CATALOG NO.

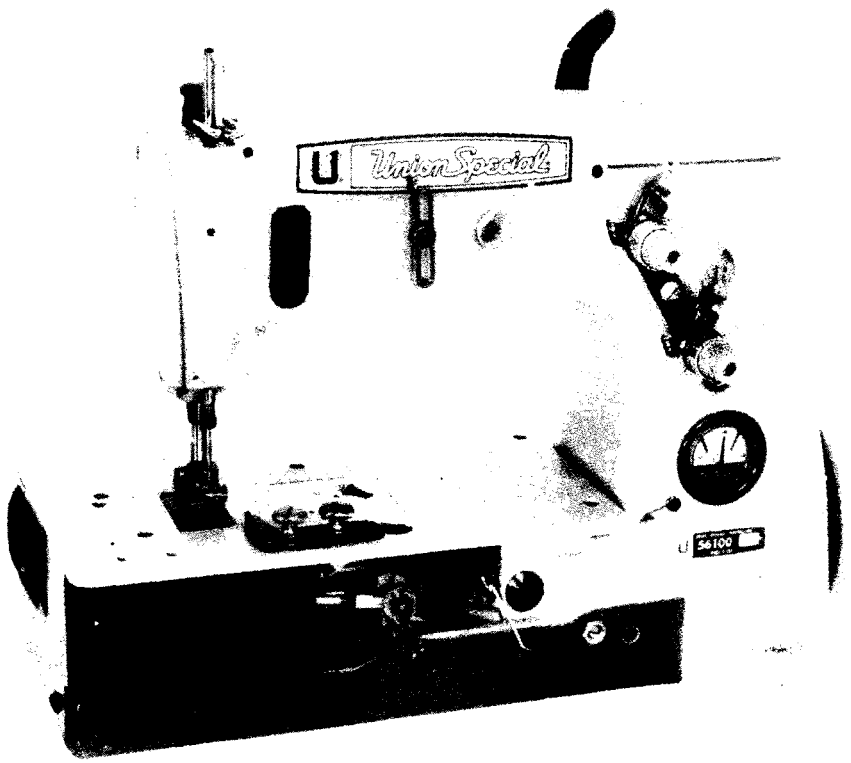
130M

Fourth Edition

STYLE

56100 M

Adjusting instructions and illustrated parts list



Class 56100 - Advanced Series, bag seaming machines

Finest Quality

Union Special®
Industrial Sewing Equipment

CATALOG NO. 130 M

ADJUSTING INSTRUCTIONS AND

ILLUSTRATED PARTS LIST FOR

CLASS 56100

ADVANCED SERIES

BAG SEAMING MACHINE

STYLE 56100 M

Fourth Edition

December, 1981

IDENTIFICATION OF MACHINES

Each UNION SPECIAL machine carries a Style number, which on this Class machine is stamped into the style plate affixed to the right front of machine.

The serial number is stamped in the casting at the right rear base of machine.

Reference to directions, such as right, left, front or rear, are given relative to the operator's position while seated at the machine.Operating direction of the handwheel is counterclockwise, as viewed from the right end of machine.

CLASS DESCRIPTION

Advanced high speed, single needle, flat bed machine. High throw, needle bearing needle bar drive, light weight presser bar and needle bar driving mechanism, enclosed automatic lubricating system, filtered oil return pumps for head and base, lateral looper travel. Maximum work space to right of needle bar, 8 1/4 inches (209.6mm).

MACHINE STYLE

56100 M Typical application - For seaming medium and large size cotton, light and medium weight burlap bags. Stitch range 3 1/2 to 7; set at 3 1/2 S.P.I. Seam specification 401-SSa-1. Maximum recommended speed 6000 R.P.M. sewing at 3 1/2 to 5 S.P.I. and 6500 R.P.M. sewing at more than 5 S.P.I. Recommended speed for machines operating on a duty cycle of 50% or more is 10% less than maximum.

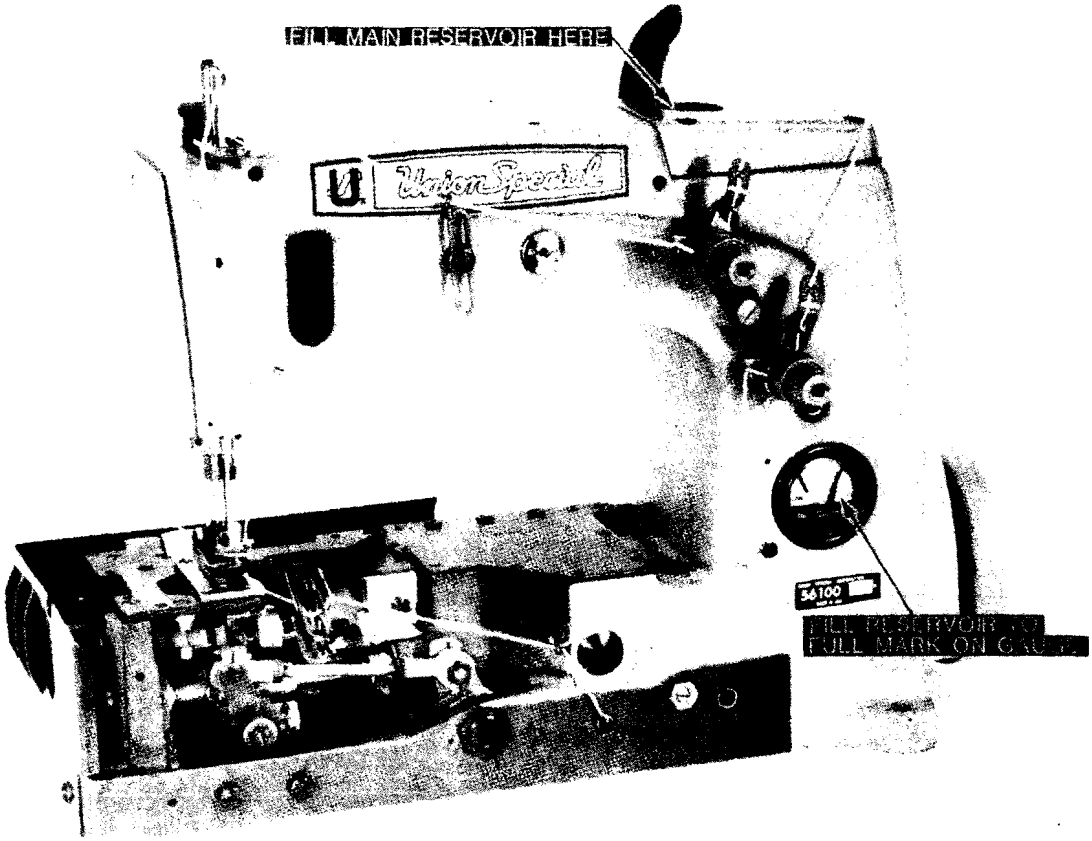
NEEDLES

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.

Recommended needle for Style 56100 M is Type 144 G. It has a round shank, round point, No. 2 bag length, double groove, spotted, short point, chromium plated, and is available in sizes - 054, 200/080, 230/090, 250/100.

Selection of proper needle size is determined by size of thread used. Thread should pass freely through needle eye in order to produce a good stitch formation.

To have needle orders promptly and accurately filled, an empty package,a sample needle, or the type and size number should be forwarded. Use description on label. A complete order would read: "1000 Needles, Type 144 G, Size 200/080".



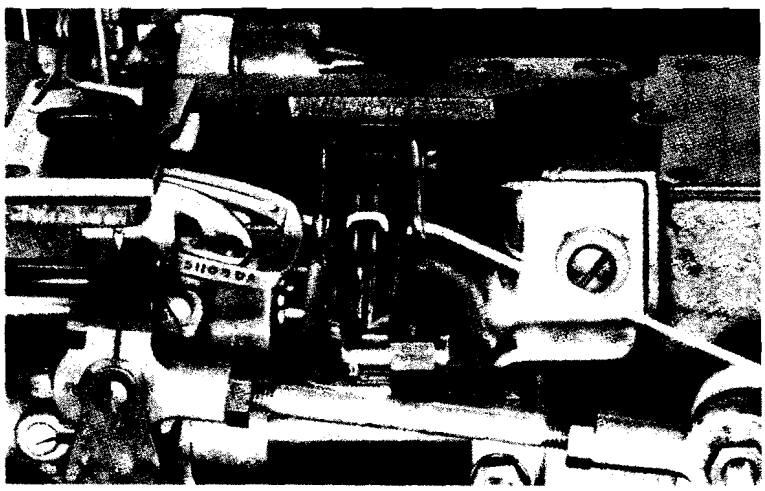


Fig. 1

THREADING AND OILING DIAGRAM FOR STYLE 56100 M

Thread machine as indicated above. The looper threading has been enlarged for clarity.

The oil has been drained from the machine before shipping and the reservoir must be filled before starting to operate. Maintain oil level in "OPERATE" position and add oil when needle is to the black line located to the left of the "OPERATE" zone marked "LOW". The machine is automatically lubricated and no oiling other than keeping the main reservoir filled is necessary. For further lubricating instructions refer to paragraph on "LUBRICATION".

CAUTION

THIS SAFETY SYMBOL INDICATES YOUR PERSONAL SAFETY IS INVOLVED.

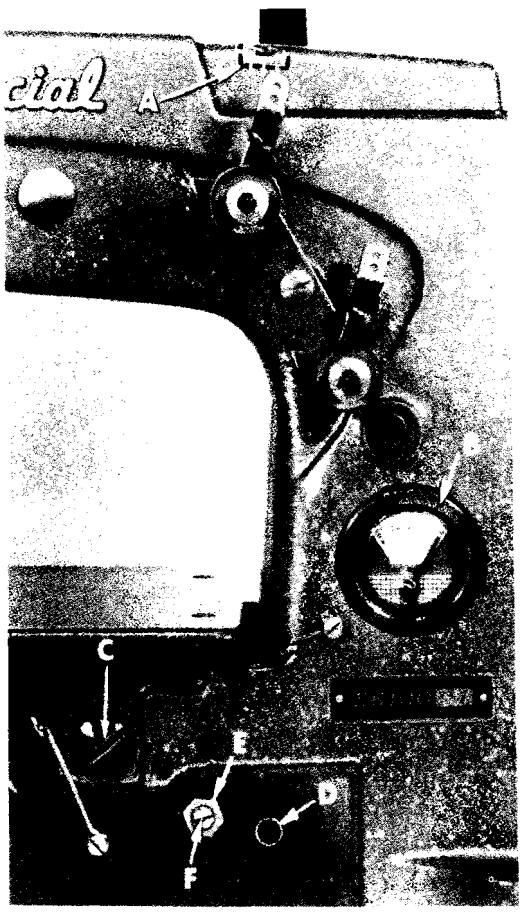
TO PREVENT PERSONAL INJURY:

- 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. 2). 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 safetly 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.

OIL GAUGE CALIBRATION

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

- Set machine upright on a level surface.
- Remove plug screw (C, Fig. 2) and tip machine forward to drain all oil from reservoir.
- Remove lower crank chamber cover on back of machine.
- Fill oil 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".

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

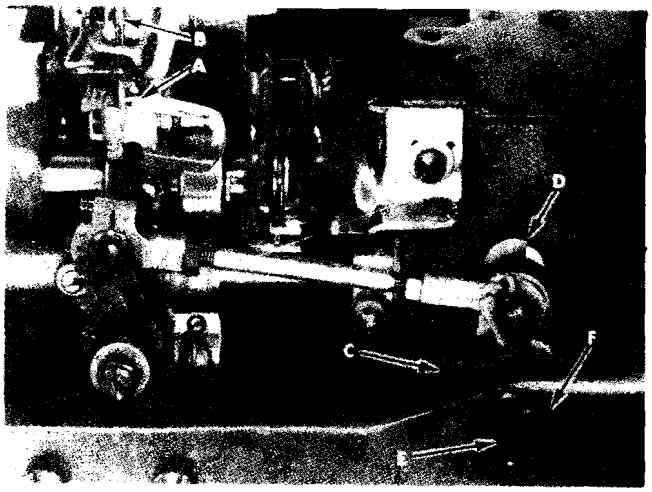


Fig. 3

Turn handwheel in the operating direction until the point of the looper (A, Fig. 3) moving to the left, is even with the left side of needle (B). Note the height of the eye of the needle with respect to the looper point (See Fig. 4). 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 needle (See Fig. 4). 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. 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.

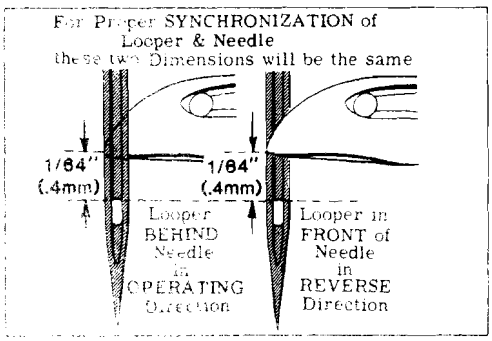


Fig. 4

NOTE: The 1/64 inch (.4mm) dimension shown in Fig. 4 is for final setting of needle bar height.

Adjust looper drive rocker lever shaft as follows:

Loosen screw (C, Fig. 3) 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 the looper at extreme right end of travel, check location of the right looper connecting rod bearing using gauge No. 21227 CX. Remove nut (A, Fig. 5) and place hole of gauge over threaded stud. The left end of gauge should locate against the RIGHT side of looper rocker cone (B). If adjustment is necessary, loosen clamp screw (C) and reposition looper drive lever (D) as required, then tighten screw (C).

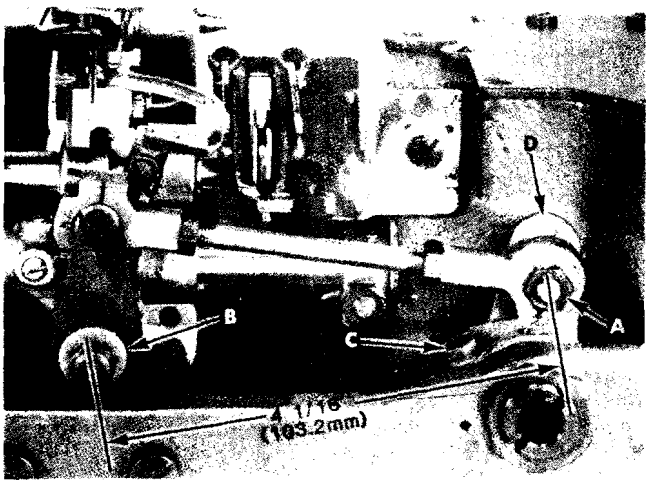


Fig. 5

If gauge 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. 5;when looper is at its extreme right end of travel.

LOOPER AND LOOPER NEEDLE GUARD SETTINGS

Insert a new needle, type and size specified. Looper gauge is 5/32 inch (4.0mm) which is the distance from point of looper (A, Fig. 6) to centerline of needle (B) when looper is at extreme right end of its travel. Looper gauge No. 21225-5/32 (C) is available for this setting. 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 specified dimension. Hold connecting rod in position and tighten nut (E), then nut (D). NOTE: Be sure that the left ball joint is in a vertical position and does not bind after adjustment.

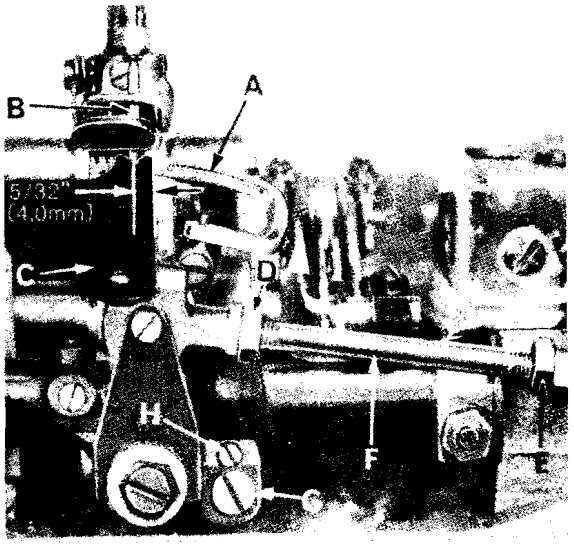


Fig. 6

While turning handwheel in operating direction and the looper (A, Fig. 7) moves to the left, its point should be set to brush but not pick at rear of needle (B). Adjustment can be made by loosening screw (G, Fig. 6), turn stop screw (H) 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 (G) after adjustment has been made and recheck movement of looper.

Looper needle guard (attached to looper) should be set to barely contact the front of needle without deflecting as looper moves to left.

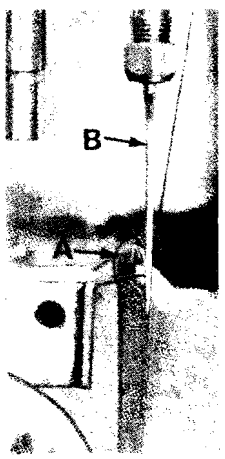


Fig. 7

NEEDLE BAR HEIGHT

Turn handwheel to position point of looper flush with the left side of needle.

Height of needle bar (A, Fig. 8) is correct when the top of the eye of needle (B) is 1/64 inch (.4mm) below the underside of looper as shown in Fig. 4.Adjustment can be made by loosening screw (C, Fig. 8), move needle bar (A) up or down as required, retighten screw.

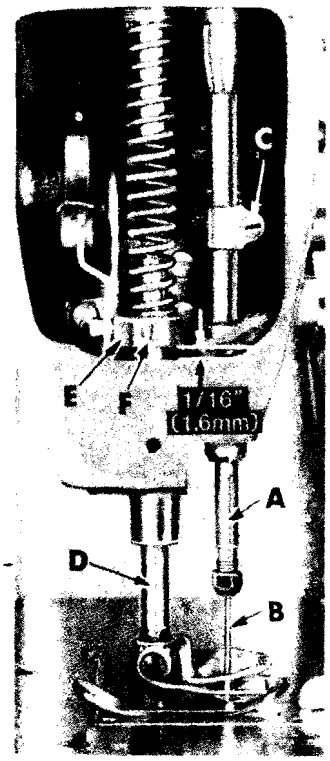


Fig. 8

FEED DOG SETTINGS

Feed dog (A, Fig. 9) should be centered in throat plate (B)with equal clearance on all sides and ends with feed travel set to desired stitch length. At highest point of travel, tips of feed dog teeth should extend the depth of a tooth or approximately 3/64 inch (1.2mm) above throat plate and parallel to same. Screw (C) should be set to support feed dog after screw (D) has been loosened which secures feed dog in position.

Parallel adjustment can be made by loosening nut(A, Fig. 10) and turn screw (B) clockwise to lower front of feed dog, counterclockwise acts the reverse. When properly set, retighten nut (A).

Right to left adjustment can be made by loosening screws (A, Fig. 11) and slightly move feed rocker (B) on feed rocker shaft (C) as required, then retighten screws. Check to ensure that feed rocker arm (D) does not bind after adjustment.

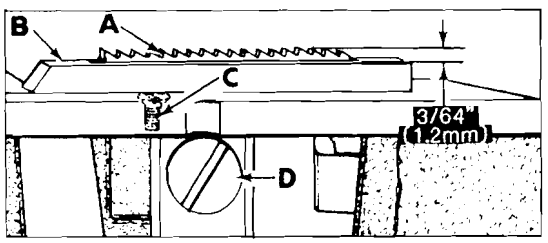


Fig. 9

Forward or rearward centering of feed dog can be accomplished by loosening nut (E, Fig. 11), move feed rocker (B) as required and retighten nut.

CHANGING STITCH LENGTH

Set the stitch to required length.This is accomplished by loosening lock nut(F, Fig.11) 1/2 turn, (it has a left hand thread) on the end of the stitch regulating stud and turning stitch adjusting screw (G) located under the left end of the cloth plate in the head of the mainshaft (H), which is marked with "L" and "S". Turning the screw in a clockwise direction shortens the stitch (moves stitch regulating stud toward the "S") and turning it in a counterclockwise direction lengthens the stitch (moves stitch regulator stud toward the "L"). Retighten the lock nut securely. To prevent destructive damage to the feed drive bearing, key screw (J) must engage the "U" shaped key slot in ferrule (K).

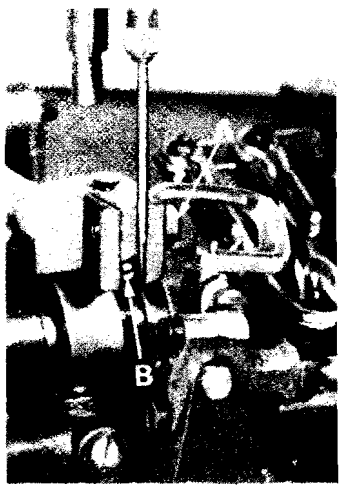


Fig. 10

The feed rocker assembly may require lubrication and repair after years of operation. This can be accomplished as follows: Loosen nut (E, Fig. 11) and remove nut (F). Remove feed rocker arm (D) from machine by rocking slightly. Loosen screws (A) and remove stop collar on right end of shaft (C). Shaft can now be withdrawn. Loosen Allen screw (L) and remove shaft (M). Now repack bearings.

When packing bearings, parts must be clean and [illegible] used directly from the tube to avoid contamination. [illegible] part No. 28604 P. Greased bearings are located at (L, P, [illegible]. Grease sealed bearings are replaced, they should be pressed to flush with the [illegible]. To assemble, start tapered end of shafts first, twisting slightly when entering the grease seals to prevent damage. Check for proper adjustment of feed dog as described under the "Feed Dog Settings". Also check to see that there is no binding at any point.

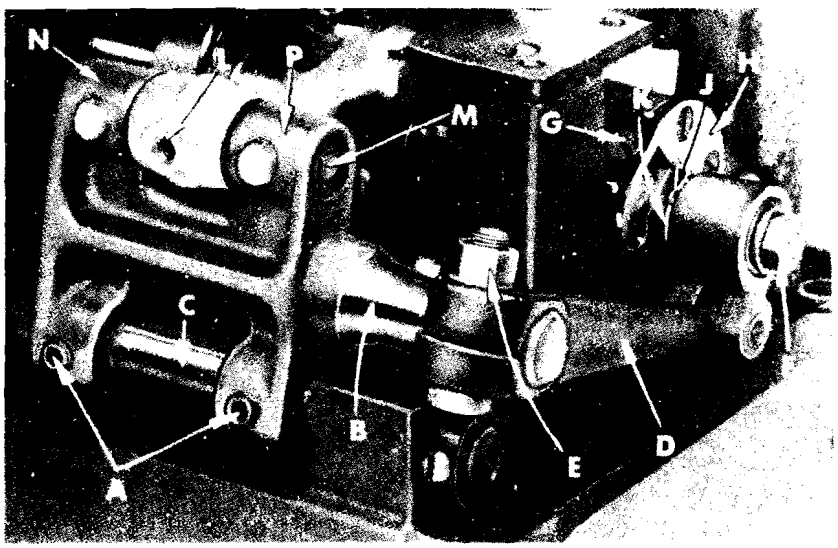


Fig. 11

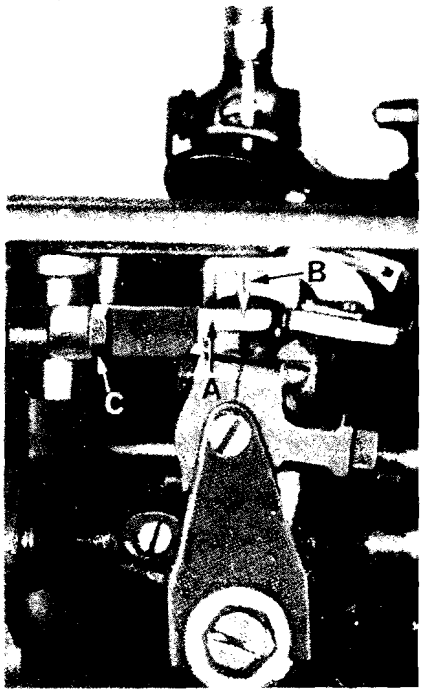


Fig. 12

REAR NEEDLE GUARD

Set rear needle guard (A, Fig. 12) horizontally so that it does not quite contact the rear of needle (B). A clearance of .005 inch (.127mm) is permissible. It should be set vertically so that its vertical face is even with the top of the needle eye, with needle bar in low position. To adjust needle guard, loosen clamp screw (C), move the needle guard on its holder as required and retighten screw. Stitch length can be changed without a change in the rear needle guard because it is not attached to the feed bar.

THREADING

Draw looper and needle threads into the machine and start operating on a piece of fabric. Refer to threading diagram (Fig. 1) for manner of threading this machine.

LOOPER THREAD CAST-OFF WIRE

Looper thread cast-off wire (A, Fig. 13) located on the take-up shield (B) controls the amount of slack thread in the system and can be moved to any position. It should be set laterally so that it is midway between the two discs of take-up (C) and the tip parallel with the discs.

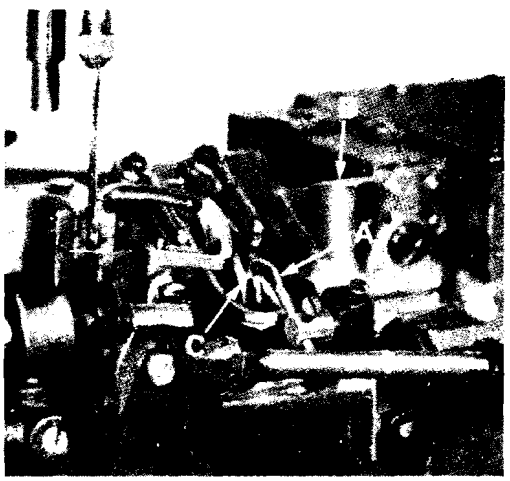


Fig. 13

It is usually set toward the take-up to almost the limit of its slot so that it barely clears the highest point of the take-up. The height and lateral adjustment of the retainer affects the control of looper thread as looper moves to the left. Ordinarily it will be set in approximately a horizontal position. More looper thread is given to the stitch when the retainer is raised and set towards the take-up. However, if the retainer is raised too high, the looper thread triangle may be wiped under the blade of the looper, causing traingle skips or pulled down stitches. This can be checked by observing the action of the looper thread as the looper moves to the left.

THREAD TENSIONS

Tension on the needle thread should be only sufficient to produce uniform stitches on the under surface of the fabric. Tension on the looper thread should be just sufficient to steady the thread.

PRESSER BAR HEIGHT

Height of presser bar (D, Fig. 8) is set correctly if it is possible to remove the presser foot when the foot lifter lever, located at the back of the machine and extending above the upper crank chamber cover is fully actuated (pulled to the right). There should be approximately 1/16 inch (1.6mm) clearance between lower surface of the presser bar connection and guide (E) and bottom surface of head opening in the bed when foot lifter lever is released and presser foot lying flat on the 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 (F) and while holding presser foot down on throat plate, position presser bar connection and guide as required to attain specified clearance and retighten screw.

PRESSER FOOT PRESSURE

Regulate the presser spring regulating screw (A, Fig. 14) 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.

SETTING NEEDLE THREAD GUIDE AND FRAME EYELET

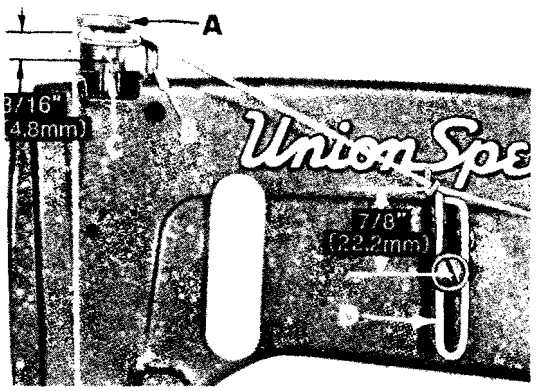


Fig. 14

Turn handwheel in operating direction until the needle bar reaches its lowest position. Set needle thread take-up wire (B, Fig. 14) so that its thread contact surface is approximately 3/16 inch (4.8mm) above the center of the needle bar thread eyelet (C). Lower this setting for a smaller needle thread loop, raise for a larger loop. Set needle thread frame eyelet (D) so that it is approximately 7/8 inch (22.2mm) above centerline of its attaching screw (Fig. 14).

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 of connecting rods, links, screws, etc., are shown on part 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. 15) 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.

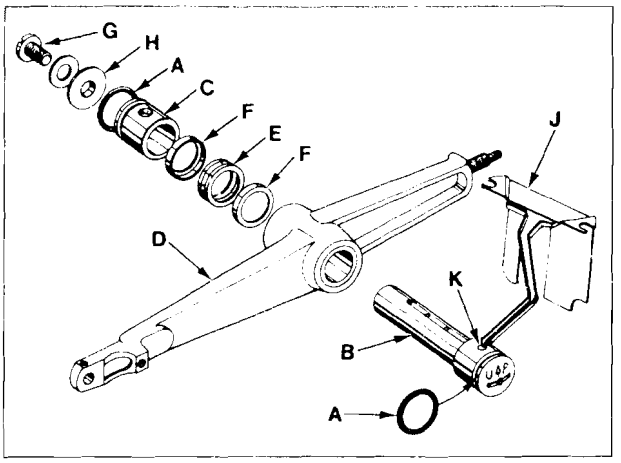


Fig. 15

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 tighening 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).

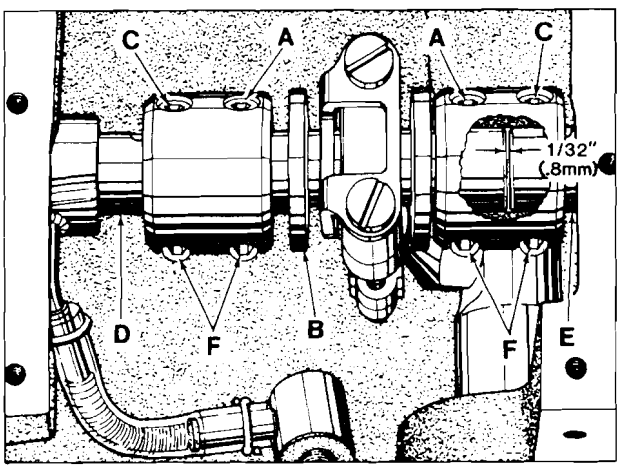


Fig. 16

ALIGNING MAINSHAFT TO CRANKSHAFT

As viewed looking down from rear of machine, spot screws (A. Fig. 16) 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).

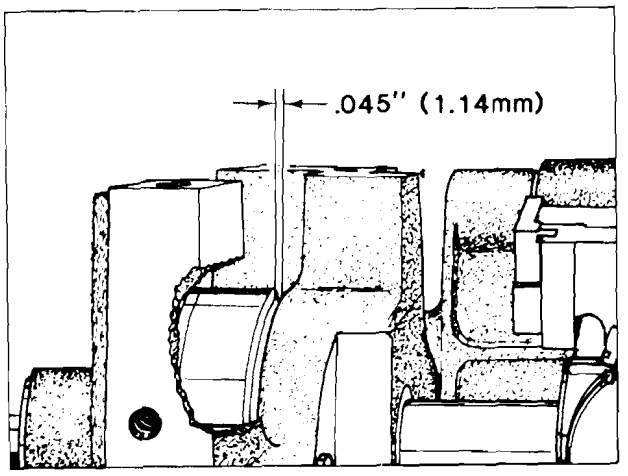


Fig. 17

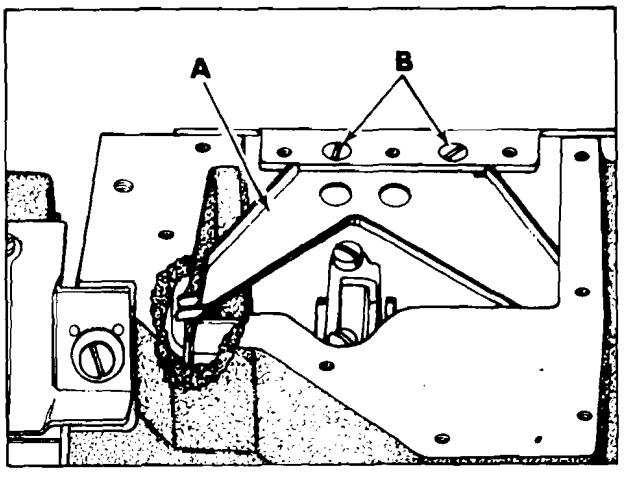


Fig. 18

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. 17.

Looper drive crank (B, Fig. 16) must be positioned laterally with 1/32 inch (.8mm) clearance between it and mainshaft (E) as shown in Fig. 16. 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 - 24cm/kg).

The oil drip plate (A, Fig.18) 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.

Before this machine left the factory it was adjusted and inspected to give you the utmost satisfaction and durability at all times. If, however, the machine has been readjusted and is not sewing properly, see the chart below for suggestions which may prove beneficial to you.

SKIPPED STITCHES

Condition	Causes	Cures
Needle loop too small	Frame needle thread guide set too low	Raise frame needle thread guide slightly.
	Needle thread stretched at bottom of stroke, loop not formed till stretch relieved	Lower frame thread eyelet and/or reduce needle tension
	The needle thread creased because it is too tight and needle is hot	Use oversize ball eye needle, lower frame needle eyelet, reduce tension
	Needle thread pinched by needle guard, collapsing needle loop	Drop needle guard slightly
	Thread twisting around needle	Keep needle loop as small as possible, keep needle thread tension to a minimum. Use a left twist thread
	Needle thread sticking in needle grooves, due to heat	Use lubricant on thread
	Needle does not rise enough to form needle loop properly	Increase looper gauge 1/64 to 1/32 inch
Looper misses needle loop as presser foot is coming off a seam	Material is not held down in front of seam and is flagging	See if presser bar is sticking
	Needle deflecting towards operator	Use sharp point needle
Needle loop formed properly but brushed out of the way by looper	Needle bar set too high	Lower needle bar slightly
Looper misses needle loop when operator is trying to match seams or ends	Needle deflecting toward operator who may be holding back on material while matching seams or ends of garment	Do not hold back excessively on material. Properly adjust feed and maintain a proper feeding pressure on foot so operator does not hold back
Needle misses triangle on looper thread side	Looper thread too loose, not making a good triangle	Increase looper thread tension
	Needle being deflected to the rear by burr on needle point or due to operator pulling on material, or needle glancing off when coming on a seam	Do not pull material at the back. Use a sharp needle to stop needle from glancing off seam. Check needle for burr

NOTE: More detailed information concerning the double locked stitch (stitch type 401) is available under "Stitch Formation, Type 401".

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 number of pieces required in the particular view being shown.

Numbers in the first column are reference numbers only, and merely indicate the position of that part in the illustration. Reference 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:

48	29105 AK	Crank Assembly, looper driving lever	1
49	22587 K	Screw, bearing cap (upper)	2
50	56343 C	Guide, ball joint	1
51	56343 E	Splasher, oil	1
52	22559 A	Screw, bearing cap (lower)	2

It will be noted in the above example that the eccentric, ball stud, 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.

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 REPAIR PARTS

Success in the operation of these machines can be secured only with genuine UNION SPECIAL 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.

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.

EXPLODED VIEWS

AND

DESCRIPTION OF PARTS

Union Special
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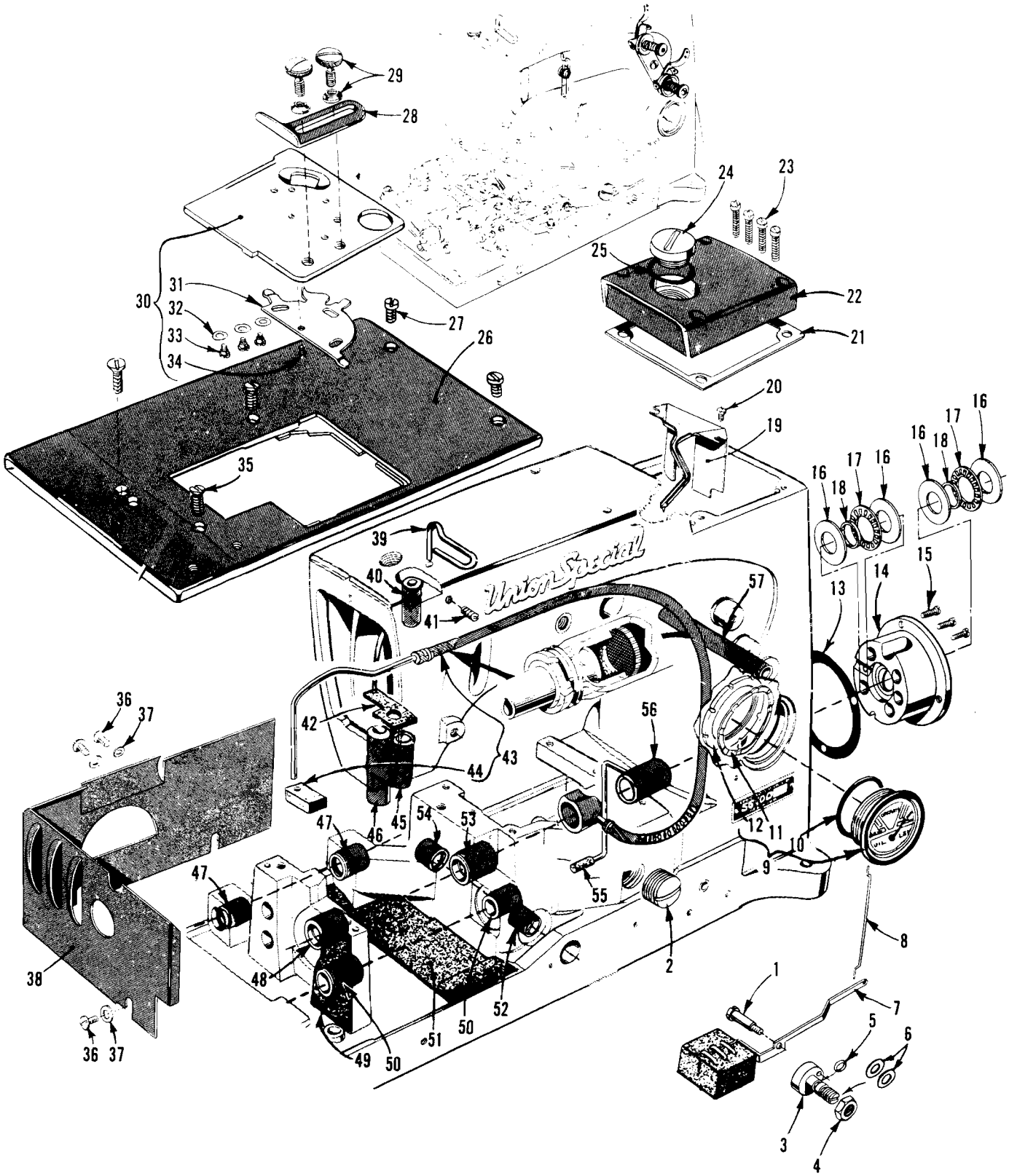
MAIN FRAME, CAST-OFF PLATE AND MISCELLANEOUS COVERS

Ref. No.	Part No.	Description	Amt. Req.
1	22829	Screw	2
2	21375 AV	Guard, belt	1
3	98 A	Screw	2
4	52 A	Eyelet, frame looper thread	1
5	22593	Screw	2
6	51158 D	Eyelet, take-up	2
7	51104 F	Wire, cast-off	1
8	50-216 Blk.	Pin, dowel	2
9	51157 H	Support, cast-off wire	1
10	21657 E	Washer	1
11	22528	Screw	1
12	J87 J	Screw	2
13	77	Screw	1
14	51204 C	Support, auxiliary cast-off	1
15	51104 H	Cast-off, auxiliary	1
16	51204 A	Support, cast-off wire	1
17	22798 A	Screw	1
18	51204	Wire, cast-off	1
19	52958 B	Eyelet, frame looper thread	1
20	25 S	Screw	2
21	51482 A	Guard	1
22	22569 C	Screw	2
23	56382	Cover, head	1
24	56382 A	Felt	1
25	56382 N	Gasket	1
26	22585	Screw	1
27	56393 D	Clamp, head oil tube	1
28	7947	Nut	1
29	56393 C	Block, head oil tube mounting	1
30	35731 A	Plate, presser bar connection guide	2
31	51294 R	Screw	1
32	660-342	Lockwasher	1
33	22513	Screw	3
34	95	Screw, plug	1
35	660-694	Gasket, needle lever eyelet	1
36	22889 A	Screw, adapter	1
37	539	Eyelet, frame needle thread	1
38	20	Washer	1
39	22848	Screw	1
40	22894 E	Screw, needle lever thrust collar and stud	2
41	56382 E	Gasket	1
42	56382 D	Cover, lower crank chamber	1
43	22548	Screw	4
44	56382 H	Gasket	1
45	56382 G	Cover, top oil reservoir	1
46	22524	Screw	8
47	22585 A	Screw	3
*48	22839	Screw, throat plate support	3
49	51124 D	Throat Plate	1
50	87	Screw	2
51	56180 B	Support, throat plate	1
52	51280 J	Pin, dowel	2
53	22570 A	Screw	1
54	56168	Holder, needle guard	1
55	51125 E	Guard, needle	1
56	906	Screw	1
57	22829	Screw	2
58	56382 J	Cover, looper drive shaft	1
59	56382	Gasket	1
60	59493 A	Pump Assembly, oil, base	1
61	666-214	Felt	1
62	22848	Screw	9
63	56382 AA	Cover, back, oil reservoir	1
64	56382 L	Gasket	1
65	56382 Y	Block, clamping	1
66	56382 AB	Plate, oil drip	1
67	22524	Screw	2

* For old Style 56180 A, use countersunk head screw No. 80.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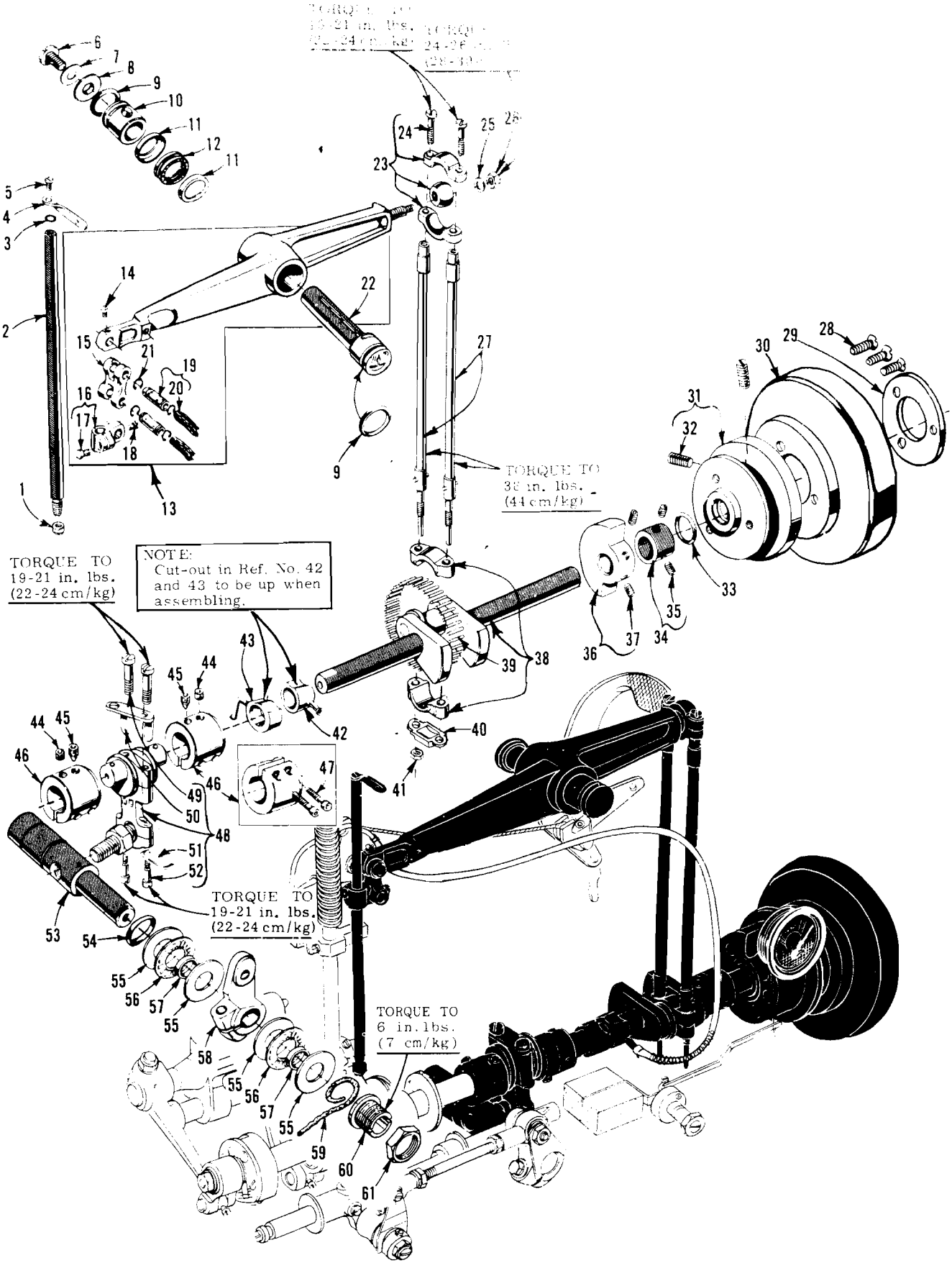
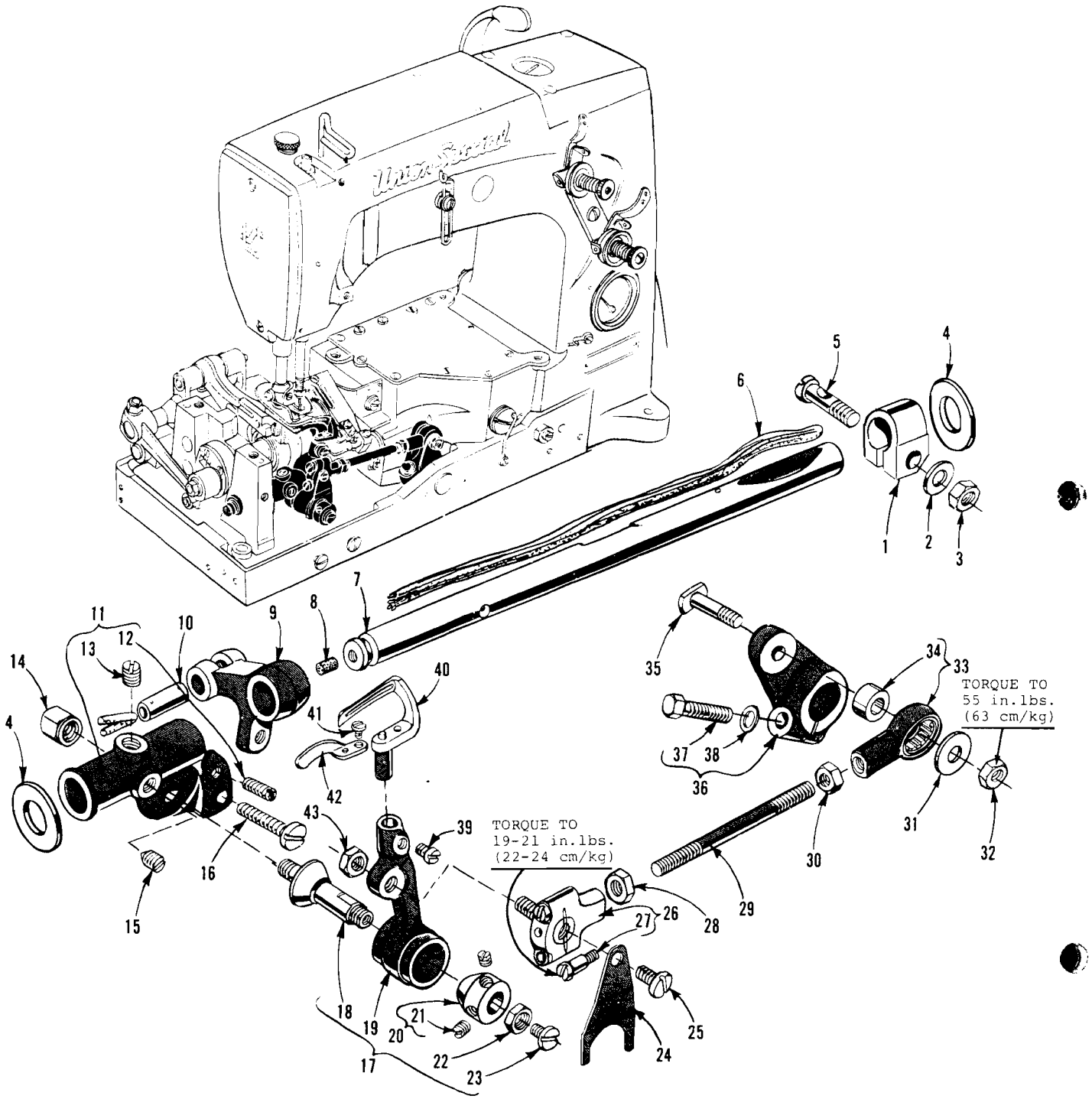
MAIN FRAME, BUSHINGS, OIL GAUGE AND MISCELLANEOUS OILING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	22793	Screw	1
2	22539 R	Screw, plug	1
3	56394 A	Shaft, oil gauge adjusting	1
4	11635 B	Nut	1
5	660-221	"O" Ring	1
6	61256 G	Washer	2
7	56394 C	Float Assembly, oil gauge	1
8	56394 B	Rod, oil gauge connecting	1
9	63494 K	Gauge Assembly, oil	1
10	660-455	Ring, oil	1
11	63494 G	Washer, spring	1
12	63494 F	Nut	1
13	56390 E	Gasket	1
14	57890 B	Housing, crankshaft bushing, includes bushing	1
15	22569 B	Screw	3
16	56390 H	Washer, thrust	4
17	660-665	Bearing, needle, thrust	2
18	56390 J	Ring, pilot	2
19	56382 AC	Plate, oil and baffle	1
20	90	Screw	2
21	56382 C	Gasket	1
22	56382 B	Cover, upper crank chamber	1
23	22541 C	Screw	4
24	22733 E	Screw, plug	1
25	56382 M	Gasket	2
26	56301	Cloth Plate	1
27	22839 C	Screw	2
28	24 X	Guide, edge	1
29	25	Screw	2
30	56381-219	Cover, cloth plate	1
31	51281 AC	Spring	1
32	35772 H	Washer, spring	3
33	22760 A	Screw	3
34	22845 B	Screw	1
35	80	Screw	3
36	22848	Screw	3
37	20	Washer	3
38	51282 AH	Shield, oil, end and back	1
39	56170	Wire, needle thread take-up	1
40	51154 E	Bushing, needle bar (upper)	1
41	95	Screw	1
42	56393 W	Pad, felt	1
43	56393 T	Pump Assembly, oil, head	1
44	56393 L	Felt	1
45	56154	Bushing, needle bar (lower)	1
46	51257 AA	Bushing, presser bar (lower)	1
47	57836 B	Bushing, feed rocker shaft	2
48	56390	Bushing, mainshaft (left)	1
49	666-259	Felt	1
50	50-895 Blk.	Bushing, looper rocker shaft	2
51	56193 A	Felt, machine base (front)	1
52	52942 W	Bushing, looper drive lever shaft (front)	1
53	56190	Bushing, mainshaft (intermediate)	1
54	57842 B	Bushing, looper drive lever shaft (rear)	1
55	35897 BV	Filter, oil intake	1
56	56390 G	Bushing, mainshaft (inner right)	1
57	21657 X	Bushing, tension release lever shaft	1


TORQUE TO
19-21 in. lbs.
(22-24 cm/kg)
NOTE:
Cut-out in Ref. No. 42
and 43 to be up when
assembling.
TORQUE TO
38 in. lbs.
(44 cm/kg)
TORQUE TO
19-21 in. lbs.
(22-24 cm/kg)
TORQUE TO
6 in. lbs.
(7 cm/kg)

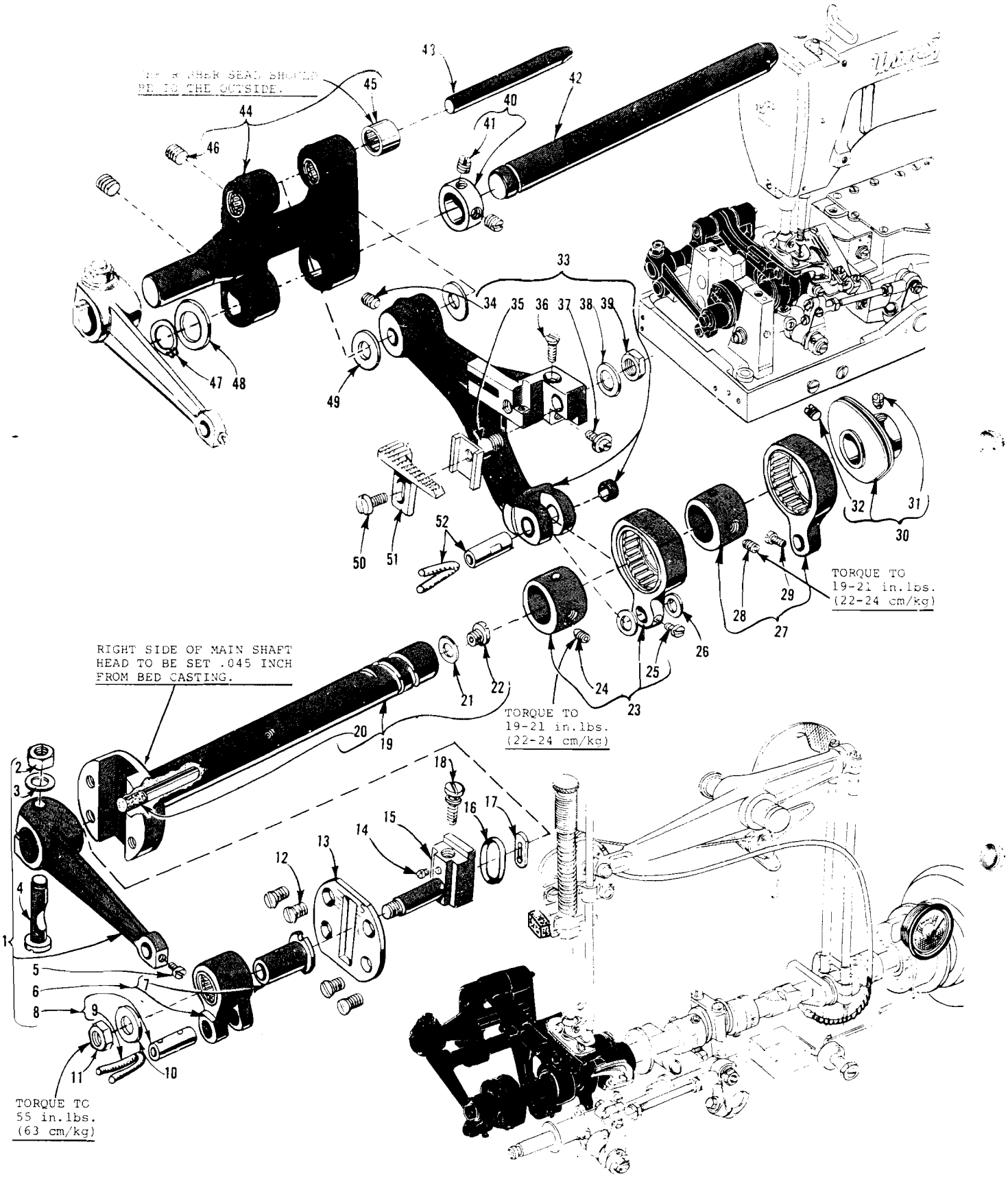
CRANKSHAFT, NEEDLE LEVER AND LOOPER DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	56	Nut	1
2	51217 C	Needle Bar	1
3	27-435 Blk.	Washer, needle bar eyelet	1
4	56358	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	"O" Ring	2
10	56350 E	Collar, needle lever thrust	1
11	56350 F	Cup, compression	2
12	660-614	Ring, temper load	1
13	29348 AF	Lever Assembly, needle	1
14	77	Screw	1
15	56354 D	Link, connecting	1
16	51254 K	Connection, needle bar	1
17	22562 A	Screw	1
18	22564	Screw	1
19	52336 A	Pin, link	2
20	WO-3	Yarn	2
21	660-215	Ring, retaining	4
22	56350 D	Stud, needle lever	1
23	29066 R	Ball joint, needle lever (upper)	1
24	22599 G	Screw	2
25	51216 N	Washer	1
26	51216 P	Nut	1
27	56316	Connecting Rod, needle lever	2
28	22574	Screw	3
29	61321 L	Plate, retaining	1
30	57821	Handwheel	1
31	56321 N	Pulley	1
32	22894 AB	Screw	2
33	660-202	"O" Ring	1
34	57847	Collar, thrust	1
35	95	Screw	2
36	51247	Counterweight	1
37	22894 J	Screw	2
38	29476 LN	Crankshaft Sub-Assembly, .990 inch (25.15mm) throw	1
39	51216 M-625	Bearing, needle, .0625 inch (1.588mm) diameter	28
-	51216 M-626	Bearing, needle, .0626 inch (1.590mm) diameter	28
-	51216 M-627	Bearing, needle, .0627 inch (1.593mm) diameter	28
40	56316 C	Guide, connecting rod	1
41	12934 A	Nut	1
42		Pump, oil, head (See Ref. No. 43 Page 19)	1
43		Pump, oil, base (See Ref. No. 60 Page 17)	1
44	22894 C	Screw, set	2
45	22894 D	Screw, spot	2
46	56343 F	Coupling	2
47	22653 L-8	Screw	2
48	29105 AK	Crank Assembly, looper driving lever	1
49	22587 K	Screw, bearing cap (upper)	2
50	56343 C	Guide, ball joint	1
51	56343 E	Splasher, oil	1
52	22559 A	Screw, bearing cap (lower)	2
53	52942 AA	Shaft, looper drive rocker	1
54	660-202	"O" Ring	1
55	56390 H	Washer, thrust	4
56	660-665	Bearing, needle thrust	2
57	56390 J	Ring, pilot	2
58	56342 E	Lever, looper drive, marked "D"	1
59	CL-21	Wick, oil	1
60	52942 AC	Screw, thrust synchronizing adjusting	1
61	56342 D	Nut	1


TORQUE TO
19-21 in.lbs.
(22-24 cm/kg)
TORQUE TO
55 in.lbs.
(63 cm/kg)

LOOPER ROCKER AND CONNECTING ROD PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	51244 N	Collar, looper rocker shaft	1
2	51216 N	Washer	1
3	18	Nut	1
4	51244 L	Washer, thrust	2
5	55244 G	Stud	1
6	WO-3	Yarn	as required
7	57744	Shaft, looper rocker	1
8	C067 E	Cork	1
9	56344 B	Arm, looper rocker shaft	1
10	51236 A	Pin, link	1
11	56344 C	Frame, looper rocker	1
12	719	Screw, stop	1
13	98	Screw, set	1
14	51246	Nut	1
15	96	Screw, spot	1
16	22874	Screw, lock	1
17	29192 V	Rocker Assembly, looper	1
18	51745	Stud, rocker cone	1
19	56313	Rocker, looper, marked "S"	1
20	15465 F	Cone, looper rocker	1
21	88	Screw	2
22	258 A	Nut, check	1
23	22829	Screw	1
24	56393 J	Oiler, looper connecting rod ball joint (left)	1
25	87 U	Screw	1
26	57841	Ball Joint, looper connecting rod (left)	1
27	22729 C	Screw	2
28	269	Nut, left hand thread	1
29	35741 A	Connecting Rod, looper	1
30	18	Nut, right hand thread	1
31	20	Washer	1
32	18	Nut	1
33	29476 LV	Bearing Assembly, looper connecting rod (right)	1
34	56341 F	Ferrule	1
35	52942 R	Stud, looper lever	1
36	56342 E	Lever, looper drive, marked "D"	1
37	22882 C	Screw	1
38	51242 M	Washer	1
39	73	Screw, looper	1
40	51108 DA	Looper	1
41	73 A	Screw	1
42	51110 D	Guard, looper needle	1
43	18	Nut	1


RUBBER SEAL SHOULD BE TO THE OUTSIDE.
RIGHT SIDE OF MAIN SHAFT HEAD TO BE SET .045 INCH FROM BED CASTING.
TORQUE TO 19-21 in.lbs. (22-24 cm/kg)
TORQUE TO 19-21 in.lbs. (22-24 cm/kg)
TORQUE TO 55 in.lbs. (63 cm/kg)
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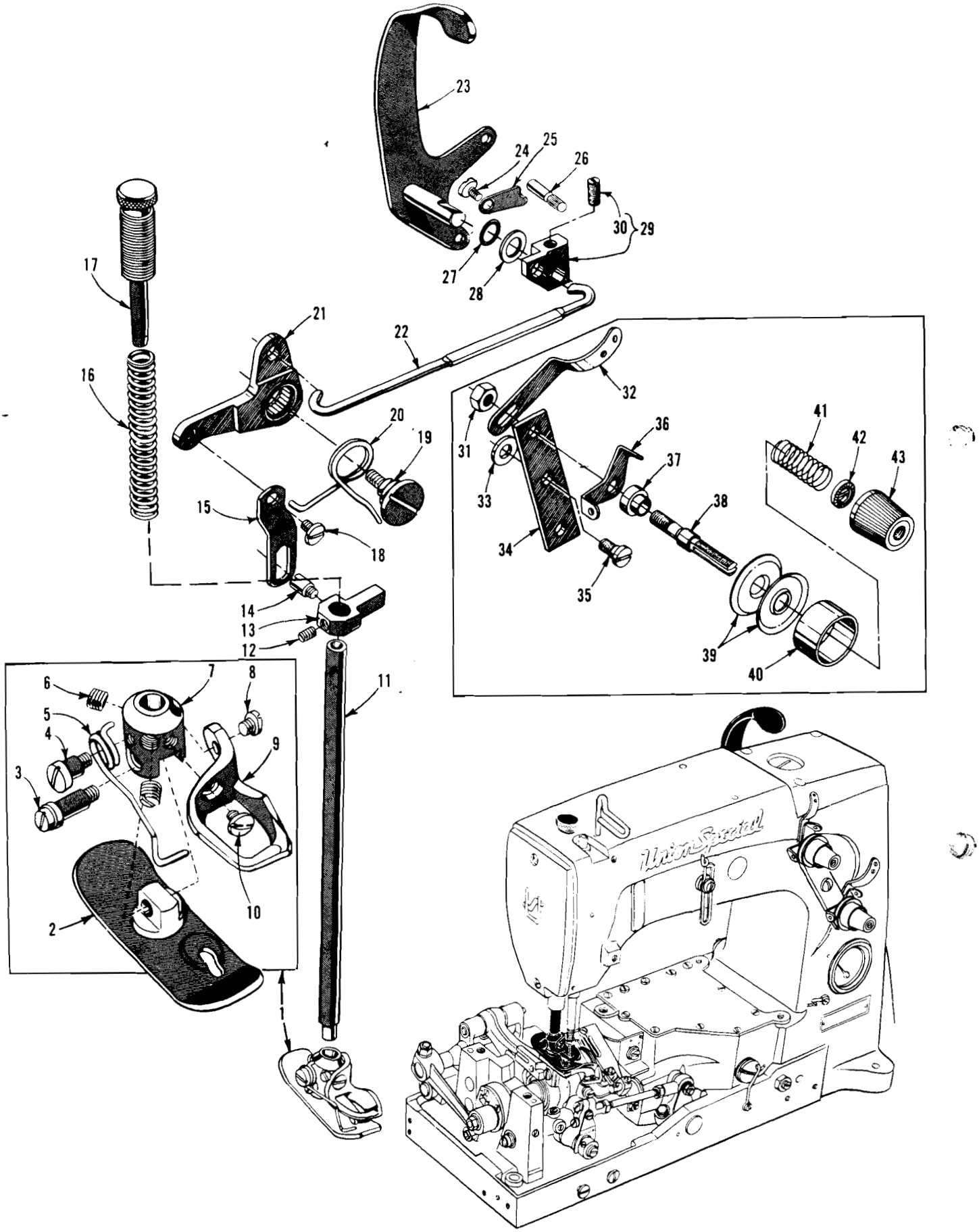
MAINSHAFT AND FEED DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	29476 MJ	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	77	Screw	1
6	56336 B	Link, feed crank	1
7	56336 C	Ferrule, feed crank link	1
8	51054	Pin, link	1
9	660-149	Wick, oil	1
10	21657 E	Washer	1
11	269	Nut, left thread	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	660-269 B	Ring, quad	1
17	56336 D	Insert, feed crank stud	1
18	22543 B	Screw, stitch regulating	1
19	56122 A	Mainshaft	1
20	51-173 Blk.	Plug, oil	1
21	56322 B	Gasket	1
22	22891 B	Screw	1
23	29476 NM-140	Eccentric Assembly, feed lift	1
24	22894 AA	Screw	1
25	77	Screw	1
26	39543 N	Washer, feed bar thrust	2
27	29476 NM-096	Eccentric Assembly, looper avoid	1
28	22894 AA	Screw	1
29	77	Screw	1
30	56123	Take-up, looper thread	1
31	22764 C	Screw, spot	1
32	22580 D	Screw, set	1
33	56334 N	Feed Bar	1
34	22651 CB-4	Screw	1
35	56334 L	Holder, feed dog	1
36	22637 P-24	Screw, height adjusting	1
37	22863 C	Screw, holder adjusting	1
38	6042 A	Washer	1
39	258 A	Nut	1
40	56335 D	Collar, feed rocker shaft	1
41	98	Screw	2
42	56335 L	Shaft, feed rocker	1
43	56334 B	Shaft, feed bar	1
44	56335 G	Rocker, feed	1
45	660-359	Bearing, needle, with seal	2
46	22651 CD-4	Screw	2
47	660-438	Ring, retaining	1
48	41391	Washer	1
49	61341 J	Washer, feed bar	2
50	22528	Screw, feed dog	1
51	51105 G	Feed Dog, marked "RD"	1
52	51236 A	Pin, link	1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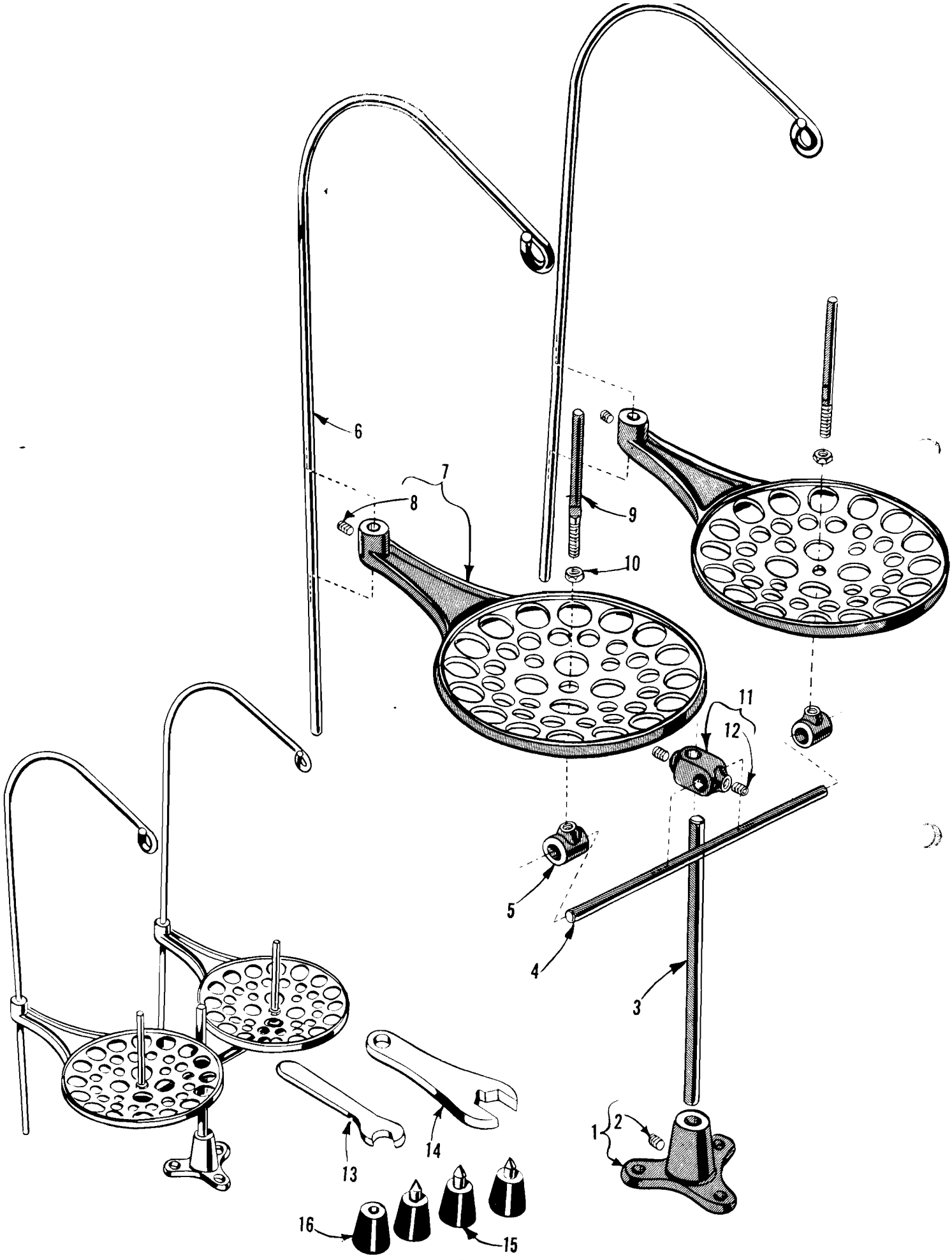
PRESSER FOOT, LIFTER LEVER AND THREAD TENSION PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	43120	Presser Foot	1
2	43130	Bottom, presser foot	1
3	22897	Screw	1
4	57 WD	Screw	1
5	15480 C	Spring	1
6	88	Screw	2
7	43130 A	Shank	1
8	22561	Screw	1
9	43130 B	Guard, finger	1
10	187 A	Screw	1
11	51257 K	Bar, presser	1
12	531	Screw	1
13	51257 M	Connection and Guide, presser bar	1
14	402	Screw	1
15	56383 A	Link, lifter lever	1
16	53787	Spring, presser	1
17	56356	Regulator, presser spring	1
18	22758 C	Screw	1
19	22557 G	Screw	1
20	56383 D	Spring	1
21	56383 AA	Bell Crank, presser foot lifter lever	1
22	56383 AB	Connecting Rod, presser foot lifter lever	1
23	51183 B	Lever, presser foot lifter	1
24	22758 C	Screw	1
25	51183 C	Latch, lever	1
26	50-703 Blk.	Pin, stop	1
27	660-207	"O" Ring	1
28	39552 C	Washer	1
29	53783 N	Lever, internal, presser foot lifter	1
30	22537	Screw	1
31	43266	Nut	1
32	51491 C	Guide, lead-in	2
33	80557	Washer, spacer	1
34	52892	Support, tension post	1
35	22872	Screw	1
36	51192 G	Eyelet, tension post	2
37	51192 B	Ferrule, tension post	2
38	56392 E	Post, tension	2
39	109	Disc, tension	4
40	56392 F	Shield, thread tension spring	2
41	51292 F-8	Spring, needle thread tension	1
-	51292 F-2	Spring, looper thread tension	1
42	39592 AK	Ferrule, tension spring	2
43	39592 Z	Nut, tension	2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THREAD STAND AND ACCESSORIES

Ref. No.	Part No.	Description	Amt. Req.
1	B21114 A	Base, thread stand	1
2	22651 CD-5	Screw	1
3	21104 B-9	Rod, thread stand	1
4	21104 B-11	Rod, thread stand	1
5	21104 E	Connection, spool support	2
6	21113 C	Wire, thread guide	2
7	21130 S	Support, cone	2
8	22650 CD-4	Screw	1
9	21104 G	Pin, spool	2
10	21104 H	Nut, spool pin	2
11	21104 C	Connection, rod	1
12	22650 CE-6	Screw	2
13	21388	Wrench, 3/8 inch (9.5mm) open end	1
14	116	Wrench, 9/32 inch (7.1mm) open end	1
15	51295 B	Isolator	3
16	51295 A	Isolator	1
-	660-457	Cover, dust, (not shown)	1
-	28604 R	Oil, 16 fl. oz., Spec. 175, (not shown)	1

NUMERICAL INDEX OF PARTS

NUMERICAL INDEX OF PARTS