screw, hinge -----	1
15	57824 A-12	Throat Plate, for No. 12 gauge, Styles 57800 U and V -----	1
16	57820 H-12	Presser Foot, for No. 12 gauge, Styles 57800 U and V -----	1
17	13130 B	Shank, presser foot -----	1
18	91	Screw -----	1
19	73 A	Screw -----	1
20	605	Screw -----	1
21	11534	Spring -----	1
22	52830 C	Section, yielding -----	1
23	52830 D	Guide, adjustable -----	1
24	22561	Screw -----	1
25	52830 H-12	Bottom, presser foot -----	1
26	22799 B	Screw, hinge -----	1
27	52826 K	Feed Dog, differential, Style 57800 W -----	1
28	52805 K	Feed Dog, main, Style 57800 W -----	1
29	52824 K-14	Throat Plate, for No. 14 gauge, 9 to 12 S.P.I., Style 57800 W -----	1
	52828 K-14	Throat Plate, for No. 14 gauge, 13 to 16 S.P.I., Style 57800 W -----	1
30	52820 K-14	Presser Foot, for No. 14 gauge, Style 57800 W -----	1
31	13130 B	Shank, presser foot -----	1
32	91	Screw -----	1
33	73 A	Screw -----	1
34	605	Screw -----	1
35	11534	Spring -----	1
36	13130 A	Section, yielding -----	1
37	52830 K-14	Bottom, presser foot -----	1
38	22799 B	Screw, hinge -----	1
39	52828 K-16	Throat Plate, for No. 16 gauge, Style 57800 W -----	1
40	52820 K-16	Presser Foot, for No. 16 gauge, Style 57800 W -----	1
41	13130 B	Shank, presser foot -----	1
42	91	Screw -----	1
43	73 A	Screw -----	1
44	605	Screw -----	1
45	11534	Spring -----	1
46	13130 A	Section, yielding -----	1
47	52830 K-16	Bottom, presser foot -----	1
48	22799 B	Screw, hinge -----	1

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NEEDLE BAR ALIGNMENT

Insert a new set of needles (type and size required). With needle bar (A, Fig. 3) at TOP of its stroke, check to ensure an approximate setting of $1\frac{13}{32}$ inch (35.7mm) from top of needle bar to top of needle bar bushing (B). Adjustment can be made by loosening clamp screw (C) and moving needle bar up or down, re-tighten screw (C) TEMPORARILY. Turn handwheel to bring needle bar down to ensure that needles center in needle holes of throat plate as shown in Fig. 3. Adjustment can be made by loosening screw (C) slightly, allowing needle bar to be turned as required, being careful not to change the temporary height setting. Tighten clamp screw. Re-check temporary height setting.

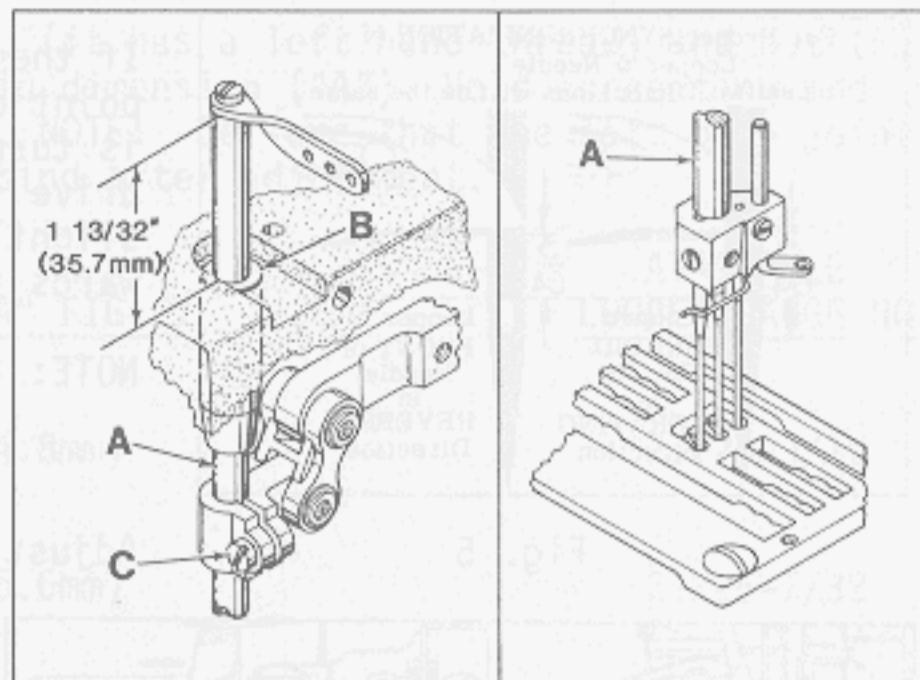


Fig. 3

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

Check synchronization using gauge No. 21227 R as follows:

With looper rocker at extreme right end of travel, insert pin furnished with gauge in looper hole of looper rocker. Assemble gauge plate to throat plate seat using throat plate mounting screws. Insert shank of indicator into hole used for needle thread take-up wire in top of machine bed. Turn handwheel in operating direction until pin contacts edge of gauge plate. Adjust pointer on left end of indicator until it rests on top of needle bar and its pointer on the right end aligns with the marking "0", then lock indicator in position using the set screw in front of machine bed for securing the take-up wire. Turn handwheel in reverse direction until pin again contacts edge of gauge plate, then NOTE reading on indicator. If pointer aligns with "0" on scale, looper and needle motions are synchronized. A variation of one graduation is permissible. If the reading is above "0" on scale, the looper drive lever rocker shaft must be moved to the front. If the reading is below "0" on the scale, the shaft must be moved to the rear.

If gauge No. 21227 R is not available, check synchronization as follows:

Insert looper into the looper rocker, pushing it all the way down and tighten screw against flat on shank of looper. Turn handwheel in the operating direction until the point of the looper (A, Fig. 4) moving to the left, is even with the left side of right needle (B). Note the height of the eye of the needle with respect to the looper point (See Fig. 5). Turn the handwheel in the reverse direction until the point of the looper again moving to the left, is even with the left side of right needle (See Fig. 5). If the height of the eye of the needle with respect to the looper point are the same, looper and needle motions are synchronized - a variation of .005 inch (.127mm) is allowable.

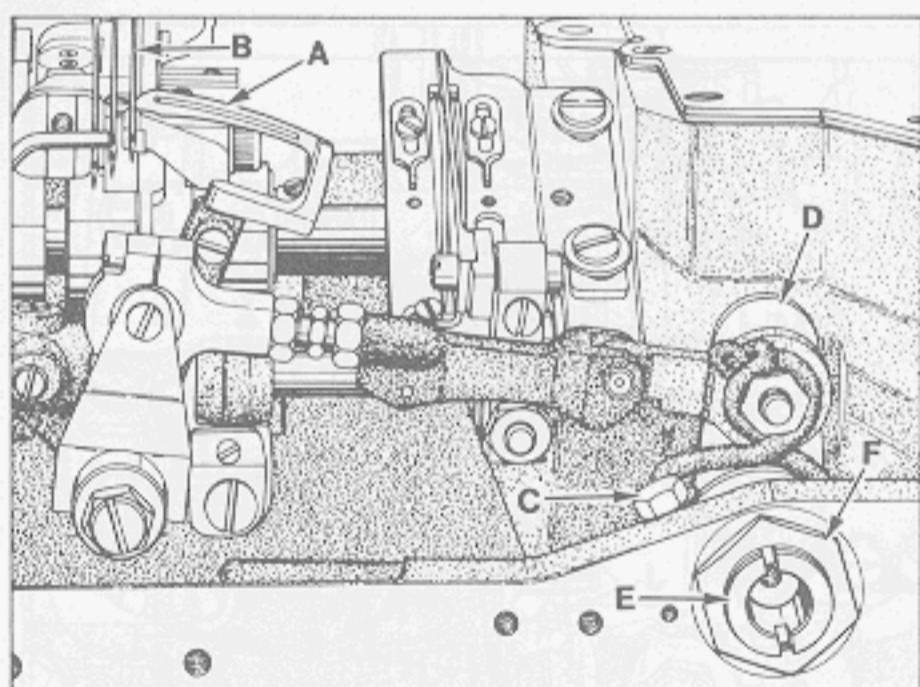


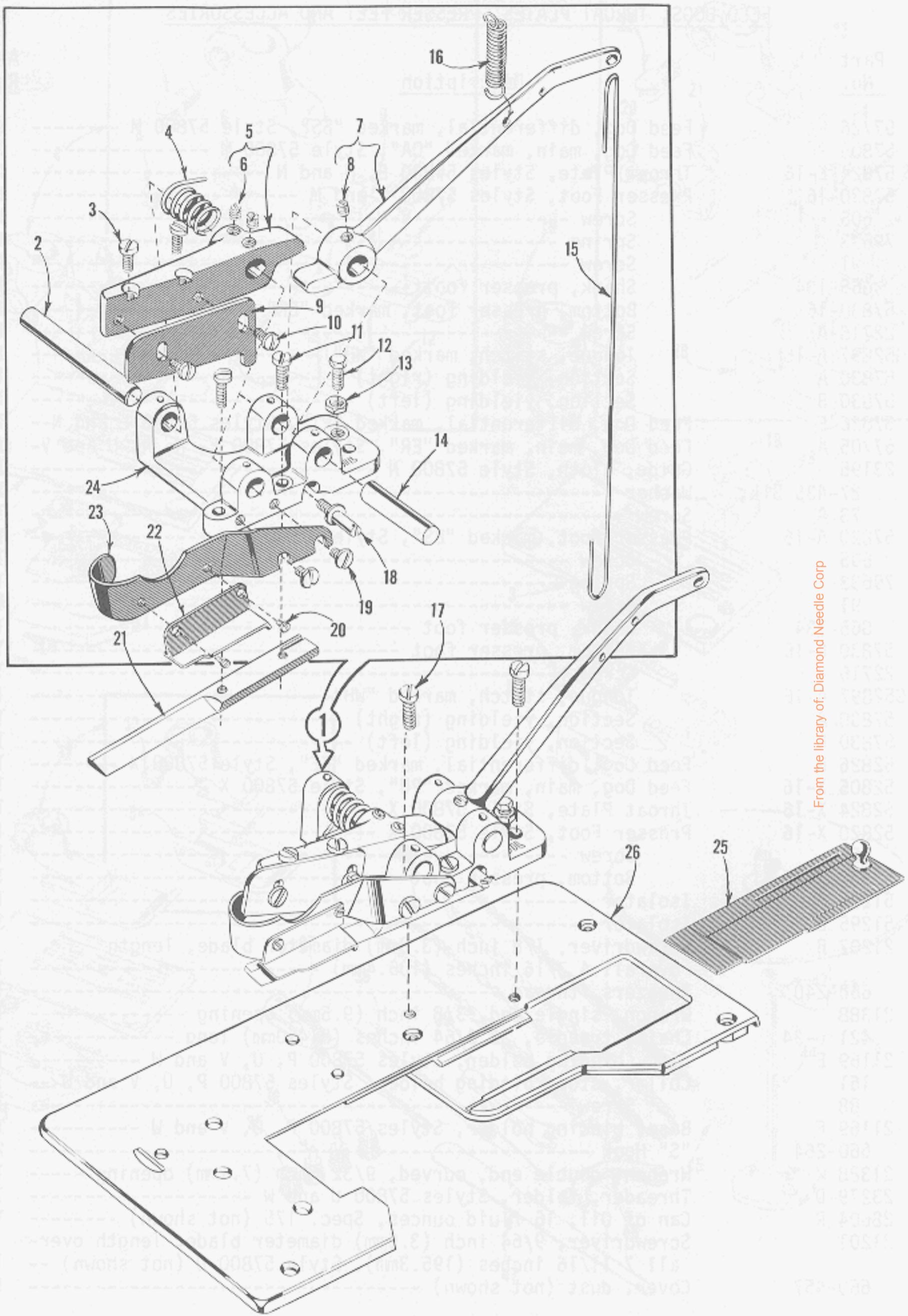
Fig. 4

FEED DOGS, THROAT PLATES, PRESSER FEET AND ACCESSORIES

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	57726	Feed Dog, differential, marked "ES", Style 57800 M -----	1
2	57805	Feed Dog, main, marked "QA", Style 57800 M -----	1
3	57824 E-16	Throat Plate, Styles 57800 E, M and N -----	1
4	57820-16	Presser Foot, Styles 57800 E and M -----	1
5	605	Screw -----	1
6	79633	Spring -----	1
7	91	Screw -----	1
8	G65-134	Shank, presser foot -----	1
9	57830-16	Bottom, presser foot, marked "BR" -----	1
10	22716 A	Screw -----	1
11	G52897 A-16	Tongue, stitch, marked "WH" -----	1
12	57830 A	Section, yielding (right) -----	1
13	57830 B	Section, yielding (left) -----	1
14	57826 E	Feed Dog, differential, marked "PT", Styles 57800 E and N--	1
15	57705 A	Feed Dog, main, marked "ER", Styles 57800 E, N, P, U and V-	1
16	23195	Guide, cloth, Style 57800 N -----	1
17	27-435 Blk.	Washer -----	1
18	73 A	Screw -----	1
19	57820 A-16	Presser Foot, marked "BS", Style 57800 N -----	1
20	605	Screw -----	1
21	79633	Spring -----	1
22	91	Screw -----	1
23	G65-134	Shank, presser foot -----	1
24	57830 C-16	Bottom, presser foot -----	1
25	22716 A	Screw -----	1
26	G52897 A-16	Tongue, stitch, marked "WH" -----	1
27	57830 A	Section, yielding (right) -----	1
28	57830 B	Section, yielding (left) -----	1
29	52826 H	Feed Dog, differential, marked "EE", Style 57800 X-----	1
30	52805 X-16	Feed Dog, main, marked "PU", Style 57800 X -----	1
31	52824 X-16	Throat Plate, Style 57800 X -----	1
32	52820 X-16	Presser Foot, Style 57800 X -----	1
33	91	Screw -----	1
34	52830 X-16	Bottom, presser foot -----	1
35	51295 A	Isolator -----	1
36	51295 B	Isolator -----	3
37	21207 B	Screwdriver, 1/8 inch (3.2mm) diameter blade, length overall 4 3/16 inches (106.4mm) -----	1
38	660-240	Tweezers, thread -----	1
39	21388	Wrench, single end, 3/8 inch (9.5mm) opening -----	1
40	421 D-34	Chain, treadle, 32 3/64 inches (814.0mm) long -----	1
41	21169 E	Disc, binding holder, Styles 57800 P, U, V and W -----	1
42	161	Collar, stop, binding holder, Styles 57800 P, U, V and W --	1
43	88	Screw -----	1
44	21169 F	Base, binding holder, Styles 57800 P, U, V and W -----	1
45	660-264	"S" Hook -----	2
46	21388 W	Wrench, double end, curved, 9/32 inch (7.1mm) opening -----	1
47	23279 D	Threader, folder, Styles 57800 U and W -----	1
-	28604 R	Can of Oil, 16 fluid ounces, Spec. 175 (not shown) -----	1
-	21201	Screwdriver, 9/64 inch (3.6mm) diameter blade, length overall 7 11/16 inches (195.3mm), Style 57800 U (not shown) --	1
-	660-457	Cover, dust (not shown) -----	1

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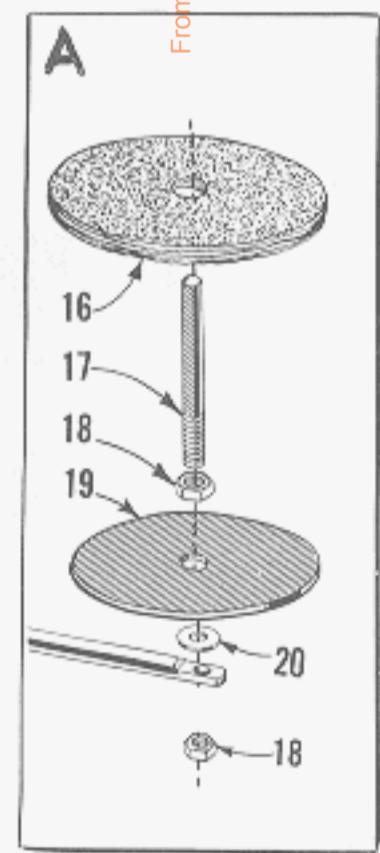
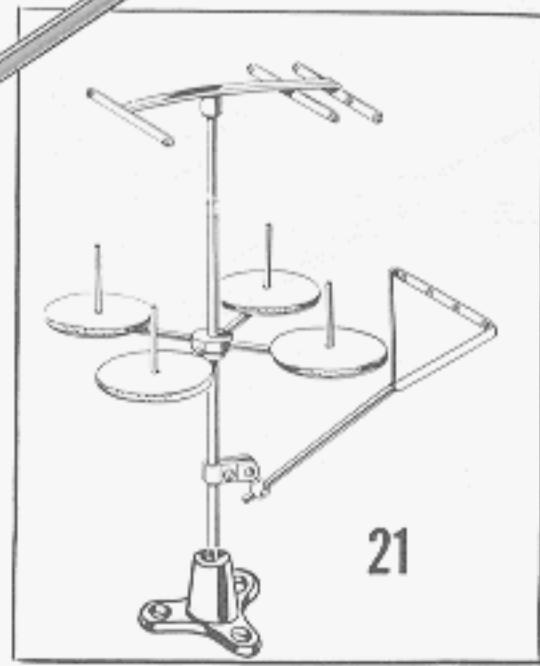
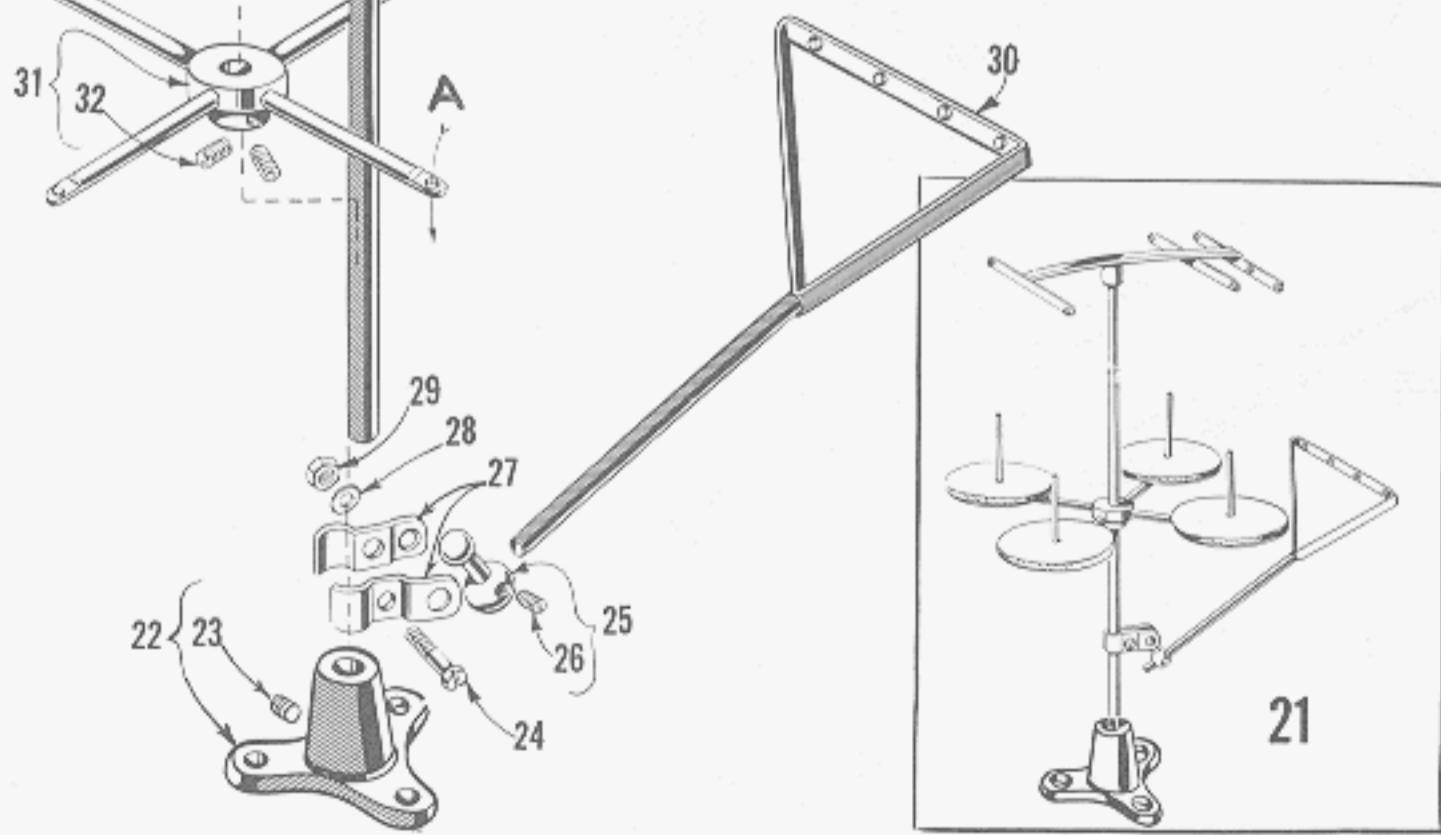
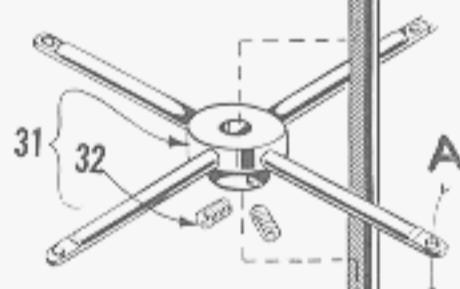
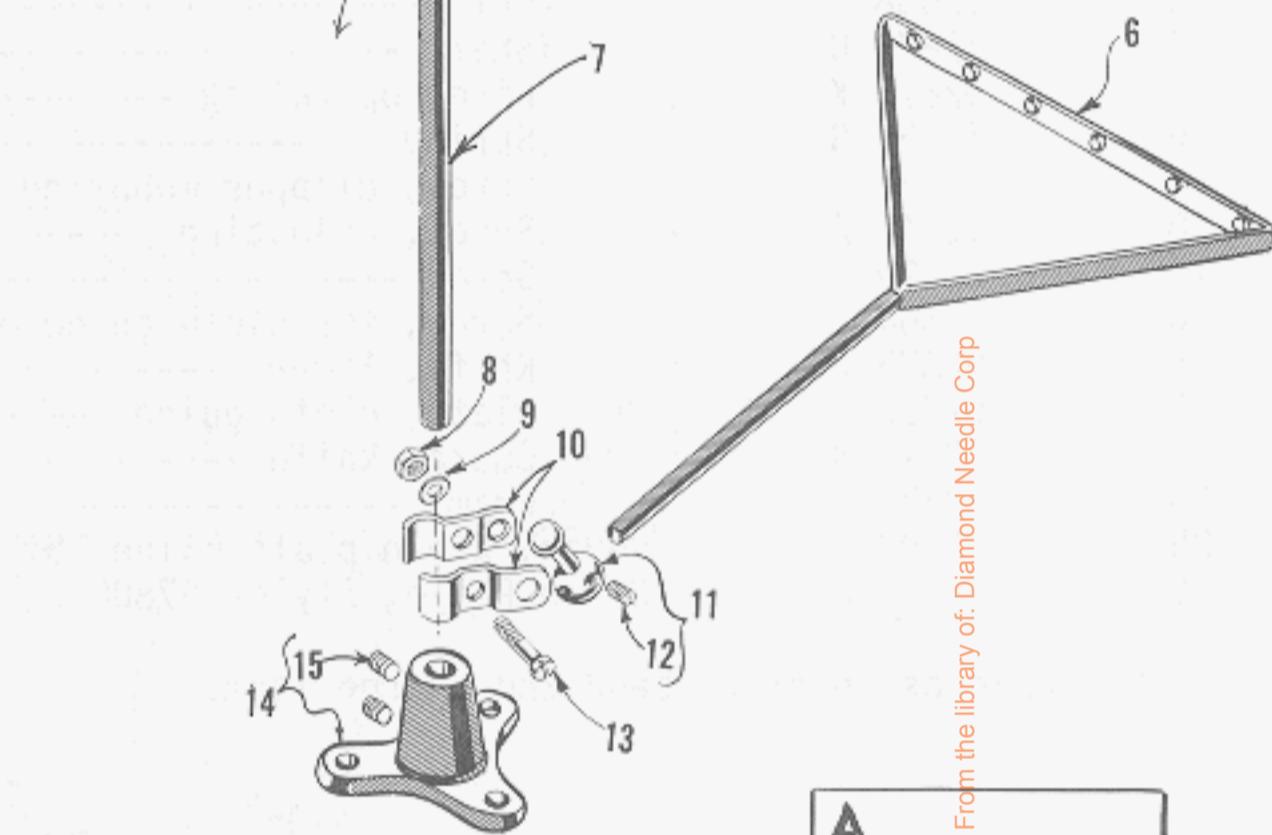
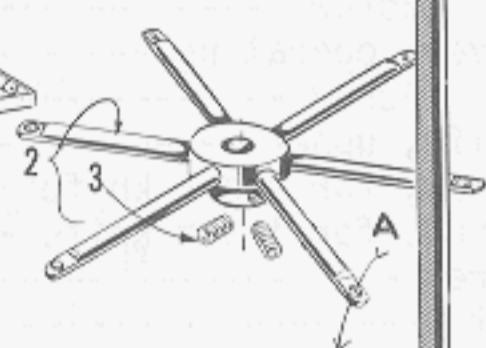
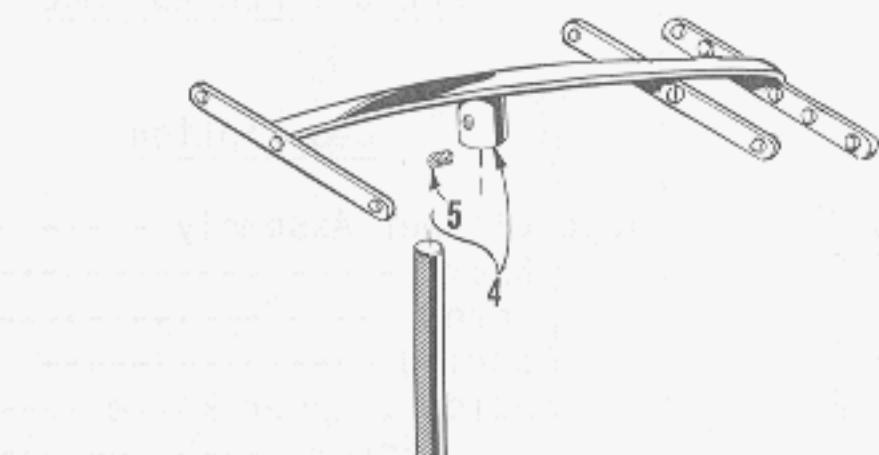
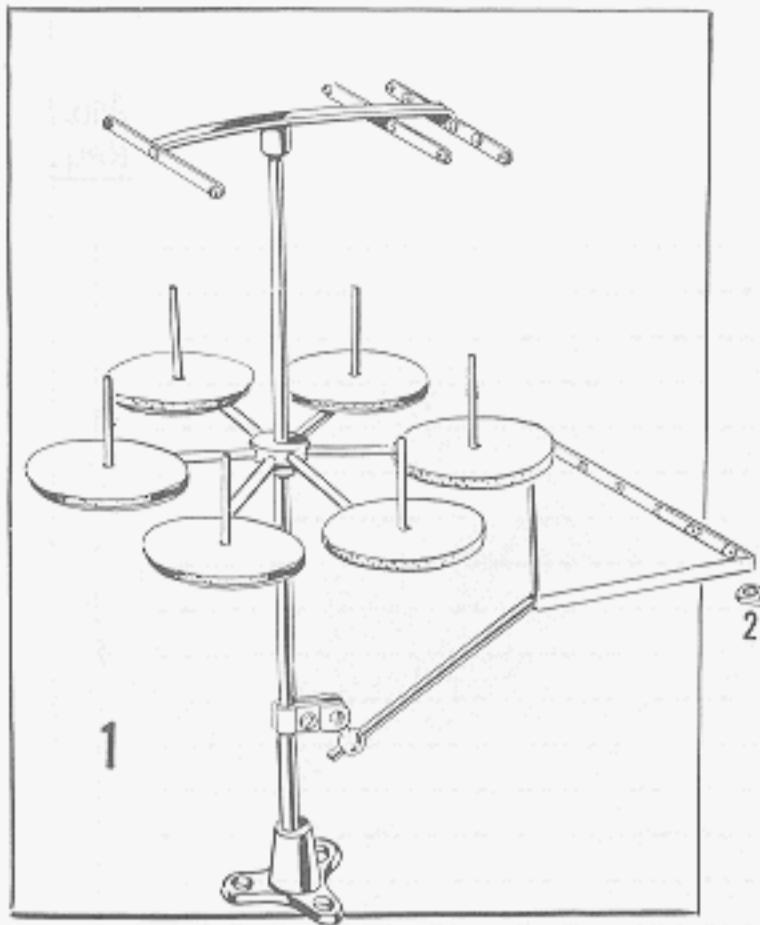
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TAPE CLIPPER ASSEMBLY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
*1	29486 A	Tape Clipper Assembly -----	1
2	52875 F	Shaft -----	1
3	93	Screw -----	2
4	52875 G	Spring -----	1
5	52875 E	Holder, upper knife -----	1
6	95	Screw -----	2
7	52875 A	Lever, operating -----	1
8	95	Screw -----	1
9	52875 D	Knife, upper -----	1
10	22528	Screw, for upper knife -----	2
11	22596	Screw, for lower knife -----	2
12	22852	Screw -----	1
13	12538	Nut -----	1
14	52875 B	Shaft -----	1
15	52875 K	Wire, operating -----	1
16	51283 G	Spring -----	1
17	136	Screw, clipper mounting -----	2
18	15447 A	Screw, adjusting -----	1
19	22829	Screw -----	2
20	604	Screw, for cloth guide plate -----	2
21	52875 C	Knife, lower -----	1
22	52875 J	Plate, cloth guide -----	1
23	52875 H	Guard, knife -----	1
24	52875	Frame -----	1
25	57802 A	Cover, cloth plate slide, Styles 57800 P, U, V and W--	1
26	57801 A	Cloth Plate, Styles 57800 P, U, V and W -----	1

* Available as an extra send and charge item.



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THREAD STAND PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	21101 H-6	Thread Stand Assembly, Styles 57800 E, M, N, W and X -----	1
2	21114 D-6	Support, spool seat -----	1
3	22651 CD-5	Screw -----	2
4	21114 H-6	Support, eyelet -----	1
5	22651 CD-4	Screw -----	1
6	21114 S-6	Eyelet, lead -----	1
7	21104 B-24	Rod, thread stand -----	1
8	21104 H	Nut -----	1
9	652-16	Washer -----	1
10	21114 U	Split Socket, lead eyelet ball -----	2
11	21114 T	Ball, lead eyelet socket -----	1
12	22651 CD-4	Screw -----	1
13	22810	Screw -----	1
14	21114 A	Base, thread stand -----	1
15	22651 CD-4	Screw -----	1
16	21104 V	Pad, spool support -----	4 or 6
17	21114 W	Pin, spool -----	4 or 6
18	258 A	Nut -----	8 or 12
19	21114	Disc, spool seat -----	4 or 6
20	652-16	Washer -----	4 or 6
21	21101 H-4	Thread Stand Assembly, Styles 57800 P, U and V -----	1
22	21114 A	Base, thread stand -----	1
23	22651 CD-4	Screw -----	1
24	22810	Screw -----	1
25	21114 T	Ball, lead eyelet socket -----	1
26	22651 CD-4	Screw -----	1
27	21114 U	Split Socket, lead eyelet ball -----	2
28	652-16	Washer -----	1
29	21104 H	Nut -----	1
30	21114 S-4	Eyelet, lead -----	1
31	21114 D-4	Support, spool seat -----	1
32	22651 CD-5	Screw -----	2
33	21104 B-24	Rod, thread stand -----	1
34	21114 H-4	Support, eyelet -----	1
35	22651 CD-4	Screw -----	1

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52805 K.....	41	56190.....	21	57725 B.....	27	57853 E.....	31
52805 X-16.....	43	56315 A.....	23	57726.....	41,43	57858.....	19
52817-14.....	23	56316.....	23	57744.....	27	57864.....	37
52817-16.....	23	56316 C.....	23	57744 A.....	27	57880.....	35
52817 E-8.....	23	56321 N.....	23	57757 B.....	19	57882.....	19
52820 H-8.....	41	56322 B.....	29	57764 A.....	37	57882 B.....	19
52820 H-12.....	41	56322 C.....	29	57764 B.....	37	57882 C.....	35,37
52820 K-14.....	41	56335 D.....	31	57770.....	19	57882 G.....	35
52820 K-16.....	41	56336.....	29	57801.....	35	57885.....	37
52820 X-16.....	43	56336 B.....	29	57801 A.....	37,45	57885 A.....	37
52824 K-14.....	41	56336 C.....	29	57802 A.....	37,45	57890 B.....	21
52824 X-16.....	43	56336 D.....	29	57802 AA.....	37	57892 A.....	19
52825 B.....	31	56341 E.....	27	57805.....	43	57892 B.....	19
52825 D.....	27	56341 F.....	27	57818-8.....	23	57892 C-5.....	19
52825 F.....	31	56341 G.....	27	57820-16.....	43	57893.....	21
52826 H.....	43	56341 M.....	27	57820 A-16.....	43	57893 B.....	33
52826 K.....	41	56342 B.....	25	57821.....	23	57894.....	21
52828 K-14.....	41	56342 D.....	21	57822 A.....	29	57894 A.....	35
52828 K-16.....	41	56342 E.....	23,27	57824 A-12.....	41	57944 A.....	19
52830 C.....	41	56343 C.....	23	57824 E-16.....	43	57944 B.....	19
52830 D.....	41	56343 E.....	23	57825 E.....	31	K59055.....	37
52830 H-8.....	41	56343 F.....	23	57826 E.....	43	59292.....	33
52830 H-12.....	41	56344 B.....	27	57830-16.....	43	59292 A.....	33
52830 K-14.....	41	56350 D.....	23	57830 A.....	43	59493 A.....	21
52830 K-16.....	41	56350 E.....	23	57830 B.....	43	61256 G.....	21
52830 X-16.....	43	56350 F.....	23	57830 C-16.....	43	61321 L.....	23
52849.....	25	56350 G.....	23	57831.....	19	61341 J.....	31
52853.....	31	56354 C.....	21	57834 A.....	31	61434 G.....	25
52853 A.....	31	56354 D.....	23	57834 D.....	31	63494 F.....	21
52858.....	19	56356.....	33	57834 G.....	31	63494 G.....	21
52864 N.....	37	56381-219.....	35	57834 J.....	31	63494 K.....	21
52875.....	45	56382 B.....	19	57834 K.....	31	K64049.....	37
52875 A.....	45	56382 C.....	19	57834 M.....	31	K64050.....	37
52875 B.....	45	56382 D.....	19	57834 N.....	31	79633.....	43
52875 C.....	45	56382 E.....	19	57835 E.....	31	80665 F.....	19
52875 D.....	45	56382 G.....	35				

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SYNCHRONIZING LOOPER AND NEEDLE MOTIONS (Continued)

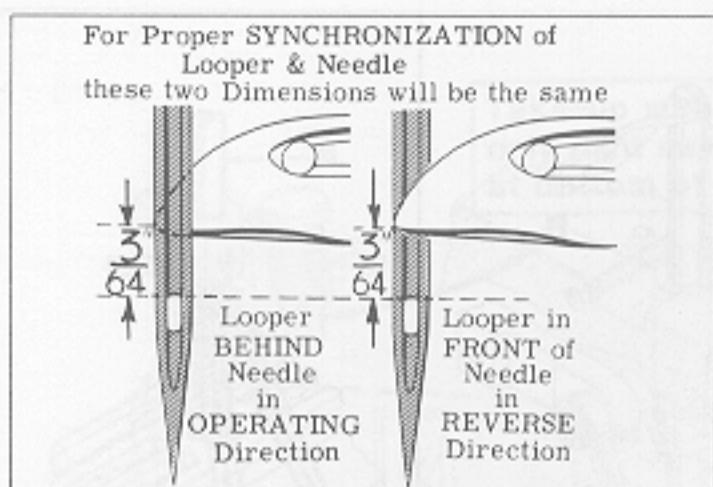


Fig. 5

If the distance from the eye of the needle to the point of the looper is greater when the handwheel is turned in the operating direction, the looper drive lever rocker shaft will have to be moved slightly towards the rear. Moving the shaft towards the front acts the reverse.

NOTE: The 3/64 inch (1.2mm) dimension shown in Fig. 5 is for final setting of needle bar height.

Adjust looper drive rocker lever shaft as follows:

Loosen screw (C, Fig. 4) in looper drive lever (D). A rod of .146-40 thd. or Union Special Screw No. 22870 A can be threaded into the looper drive lever rocker shaft through the center of thrust adjusting screw (E). Tap or pull slightly as required to position shaft for proper synchronization. Tighten screw (C) securely and remove rod or screw used to position shaft. Loosen lock nut (F) and TORQUE thrust adjusting screw (E) to 6 in. lbs. (7cm/kg); re-tighten lock nut (F) securely.

With looper at extreme right end of travel, check location of the right looper connecting rod bearing using gauge No. 21227 DC as shown in Fig. 6. Place hole of gauge over threaded stud, then set the side of looper rocker cone (A) as shown. If the gauge does not fit, loosen clamp screw (B) and reposition looper drive lever (C) as required, then tighten screw (B).

If gauge No. 21227 DC is not available, check setting with a scale. Distance between the centerline of rocker cone and centerline of looper drive lever stud should be 4 1/16 inch (103.2mm) as shown in Fig. 6; when looper is at its extreme right end of travel.

LOOPER SETTINGS

Insert a new needle of type and size required into right needle seat. Turn handwheel in operating direction until looper is at its extreme right end of travel. Looper gauge ("A", Fig. 7) is the distance between centerline of right needle (B) and point of looper (C); see CHART for dimensions on following page.

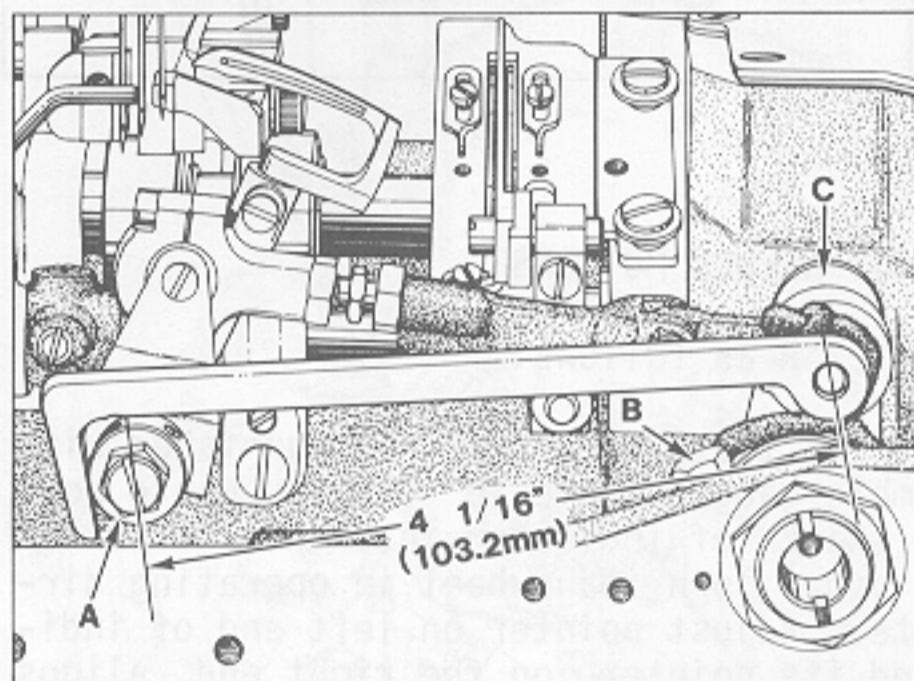


Fig. 6

left inside edge of gauge against the left side of cone (A). At this time, there should be no clearance between left inside edge of gauge and left side of cone (A). If adjustment is necessary, loosen clamp screw (B) and reposition looper drive lever (C) as required, then tighten screw (B).

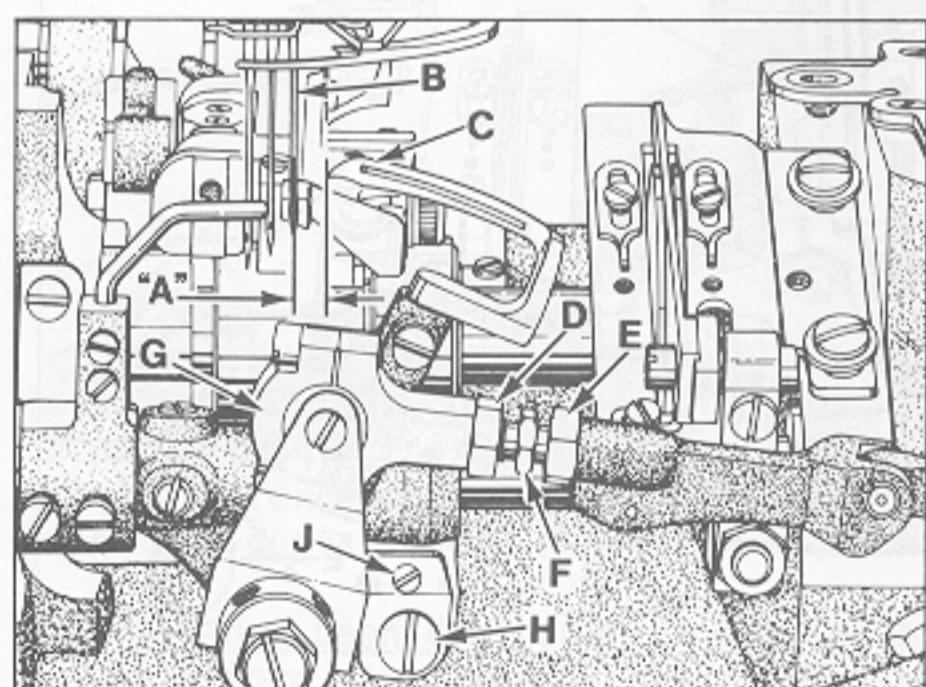


Fig. 7

LOOPER SETTINGS (Continued)

Adjustment can be made by loosening nut (D), (it has a left hand thread) and nut (E); turn connecting rod (F) as required to attain dimension ("A"). Hold connecting rod in position and tighten nut (E), then nut (D). NOTE: Be sure that the left ball joint (G) is in a vertical position and does not bind after adjustment.

<u>MACHINE STYLE</u>	<u>DIMENSION "A" FIG. 7</u>	<u>AVAILABLE LOOPER GAUGE NO.</u>
57800 E-16, M-16, N-16, W-14, W-16, X-16	3/16 inch (4.8mm)	21225-3/16
57800 P-8, U-8, U-12, V-8, V-12	7/32 inch (5.6mm)	21225-7/32

While turning handwheel in operating direction, as the looper (A, Fig. 8) moves to the left its point should be set to brush but not pick at the REAR of RIGHT needle (B). Adjustment can be made by loosening screw (H, Fig. 7), turn stop screw (J) clockwise to move looper towards the rear, counterclockwise acts the reverse. It is suggested to hold looper towards the front while making this adjustment. Tighten screw (H) after adjustment has been made and recheck movement of looper.

NEEDLE BAR HEIGHT

Turn handwheel in operating direction until point of looper is flush with the left side of right needle. Final setting is 3/64 inch (1.2mm) between top of needle's eye and bottom surface of looper (See Fig. 5). If adjustment is required, loosen screw (C, Fig. 3) move needle bar CAREFULLY up or down, not to disturb alignment of same. Retighten screw (C) and check to ensure that needles center in needle holes of throat plate.

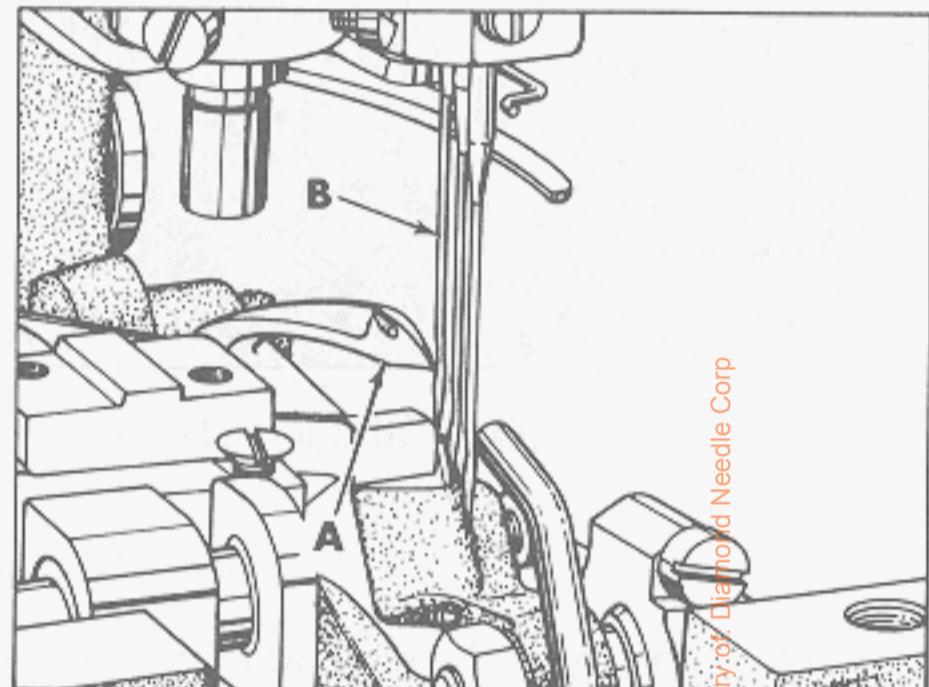


Fig. 8

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MAIN AND DIFFERENTIAL FEED DOGS

Both feed dogs should be set to rise the depth of a full tooth, approximately 3/64 inch (1.2mm) above throat plate at highest point of travel and centered in slots of throat plate at maximum feed travel.

Height adjustment can be made by loosening screws (A, Fig. 9) for differential feed dog (B) and (C) for main feed dog (D). Raise or lower as required and adjust screw (E) to support main feed dog (D) before tightening screw (C).

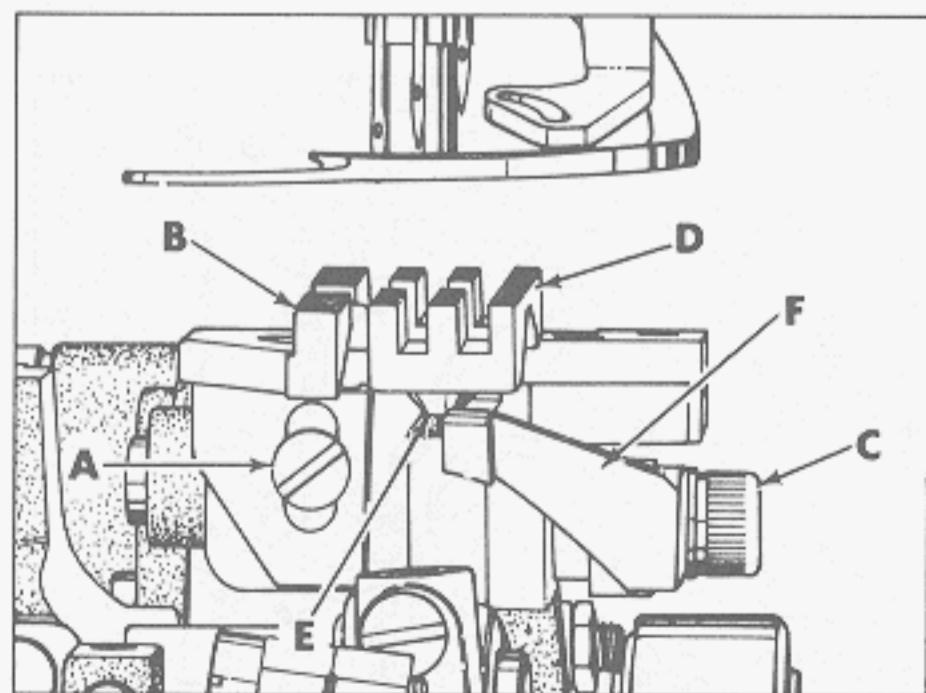


Fig. 9

MAIN AND DIFFERENTIAL FEED DOGS (Continued)

NOTE: A change of main feed dog height will necessitate a check of the setting for rear needle guard (F).

To center main feed dog in throat plate slots, front to back or differential feed dog, left to right, loosen screws (A, Fig. 10), reposition feed rocker (B) slightly as required, retighten screws. Loosen screws (C) allowing main feed dog to be centered in throat plate slots left to right, retighten screws.

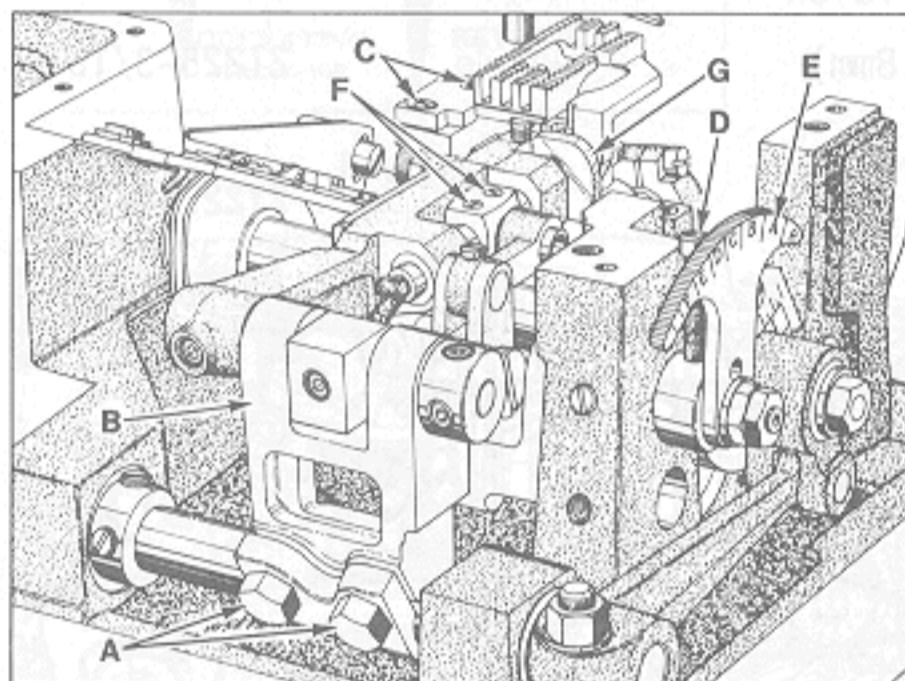


Fig. 10

Loosen screw (D), rotate handwheel in operating direction and position differential feed indicator (E) so both feeds have the same amount of travel. With differential feed at extreme forward end of travel, feed dog should have $1/32$ inch (.8mm) clearance from end of throat plate slot. Loosen screws (F) allowing differential feed bar (G) to be moved forward, rearward or turned so feed dog teeth are parallel to top of throat plate, across-the-line-of-feed. Retighten screws (F).

Turn handwheel in operating direction, check to ensure ample clearance between feed dogs and both ends of throat plate slots.

Front View of Diamond Needle Clamp

DIFFERENTIAL FEED RATIO

The differential feed ratio is set by loosening screw (D, Fig. 10) and moving the selector slide (E) to the desired position. The screw and selector slide are accessible through the top of the cloth plate on the left side. Moving differential feed selector slide (E) toward the front increases the amount of differential and moving it back decreases the differential feed. Retighten screw.

This Class of machine has a stretching ratio of $3/4$ to 1 up to a gathering ratio of 2 to 1, depending on the length of stitch set at the main feed dog. Turn machine by hand, making sure the differential feed dog clears the main feed at the back end of its stroke.

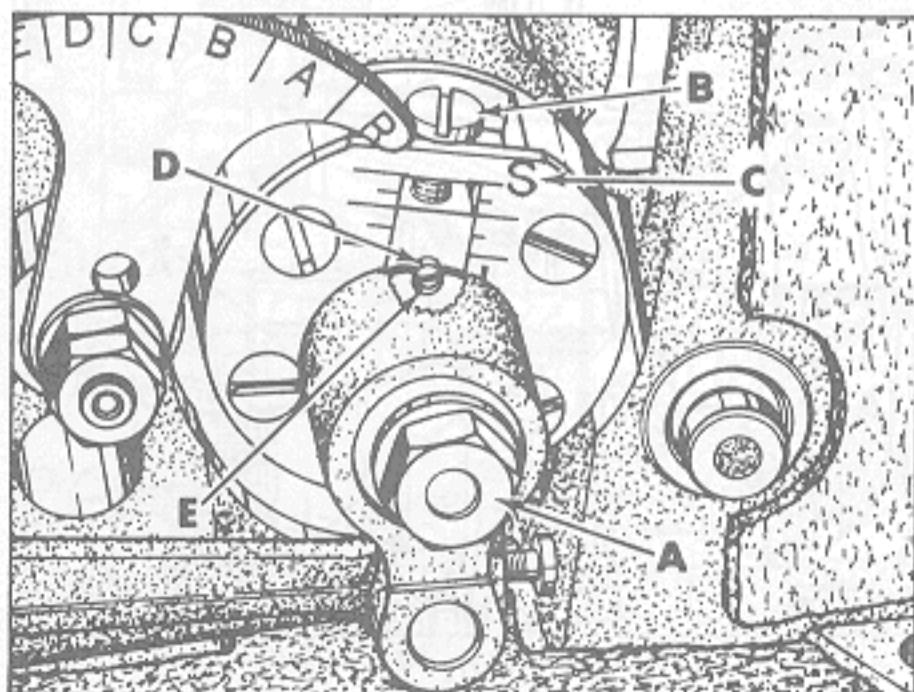


Fig. 11

CHANGING STITCH LENGTH

Set the stitch to required length. This is accomplished by loosening locknut (A, Fig. 11) $1/2$ turn (it has a left hand thread) on the end of the stitch regulating stud and turning stitch adjusting screw (B) located under the left end of the cloth plate, in the head of the main shaft (C), which is marked with "L" and "S". Turning the screw clockwise shortens the stitch (moves stitch regulating stud toward the "S") and turning it in a counterclockwise direction lengthens the stitch (moves stitch regulating stud toward the "L"). Retighten locknut securely.

CHANGING STITCH LENGTH (Continued)

To prevent destructive damage to the feed drive bearing, the key screw (D) must engage the "U" shaped key slot in the ferrule (E).

NOTE: Any change in stitch length will necessitate a corresponding change in the rear needle guard setting.

REAR NEEDLE GUARD

At extreme forward end of travel, rear needle guard (A, Fig. 12) must be set horizontally not to contact rear of right needle (B) with a maximum clearance of .005 inch (.13mm). Guard should be set as low as possible, yet have its vertical face approach approximately 3/64 inch (1.2mm) of needle point until point of looper (C), moving to the left, is even with the needle. Adjustment can be made by loosening screw (D), reposition guard as required and retighten screw.

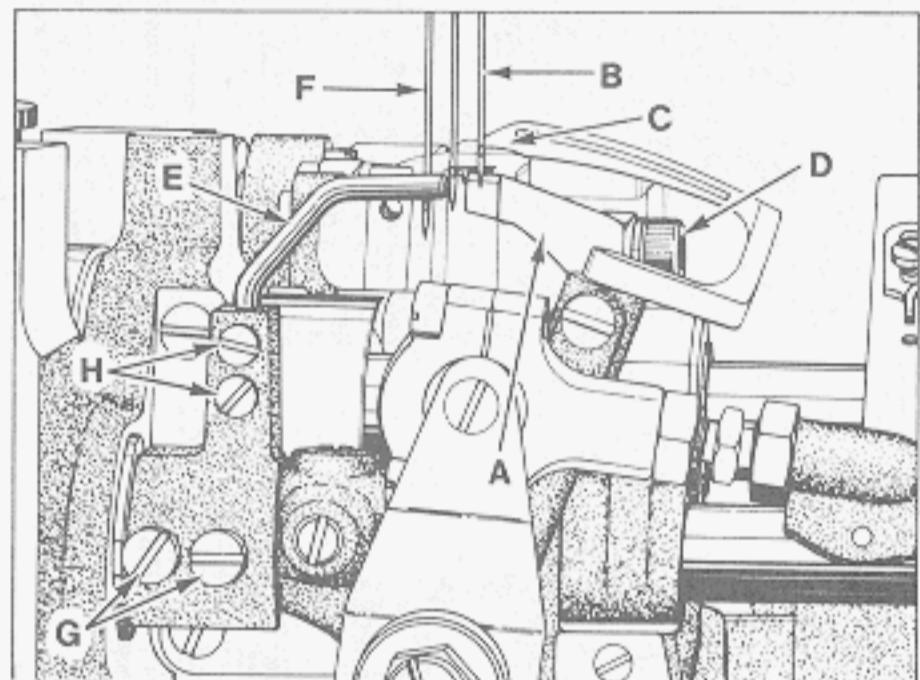


Fig. 12

NOTE: Adjustment of rear needle guard will necessitate checking main feed dog height.

FRONT NEEDLE GUARD

Front needle guard (E, Fig. 12) should be set as low as possible, yet push the left needle (F) towards the path of looper (C) until point of looper passes to the rear and left side of needle. Looper may brush but not pick at the left needle. Front needle guard should not make contact with rear needle guard or right needle at any time. Forward or rearward adjustments can be made by loosening screws (G), reposition guard as required and retighten screws. Height or rotation of guard can be acquired by loosening screws (H), reposition as required and retighten screws.

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NOTE: A change in stitch length WILL NOT require a change in front needle guard setting.

THREAD TENSION RELEASE

The thread tension release is set correctly when it begins to function as the presser foot is raised to within 1/8 inch (3.2mm) of the end of its travel and is entirely released when the presser foot has reached its highest position.

If adjustment is needed, loosen tension release lever screw (A, Fig. 13), located at the back of the machine and move tension disc separator as required. Retighten screw. After adjustment there should be no binding at any point.

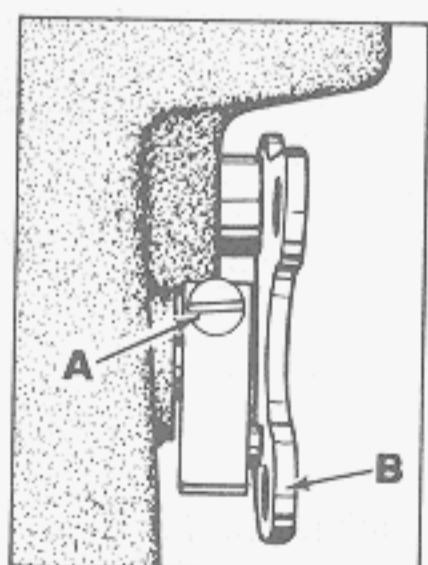


Fig. 13

PRESSER BAR HEIGHT

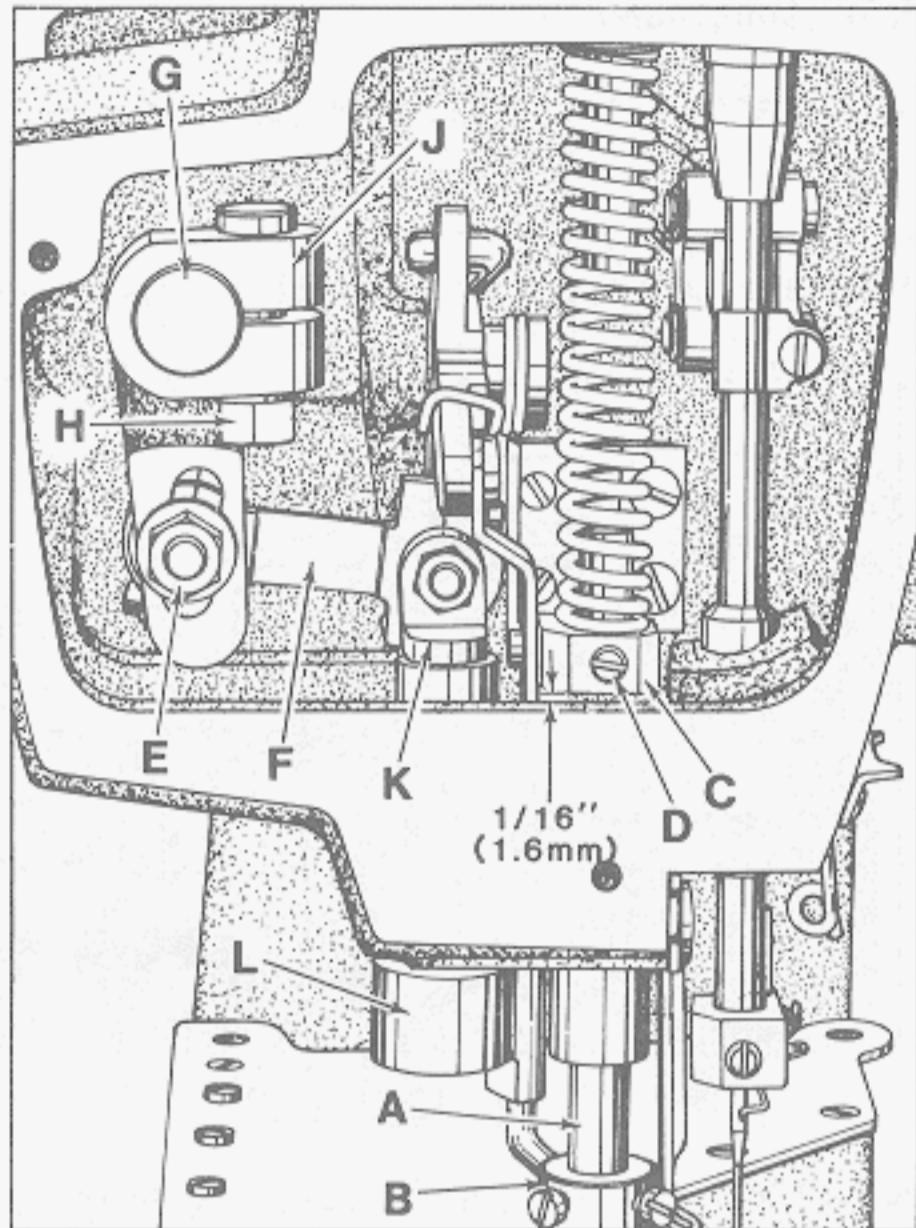


Fig. 14

Height of presser bar (A, Fig. 14) is correct when presser foot can be removed by loosening stop collar (B) and depressing foot lifter lever (B, Fig. 13). There should be approximately $1/16$ inch (1.6mm) clearance between lower surface of presser bar connection and guide (C, Fig. 14) and bottom surface of head opening in bed casting when foot lifter lever is released and presser foot lying flat on throat plate with feed dog below throat plate.

Adjustment can be made by turning handwheel to position needle bar at bottom of stroke. Loosen screw (D, Fig. 14) and while holding presser foot down on throat plate, position presser bar connection and guide as required to attain specified clearance and retighten screw.

Set presser bar stop collar (B, Fig. 14) so presser foot does not contact spreader when raised.

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SPREADER ADJUSTMENTS

Set the arc travel of the spreader point (A) to point (B) figure 15 as listed below, by loosening nut (E, Fig. 14) and moving the connecting link (F) up or down to the desired amount of arc travel.

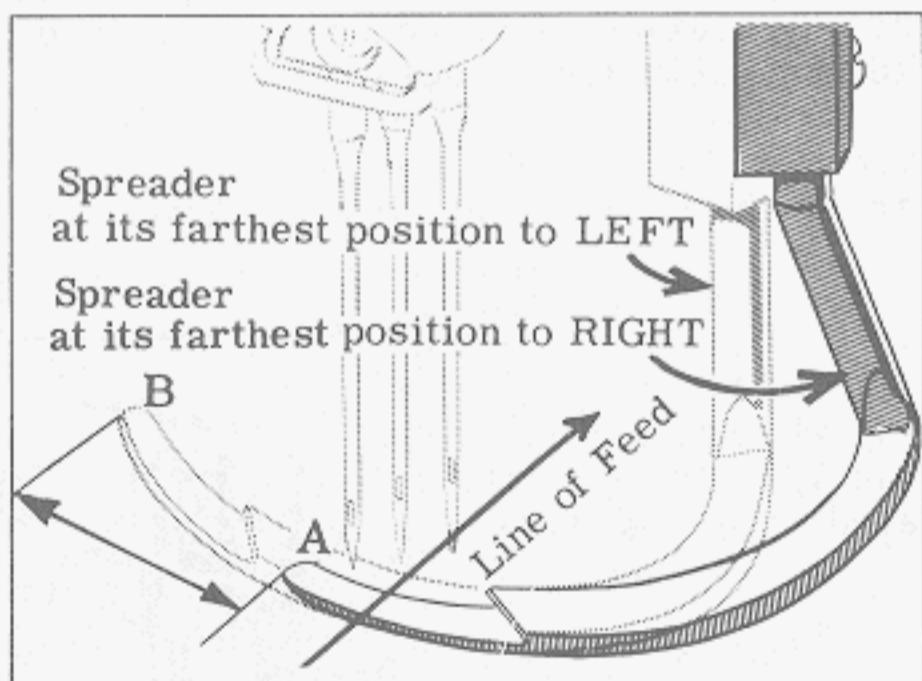


Fig. 15

rocker shaft (G). Adjustment is made by loosening nut (H) and moving the spreader rocker shaft arm (J) to position the connecting link properly. Be sure to retighten nut (H).

Machine Styles

Spreader Arc Travel

57800 E-16	$11/16$ " (17.5mm)
57800 M-16	$11/16$ " (17.5mm)
57800 N-16	$11/16$ " (17.5mm)
57800 P-8	$9/16$ " (14.3mm)
57800 U-8	$9/16$ " (14.3mm)
57800 U-12	$5/8$ " (15.9mm)
57800 V-8	$9/16$ " (14.3mm)
57800 V-12	$5/8$ " (15.9mm)
57800 W-14	$21/32$ " (16.7mm)
57800 W-16	$11/16$ " (17.5mm)
57800 X-16	$11/16$ " (17.5mm)

After making the travel adjustment and retightening nut (E), check to see that the arc of travel of link (F) is equal distance from the center of the spreader