

SETTING THE RUFFLER BLADE

With the ruffler arm removed from the ruffler drive shaft, assemble the ruffler blade (A, Fig. 16) to the ruffler blade holder (B), using screws (C) and washer plate (D) with the ruffler blade square to the ruffler arm, which will minimize the chance of forming slanted ruffles. As a preliminary setting, check: the distance between the centerlines of ruffler rocker arm and link pin should be $3 \frac{11}{16}$ inch (93.66 mm) See Fig. 16. Adjustment can be made by loosening locknuts securing screws (F, Fig. 17) loosen screws (F) and position ruffler arm extension as required. Retighten screws (F) and locknuts. NOTE: This adjustment may be required again after installation.

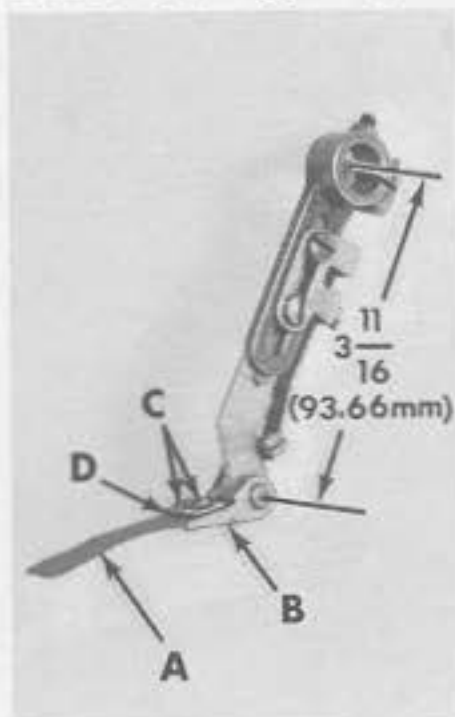


Fig. 16

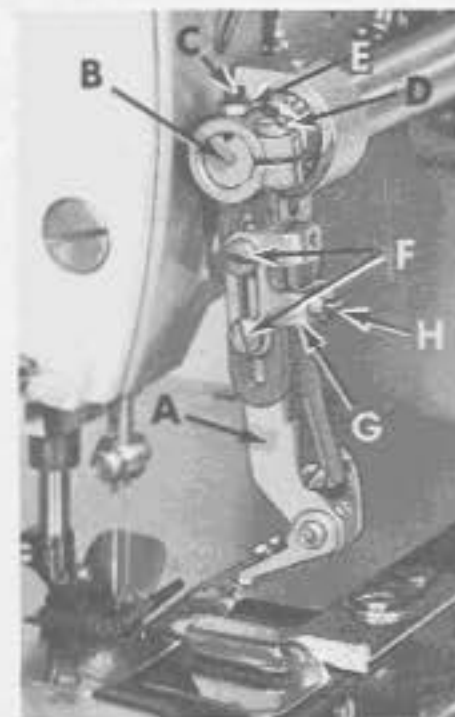


Fig. 17

Install the ruffler arm (A, Fig. 17) onto the ruffler drive shaft (B). Align the left side of the ruffler blade with the left side of the presser foot. Snug up spot screw (C) in "V" groove of ruffler drive shaft, tighten clamp screw (D) and nut (E) securely.

The ruffler arm length may require adjustment to obtain a $1/32$ inch (.79 mm) clearance between the lower part of the ruffler arm mechanism and the upper folder.

The ruffler blade (A, Fig. 16) should be timed so that it is at its closest position to the needles when descending needle points are even with the top of the throat plate. If adjustment is necessary, remove upper crank chamber cover and loosen set screws (A, Fig. 18) in the ruffler drive shaft sprocket (B). Turn the handwheel until the descending needle points are even with the top of the throat plate. Now turn the upper drive shaft (C) until the ruffler blade is at its most forward point of travel toward the needles. Retighten set screws (A). Be sure that upper sprocket aligns with the lower sprocket, so timing belt runs true. Replace upper crank chamber cover. At this position, you should be able to move the ruffler drive connecting rod assembly (A, Fig. 19) in the slot of the ruffler drive lever (B) without moving the ruffler blade.

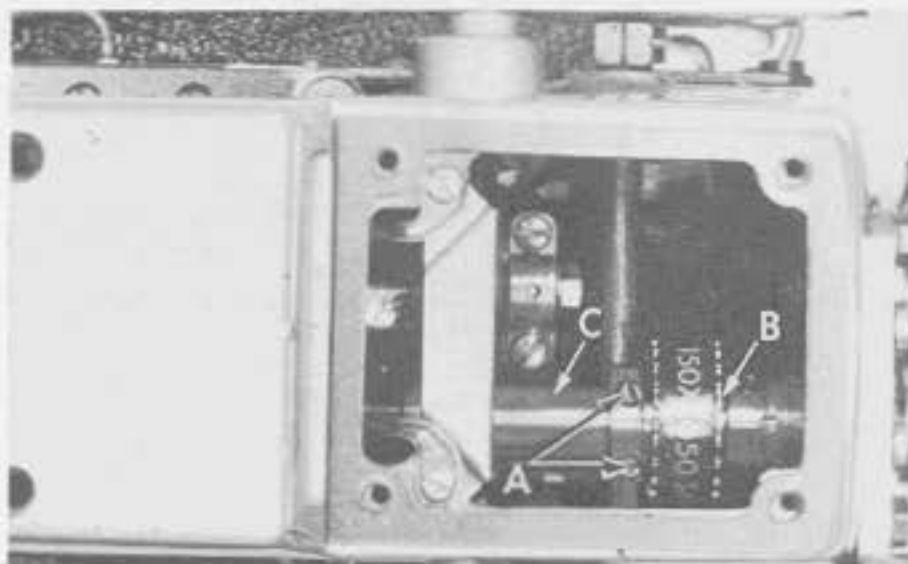


Fig. 18

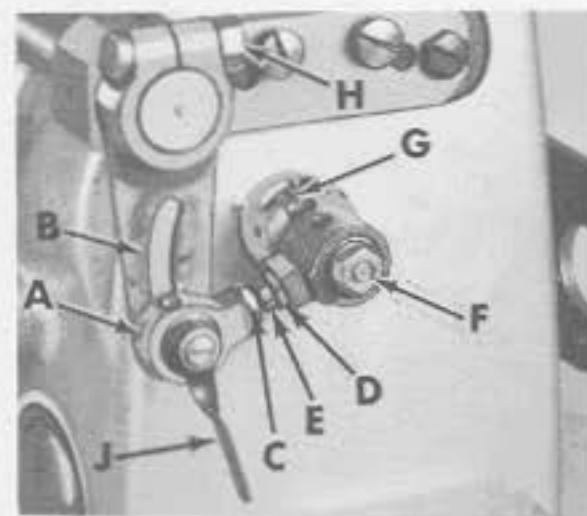


Fig. 19

SETTING THE RUFFLER BLADE (Continued)

If you are unable to do this, change the centerline distance between the two ball joints. A good starting point would be a centerline dimension of $1 \frac{19}{32}$ inch (40 mm) between the two ball joints. This is accomplished by loosening nut (C) and nut (D) (it has a left hand thread) on connecting rod (E), turn connecting rod forward or backward to obtain the $1 \frac{19}{32}$ inch (40 mm) dimension. Tighten nuts (C and D). After making this adjustment, it is important that a binding condition does not exist in the connecting rod. You should have some side play in the connecting rod through a 360° rotation of the handwheel.

AT ITS MOST FORWARD POSITION, the ruffler blade should be set with the tips of its teeth approximately $\frac{3}{32}$ to $\frac{1}{8}$ inch (2.38 to 3.18 mm) from the front of the needles on Styles 59300 C and E (See Fig. 20). Styles 59300 F and G require setting the ruffler blade with the tips of its teeth slightly beyond the point of the needles, with the needles centered in the slots of blade (See Fig. 20A). If adjustment is required loosen nut (H) and position ruffler arm so ruffler blade is set properly. Tighten nut (H). With the ruffler drive connecting rod (A, Fig. 19) set in its lowest position in the ruffler drive lever (B), set the crank eccentric to obtain a $1 \frac{1}{2}$ to 1 ruffling ratio. To set the crank eccentric, while holding the handwheel, loosen nut (F) and turn adjusting screw (G) as required to get the $1 \frac{1}{2}$ to 1 ruffling ratio. Tighten nut (F). Recheck to assure that the leading edge of the ruffler blade remains at the specified dimensions from the centerline of the needles.

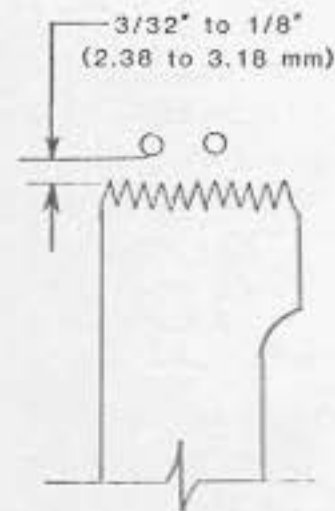


Fig. 20

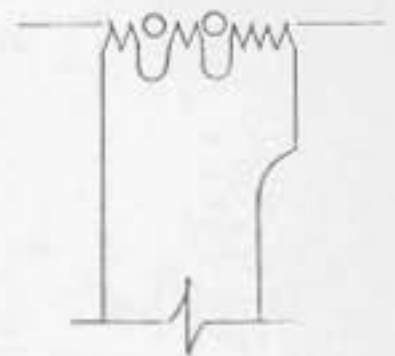


Fig. 20A

NOTE: As outlined in the paragraph explaining how to time the ruffler blade, you should be able to move the ruffler drive connecting rod assembly in the slot of the ruffler drive lever without moving the ruffler blade. If not, change $1 \frac{19}{32}$ inch (40 mm) centerline dimension as outlined in same paragraph.

NOTE: A greater ruffling ratio can be obtained by loosening the front ball joint using lever (J, Fig. 19) and moving the ball joint up in the slot of the ruffler drive lever. Tighten lever (J).

The spring pressure on the ruffler blade should only be sufficient to hold the ruffler blade down at top speed and not so great as to push the stripper blade down. If more pressure is required on the ruffler blade, loosen nut (G, Fig. 19) and turn screw (H) clockwise. When the required spring pressure has been obtained, tighten nut (G).

The front of the ruffler blade must be parallel with the front of the stripper blade when the ruffler blade is moving towards the needles. The teeth of the ruffler blade must also be flush on top of the stripper blade to ensure a positive pickup of the material to be ruffled.

LOOPER FRAME THROW-OUT

The looper frame throw-out (Fig. 21) is a convenience used to make threading of the loopers easier. It can be used only when the needles are at the top of their stroke. By pulling looper throw-out actuating pin (A, Fig. 21) to the left, the looper holder frame is released tilting the loopers forward. BE SURE to push the looper holder frame back into position before starting to operate.

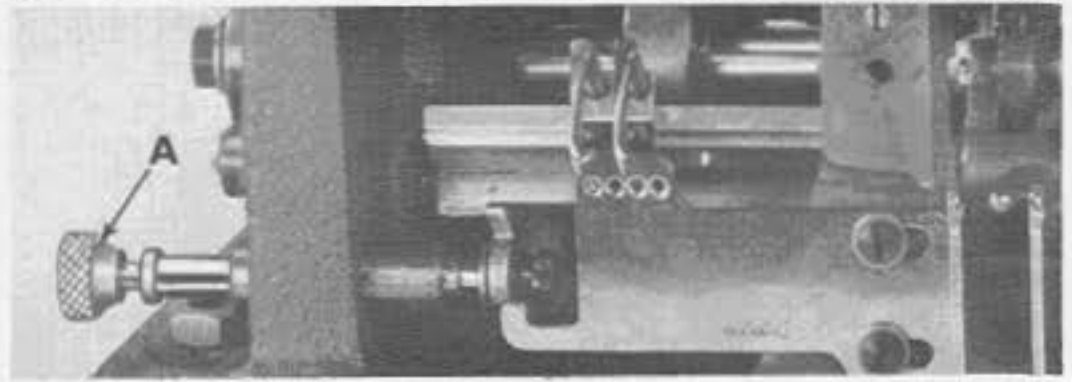


Fig. 21

SPECIAL INSTRUCTIONS

INSTALLING THE NEEDLE LEVER

Although the machines are properly assembled at the factory, should it be necessary to make adjustments, the following procedures will help in installing the needle lever.

Install "O" ring (A, Fig. 22) on the needle lever stud (B) and needle lever thrust collar (C). With the needle lever (D) in its proper position insert the needle lever stud (B) until the shoulder on the needle lever stud (B) contacts the needle lever (D). Making sure no bind exists in the needle bar link and secure with the front set screw in top of bed casting. Place the temper load ring (E) and compression cups (F) onto the needle lever stud (B) and push them through the opening. Then install the needle lever thrust collar (C) on the stud, being careful not to damage "O" ring on it. Tighten screw (G) to compress components until the securing washer (H) bottoms against the needle lever stud (B). Then secure the needle lever stud (B) in its proper position by tightening the rear set screw from on top of the casting.

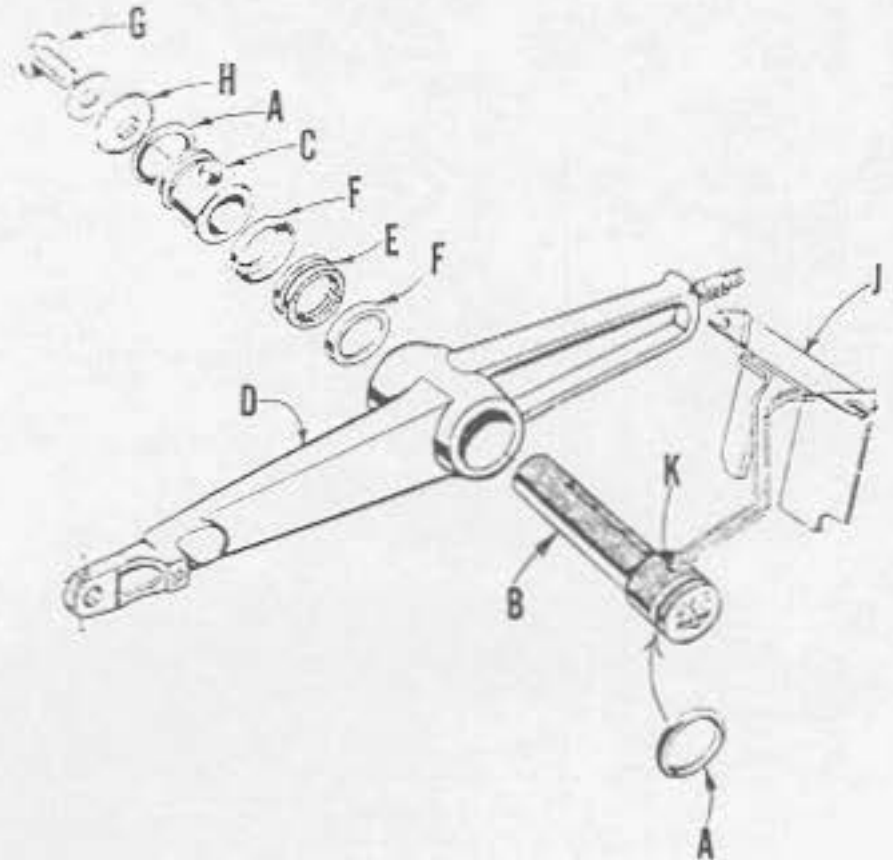


Fig. 22

As a quick check to see if the temper load ring (E) is compressed properly, remove screw (G) from the end of the needle lever stud (B), loosen the rear set screw and the needle lever thrust collar (C) should spring out from .003-.007 inch (.076-.178 mm). Compress load ring in reverse order. Then retighten the rear set screw against the needle lever stud.

INSTALLING THE NEEDLE LEVER (Continued)

To insure positive oiling of the needle lever stud (B), the bearing oiler (J) hooks into the supply hole (K) of the needle lever stud (B). When located in its proper position and secured, the proper amount of oil is fed to the needle lever stud (B). For proper alignment, loosen the needle lever stud set screws and rotate the needle lever stud (B) until the indented "UP" is in the up position and the hook portion falls into the lubricating hole (K) in the needle lever stud (B). Retighten the set screws.

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 part numbers, descriptions and the numbers 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 numbers 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 sub-assembly.

Example:

32	29133 P	Take-up Drive Eccentric Assembly - - - - -	1
33	77	Screw- - - - -	1
34	22894 C	Set Screw- - - - -	1
35	22894 L	Spot Screw - - - - -	1

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

In those cases where a part is common to all the machines covered by this catalog, no specific usage will be mentioned in the description. However, when the part for the various machines are not the same, the specific usage will be mentioned in the description and, if necessary, the differences will be shown in the illustration.

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. On some of the smaller parts and on those where construction does not permit, an identification letter is stamped in to distinguish the part from similar ones.

Part numbers represent the same part, regardless of catalog in which they appear.

IMPORTANT! ON ALL ORDERS, PLEASE INCLUDE PART NAME AND STYLE OF MACHINE FOR WHICH PART IS ORDERED.

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*®. Genuine repair parts are stamped with the Union Special trademark, U S Emblem. Each trademark is your guarantee of the highest quality in materials and workmanship.

TERMS

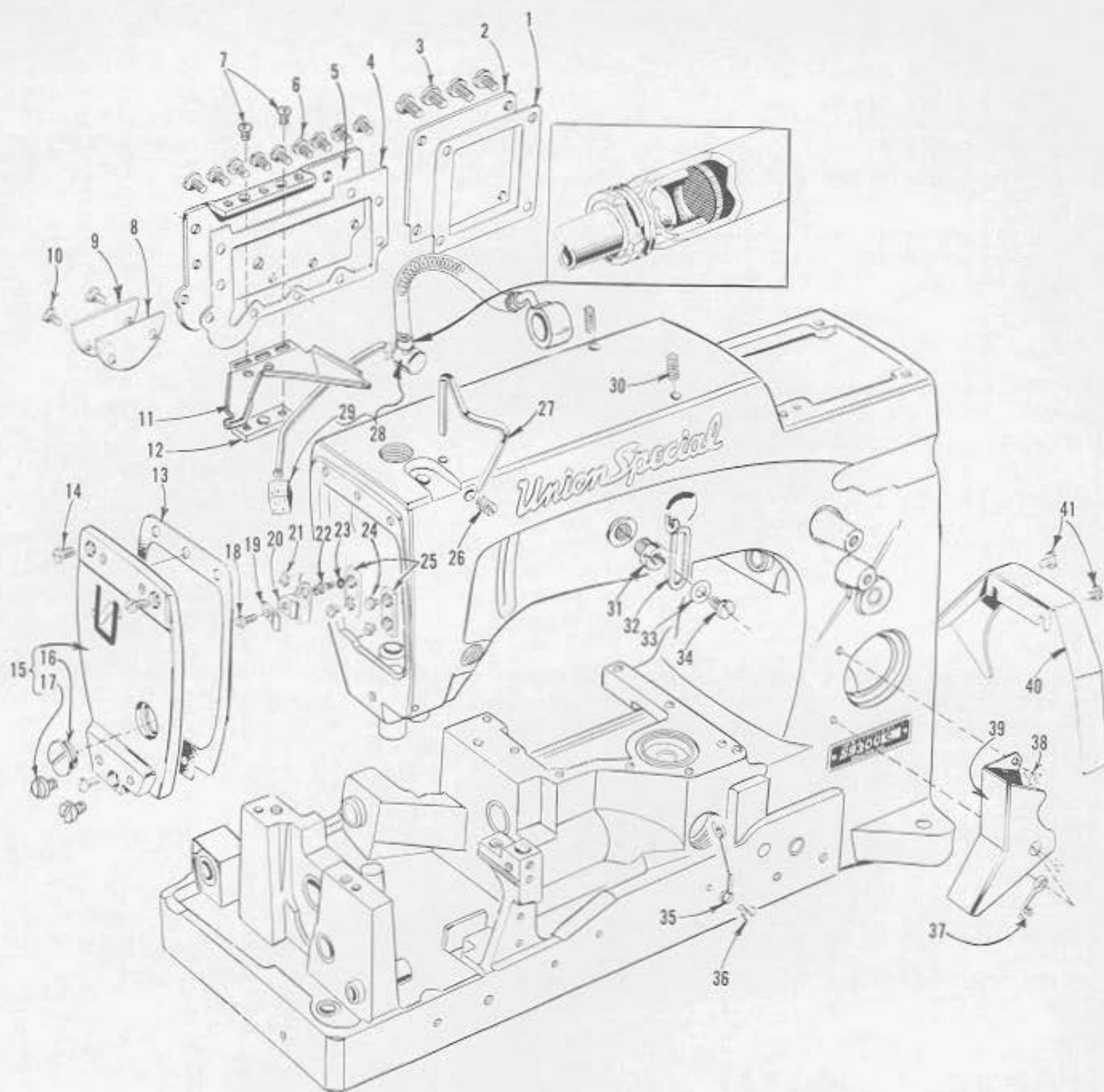
Prices are net cash and subject to change without notice. All shipments are forwarded f.o.b. shipping point. Parcel Post shipments are insured unless otherwise directed. A charge is made to cover postage and insurance.

TORQUE REQUIREMENTS

Torque (measured in inch-pounds) is a rotating force (in pounds) applied through distance by a lever (in inches or feet). This is accomplished by a wrench, screw-driver, etc. Many of these devices are available, which when set at the proper amount of torque will tighten the part to the correct amount and no tighter.

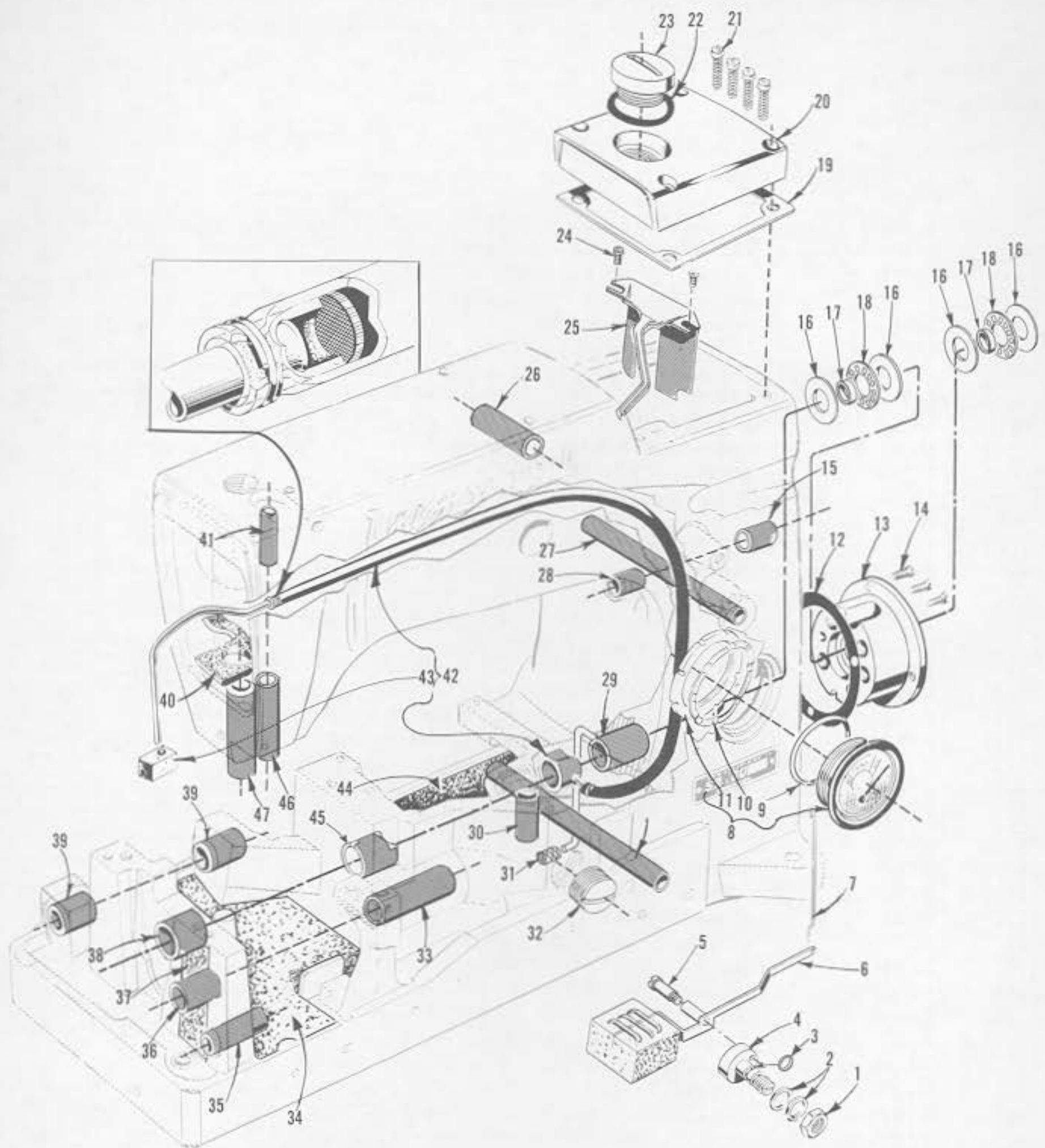
All straps and eccentrics should be tightened to 19-21 inch-pound (22-24cm/kg), unless otherwise noted. All other nuts, bolts, screws, etc., should be tightened by hand as tightly as possible, unless otherwise noted.

The screws requiring a specific torque, will be indicated on the picture plates.



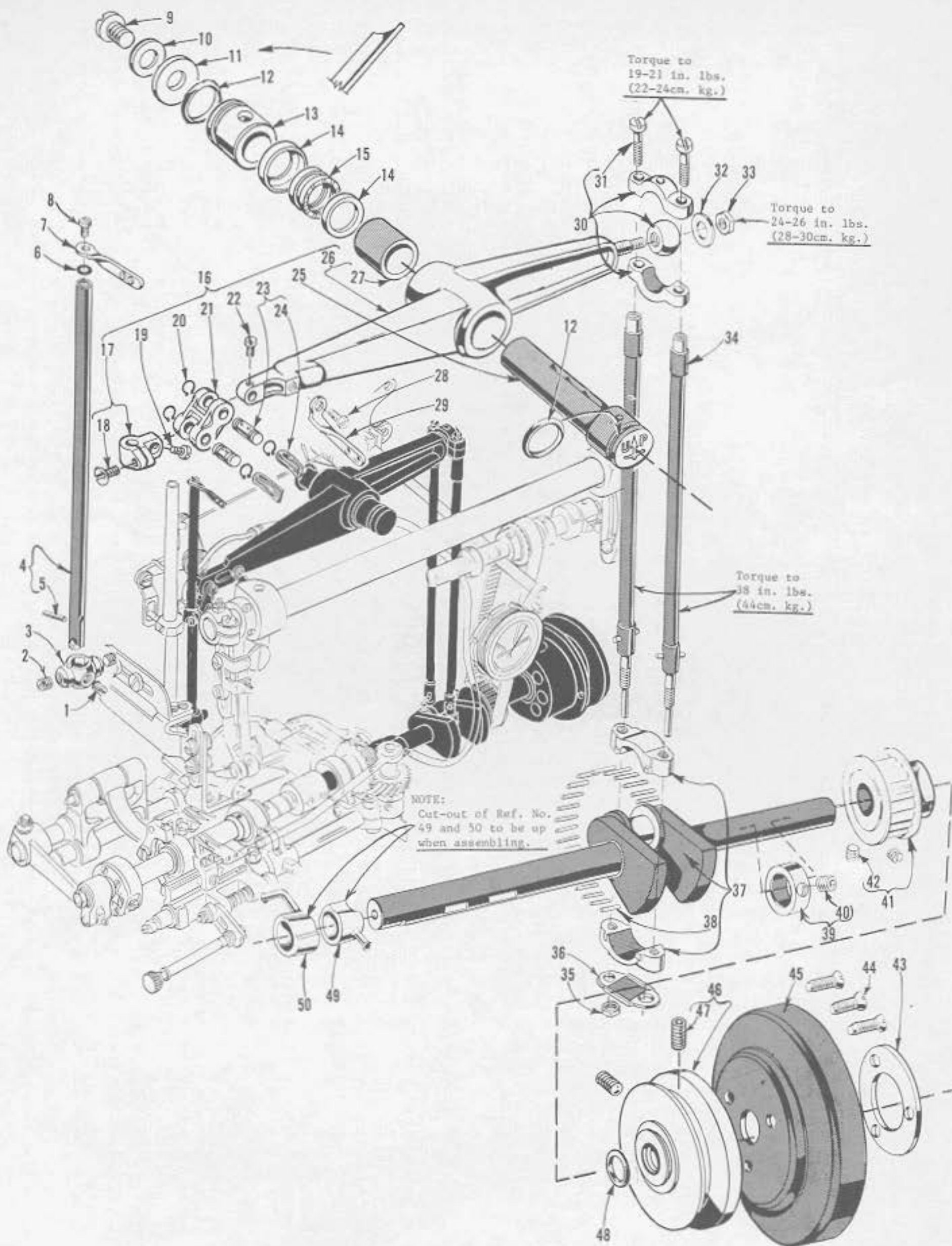
MAIN FRAME, NEEDLE THREAD TAKE-UP WIRE AND MISCELLANEOUS COVERS

<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	56382 E	Gasket, for crank chamber cover, lower- - - - -	1
2	56382 D	Crank Chamber Cover, lower- - - - -	1
3	22548	Screw, for crank chamber cover, lower - - - - -	4
4	56382 L	Gasket, for oil reservoir back cover- - - - -	1
5	56382 AA	Oil Reservoir Back Cover- - - - -	1
6	22848	Screw, for oil reservoir back cover - - - - -	9
7	87	Screw, for oil drip plate - - - - -	2
8	56382 K	Gasket, for looper drive shaft reservoir cover- - - - -	1
9	56382 J	Looper Drive Shaft Reservoir Cover- - - - -	1
10	22829	Screw, for looper drive shaft reservoir cover - - - - -	2
11	56382 AB	Oil Drip Plate- - - - -	1
12	56382 Y	Oil Drip Plate Clamping Block - - - - -	1
13	56382 N	Gasket, for head cover- - - - -	1
14	22569 C	Screw, for head cover - - - - -	3
15	59382	Head Cover- - - - -	1
16	22733 C	Plug Screw- - - - -	1
17	25 S	Screw - - - - -	2
18	22585	Screw, for head oil tube clamp- - - - -	1
19	56393 D	Head Oil Tube Clamp - - - - -	1
20	56393 C	Head Oil Tube Mounting Block - - - - -	1
21	7947	Nut, for No. 51294 R- - - - -	1
22	51294 R	Screw, for presser bar connection guide plate - - - - -	1
23	660-342	Lock Washer, for No. 51294 R- - - - -	1
24	22513	Screw, for presser bar connection guide plate - - - - -	3
25	35731 A	Presser Bar Connection Guide Plate- - - - -	2
26	95	Screw, for needle thread take-up wire - - - - -	1
27	51270 B	Needle Thread Take-up Wire- - - - -	1
28	59493 A	Base Oil Pump Assembly- - - - -	1
29	666-214	Intake Felt - - - - -	1
30	22894 E	Screw, for needle lever stud - - - - -	2
31	22889 A	Adapter Screw, for frame needle thread eyelet - - - - -	1
32	539	Frame Needle Thread Eyelet- - - - -	1
33	20	Washer, for frame needle thread eyelet- - - - -	1
34	376	Screw, for frame needle thread eyelet - - - - -	1
35	52958 B	Looper Thread Eyelet- - - - -	1
36	98 A	Screw, for looper thread eyelet - - - - -	1
37	52 A	Looper Thread Eyelet- - - - -	1
38	98 A	Screw, for looper thread guard- - - - -	2
39	57791	Looper Thread Guard - - - - -	1
40	21375 AV	Belt Guard- - - - -	1
41	22829	Screw, for belt guard - - - - -	2



MAIN FRAME, BUSHINGS, OIL GAUGE, MISCELLANEOUS OILING PARTS
HEAD OIL PUMP AND UPPER CRANK CHAMBER COVER

Ref. No.	Part No.	Description	Amt. Req.
1	11635 B	Nut, for oil gauge adjusting shaft - - - - -	1
2	61256 G	Washer, for oil gauge adjusting shaft- - - - -	2
3	660-221	Oil Seal Ring, for oil gauge adjusting shaft - - - - -	1
4	56394 A	Oil Gauge Adjusting Shaft - - - - -	1
5	22793	Screw, for oil gauge float lever assembly - - - - -	1
6	59494	Oil Gauge Float Lever Assembly - - - - -	1
7	56394 B	Oil Gauge Connecting Rod - - - - -	1
8	63494 K	Oil Gauge Assembly - - - - -	1
9	660-455	"O" Ring - - - - -	1
10	63494 G	Spring Washer - - - - -	1
11	63494 F	Nut - - - - -	1
12	56390 E	Gasket, for bushing housing- - - - -	1
13	57890 B	Crankshaft Bushing Housing - - - - -	1
14	22569 B	Screw, for bushing housing - - - - -	3
15	59349 P	Ruffler Drive Shaft Bushing, right - - - - -	1
16	56390 H	Thrust Washer - - - - -	4
17	56390 J	Pilot Ring - - - - -	2
18	660-665	Needle Thrust Bearing - - - - -	2
19	56382 C	Gasket, for upper crank chamber cover- - - - -	1
20	56382 B	Upper Crank Chamber Cover- - - - -	1
21	22541 C	Screw, for upper crank chamber cover - - - - -	4
22	56382 M	Gasket, for plug screw - - - - -	1
23	22733 E	Plug Screw, for upper crank chamber cover- - - - -	1
24	90	Screw, for needle lever bearing oiler and baffle plate assembly - - - - -	2
25	56382 AC	Needle Lever Bearing Oiler and Baffle Plate Assembly - - -	1
26	52883 R	Presser Foot Lifter Lever Bushing- - - - -	1
27	21657 X	Tension Release and Lifter Lever Shaft Bushing - - - - -	2
28	59349 Q	Ruffler Drive Shaft Bushing, left- - - - -	1
29	56390 G	Main Shaft Bushing, right- - - - -	1
30	59451 A	Loop Retainer Drive Crank Bushing- - - - -	1
31	35897 BV	Oil Intake Filter- - - - -	1
32	22539 R	Plug Screw, for bed- - - - -	1
33	59436	Looper Rocker Shaft Bushing, right - - - - -	1
34	56393 X	Machine Base Felt, front - - - - -	1
35	51254 A	Looper Throw-out Actuating Pin Bushing - - - - -	1
36	50-895 Blk.	Looper Rocker Shaft Bushing, left- - - - -	1
37	666-259	Oil Collector Felt - - - - -	1
38	56390	Main Shaft Bushing, left - - - - -	1
39	57836 B	Feed Rocker Shaft Bushing- - - - -	2
40	56393 W	Oil Attraction Felt- - - - -	1
41	51154 E	Needle Bar Bushing, upper - - - - -	1
42	56393 T	Head Oil Pump Assembly - - - - -	1
43	56393 L	Intake Felt - - - - -	1
44	56393 Q	Machine Base Felt, rear- - - - -	1
45	56190	Main Shaft Bushing, middle - - - - -	1
46	56354 C	Needle Bar Bushing, lower - - - - -	1
47	51257 AA	Presser Bar Bushing, lower - - - - -	1



ADVANCED FLATBED LUBRICATION SYSTEM

SUPPLY SYSTEM

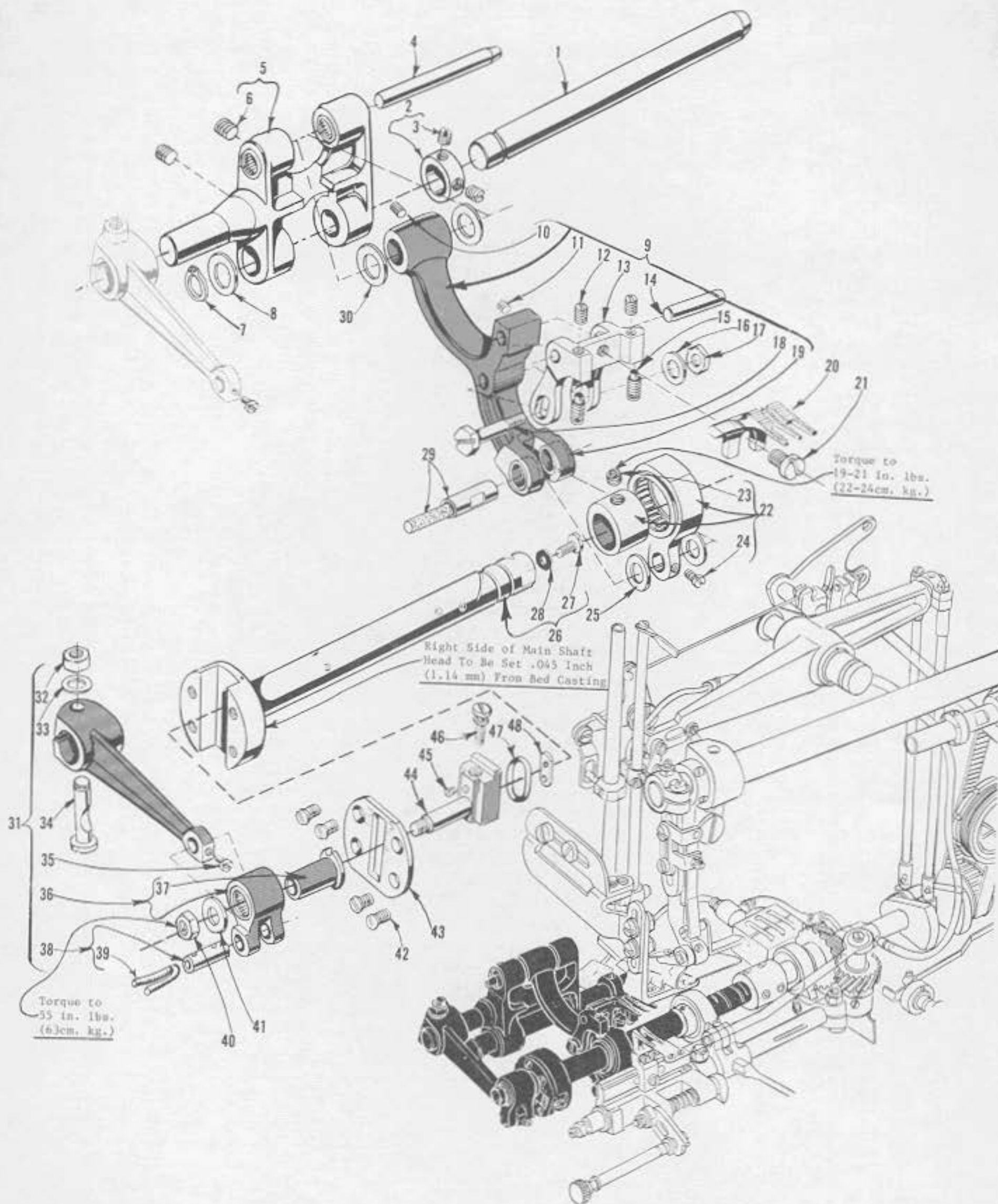
<u>Figure Letter</u>	<u>Bearing or Machine Area</u>	<u>Method of Lubrication</u>
A.	Crankshaft drives, upper ball straps and crankshaft bearings.	Oil agitation as a result of extensions on needle lever connecting rods.
B.	Needle lever cross shaft bearing.	Oil trough (51282 AE) which is supplied by splash in column area.
C.	Head area (all mechanisms and bearings).	Mist as a result of splash in column.
D.	Looper drive crank, looper drive lever bearings.	Oil agitation as a result of splasher (56343 E) on bottom of looper drive connecting rod.
E.	Opposing Helical grooves in right end of mainshaft. Short groove prevents oil leakage from right mainshaft bearing.	Oil drip plate which accumulates splash in chamber.
F.	Right mainshaft bearing.	Supply grooves in right end of mainshaft.
G.	Left mainshaft bearing and all eccentric bearings located on mainshaft.	Oil supplied from hollow mainshaft and metered by felt plugs. Oil is introduced into center of shaft in the right mainshaft bearing area. Amount of lubricant in center of shaft controlled with by-pass hole in right end of mainshaft.
H.	Lower ends of connecting rods of mainshaft eccentrics.	Oil run-out from eccentric bearing supplies.
I.	Looper cone, right and left looper rocker shaft bearings, and left looper rod ball joint.	Supplied from hollow looper rocker shaft which contains 4 strands of yarn as a metering device.
J.	Right looper rod needle bearing joint.	Oil supplied from front base felt to lubricating plate (56393 K).
K.	Feed rocker shaft and upper feed rocker shaft bearings.	Self-lubricated bearings.

RETURN SYSTEM

<u>Figure Letter</u>	<u>Machine Area</u>	<u>Method of Return</u>
L.	Head	Felt pad in head collects oil. Return pump located on crankshaft and primed by oil from left crankshaft bearing.
M.	Base	Felt pad in base collects oil. Second return pump located on crankshaft and primed by oil drip plate which accumulates splash in looper drive chamber.

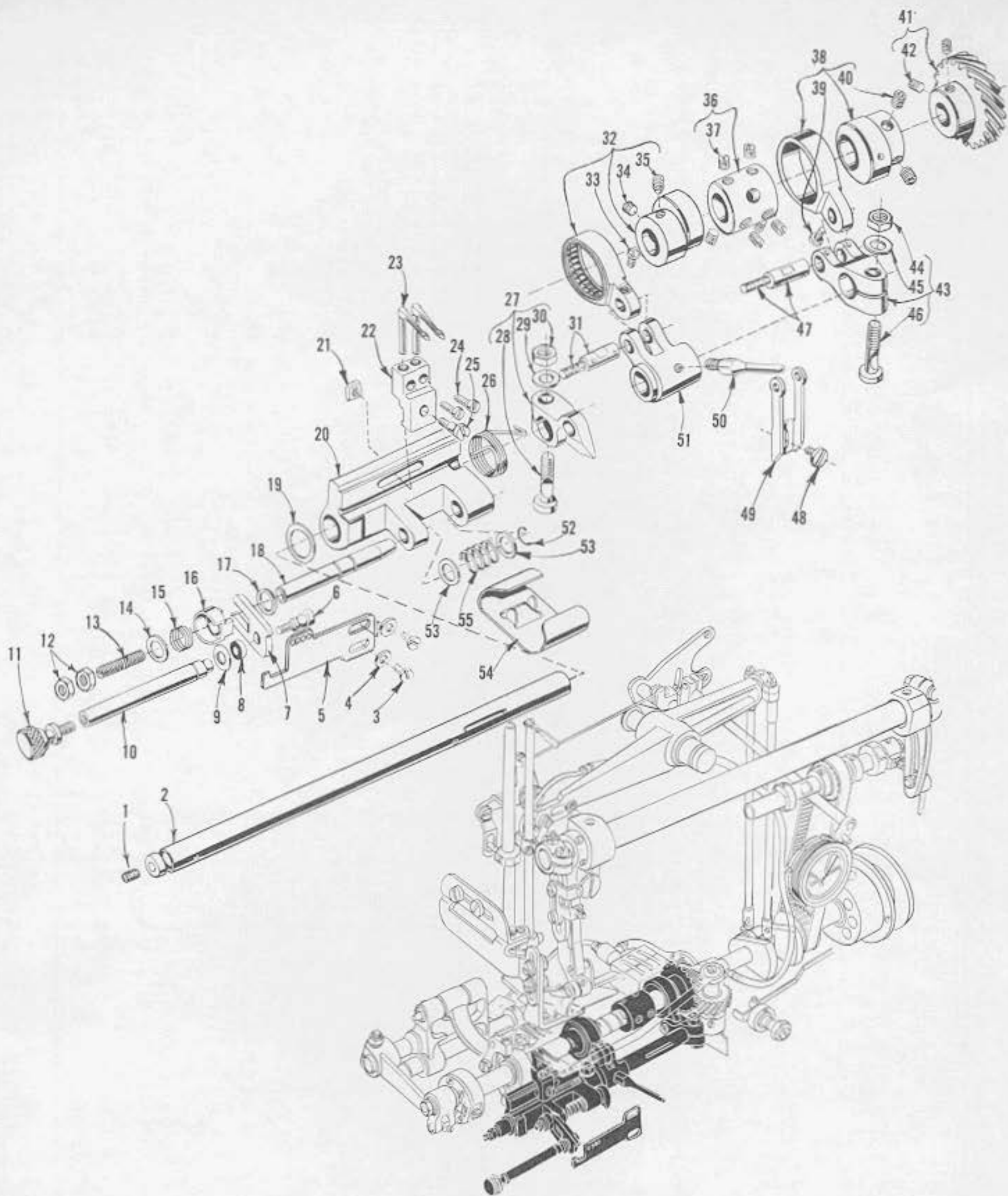
CRANKSHAFT, NEEDLE LEVER, NEEDLE BAR AND PULLEY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	89	Spot Screw, for needle holder - - - - -	1
2	98	Screw, for needles- - - - -	2
3	59318-16	Needle Holder, marked "DD-16" - - - - -	1
4	59317-16	Needle Bar, marked "FB" - - - - -	1
5	50 J-16	Stop Pin - - - - -	1
6	27-435 Blk.	Needle Bar Eyelet Washer - - - - -	1
7	56458 A	Needle Bar Thread Eyelet- - - - -	1
8	22768	Screw, for needle bar thread eyelet - - - - -	1
9	22586 R	Screw - - - - -	1
10	51250 F	Gasket- - - - -	1
11	51250 D	Washer- - - - -	1
12	660-625	Oil Seal Ring - - - - -	2
13	56350 E	Needle Lever Thrust Collar- - - - -	1
14	56350 F	Thrust Washer - - - - -	2
15	660-614	Temper Load Ring- - - - -	1
16	29348 AF	Needle Lever Assembly - - - - -	1
17	51254 K	Needle Bar Connection- - - - -	1
18	22562 A	Screw - - - - -	1
19	22564	Screw- - - - -	1
20	660-215	Retaining Ring - - - - -	4
21	56354 D	Needle Bar Link - - - - -	1
22	77	Screw- - - - -	1
23	52336 A	Link Pin - - - - -	2
24	WO-3	Columbia Yarn (6 strands) - - - - -	-
25	56350 D	Needle Lever Stud - - - - -	1
26	56315 A	Needle Lever - - - - -	1
27	56350 G	Bushing - - - - -	1
28	22768	Screw, for needle lever thread eyelet - - - - -	1
29	59358 A	Needle Lever Thread Eyelet- - - - -	1
30	29066 R	Needle Lever Connecting Rod Upper Ball Joint Assembly - - -	1
31	22559 G	Screw- - - - -	2
32	51216 N	Washer, for needle lever connecting rod upper ball joint assembly - - - - -	1
33	51216 P	Nut, for needle lever connecting rod upper ball joint assembly - - - - -	1
34	56316	Needle Lever Connecting Rod - - - - -	2
35	12934 A	Nut, for connecting rod guide - - - - -	1
36	56316 C	Connecting Rod Guide- - - - -	1
37	29476 MD	Crankshaft Assembly, .910 inch throw- - - - -	1
38	51216 M	Needle Bearing - - - - -	-28
39	57847	Thrust Collar - - - - -	1
40	95	Screw- - - - -	2
41	56334 K	Drive Sprocket, for Styles 59300 C, F - - - - -	1
-	59484 D	Drive Sprocket, for Styles 59300 E, G - - - - -	1
42	98	Screw- - - - -	2
43	61321 L	Retaining Plate - - - - -	1
44	22574	Screw - - - - -	3
45	57821	Handwheel - - - - -	1
46	56321 N	Pulley- - - - -	1
47	22894 AB	Screw- - - - -	2
48	660-202	"O" Ring, for pulley- - - - -	1
49		Head Oil Pump Assembly (See Ref. No. 42 - Page 21)- - - - -	1
50		Base Oil Pump Assembly (See Ref. No. 28 - Page 19)- - - - -	1



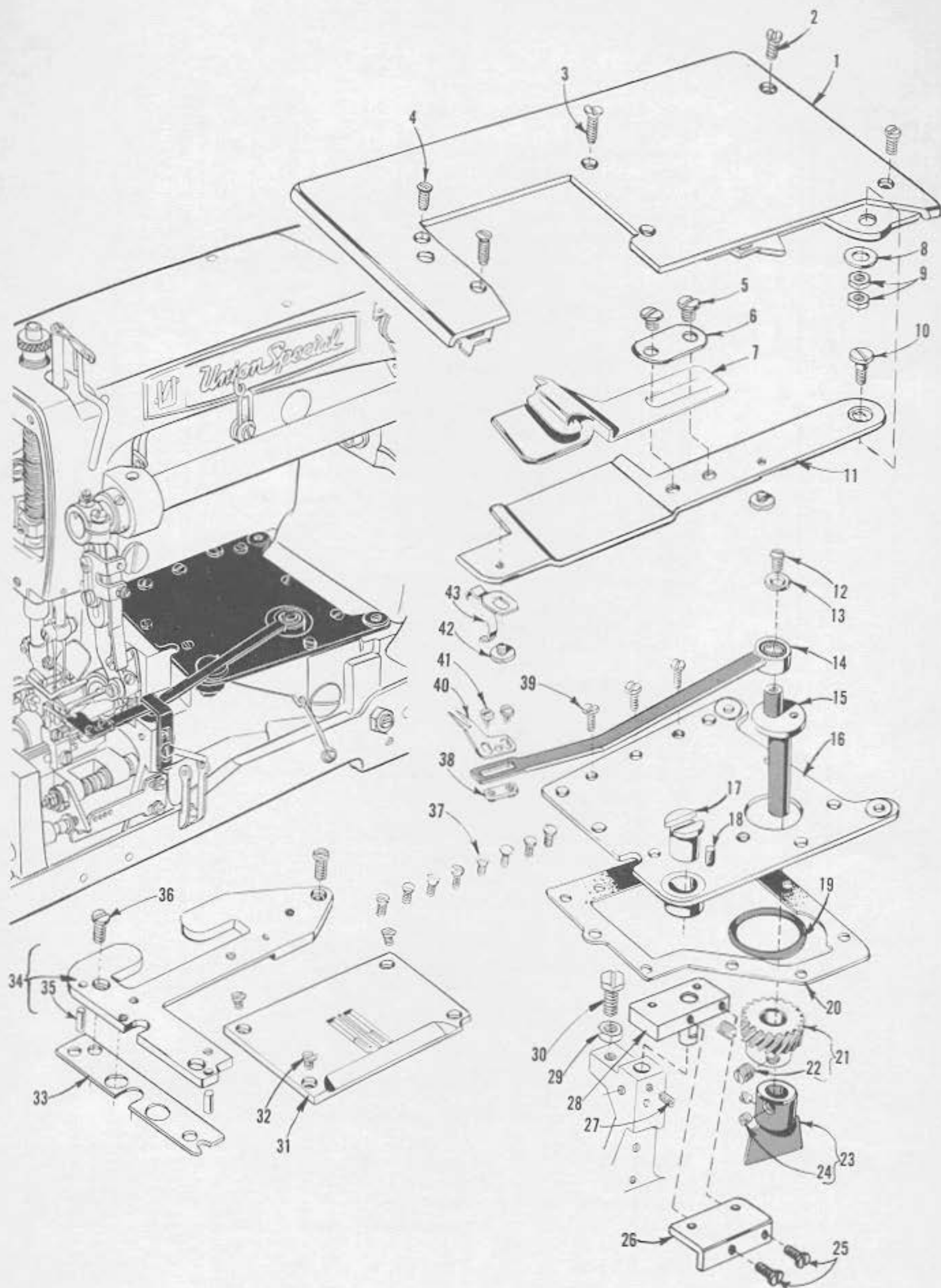
MAIN SHAFT AND FEED DRIVING PARTS

<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	56335 L	Feed Rocker Shaft - - - - -	1
2	56335 D	Feed Rocker Shaft Collar- - - - -	1
3	98	Screw - - - - -	2
4	56334 B	Feed Bar Shaft- - - - -	1
5	59235 A	Feed Rocker - - - - -	1
6	22651 CD-4	Screw - - - - -	2
7	660-438	Retaining Ring, for feed rocker shaft - - - - -	1
8	41391	Washer, for feed rocker shaft - - - - -	1
9	59234	Feed Bar- - - - -	1
10	22651 CB-4	Screw - - - - -	1
11	22901	Set Screw - - - - -	1
12	22560 B	Screw - - - - -	2
13	59234 C	Feed Bar Tilting Extension- - - - -	1
14	59434 B	Feed Bar Tilting Extension Pin- - - - -	1
15	22713	Screw - - - - -	2
16	20	Washer- - - - -	1
17	14077	Nut - - - - -	1
18	22900	Feed Dog Tilt Eccentric Screw - - - - -	1
19	57834 G	Bushing - - - - -	2
20	59305-16	Feed Dog- - - - -	1
21	HA61 D	Screw, for feed dog - - - - -	1
22	29476 MK-062	Feed Lift Eccentric Assembly- - - - -	1
23	22894 AA	Set Screw - - - - -	1
24	77	Screw - - - - -	1
25	39543 N	Thrust Washer, for feed bar - - - - -	2
26	59222	Main Shaft- - - - -	1
27	22891 B	Screw - - - - -	1
28	56322 B	Gasket- - - - -	1
29	51236 A	Link Pin, for feed bar- - - - -	1
30	61341 J	Washer, for feed bar- - - - -	2
31	29476 MJ	Feed Rocker Arm and Feed Crank Link Sub-assembly- - - - -	1
32	55235 E	Nut - - - - -	1
33	6042 A	Washer- - - - -	1
34	55235 D	Locking Stud- - - - -	1
35	77	Screw - - - - -	1
36	56336 B	Feed Crank Link Assembly - - - - -	1
37	56336 C	Feed Crank Link Ferrule - - - - -	1
38	51054	Feed Crank Link Pin - - - - -	1
39	666-149	Oil Wick- - - - -	1
40	269	Nut, for feed crank stud- - - - -	1
41	21657 E	Washer, for feed crank stud - - - - -	1
42	22525 A	Screw, for main shaft head plate- - - - -	4
43	56322 C	Main Shaft Head Plate - - - - -	1
44	56336	Feed Crank Stud, marked "A" - - - - -	1
45	22798 C	Screw, for feed crank stud- - - - -	1
46	22543 A	Stitch Regulating Screw - - - - -	1
47	660-269 B	Quad Ring, for feed crank stud- - - - -	1
48	56336 D	Feed Crank Stud Insert- - - - -	1



TAKE-UP AND LOOPER DRIVE PARTS

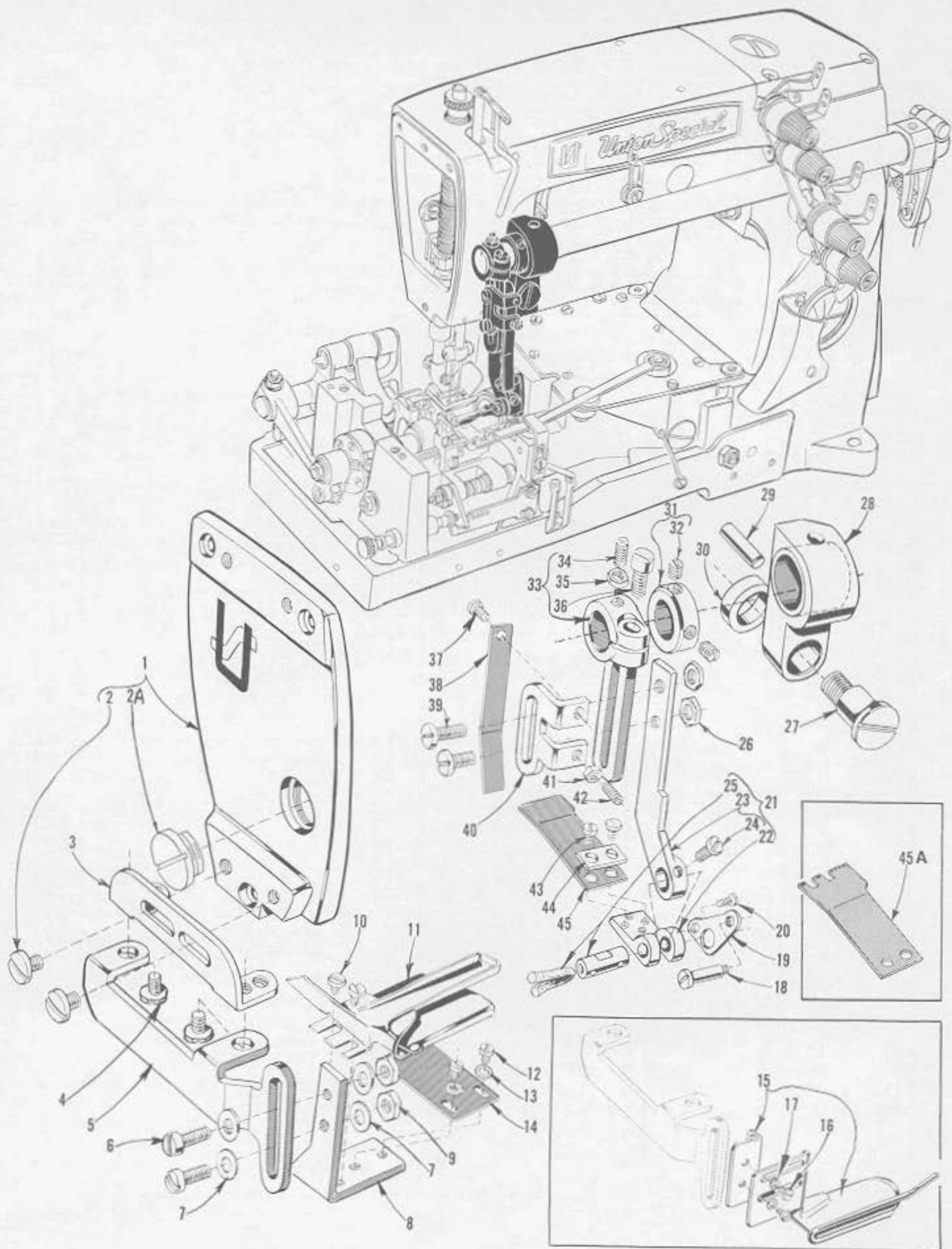
<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	CO-67 E	Cork Plug, for looper rocker shaft- - - - -	1
2	59444	Looper Rocker Shaft - - - - -	1
3	J87 J	Screw, for looper thread eyelet - - - - -	2
4	41358	Washer, for screw No. J87 J - - - - -	2
5	59259	Looper Thread Eyelet - - - - -	1
6	59444 M	Screw, for looper throw-out actuating pin - - - - -	1
7	54244 G	Looper Throw-out Fork - - - - -	1
8	59444 P	Neoprene Washer, for looper throw-out actuating pin - - - - -	1
9	53678 N	Washer, for looper throw-out actuating pin- - - - -	1
10	54244 J	Looper Throw-out Actuating Pin- - - - -	1
11	15489 B	Screw, for looper throw-out actuating pin - - - - -	1
12	41071 G	Nut, for screw No. HS82 - - - - -	1
13	HS82	Screw, for looper holder frame locking pin- - - - -	1
14	51225 W	Washer, for looper holder frame locking pin - - - - -	1
15	54244 H	Looper Throw-out Fork Pressure Spring - - - - -	1
16	59444 L	Collar, for looper holder frame lock pin- - - - -	1
17	39543 R	Washer, for looper holder frame locking pin - - - - -	1
18	59444 J	Looper Holder Frame Locking Pin - - - - -	1
19	51242 L	Washer, for looper holder frame locking pin - - - - -	1
20	54244 R	Looper Holder Frame - - - - -	1
21	54285 C	Nut, for looper holder screw- - - - -	1
22	59285-2-16	Looper Holder, marked "AA"- - - - -	1
23	54208 A	Looper, marked "CB" - - - - -	2
24	22 KH	Screw, for looper - - - - -	2
25	97 A	Screw, for looper holder- - - - -	1
26	54244 C	Looper Holder Frame Throw-out Spring- - - - -	1
27	59444 G	Looper Holder Frame Driving Arm - - - - -	1
28	55244 G	Locking Stud- - - - -	1
29	20	Washer- - - - -	1
30	18	Nut - - - - -	1
31	51236 A	Link Pin- - - - -	1
32	29133 P	Take-up Drive Eccentric Assembly- - - - -	1
33	77	Screw - - - - -	1
34	22894 C	Set Screw - - - - -	1
35	22894 L	Spot Screw- - - - -	1
36	54195	Coupling- - - - -	1
37	98	Screw - - - - -	6
38	29133 M	Looper Drive Eccentric Assembly - - - - -	1
39	22768	Screw - - - - -	1
40	22894 C	Set Screw - - - - -	2
41	59451 R	Looper Retainer Drive Gear- - - - -	1
42	98	Screw - - - - -	2
43	59444 A	Looper Travel Drive Link- - - - -	1
44	18	Nut - - - - -	1
45	20	Washer- - - - -	1
46	55244 G	Locking Stud- - - - -	1
47	51236 A	Link Pin- - - - -	1
48	22585 C	Screw, for looper thread pull-off eyelet- - - - -	1
49	57858	Looper Thread Pull-off Eyelet - - - - -	1
50	54223 A	Looper Thread Take-up - - - - -	1
51	59445 A	Looper Thread Take-up Drive Link- - - - -	1
52	660-215	Retaining Ring- - - - -	1
53	6042 A	Washer, for looper holder frame locking pin - - - - -	2
54	59344	Looper Holder Frame Shield- - - - -	1
55	39173 A	Looper Frame Locking Pin Spring - - - - -	1



CLOTH PLATE, SWINGING BRACKET AND LOOP RETAINER DRIVING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	59401 B	Cloth Plate - - - - -	1
2	22839 C	Screw, for cloth plate- - - - -	2
3	22574	Screw, for cloth plate- - - - -	1
4	80	Screw, for cloth plate- - - - -	2
* 5	25 C	Screw, for hemming attachment - - - - -	2
* 6	23425 V	Washer Plate, for hemming attachment- - - - -	1
* 7	23443 B	Hemming Attachment, lower, 1/4 inch (6.35 mm) hem turned up 1/6 inch (1.59 mm) capacity- - - - -	1
8	28577	Washer, for pivot screw - - - - -	1
9	9937	Nut, for pivot screw- - - - -	2
10	22504 A	Pivot Screw, for folder mounting swinging bracket - - - - -	1
11	59364	Folder Mounting Swinging Bracket- - - - -	1
12	22574 D	Screw, for loop retainer driving arm- - - - -	1
13	59451 F	Washer, for loop retainer driving arm - - - - -	1
14	59451 B	Loop Retainer Holder and Driving Arm- - - - -	1
15	59451 T	Loop Retainer Driving Arm Crank - - - - -	1
16	59482 A	Oil Reservoir Top Cover - - - - -	1
17	59451 C	Fulcrum and Slide Block - - - - -	1
18	666-206	Oil Wick, for fulcrum and slide block - - - - -	1
19	660-337	Oil Seal Ring - - - - -	1
20	56382 H	Gasket for, oil reservoir top cover - - - - -	1
21	59451 U	Retainer Driven Gear- - - - -	1
22	22580 E	Screw - - - - -	2
23	59493	Stop Collar and Oil Slinger - - - - -	1
24	88	Screw - - - - -	2
25	90	Screw, for retainer arm support, upper- - - - -	2
26	59451 W	Retainer Arm Support, upper - - - - -	1
27	531	Screw, for retainer arm support, lower- - - - -	1
28	59451 V	Retainer Arm Support, lower - - - - -	1
29	18	Nut - - - - -	1
30	627 A	Screw - - - - -	1
31	59324-16	Throat Plate- - - - -	1
32	87	Screw, for throat plate - - - - -	3
33	59480 C	Throat Plate Support Shim - - - - -	1
34	59380	Throat Plate Support- - - - -	1
35	51280 J	Dowel Pin - - - - -	2
36	22839	Screw, for throat plate support - - - - -	2
37	22524	Screw, for oil reservoir top cover- - - - -	8
38	59451 D	Retainer Holder Plate - - - - -	1
39	22585 A	Screw, for oil reservoir top cover- - - - -	3
40	59311	Loop Retainer, marked "BY"- - - - -	1
41	87 U	Screw, for loop retainer- - - - -	2
42	12986 B	Screw, for latch spring - - - - -	1
43	54264 C	Latch Spring, for folder mounting swinging bracket- - - - -	1
-	54264 B	Spring Clip, for swinging bracket, (not shown)- - - - -	1

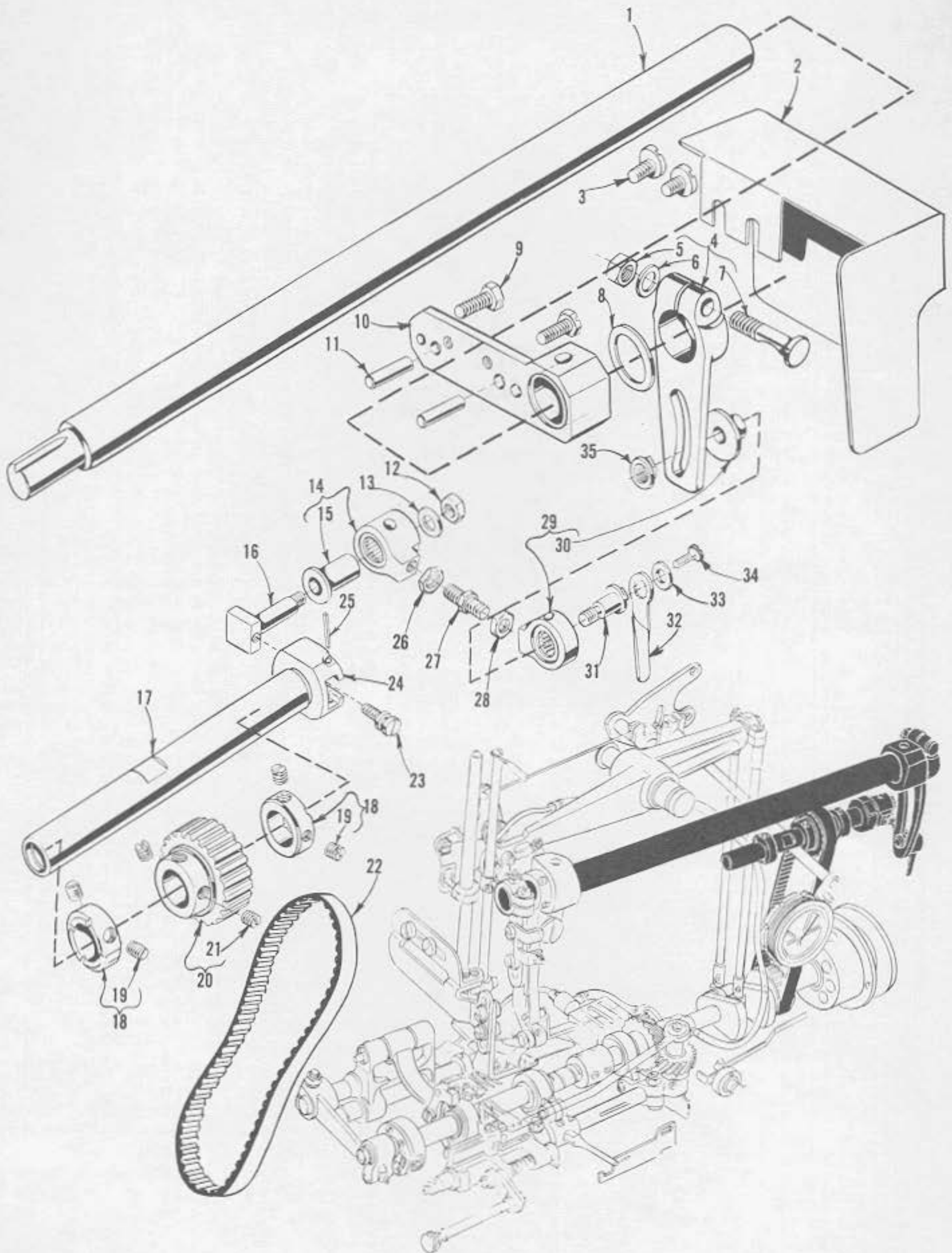
* Available as an extra send and charge item.



STRIPPER BLADE, FOLDERS, BRACKETS AND RUFFLER PARTS

<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	59382	Head Cover- - - - -	1
2	25 S	Screw - - - - -	2
2A	22733 C	Plug Screw- - - - -	1
3	59340 C	Stripper Blade Holder Bracket, upper- - - - -	1
4	22882	Screw, for stripper blade holder bracket, upper and folder bracket - - - - -	2
5	59340 B	Stripper Blade Holder Bracket, lower and folder bracket- - - - -	1
6	22596	Screw, for stripper blade holder- - - - -	2
7	1185 L	Washer, for No. 22596 - - - - -	4
8	59340 A	Stripper Blade Holder - - - - -	1
9	12934 A	Nut, for No. 22596- - - - -	2
10	22704	Screw, for hemming attachment - - - - -	2
*11	23442 B	Hemming Attachment, upper, 1/4 inch (6.35 mm) hem turned down, 1/16 inch (1.59 mm) capacity- - - - -	1
12	604	Screw, for stripper blade - - - - -	2
13	27-527 Blk.	Washer, for No. 604 - - - - -	2
14	59340	Stripper Blade- - - - -	1
*15	59303	Ruffle Edge Guide, for set on ruffles 3/32 inch (2.38 mm) capacity - - - - -	1
*16	87 U	Screw, for ruffle edge guide - - - - -	2
*17	27-527 Blk.	Washer, for No. 87 U - - - - -	2
18	22504	Screw, for tilting lever - - - - -	1
19	59348 A	Tilting Lever - - - - -	1
20	22798 A	Screw, for tilting lever- - - - -	1
21	29476 PA	Ruffle Arm Extension And Blade Holder - - - - -	1
22	59348	Ruffler Blade Holder- - - - -	1
23	59349 F	Ruffler Rocker Arm Extension- - - - -	1
24	605	Screw, for ruffler rocker arm extension - - - - -	1
25	51236 A	Link Pin- - - - -	1
26	14077	Nut, for screw No. 93 - - - - -	2
27	22566 A	Shoulder Screw, for ruffler shaft bracket, left - - - - -	1
28	59349 D	Ruffler Shaft Bracket, left - - - - -	1
29	667 D-16	Dowel Pin - - - - -	1
30	59349 K	Spacer- - - - -	1
31	9660 B	Collar, for ruffler rock shaft- - - - -	1
32	98	Screw - - - - -	2
33	59349 E	Ruffler Rocker Arm, left- - - - -	1
34	22764 B	Spot Screw- - - - -	1
35	12934 A	Locknut - - - - -	1
36	22517	Screw - - - - -	1
37	22704	Screw, for ruffler blade tension plate holder - - - - -	1
38	59347	Ruffler Blade Tension Plate - - - - -	1
39	93	Screw, for ruffler blade tension plate holder - - - - -	2
40	59347 A	Ruffler Blade Tension Plate Holder- - - - -	1
41	43443 Q	Nut, for ruffler blade tension adjusting screw- - - - -	1
42	77 Q	Screw, for adjusting ruffler blade tension- - - - -	1
43	22704	Screw, for ruffler blade- - - - -	2
44	59348 B	Ruffler Blade Support - - - - -	1
45	59346	Ruffler Blade, for Styles 59300 C, E- - - - -	1
45A	59346 A	Ruffler Blade, for Styles 59300 F, G- - - - -	1

* Order as an extra send and charge item.



INSTRUCTIONS FOR MECHANICS

LUBRICATION

CAUTION! Oil has been drained from the main reservoir before shipment, so the reservoir must be filled to the proper level at plug screw (A, Fig. 1) as indicated on oil gauge (B), before beginning to operate. The capacity of the reservoir is 12 ounces (340.2 gr.). Run machine slowly for several minutes to distribute the oil to the various parts. Full speed operation can then be expected without damage.

RECOMMENDED OIL

Use a straight mineral oil of a Saybolt viscosity of 90 to 125 seconds at 100° Fahrenheit in the main reservoir. This is equivalent to Union Special Specification No. 175. Fill main reservoir at plug screw in upper crank chamber cover (A, Fig. 1) and check oil level at gauge (B). Oil is at maximum safe operating level when needle is to the black line, located to the right of "OPERATE" zone, marked "FULL". Oil should be added when needle is to the black line, located to the left of "OPERATE" zone, marked "LOW". The recommended oil is available in 16 fluid ounce (453.6 gr.) cans No. 28604 R.

CAUTION! It is important that these machines not be over filled.

It is recommended that a new machine, or one that has been out of service for an extended period be lubricated as follows: Remove the head cover, clean out lint and directly oil the needle bar link and the needle bar. Replace head cover as no further hand oiling will be required. Run machine slowly for several minutes to distribute oil to the various parts.

For machines in operation check the oil for dirt and lint deposits at reasonable intervals. If dirty, change the oil. An oil change is recommended every 2000 operating hours, or once a year. Oil may be drained from main reservoir by removing plug screw (C, Fig. 1) located below the cloth plate at front of the machine, or by removing the lower crank chamber cover, located at the back of machine.

The machine is almost entirely automatically lubricated, and no oiling other than an occasional drop of oil at both ends of the adjustable connecting rod, the ruffler rock shaft brackets, the looper throw-out pin, looper holder frame locking pin, and looper retainer holder and driving arm as indicated in the oiling diagram (See Fig. 2) are required.

A daily check before the morning start should be made, to see that the oil level is at a safe operating level, as outlined in the first paragraph. Oil which has gone through the machine is filtered and pumped back into the main reservoir, making too frequent oilings unnecessary. Excessive oil in the main reservoir may be drained by removing plug screw (C, Fig. 1) located below the cloth plate at the front of the machine. After draining oil, wipe the hole and plug screw dry, paint hole and screw with a little gasket cement, and re-assemble screw.

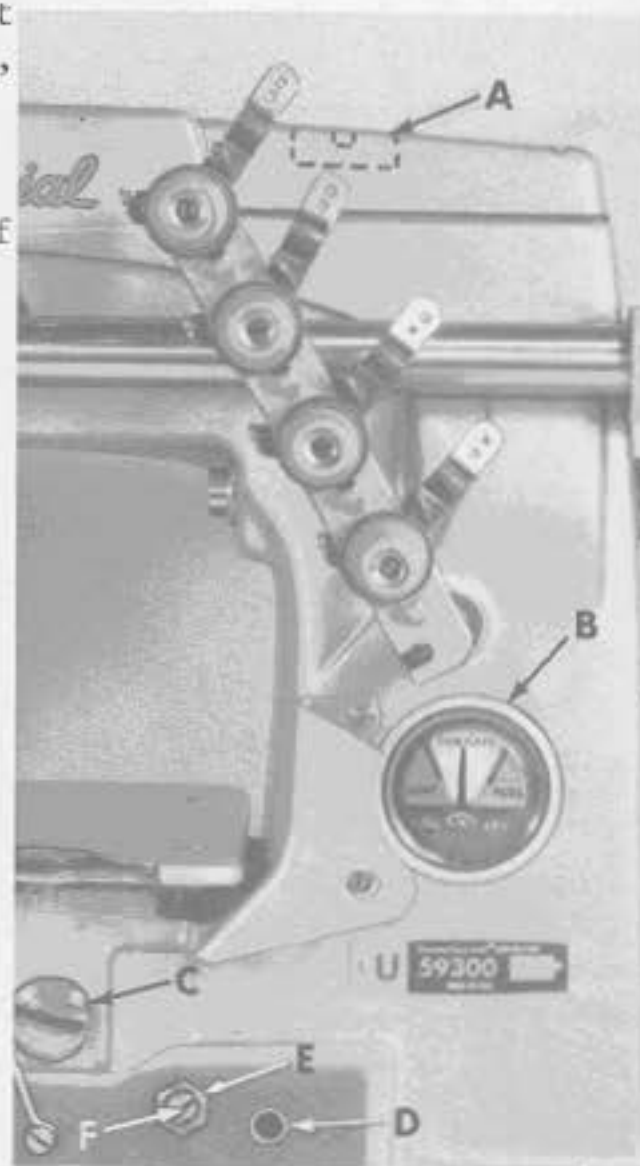


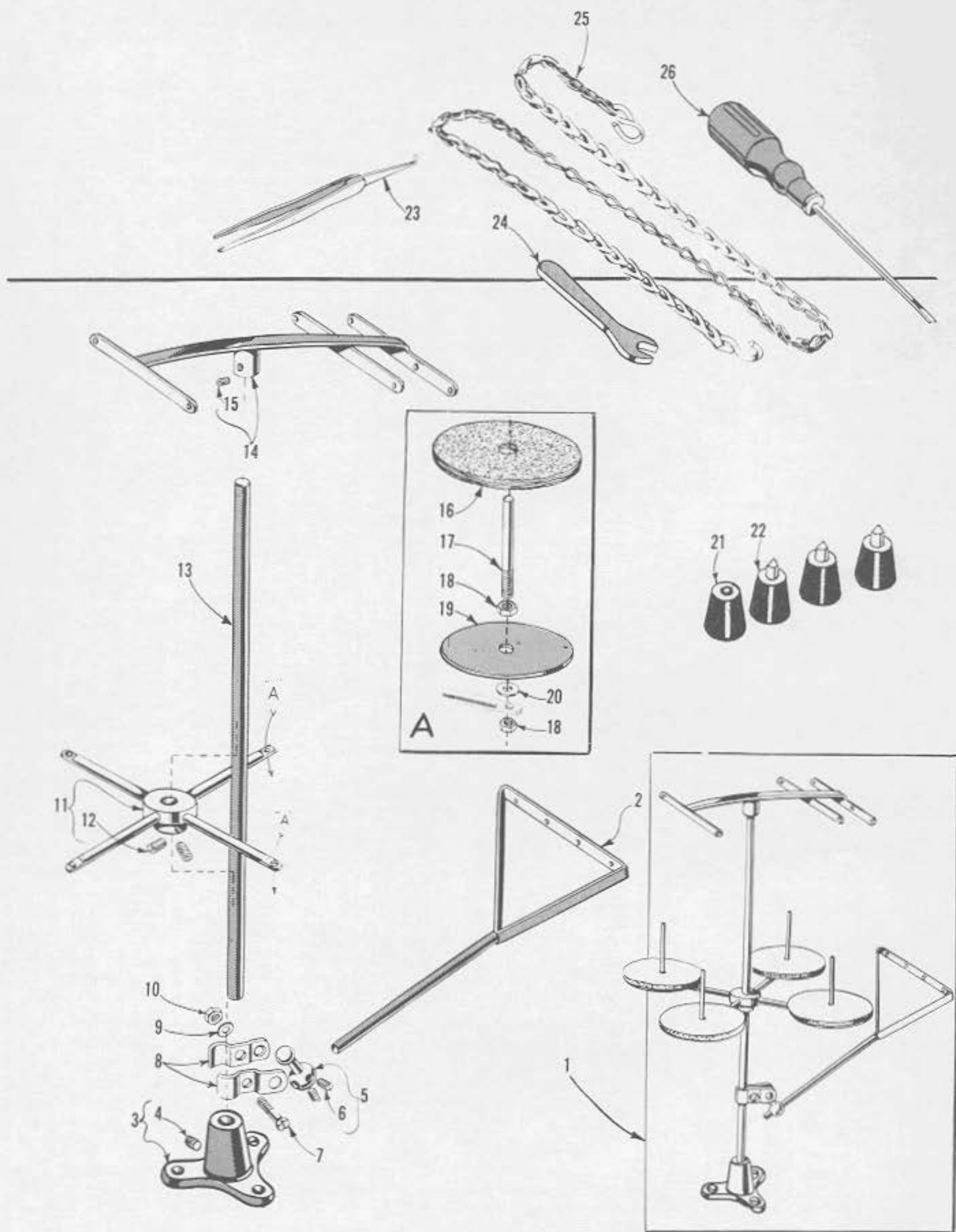
Fig. 1

RUFFLER MECHANISM AND COVER

Ref. No.	Part No.	Description	Amt. Req.
1	59349 A	Ruffler Blade Rock Shaft- - - - -	1
2	59382 A	Ruffler Drive Cover - - - - -	1
3	25 S	Screw, for ruffler drive cover- - - - -	2
4	59349 G	Ruffler Drive Lever, right- - - - -	1
5	55235 E	Nut - - - - -	1
6	6042 A	Washer- - - - -	1
7	55235 D	Locking Stud- - - - -	1
8	59349 N	Thrust Washer, for ruffler drive lever, right - - - - -	1
9	22852 A	Screw, for ruffler shaft bracket, right - - - - -	2
10	59349 C	Ruffler Shaft Bracket, right- - - - -	1
11	667 D-8	Dowel Pin, for ruffler shaft bracket, right - - - - -	2
12	18	Nut, for ruffler feed crank stud- - - - -	1
13	20	Washer, for ruffler feed crank stud - - - - -	1
14	59349 J	Ruffler Drive Lever Link, rear- - - - -	1
15	63439 AD	Ferrule - - - - -	1
16	59336 A	Ruffler Feed Crank Stud - - - - -	1
17	59349	Ruffler Blade Drive Shaft - - - - -	1
18	9660 B	Collar, for ruffler blade drive shaft - - - - -	2
19	98	Screw - - - - -	2
20	56334 G	Driven Sprocket, for Styles 59300 C, F- - - - -	1
-	59484 E	Driven Sprocket, for Styles 59300 E, G- - - - -	1
21	98	Screw, for No. 56334 G- - - - -	2
-	22651 CB-4	Screw, for No. 59484 E- - - - -	2
22	56334 H	Timing Belt, for Styles 59300 C, F- - - - -	1
-	59484 F	Timing Belt, for Styles 59300 E, G- - - - -	1
23	22795	Ruffler Adjusting Screw - - - - -	1
24	59336	Ruffler Drive Shaft Head- - - - -	1
25	660-219 P	Roll Pin, for ruffler drive shaft head- - - - -	1
26	43242 P	Nut, for ruffler shaft drive connecting rod, left hand thread - - - - -	1
27	59348 C	Ruffler Shaft Drive Connecting Rod- - - - -	1
28	15037 A	Nut, for ruffler shaft drive connecting rod, right hand thread - - - - -	1
29	59349 H	Ruffler Drive Lever Link, front - - - - -	1
30	36253 J	Ferrule - - - - -	1
31	59349 L	Link Retaining Screw- - - - -	1
32	52776 V	Release Lever - - - - -	1
33	53678 N	Washer, for release lever - - - - -	1
34	22804	Screw, for release lever- - - - -	1
35	35766 BA	Nut, for link retaining screw - - - - -	1

THREAD TENSION, LIFTER LEVER AND PRESSER FOOT PARTS

<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	21657 AL	Tension Release and Lifter Lever Shaft- - - - -	1
2	21657 Y	Tension Release and Lifter Lever Shaft Connection - - - -	1
3	22596	Screw - - - - -	1
4	402	Screw - - - - -	1
5	51283 H	Lifter Lever- - - - -	1
6	660-207	Oil Seal Ring, for lifter lever - - - - -	1
7	39552 C	Washer, for lifter lever- - - - -	1
8	53783 N	Lifter Lever Connection - - - - -	1
9	22537	Screw - - - - -	1
10	56383 AB	Lifter Lever Connecting Rod - - - - -	1
11	52889 A	Presser Bar Spring Regulator and Presser Bar Bushing- - -	1
12	51256 C	Presser Bar Spring- - - - -	1
13	56383 AA	Lifter Lever Bell Crank - - - - -	1
14	56383 A	Lifter Lever Link - - - - -	1
15	402	Screw, for presser bar connection and guide - - - - -	1
16	51257 M	Presser Bar Connection and Guide- - - - -	1
17	21695 M	Collar, for finger guard- - - - -	1
18	21695 Z	Finger Guard- - - - -	1
19	21695 L	Washer, for finger guard- - - - -	1
20	22729	Screw, for finger guard - - - - -	1
21	531	Screw, for presser bar connection and guide - - - - -	1
22	22758 C	Screw, for lifter lever link- - - - -	1
23	59492 A	Auxiliary Tension Post Support- - - - -	1
24	22557 G	Screw, for lifter lever bell crank- - - - -	1
25	56383 D	Spring, for lifter lever bell crank - - - - -	1
26	43266	Nut, for tension post - - - - -	2
27	51491 C	Thread Lead-in Guide- - - - -	4
28	52992 A	Tension Post Support- - - - -	1
29	51292 D	Tension Thread Eyelet - - - - -	4
30	21657 AM-5	Tension Disc Separator- - - - -	1
31	39592 Z	Tension Nut - - - - -	4
32	39592 AK	Tension Spring Ferrule- - - - -	4
33	51292 F-5	Tension Spring, needle- - - - -	2
33A	51292 F-2	Tension Spring, looper- - - - -	2
34	56392 F	Tension Spring Shield - - - - -	4
35	109	Tension Disc- - - - -	8
36	56392 E	Tension Post- - - - -	4
37	51292 A	Tension Post Ferrule- - - - -	4
38	53688	Presser Bar - - - - -	1
39	59320-16	Presser Foot Assembly, for Styles 59300 C, E- - - - -	1
40	59330 A	Cloth Shield- - - - -	1
41	22840 A	Set Screw - - - - -	1
42	51430 F	Locknut - - - - -	1
43	53530	Shank, marked "U" - - - - -	1
44	91	Clamp Screw - - - - -	1
45	22738 G	Screw - - - - -	2
46	59330-16	Bottom- - - - -	1
47	22799 B	Hinge Screw - - - - -	1
48	59320 A-16	Presser Foot Assembly, for Styles 59300 F, G- - - - -	1
49	59330 B	Cloth Shield- - - - -	1
50	22840 A	Set Screw - - - - -	1
51	51430 F	Locknut - - - - -	1
52	53530	Shank, marked "U" - - - - -	1
53	91	Clamp Screw - - - - -	1
54	22738 G	Screw - - - - -	2
55	59330 C-16	Presser Foot Bottom - - - - -	1
56	22799 B	Screw - - - - -	1



THREAD STAND PARTS AND ACCESSORIES

<u>Ref.</u> <u>No.</u>	<u>Part</u> <u>No.</u>	<u>Description</u>	<u>Amt.</u> <u>Req.</u>
1	21101 H-4	Thread Stand Assembly - - - - -	1
2	21114 S-4	Lead Eyelet - - - - -	1
3	21114 A	Thread Stand Base - - - - -	1
4	22651 CD-4	Screw - - - - -	1
5	21114 T	Lead Eyelet Socket Ball - - - - -	1
6	22651 CD-4	Screw - - - - -	2
7	22810	Screw - - - - -	1
8	21114 U	Lead Eyelet Ball Split Socket - - - - -	2
9	652-16	Washer- - - - -	1
10	21104 H	Nut - - - - -	1
11	21114 D-4	Spool Seat Support- - - - -	1
12	22651 CD-5	Screw - - - - -	2
13	21104 B-24	Thread Stand Rod- - - - -	1
14	21114 H-4	Eyelet Support- - - - -	1
15	22651 CD-4	Screw - - - - -	1
16	21104 V	Pad, for thread cone- - - - -	4
17	21114 W	Spool Pin - - - - -	4
18	258 A	Nut - - - - -	8
19	21114	Spool Seat Disc - - - - -	4
20	652-16	Washer- - - - -	4
21	51295 A	Isolator- - - - -	1
22	51295 B	Isolator- - - - -	3
23	660-240	Thread Tweezers - - - - -	1
24	21388	Wrench, single end, 3/8 inch (9.53 mm) opening- - - - -	1
25	421 D-34	Treadle Chain, 34 inches (863.60 mm) long - - - - -	1
26	21201	Screwdriver, 9/64 inch (3.58 mm) round blade, length over-all 7-11/16 inches (194.26 mm)- - - - -	1
-	28604 R	Can of Oil, Spec. 175, 1 pint (not shown) - - - - -	1
-	660-457	Dust Cover (not shown)- - - - -	1

NUMERICAL INDEX OF PARTS

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
WO-3.....	23	7947.....	19	22733 E.....	21
18.....	27, 29, 33	9660 B.....	31, 33	22738 G.....	35
20.....	19, 25, 27	9937.....	29	22758 C.....	35
	33	11635 B.....	21	22764 B.....	31
22 KH.....	27	12934 A.....	23, 31	22768.....	23, 27
25 C.....	29	12986 B.....	29	22793.....	21
25 S.....	19, 31, 33	14077.....	25, 31	22795.....	33
27-435 Blk.....	23	15037 A.....	33	22798 A.....	31
27-527 Blk.....	31	15489 B.....	27	22798 C.....	25
50-895 Blk.....	21	21101 H-4.....	37	22799 B.....	35
50 J-16.....	23	21104 B-24.....	37	22804.....	33
52 A.....	19	21104 H.....	37	22810.....	37
HA61 D.....	25	21104 V.....	37	22829.....	19
CO67 E.....	27	21114.....	37	22839.....	29
77.....	23, 25, 27	21114 A.....	37	22839 C.....	29
77 Q.....	31	21114 D-4.....	37	22840 A.....	35
80.....	29	21114 H-4.....	37	22848.....	19
HS82.....	27	21114 S-4.....	37	22852 A.....	33
87.....	19, 29	21114 T.....	37	22882.....	31
87 U.....	29, 31	21114 U.....	37	22889 A.....	19
J87 J.....	27	21114 W.....	37	22891 B.....	25
88.....	29	21201.....	37	22894 C.....	27
89.....	23	21375 AV.....	19	22894 E.....	19
90.....	21, 29	21388.....	37	22894 L.....	27
91.....	35	21657 E.....	25	22894 AA.....	25
93.....	31	21657 X.....	21	22894 AB.....	23
95.....	19, 23	21657 Y.....	35	22900.....	25
97 A.....	27	21657 AL.....	35	22901.....	25
98.....	23, 25, 27	21657 AM-5.....	35	23425 V.....	29
	31, 33	21695 L.....	35	23442 B.....	31
98 A.....	19	21695 M.....	35	23443 B.....	29
109.....	35	21695 Z.....	35	28577.....	29
258 A.....	37	22504.....	31	28604 R.....	37
269.....	25	22504 A.....	29	29066 R.....	23
376.....	19	22513.....	19	29133 M.....	27
402.....	35	22517.....	31	29133 P.....	27
421 D-34.....	37	22524.....	29	29348 AF.....	23
531.....	29, 35	22525 A.....	25	29476 MD.....	23
539.....	19	22537.....	35	29476 MJ.....	25
604.....	31	22539 R.....	21	29476 MK-062.....	25
605.....	31	22541 C.....	21	29476 PA.....	31
627 A.....	29	22543 A.....	25	35731 A.....	19
652-16.....	37	22548.....	19	35766 BA.....	33
660-202.....	23	22557 G.....	35	35897 BV.....	21
660-207.....	35	22559 G.....	23	36253 J.....	33
660-215.....	23, 27	22560 B.....	25	39173 A.....	27
660-219 P.....	33	22562 A.....	23	39543 N.....	25
660-221.....	21	22564.....	23	39543 R.....	27
660-240.....	37	22566 A.....	31	39552 C.....	35
660-269 B.....	25	22569 B.....	21	39592 Z.....	35
660-337.....	29	22569 C.....	19	39592 AK.....	35
660-342.....	19	22574.....	23, 29	41071 G.....	27
660-438.....	25	22574 D.....	29	41358.....	27
660-455.....	21	22580 E.....	29	41391.....	25
660-457.....	37	22585.....	19	43242 P.....	33
660-614.....	23	22585 A.....	29	43266.....	35
660-625.....	23	22585 C.....	27	43443 Q.....	31
660-665.....	21	22586 R.....	23	51054.....	25
666-149.....	25	22596.....	31, 35	51154 E.....	21
666-206.....	29	22651 CB-4.....	25, 33	51216 M.....	23
666-214.....	19	22651 CD-4.....	25, 37	51216 N.....	23
666-259.....	21	22651 CD-5.....	37	51216 P.....	23
667 D-8.....	33	22704.....	31	51225 W.....	27
667 D-16.....	31	22713.....	25	51236 A.....	25, 27, 31
1185 L.....	31	22729.....	35	51242 L.....	27
6042 A.....	25, 27, 33	22733 C.....	19, 31	51250 D.....	23

NUMERICAL INDEX OF PARTS

<u>Part No.</u>	<u>Page No.</u>	<u>Part No.</u>	<u>Page No.</u>	<u>Part No.</u>	<u>Page No.</u>
51250 F.....	23	56382 D.....	19	59347.....	31
51254 A.....	21	56382 H.....	29	59347 A.....	31
51254 K.....	23	56382 J.....	19	59348.....	31
51256 C.....	35	56382 K.....	19	59348 A.....	31
51257 M.....	35	56382 L.....	19	59348 B.....	31
51257 AA.....	21	56382 M.....	21	59348 C.....	33
51270 B.....	19	56382 N.....	19	59349.....	33
51280 J.....	29	56382 Y.....	19	59349 A.....	33
51283 H.....	35	56382 AA.....	19	59349 C.....	33
51292 A.....	35	56382 AB.....	19	59349 D.....	31
51292 D.....	35	56382 AC.....	21	59349 E.....	31
51292 F-2.....	35	56383 A.....	35	59349 F.....	31
51292 F-5.....	35	56383 D.....	35	59349 G.....	33
51294 R.....	19	56383 AA.....	35	59349 H.....	33
51295 A.....	37	56383 AB.....	35	59349 J.....	33
51295 B.....	37	56390.....	21	59349 K.....	31
51430 F.....	35	56390 E.....	21	59349 L.....	33
51491 C.....	35	56390 G.....	21	59349 N.....	33
52336 A.....	23	56390 H.....	21	59349 P.....	21
52776 V.....	33	56390 J.....	21	59349 Q.....	21
52883 R.....	21	56392 E.....	35	59358 A.....	23
52889 A.....	35	56392 F.....	35	59364.....	29
52958 B.....	19	56393 C.....	19	59380.....	29
52992 A.....	35	56393 D.....	19	59382.....	19, 31
53530.....	35	56393 L.....	21	59382 A.....	33
53678 N.....	27, 33	56393 Q.....	21	59401 B.....	29
53688.....	35	56393 T.....	21	59434 B.....	25
53783 N.....	35	56393 W.....	21	59436.....	21
54195.....	27	56393 X.....	21	59444.....	27
54208 A.....	27	56394 A.....	21	59444 A.....	27
54223 A.....	27	56394 B.....	21	59444 G.....	27
54244 C.....	27	56458 A.....	23	59444 J.....	27
54244 G.....	27	57791.....	19	59444 L.....	27
54244 H.....	27	57821.....	23	59444 M.....	27
54244 J.....	27	57834 G.....	25	59444 P.....	27
54244 R.....	27	57836 B.....	21	59445 A.....	27
54264 C.....	29	57847.....	23	59451 A.....	21
54285 C.....	27	57858.....	27	59451 B.....	29
55235 D.....	25, 33	57890 B.....	21	59451 C.....	29
55235 E.....	25, 33	59222.....	25	59451 D.....	29
55244 G.....	27	59234.....	25	59451 F.....	29
56190.....	21	59234 C.....	25	59451 R.....	27
56315 A.....	23	59235 A.....	25	59451 T.....	29
56316.....	23	59259.....	27	59451 U.....	29
56316 C.....	23	59285-2-16.....	27	59451 V.....	29
56321 N.....	23	59303.....	31	59451 W.....	29
56322 B.....	25	59305-16.....	25	59480 C.....	29
56322 C.....	25	59311.....	29	59482 A.....	29
56334 B.....	25	59317-16.....	23	59484 D.....	23
56334 G.....	33	59318-16.....	23	59484 E.....	33
56334 H.....	33	59320-16.....	35	59484 F.....	33
56334 K.....	23	59320 A-16.....	35	59492 A.....	35
56335 D.....	25	59324-16.....	29	59493.....	29
56335 L.....	25	59330-16.....	35	59493 A.....	19
56336.....	25	59330 A.....	35	59494.....	21
56336 B.....	25	59330 B.....	35	61256 G.....	21
56336 C.....	25	59330 C-16.....	35	61321 L.....	23
56336 D.....	25	59336.....	33	61341 J.....	25
56350 D.....	23	59336 A.....	33	63439 AD.....	33
56350 E.....	23	59340.....	31	63494 F.....	21
56350 F.....	23	59340 A.....	31	63494 G.....	21
56350 G.....	23	59340 B.....	31	63494 K.....	21
56354 C.....	21	59340 C.....	31		
56354 D.....	23	59344.....	27		
56382 B.....	21	59346.....	31		
56382 C.....	21	59346 A.....	31		

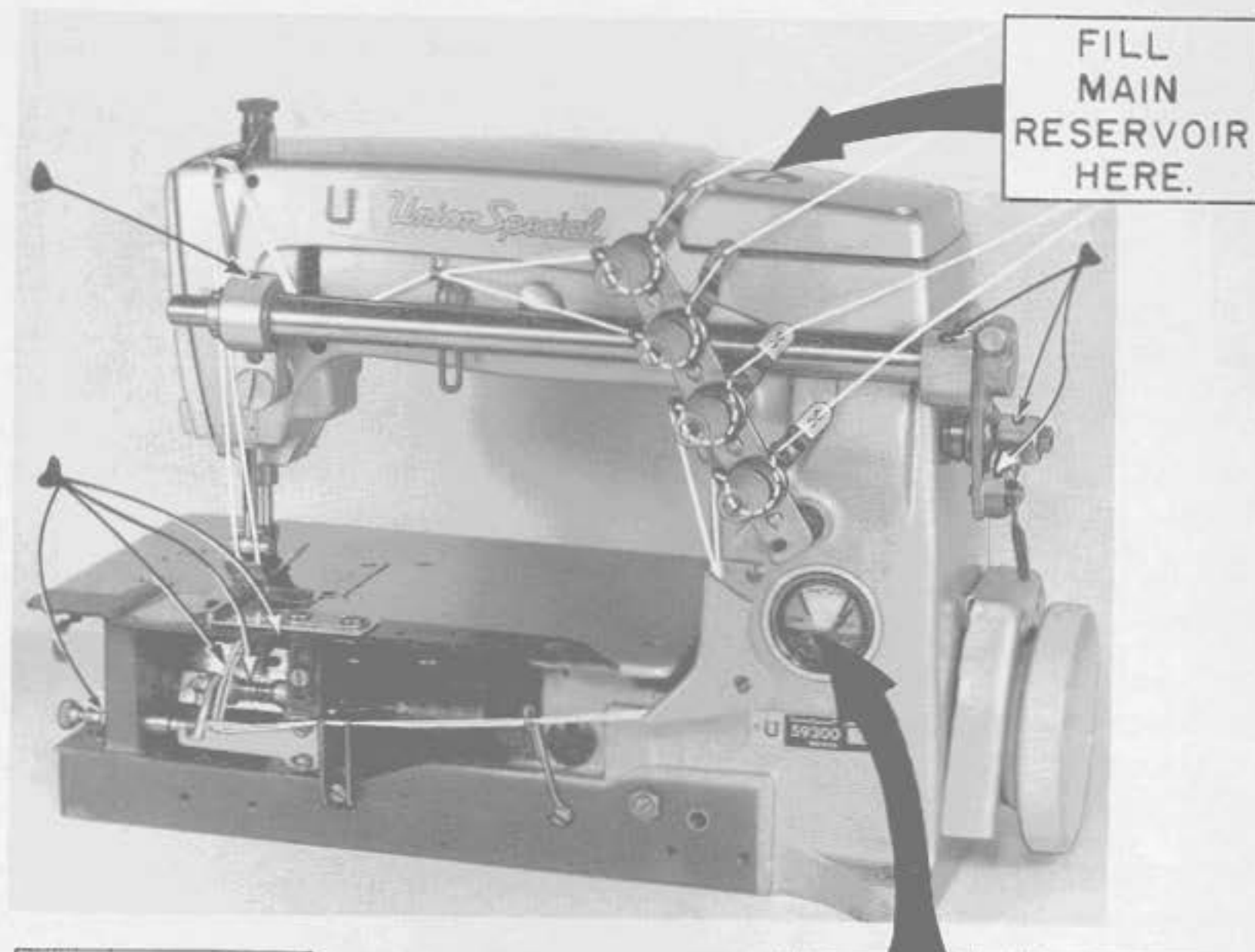
OIL GAUGE

The oil gauge is set at the factory to show the proper oil level in the reservoir. Should an adjustment become necessary, however, the following steps should be followed:

1. Place the machine upright on a level table or bench.
2. Remove the oil reservoir plug screw (C, Fig. 1) and tip machine forward to drain oil from the reservoir.
3. Make sure all oil is drained from main reservoir.
4. Remove lower crank chamber cover, located at the back of the machine.
5. Fill main reservoir to a level even with the bottom contour of the knee press shaft bushing (D, Fig. 1).
6. Loosen locknut (E) on the calibrating screw (F), and turn the screw to the left or right until the gauge needle rests on the black line, located to the left of "OPERATE" zone, marked "LOW".
7. Tighten locknut (E) and replace plug screw (C) and lower crank chamber cover.
8. Add oil so that gauge needle rests on the black line, located to the right of "OPERATE" zone, marked "FULL".

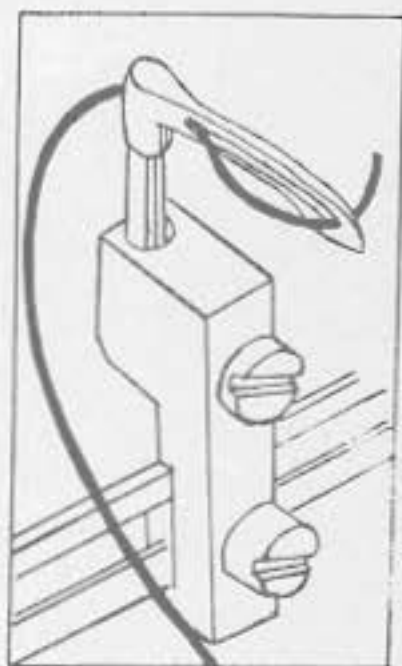
THREADING INSTRUCTIONS

Fig. 2 shows the manner in which this machine is threaded. Please note, that the needles are inserted in the needle holder with the eyes in a plane at right angles to the direction of line of feed, the spot or scarf to the left and are threaded from right to left. Also, note that the looper is threaded from back to front.



FILL
MAIN
RESERVOIR
HERE.

FOR CORRECT
OIL LEVEL
NEEDLE OF GAUGE
SHOULD BE IN
OPERATE POSITION.



CAUTION
FILL ALL OIL RESERVOIRS
BEFORE STARTING.
MACHINE HAS BEEN DRAINED
BEFORE SHIPPING.

Fig. 2

THREADING AND OILING DIAGRAM FOR CLASS 59300

While machine is in operation the needle of the oil gauge should be in the band marked "OPERATE". For further lubricating instructions refer to paragraph on "LUBRICATION". It should be noted that an occasional drop of oil should be added at the points indicated by the arrows on the above diagram.

Thread machine in accordance with the threading diagram above. Note that the needles are inserted in the needle holder with the eyes in a plane at right angles to the direction of line-of-feed, the spot or scarf to the left, and are threaded from right to left. Also note that the looper is threaded from back to front.

SETTING LOOPERS AND ALIGNING NEEDLE BAR

Insert loopers (A, Fig. 3) in looper holders (B) as far down as their shanks will permit, with their points toward the operator. The right side of the looper blades should be at right angles (90°), to the centerline of the mainshaft. Tighten screws

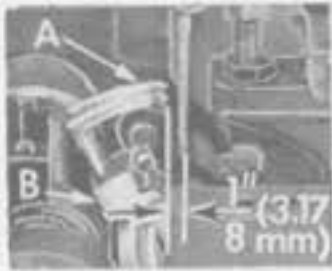


Fig. 3

(A, Fig. 4). Loosen screw (B) and position looper holder so that the point of the loopers when moving forward, passes the left side of the needles as close as possible without picking at the needles, .003 inch (.076 mm) clearance. Retighten screw (B). Set the looper holder frame (C) so the distance between the centerline of the needles

and the point of loopers are 1/8 inch (3.18 mm) when the loopers are at their farthest point of travel to the rear (Fig. 3). This can be accomplished by loosening the hexagon nut (D, Fig. 4) in the looper holder frame driving arm. Move the looper holder frame (C) towards the front or rear as required and retighten nut (D). Looper gauge No. 21225-1/8 can be used advantageously in making this adjustment. NOTE: The 1/8 inch (3.18 mm) looper gauge setting must be made with both loopers, in order to maintain proper needle bar alignment.

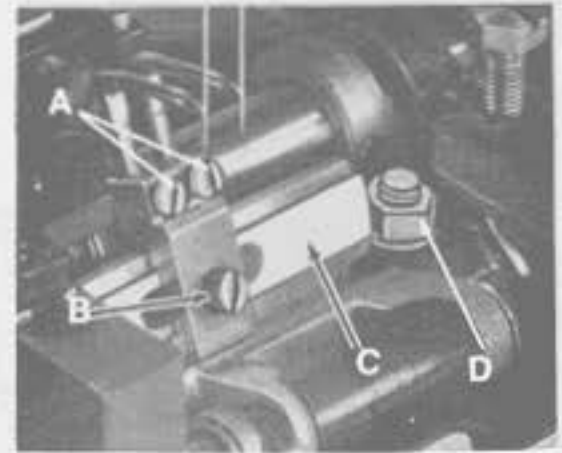


Fig. 4

SETTING HEIGHT OF NEEDLE BAR

The height of the needle bar (A, Fig. 5) is correct when the top of needles' eyes are 1/32 inch (.79 mm) below the underside of loopers, with looper points flush with front side of needles. If adjustment is necessary, loosen screw (B) and move needle bar (A) up or down as required and retighten screw (B). Care must be taken not to disturb alignment of needle bar when moving it either up or down.



Fig. 5

Both needles are to have equal clearance on the right and left sides of needle slots in throat plate. The descending needles must be deflected alike on the right side of the loopers.

SETTING THE FEED DOG

Set the feed dog (A, Fig. 6) so there is equal clearance on all sides in the throat plate. The tips of the teeth should extend the depth of a tooth above, and be parallel in both planes with the top of the throat plate at high point of travel. This can be accomplished by loosening the feed dog mounting screw (B), raise or lower screws (C and D) as required to correct the height and parallelism across-the-line-of-feed. Retighten screw (B). To lock screws (C), tighten capstan screws (D).

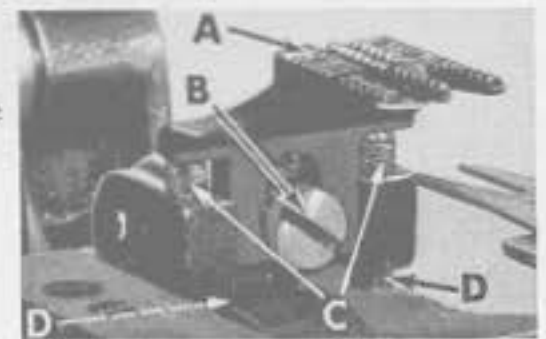


Fig. 6



Fig. 7

Loosen nut (A, Fig. 7) and turn hexagonal head screw (B) clockwise or counterclockwise as required to correct the parallelism of the feed dog to the throat plate in-the-line-of-feed. Retighten nut (A).

TIMING THE RETAINER

With the needle bar at the bottom of its stroke, the timing mark on the face of the vertical drive crank (A, Fig. 8) must line up with the timing mark on the oil reservoir top cover (B). This can be accomplished by removing the access plug screw (C), inserting screwdriver and loosening screws in driven gear on the vertical shaft, rotate vertical drive crank by hand to align the timing marks and retighten screws in driven gear. The driven gear is also used to take up end play in the vertical drive crank, so be sure this is done when tightening screws.

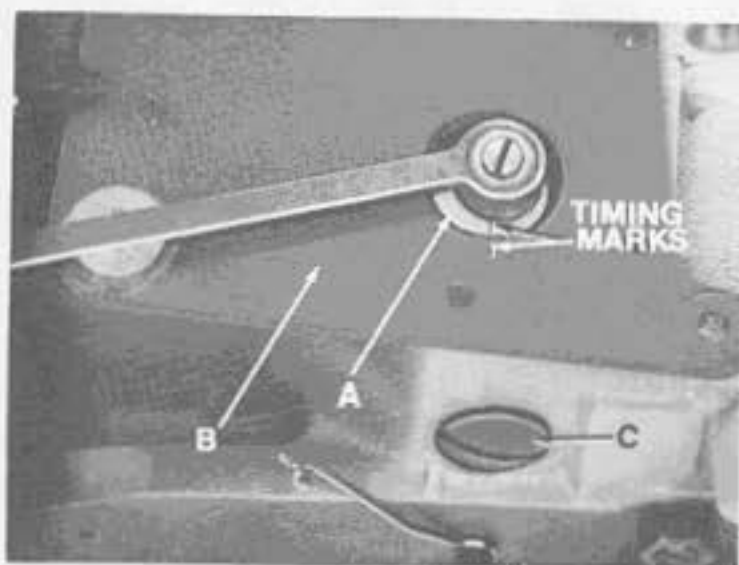


Fig. 8

SETTING THE RETAINER

With the needle bar at the bottom of its stroke, the retainer points (A, Figs. 9 and 9A) should be set so that they are $1/32$ inch (.79 mm) away from the front of the needles and $1/32$ inch (.79 mm) to the right of the needles (Figs 9 and 9A). This can be accomplished by loosening screws (B, Fig. 9), reposition retainer as required and

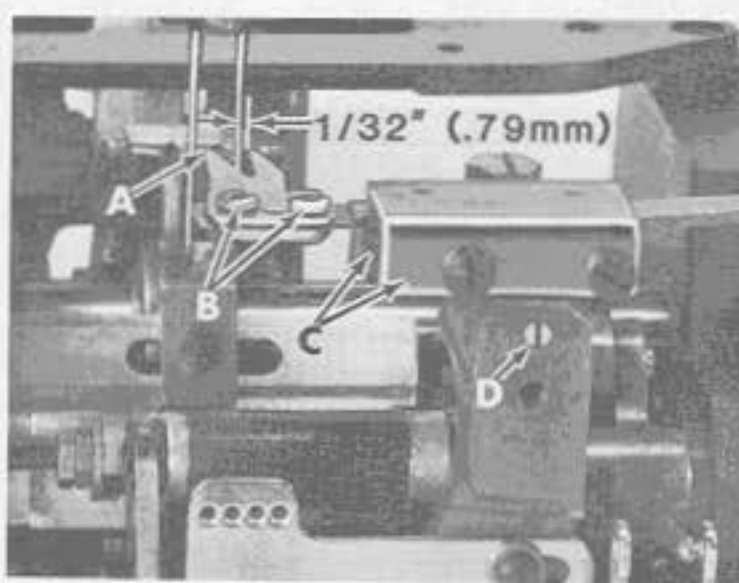


Fig. 9

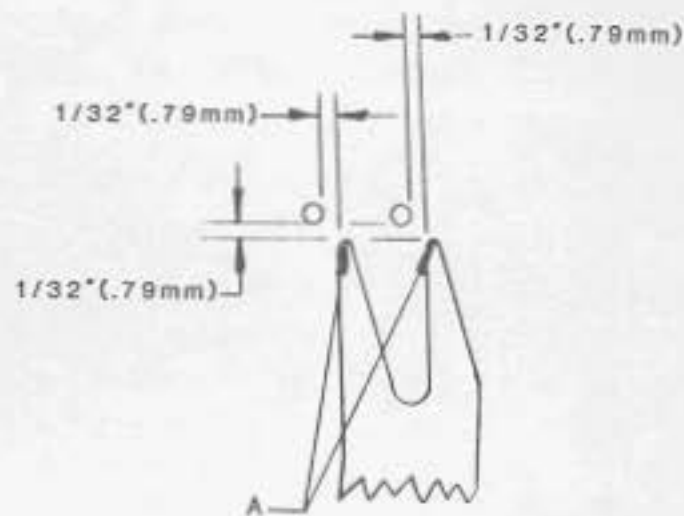


Fig. 9A

retighten screws (B). Rotate handwheel in operating direction to be sure that the underside of the retainer clears the highest point of the looper by .010 to .015 inch (.25 to .38 mm). Adjustment can be made by raising or lowering the retainer arm support (C). This can be accomplished by first loosening screw (D) then raising or lowering retainer arm support to obtain the .010 to .015 inch (.25 to .38 mm) clearance between the underside of the retainer and the highest point of the looper. Hold retainer arm support in this position and tighten screw (D).

CHANGING STITCH LENGTH

Set the stitch to required length. This is accomplished by loosening the locknut (A, Fig. 10) $1/2$ turn (it has a left hand thread) on the end of the stitch regulating stud and turning the stitch adjusting screw (B) located under the left end of the cloth plate, in the head of the mainshaft (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 the locknut securely.

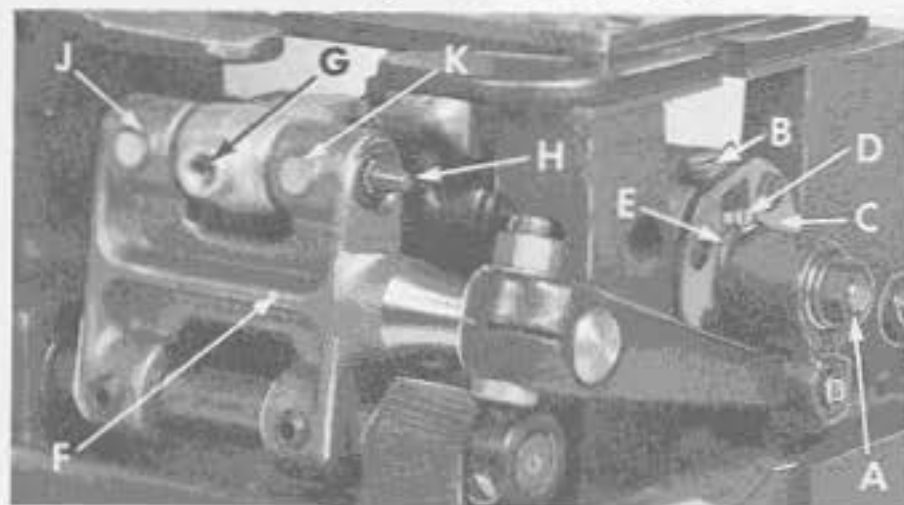


Fig. 10

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).

The needle bearings in the feed rocker (F, Fig. 10) should be checked and lubricated once a year. This can be accomplished as follows. Loosen allen screw (G), and remove shaft (H). Now, repack bearings.

When packing bearings, the parts must be clean and grease should be applied directly from the tube to avoid contamination. Tube of grease can be supplied under the part number 28604 P. Greased bearings are located at (J, K, Fig. 10). If grease sealed bearings are replaced they should be pressed in flush with the casting. To assemble, start tapered end of shaft first, twisting slightly when entering the grease seals to prevent damage.

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 (3.17 mm) 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. 11), 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.

SETTING HEIGHT OF PRESSER BAR

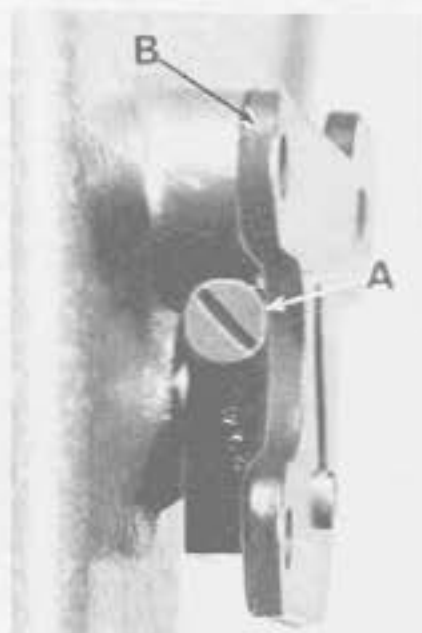


Fig. 11

The height of the presser bar (A, Fig. 12) is set correctly if it is possible to remove the presser foot when the foot lifter lever (B, Fig. 11) is fully depressed. Also, there should be approximately 1/16 inch (1.59 mm) clearance between lower surface of the presser bar connection and guide (B, Fig. 12) and the bottom surface of head opening in the bed when the foot lifter lever is released and the presser foot resting on the throat plate, with the feed dog down below the throat plate.



Fig. 12

If adjustment is needed, turn hand-wheel in operating direction until the needle bar is in the low position. Loosen screw (C, Fig. 12). Then, while holding presser foot down on the throat plate surface, pry up presser bar connection and guide with a screwdriver to obtain the 1/16 inch (1.59 mm) setting and tighten screw (C). Check setting by turning handwheel so that needle bar is in its high position and see if presser foot can be removed as mentioned in previous paragraph.

PRESSER FOOT PRESSURE

Regulate the presser spring regulating screw (A, Fig. 13) 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. This is the knurled screw, located directly behind the needle bar in the head of the machine. Turning it clockwise increases the pressure, counterclockwise acts the reverse.

ADJUSTING NEEDLE THREAD TAKE-UP WIRE AND THREAD EYELETS

Set the needle thread take-up wire (B, Fig. 13) located adjacent to the needle bar thread eyelet (C) so that its upper surface is even with the top of the hole in the needle bar thread eyelet when the needle bar has completed its downward stroke. Lower this setting for a smaller needle thread loop, or raise it for a larger loop. Set the needle thread frame eyelet (D) as high as possible without pulling thread through the tensions on the down stroke of the needle bar, yet so all thread is pulled through the tension post eyelet when the needle bar has completed its upward stroke. A good starting point is to have the needle thread frame eyelet hole $\frac{3}{4}$ inch (19.05 mm) above the center of the attaching screw.

The looper thread take-up eyelet should be set so that the take-up begins to function when the looper starts its travel to the rear. Raising the eyelet increases the amount of thread in each stitch and also increases the ballooned appearance of the stitch, which increases its elasticity and reduces its tendency to cause puckering in the seams.

SETTING THE LOWER FOLDER

Set the lower folder on the swing-out arm, and adjust to suit.

SETTING THE STRIPPER BLADE

Assemble the stripper blade (A, Fig. 14) to the stripper blade holder using screws (C) and washers (D) with the front edge of blade square with the toe of the presser

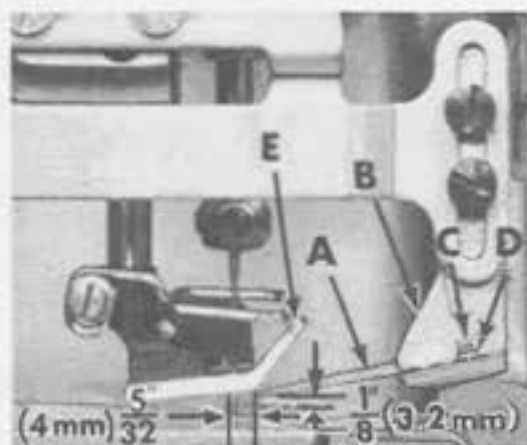


Fig. 14

foot and parallel with the top of the throat plate. The left side of the stripper blade must also align with the left side of presser foot. WITH THE PRESSER FOOT AND RUFFLER BLADE RAISED, the front edge of stripper blade should be set $\frac{5}{32}$ inch (3.97 mm) IN FRONT

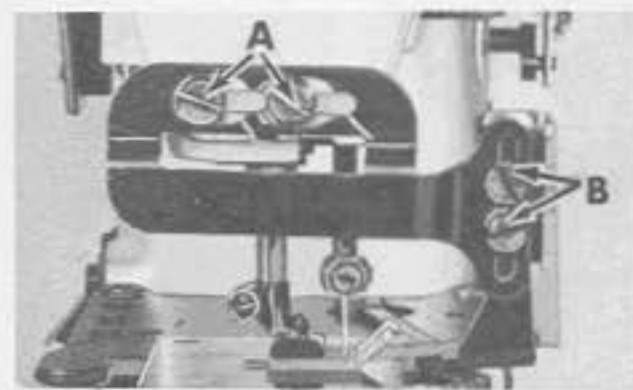


Fig. 15

OF NEEDLES on Styles 59300 C and E; on Styles 59300 F and G as close as possible without touching. The stripper blade should be set $\frac{1}{8}$ inch (3.18 mm) ABOVE THE TOP OF THROAT PLATE on Styles 59300 C and E; $\frac{5}{32}$ inch (3.97 mm) on Styles 59300 F and G. IN FRONT OF NEEDLES setting is accomplished by loosening screws (A, Fig. 15) position bracket as required and retighten screws. ABOVE THE TOP OF THROAT PLATE setting is accomplished by loosening locknuts securing screws (B, Fig. 15), then loosen screws (B) and position stripper blade holder as required. Retighten screws (B) and locknuts.

At this point, install the upper folder and adjust to suit.